



# Staff Report

PLANNING DIVISION

**To:** Salt Lake City Planning Commission  
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Noah Elmore, AICP, [noah.elmore@slc.gov](mailto:noah.elmore@slc.gov), 801-535-7971  
**Date:** August 12, 2026  
**Re:** PLNPCM2026-00161 (Planned Development) & PLNPCM2026-00255 (Conditional Use) – GEM Sugar House

## Planned Development & Conditional Use

**PROPERTY ADDRESS:** 2200 S Highland Drive and 2220 S Highland Drive

**PARCEL IDs:** 16-20-206-031-0000, 16-20-206-032-0000

**MASTER PLAN:** [Sugar House Plan](#) – Business District Mixed Use - Town Center Scale

**ZONING DISTRICT:** [MU-11](#) (Mixed Use 11)

### REQUEST:

Salt Lake City has received a request from Cazes Martin of Engine 8 Architecture on behalf of the developer, Gardner Group, for Planned Development and Conditional Use approval for a mixed-use building with a first-floor drive-through financial institution at 2200 S Highland Drive. The property is in the MU-11 (Mixed Use 11) zoning district. The proposed building is 16 stories with 139 residential units, 52 hotel units, and 9,000 sq. ft. of commercial space. The applicant is requesting Conditional Use and Planned Development approval for the drive-through use and modifications to the required open space.

### RECOMMENDATION:

Based on the findings in the staff report, planning staff recommends that the Planning Commission approve the Planned Development and Conditional Use applications subject to complying with all applicable regulations and the following conditions of approval:

1. Approval of administrative Design Review and Affordable Housing Incentives applications.
2. Final approval of the details for lighting, screening of mechanical equipment, screening of service areas, parking structure requirements, and public improvements shall be reviewed with the administrative Design Review.
3. The involved lots shall be consolidated through the Lot Consolidation process as per Chapter 20.32 of the Subdivisions and Condominiums ordinance.

4. Drawings documenting idle-free signs shall be submitted for zoning review prior to issuance of any building permit.
5. Drawings documenting a stop sign for the drive-through exit within five feet of the property line along a street shall be submitted for zoning review prior to issuance of a building permit.

## ATTACHMENTS:

- A. [ATTACHMENT A: Vicinity & Zoning Map](#)
- B. [ATTACHMENT B: Initial Submittal](#)
- C. [ATTACHMENT C: Revised Plan Set & Narrative](#)
- D. [ATTACHMENT D: Property and Vicinity Photos](#)
- E. [ATTACHMENT E: MU-11 Zoning Standards](#)
- F. [ATTACHMENT G: Standards for Drive-through Facilities and Stacking Areas](#)
- G. [ATTACHMENT H: Planned Development Standards](#)
- H. [ATTACHMENT I: Conditional Use Standards](#)
- I. [ATTACHMENT J: Public Process and Comments](#)
- J. [ATTACHMENT K: Department Review Comments](#)

## PROJECT DESCRIPTION



The proposal is for a 16-story building with a first-floor financial institution with drive-through (Zions Bank), retail and restaurant space, 52 hotel units, 139 residential units (30 studio units – 22%, 52 1-bedroom units – 37%,

### Quick Facts

**Height:** Max: 184'10" (16 stories)

**Number of Residential Units:** 139 units

**Number of Hotel Units:** 52

**General Commercial Uses:** 9,215 sq. ft.

**Lot size:** 28,107 square feet (0.65 acres)

**Ground Floor Uses:** Financial institution with drive-through and retail

**Upper Floor Uses:** Hotel units, amenity areas, residential units and restaurant

**Exterior Materials** (street facing facades): Glass, cast concrete columns, cast stone veneer, tensile mesh, and metal panels.

**Parking:** 164 stalls

**Review Process & Standards:** Planned Development and Conditional Use; Administrative Design Review, Affordable Housing Incentives and Lot Consolidation

46 2-bedroom units – 33%, and 11 3-bedroom units – 8%). The financial institution with drive-through requires approval of a Conditional Use in the MU-11 zoning district, and it must be reviewed by the Planning Commission because it both abuts a residential use and the proposal requires Planned Development approval. The Planned Development is required for the modifications to the required open space.

### **Associated Petitions**

In addition to the Planned Development and Conditional Use, the applicant has also submitted three applications that are being reviewed administratively:

- 1) Design Review: The applicant is requesting modifications through Design Review for the Lower Level Interior Stepback along a public trail, the Sugar House Lower Level stepback, the glazing requirements for the Highland Drive ground floor, and the additional stories allowed by the Affordable Housing Incentives.
- 2) Affordable Housing Incentives (AHI): This allows for up to three additional stories (12 ft. per story), with administrative Design Review, provided the affordability requirements are met. The MU-11 zoning district allows for buildings up to 125 feet in height, with heights up to 150 feet permitted in certain areas, including this part of Sugar House. With AHI, this increases the height permitted to 186 ft. The proposal will provide 5% of the residential units affordable to those with incomes up to 30% of the area median income. This meets the Type C incentives in Section [21A.52.050](#).
- 3) Lot Consolidation: There are two existing parcels that the applicant is in the process of consolidating to a single parcel.

In addition to these applications, in July 2026, the applicant submitted a zoning amendment application (PLNPCM2026-00612) requesting a development agreement to modify the affordability requirements. This proposal will be reviewed separately by the Planning Commission and City Council at a later date. At this point, the applicant wishes to move forward with the current proposal that identifies using the AHI to allow for the proposed height.

### **Site Context**

The subject property has a single-story building occupied by Zions Bank. The proposal is to redevelop the property and maintain the Zions Bank use on the first floor. The property is located at the northwest corner of Highland Drive and Sugarmont Avenue, which is a private street. To the north is Wilmington Avenue, which is also a private street. The S-Line streetcar extension is proposed to the south along Simpson Avenue. There are bus stops on Highland (Route 220), south of 2100 South, and at Simpson Avenue.

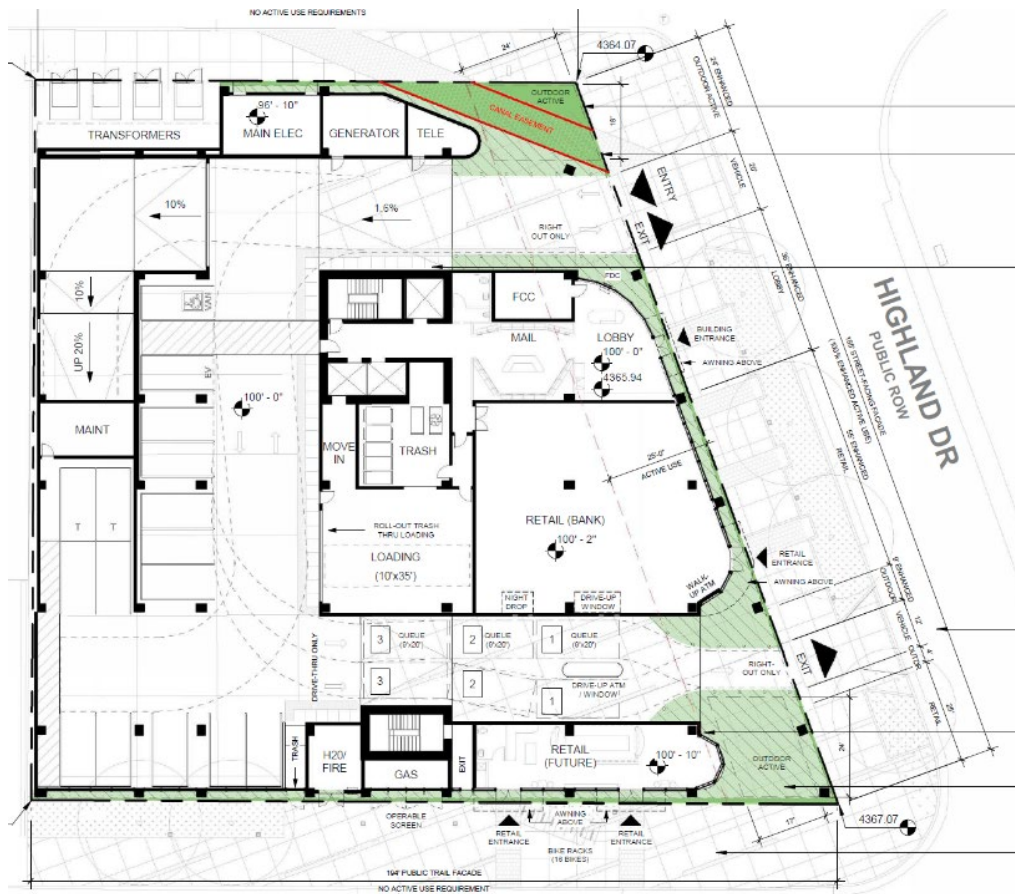
The surrounding properties are all zoned MU-11 (Mixed Use 11). To the north of the subject property is the Residences at Sugar Alley, which also has several first-floor commercial businesses. To the south is the former Deseret Industries building that is now owned by the Community Reinvestment Agency. To the east is a shopping center that includes a UPS Store and Tsunami, and to the west are the Sugarmont Apartments.

The Jordan and Salt Lake Canal runs through the northeast corner of this property. There is also an existing canal diversion structure near the intersection of Highland Drive and Wilmington Avenue.



*Subject property and vicinity*

## Site Plan and Building Elevations



*Architectural site plan*



The proposed 16-story building occupies nearly all of the site. The ground floor street-facing façade faces Highland Drive and includes access to parking, the lobby, financial institution with drive-through, and a retail space. Nearly all of the proposed “open space” is on this façade. A modification from the open space requirements is requested and discussed further in Key Consideration 2. The sidewalk on Highland Drive will be 15-16 ft. wide with an approximately 10’10” ft. park strip. There are two existing curb cuts and these will each be relocated slightly to the south as part of the proposal. There are four existing street trees, and, in their review, urban forestry noted that they would need to be preserved. The applicant has identified that they cannot be preserved and will need to work with urban forestry to meet their requirements.

The Wilmington and Sugarmont frontages are not public streets and are not subject to the same standards as the public street frontages. Parley’s Trail runs on the southern, Sugarmont Drive, frontage and along the eastern, Highland Drive, frontage then heads eastward at the intersection with Wilmington Drive.



*Highland Drive (east) elevation*

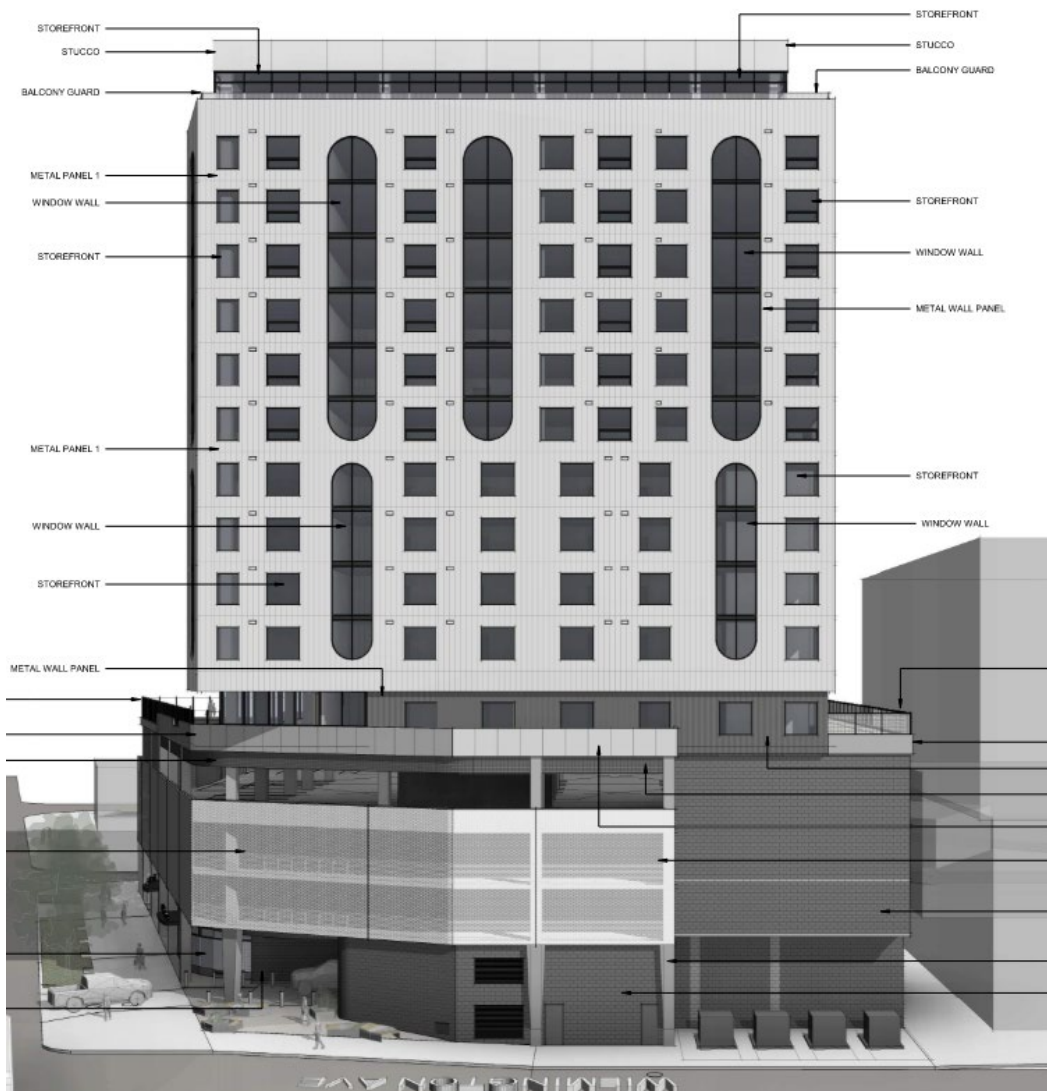
The ground level facing Highland Drive includes a small area set back at the northeast corner to accommodate the Jordan & Salt Lake Canal that runs under the property. This also provides a small open space area. The building is built close to the property line with cast concrete columns and the entries set back approximately three feet to allow for the opening of the doors on the property. There are storefront windows across most of the first floor with glass block near the lobby (a modification for the glass block is requested with the administrative Design Review) and fluted CMU block above them.

Architectural elevation drawing of a building facade. The drawing includes the following labels:

- PANEL 3
- STUCCO
- FGUARD
- EFFRONT
- IN WALL
- FGUARD
- BY WALL
- PANEL 1
- METAL WALL PANEL
- STOREFRONT
- BALCONY GUARD
- CURTAIN WALL
- STOREFRONT
- METAL PANEL 1
- STOREFRONT
- CURTAIN WALL

The south elevation fronts Sugarmont Drive, which is not a public street. Façades that are not on public streets are not subject to the street-facing façade standards in [Chapter 21A.37](#). However, the materials on this elevation are substantially the same as the front (east) elevation. An exception is the fourth floor where there is a steel-framed canopy that extends from the parking area. This is a change from the original submittal and allows for covered parking spaces. The relocation of the transformers to the exterior necessitated the reconfiguration of the interior

parking spaces, leading to the addition of this canopy. This extends into a required stepback for public trails and a modification request for this is included with the administrative Design Review.



*Wilmington (north) elevation*

The north elevation faces Wilmington Avenue, which is also not a public street. It includes more “back of house” uses, including the electrical, generator, and telecom facilities on the interior and the transformers on the exterior. This is reflected in the ground floor materials, which are substantially CMU block. The parking levels are partially screened with the decorative tensile mesh and the remainder, including ramps and other “back of house” uses, is CMU block. The upper floors accommodate the hotel and residential units and upper floor restaurant and are clad similarly to the upper floors on the other facades.



*Rear (west) elevation*

The rear elevation faces west and is adjacent to the Sugarmont Apartments. The first levels, where parking is located, are CMU block. This extends to a height of approximately 50 ft. Above these levels, there is an additional recess of approximately 16' and additional amenity space is in this area. The upper floors are clad similarly to the other façades.

### **Proposal Revisions**

The applicant has made modifications to the building since the first submittal as follows:

- Placing the transformers on the exterior of the building on the Wilmington frontage to meet requirements of Rocky Mountain Power. This resulted in the reconfiguration of parking and the loss of five parking spaces.
- Increasing the setback of the building at grade and up to the fifth level on the northeast corner to accommodate the canal easement for the Jordan & Salt Lake Canal.
- The applicant has also worked with Transportation to ensure the proposal meets their requirements, and, as required by the Conditional Use, has submitted a Traffic Impact Study (TIS).
- Modification from “short-term rental” units to “hotel” units.

### **APPROVAL PROCESS AND COMMISSION AUTHORITY**

This project is subject to Planned Development and Conditional Use approvals per Salt Lake City Code Chapter [21A.54](#) and [21.55](#), respectively. The two processes require review and approval from the Planning Commission before the proposal can proceed with a building permit. The



Planning Commission may approve the Planned Development and Conditional Use requests as proposed or may impose conditions necessary or appropriate for the proposed development to comply with the standards. The Planning Commission may deny one or both of the applications if it finds that the proposal does not meet the purpose or standards for Planned Development in Chapter 21A.55 or Conditional Use in Chapter 21A.54.

## KEY CONSIDERATIONS

The key considerations listed below were identified through the analysis of the project:

1. How the proposal helps implement city goals and policies identified in adopted plans.
2. Compliance with Zoning Requirements

### **Consideration 1: How the proposal helps implements city goals and policies identified in adopted plans.**

The proposed project is consistent with the citywide *Plan Salt Lake* and *Housing SLC*. It is also consistent with the *Sugar House Plan*.

#### ***Plan Salt Lake***

In *Plan Salt Lake*, two guiding principles are applicable as are initiatives in several chapters. The applicable guiding principles in *Plan Salt Lake* are the following:

- Neighborhoods that provide a safe environment, opportunity for social interaction, and services needed for the well-being of the community therein.
- Access to a wide variety of housing types for all income levels throughout the City, providing the basic human need for safety and responding to changing demographics.

The proposed project's commercial spaces and residential units have the potential to provide services and the opportunity for social interaction. The proposed affordable housing will provide deeply affordable housing units, which are not extensively available in this part of the city.

Initiatives from the Growth chapter are as follows:

- Locate new development in areas with existing infrastructure and amenities, such as transit and transportation corridors.
- Encourage a mix of land uses.
- Promote infill and redevelopment of underutilized land.
- Accommodate and promote an increase in the City's population.

The proposed project is located near the S-Line, which has high-frequency service and there are bus stops along Highland Drive and on 2100 South. Route 220 on Highland Drive provides service every 30 minutes and Route 21 on 2100 South provides high-frequency service. The proposal provides a mix of uses on the site, including 139 residential units on the upper stories, it is substantially more intense than the existing financial institution use.

In the Housing section, several initiatives are applicable:

- Ensure access to affordable housing citywide (including rental and very low income).
- Direct new growth toward areas with existing infrastructure and services that have the potential to be people-oriented.
- Promote high density residential in areas served by transit.

The proposed housing for the affordable housing incentives will provide deeply affordable rental housing. The area also has existing infrastructure and services and the additional businesses and residents may add to the people-oriented nature of the neighborhood. The housing is high density and is located less than ¼ mile from the S-Line and high frequency bus service.

### ***Housing SLC***

The proposal is consistent with the recently adopted *Housing SLC*.

It is consistent with the following goal and metrics:

GOAL 1: Make progress toward closing the housing gap of 5,500 units of deeply affordable housing and increase the supply of housing at all levels of affordability.

Metrics: Entitle 10,000 new housing units throughout the city.

1. Minimum 2,000 units deeply affordable (30% AMI or below)
2. Minimum 2,000 units affordable (31% - 80% AMI)

The proposal is for a total of 139 residential units and with the affordable housing incentives, 5% of the units will be affordable to those with incomes at or below 30% AMI.

### ***Sugar House Plan***

The proposed project is also consistent with policies in the *Sugar House Plan*. The land use designation for the subject property is “Business District Mixed Use – Town Center Scale”. The proposal is consistent with many of the policies for this use, including:

- The first floor of buildings, which form the pedestrian environment, should be occupied by retail establishments and restaurants having exterior fenestration details, such as windows, doorways and signage that provide visual interest and a sense of safety for pedestrians.
- Strive to provide multiple functional public entrances, or doors along the street front. These guidelines also apply to sides of buildings that border side streets and pedestrian routes.
- Individual businesses should be accessed by doors opening onto the street and at street level.
- In general all new buildings should be built to the sidewalk, however, if a setback is used, it should be developed as plaza or pedestrian space that orients to the street or to the Sugar House Monument Plaza. Otherwise, there should be no setback.
- Building setbacks in the retail core should be an extension of the sidewalk. Setbacks, if used for public open space may be allowed through discretionary review. Appropriate treatment within this urban space includes arcades, brick paving, planter boxes, entrance promenades, plazas, outdoor dining, etc.

The proposal is also consistent with policies in the *Plan* to provide for affordable housing:

- Encourage the creation of mixed-use developments (commercial or retail on the first level and residential on higher levels) in the Sugar House Business District and on land zoned for mixed use or commercial development.
- Encourage density bonuses when the percentage of affordable units is increased.

The proposed building is set close to the property line with a minimal setback as needed for the doors to open on the property. It includes first floor commercial space for retail and the financial institution as well as a lobby for the building. The exterior has visual interest and is accessible with a high percentage of it glass and two pedestrian entries each on Highland and Sugarmont Drives. The “open space” area include pavers, planter boxes, and benches.

The affordable housing incentives achieve the policies in the plan related to affordable housing by allowing for additional height when affordable units are provided.

## **Consideration 2: Compliance with Zoning Requirements**

### **Planned Development**

#### *Required Open Space*

The applicant is requesting a modification to reduce the required open space. The MU-11 zoning district in this area allows for additional building height up to 150 ft. provided the proposal meets two additional requirements:

- 1) At least 10% of the lot shall be open space area at the ground level with an outdoor active space, such as midblock walkways with a public access easement, plazas, outdoor dining area, outdoor recreation area, or similar. The applicant may expand the park strip to accommodate a portion or all of the 10% open space area; and
- 2) The development includes at least one of the following uses: 100% enhanced active use” (as defined and regulated in Subsection [21A.37.050 .A.2](#)) within the required ground floor use area or a midblock walkway at least 20 feet wide.

The definition of “open space area” requires that these areas are unobstructed:

*OPEN SPACE AREA: Any area of a lot which is completely free and unobstructed from any structure or parking areas. Landscaping, walkways, uncovered patio areas, light poles and other ornamental features shall not be considered as obstructions for purposes of this definition. Driveways that provide access to parking lots shall not be considered as an obstruction subject to the driveways not exceeding twenty percent (20%) of any required yard area that they provide access through.*

The proposed building, including its upper stories, covers 95% of the 28,107 sq. ft. lot. It provides ground level “open space” as follows:

Unobstructed: 590 sq. ft

Obstructed: 2,330 sq. ft.

Total: 2,920 sq. ft.

The unobstructed open space, the only area to meet the requirements, is 2%, far below the 10% required. Additional open space on the ground level totals 2,330 sq. ft. The two combined total 2,920 sq. ft., which is 110 ft. in excess of the 10% required. The landscaping plan identifies that areas on the north and south ends of the building will have planters and benches and the applicant provided renderings, including the image below.



*Rendering showing the open space at the northeast corner of Highland Drive and Wilmington Avenue*

The proposal provides additional “open space” on levels 5 and 16 of the building as follows:

Level 5:

Unobstructed: 6,950 sq. ft.

Obstructed: 1,765 sq. ft.

Total: 8,715 sq. ft.

This level includes amenity areas for the building. These are located on the east and west sides of the buildings. The east amenity area includes a pool and outdoor spa. The west side includes a fitness deck and greenhouse amenity area.

Level 16:

Unobstructed: 1,690 sq. ft.

This is a deck accessible from the 16<sup>th</sup> floor restaurant. It wraps the restaurant space on the east, north, and west sides of the building. This is not open to the public, just patrons of the restaurant.

The proposal meets the “enhanced active use” requirement. Approximately 90% of the ground floor area of the building consists of active uses. It includes the telecom room, access drives for the parking and drive-through use, lobby for the hotel and residential use – which meets the lobby exception, financial institution, and retail space. The frontage in front of the telecom room includes benches and planters, meeting the “outdoor active use” requirements, which is an exception from the “enhanced active use” requirements.

Although the project exceeds the required 10% ground-floor open space, only 2% is unobstructed. However, the additional open space provided on Levels 5 and 16 achieves the overall intent of the standard, and staff support the requested modification.

### **Conditional Use**

#### *Drive-through Use/Drive-through next to a residential Use*

Pursuant to Section 21A.54.140, when a development proposed as a Planned Development includes an application for Conditional Use approval, the Planning Commission shall consider the Planned Development application and the Conditional Use application together. The proposed Conditional Use application is for a financial institution with drive-through. The existing site has consisted of a financial institution with drive-through (Zions Bank) since at least 1979, however,



to develop the new mixed-use building, the existing Zions Bank must be demolished. For Zions Bank to resume operations, a new Conditional Use application must be reviewed against the current standards. Based on the standards in 21A.54.140, the proposed Conditional Use complies with the standards and no detrimental impacts are anticipated which cannot be mitigated. A complete analysis of the standards for Conditional Uses may be found in [Attachment H](#).

## **STAFF RECOMMENDATION**

The proposed development with first floor commercial uses, 52 hotel units, 139 residential units, a restaurant on the upper floor, and associated structured parking located within the building meets the intent of the MU-11 zoning district standards.

Staff finds that the proposed financial institution with drive-through is compatible with the applicable master plan policies and initiatives, and the use is compatible with the surrounding neighborhood. Planning Staff also finds that the proposed use complies with the zoning standards for the MU-11 zoning district, standards for drive-through facilities and stacking areas, and conditional uses.

Based on the information and findings listed in the staff report, staff finds that the request generally meets the applicable standards of approval and recommends that the Planning Commission approves the request.

## **NEXT STEPS**

### **Approval of the Request**

If the Planned Development and Conditional Use applications are approved, the applicant may proceed with the administrative review processes for use of the Affordable Housing Incentives and Design Review applications. After this review, the applicant may proceed with the project after meeting all standards and conditions required by all City Departments and the Planning Commission to obtain all necessary building permits.

### **Denial of the Planned Development Request**

If the Planned Development is denied, the applicant cannot proceed with the project as designed and will be required to meet the standards of the underlying zoning ordinance to develop the property.

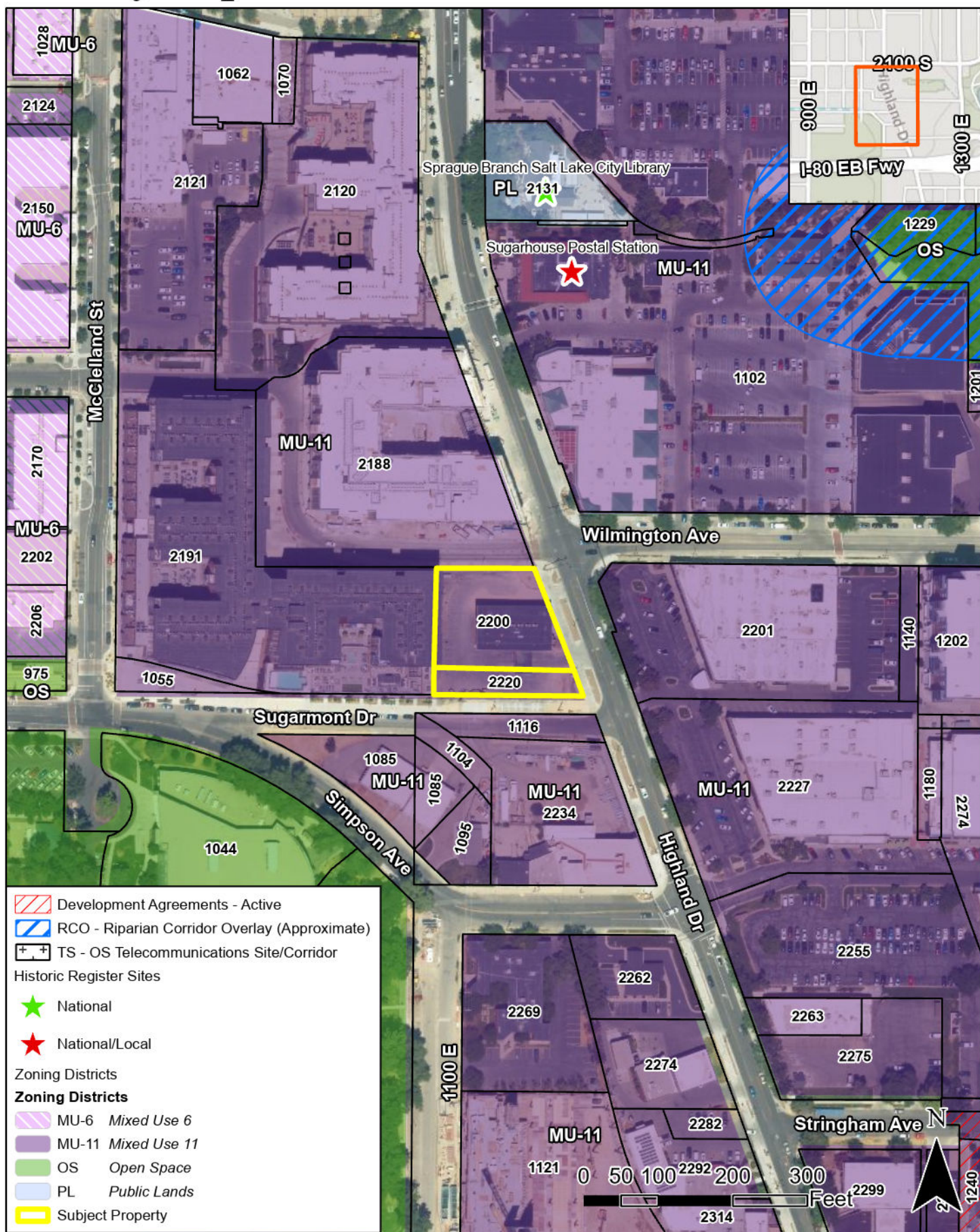
### **Denial of the Conditional Use Request**

If the Conditional Use is denied, the applicant cannot proceed with the proposed drive-through use and will be required to have permitted uses or submit another conditional use application to develop the property.

# **ATTACHMENT A: Vicinity & Zoning Map**

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# Vicinity Map



# ATTACHMENT B: Initial Submittal

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## GEM Sugar House: Planned Development Narrative

2026.02.18

### Project Description

1. *Description of your proposed use. If involving a residential development Include number, size, and type of dwelling units in each building, and the overall dwelling unit density.*

GEM Sugar House is a new 16-story mixed-use multifamily development. The project is submitted under the MU-11 zoning district and assumes additional height permitted through the Affordable Housing Incentive.

The ground level will include a new commercial space for Zions Bank, which will be permitted under a separate tenant improvement (TI) permit. The bank will maintain drive-through access, as shown on the plans. Additional ground-floor program includes a small retail space at the southeast corner, a bike and gear amenity room, a residential lobby, loading and back-of-house functions, and parking.

Levels 2 through 4 consist of structured parking, with Level 4 stepping back along Parley's Trail at the south property line. Level 5 includes residential amenity spaces, a pool, spa, and pool deck, leasing offices, and residential units at the northwest corner.

Levels 6 through 15 are residential, comprising a mix of long-term and short-term rental units. Level 16 includes additional residential units, an amenity club room, and a TI-ready space intended for a future restaurant.

The project is anticipated to include approximately 195 residential units, consisting of a mix of studio units (30%), one-bedroom units (40%), two-bedroom units (25%), and three-bedroom units (5%). The average unit size across all unit types is approximately 800 square feet. This diverse unit mix supports the MU-11 zoning district's intent to provide a range of housing options that accommodate varied household sizes, lifestyles, and affordability levels while reinforcing a compact, walkable, mixed-use urban environment.

2. *A complete description of the proposed planned development including the zoning regulations being modified.*

The zoning envelope for GEM Sugar House is based on the long-term assumption that Sugarmont Drive will be converted to a public trail as part of the Parley's Trail extension, at which point it will no longer function as a public right-of-way. This condition is a primary factor influencing site access, circulation, and zoning compliance. Vehicular access is therefore limited to Highland Drive, as Wilmington Avenue is privately owned. The anticipated trail condition also affects zoning requirements related to enhanced active uses on street-facing façades associated with the project's height requests.

The proposed project includes a 10-foot stepback from the southern property line adjacent to Parley's Trail beginning at the first full level above 30 feet, consistent with the project's massing strategy. An additional vehicular access point is requested along Highland Drive to





accommodate the bank drive-through use and to meet applicable zoning requirements given the site's constrained access.

GEM Sugar House requests additional height through two mechanisms, as outlined below:

1. Height up to 150 feet:  
The project proposes height up to 150 feet with 10 percent ground-level open space and enhanced active use along street-facing façades. Due to site constraints, sidewalk widening, and land dedication to the City, the project proposes to include the dedicated land area as part of the required 10 percent open space calculation. In addition, enhanced active use is proposed along Highland Drive only, as the south side of the site is designed to function as a public trail rather than a street frontage.
2. Affordable Housing Incentive Height:  
The Affordable Housing Incentive allows up to three additional stories above 150 feet, with a maximum height of 12 feet per story. The project proposes two additional stories above 150 feet, with floor-to-floor heights exceeding 12 feet to accommodate commercial space and penthouse units. The proposed top of roof structure is approximately 183 feet, which is below the presumed maximum allowable height of 186 feet.

During review of the adopted zoning code, a requirement for a Sugar House lower-level front setback at the first full level above 30 feet was identified. In lieu of this condition, the project proposes a substantial building setback from Level 6 through Level 16. This approach provides a more meaningful perceived reduction in building mass from primary vantage points while also allowing for the structured parking required for this development type.

3. *When the proposed planned development includes provisions for common open space or recreational facilities, a statement describing the provision to be made for the care and maintenance of such open space or recreational facilities.*

This information is still in development and will be provided with a future submittal.

4. *Describe the plan for long term maintenance of all private infrastructure as stated in 21A.55.110 of the Planned Development ordinance.*

This information is still in development and will be provided with a future submittal.

### **GEM Sugar House Planned Development Information**

1. *Demonstrate how your project meets the purpose and at least one objective of a planned development as stated in 21A.55.010 of the planned development ordinance: Encourage creative and innovative site planning and building design that results in superior design quality and improved compatibility with surrounding uses.*

The GEM Sugar House project advances this objective through an integrated approach to site planning, building massing, and land use that responds to the Sugar House neighborhood



context and the intent of the MU-11 zoning district. The project combines a diverse residential program with neighborhood-serving ground-floor commercial uses organized to activate the public realm and support walkability and access to daily needs. Building massing and architectural articulation are designed to reduce perceived scale, provide transitions to adjacent properties, and relate to the surrounding urban context. Publicly oriented amenities and pedestrian connections, including direct adjacency to Parley's Trail, further support compatibility with surrounding uses.

2. Demonstrate how your project meets the Standards for Planned Developments as stated in 21A.55.050 of the Planned Development ordinance:

A. Planned Development Objectives

The proposed planned development meets the purpose of a Planned Development as stated in Section 21A.55.010 and achieves the objective of encouraging creative and innovative site planning and building design. The project incorporates coordinated massing, stepped building forms, integrated parking, and trail-oriented open space that respond to site-specific conditions, including adjacency to Parley's Trail and the Sugar House mixed-use context. The requested modifications to zoning regulations are limited and necessary to allow this coordinated design approach. Strict application of zoning standards would constrain building organization, pedestrian connectivity, and massing strategies that are central to the project's design intent. The proposed PD deviations directly support achieving a more cohesive and context-responsive development.

B. Master Plan Compatibility

The planned development is generally consistent with applicable Citywide, community, and small area Master Plan policies. The project supports adopted goals for compact, mixed-use development, increased housing opportunities, and pedestrian- and trail-oriented urban environments within the Sugar House area.

C. Design and Compatibility

The proposed planned development is compatible with the surrounding area and is designed to achieve an enhanced product relative to strict application of land use regulations, as further described in the Design Review narrative.

Building scale, massing, and intensity are consistent with the MU-11 zoning district and surrounding urban context, with step-backs above the podium and articulation at multiple levels to reduce perceived mass. Building orientation prioritizes streets and pedestrian connections, with active ground-floor uses and transparent façades. Setbacks along the site perimeter provide space for amenities, buffering, sightlines, and maintenance while maintaining neighborhood character. Any PD deviations related to setbacks or massing are necessary to implement these design strategies and do not create adverse impacts.

Ground-floor façades are designed to facilitate pedestrian interest and interaction. Service areas, loading, and utilities are fully screened and internalized. Parking areas are structured and buffered to minimize impacts on adjacent uses. Lighting and materials are selected to support pedestrian comfort and compatibility with the surrounding area.

#### D. Landscaping

Landscaping is designed at a scale appropriate to the development and to soften building edges, provide buffering, and enhance pedestrian spaces. Existing and proposed landscaping elements are coordinated with the site design to lessen potential impacts on adjacent properties.

#### E. Mobility

The planned development supports City transportation goals by promoting safe and efficient circulation for pedestrians, vehicles, and bicycles. Vehicular access is limited and designed to minimize impacts on surrounding streets. Pedestrian connectivity to sidewalks, Parley's Trail, and adjacent uses is emphasized. Emergency access and loading functions are accommodated internally and in a manner that minimizes conflicts with pedestrian movement. Any PD deviations related to circulation are intended to improve site function and safety.

#### F. Existing Site Features

The site plan and building design consider existing site conditions and surrounding development patterns and integrate features that contribute to neighborhood character where feasible.

#### G. Utilities

Existing and planned utilities are adequate to serve the development and will be reviewed and addressed through standard City permitting processes. The planned development will not have a detrimental effect on surrounding properties or infrastructure.

### 3. Demonstrate how the proposed planned development is compatible with other property in the neighborhood.

The proposed GEM Sugar House Planned Development is compatible with surrounding properties in use, scale, massing, and relationship to the public realm. Located within the MU-11 zoning district, the project's mixed-use program aligns with the existing and planned development pattern of the Sugar House neighborhood. Building massing reinforces the street edge along Highland Drive and Sugarmont Drive while incorporating podium and tower step-backs to reduce perceived height and provide appropriate transitions to adjacent properties. Ground-floor uses and building orientation prioritize pedestrian activity and connectivity to public sidewalks and Parley's Trail, while vehicular access and service functions are consolidated to minimize impacts on nearby properties and streets. Architectural articulation, landscaping, screening, and lighting further support compatibility and contribute positively to the neighborhood's evolving mixed-use character.



## Conclusion

Gardner Group and Engine 8 Architecture, along with our respective capital and design partners intend to deliver a thoughtful, high-quality project that will contribute to the growing Sugar House neighborhood. The GEM Sugar House project will enhance the neighborhood with additional housing, much needed short term rentals, thoughtful food & beverage, and community supporting in-person banking. The project will also provide a significant outpost to Parley's Trail, helping to support and activate SLC's growing trail network. Lastly, we aim to add to the vibrant and interesting architectural context with a design informed and inspired by neighborhood's rich and interesting history.

If you have any questions, or concerns we welcome the opportunity to further explain and demonstrate our commitment to revitalizing this area and are eager to work with Salt Lake City in delivering this project and the surrounding neighborhood.





## **GEM Sugar House: Conditional Use Narrative**

2026.03.26

### **Project Description**

GEM Sugar House is a new 16-story mixed-use multifamily development. The project is submitted under the MU-11 zoning district and assumes additional height permitted through the Affordable Housing Incentive.

The ground level will include a new commercial space for Zions Bank, which will be permitted under a separate tenant improvement (TI) permit. The bank will maintain drive-through access, as shown on the plans. Additional ground-floor program includes a small retail space at the southeast corner, a bike and gear amenity room, a residential lobby, loading and back-of-house functions, and parking.

Levels 2 through 4 consist of structured parking, with Level 4 stepping back along Parley's Trail at the south property line. Level 5 includes residential amenity spaces, a pool, spa, and pool deck, leasing offices, and residential units at the northwest corner.

Levels 6 through 15 are residential, comprising a mix of long-term and short-term rental units. Level 16 includes additional residential units, an amenity club room, and a TI-ready space intended for a future restaurant.

The project is anticipated to include approximately 195 residential units, consisting of a mix of studio units (30%), one-bedroom units (40%), two-bedroom units (25%), and three-bedroom units (5%). The average unit size across all unit types is approximately 800 square feet. This diverse unit mix supports the MU-11 zoning district's intent to provide a range of housing options that accommodate varied household sizes, lifestyles, and affordability levels while reinforcing a compact, walkable, mixed-use urban environment.

Please refer to the graphic drawings set for additional information.

### **Conditional Use Narrative**

**1. What are the anticipated hours of operation?**

Anticipated hours for the bank drive through are 9:00am – 5:00pm Monday through Thursday and 9:00am – 6:00pm Fridays.

**2. What are the anticipated peak hours for the proposed use? Peak hours refer to the hours of the day with the highest number of customers, employees, deliveries, or activities.**

Daily peak hours include 9:00am to 10:30am, 11:30am – 1:30pm, and 3:30pm to 5:00pm, Monday Through Thursday and until 6:00pm on Fridays.

Tuesdays after National Holidays, which are celebrated on Mondays, experience high traffic throughout the day.



3. Is there any anticipated outdoor activity associated with the use?

The ground level of the project is designed to connect with and activate the surrounding neighborhood by creating a pedestrian plaza at the southeast corner of the project that is an extension of the sidewalk and Parley's Trail. Outdoor activity is limited to café seating and general public seating typical of quality urban design.

4. Is there enough space on the site to provide adequate movement, queueing, and storing of vehicles? The space should be based on the anticipated trip generation of similar uses in a similar environment either in Salt Lake City or in similar cities.

Yes, the ground floor of the project is largely organized around the drive-thru function for the bank tenant and is designed to provide a well-lit, pedestrian friendly porta cochere type environment. Access is proposed via a right-in/right-out curb cut when traveling south on Highland Drive. Residential parking is on levels two through four and is accessed by a speed ramp ramping up to the south along the west side of the property. Bank/retail parking is located on the west side of the porta cochere. The south portion of the porta cochere is dedicated to the drive through function providing two drive through lanes, each with space for three cue spots. No aspect of the drive through is required for access to the retail parking, and pedestrian circulation within the porta cochere is routed outside of the drive through area. The drive through lanes are one-way traveling east and exit on to Highland Drive.

A Traffic Impact Study has been submitted to the City and is currently under review.

5. How will the waste generated by the use be stored and handled on site? How will it be removed from the site?

The trash room is located south of the main stair and elevator core in the center of the project. Trash from level five through level 16 is served by a trash chute terminating in the central trash room into wheeled dumpsters. Bank/retail trash is also collected in dumpsters in the central trash room. For collection, dumpsters will be rolled from the trash room directly into the loading area, at which point dumpsters can be emptied directly from the loading area or wheeled south through the porta cochere to Sugarmont Drive for collection. In either case, collection schedule will be coordinated with all other bank and residential operations.

6. What is the anticipated amount of water consumption of the proposed use?

3,425.85 kGal annually

7. What is the anticipated level of emissions generated by the proposed use?

2,279,488 lbs of CO2 annually

8. Are there trees with a trunk circumference greater than 6 inches on the property that will be removed?

No.

9. What is the anticipated amount of grading required for the proposed development? Does it include the moving or removing of any pollutant or contaminant in the soil from the site?

Grading to the site will be limited to what is required to tie in proposed finish floor elevations and curb cuts to existing grading in the ROW while still meeting accessibility requirements throughout



the site. To our knowledge, no pollutants or contaminants requiring removal are present on the site.

10. Will the proposed use produce any dust, odor, smoke, noise, vibrations, or use any chemicals, toxins, heat, or radiation? If so, how will the impact be addressed? Has the applicant been in contact with the regulatory agency that regulates the specific impact?

The project anticipates a ground floor café tenant and a full-service rooftop restaurant. A grease interceptor for those uses will be provided in the core and shell project and will be located in the southwest corner of porta cochere. It is anticipated that the level 16 restaurant tenant will provide a grease exhaust system as part of their TI, the ground level café space will be limited to food prep that does not require a hood.

11. Are the locations of all utility needs identified on the site plan and located to avoid creating a hazardous situation? Have utility providers been made aware of the proposed use and is there any information about utility needs?

Utility needs are identified on the site plan and are located to avoid creating a hazardous situation, with transformers proposed at the northeast corner of the site along Wilmington Ave. Gas meters are proposed in a secure alcove along the southern property line accessed from Sugarmont Drive. Our team has walked the site with RMP and are in conversations confirming transformer requirements and access.

### Analysis of how the proposal might affect adjacent uses

1. What are the land uses adjacent to the property (abutting and across-the-street properties)?

The abutting property to the west is a multifamily residential project. North of our site across Wilmington Ave is a mixed-use multifamily residential project. The property across Sugarmont Ave south of our site appears to be unused at this time. East of our site across Highland Drive is a multi-tenant commercial development with a mix of retail, office and F&B uses.

2. Are exterior lights located and shielded to direct light away from adjacent uses and downwards (not directed to the sky)?

Yes, exterior lighting is designed to provide a well-lit ground level pedestrian experience, as well as architectural lighting directed on/toward the proposed project.

3. Are there access conflicts caused by the location or proximity of walkways, sidewalks, driveways, public streets or public spaces? Are there access conflicts caused by any proposed or existing structure on the property or adjacent to the property?

As mentioned above, the ground level of the project is designed to promote safe pedestrian and vehicular connection to the surrounding neighborhood context. Residential parking access is independent of bank parking and drive through functions. In addition to providing clearly marked pedestrian routes, signage and bollards, the porta cochere space is designed to provide a safe environment for pedestrians and vehicles to coexist.

4. How will the proposed use be separated from adjacent land uses? What screening or buffering features will be provided to reduce any impact identified in these questions?

The proposed bank use and associated drive through functions in a fashion very similar to the current existing drive through and impacts to adjacent sites are not anticipated.

# **GEM SUGAR HOUSE MIXED-USE DEVELOPMENT**

**SALT LAKE CITY, UTAH**

*Prepared for:*  
**Gardner Group**

*Prepared by:*  
**Kimley»Horn**

March 2026  
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## TRAFFIC IMPACT STUDY

FOR

# GEM SUGAR HOUSE

***Prepared for:***

**Gardner Group**

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## EXECUTIVE SUMMARY

### Project Description

Kimley-Horn and Associates, Inc. has been retained by Gardner Group to prepare a traffic impact study (TIS) for a proposed GEM Sugar House mixed-use development located at 2200 Highland Drive on the southwest corner of Highland Drive and Wilmington Avenue in Salt Lake City, Utah. The development is proposed to include the redevelopment of the existing 2,950 square-foot (SF) bank, and the construction of 196 multifamily housing units, a 4,400 SF restaurant, and a 985 SF bicycle café.

The purpose of this TIS is to identify trip generation characteristics of the proposed development, evaluate traffic related impacts on the adjacent street system, and recommend measures to mitigate impacts if needed.

The location of the Project site and study area intersections are shown in **Figure ES-1**.

### Findings

#### Site Location and Study Area

The proposed development is to be located on parcels 16202060310000 and 16202060320000 per the Salt Lake County Assessor Parcel Viewer<sup>1</sup>. A conceptual site plan of the development is shown in **Figure 2**. Access to the site is planned via two existing unsignalized access driveways, both located on Highland Drive. The northern driveway on Highland Drive will consist of right-in, right-out only access. The southern driveway on Highland Drive is proposed as an exit-only driveway, as it will be the primary exit for vehicles using the drive-through lanes at the bank. It should be noted that there is an existing driveway on Sugarmont Drive that would be removed as part of the project. The developer's site plan is provided as **Appendix A**. The anticipated future completion year for the proposed development is 2028 for this analysis.

#### Surrounding Land Use and Project Trip Generation

The site is currently occupied by the existing Zions Bank adjacent to a mixed-use corridor which consists of multifamily housing and commercial uses. Build-out of the proposed development is estimated to generate 1,369 (1,077 new trips) daily trips, with 148 (135 new trips) occurring in the AM peak hour and 154 (105 new trips) occurring in the PM peak hour on a typical weekday.

#### Operational Analysis Findings and Recommendations

Operational analysis results are shown in **Table ES-1**. Operational analysis results show the addition of project traffic does not significantly affect operations at the study area intersection or driveways.

During the PM peak hour the westbound left-turn queues at the intersection of Highland Drive and Wilmington Avenue are projected to exceed the available storage capacity. It is important to note that the 95<sup>th</sup> percentile queue lengths exceeding the storage capacity are present in both existing and background traffic only conditions, where no proposed development traffic is included.

---

<sup>1</sup> [https://apps.saltlakecounty.gov/assessor/new/javaapi2/parcelviewext.cfm?parcel\\_ID=&query=Y](https://apps.saltlakecounty.gov/assessor/new/javaapi2/parcelviewext.cfm?parcel_ID=&query=Y)

These conditions are not expected to be present for long durations. The 95<sup>th</sup> percentile queue length value represents a queue length reached only 5% of the time during the peak hour; in other words, queues are expected to remain shorter than this value approximately 95% of the time. All other locations are expected to have adequate storage capacity to accommodate the 95<sup>th</sup> percentile queues.

Given these findings, no mitigation measures to study area intersections or driveways are warranted for the proposed development.

**Table ES - 1 - Intersection Operational Analysis Results**

| Operational Analysis Results - LOS (Delay) <sup>1</sup>                                                                                                            |                   |    |                               |                                      |                                       |                                   |                                   |                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----|-------------------------------|--------------------------------------|---------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Number                                                                                                                                                             |                   |    | 1                             | 2                                    | 3                                     | 4                                 | A <sup>2</sup>                    | B <sup>2</sup>                    |
| Intersection                                                                                                                                                       |                   |    | Highland Drive and 2100 South | Highland Drive and Wilmington Avenue | McClelland Street and Sugarmont Drive | Highland Drive and Simpson Avenue | Highland Drive and North Driveway | Highland Drive and South Driveway |
| Control                                                                                                                                                            |                   |    | Signal                        | Signal                               | SB Stop Controlled                    | Signal                            | EB Stop Controlled                | EB Stop Controlled                |
| Analysis Scenario                                                                                                                                                  | 2026 Existing     | AM | C (34.3)                      | A (8.3)                              | A (9.6)                               | A (7.5)                           | A (0)                             | B (10.7)                          |
|                                                                                                                                                                    |                   | PM | D (46.6)                      | B (11.0)                             | B (13.6)                              | B (12.3)                          | A (0)                             | B (13.7)                          |
|                                                                                                                                                                    | 2028 Background   | AM | C (33.1)                      | A (8.3)                              | A (9.4)                               | A (7.5)                           | A (0)                             | B (10.7)                          |
|                                                                                                                                                                    |                   | PM | D (47.8)                      | B (11.3)                             | B (14.2)                              | B (12.9)                          | A (0)                             | B (14.0)                          |
|                                                                                                                                                                    | 2028 Plus Project | AM | C (33.9)                      | A (8.3)                              | A (9.7)                               | A (7.1)                           | B (10.2)                          | B (11.3)                          |
|                                                                                                                                                                    |                   | PM | D (50.0)                      | B (11.7)                             | B (14.5)                              | B (12.8)                          | B (12.9)                          | B (14.44)                         |
|                                                                                                                                                                    | 2033 Background   | AM | C (34.4)                      | A (8.2)                              | A (9.6)                               | A (8.1)                           | A (0)                             | B (11.0)                          |
|                                                                                                                                                                    |                   | PM | D (51.6)                      | B (12.6)                             | C (16.5)                              | B (14.7)                          | A (0)                             | B (14.9)                          |
|                                                                                                                                                                    | 2033 Plus Project | AM | D (35.3)                      | A (8.3)                              | A (9.9)                               | A (7.7)                           | B (10.4)                          | B (11.6)                          |
|                                                                                                                                                                    |                   | PM | D (54.3)                      | B (13.3)                             | C (17.0)                              | B (14.7)                          | B (13.6)                          | C (15.4)                          |
| Notes:                                                                                                                                                             |                   |    |                               |                                      |                                       |                                   |                                   |                                   |
| 1. LOS and delay are shown for overall intersection for signalized, roundabout, and all-way stop intersections and the worst movement for all other intersections. |                   |    |                               |                                      |                                       |                                   |                                   |                                   |
| 2. Denotes a Project Driveway                                                                                                                                      |                   |    |                               |                                      |                                       |                                   |                                   |                                   |





Image Source: Nearmap US, INC.

Study Area Intersections:

1. Highland Drive and 2100 South
2. Highland Drive and Wilmington Avenue
3. McClelland Street and Sugarmont Drive
4. Highland Drive and Simpson Avenue
- A. Highland Drive and North Driveway
- B. Highland Drive and South Driveway

## 1. INTRODUCTION

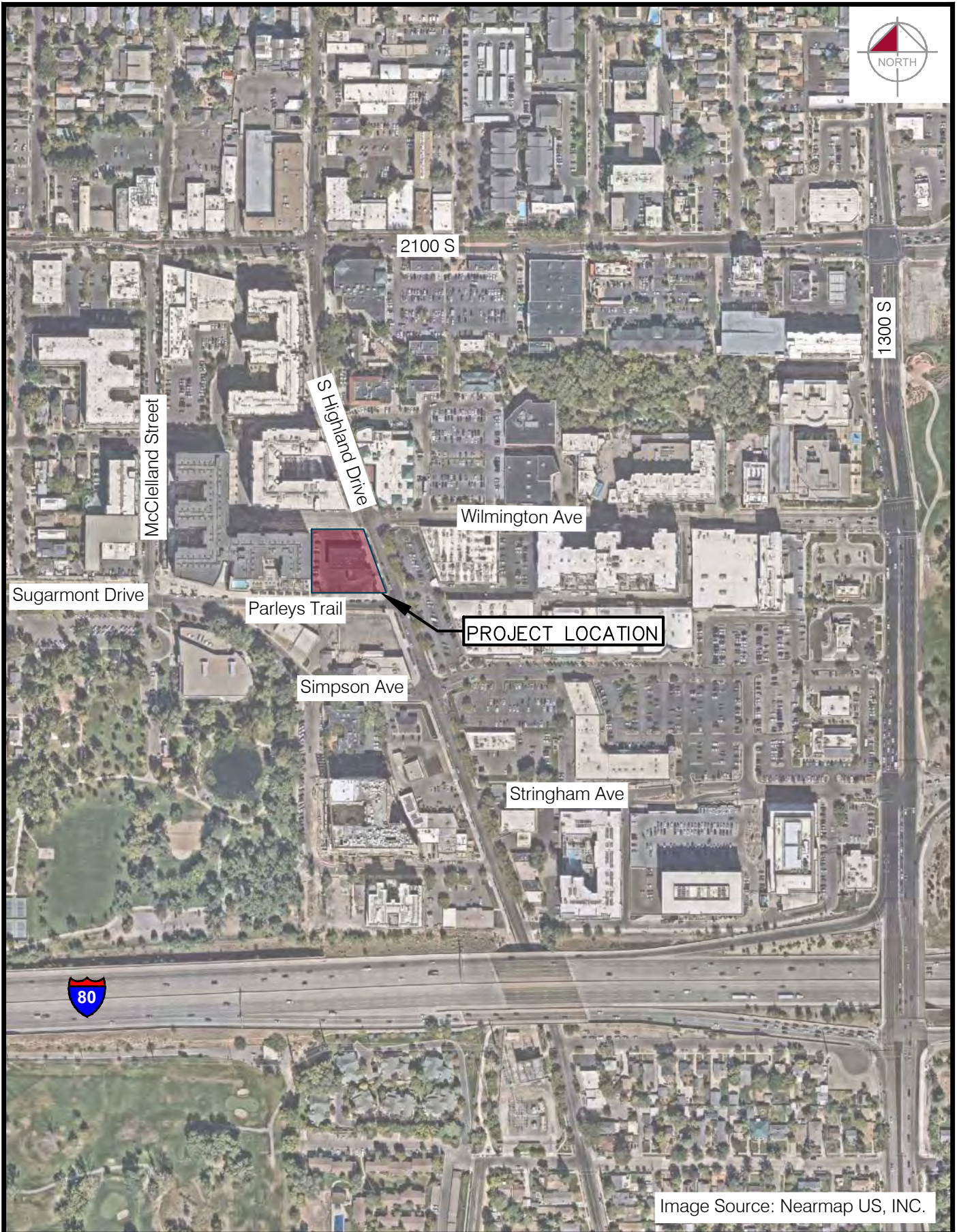
Kimley-Horn and Associates, Inc. has been retained by Gardner Group to prepare a traffic impact study (TIS) for a proposed GEM Sugar House mixed-use development located at 2200 Highland Drive on the southwest corner of Highland Drive and Wilmington Avenue in Salt Lake City, Utah. The development is proposed to include the redevelopment of the existing 2,950 square-foot (SF) bank, and the construction of 196 multifamily housing units, a 4,400 SF restaurant, and a 985 SF bicycle café. The location of the GEM Sugar House development within Salt Lake City is shown in **Figure 1**.

The proposed development is to be located on parcels 16202060310000 and 16202060320000. A conceptual site plan of the development is shown in **Figure 2**. Access to the site is planned via two existing unsignalized access driveways, both located on Highland Drive. The northern driveway on Highland Drive will consist of right-in, right-out only access. The southern driveway on Highland Drive is proposed as an exit-only driveway, as it will be the primary exit for vehicles using the drive-through lanes at the bank. It should be noted that there is an existing driveway on Sugarmont Drive that would be removed as part of the project. The developer's site plan is provided as **Appendix A**. The anticipated future completion year for the proposed development is 2028 for this analysis.

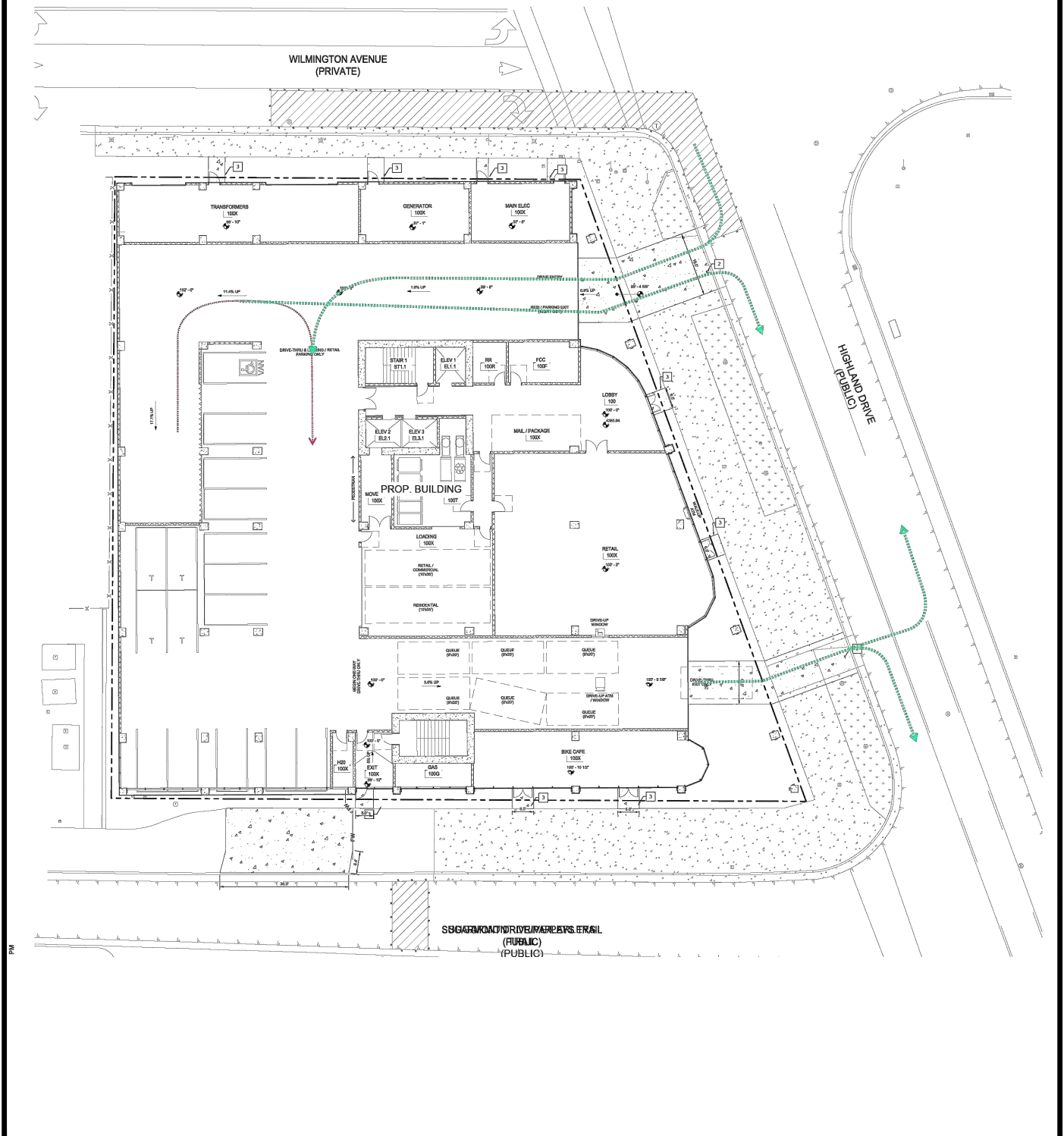
The purpose of this TIS is to identify trip generation characteristics of the proposed development, evaluate project related impacts on the adjacent street system, and identify mitigation measures for identified traffic impacts, if needed.

This study was prepared in accordance with the Utah Department of Transportation (UDOT) *Traffic Analysis Guideline*.









## 2. EXISTING CONDITIONS

This section of the report details existing conditions adjacent to the proposed project site.

### 2.1. Study Area Intersections

The following intersections were identified to be evaluated as part of the TIS:

1. Highland Drive and 2100 South
2. Highland Drive and Wilmington Avenue
3. McClelland Street and Sugarmont Drive
4. Highland Drive and Simpson Avenue
- A. Highland Drive and North Driveway
- B. Highland Drive and South Driveway

### 2.2. Existing Land Uses

The site consists of parcels 16202060310000 and 16202060320000 which are currently occupied by the existing Zions Bank. The site is currently zoned Mixed Use per the Salt Lake City Zoning Map<sup>2</sup>.

### 2.3. Existing Lane Configurations and Control

Regional access to the GEM Sugar House development will be provided via I-80 and I-15. Primary access to the development will be provided by 2100 South and 1300 East. Direct access will be provided by Highland Drive.

**Interstate 15 (I-15)** is a north/south interstate that connects multiple cities along the Wasatch Front and provides regional access to the proposed development. Within the study area, I-15 has four general lanes and one carpool lane in each direction. The interchange located west of the proposed development (Exit 305) is a partial clover interchange. Within the study area, the speed limit is 70 miles per hour (mph).

**Interstate 80 (I-80)** is an east/west interstate that provides regional access to the proposed development. Within the study area, I-80 has four general lanes in each direction. The 1300 E interchange located south of the proposed development (Exit 126) is a trumpet interchange. Within the study area, the speed limit is 70 miles per hour (mph).

**2100 South** is an east/west city street. East of 1300 E there are two to three lanes in each direction, between 1100 E/Highland Drive and 1300 E there are two lanes in each direction, and west of 1100 E there is one lane in each direction. The roadway is classified as an Arterial in the Salt Lake City Transportation Master Plan. The posted speed limit is 25 mph west of 1300 E and 35 mph east of 1300 E within the study area.

**1300 East** is a north/south city street. South of 2100 S there are three lanes in each direction and north of 2100 S there is one lane in each direction with a center two-way left-turn lane (TWLTL) in the project vicinity. The roadway is classified as an Arterial in the Salt Lake City Transportation Master Plan. The posted speed limit is 30 mph within the study area.

---

<sup>2</sup> <https://www.arcgis.com/apps/instant/sidebar/index.html?appid=fa801b661ce14222a6c1f7d42ce21636>

**Highland Drive** is a north/south city street with one lane in each direction and a center TWLTL south of Wilmington Avenue. North of 2100 S, Highland Drive becomes 1100 E. The roadway is classified as an Arterial in the Salt Lake City Transportation Master Plan. The posted speed limit is 25 mph within the study area.

**Sugarmont Drive** is an east/west city street with one lane in each direction. East of McClelland Street, Sugarmont Drive is one-way in the westbound direction. The posted speed limit is 20 mph in the study area.

**Wilmington Avenue** is an east/west city street with one lane in each direction. The posted speed limit is 20 mph in the study area.

**McClelland Street** is a north/south city street with one lane in each direction. There is no posted speed limit in the study area.

**Simpson Avenue** is an east/west city street with one lane in each direction. Simpson Avenue begins just east of the intersection of Sugarmont Drive and McClelland Street and runs to Highland Drive. East of Highland Drive, Simpson Avenue becomes an internal street for the Sugar House Shopping Center. The posted speed limit is 20 mph in the study area.

Existing speed limits, lane configurations, and traffic control at the time of this study are illustrated in **Figure 3**.

## **2.4. Existing Traffic Volumes**

Existing typical weekday AM (7:00-9:00) and PM (4:00-6:00) peak period turning movement count data for the existing intersections were collected on Tuesday, February 10, 2026. A summary of the existing traffic data at the study area intersections is shown in **Figure 4**. Data sheets for the time periods are provided in **Appendix B**.



## 2.5. Crash Data Analysis

Crash data were obtained for the four study area intersections from UDOT for the most recent five-year period (February 1, 2021, to January 31, 2026) for which crash data were available.

Crash data for the study area intersections are summarized in **Table 1** based on crash severity, **Table 2** based on crash type, and **Table 3**. Crash data is provided in **Appendix C**.

**Table 1 – 2021 - 2026 Crashes by Crash Severity**

| Int.  | Intersection Name                     | Total Crashes | Crash Severity       |      |        |     |       |    |
|-------|---------------------------------------|---------------|----------------------|------|--------|-----|-------|----|
|       |                                       |               | Property Damage Only |      | Injury |     | Fatal |    |
|       |                                       |               | #                    | %    | #      | %   | #     | %  |
| 1     | Highland Drive and 2100 South         | 18            | 11                   | 61%  | 7      | 39% | 0     | 0% |
| 2     | Highland Drive and Wilmington Avenue  | 7             | 4                    | 57%  | 3      | 43% | 0     | 0% |
| 3     | McClelland Street and Sugarmont Drive | 3             | 3                    | 100% | 0      | 0%  | 0     | 0% |
| 4     | Highland Drive and Simpson Avenue     | 4             | 4                    | 100% | 0      | 0%  | 0     | 0% |
| Total |                                       | 32            | 22                   | 69%  | 10     | 31% | 0     | 0% |

A total of 32 crashes were recorded at the study area intersections in the most recent five-year period. The 32 crashes resulted in 22 property damage only crashes (69%), 10 injury crashes (31%), and 0 fatal crashes (0%)

**Table 2 – 2021 - 2026 Crashes by Crash Type**

| Int.  | Intersection Name                     | Total Crashes | Crash Type |     |          |     |           |     |                |     |       |     |
|-------|---------------------------------------|---------------|------------|-----|----------|-----|-----------|-----|----------------|-----|-------|-----|
|       |                                       |               | Angle      |     | Rear-End |     | Sideswipe |     | Single Vehicle |     | Other |     |
|       |                                       |               | #          | %   | #        | %   | #         | %   | #              | %   | #     | %   |
| 1     | Highland Drive and 2100 South         | 18            | 8          | 44% | 2        | 11% | 2         | 11% | 5              | 28% | 1     | 6%  |
| 2     | Highland Drive and Wilmington Avenue  | 7             | 1          | 14% | 1        | 14% | 1         | 14% | 3              | 43% | 1     | 14% |
| 3     | McClelland Street and Sugarmont Drive | 3             | 1          | 33% | 1        | 33% | 1         | 33% | 0              | 0%  | 0     | 0%  |
| 4     | Highland Drive and Simpson Avenue     | 4             | 1          | 25% | 1        | 25% | 1         | 25% | 0              | 0%  | 1     | 25% |
| Total |                                       | 32            | 11         | 34% | 5        | 16% | 5         | 16% | 8              | 25% | 3     | 9%  |

The 32 crashes resulted in 11 angle crashes (34%), 5 rear-end crashes (16%), 5 sideswipe crashes (16%), 8 single vehicle crashes (25%), and 3 crashes classified as “other” (9%).

**Table 3 – 2021 - 2026 Crashes by Lighting Condition**

| Int.         | Intersection Name                     | Total Crashes | Light Condition |            |                |            |                    |           |          |           |          |           |
|--------------|---------------------------------------|---------------|-----------------|------------|----------------|------------|--------------------|-----------|----------|-----------|----------|-----------|
|              |                                       |               | Daylight        |            | Dark - Lighted |            | Dark - Not Lighted |           | Dusk     |           | Dawn     |           |
|              |                                       |               | #               | %          | #              | %          | #                  | %         | #        | %         | #        | %         |
| 1            | Highland Drive and 2100 South         | 18            | 11              | 61%        | 6              | 33%        | 0                  | 0%        | 1        | 6%        | 0        | 0%        |
| 2            | Highland Drive and Wilmington Avenue  | 7             | 5               | 71%        | 2              | 29%        | 0                  | 0%        | 0        | 0%        | 0        | 0%        |
| 3            | McClelland Street and Sugarmont Drive | 3             | 2               | 67%        | 1              | 33%        | 0                  | 0%        | 0        | 0%        | 0        | 0%        |
| 4            | Highland Drive and Simpson Avenue     | 4             | 4               | 100%       | 0              | 0%         | 0                  | 0%        | 0        | 0%        | 0        | 0%        |
| <b>Total</b> |                                       | <b>32</b>     | <b>22</b>       | <b>69%</b> | <b>9</b>       | <b>28%</b> | <b>0</b>           | <b>0%</b> | <b>1</b> | <b>3%</b> | <b>0</b> | <b>0%</b> |

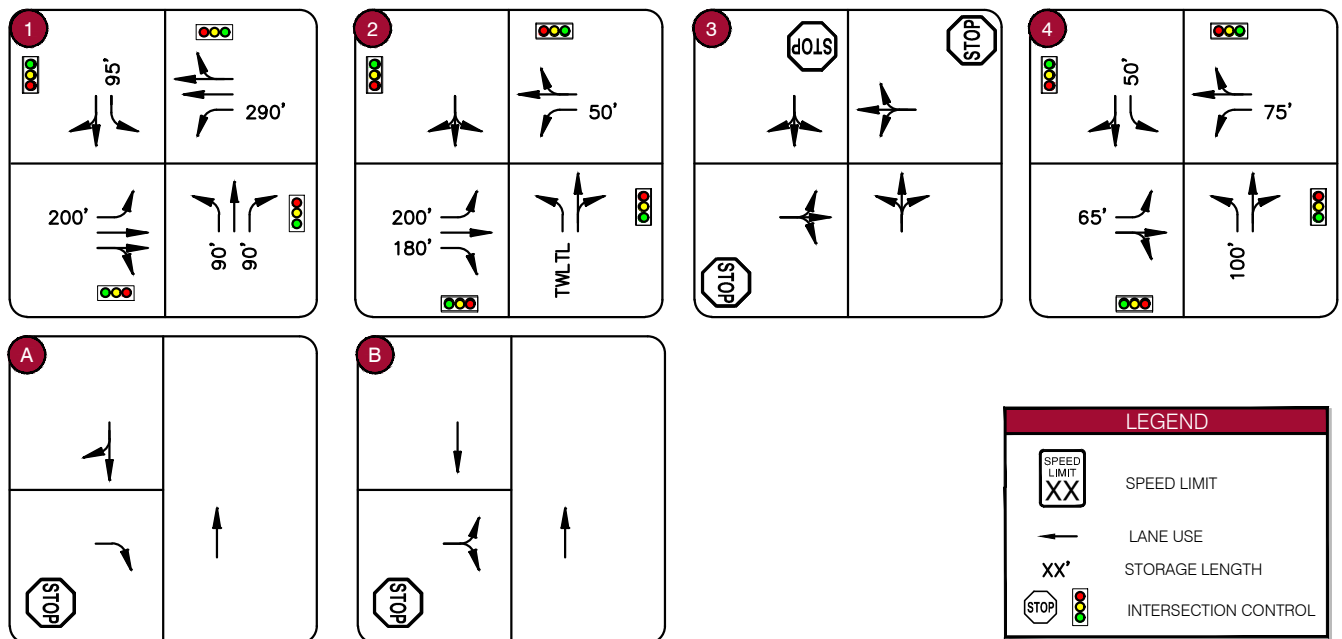
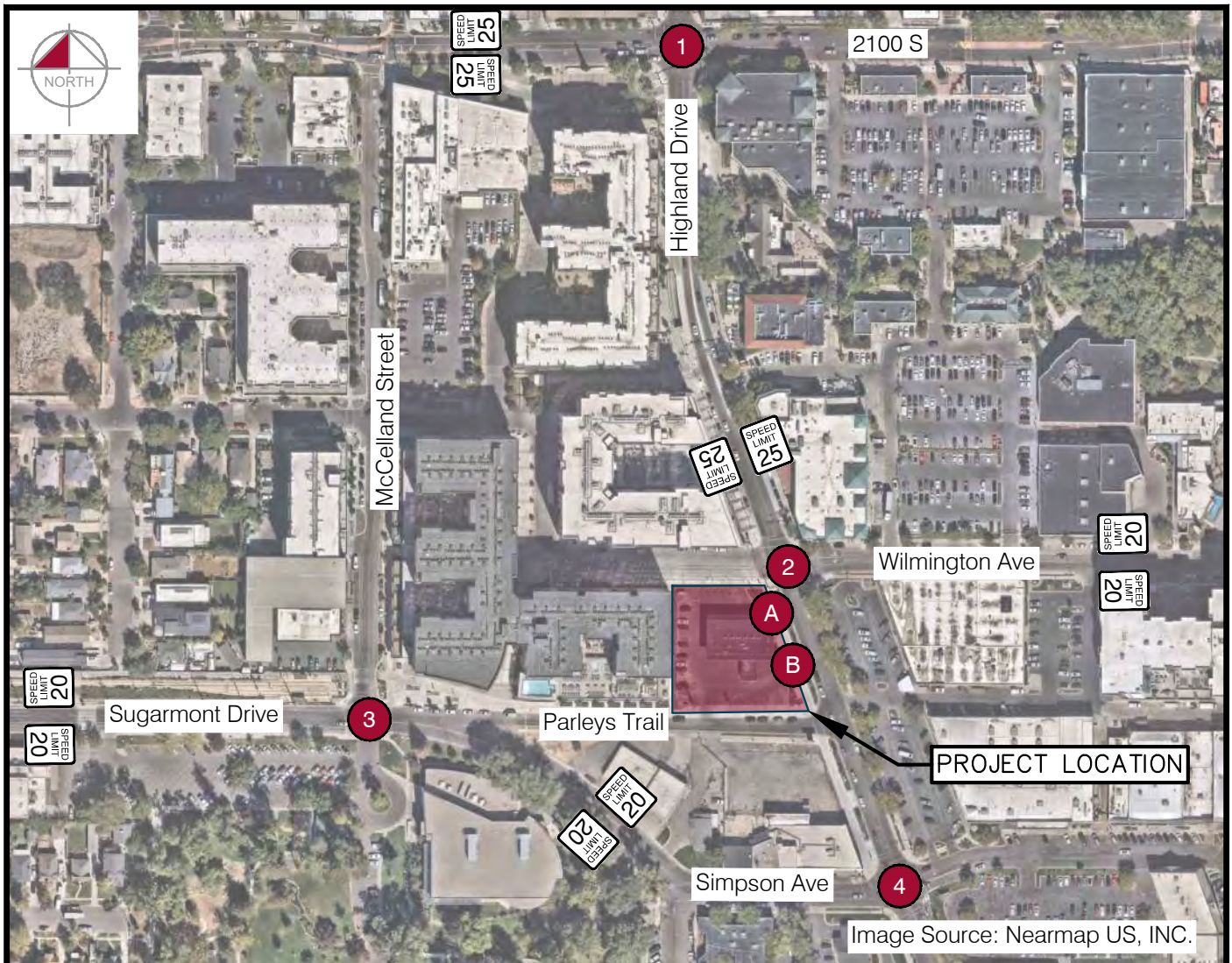
Of the 32 crashes, 22 (69%) occurred during daylight, 9 (28%) occurred at night during lighted conditions, 0 (0%) occurred at night in non-lighted conditions, 1 (3%) occurred during dusk, and 0 (0%) during dawn.

Below are the key observations of the crash data:

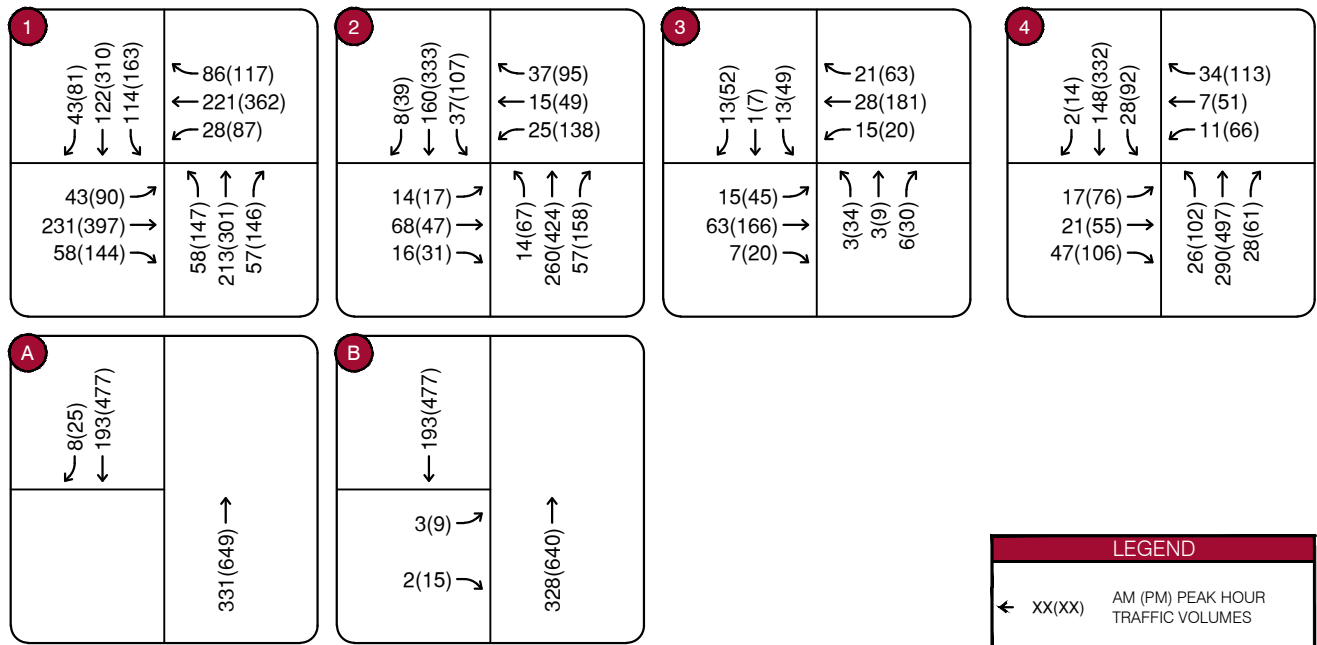
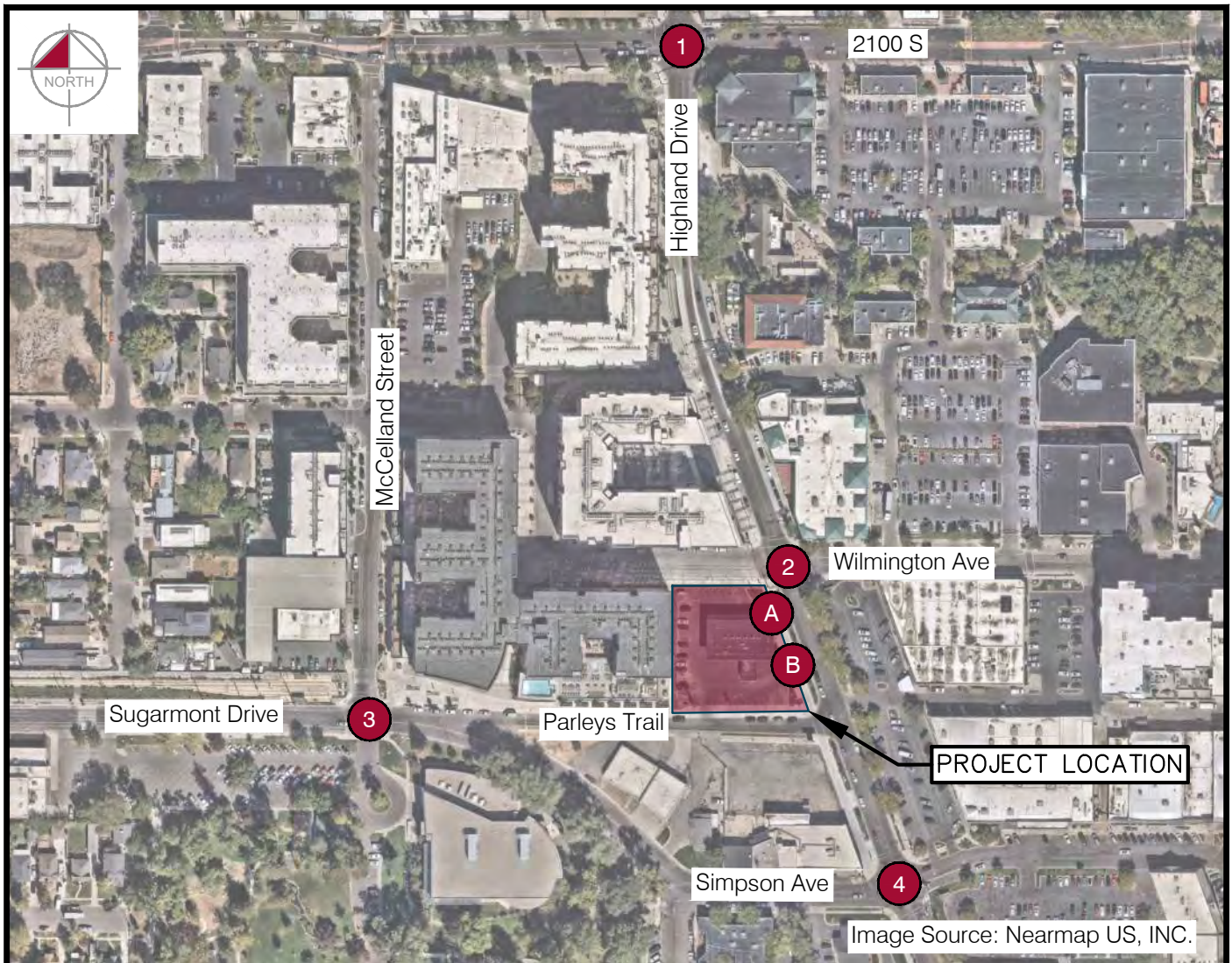
- 69% of crashes in the study area were recorded as property damage only with no crashes recorded as fatal.
- 34% of crashes in the study area were recorded as angle, and 25% were recorded as single vehicle crashes.
- 69% of crashes in the study area occurred during daylight conditions.

The crash data did not reveal any distinguishable trend or common occurrence among crashes in the most recent five-year period.

No crash data driven mitigations are warranted at the study area intersections based on crash data results presented in this section.







### 3. FUTURE CONDITIONS

This section summarizes conditions that are expected in the future 2028 and 2033 conditions.

#### 3.1. Proposed Development

The proposed GEM Sugar House development is anticipated to be completed in 2028 and consists of the redevelopment of the existing 2,950 square-foot (SF) bank, and the construction of 196 multifamily housing units, a 4,400 SF restaurant, and a 985 SF bicycle café.

Access to the site is planned via two existing access driveways, both located on Highland Drive. The northern driveway on Highland Drive will consist of right-in, right-out only access. The southern driveway on Highland Drive is proposed as an exit-only driveway, as it will be the primary exit for vehicles using the drive-through lanes at the bank. It should be noted that there is an existing driveway on Sugarmont Drive that would be removed as part of the project.

#### 3.2. Planned Improvements

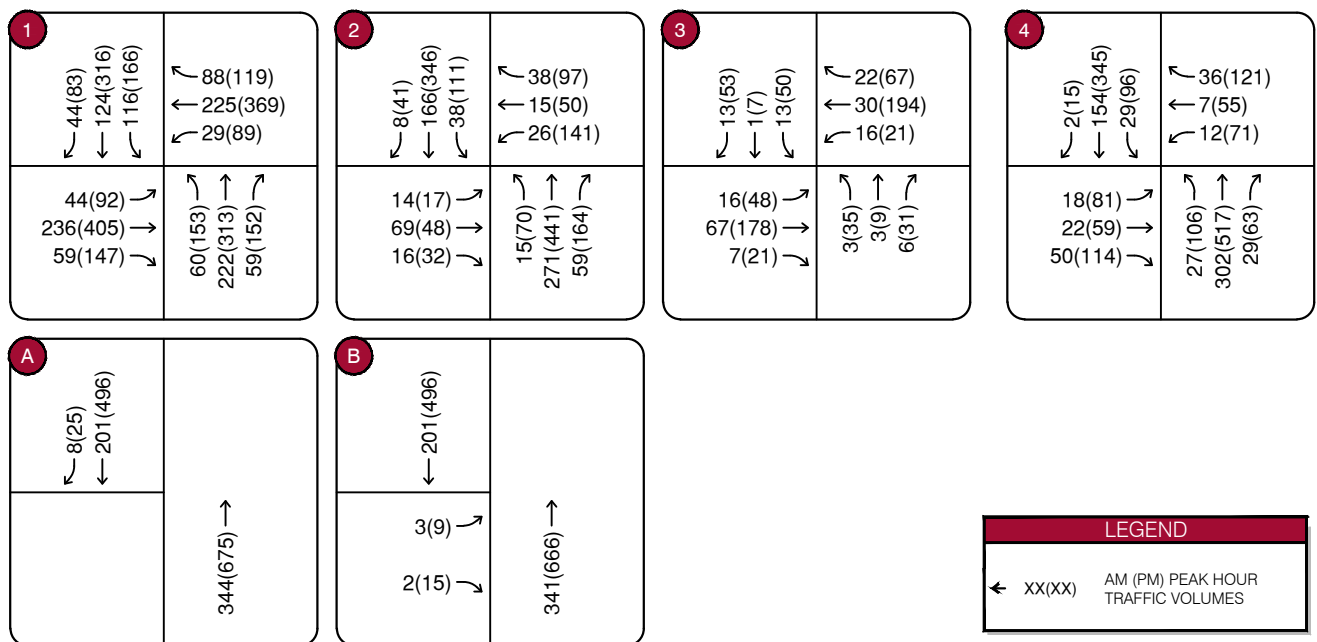
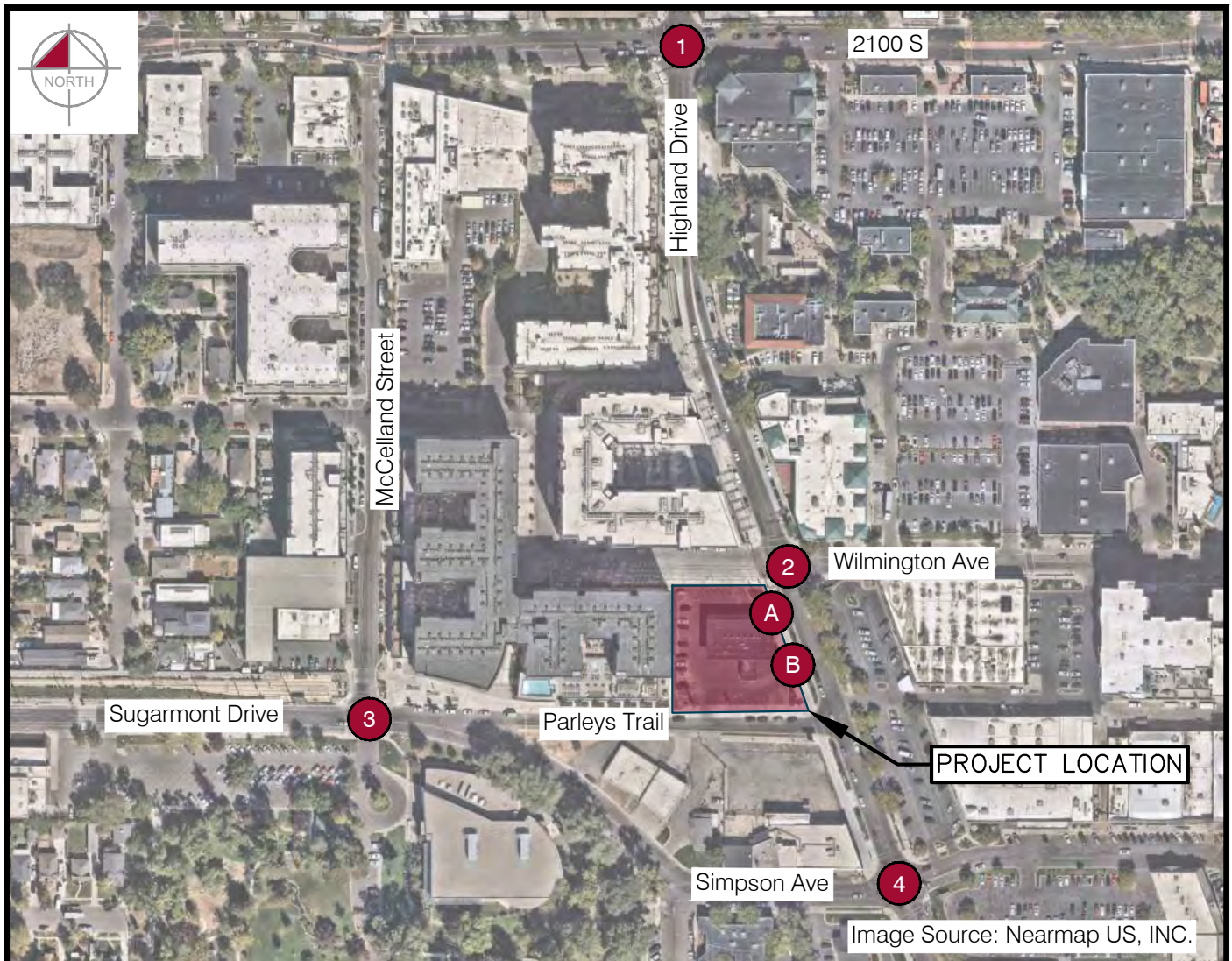
A review of the Sugar House Master Plan shows no improvements that would affect the future background conditions of the development. In coordination with Salt Lake City, we understand there are future plans for Parley's Trail to be closed to vehicle traffic.

#### 3.3. 2028 and 2033 Background Traffic Volumes

To determine the impact of project traffic, the first step is to estimate future baseline traffic volumes on roadways in the vicinity of proposed development site. Both 2028 and 2033 background traffic volumes were developed by applying annual growth rates to collected traffic volumes. The annual growth rates were developed based on future volumes (from 2023 to 2032) from the Wasatch Front Regional Council (WFRC) Travel Demand Model. The calculated growth rates varied by segment, ranging from 1.0% to 3.5%. Segment growth rates and calculation spreadsheets are included in **Appendix D**.

The 2028 background and 2033 background traffic volumes at the study area intersections are illustrated in **Figure 5** and **Figure 6**, respectively.





14(17) ↗

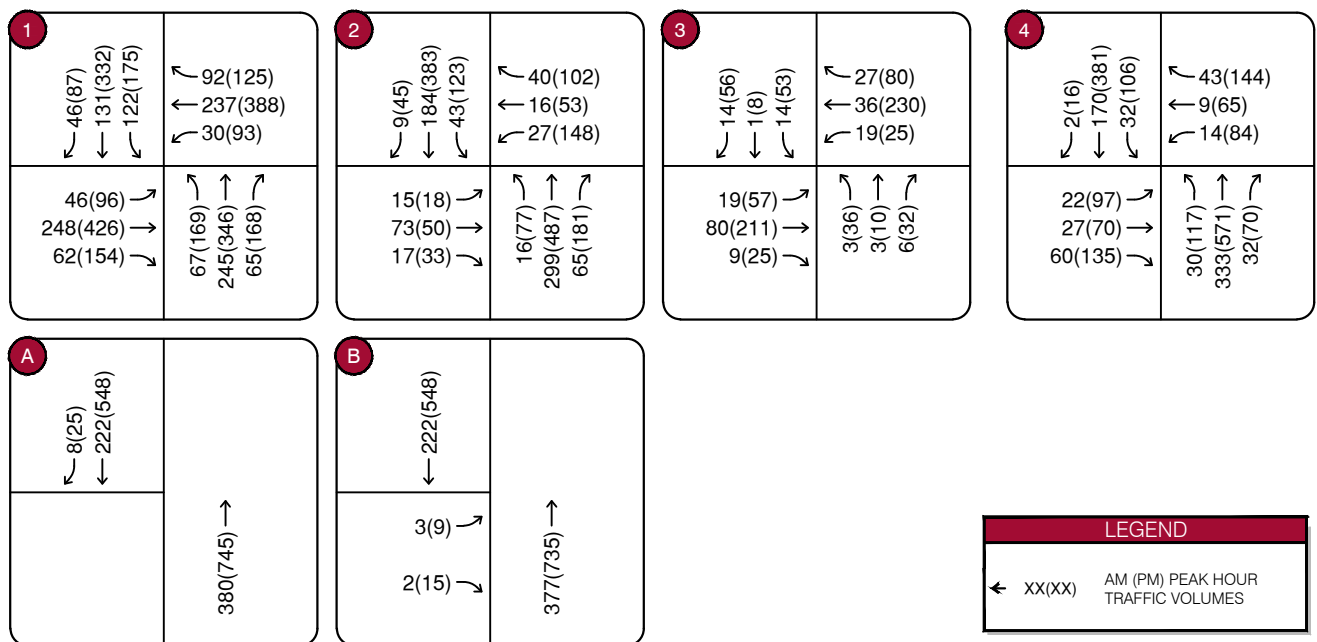
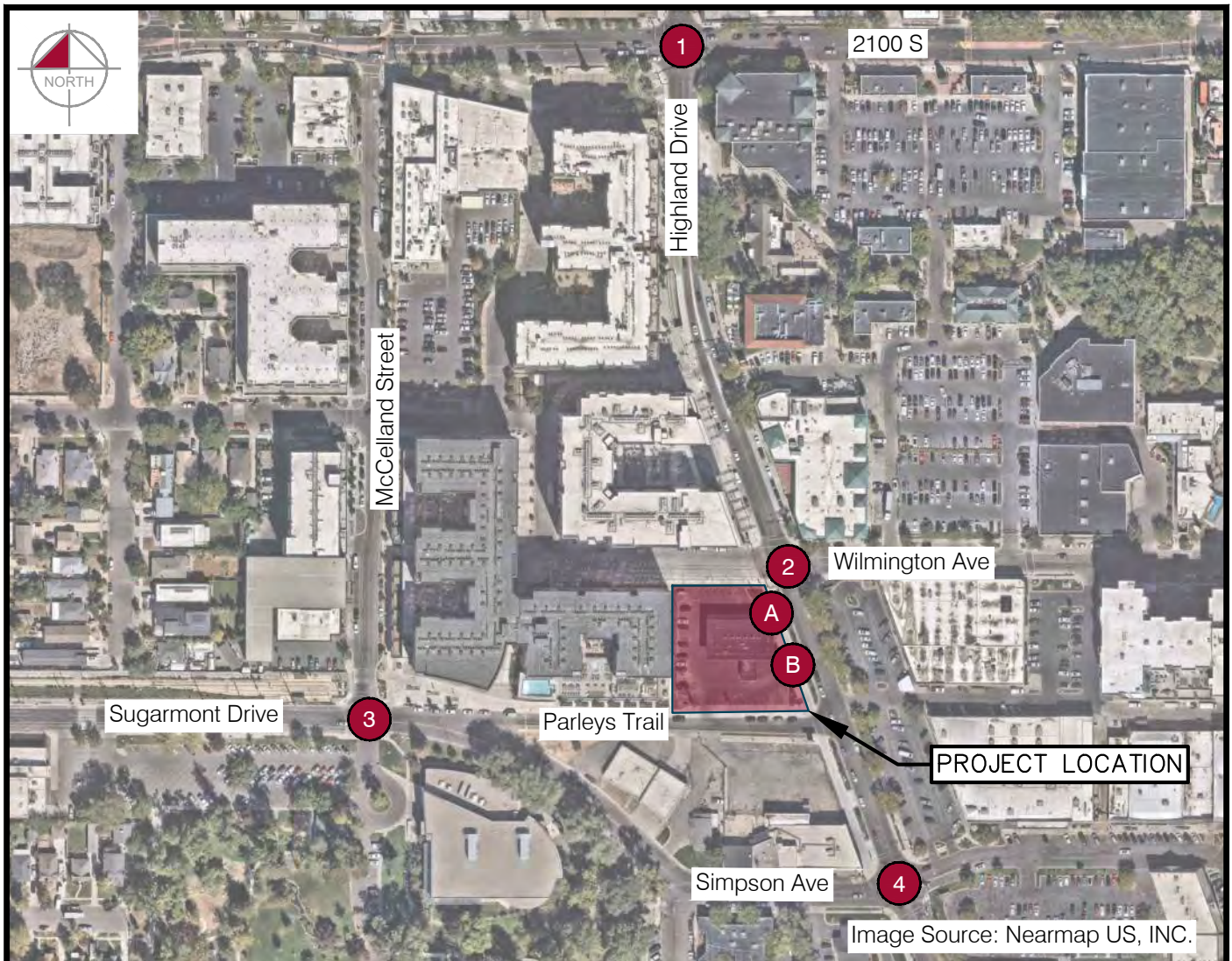
69(48) ↘

16(32) ↘

**LEGEND**

← XX(X) AM (PM) PEAK HOUR TRAFFIC VOLUMES





15(18) ↗

73(50) ↘

17(33) ↘

LEGEND

← XX(XX)    AM (PM) PEAK HOUR TRAFFIC VOLUMES

### 3.4. Project Trip Generation

Trip generation estimates for the existing bank were developed based on existing data collection at the site driveways. Trip generation estimates for the proposed uses were prepared using the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 12<sup>th</sup> Edition*.

Daily and peak hour trips are shown in **Table 4**. The proposed development is anticipated to generate approximately 1,369 daily trips (1,077 new trips), with 148 project trips (135 new trips) occurring in the AM peak hour and 154 project trips (105 new trips) occurring in the PM peak hour of a typical weekday.

**Table 4 – Trip Generation for Proposed GEM Sugar House Development**

| Land Use                                                                                                                                                                                                                         | ITE Land Use Code | Qty   | Units          | Daily Total | AM Peak |     |       | PM Peak |     |       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------|----------------|-------------|---------|-----|-------|---------|-----|-------|
|                                                                                                                                                                                                                                  |                   |       |                |             | In      | Out | Total | In      | Out | Total |
| Existing Site                                                                                                                                                                                                                    |                   |       |                |             |         |     |       |         |     |       |
| Drive-in Bank <sup>1</sup>                                                                                                                                                                                                       | --                | 2.95  | 1,000 SF       | 292         | 8       | 5   | 13    | 25      | 24  | 49    |
| Existing Trip Generation Total:                                                                                                                                                                                                  |                   |       |                | 292         | 8       | 5   | 13    | 25      | 24  | 49    |
| Proposed Development                                                                                                                                                                                                             |                   |       |                |             |         |     |       |         |     |       |
| Drive-in Bank <sup>1</sup>                                                                                                                                                                                                       | --                | 2.95  | 1,000 SF       | 292         | 8       | 5   | 13    | 25      | 24  | 49    |
| Multifamily Housing (High-Rise, Close to Rail Transit)                                                                                                                                                                           | 222               | 196   | Dwelling Units | 419         | 5       | 38  | 43    | 26      | 12  | 38    |
| Fine Dining Restaurant                                                                                                                                                                                                           | 931               | 4.40  | 1,000 SF       | 348         | 1       | 1   | 2     | 25      | 11  | 36    |
| Coffee/Donut Shop without Drive-Through Window                                                                                                                                                                                   | 936               | 0.985 | 1,000 SF       | 310         | 46      | 44  | 90    | 16      | 15  | 31    |
| Proposed Development Trip Generation Total:                                                                                                                                                                                      |                   |       |                | 1,369       | 60      | 88  | 148   | 92      | 62  | 154   |
| Proposed New Trip Generation Total:                                                                                                                                                                                              |                   |       |                | 1,077       | 52      | 83  | 135   | 67      | 38  | 105   |
| <sup>1</sup> Peak hour trip generation estimates are based on existing data collection at the three existing driveways at the site. Daily trip generation estimates were calculated using ITE Land Use Code 912 (Drive-in Bank). |                   |       |                |             |         |     |       |         |     |       |

### 3.5. Project Trip Distribution

Project trip directional distribution quantifies the percentage of new site-generated traffic that approaches and departs the site from a given direction. Distribution estimates consider study area street network characteristics, existing traffic patterns based on collected count data, expected street network, and access to regional facilities. Entering and exiting trip distribution for the site is shown in **Figure 8**. Trips from the existing bank are reflected in the existing traffic counts, as such only the non-bank uses were distributed (proposed new trip generation).

### 3.6. Project Trip Assignment

Trips generated by the proposed development were assigned to the roadway network based on the trip distribution and likely travel patterns to and from the project site.

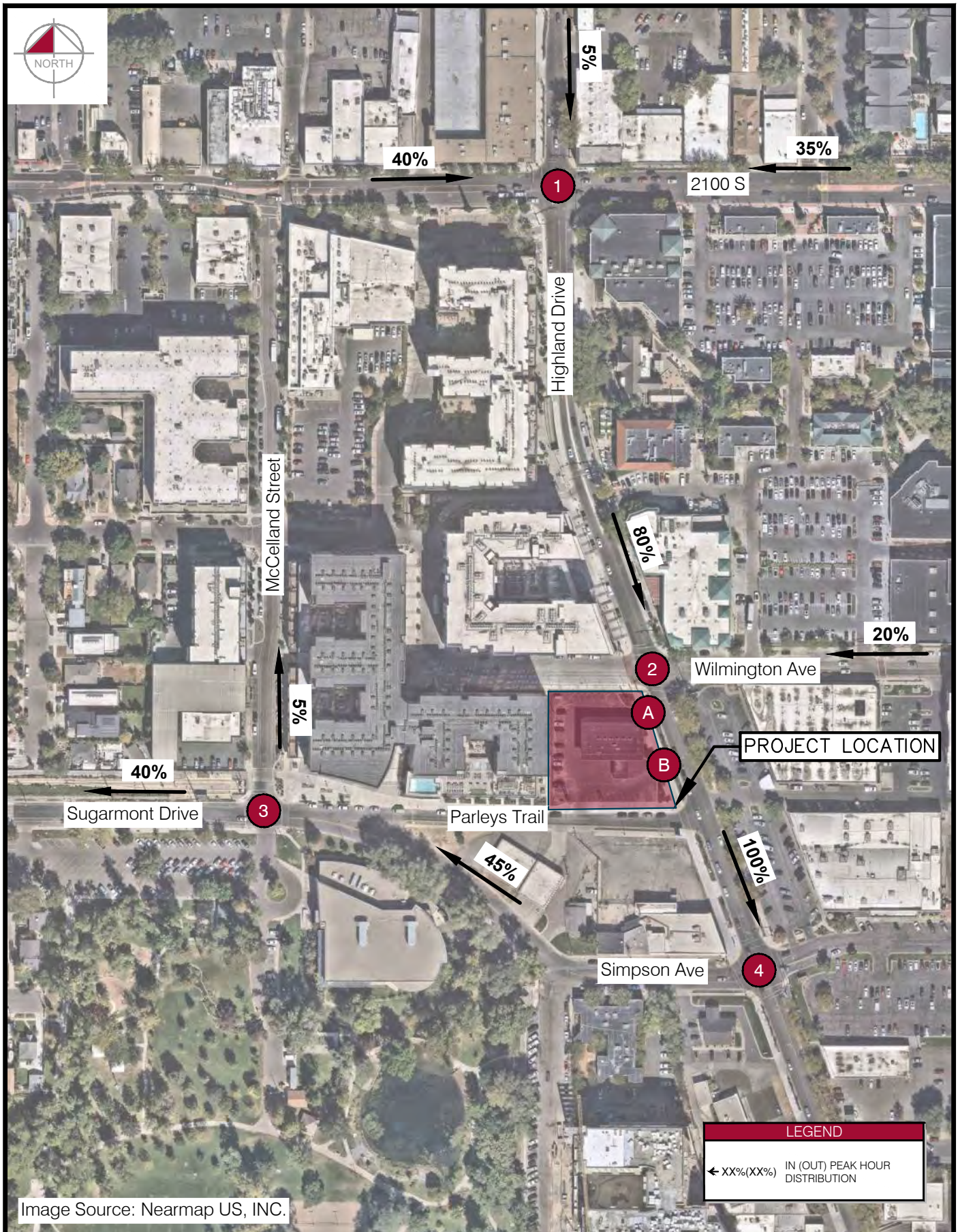
New trips were assigned using the lane geometry and intersection control shown in **Figure 3** as well as the project trip distribution and trip assignment are provided in **Figure 7** and **Figure 8**, respectively.

### **3.7. 2028 and 2033 Background Plus Project Traffic Volumes**

The project trip assignment (**Figure 8**) was added to 2028 background traffic volumes (**Figure 5**) to calculate 2028 background plus project traffic volumes for study area intersections. The 2028 background plus project peak hour traffic volumes are illustrated in **Figure 9**.

The project trip assignment (**Figure 8**) was added to 2033 background traffic volumes (**Figure 6**) to calculate 2033 background plus project traffic volumes for study area intersections. The 2033 background plus project peak hour traffic volumes are illustrated in **Figure 10**.







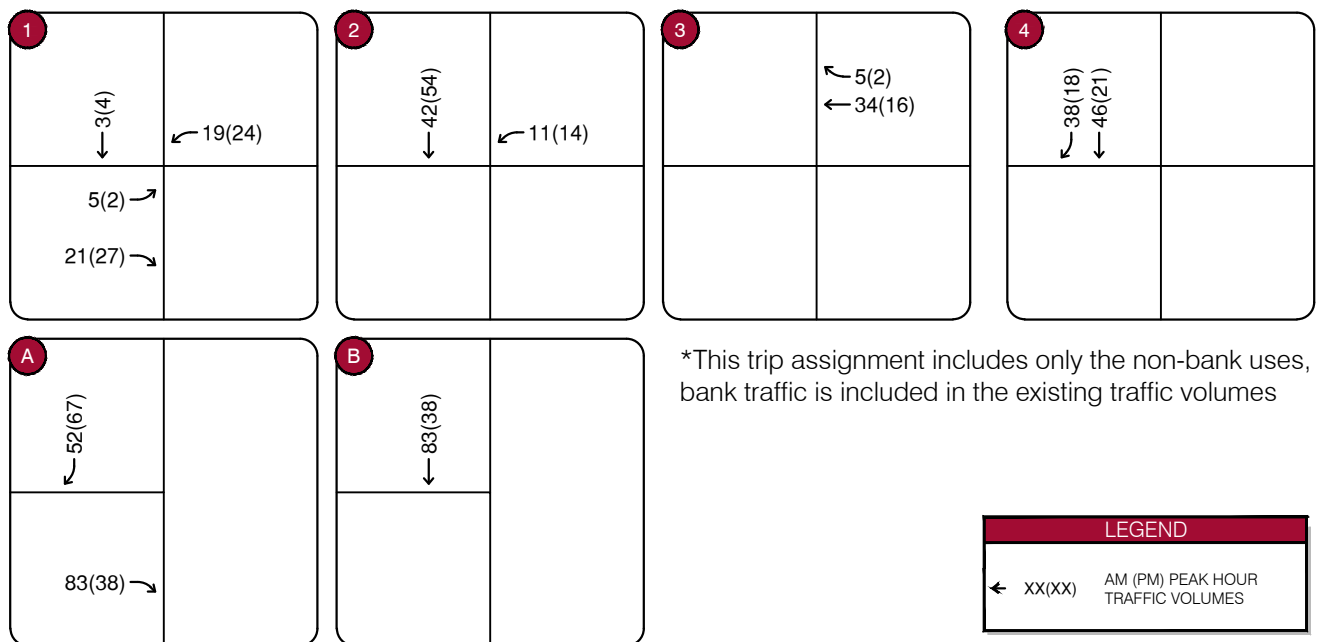
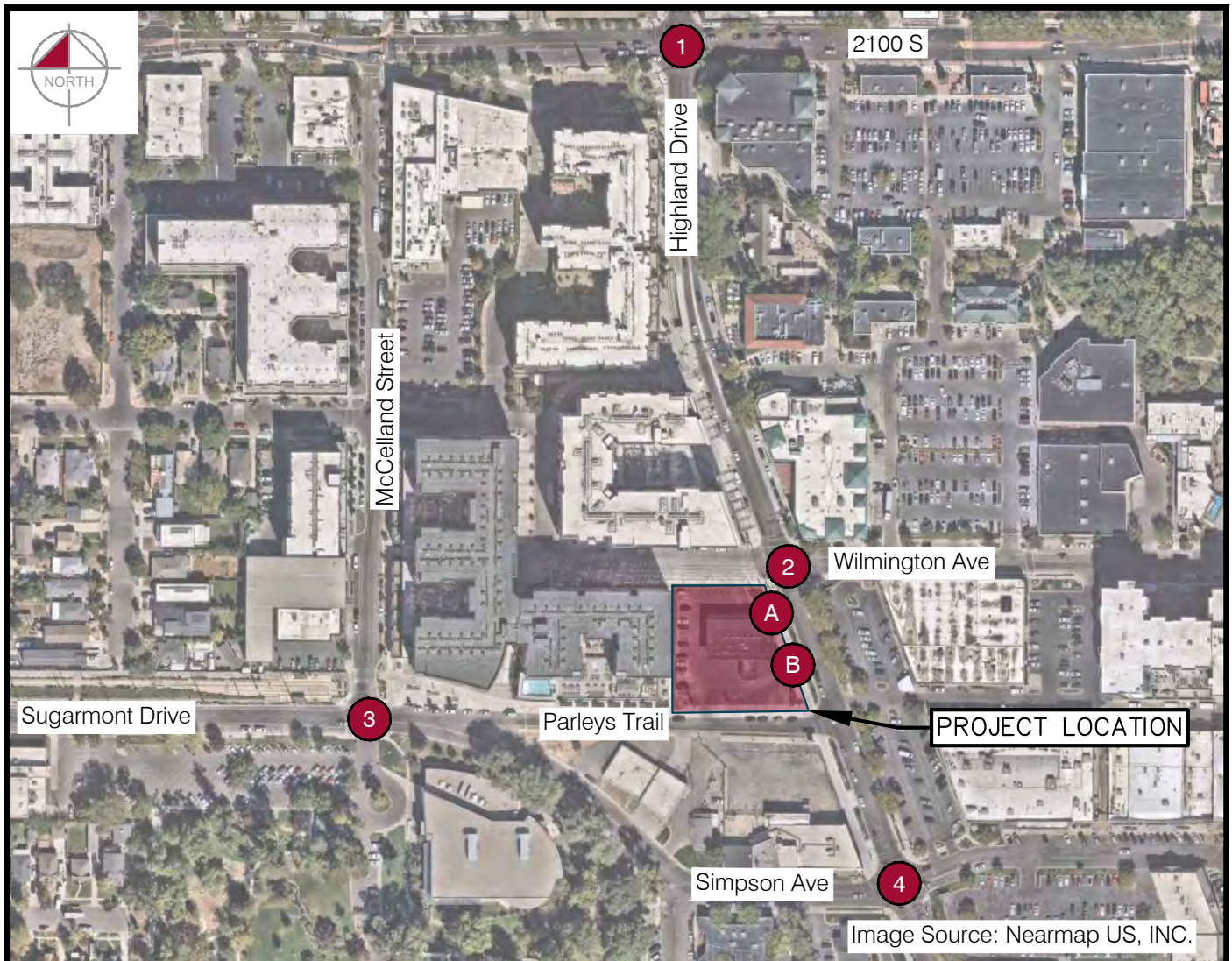
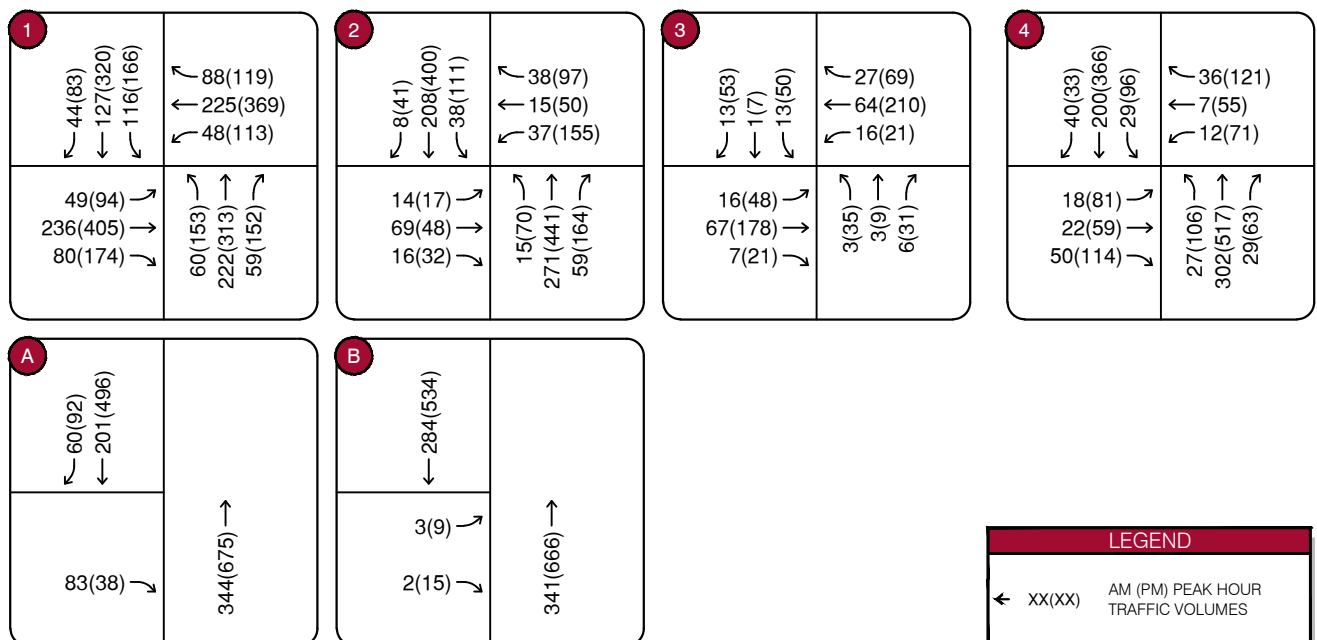
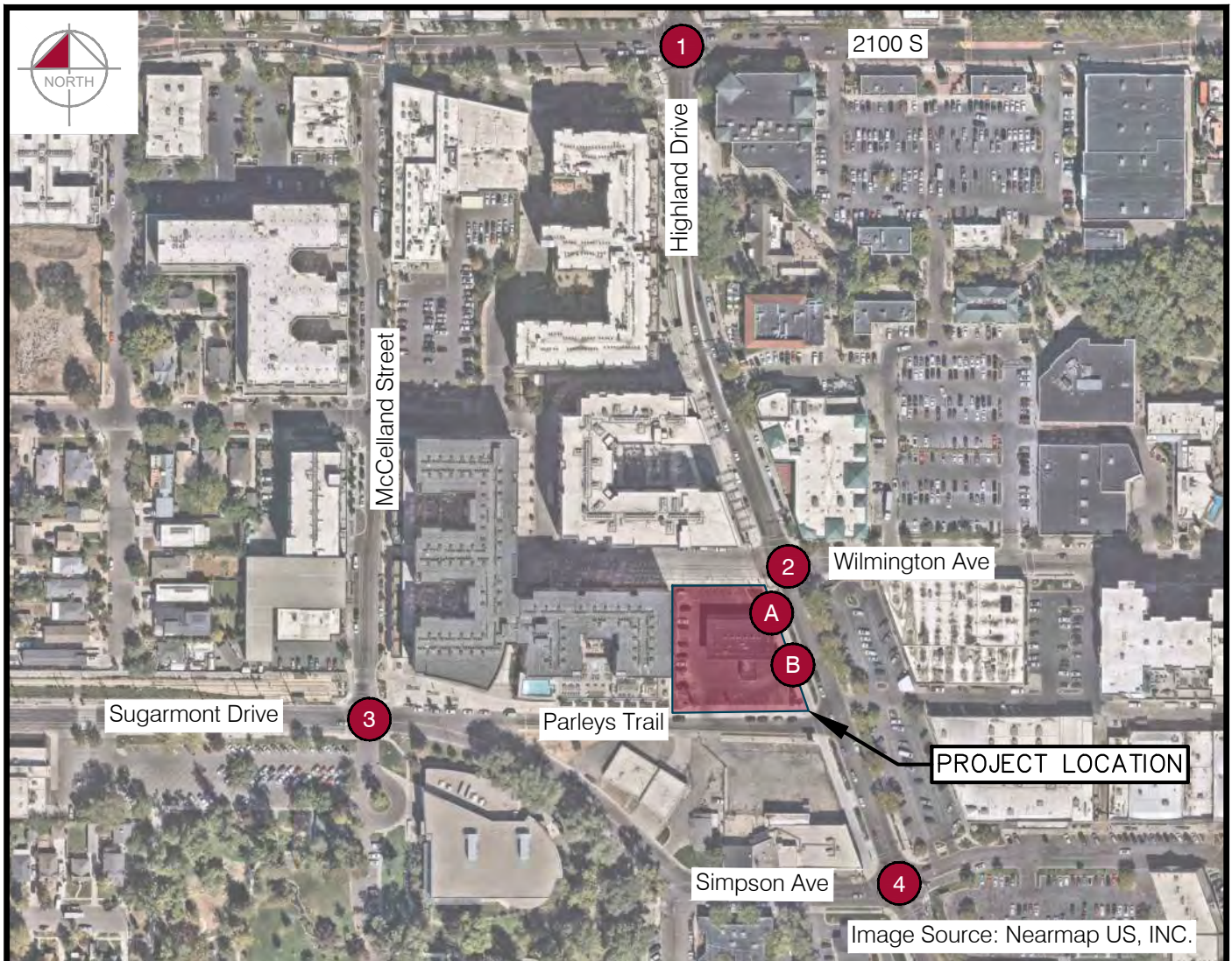
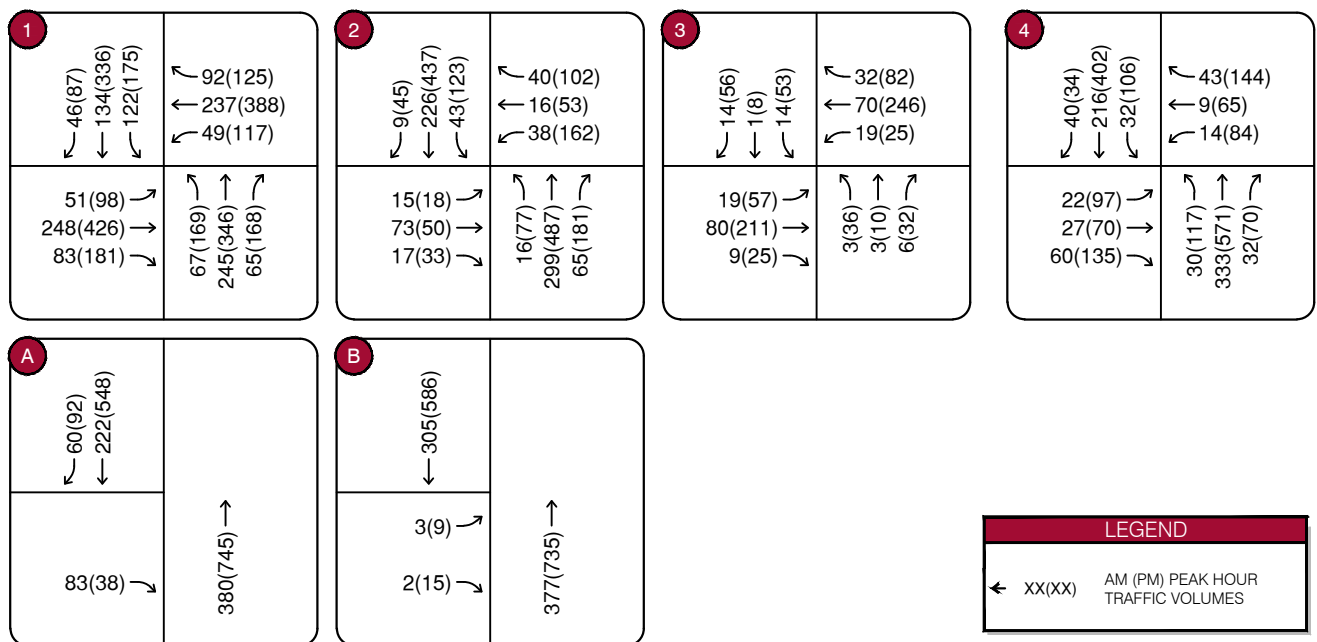
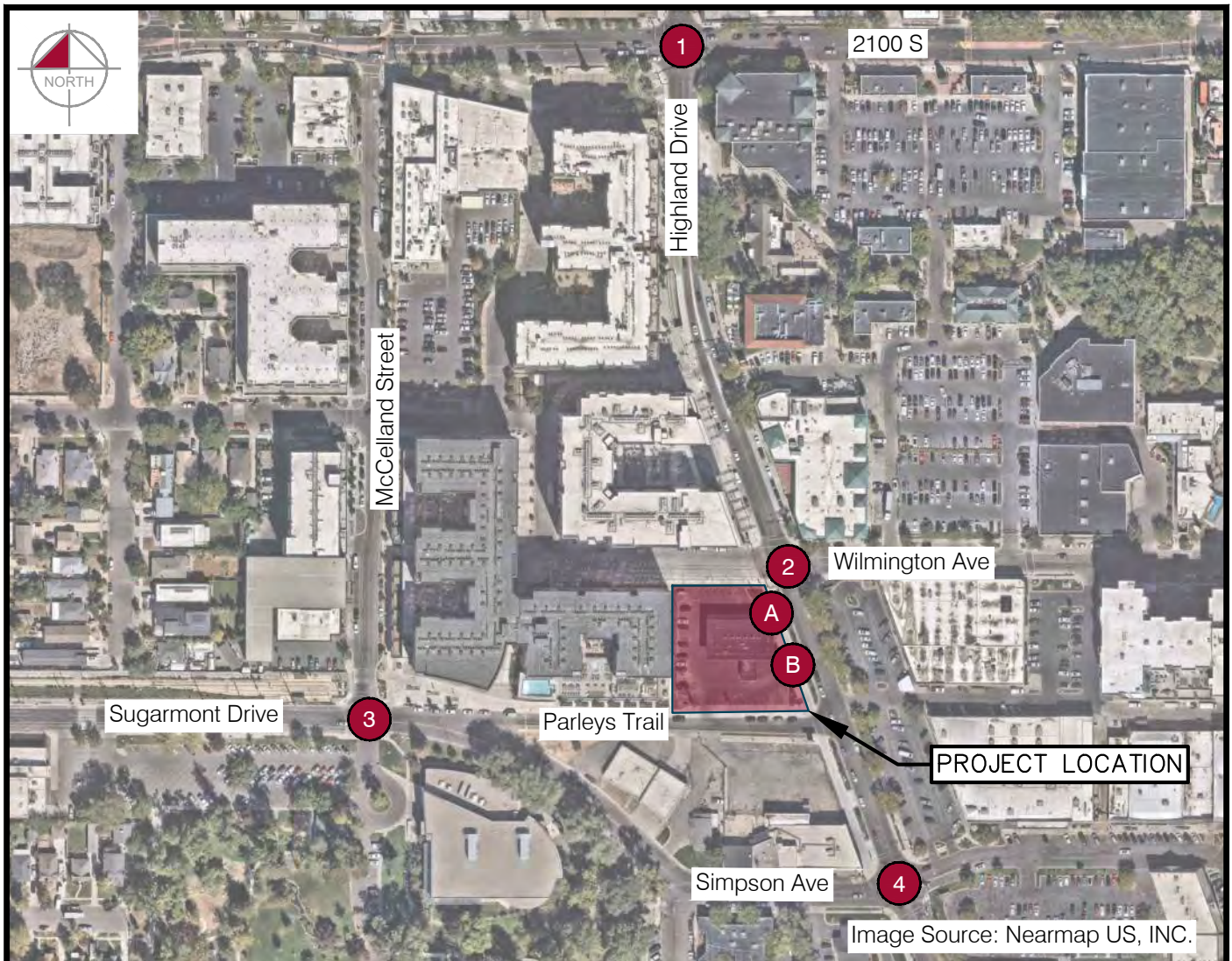


Figure 8  
Project Trip Assignment









15(18) ↗

73(50) ↘

17(33) ↘

**LEGEND**

← XX(XX) AM (PM) PEAK HOUR TRAFFIC VOLUMES



## 4. ANALYSIS

Traffic scenarios analyzed in this TIS include those listed below. Each scenario's AM and PM peak hour are analyzed and reported in this section:

### 4.1. Analysis Methodology

Study area intersections were analyzed based on average total delay for study intersections as presented in the Transportation Research Board's *Highway Capacity Manual, 7<sup>th</sup> Edition* (HCM 7). Under the unsignalized analysis, the level of service (LOS) for a two-way stop-controlled (TWSC) intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS for a two-way stop-controlled intersection is not defined for the intersection as a whole. LOS for a signalized intersection, four-way stop controlled intersections, or a roundabout is defined for the intersection as a whole. **Table 5** shows the definition of LOS for intersections.

**Table 5 – Level of Service Definitions**

| Level of Service | Signalized Intersection Control Delay(sec/veh) | Unsignalized Intersection Control Delay (sec/veh) |
|------------------|------------------------------------------------|---------------------------------------------------|
| A                | ≤10                                            | ≤10                                               |
| B                | >10 and ≤20                                    | >10 and ≤15                                       |
| C                | >20 and ≤35                                    | >15 and ≤25                                       |
| D                | >35 and ≤55                                    | >25 and ≤35                                       |
| E                | >55 and ≤80                                    | >35 and ≤50                                       |
| F                | >80                                            | >50                                               |

*Definitions provided from the Highway Capacity Manual, 7<sup>th</sup> Edition, Transportation Research Board.*

### 4.2. Operational Analysis

Analysis of 2026 existing, 2028 background, 2028 plus project, 2033 background, and 2033 plus project conditions are based on the lane geometry and intersection control shown in **Figure 3**.

Operational analyses HCM reports from Synchro for each scenario are provided in **Appendix E**.

#### 4.2.1. 2026 Existing Operational Analysis

Operational analysis results for the 2026 existing AM and PM peak hours are shown in **Table 6**. All intersections currently operate at an acceptable LOS.

**Table 6 – 2026 Existing Operational Analysis**

| Intersection |                                       | Control | AM Peak Hour |     |               | PM Peak Hour |     |               |
|--------------|---------------------------------------|---------|--------------|-----|---------------|--------------|-----|---------------|
|              |                                       |         | Lane Group   | LOS | Delay (s/veh) | Lane Group   | LOS | Delay (s/veh) |
| 1            | Highland Drive and 2100 South         | Signal  | Overall      | C   | 34.3          | Overall      | D   | 46.6          |
| 2            | Highland Drive and Wilmington Avenue  | Signal  | Overall      | A   | 8.3           | Overall      | B   | 11.0          |
| 3            | McClelland Street and Sugarmont Drive | TWSC    | NB           | A   | 9.6           | SB           | B   | 13.6          |
| 4            | Highland Drive and Simpson Avenue     | Signal  | Overall      | A   | 7.5           | Overall      | B   | 12.3          |
| A            | Highland Drive and North Driveway     | TWSC    | EB           | A   | 0.0           | EB           | A   | 0.0           |
| B            | Highland Drive and South Driveway     | TWSC    | EB           | B   | 10.7          | EB           | B   | 13.7          |

#### 4.2.2. 2028 Background Operational Analysis

Operational analysis results for the 2028 background AM and PM peak hours are shown **Table 7**. All intersections are anticipated to operate at an acceptable LOS.

**Table 7 – 2028 Background Operational Analysis**

| Intersection |                                       | Control | AM Peak Hour |     |               | PM Peak Hour |     |               |
|--------------|---------------------------------------|---------|--------------|-----|---------------|--------------|-----|---------------|
|              |                                       |         | Lane Group   | LOS | Delay (s/veh) | Lane Group   | LOS | Delay (s/veh) |
| 1            | Highland Drive and 2100 South         | Signal  | Overall      | C   | 33.1          | Overall      | D   | 47.8          |
| 2            | Highland Drive and Wilmington Avenue  | Signal  | Overall      | A   | 8.3           | Overall      | B   | 11.3          |
| 3            | McClelland Street and Sugarmont Drive | TWSC    | NB           | A   | 9.4           | SB           | B   | 14.2          |
| 4            | Highland Drive and Simpson Avenue     | Signal  | Overall      | A   | 7.5           | Overall      | B   | 12.9          |
| A            | Highland Drive and North Driveway     | TWSC    | EB           | A   | 0.0           | EB           | A   | 0.0           |
| B            | Highland Drive and South Driveway     | TWSC    | EB           | B   | 10.7          | EB           | B   | 14.0          |

#### 4.2.3. 2028 Plus Project Operational Analysis

Operational analysis results for the 2028 plus project AM and PM peak hours are shown in **Table 8**. All intersections are anticipated to operate at an acceptable LOS.

**Table 8 - 2028 Plus Project Operational Analysis**

| Intersection                            | Control | AM Peak Hour |     |               | PM Peak Hour |     |               |
|-----------------------------------------|---------|--------------|-----|---------------|--------------|-----|---------------|
|                                         |         | Lane Group   | LOS | Delay (s/veh) | Lane Group   | LOS | Delay (s/veh) |
| 1 Highland Drive and 2100 South         | Signal  | Overall      | C   | 33.9          | Overall      | D   | 50.0          |
| 2 Highland Drive and Wilmington Avenue  | Signal  | Overall      | A   | 8.3           | Overall      | B   | 11.7          |
| 3 McClelland Street and Sugarmont Drive | TWSC    | SB           | A   | 9.7           | SB           | B   | 14.5          |
| 4 Highland Drive and Simpson Avenue     | Signal  | Overall      | A   | 7.1           | Overall      | B   | 12.8          |
| A Highland Drive and North Driveway     | TWSC    | EB           | B   | 10.2          | EB           | B   | 12.9          |
| B Highland Drive and South Driveway     | TWSC    | EB           | B   | 11.3          | EB           | B   | 14.4          |

#### 4.2.4. 2033 Background Operational Analysis

Operational analysis results for the 2033 background AM and PM peak hours are shown in **Table 9**. All intersections are anticipated to operate at an acceptable LOS.

**Table 9 - 2033 Background Operational Analysis**

| Intersection                            | Control | AM Peak Hour |     |               | PM Peak Hour |     |               |
|-----------------------------------------|---------|--------------|-----|---------------|--------------|-----|---------------|
|                                         |         | Lane Group   | LOS | Delay (s/veh) | Lane Group   | LOS | Delay (s/veh) |
| 1 Highland Drive and 2100 South         | Signal  | Overall      | C   | 34.4          | Overall      | D   | 51.6          |
| 2 Highland Drive and Wilmington Avenue  | Signal  | Overall      | A   | 8.2           | Overall      | B   | 12.6          |
| 3 McClelland Street and Sugarmont Drive | TWSC    | NB           | A   | 9.6           | SB           | C   | 16.5          |
| 4 Highland Drive and Simpson Avenue     | Signal  | Overall      | A   | 8.1           | Overall      | B   | 14.7          |
| A Highland Drive and North Driveway     | TWSC    | EB           | A   | 0.0           | EB           | A   | 0.0           |
| B Highland Drive and South Driveway     | TWSC    | EB           | B   | 11.0          | EB           | B   | 14.9          |

#### 4.2.5. 2033 Plus Project Operational Analysis

Operational analysis results for the 2033 plus project AM and PM peak hours are shown in **Table 10**. All intersections are anticipated to operate at an acceptable LOS.

**Table 10 - 2033 Plus Project Operational Analysis**

| Intersection |                                       | Control | AM Peak Hour |     |               | PM Peak Hour |     |               |
|--------------|---------------------------------------|---------|--------------|-----|---------------|--------------|-----|---------------|
|              |                                       |         | Lane Group   | LOS | Delay (s/veh) | Lane Group   | LOS | Delay (s/veh) |
| 1            | Highland Drive and 2100 South         | Signal  | Overall      | D   | 35.3          | Overall      | D   | 54.3          |
| 2            | Highland Drive and Wilmington Avenue  | Signal  | Overall      | A   | 8.3           | Overall      | B   | 13.3          |
| 3            | McClelland Street and Sugarmont Drive | TWSC    | SB           | A   | 9.9           | SB           | C   | 17.0          |
| 4            | Highland Drive and Simpson Avenue     | Signal  | Overall      | A   | 7.7           | Overall      | B   | 14.7          |
| A            | Highland Drive and North Driveway     | TWSC    | EB           | B   | 10.4          | EB           | B   | 13.6          |
| B            | Highland Drive and South Driveway     | TWSC    | EB           | B   | 11.6          | EB           | C   | 15.4          |

#### 4.2.6. Intersection Queuing Evaluation

Queue lengths were assessed for the following movements:

- Highland Drive and 2100 South
  - o Westbound Left-Turn
- Highland Drive and Wilmington Avenue
  - o Southbound Through
  - o Westbound Left-Turn
- Highland Drive and North Driveway
  - o Eastbound Right-Turn

A summary of the storage capacity as well as the 95<sup>th</sup> percentile queue lengths are summarized in **Table 11**.



**Table 11 – Summary of Intersection Queuing**

| Intersection and Approach            | Existing Storage (ft/lane) | Peak Hour | 95 <sup>th</sup> Percentile Queue |                 |                   |                 |                   |
|--------------------------------------|----------------------------|-----------|-----------------------------------|-----------------|-------------------|-----------------|-------------------|
|                                      |                            |           | Existing                          | 2028 Background | 2028 Plus Project | 2032 Background | 2032 Plus Project |
| Highland Drive and 2100 South        |                            |           |                                   |                 |                   |                 |                   |
| - Westbound Left-Turn                | 290                        | AM        | 61                                | 63              | 93                | 66              | 96                |
|                                      |                            | PM        | 157                               | 159             | 207               | 165             | 218               |
| Highland Drive and Wilmington Avenue |                            |           |                                   |                 |                   |                 |                   |
| - Southbound Through                 | -- <sup>1</sup>            | AM        | 46                                | 48              | 58                | 55              | 65                |
|                                      |                            | PM        | 188                               | 206             | 257               | 317             | 418               |
| - Westbound Left-Turn                | 50                         | AM        | 28                                | 29              | 38                | 30              | 38                |
|                                      |                            | PM        | 99                                | 101             | 111               | 106             | 114               |
| Highland Drive and North Driveway    |                            |           |                                   |                 |                   |                 |                   |
| - Eastbound Right-Turn               | -- <sup>1</sup>            | AM        | 0                                 | 0               | 10                | 0               | 10                |
|                                      |                            | PM        | 0                                 | 0               | 8                 | 0               | 8                 |

<sup>1</sup> There is no striped storage capacity. Queue lengths are provided for informational purposes.

Review of **Table 11** shows that during the PM peak hour, the westbound left-turn queues at the intersection of Highland Drive and Wilmington Avenue are projected to exceed the available storage capacity. It is important to note that the 95<sup>th</sup> percentile queue lengths exceeding the storage capacity are present in both existing and background traffic only conditions, where no proposed development traffic is included. These conditions are not expected to be present for long durations. The 95<sup>th</sup> percentile queue length value represents a queue length reached only 5% of the time during the peak hour; in other words, queues are expected to remain shorter than this value approximately 95% of the time.

All other locations are expected to have adequate storage capacity to accommodate the 95<sup>th</sup> percentile queues.

#### 4.2.7. Operational Analysis Findings

Operational analysis results show the addition of project traffic does not significantly affect operations at the study area intersection or driveways.

During the PM peak hour the westbound left-turn queues at the intersection of Highland Drive and Wilmington Avenue are projected to exceed the available storage capacity. It is important to note that the 95<sup>th</sup> percentile queue lengths exceeding the storage capacity are present in both existing and background traffic only conditions, where no proposed development traffic is included. These conditions are not expected to be present for long durations. The 95<sup>th</sup> percentile queue length value represents a queue length reached only 5% of the time during the peak hour; in other words, queues are expected to remain shorter than this value approximately 95% of the time. All other locations are expected to have adequate storage capacity to accommodate the 95<sup>th</sup> percentile queues.

Given these findings, no mitigation measures to study area intersections or driveways are warranted for the proposed development.

## 5. SITE ACCESS AND CIRCULATION

Access to the site is planned via two existing unsignalized access driveways, both located on Highland Drive. The northern driveway on Highland Drive will consist of right-in, right-out only access. In order to restrict left turn movements at this driveway, it is recommended that a median be installed on Highland Drive.

The southern driveway on Highland Drive is proposed as an exit-only driveway, as it will be the primary exit for vehicles using the drive-through lanes at the bank. To prevent vehicles from entering at this driveway, it is recommended that flexible delineators be installed on Highland Drive in addition to proper signage at the driveway. This improvement would restrict northbound left-turns into the driveway while still allowing for left turns out of the site and full-access for the shopping center driveway across the street.

A conceptual drawing of these improvements is shown in **Figure 11**.

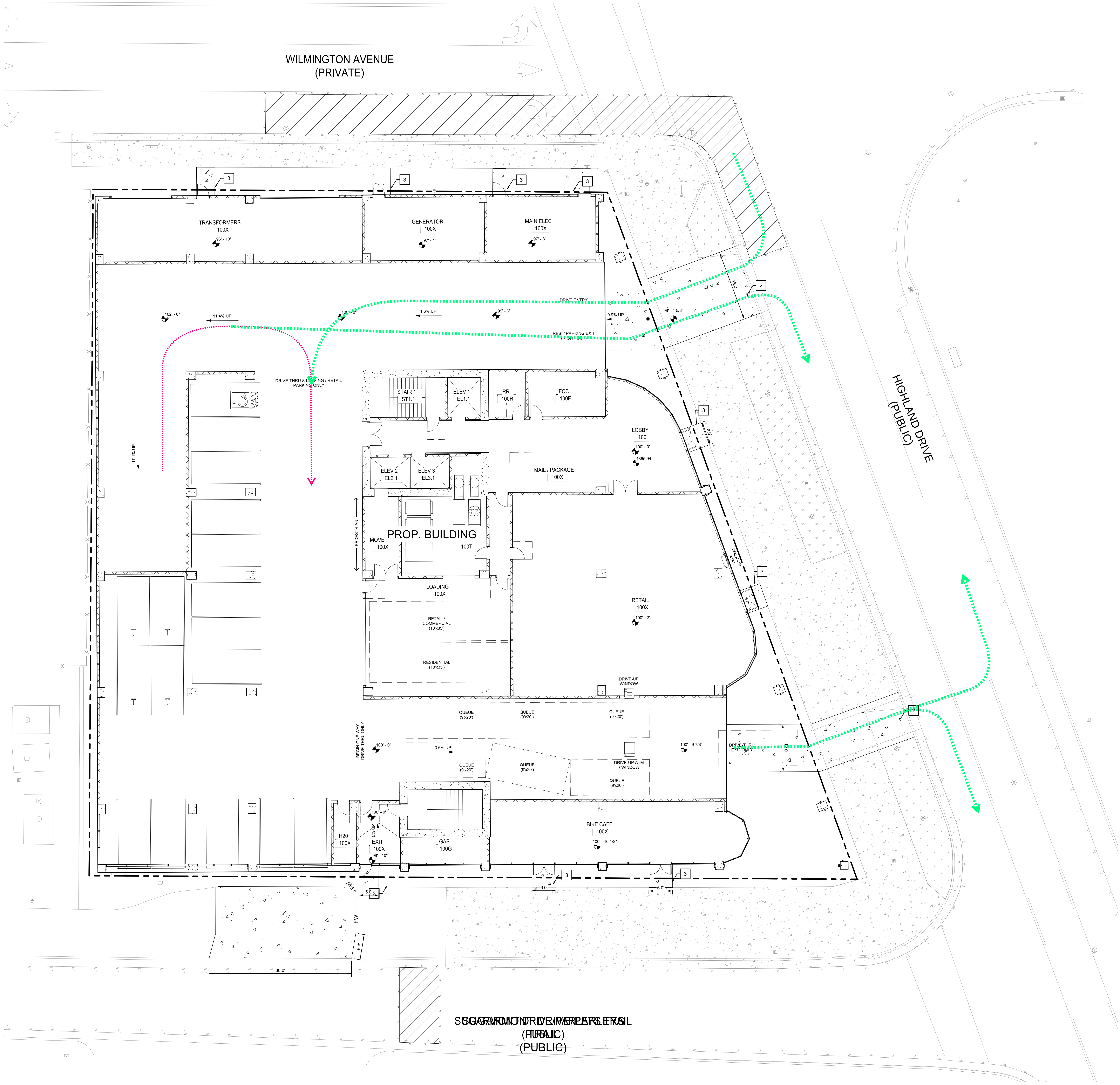


## APPENDIX A

### SITE PLAN



FILE PATH: K:\S\LC\_CIVIL\193186001\_GARDNER - GEM SUGARHOUSE\CADD\PLANS\193186001\_LC.DWG  
USER NAME: K:\S\LC\_CIVIL\193186001\_GARDNER - GEM SUGARHOUSE  
DATE STAMP: 12/9/2025 1:11 PM



GENERAL NOTES

1. CONTRACTOR TO VERIFY EXISTING IMPROVEMENTS SHOWN ON THE PLAN.
2. CONTRACTOR TO PROTECT IN PLACE, DURING DEMOLITION AND CONSTRUCTION, ALL EXISTING IMPROVEMENTS THAT ARE TO REMAIN AS NOTED ON THE PLAN.
3. ANY EXISTING STRUCTURE, IMPROVEMENT OR APPURTENANCE TO REMAIN THAT IS DAMAGED DURING DEMOLITION OR CONSTRUCTION SHALL BE IMMEDIATELY REPAIRED OR REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

CONSTRUCTION NOTES

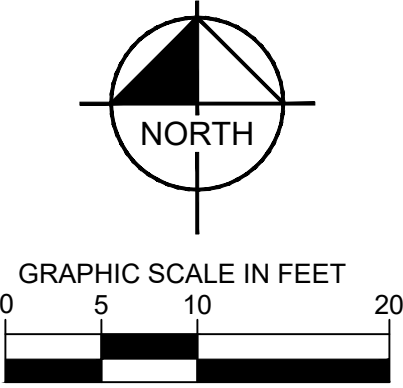
1. INSTALL TYPE A CURB AND GUTTER PER APWA DETAIL 205.1
2. INSTALL SAW CUT DRIVEWAY APPROACH PER APWA DETAIL 222
3. INSTALL CONCRETE SIDEWALK PER APWA DETAIL 231

SITE INFORMATION

THE SITE IS MADE OF A NORTH AND SOUTH PARCEL EQUALING A TOTAL OF 0.65 ACRES.

LEGEND

|  |                            |
|--|----------------------------|
|  | PROPERTY LINE              |
|  | PROPOSED BUILDING          |
|  | PROPOSED CONCRETE PAVEMENT |



2333 Locust Street  
Denver, CO 80207  
720.452.1500



111 E Broadway, Suite 600  
Salt Lake City, UT 84111  
385.212.3176

| REVISIONS: |      |             |
|------------|------|-------------|
| #          | DATE | DESCRIPTION |

PROJECT TITLE:  
GEM SUGARHOUSE

PROJECT LOCATION:  
2200 S HIGHLAND DR  
SALT LAKE CITY, UTAH  
84106

ISSUANCE:

DATE:

SHEET NAME:  
SITE PLAN

C3.10

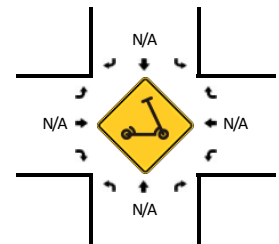
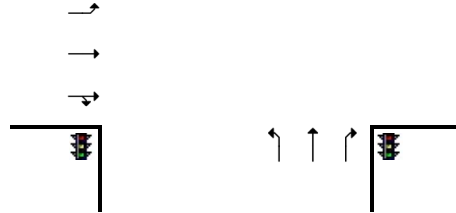
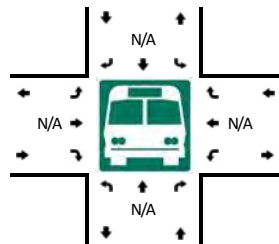
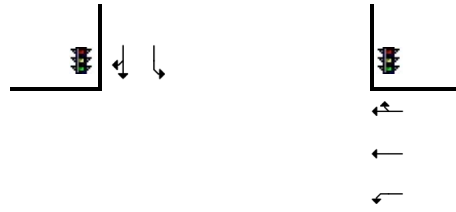
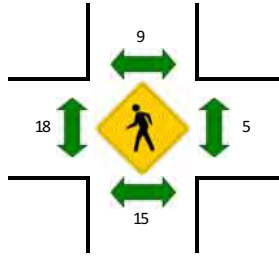
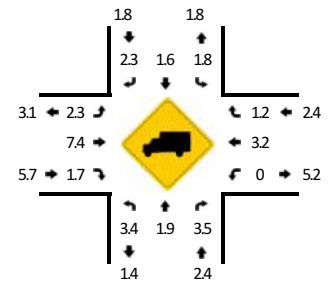
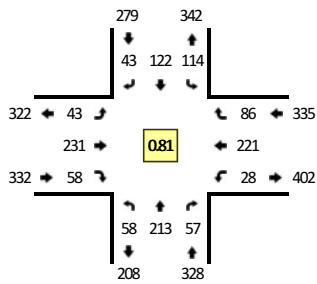


## **APPENDIX B**

### **TRAFFIC COUNT DATA**

**LOCATION:** 1100 E/Highland Dr -- 2100 S**CITY/STATE:** Salt Lake City, UT**QC JOB #:** 17429301**DATE:** Tue, Feb 10 2026

Peak-Hour: 8:00 AM -- 9:00 AM  
Peak 15-Min: 8:45 AM -- 9:00 AM



| 15-Min Count Period Beginning At | 1100 E/Highland Dr (Northbound) |      |       |   | 1100 E/Highland Dr (Southbound) |      |       |   | 2100 S (Eastbound) |      |       |   | 2100 S (Westbound) |      |       |   | Total | Hourly Totals |
|----------------------------------|---------------------------------|------|-------|---|---------------------------------|------|-------|---|--------------------|------|-------|---|--------------------|------|-------|---|-------|---------------|
|                                  | Left                            | Thru | Right | U | Left                            | Thru | Right | U | Left               | Thru | Right | U | Left               | Thru | Right | U |       |               |
| 7:00 AM                          | 9                               | 28   | 6     | 0 | 17                              | 20   | 6     | 0 | 3                  | 18   | 17    | 0 | 7                  | 26   | 6     | 0 | 163   |               |
| 7:15 AM                          | 12                              | 33   | 6     | 0 | 13                              | 11   | 11    | 0 | 9                  | 30   | 4     | 0 | 5                  | 33   | 13    | 0 | 180   |               |
| 7:30 AM                          | 8                               | 39   | 9     | 0 | 19                              | 17   | 8     | 0 | 8                  | 47   | 6     | 0 | 5                  | 28   | 15    | 0 | 209   |               |
| 7:45 AM                          | 15                              | 53   | 16    | 0 | 28                              | 25   | 9     | 0 | 22                 | 47   | 14    | 0 | 5                  | 52   | 26    | 0 | 312   | 864           |
| 8:00 AM                          | 10                              | 55   | 10    | 0 | 21                              | 33   | 10    | 0 | 9                  | 56   | 15    | 0 | 6                  | 42   | 20    | 0 | 287   | 988           |
| 8:15 AM                          | 16                              | 37   | 14    | 0 | 26                              | 20   | 13    | 0 | 9                  | 56   | 6     | 0 | 4                  | 44   | 16    | 0 | 261   | 1069          |
| 8:30 AM                          | 17                              | 58   | 16    | 0 | 38                              | 32   | 10    | 0 | 15                 | 60   | 13    | 0 | 7                  | 43   | 23    | 0 | 332   | 1192          |
| 8:45 AM                          | 15                              | 63   | 17    | 0 | 29                              | 37   | 10    | 0 | 10                 | 59   | 24    | 0 | 11                 | 92   | 27    | 0 | 394   | 1274          |
| Peak 15-Min Flowrates            | Northbound                      |      |       |   | Southbound                      |      |       |   | Eastbound          |      |       |   | Westbound          |      |       |   | Total |               |
|                                  | Left                            | Thru | Right | U | Left                            | Thru | Right | U | Left               | Thru | Right | U | Left               | Thru | Right | U |       |               |
| All Vehicles                     | 60                              | 252  | 68    | 0 | 116                             | 148  | 40    | 0 | 40                 | 236  | 96    | 0 | 44                 | 368  | 108   | 0 | 1576  |               |
| Heavy Trucks                     | 4                               | 0    | 4     |   | 0                               | 0    | 0     |   | 0                  | 16   | 4     |   | 0                  | 16   | 0     |   | 44    |               |
| Buses                            |                                 |      |       |   |                                 |      |       |   |                    |      |       |   |                    |      |       |   |       |               |
| Pedestrians                      |                                 | 4    |       |   |                                 | 8    |       |   |                    | 20   |       |   |                    | 0    |       |   | 32    |               |
| Bicycles                         | 0                               | 0    | 0     |   | 0                               | 4    | 4     |   | 0                  | 0    | 0     |   | 0                  | 0    | 0     |   | 8     |               |
| Scooters                         |                                 |      |       |   |                                 |      |       |   |                    |      |       |   |                    |      |       |   |       |               |

**Comments:**

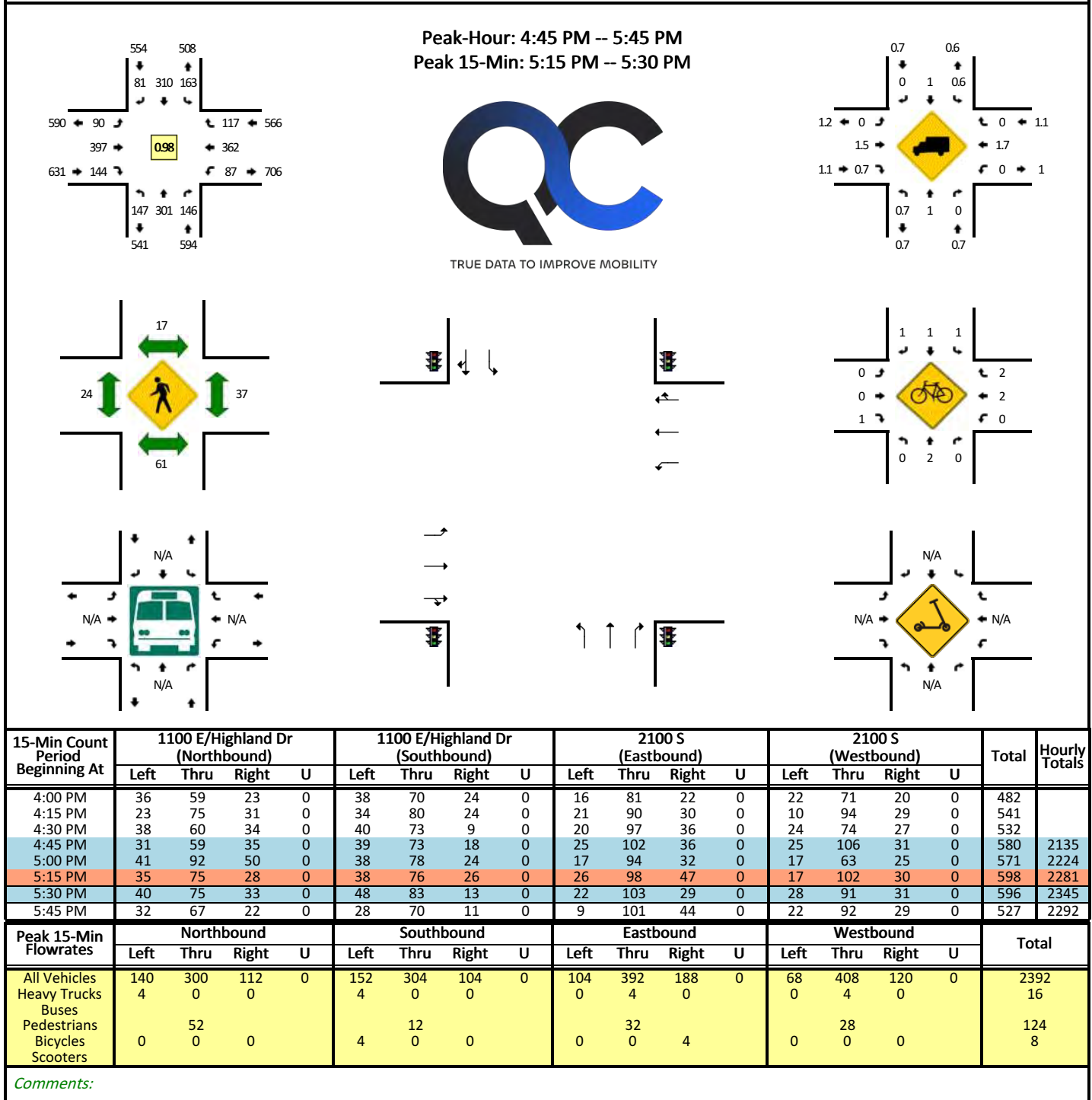
Report generated on 2/13/2026 7:26 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212



**LOCATION:** 1100 E/Highland Dr -- 2100 S  
**CITY/STATE:** Salt Lake City, UT

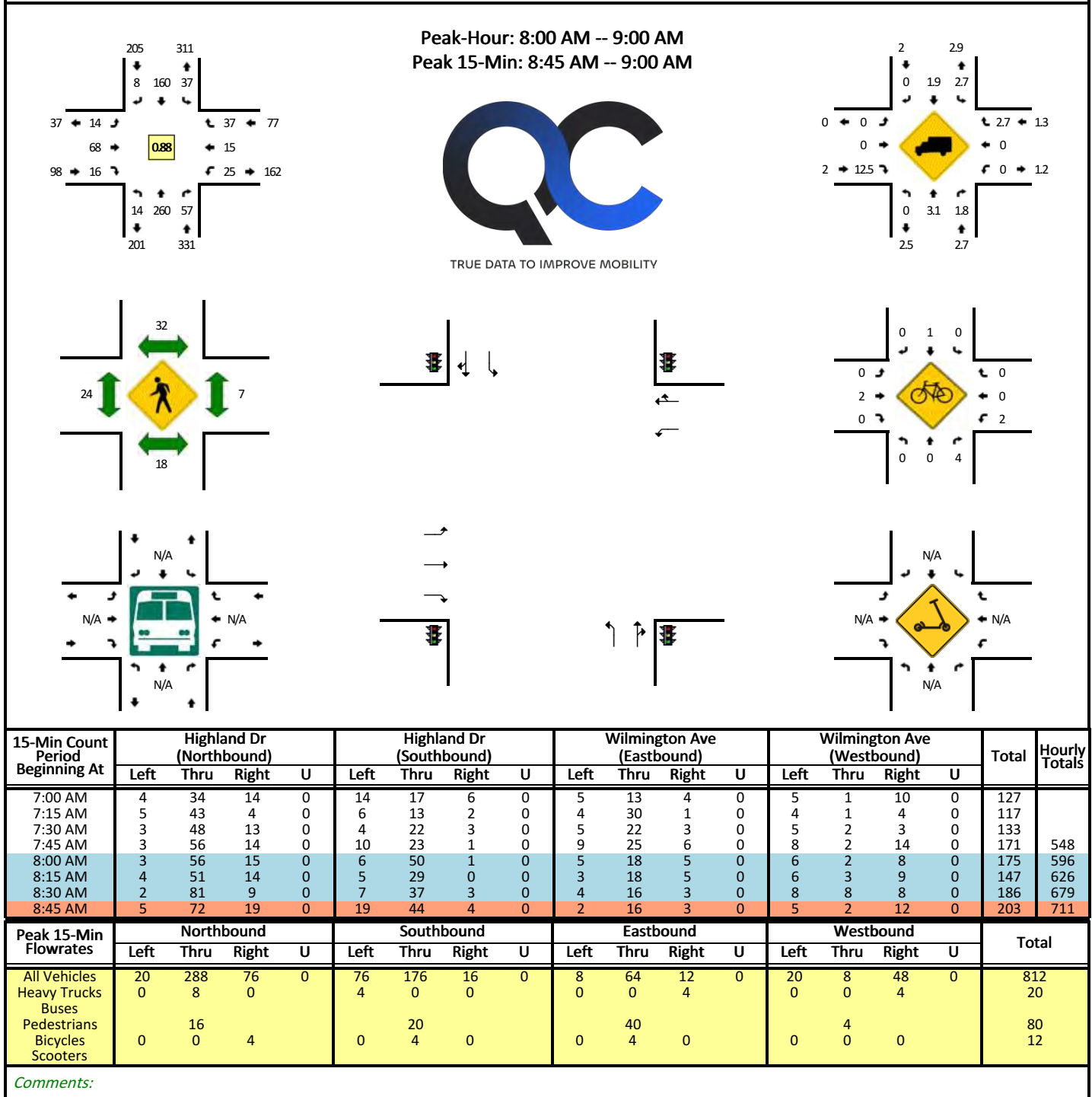
**QC JOB #:** 17429302  
**DATE:** Tue, Feb 10 2026





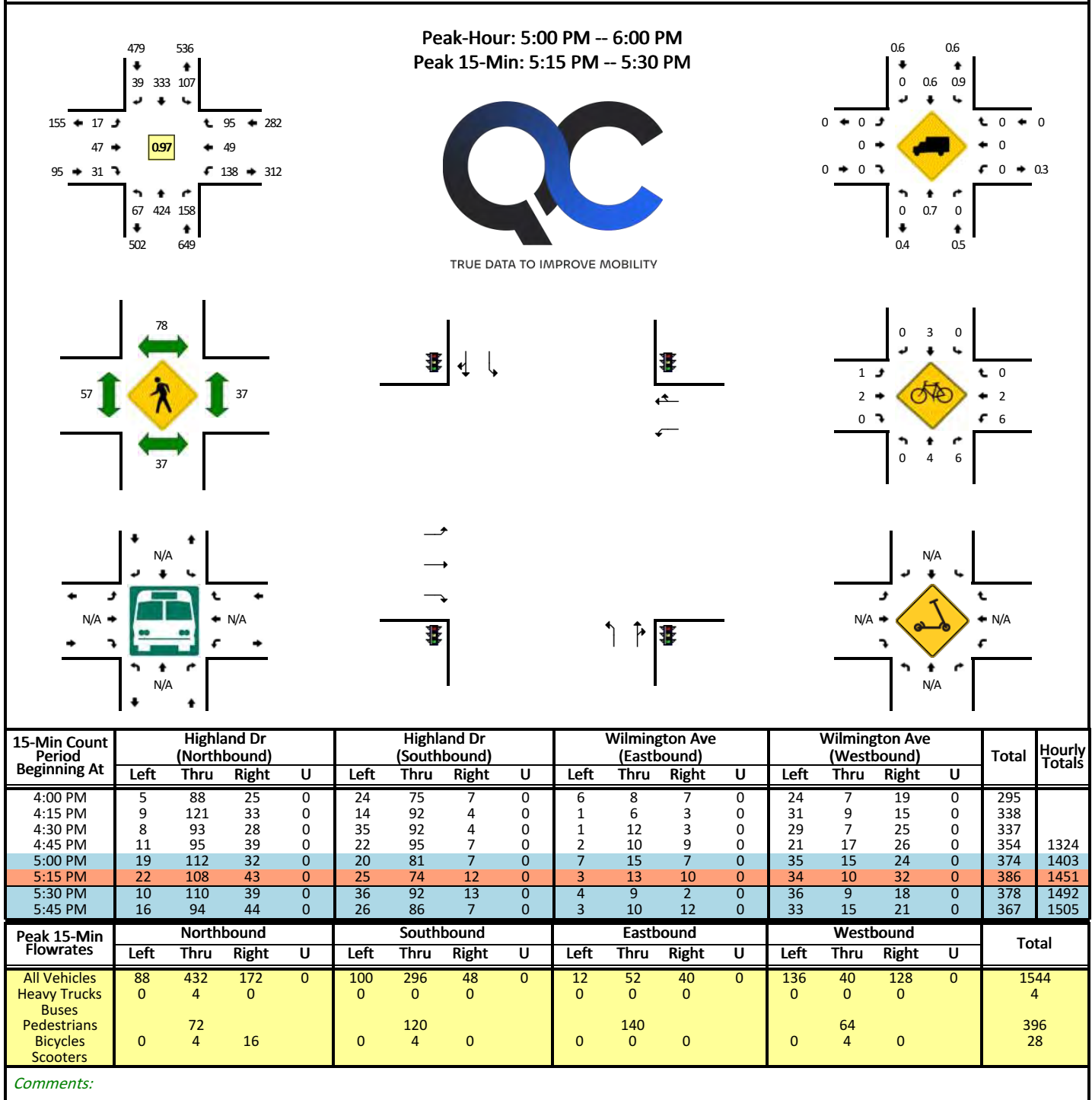
**LOCATION:** Highland Dr -- Wilmington Ave  
**CITY/STATE:** Salt Lake City, UT

**QC JOB #:** 17429303  
**DATE:** Tue, Feb 10 2026



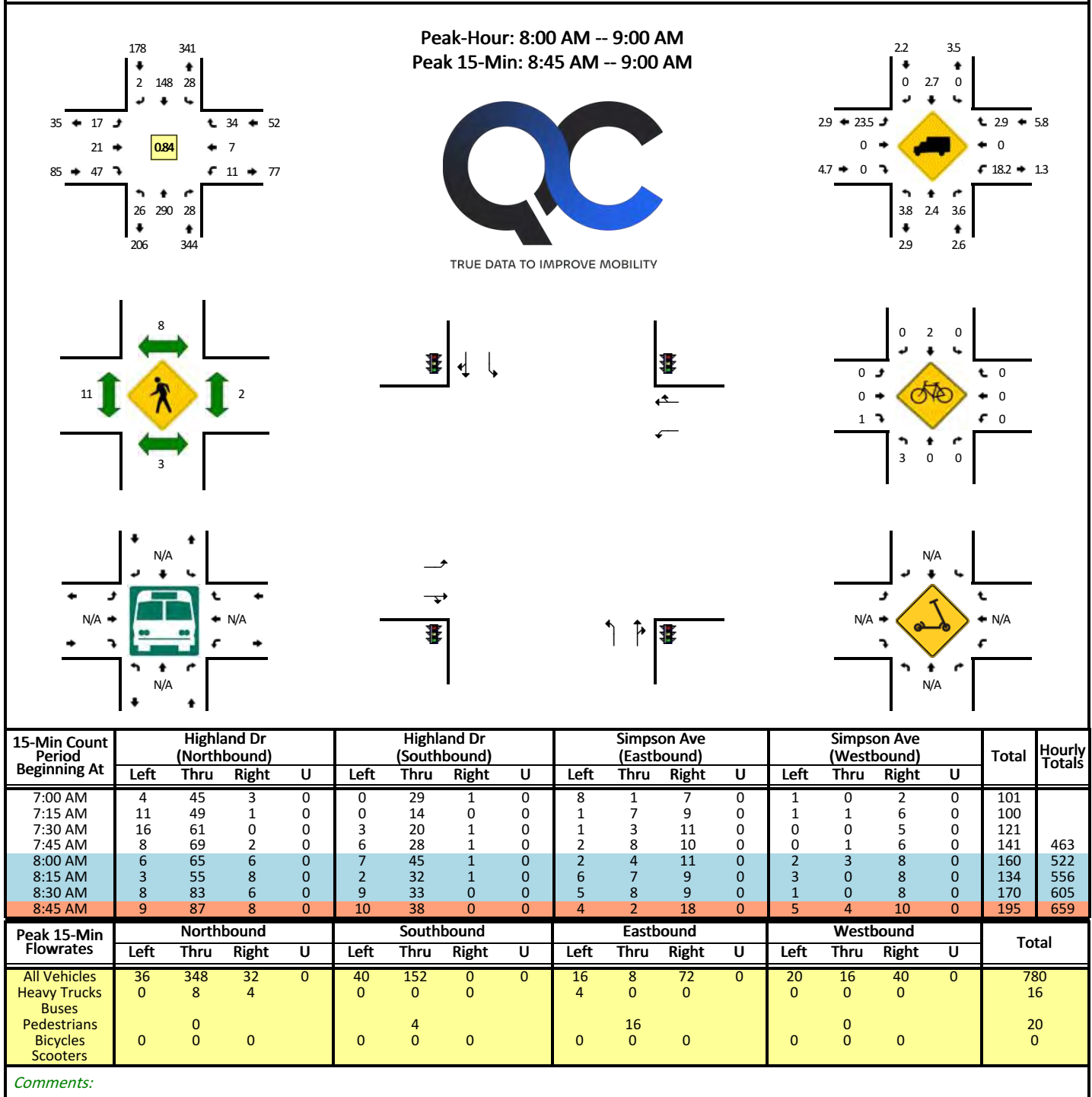
**LOCATION:** Highland Dr -- Wilmington Ave  
**CITY/STATE:** Salt Lake City, UT

**QC JOB #:** 17429304  
**DATE:** Tue, Feb 10 2026



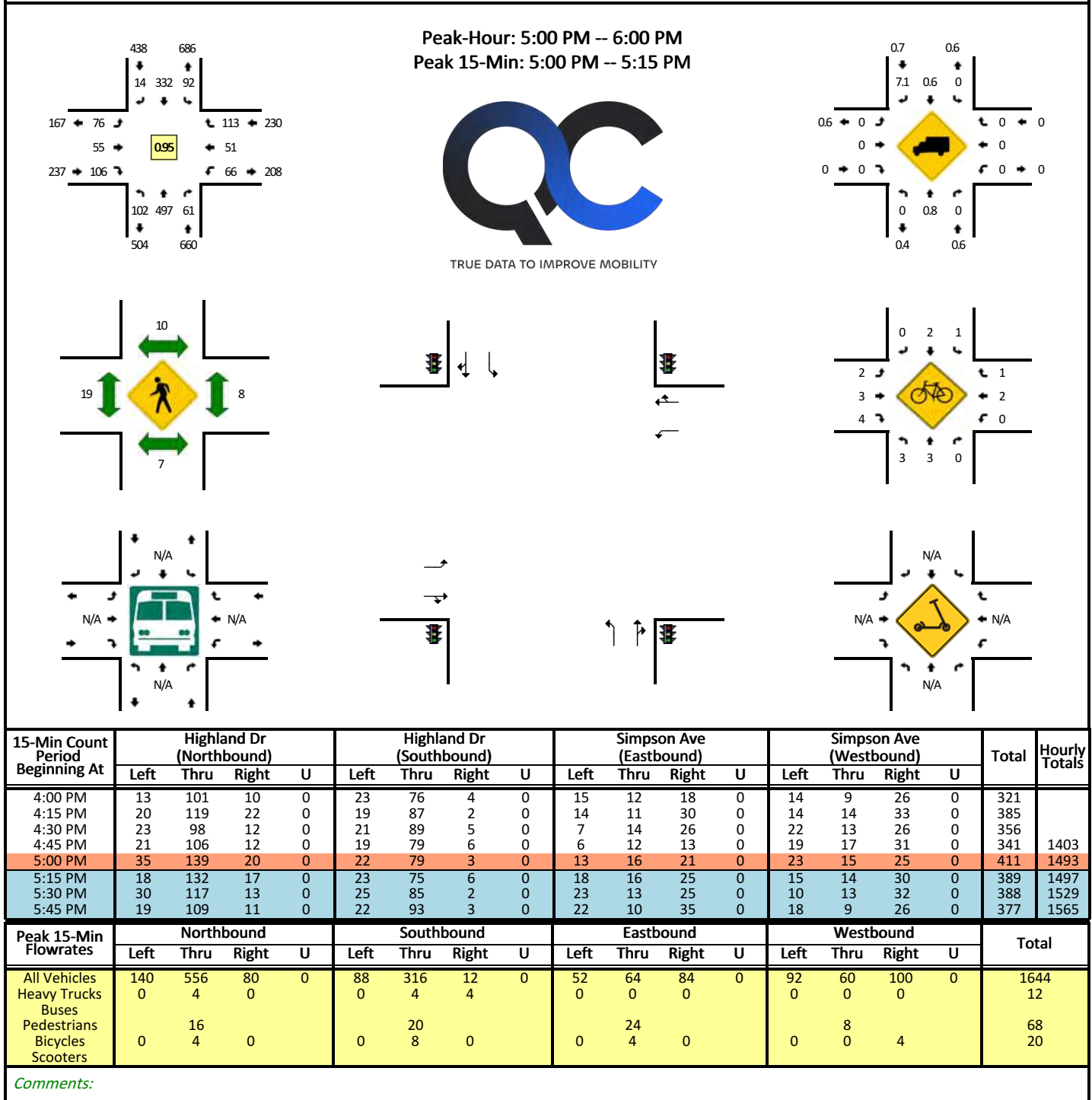
**LOCATION:** Highland Dr -- Simpson Ave  
**CITY/STATE:** Salt Lake City, UT

**QC JOB #:** 17429305  
**DATE:** Tue, Feb 10 2026



**LOCATION:** Highland Dr -- Simpson Ave  
**CITY/STATE:** Salt Lake City, UT

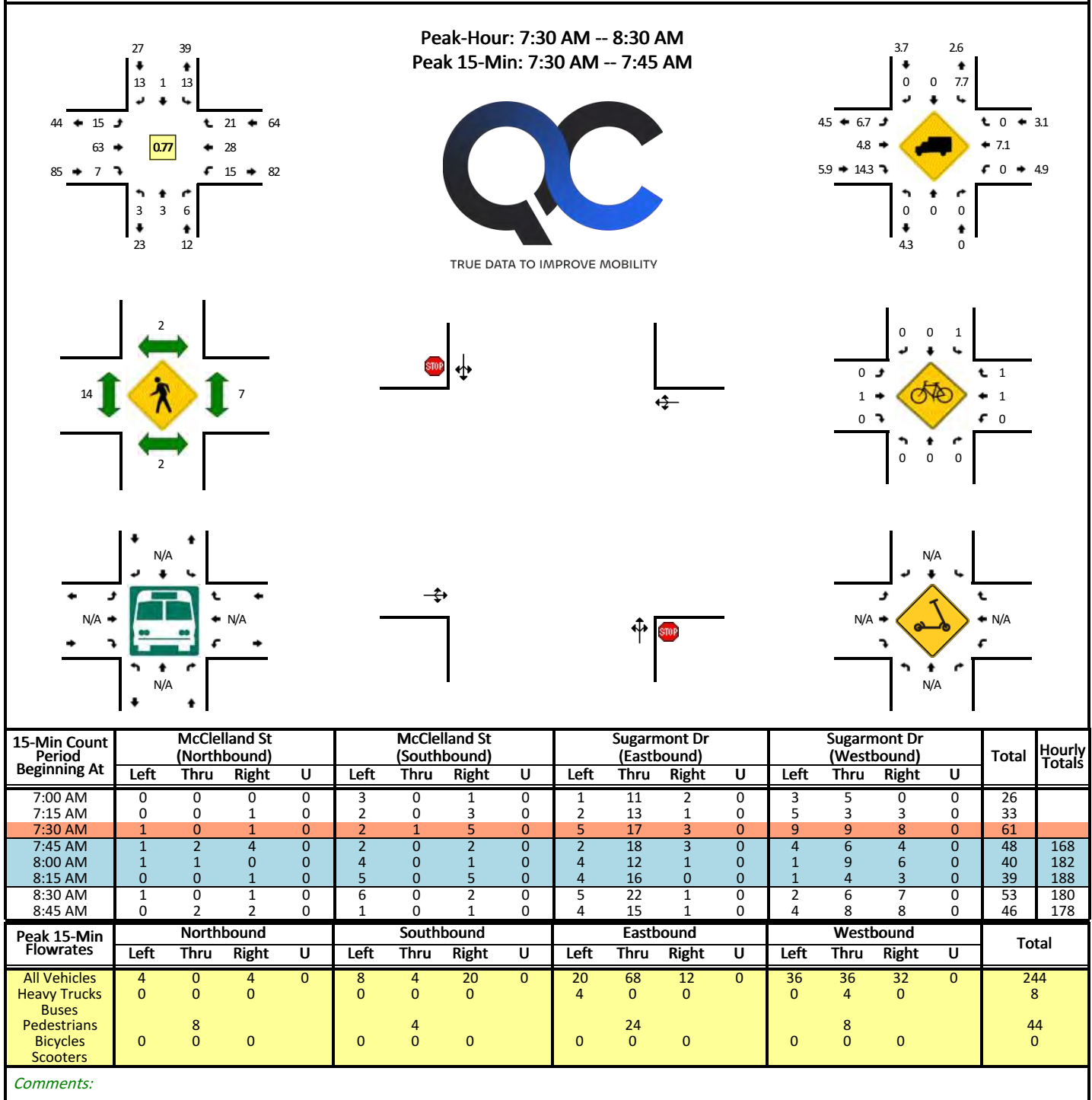
**QC JOB #:** 17429306  
**DATE:** Tue, Feb 10 2026





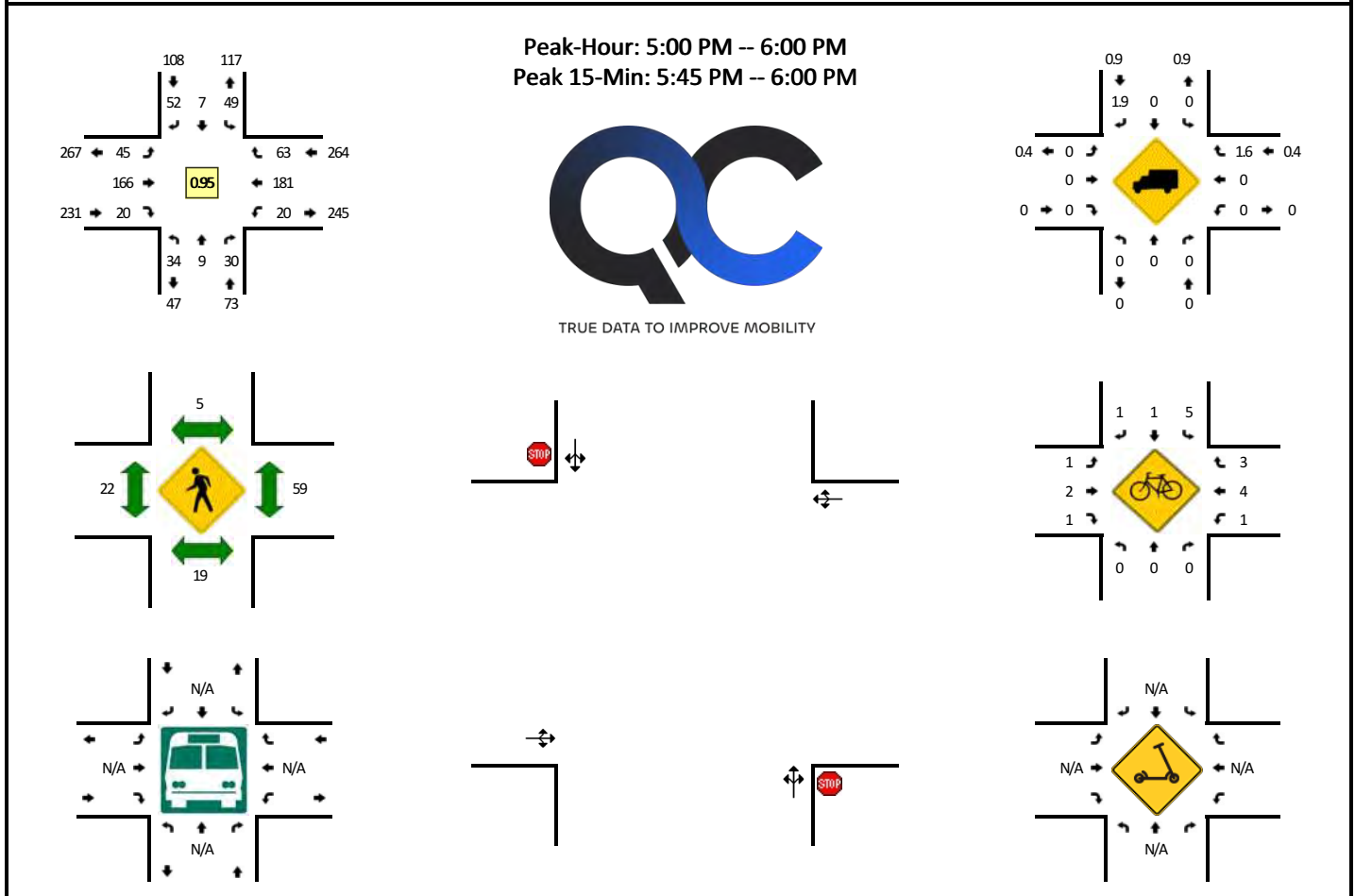
**LOCATION:** McClelland St -- Sugarmont Dr  
**CITY/STATE:** Salt Lake City, UT

**QC JOB #:** 17429307  
**DATE:** Tue, Feb 10 2026



**LOCATION:** McClelland St -- Sugarmont Dr  
**CITY/STATE:** Salt Lake City, UT

**QC JOB #:** 17429308  
**DATE:** Tue, Feb 10 2026



| 15-Min Count Period Beginning At | McClelland St (Northbound) |      |       |   | McClelland St (Southbound) |      |       |   | Sugarmont Dr (Eastbound) |      |       |   | Sugarmont Dr (Westbound) |      |       |   | Total | Hourly Totals |
|----------------------------------|----------------------------|------|-------|---|----------------------------|------|-------|---|--------------------------|------|-------|---|--------------------------|------|-------|---|-------|---------------|
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                     | Thru | Right | U | Left                     | Thru | Right | U |       |               |
| 4:00 PM                          | 1                          | 1    | 1     | 0 | 11                         | 1    | 8     | 0 | 7                        | 29   | 6     | 0 | 3                        | 22   | 7     | 0 | 97    |               |
| 4:15 PM                          | 1                          | 3    | 3     | 0 | 14                         | 2    | 7     | 0 | 9                        | 40   | 3     | 0 | 6                        | 37   | 14    | 0 | 139   |               |
| 4:30 PM                          | 2                          | 0    | 6     | 0 | 9                          | 2    | 8     | 0 | 6                        | 34   | 4     | 0 | 13                       | 41   | 8     | 0 | 133   |               |
| 4:45 PM                          | 4                          | 2    | 3     | 0 | 9                          | 5    | 14    | 0 | 8                        | 20   | 3     | 0 | 5                        | 36   | 19    | 0 | 128   | 497           |
| 5:00 PM                          | 10                         | 4    | 9     | 0 | 8                          | 2    | 8     | 0 | 14                       | 36   | 6     | 0 | 3                        | 55   | 19    | 0 | 174   | 574           |
| 5:15 PM                          | 9                          | 0    | 4     | 0 | 15                         | 1    | 12    | 0 | 11                       | 42   | 5     | 0 | 4                        | 41   | 18    | 0 | 162   | 597           |
| 5:30 PM                          | 6                          | 2    | 9     | 0 | 11                         | 3    | 15    | 0 | 6                        | 34   | 4     | 0 | 8                        | 50   | 14    | 0 | 162   | 626           |
| 5:45 PM                          | 9                          | 3    | 8     | 0 | 15                         | 1    | 17    | 0 | 14                       | 54   | 5     | 0 | 5                        | 35   | 12    | 0 | 178   | 676           |
| Peak 15-Min Flowrates            | Northbound                 |      |       |   | Southbound                 |      |       |   | Eastbound                |      |       |   | Westbound                |      |       |   | Total |               |
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                     | Thru | Right | U | Left                     | Thru | Right | U |       |               |
| All Vehicles                     | 36                         | 12   | 32    | 0 | 60                         | 4    | 68    | 0 | 56                       | 216  | 20    | 0 | 20                       | 140  | 48    | 0 | 712   |               |
| Heavy Trucks                     | 0                          | 0    | 0     |   | 0                          | 0    | 0     |   | 0                        | 0    | 0     |   | 0                        | 0    | 0     |   | 0     |               |
| Buses                            |                            |      |       |   |                            |      |       |   |                          |      |       |   |                          |      |       |   |       |               |
| Pedestrians                      |                            | 20   |       |   |                            | 0    |       |   |                          | 20   |       |   |                          | 52   |       |   | 92    |               |
| Bicycles                         | 0                          | 0    | 0     |   | 4                          | 0    | 0     |   | 4                        | 4    | 0     |   | 4                        | 4    | 0     |   | 20    |               |
| Scooters                         |                            |      |       |   |                            |      |       |   |                          |      |       |   |                          |      |       |   |       |               |

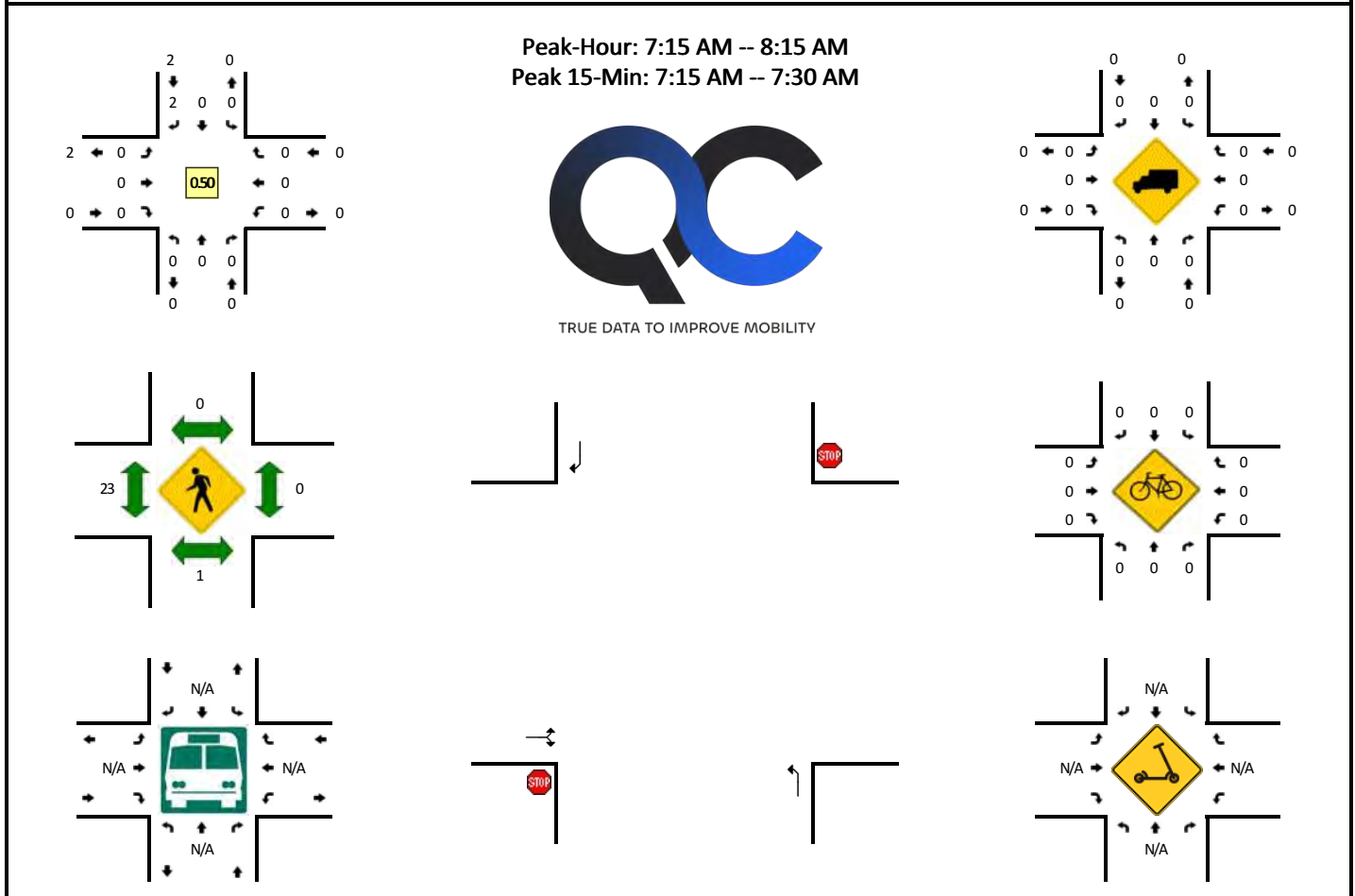
**Comments:**

Report generated on 2/13/2026 7:26 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**LOCATION:** Highland Dr -- Business Access 1  
**CITY/STATE:** Salt Lake City, UT

**QC JOB #:** 17429309  
**DATE:** Tue, Feb 10 2026



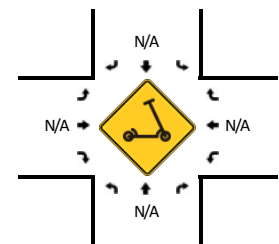
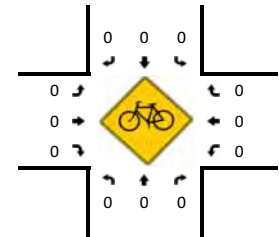
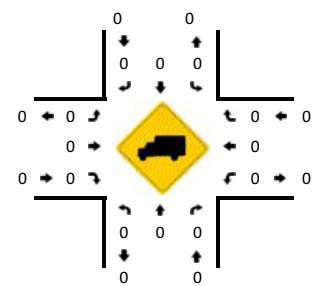
| 15-Min Count Period Beginning At | Highland Dr (Northbound) |      |       |   | Highland Dr (Southbound) |      |       |   | Business Access 1 (Eastbound) |      |       |   | Business Access 1 (Westbound) |      |       |   | Total | Hourly Totals |
|----------------------------------|--------------------------|------|-------|---|--------------------------|------|-------|---|-------------------------------|------|-------|---|-------------------------------|------|-------|---|-------|---------------|
|                                  | Left                     | Thru | Right | U | Left                     | Thru | Right | U | Left                          | Thru | Right | U | Left                          | Thru | Right | U |       |               |
| 7:00 AM                          | 0                        | 0    | 0     | 0 | 0                        | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0     |               |
| 7:15 AM                          | 0                        | 0    | 0     | 0 | 0                        | 0    | 1     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 1     |               |
| 7:30 AM                          | 0                        | 0    | 0     | 0 | 0                        | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0     |               |
| 7:45 AM                          | 0                        | 0    | 0     | 0 | 0                        | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0     | 1             |
| 8:00 AM                          | 0                        | 0    | 0     | 0 | 0                        | 0    | 1     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 1     | 2             |
| 8:15 AM                          | 0                        | 0    | 0     | 0 | 0                        | 0    | 1     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 1     | 2             |
| 8:30 AM                          | 0                        | 0    | 0     | 0 | 0                        | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0     | 2             |
| 8:45 AM                          | 0                        | 0    | 0     | 0 | 0                        | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0     | 2             |
| Peak 15-Min Flowrates            | Northbound               |      |       |   | Southbound               |      |       |   | Eastbound                     |      |       |   | Westbound                     |      |       |   | Total |               |
|                                  | Left                     | Thru | Right | U | Left                     | Thru | Right | U | Left                          | Thru | Right | U | Left                          | Thru | Right | U |       |               |
| All Vehicles                     | 0                        | 0    | 0     | 0 | 0                        | 0    | 4     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 4     |               |
| Heavy Trucks                     | 0                        | 0    | 0     | 0 | 0                        | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0     |               |
| Buses                            |                          |      |       |   |                          |      |       |   |                               |      |       |   |                               |      |       |   |       |               |
| Pedestrians                      |                          | 0    |       |   |                          | 0    |       |   |                               | 48   |       |   |                               | 0    |       |   | 48    |               |
| Bicycles                         | 0                        | 0    | 0     |   | 0                        | 0    | 0     |   | 0                             | 0    | 0     |   | 0                             | 0    | 0     |   | 0     |               |
| Scooters                         |                          |      |       |   |                          |      |       |   |                               |      |       |   |                               |      |       |   |       |               |

**Comments:**

Report generated on 2/13/2026 7:26 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

QC JOB #: 17429310  
DATE: Tue, Feb 10 2026



*Comments:*

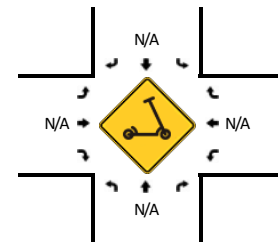
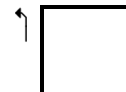
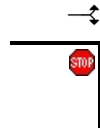
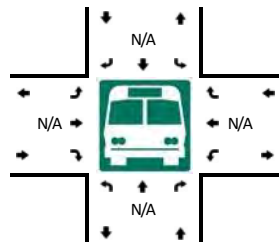
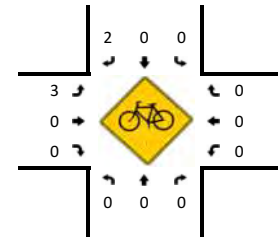
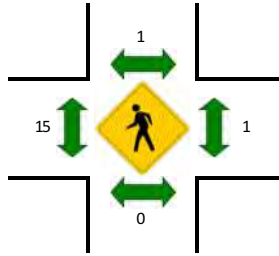
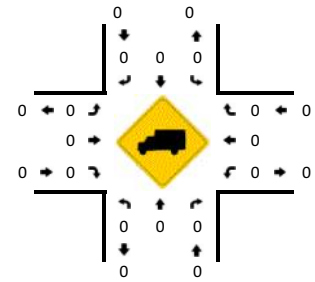
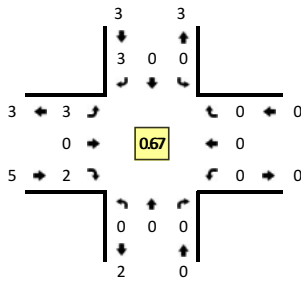


**LOCATION:** Highland Dr -- Business Access 2**CITY/STATE:** Salt Lake City, UT**QC JOB #:** 17429311**DATE:** Tue, Feb 10 2026

Peak-Hour: 8:00 AM -- 9:00 AM  
Peak 15-Min: 8:45 AM -- 9:00 AM



TRUE DATA TO IMPROVE MOBILITY



| 15-Min Count<br>Period<br>Beginning At | Highland Dr<br>(Northbound) |      |       |   | Highland Dr<br>(Southbound) |      |       |   | Business Access 2<br>(Eastbound) |      |       |   | Business Access 2<br>(Westbound) |      |       |   | Total | Hourly<br>Totals |
|----------------------------------------|-----------------------------|------|-------|---|-----------------------------|------|-------|---|----------------------------------|------|-------|---|----------------------------------|------|-------|---|-------|------------------|
|                                        | Left                        | Thru | Right | U | Left                        | Thru | Right | U | Left                             | Thru | Right | U | Left                             | Thru | Right | U |       |                  |
| 7:00 AM                                | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 2                                | 0    | 0     | 0 | 0                                | 0    | 0     | 0 | 2     |                  |
| 7:15 AM                                | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 0                                | 0    | 0     | 0 | 0                                | 0    | 0     | 0 | 0     |                  |
| 7:30 AM                                | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 0                                | 0    | 0     | 0 | 0                                | 0    | 0     | 0 | 0     |                  |
| 7:45 AM                                | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 0                                | 0    | 0     | 0 | 0                                | 0    | 0     | 0 | 0     | 2                |
| 8:00 AM                                | 0                           | 0    | 0     | 0 | 0                           | 0    | 1     | 0 | 0                                | 0    | 0     | 0 | 0                                | 0    | 0     | 0 | 1     | 1                |
| 8:15 AM                                | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 1                                | 0    | 1     | 0 | 0                                | 0    | 0     | 0 | 2     | 3                |
| 8:30 AM                                | 0                           | 0    | 0     | 0 | 0                           | 0    | 2     | 0 | 0                                | 0    | 0     | 0 | 0                                | 0    | 0     | 0 | 2     | 5                |
| 8:45 AM                                | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 2                                | 0    | 1     | 0 | 0                                | 0    | 0     | 0 | 3     | 8                |
| Peak 15-Min<br>Flowrates               | Northbound                  |      |       |   | Southbound                  |      |       |   | Eastbound                        |      |       |   | Westbound                        |      |       |   | Total |                  |
|                                        | Left                        | Thru | Right | U | Left                        | Thru | Right | U | Left                             | Thru | Right | U | Left                             | Thru | Right | U |       |                  |
| All Vehicles                           | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 8                                | 0    | 4     | 0 | 0                                | 0    | 0     | 0 | 12    |                  |
| Heavy Trucks                           | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 0                                | 0    | 0     | 0 | 0                                | 0    | 0     | 0 | 0     |                  |
| Buses                                  |                             |      |       |   |                             |      |       |   |                                  |      |       |   |                                  |      |       |   |       |                  |
| Pedestrians                            |                             | 0    |       |   |                             | 0    |       |   |                                  | 36   |       |   |                                  | 0    |       |   | 36    |                  |
| Bicycles                               | 0                           | 0    | 0     |   | 0                           | 0    | 0     |   | 4                                | 0    | 0     |   | 0                                | 0    | 0     |   | 4     |                  |
| Scooters                               |                             |      |       |   |                             |      |       |   |                                  |      |       |   |                                  |      |       |   |       |                  |

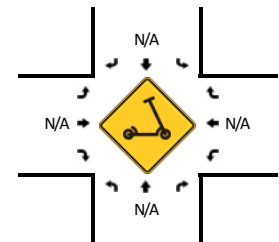
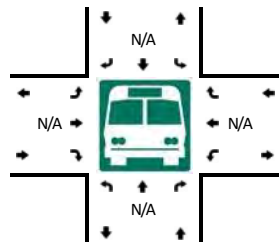
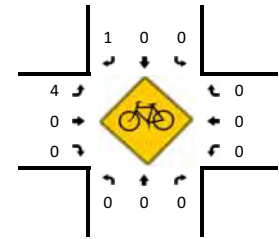
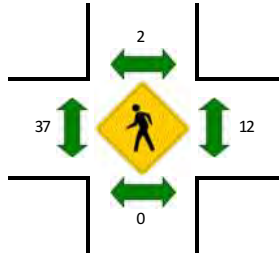
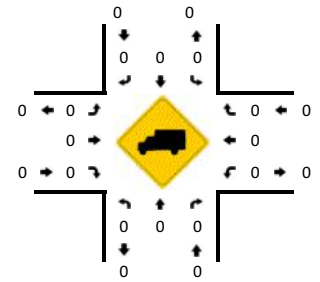
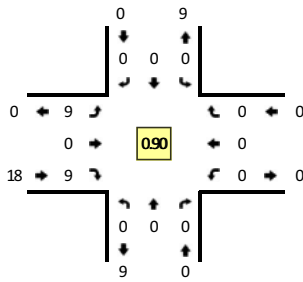
**Comments:**

Report generated on 2/13/2026 7:26 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**LOCATION:** Highland Dr -- Business Access 2**CITY/STATE:** Salt Lake City, UT**QC JOB #:** 17429312**DATE:** Tue, Feb 10 2026

Peak-Hour: 4:15 PM -- 5:15 PM  
Peak 15-Min: 4:15 PM -- 4:30 PM



| 15-Min Count Period Beginning At | Highland Dr (Northbound) |      |       |   | Highland Dr (Southbound) |      |       |   | Business Access 2 (Eastbound) |      |       |   | Business Access 2 (Westbound) |      |       |   | Total | Hourly Totals |
|----------------------------------|--------------------------|------|-------|---|--------------------------|------|-------|---|-------------------------------|------|-------|---|-------------------------------|------|-------|---|-------|---------------|
|                                  | Left                     | Thru | Right | U | Left                     | Thru | Right | U | Left                          | Thru | Right | U | Left                          | Thru | Right | U |       |               |
| 4:00 PM                          | 0                        | 0    | 0     | 0 | 0                        | 0    | 0     | 0 | 1                             | 0    | 2     | 0 | 0                             | 0    | 0     | 0 | 3     |               |
| 4:15 PM                          | 0                        | 0    | 0     | 0 | 0                        | 0    | 0     | 0 | 1                             | 0    | 4     | 0 | 0                             | 0    | 0     | 0 | 5     |               |
| 4:30 PM                          | 0                        | 0    | 0     | 0 | 0                        | 0    | 0     | 0 | 3                             | 0    | 1     | 0 | 0                             | 0    | 0     | 0 | 4     |               |
| 4:45 PM                          | 0                        | 0    | 0     | 0 | 0                        | 0    | 0     | 0 | 3                             | 0    | 2     | 0 | 0                             | 0    | 0     | 0 | 5     | 17            |
| 5:00 PM                          | 0                        | 0    | 0     | 0 | 0                        | 0    | 0     | 0 | 2                             | 0    | 2     | 0 | 0                             | 0    | 0     | 0 | 4     | 18            |
| 5:15 PM                          | 0                        | 0    | 0     | 0 | 0                        | 0    | 0     | 0 | 0                             | 0    | 1     | 0 | 0                             | 0    | 0     | 0 | 1     | 14            |
| 5:30 PM                          | 0                        | 0    | 0     | 0 | 0                        | 0    | 0     | 0 | 0                             | 0    | 2     | 0 | 0                             | 0    | 0     | 0 | 2     | 12            |
| 5:45 PM                          | 0                        | 0    | 0     | 0 | 0                        | 0    | 1     | 0 | 1                             | 0    | 2     | 0 | 0                             | 0    | 0     | 0 | 4     | 11            |
| Peak 15-Min Flowrates            | Northbound               |      |       |   | Southbound               |      |       |   | Eastbound                     |      |       |   | Westbound                     |      |       |   | Total |               |
|                                  | Left                     | Thru | Right | U | Left                     | Thru | Right | U | Left                          | Thru | Right | U | Left                          | Thru | Right | U |       |               |
| All Vehicles                     | 0                        | 0    | 0     | 0 | 0                        | 0    | 0     | 0 | 4                             | 0    | 16    | 0 | 0                             | 0    | 0     | 0 | 20    |               |
| Heavy Trucks                     | 0                        | 0    | 0     | 0 | 0                        | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0     |               |
| Buses                            |                          |      |       |   |                          |      |       |   |                               |      |       |   |                               |      |       |   |       |               |
| Pedestrians                      |                          | 0    |       |   |                          | 4    |       |   |                               | 12   |       |   |                               | 16   |       |   | 32    |               |
| Bicycles                         | 0                        | 0    | 0     |   | 0                        | 0    | 0     |   | 4                             | 0    | 0     |   | 0                             | 0    | 0     |   | 4     |               |
| Scooters                         |                          |      |       |   |                          |      |       |   |                               |      |       |   |                               |      |       |   |       |               |

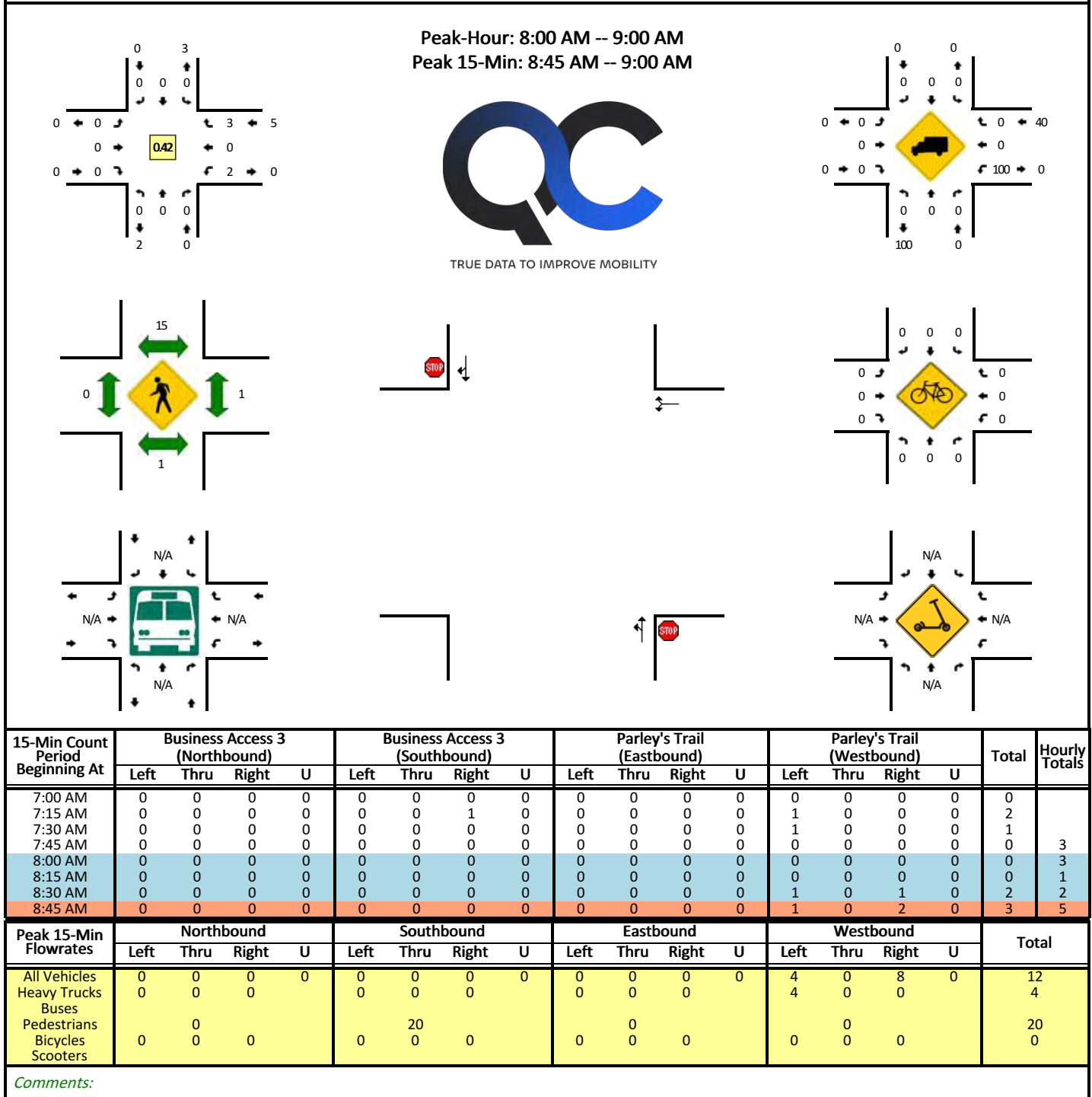
**Comments:**

Report generated on 2/13/2026 7:26 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

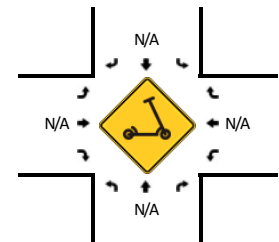
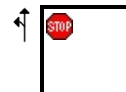
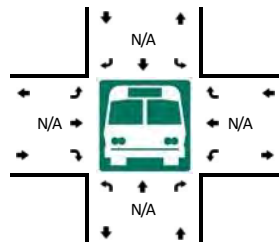
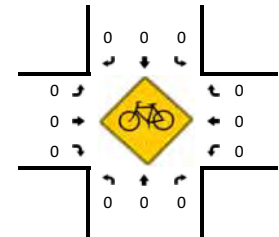
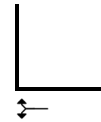
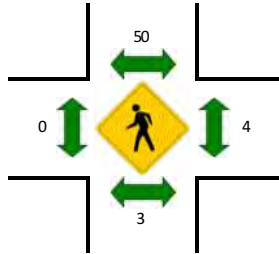
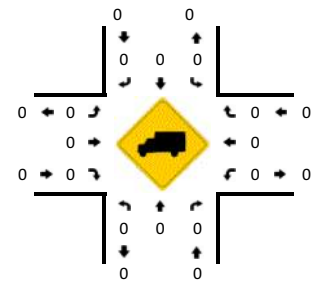
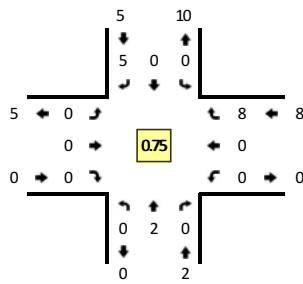
**LOCATION:** Business Access 3 -- Parley's Trail  
**CITY/STATE:** Salt Lake City, UT

**QC JOB #:** 17429313  
**DATE:** Tue, Feb 10 2026



**LOCATION:** Business Access 3 -- Parley's Trail**QC JOB #:** 17429314**CITY/STATE:** Salt Lake City, UT**DATE:** Tue, Feb 10 2026

Peak-Hour: 4:15 PM -- 5:15 PM  
Peak 15-Min: 4:15 PM -- 4:30 PM



| 15-Min Count Period Beginning At | Business Access 3 (Northbound) |      |       |   | Business Access 3 (Southbound) |      |       |   | Parley's Trail (Eastbound) |      |       |   | Parley's Trail (Westbound) |      |       |   | Total | Hourly Totals |
|----------------------------------|--------------------------------|------|-------|---|--------------------------------|------|-------|---|----------------------------|------|-------|---|----------------------------|------|-------|---|-------|---------------|
|                                  | Left                           | Thru | Right | U | Left                           | Thru | Right | U | Left                       | Thru | Right | U | Left                       | Thru | Right | U |       |               |
| 4:00 PM                          | 0                              | 0    | 0     | 0 | 0                              | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0     |               |
| 4:15 PM                          | 0                              | 1    | 0     | 0 | 0                              | 0    | 1     | 0 | 0                          | 0    | 0     | 0 | 0                          | 0    | 3     | 0 | 5     |               |
| 4:30 PM                          | 0                              | 0    | 0     | 0 | 0                              | 0    | 2     | 0 | 0                          | 0    | 0     | 0 | 0                          | 0    | 3     | 0 | 5     |               |
| 4:45 PM                          | 0                              | 0    | 0     | 0 | 0                              | 0    | 1     | 0 | 0                          | 0    | 0     | 0 | 0                          | 0    | 2     | 0 | 3     | 13            |
| 5:00 PM                          | 0                              | 1    | 0     | 0 | 0                              | 0    | 1     | 0 | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 2     | 15            |
| 5:15 PM                          | 0                              | 0    | 0     | 0 | 0                              | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0     | 10            |
| 5:30 PM                          | 0                              | 0    | 0     | 0 | 0                              | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0     | 5             |
| 5:45 PM                          | 0                              | 0    | 0     | 0 | 1                              | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 1     | 3             |
| Peak 15-Min Flowrates            | Northbound                     |      |       |   | Southbound                     |      |       |   | Eastbound                  |      |       |   | Westbound                  |      |       |   | Total |               |
|                                  | Left                           | Thru | Right | U | Left                           | Thru | Right | U | Left                       | Thru | Right | U | Left                       | Thru | Right | U |       |               |
| All Vehicles                     | 0                              | 4    | 0     | 0 | 0                              | 0    | 4     | 0 | 0                          | 0    | 0     | 0 | 0                          | 0    | 12    | 0 | 20    |               |
| Heavy Trucks                     | 0                              | 0    | 0     | 0 | 0                              | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0     |               |
| Buses                            |                                |      |       |   |                                |      |       |   |                            |      |       |   |                            |      |       |   |       |               |
| Pedestrians                      |                                | 4    |       |   |                                | 44   |       |   |                            | 0    |       |   |                            | 4    |       |   | 52    |               |
| Bicycles                         | 0                              | 0    | 0     |   | 0                              | 0    | 0     |   | 0                          | 0    | 0     |   | 0                          | 0    | 0     |   | 0     |               |
| Scooters                         |                                |      |       |   |                                |      |       |   |                            |      |       |   |                            |      |       |   |       |               |

**Comments:**

Report generated on 2/13/2026 7:26 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212



## **APPENDIX C**

### **STUDY AREA INTERSECTION CRASH DATA**

| Int # | Crash ID   | Crash Date Time  | Year | Main Road Name                   | Crash Severity           | Light Condition | Weather Condition | Roadway Surface Condition | Number of Vehicles Involved | Intersection Involved | Manner of Collision           |
|-------|------------|------------------|------|----------------------------------|--------------------------|-----------------|-------------------|---------------------------|-----------------------------|-----------------------|-------------------------------|
| 1     | 821702588  | 8/14/2021 3:43   | 2021 | 2100 S HIGHLAND DR               | No injury/PDO            | Dark - Lighted  | Clear             | Dry                       | 1                           | Y                     | Not Applicable/Single Vehicle |
| 1     | 821703901  | 8/19/2021 15:47  | 2021 | 1100 E                           | No injury/PDO            | Daylight        | Cloudy            | Dry                       | 2                           | Y                     | Head On (front-to-front)      |
| 1     | 821715342  | 10/19/2021 17:32 | 2021 | 2100 S                           | No injury/PDO            | Dusk            | Clear             | Dry                       | 2                           | Y                     | Front to Rear                 |
| 1     | 821715798  | 10/22/2021 12:56 | 2021 | 2100 S 1100 E                    | Possible injury          | Daylight        | Clear             | Dry                       | 2                           | Y                     | Angle                         |
| 1     | 821717210  | 10/25/2021 15:22 | 2021 | 1080 E 2100 S                    | Possible injury          | Daylight        | Cloudy            | Wet                       | 3                           | Y                     | Front to Rear                 |
| 1     | 821723661  | 12/1/2021 15:00  | 2021 | 1063 E 2100 S                    | No injury/PDO            | Daylight        | Clear             | Dry                       | 2                           | N                     | Angle                         |
| 1     | 822737243  | 2/6/2022 9:00    | 2022 | 1100 E 2100 S                    | Possible injury          | Daylight        | Clear             | Dry                       | 1                           | Y                     | Not Applicable/Single Vehicle |
| 1     | 822758855  | 6/1/2022 17:26   | 2022 | 2110 S HIGHLAND DR               | Suspected Serious Injury | Daylight        | Clear             | Dry                       | 1                           | Y                     | Not Applicable/Single Vehicle |
| 1     | 822776539  | 9/10/2022 12:34  | 2022 | 2100 S 1100 E                    | No injury/PDO            | Daylight        | Clear             | Dry                       | 2                           | Y                     | Angle                         |
| 1     | 822781572  | 9/24/2022 23:01  | 2022 | 2100 S 1100 E                    | No injury/PDO            | Dark - Lighted  | Clear             | Dry                       | 1                           | Y                     | Not Applicable/Single Vehicle |
| 1     | 822781840  | 10/7/2022 22:23  | 2022 | 2100 S 1100 E                    | No injury/PDO            | Dark - Lighted  | Clear             | Dry                       | 2                           | Y                     | Angle                         |
| 1     | 822788370  | 11/8/2022 17:23  | 2022 | 2100 S                           | No injury/PDO            | Dark - Lighted  | Rain              | Wet                       | 2                           | N                     | Angle                         |
| 1     | 823831899  | 6/16/2023 15:00  | 2023 | 2100 S 1100 E                    | No injury/PDO            | Daylight        | Clear             | Dry                       | 2                           | Y                     | Sideswipe Same Direction      |
| 1     | 823832025  | 6/16/2023 3:26   | 2023 | 2100 S 1100 E                    | Suspected Minor Injury   | Dark - Lighted  | Clear             | Dry                       | 2                           | Y                     | Angle                         |
| 1     | 823834263  | 6/20/2023 8:11   | 2023 | 1100 E 2100 S                    | No injury/PDO            | Daylight        | Cloudy            | Dry                       | 2                           | Y                     | Angle                         |
| 1     | 823865025  | 12/14/2023 15:02 | 2023 | 2100 S 1100 E                    | Suspected Minor Injury   | Daylight        | Clear             | Dry                       | 2                           | Y                     | Angle                         |
| 1     | 824929227  | 11/15/2024 19:17 | 2024 | 2100 S 1100 E                    | Suspected Minor Injury   | Dark - Lighted  | Cloudy            | Dry                       | 1                           | Y                     | Not Applicable/Single Vehicle |
| 1     | 825956344  | 4/15/2025 13:12  | 2025 | 2100 S 1100 E                    | No injury/PDO            | Daylight        | Cloudy            | Dry                       | 2                           | Y                     | Sideswipe Same Direction      |
| 2     | 821671963  | 2/16/2021 7:40   | 2021 | E WILMINGTON AVE / S HIGHLAND DR | No injury/PDO            | Daylight        | Snowing           | Wet                       | 2                           | Y                     | Sideswipe Same Direction      |
| 2     | 822736055  | 1/30/2022 9:21   | 2022 | S HIGHLAND DR / E WILMINGTON AVE | Possible injury          | Daylight        | Clear             | Dry                       | 1                           | Y                     | Not Applicable/Single Vehicle |
| 2     | 823820502  | 4/11/2023 18:25  | 2023 | 2227 S HIGHLAND DR               | Suspected Minor Injury   | Daylight        | Clear             | Dry                       | 1                           | Y                     | Not Applicable/Single Vehicle |
| 2     | 824901391  | 7/5/2024 10:22   | 2024 | S HIGHLAND DR / E WILMINGTON AVE | No injury/PDO            | Daylight        | Clear             | Dry                       | 2                           | Y                     | Front to Rear                 |
| 2     | 825970515  | 6/29/2025 21:37  | 2025 | 2188 S HIGHLAND DR               | No injury/PDO            | Dark - Lighted  | Clear             | Dry                       | 2                           | Y                     | Angle                         |
| 2     | 825981351  | 8/27/2025 23:17  | 2025 | 2188 S HIGHLAND DR               | No injury/PDO            | Dark - Lighted  | Rain              | Wet                       | 2                           | N                     | Parked Vehicle                |
| 2     | 8261002335 | 1/6/2026 14:38   | 2026 | E WILMINGTON AVE S HIGHLAND DR   | Suspected Minor Injury   | Daylight        | Clear             | Dry                       | 1                           | Y                     | Not Applicable/Single Vehicle |
| 3     | 823821581  | 4/18/2023 7:15   | 2023 | 1044 E SUGARMONT DR              | No injury/PDO            | Daylight        | Rain              | Wet                       | 2                           | Y                     | Angle                         |
| 3     | 823836427  | 7/19/2023 18:49  | 2023 | E SUGARMONT DR / S MCCLELLAND ST | No injury/PDO            | Daylight        | Rain              | Wet                       | 2                           | Y                     | Sideswipe Same Direction      |
| 3     | 825986723  | 9/29/2025 13:51  | 2025 | 1044 E SUGARMONT DR              | No injury/PDO            | Dark - Lighted  | Clear             | Dry                       | 2                           | N                     | Front to Rear                 |
| 4     | 822766708  | 7/19/2022 12:13  | 2022 | 2225 S HIGHLAND DR               | No injury/PDO            | Daylight        | Clear             | Dry                       | 2                           | N                     | Sideswipe Same Direction      |
| 4     | 822767737  | 7/27/2022 11:23  | 2022 | 2280 S HIGHLAND DR               | No injury/PDO            | Daylight        | Clear             | Dry                       | 3                           | N                     | Parked Vehicle                |
| 4     | 824868743  | 1/7/2024 7:35    | 2024 | E SIMPSON AVE / S HIGHLAND DR    | No injury/PDO            | Daylight        | Snowing           | Snow                      | 2                           | Y                     | Angle                         |
| 4     | 825996118  | 12/6/2025 14:43  | 2025 | S HIGHLAND DR E SIMPSON AVE      | No injury/PDO            | Daylight        | Cloudy            | Dry                       | 2                           | Y                     | Front to Rear                 |

## **APPENDIX D**

### **ANNUAL GROWTH CALCULATION SHEETS**

| Segment                       | ADT   |       |       | Growth<br>2023 - 2032 | Applied<br>Growth Rate |
|-------------------------------|-------|-------|-------|-----------------------|------------------------|
|                               | 2023  | 2028  | 2032  |                       |                        |
| Highland Drive - S of 2100    | 12500 | 14500 | 15000 | 2.05%                 | 2.0%                   |
| Highland Drive - N of 2100    | 16500 | 17500 | 18000 | 0.97%                 | 1.0%                   |
| Highland Drive - S of Simpson | 13000 | 15000 | 15500 | 1.97%                 | 2.0%                   |
| 2100 S - W of Highland        | 28500 | 29500 | 30500 | 0.76%                 | 1.0%                   |
| 2100 S - E of Highland        | 24500 | 24500 | 24500 | 0.00%                 | 1.0%                   |
| Simpson Ave                   | 950   | 1100  | 1300  | 3.55%                 | 3.5%                   |
| Sugarmont Dr                  | 950   | 1100  | 1300  | 3.55%                 | 3.5%                   |
| McClelland                    | -     | -     | -     | -                     | 1.0%                   |
| Wilmington                    | -     | -     | -     | -                     | 1.0%                   |

Source: <https://unifiedplan.org/traffic-volume-map/>



## **APPENDIX E**

### **HCM REPORTS FOR OPERATIONAL ANALYSES FROM SYNCHRO**

## 2026 Existing Analysis

## Queues

Existing Conditions

## 1: Highland Dr/1100 E &amp; 2100 S



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 53   | 357  | 35   | 379  | 72   | 263  | 70   | 141  | 204  |
| v/c Ratio               | 0.46 | 0.20 | 0.36 | 0.23 | 0.49 | 0.75 | 0.19 | 0.68 | 0.46 |
| Control Delay (s/veh)   | 70.5 | 17.7 | 68.5 | 18.5 | 66.9 | 60.3 | 8.5  | 70.2 | 42.3 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 70.5 | 17.7 | 68.5 | 18.5 | 66.9 | 60.3 | 8.5  | 70.2 | 42.3 |
| Queue Length 50th (ft)  | 43   | 80   | 28   | 83   | 57   | 206  | 0    | 111  | 137  |
| Queue Length 95th (ft)  | 82   | 118  | 61   | 123  | 103  | 272  | 25   | 178  | 202  |
| Internal Link Dist (ft) |      | 242  |      | 444  |      | 677  |      |      | 301  |
| Turn Bay Length (ft)    | 200  |      | 290  |      | 95   |      | 90   | 95   |      |
| Base Capacity (vph)     | 232  | 1750 | 232  | 1738 | 232  | 787  | 714  | 232  | 762  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.23 | 0.20 | 0.15 | 0.22 | 0.31 | 0.33 | 0.10 | 0.61 | 0.27 |

## Intersection Summary

# HCM 7th Signalized Intersection Summary

Existing Conditions

## 1: Highland Dr/1100 E & 2100 S

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 43                                                                                | 231                                                                               | 58                                                                                | 28                                                                                | 221                                                                               | 86                                                                                | 58                                                                                  | 213                                                                                 | 57                                                                                  | 114                                                                                 | 122                                                                                 | 43                                                                                  |
| Future Volume (veh/h)        | 43                                                                                | 231                                                                               | 58                                                                                | 28                                                                                | 221                                                                               | 86                                                                                | 58                                                                                  | 213                                                                                 | 57                                                                                  | 114                                                                                 | 122                                                                                 | 43                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 53                                                                                | 285                                                                               | 72                                                                                | 35                                                                                | 273                                                                               | 106                                                                               | 72                                                                                  | 263                                                                                 | 70                                                                                  | 141                                                                                 | 151                                                                                 | 53                                                                                  |
| Peak Hour Factor             | 0.81                                                                              | 0.81                                                                              | 0.81                                                                              | 0.81                                                                              | 0.81                                                                              | 0.81                                                                              | 0.81                                                                                | 0.81                                                                                | 0.81                                                                                | 0.81                                                                                | 0.81                                                                                | 0.81                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 68                                                                                | 1491                                                                              | 370                                                                               | 53                                                                                | 1310                                                                              | 496                                                                               | 93                                                                                  | 318                                                                                 | 270                                                                                 | 170                                                                                 | 282                                                                                 | 99                                                                                  |
| Arrive On Green              | 0.04                                                                              | 0.53                                                                              | 0.53                                                                              | 0.03                                                                              | 0.52                                                                              | 0.52                                                                              | 0.05                                                                                | 0.17                                                                                | 0.17                                                                                | 0.10                                                                                | 0.21                                                                                | 0.21                                                                                |
| Sat Flow, veh/h              | 1781                                                                              | 2821                                                                              | 700                                                                               | 1781                                                                              | 2520                                                                              | 955                                                                               | 1781                                                                                | 1870                                                                                | 1585                                                                                | 1781                                                                                | 1323                                                                                | 464                                                                                 |
| Grp Volume(v), veh/h         | 53                                                                                | 178                                                                               | 179                                                                               | 35                                                                                | 190                                                                               | 189                                                                               | 72                                                                                  | 263                                                                                 | 70                                                                                  | 141                                                                                 | 0                                                                                   | 204                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 1777                                                                              | 1744                                                                              | 1781                                                                              | 1777                                                                              | 1698                                                                              | 1781                                                                                | 1870                                                                                | 1585                                                                                | 1781                                                                                | 0                                                                                   | 1787                                                                                |
| Q Serve(g_s), s              | 3.3                                                                               | 5.9                                                                               | 6.1                                                                               | 2.2                                                                               | 6.5                                                                               | 6.8                                                                               | 4.5                                                                                 | 15.3                                                                                | 4.3                                                                                 | 8.8                                                                                 | 0.0                                                                                 | 11.4                                                                                |
| Cycle Q Clear(g_c), s        | 3.3                                                                               | 5.9                                                                               | 6.1                                                                               | 2.2                                                                               | 6.5                                                                               | 6.8                                                                               | 4.5                                                                                 | 15.3                                                                                | 4.3                                                                                 | 8.8                                                                                 | 0.0                                                                                 | 11.4                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.40                                                                              | 1.00                                                                              |                                                                                   | 0.56                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.26                                                                                |
| Lane Grp Cap(c), veh/h       | 68                                                                                | 939                                                                               | 922                                                                               | 53                                                                                | 924                                                                               | 883                                                                               | 93                                                                                  | 318                                                                                 | 270                                                                                 | 170                                                                                 | 0                                                                                   | 381                                                                                 |
| V/C Ratio(X)                 | 0.78                                                                              | 0.19                                                                              | 0.19                                                                              | 0.67                                                                              | 0.21                                                                              | 0.21                                                                              | 0.78                                                                                | 0.83                                                                                | 0.26                                                                                | 0.83                                                                                | 0.00                                                                                | 0.54                                                                                |
| Avail Cap(c_a), veh/h        | 243                                                                               | 939                                                                               | 922                                                                               | 243                                                                               | 939                                                                               | 898                                                                               | 243                                                                                 | 825                                                                                 | 699                                                                                 | 243                                                                                 | 0                                                                                   | 788                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 53.7                                                                              | 13.9                                                                              | 14.0                                                                              | 54.2                                                                              | 14.6                                                                              | 14.6                                                                              | 52.8                                                                                | 45.2                                                                                | 40.6                                                                                | 50.1                                                                                | 0.0                                                                                 | 39.4                                                                                |
| Incr Delay (d2), s/veh       | 6.8                                                                               | 0.4                                                                               | 0.5                                                                               | 5.3                                                                               | 0.0                                                                               | 0.0                                                                               | 9.8                                                                                 | 5.5                                                                                 | 0.5                                                                                 | 13.1                                                                                | 0.0                                                                                 | 1.7                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.6                                                                               | 2.5                                                                               | 2.5                                                                               | 1.1                                                                               | 2.6                                                                               | 2.6                                                                               | 2.3                                                                                 | 7.6                                                                                 | 1.7                                                                                 | 4.5                                                                                 | 0.0                                                                                 | 5.2                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 60.5                                                                              | 14.4                                                                              | 14.4                                                                              | 59.4                                                                              | 14.6                                                                              | 14.7                                                                              | 62.6                                                                                | 50.6                                                                                | 41.1                                                                                | 63.2                                                                                | 0.0                                                                                 | 41.1                                                                                |
| LnGrp LOS                    | E                                                                                 | B                                                                                 | B                                                                                 | E                                                                                 | B                                                                                 | B                                                                                 | E                                                                                   | D                                                                                   | D                                                                                   | E                                                                                   |                                                                                     | D                                                                                   |
| Approach Vol, veh/h          | 410                                                                               |                                                                                   |                                                                                   | 414                                                                               |                                                                                   |                                                                                   | 405                                                                                 |                                                                                     |                                                                                     | 345                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 20.4                                                                              |                                                                                   |                                                                                   | 18.4                                                                              |                                                                                   |                                                                                   | 51.1                                                                                |                                                                                     |                                                                                     | 50.1                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | D                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.9                                                                               | 65.0                                                                              | 10.5                                                                              | 29.3                                                                              | 8.9                                                                               | 64.0                                                                              | 15.3                                                                                | 24.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.6                                                                               | 5.4                                                                               | 4.6                                                                               | 5.3                                                                               | 4.6                                                                               | 5.4                                                                               | 4.6                                                                                 | 5.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 15.4                                                                              | 59.6                                                                              | 15.4                                                                              | 49.7                                                                              | 15.4                                                                              | 59.6                                                                              | 15.4                                                                                | 49.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 4.2                                                                               | 8.1                                                                               | 6.5                                                                               | 13.4                                                                              | 5.3                                                                               | 8.8                                                                               | 10.8                                                                                | 17.3                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.1                                                                               | 0.1                                                                               | 1.8                                                                               | 0.0                                                                               | 1.2                                                                               | 0.1                                                                                 | 1.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 34.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



## Queues

Existing Conditions

## 2: Highland Dr/Highland Dr &amp; Wilmington Ave



| Lane Group              | EBL  | EBT  | EBR  | WBL  | WBT  | NBL  | NBT  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 16   | 77   | 18   | 28   | 59   | 16   | 360  | 233  |
| v/c Ratio               | 0.10 | 0.36 | 0.09 | 0.19 | 0.26 | 0.02 | 0.26 | 0.18 |
| Control Delay (s/veh)   | 23.6 | 28.5 | 6.4  | 25.5 | 14.1 | 3.1  | 3.6  | 3.4  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 23.6 | 28.5 | 6.4  | 25.5 | 14.1 | 3.1  | 3.6  | 3.4  |
| Queue Length 50th (ft)  | 5    | 25   | 0    | 9    | 5    | 1    | 33   | 21   |
| Queue Length 95th (ft)  | 19   | 57   | 10   | 28   | 32   | 6    | 68   | 46   |
| Internal Link Dist (ft) |      | 248  |      |      | 208  |      | 10   | 677  |
| Turn Bay Length (ft)    | 200  |      | 180  | 50   |      | 75   |      |      |
| Base Capacity (vph)     | 551  | 767  | 671  | 542  | 709  | 872  | 1389 | 1282 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.03 | 0.10 | 0.03 | 0.05 | 0.08 | 0.02 | 0.26 | 0.18 |

## Intersection Summary

# HCM 7th Signalized Intersection Summary

## 2: Highland Dr/Highland Dr & Wilmington Ave

Existing Conditions

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |                                                                                   |  |  |                                                                                     |                                                                                     |  |  |
| Traffic Volume (veh/h)       | 14                                                                                | 68                                                                                | 16                                                                                | 25                                                                                | 15                                                                                | 37                                                                                | 14                                                                                  | 260                                                                                 | 57                                                                                  | 37                                                                                  | 160                                                                                 | 8                                                                                   |
| Future Volume (veh/h)        | 14                                                                                | 68                                                                                | 16                                                                                | 25                                                                                | 15                                                                                | 37                                                                                | 14                                                                                  | 260                                                                                 | 57                                                                                  | 37                                                                                  | 160                                                                                 | 8                                                                                   |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 16                                                                                | 77                                                                                | 18                                                                                | 28                                                                                | 17                                                                                | 42                                                                                | 16                                                                                  | 295                                                                                 | 65                                                                                  | 42                                                                                  | 182                                                                                 | 9                                                                                   |
| Peak Hour Factor             | 0.88                                                                              | 0.88                                                                              | 0.88                                                                              | 0.88                                                                              | 0.88                                                                              | 0.88                                                                              | 0.88                                                                                | 0.88                                                                                | 0.88                                                                                | 0.88                                                                                | 0.88                                                                                | 0.88                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 212                                                                               | 177                                                                               | 150                                                                               | 203                                                                               | 45                                                                                | 112                                                                               | 1009                                                                                | 1065                                                                                | 235                                                                                 | 239                                                                                 | 990                                                                                 | 46                                                                                  |
| Arrive On Green              | 0.09                                                                              | 0.09                                                                              | 0.09                                                                              | 0.09                                                                              | 0.09                                                                              | 0.09                                                                              | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                |
| Sat Flow, veh/h              | 1344                                                                              | 1870                                                                              | 1585                                                                              | 1301                                                                              | 478                                                                               | 1180                                                                              | 1192                                                                                | 1484                                                                                | 327                                                                                 | 226                                                                                 | 1380                                                                                | 65                                                                                  |
| Grp Volume(v), veh/h         | 16                                                                                | 77                                                                                | 18                                                                                | 28                                                                                | 0                                                                                 | 59                                                                                | 16                                                                                  | 0                                                                                   | 360                                                                                 | 233                                                                                 | 0                                                                                   | 0                                                                                   |
| Grp Sat Flow(s),veh/h/ln     | 1344                                                                              | 1870                                                                              | 1585                                                                              | 1301                                                                              | 0                                                                                 | 1658                                                                              | 1192                                                                                | 0                                                                                   | 1811                                                                                | 1671                                                                                | 0                                                                                   | 0                                                                                   |
| Q Serve(g_s), s              | 0.6                                                                               | 2.2                                                                               | 0.6                                                                               | 1.1                                                                               | 0.0                                                                               | 1.8                                                                               | 0.0                                                                                 | 0.0                                                                                 | 3.9                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Cycle Q Clear(g_c), s        | 2.5                                                                               | 2.2                                                                               | 0.6                                                                               | 3.3                                                                               | 0.0                                                                               | 1.8                                                                               | 0.1                                                                                 | 0.0                                                                                 | 3.9                                                                                 | 2.2                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.71                                                                              | 1.00                                                                                |                                                                                     | 0.18                                                                                | 0.18                                                                                |                                                                                     | 0.04                                                                                |
| Lane Grp Cap(c), veh/h       | 212                                                                               | 177                                                                               | 150                                                                               | 203                                                                               | 0                                                                                 | 157                                                                               | 1009                                                                                | 0                                                                                   | 1300                                                                                | 1276                                                                                | 0                                                                                   | 0                                                                                   |
| V/C Ratio(X)                 | 0.08                                                                              | 0.44                                                                              | 0.12                                                                              | 0.14                                                                              | 0.00                                                                              | 0.38                                                                              | 0.02                                                                                | 0.00                                                                                | 0.28                                                                                | 0.18                                                                                | 0.00                                                                                | 0.00                                                                                |
| Avail Cap(c_a), veh/h        | 690                                                                               | 842                                                                               | 713                                                                               | 665                                                                               | 0                                                                                 | 746                                                                               | 1009                                                                                | 0                                                                                   | 1300                                                                                | 1276                                                                                | 0                                                                                   | 0                                                                                   |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 0.00                                                                                |
| Uniform Delay (d), s/veh     | 24.7                                                                              | 23.7                                                                              | 22.9                                                                              | 25.2                                                                              | 0.0                                                                               | 23.5                                                                              | 2.2                                                                                 | 0.0                                                                                 | 2.8                                                                                 | 2.5                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.6                                                                               | 0.1                                                                               | 0.1                                                                               | 0.0                                                                               | 0.6                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.5                                                                                 | 0.3                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.2                                                                               | 0.9                                                                               | 0.2                                                                               | 0.3                                                                               | 0.0                                                                               | 0.7                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.9                                                                                 | 0.5                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 24.7                                                                              | 24.3                                                                              | 23.1                                                                              | 25.3                                                                              | 0.0                                                                               | 24.1                                                                              | 2.3                                                                                 | 0.0                                                                                 | 3.3                                                                                 | 2.8                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | A                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     |                                                                                     |
| Approach Vol, veh/h          | 111                                                                               |                                                                                   |                                                                                   | 87                                                                                |                                                                                   |                                                                                   | 376                                                                                 |                                                                                     |                                                                                     | 233                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 24.1                                                                              |                                                                                   |                                                                                   | 24.5                                                                              |                                                                                   |                                                                                   | 3.2                                                                                 |                                                                                     |                                                                                     | 2.8                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 10.3                                                                              |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 10.3                                                                                |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.3                                                                               |                                                                                   |                                                                                   | 5.1                                                                               |                                                                                   |                                                                                   | 5.3                                                                                 |                                                                                     |                                                                                     | 5.1                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.7                                                                              |                                                                                   |                                                                                   | 24.9                                                                              |                                                                                   |                                                                                   | 39.7                                                                                |                                                                                     |                                                                                     | 24.9                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 5.9                                                                               |                                                                                   |                                                                                   | 4.5                                                                               |                                                                                   |                                                                                   | 4.2                                                                                 |                                                                                     |                                                                                     | 5.3                                                                                 |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 1.1                                                                               |                                                                                   |                                                                                   | 0.3                                                                               |                                                                                   |                                                                                   | 0.7                                                                                 |                                                                                     |                                                                                     | 0.2                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 8.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

HCM 7th TWSC  
3: McClelland St & Sugarmon Dr

Existing Conditions

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 3.2  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      |      | ↕    |      |      | ↕    |      |      | ↕    |      |
| Traffic Vol, veh/h       | 15   | 63   | 7    | 15   | 28   | 21   | 3    | 3    | 6    | 13   | 1    | 13   |
| Future Vol, veh/h        | 15   | 63   | 7    | 15   | 28   | 21   | 3    | 3    | 6    | 13   | 1    | 13   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 77   | 77   | 77   | 77   | 77   | 77   | 77   | 77   | 77   | 77   | 77   | 77   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 19   | 82   | 9    | 19   | 36   | 27   | 4    | 4    | 8    | 17   | 1    | 17   |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |       |       | Minor2 |       |       |
|----------------------|--------|---|---|--------|---|---|--------|-------|-------|--------|-------|-------|
| Conflicting Flow All | 64     | 0 | 0 | 91     | 0 | 0 | 201    | 228   | 86    | 212    | 219   | 50    |
| Stage 1              | -      | - | - | -      | - | - | 125    | 125   | -     | 89     | 89    | -     |
| Stage 2              | -      | - | - | -      | - | - | 76     | 103   | -     | 123    | 130   | -     |
| Critical Hdwy        | 4.12   | - | - | 4.12   | - | - | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy       | 2.218  | - | - | 2.218  | - | - | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver   | 1539   | - | - | 1504   | - | - | 757    | 672   | 972   | 745    | 679   | 1018  |
| Stage 1              | -      | - | - | -      | - | - | 879    | 792   | -     | 918    | 821   | -     |
| Stage 2              | -      | - | - | -      | - | - | 933    | 810   | -     | 881    | 789   | -     |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver   | 1539   | - | - | 1504   | - | - | 723    | 654   | 972   | 715    | 661   | 1018  |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 723    | 654   | -     | 715    | 661   | -     |
| Stage 1              | -      | - | - | -      | - | - | 867    | 782   | -     | 906    | 810   | -     |
| Stage 2              | -      | - | - | -      | - | - | 904    | 799   | -     | 858    | 778   | -     |

| Approach          | EB  | WB   | NB   | SB   |
|-------------------|-----|------|------|------|
| HCM Ctrl Dly, s/v | 1.3 | 1.74 | 9.56 | 9.52 |
| HCM LOS           |     |      | A    | A    |

| Minor Lane/Major Mvmt | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)      | 805   | 311   | -   | -   | 389   | -   | -   | 832   |
| HCM Lane V/C Ratio    | 0.019 | 0.013 | -   | -   | 0.013 | -   | -   | 0.042 |
| HCM Ctrl Dly (s/v)    | 9.6   | 7.4   | 0   | -   | 7.4   | 0   | -   | 9.5   |
| HCM Lane LOS          | A     | A     | A   | -   | A     | A   | -   | A     |
| HCM 95th %tile Q(veh) | 0.1   | 0     | -   | -   | 0     | -   | -   | 0.1   |

## Queues

Existing Conditions

## 4: Highland Dr &amp; Simpson Ave



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 20   | 81   | 13   | 48   | 31   | 378  | 33   | 178  |
| v/c Ratio               | 0.13 | 0.37 | 0.09 | 0.24 | 0.03 | 0.26 | 0.04 | 0.12 |
| Control Delay (s/veh)   | 24.7 | 16.1 | 23.6 | 13.4 | 2.8  | 3.3  | 2.9  | 2.8  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 24.7 | 16.1 | 23.6 | 13.4 | 2.8  | 3.3  | 2.9  | 2.8  |
| Queue Length 50th (ft)  | 6    | 8    | 4    | 3    | 2    | 31   | 2    | 13   |
| Queue Length 95th (ft)  | 21   | 37   | 16   | 25   | 8    | 63   | 9    | 31   |
| Internal Link Dist (ft) |      | 135  |      | 226  |      | 265  |      | 267  |
| Turn Bay Length (ft)    | 65   |      | 75   |      | 100  |      | 50   |      |
| Base Capacity (vph)     | 625  | 733  | 625  | 707  | 934  | 1433 | 778  | 1447 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.03 | 0.11 | 0.02 | 0.07 | 0.03 | 0.26 | 0.04 | 0.12 |

## Intersection Summary

# HCM 7th Signalized Intersection Summary 4: Highland Dr & Simpson Ave

Existing Conditions

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 17                                                                                | 21                                                                                | 47                                                                                | 11                                                                                | 7                                                                                 | 34                                                                                | 26                                                                                  | 290                                                                                 | 28                                                                                  | 28                                                                                  | 148                                                                                 | 2                                                                                   |
| Future Volume (veh/h)        | 17                                                                                | 21                                                                                | 47                                                                                | 11                                                                                | 7                                                                                 | 34                                                                                | 26                                                                                  | 290                                                                                 | 28                                                                                  | 28                                                                                  | 148                                                                                 | 2                                                                                   |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 20                                                                                | 25                                                                                | 56                                                                                | 13                                                                                | 8                                                                                 | 40                                                                                | 31                                                                                  | 345                                                                                 | 33                                                                                  | 33                                                                                  | 176                                                                                 | 2                                                                                   |
| Peak Hour Factor             | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                | 0.84                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 212                                                                               | 45                                                                                | 100                                                                               | 185                                                                               | 24                                                                                | 118                                                                               | 970                                                                                 | 1217                                                                                | 116                                                                                 | 788                                                                                 | 1337                                                                                | 15                                                                                  |
| Arrive On Green              | 0.09                                                                              | 0.09                                                                              | 0.09                                                                              | 0.09                                                                              | 0.09                                                                              | 0.09                                                                              | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                |
| Sat Flow, veh/h              | 1357                                                                              | 513                                                                               | 1150                                                                              | 1317                                                                              | 271                                                                               | 1355                                                                              | 1206                                                                                | 1681                                                                                | 161                                                                                 | 1005                                                                                | 1846                                                                                | 21                                                                                  |
| Grp Volume(v), veh/h         | 20                                                                                | 0                                                                                 | 81                                                                                | 13                                                                                | 0                                                                                 | 48                                                                                | 31                                                                                  | 0                                                                                   | 378                                                                                 | 33                                                                                  | 0                                                                                   | 178                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1357                                                                              | 0                                                                                 | 1663                                                                              | 1317                                                                              | 0                                                                                 | 1626                                                                              | 1206                                                                                | 0                                                                                   | 1841                                                                                | 1005                                                                                | 0                                                                                   | 1867                                                                                |
| Q Serve(g_s), s              | 0.8                                                                               | 0.0                                                                               | 2.6                                                                               | 0.5                                                                               | 0.0                                                                               | 1.5                                                                               | 0.4                                                                                 | 0.0                                                                                 | 3.9                                                                                 | 0.6                                                                                 | 0.0                                                                                 | 1.6                                                                                 |
| Cycle Q Clear(g_c), s        | 2.3                                                                               | 0.0                                                                               | 2.6                                                                               | 3.1                                                                               | 0.0                                                                               | 1.5                                                                               | 2.0                                                                                 | 0.0                                                                                 | 3.9                                                                                 | 4.5                                                                                 | 0.0                                                                                 | 1.6                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.69                                                                              | 1.00                                                                              |                                                                                   | 0.83                                                                              | 1.00                                                                                |                                                                                     | 0.09                                                                                | 1.00                                                                                |                                                                                     | 0.01                                                                                |
| Lane Grp Cap(c), veh/h       | 212                                                                               | 0                                                                                 | 145                                                                               | 185                                                                               | 0                                                                                 | 142                                                                               | 970                                                                                 | 0                                                                                   | 1334                                                                                | 788                                                                                 | 0                                                                                   | 1352                                                                                |
| V/C Ratio(X)                 | 0.09                                                                              | 0.00                                                                              | 0.56                                                                              | 0.07                                                                              | 0.00                                                                              | 0.34                                                                              | 0.03                                                                                | 0.00                                                                                | 0.28                                                                                | 0.04                                                                                | 0.00                                                                                | 0.13                                                                                |
| Avail Cap(c_a), veh/h        | 717                                                                               | 0                                                                                 | 764                                                                               | 675                                                                               | 0                                                                                 | 747                                                                               | 970                                                                                 | 0                                                                                   | 1334                                                                                | 788                                                                                 | 0                                                                                   | 1352                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 24.5                                                                              | 0.0                                                                               | 23.9                                                                              | 25.4                                                                              | 0.0                                                                               | 23.5                                                                              | 2.6                                                                                 | 0.0                                                                                 | 2.6                                                                                 | 3.4                                                                                 | 0.0                                                                                 | 2.3                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.0                                                                               | 1.3                                                                               | 0.1                                                                               | 0.0                                                                               | 0.5                                                                               | 0.1                                                                                 | 0.0                                                                                 | 0.5                                                                                 | 0.1                                                                                 | 0.0                                                                                 | 0.2                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.2                                                                               | 0.0                                                                               | 1.0                                                                               | 0.2                                                                               | 0.0                                                                               | 0.6                                                                               | 0.1                                                                                 | 0.0                                                                                 | 0.8                                                                                 | 0.1                                                                                 | 0.0                                                                                 | 0.3                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 24.6                                                                              | 0.0                                                                               | 25.2                                                                              | 25.5                                                                              | 0.0                                                                               | 24.0                                                                              | 2.7                                                                                 | 0.0                                                                                 | 3.1                                                                                 | 3.5                                                                                 | 0.0                                                                                 | 2.5                                                                                 |
| LnGrp LOS                    | C                                                                                 |                                                                                   | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | A                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     | A                                                                                   |
| Approach Vol, veh/h          | 101                                                                               |                                                                                   |                                                                                   | 61                                                                                |                                                                                   |                                                                                   | 409                                                                                 |                                                                                     |                                                                                     | 211                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 25.1                                                                              |                                                                                   |                                                                                   | 24.3                                                                              |                                                                                   |                                                                                   | 3.1                                                                                 |                                                                                     |                                                                                     | 2.7                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 9.7                                                                               |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 9.7                                                                                 |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.4                                                                               |                                                                                   |                                                                                   | 4.9                                                                               |                                                                                   |                                                                                   | 5.4                                                                                 |                                                                                     |                                                                                     | 4.9                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.6                                                                              |                                                                                   |                                                                                   | 25.1                                                                              |                                                                                   |                                                                                   | 39.6                                                                                |                                                                                     |                                                                                     | 25.1                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 5.9                                                                               |                                                                                   |                                                                                   | 4.6                                                                               |                                                                                   |                                                                                   | 6.5                                                                                 |                                                                                     |                                                                                     | 5.1                                                                                 |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 1.6                                                                               |                                                                                   |                                                                                   | 0.3                                                                               |                                                                                   |                                                                                   | 0.8                                                                                 |                                                                                     |                                                                                     | 0.1                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 7.5                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



HCM 7th TWSC  
5: Highland Dr/Higland Dr & North Driveway

Existing Conditions

| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 0         |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↑      | ↘    |      |
| Traffic Vol, veh/h       | 0         | 0      | 0    | 331    | 193  | 8    |
| Future Vol, veh/h        | 0         | 0      | 0    | 331    | 193  | 8    |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | -    |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 90        | 90     | 90   | 90     | 90   | 90   |
| Heavy Vehicles, %        | 2         | 2      | 2    | 2      | 2    | 2    |
| Mvmt Flow                | 0         | 0      | 0    | 368    | 214  | 9    |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 219    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 6.22   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 3.318  | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 821    | 0    | -      | -    | -    |
| Stage 1                  | 0         | -      | 0    | -      | -    | -    |
| Stage 2                  | 0         | -      | 0    | -      | -    | -    |
| Platoon blocked, %       |           |        |      | -      | -    | -    |
| Mov Cap-1 Maneuver       | -         | 821    | -    | -      | -    | -    |
| Mov Cap-2 Maneuver       | -         | -      | -    | -      | -    | -    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Approach                 | EB        | NB     |      | SB     |      |      |
| HCM Ctrl Dly, s/v        | 0         | 0      |      | 0      |      |      |
| HCM LOS                  | A         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | -         |        | -    | -      |      |      |
| HCM Lane V/C Ratio       | -         |        | -    | -      |      |      |
| HCM Ctrl Dly (s/v)       | -         |        | 0    | -      |      |      |
| HCM Lane LOS             | -         |        | A    | -      |      |      |
| HCM 95th %tile Q(veh)    | -         |        | -    | -      |      |      |

HCM 7th TWSC  
6: Highland Dr & South Driveway

Existing Conditions

| Intersection             |        |        |        |      |      |      |
|--------------------------|--------|--------|--------|------|------|------|
| Int Delay, s/veh         | 0.1    |        |        |      |      |      |
| Movement                 | EBL    | EBR    | NBL    | NBT  | SBT  | SBR  |
| Lane Configurations      | W      |        |        | ↑    | ↑    |      |
| Traffic Vol, veh/h       | 3      | 2      | 0      | 328  | 193  | 0    |
| Future Vol, veh/h        | 3      | 2      | 0      | 328  | 193  | 0    |
| Conflicting Peds, #/hr   | 0      | 0      | 0      | 0    | 0    | 0    |
| Sign Control             | Stop   | Stop   | Free   | Free | Free | Free |
| RT Channelized           | -      | None   | -      | None | -    | None |
| Storage Length           | 0      | -      | -      | -    | -    | -    |
| Veh in Median Storage, # | 0      | -      | -      | 0    | 0    | -    |
| Grade, %                 | 0      | -      | -      | 0    | 0    | -    |
| Peak Hour Factor         | 90     | 90     | 90     | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2      | 2      | 2      | 2    | 2    | 2    |
| Mvmt Flow                | 3      | 2      | 0      | 364  | 214  | 0    |
| Major/Minor              | Minor2 | Major1 | Major2 |      |      |      |
| Conflicting Flow All     | 579    | 214    | -      | 0    | -    | 0    |
| Stage 1                  | 214    | -      | -      | -    | -    | -    |
| Stage 2                  | 364    | -      | -      | -    | -    | -    |
| Critical Hdwy            | 6.42   | 6.22   | -      | -    | -    | -    |
| Critical Hdwy Stg 1      | 5.42   | -      | -      | -    | -    | -    |
| Critical Hdwy Stg 2      | 5.42   | -      | -      | -    | -    | -    |
| Follow-up Hdwy           | 3.518  | 3.318  | -      | -    | -    | -    |
| Pot Cap-1 Maneuver       | 477    | 826    | 0      | -    | -    | -    |
| Stage 1                  | 821    | -      | 0      | -    | -    | -    |
| Stage 2                  | 703    | -      | 0      | -    | -    | -    |
| Platoon blocked, %       |        |        |        | -    | -    | -    |
| Mov Cap-1 Maneuver       | 477    | 826    | -      | -    | -    | -    |
| Mov Cap-2 Maneuver       | 560    | -      | -      | -    | -    | -    |
| Stage 1                  | 821    | -      | -      | -    | -    | -    |
| Stage 2                  | 703    | -      | -      | -    | -    | -    |
| Approach                 | EB     | NB     | SB     |      |      |      |
| HCM Ctrl Dly, s/v        | 10.65  | 0      | 0      |      |      |      |
| HCM LOS                  | B      |        |        |      |      |      |
| Minor Lane/Major Mvmt    | NBT    | EBLn1  | SBT    | SBR  |      |      |
| Capacity (veh/h)         | -      | 643    | -      | -    |      |      |
| HCM Lane V/C Ratio       | -      | 0.009  | -      | -    |      |      |
| HCM Ctrl Dly (s/v)       | -      | 10.7   | -      | -    |      |      |
| HCM Lane LOS             | -      | B      | -      | -    |      |      |
| HCM 95th %tile Q(veh)    | -      | 0      | -      | -    |      |      |

## Queues

## Existing Conditions

## 1: Highland Dr/1100 E &amp; 2100 S



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL   | SBT  |
|-------------------------|------|------|------|------|------|------|------|-------|------|
| Lane Group Flow (vph)   | 92   | 552  | 89   | 488  | 150  | 307  | 149  | 166   | 399  |
| v/c Ratio               | 0.68 | 0.38 | 0.66 | 0.34 | 0.82 | 0.65 | 0.32 | 0.86  | 0.85 |
| Control Delay (s/veh)   | 90.3 | 29.1 | 89.6 | 28.6 | 96.2 | 54.3 | 21.8 | 100.6 | 65.9 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  |
| Total Delay (s/veh)     | 90.3 | 29.1 | 89.6 | 28.6 | 96.2 | 54.3 | 21.8 | 100.6 | 65.9 |
| Queue Length 50th (ft)  | 87   | 177  | 84   | 154  | 142  | 260  | 52   | 158   | 353  |
| Queue Length 95th (ft)  | 160  | 271  | 157  | 238  | #299 | 375  | 117  | #341  | 499  |
| Internal Link Dist (ft) |      | 242  |      | 444  |      | 677  |      |       | 301  |
| Turn Bay Length (ft)    | 200  |      | 290  |      | 95   |      | 90   | 95    |      |
| Base Capacity (vph)     | 192  | 1452 | 192  | 1453 | 192  | 654  | 607  | 192   | 639  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    |
| Reduced v/c Ratio       | 0.48 | 0.38 | 0.46 | 0.34 | 0.78 | 0.47 | 0.25 | 0.86  | 0.62 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 7th Signalized Intersection Summary

Existing Conditions

## 1: Highland Dr/1100 E & 2100 S

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 90                                                                                | 397                                                                               | 144                                                                               | 87                                                                                | 362                                                                               | 117                                                                               | 147                                                                                 | 301                                                                                 | 146                                                                                 | 163                                                                                 | 310                                                                                 | 81                                                                                  |
| Future Volume (veh/h)        | 90                                                                                | 397                                                                               | 144                                                                               | 87                                                                                | 362                                                                               | 117                                                                               | 147                                                                                 | 301                                                                                 | 146                                                                                 | 163                                                                                 | 310                                                                                 | 81                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 92                                                                                | 405                                                                               | 147                                                                               | 89                                                                                | 369                                                                               | 119                                                                               | 150                                                                                 | 307                                                                                 | 149                                                                                 | 166                                                                                 | 316                                                                                 | 83                                                                                  |
| Peak Hour Factor             | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 114                                                                               | 1130                                                                              | 405                                                                               | 111                                                                               | 1164                                                                              | 370                                                                               | 174                                                                                 | 455                                                                                 | 386                                                                                 | 190                                                                                 | 360                                                                                 | 95                                                                                  |
| Arrive On Green              | 0.06                                                                              | 0.44                                                                              | 0.44                                                                              | 0.06                                                                              | 0.44                                                                              | 0.44                                                                              | 0.10                                                                                | 0.24                                                                                | 0.24                                                                                | 0.11                                                                                | 0.25                                                                                | 0.25                                                                                |
| Sat Flow, veh/h              | 1781                                                                              | 2562                                                                              | 919                                                                               | 1781                                                                              | 2652                                                                              | 844                                                                               | 1781                                                                                | 1870                                                                                | 1585                                                                                | 1781                                                                                | 1428                                                                                | 375                                                                                 |
| Grp Volume(v), veh/h         | 92                                                                                | 279                                                                               | 273                                                                               | 89                                                                                | 246                                                                               | 242                                                                               | 150                                                                                 | 307                                                                                 | 149                                                                                 | 166                                                                                 | 0                                                                                   | 399                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 1777                                                                              | 1705                                                                              | 1781                                                                              | 1777                                                                              | 1719                                                                              | 1781                                                                                | 1870                                                                                | 1585                                                                                | 1781                                                                                | 0                                                                                   | 1803                                                                                |
| Q Serve(g_s), s              | 6.9                                                                               | 14.1                                                                              | 14.4                                                                              | 6.7                                                                               | 12.2                                                                              | 12.5                                                                              | 11.2                                                                                | 20.1                                                                                | 10.6                                                                                | 12.4                                                                                | 0.0                                                                                 | 28.7                                                                                |
| Cycle Q Clear(g_c), s        | 6.9                                                                               | 14.1                                                                              | 14.4                                                                              | 6.7                                                                               | 12.2                                                                              | 12.5                                                                              | 11.2                                                                                | 20.1                                                                                | 10.6                                                                                | 12.4                                                                                | 0.0                                                                                 | 28.7                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.54                                                                              | 1.00                                                                              |                                                                                   | 0.49                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.21                                                                                |
| Lane Grp Cap(c), veh/h       | 114                                                                               | 783                                                                               | 752                                                                               | 111                                                                               | 780                                                                               | 754                                                                               | 174                                                                                 | 455                                                                                 | 386                                                                                 | 190                                                                                 | 0                                                                                   | 454                                                                                 |
| V/C Ratio(X)                 | 0.81                                                                              | 0.36                                                                              | 0.36                                                                              | 0.80                                                                              | 0.31                                                                              | 0.32                                                                              | 0.86                                                                                | 0.67                                                                                | 0.39                                                                                | 0.87                                                                                | 0.00                                                                                | 0.88                                                                                |
| Avail Cap(c_a), veh/h        | 203                                                                               | 783                                                                               | 752                                                                               | 203                                                                               | 783                                                                               | 758                                                                               | 203                                                                                 | 688                                                                                 | 583                                                                                 | 203                                                                                 | 0                                                                                   | 663                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 62.5                                                                              | 25.1                                                                              | 25.2                                                                              | 62.6                                                                              | 24.7                                                                              | 24.8                                                                              | 60.1                                                                                | 46.3                                                                                | 42.7                                                                                | 59.5                                                                                | 0.0                                                                                 | 48.6                                                                                |
| Incr Delay (d2), s/veh       | 5.0                                                                               | 1.3                                                                               | 1.4                                                                               | 5.1                                                                               | 0.1                                                                               | 0.1                                                                               | 25.5                                                                                | 1.8                                                                                 | 0.6                                                                                 | 29.9                                                                                | 0.0                                                                                 | 10.7                                                                                |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 3.3                                                                               | 6.3                                                                               | 6.2                                                                               | 3.2                                                                               | 5.2                                                                               | 5.2                                                                               | 6.3                                                                                 | 9.6                                                                                 | 4.3                                                                                 | 7.2                                                                                 | 0.0                                                                                 | 14.3                                                                                |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 67.5                                                                              | 26.3                                                                              | 26.5                                                                              | 67.7                                                                              | 24.8                                                                              | 24.9                                                                              | 85.6                                                                                | 48.1                                                                                | 43.4                                                                                | 89.4                                                                                | 0.0                                                                                 | 59.3                                                                                |
| LnGrp LOS                    | E                                                                                 | C                                                                                 | C                                                                                 | E                                                                                 | C                                                                                 | C                                                                                 | F                                                                                   | D                                                                                   | D                                                                                   | F                                                                                   |                                                                                     | E                                                                                   |
| Approach Vol, veh/h          | 644                                                                               |                                                                                   |                                                                                   | 577                                                                               |                                                                                   |                                                                                   | 606                                                                                 |                                                                                     |                                                                                     | 565                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 32.3                                                                              |                                                                                   |                                                                                   | 31.4                                                                              |                                                                                   |                                                                                   | 56.2                                                                                |                                                                                     |                                                                                     | 68.1                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | E                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 13.0                                                                              | 65.0                                                                              | 17.8                                                                              | 39.4                                                                              | 13.2                                                                              | 64.8                                                                              | 19.0                                                                                | 38.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.6                                                                               | 5.4                                                                               | 4.6                                                                               | 5.3                                                                               | 4.6                                                                               | 5.4                                                                               | 4.6                                                                                 | 5.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 15.4                                                                              | 59.6                                                                              | 15.4                                                                              | 49.7                                                                              | 15.4                                                                              | 59.6                                                                              | 15.4                                                                                | 49.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 8.7                                                                               | 16.4                                                                              | 13.2                                                                              | 30.7                                                                              | 8.9                                                                               | 14.5                                                                              | 14.4                                                                                | 22.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.8                                                                               | 0.1                                                                               | 3.3                                                                               | 0.0                                                                               | 1.5                                                                               | 0.0                                                                                 | 2.4                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 46.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## Queues

## Existing Conditions

## 2: Highland Dr/Highland Dr &amp; Wilmington Ave



| Lane Group              | EBL  | EBT  | EBR  | WBL  | WBT  | NBL  | NBT  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 18   | 48   | 32   | 142  | 149  | 69   | 600  | 493  |
| v/c Ratio               | 0.09 | 0.15 | 0.11 | 0.61 | 0.40 | 0.11 | 0.50 | 0.51 |
| Control Delay (s/veh)   | 21.0 | 21.6 | 8.7  | 35.0 | 12.3 | 5.5  | 7.5  | 8.6  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.1  | 0.0  |
| Total Delay (s/veh)     | 21.0 | 21.6 | 8.7  | 35.0 | 12.3 | 5.5  | 7.6  | 8.6  |
| Queue Length 50th (ft)  | 6    | 15   | 0    | 49   | 16   | 8    | 87   | 77   |
| Queue Length 95th (ft)  | 20   | 40   | 19   | 99   | 59   | 27   | 202  | 188  |
| Internal Link Dist (ft) |      | 248  |      |      | 208  |      | 10   | 677  |
| Turn Bay Length (ft)    | 200  |      | 180  | 50   |      | 75   |      |      |
| Base Capacity (vph)     | 481  | 728  | 638  | 528  | 715  | 620  | 1200 | 961  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 67   | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.04 | 0.07 | 0.05 | 0.27 | 0.21 | 0.11 | 0.53 | 0.51 |

## Intersection Summary



# HCM 7th Signalized Intersection Summary

## 2: Highland Dr/Highland Dr & Wilmington Ave

Existing Conditions

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |                                                                                   |  |  |                                                                                     |                                                                                     |  |                                                                                     |
| Traffic Volume (veh/h)       | 17                                                                                | 47                                                                                | 31                                                                                | 138                                                                               | 49                                                                                | 95                                                                                | 67                                                                                  | 424                                                                                 | 158                                                                                 | 107                                                                                 | 333                                                                                 | 39                                                                                  |
| Future Volume (veh/h)        | 17                                                                                | 47                                                                                | 31                                                                                | 138                                                                               | 49                                                                                | 95                                                                                | 67                                                                                  | 424                                                                                 | 158                                                                                 | 107                                                                                 | 333                                                                                 | 39                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 18                                                                                | 48                                                                                | 32                                                                                | 142                                                                               | 51                                                                                | 98                                                                                | 69                                                                                  | 437                                                                                 | 163                                                                                 | 110                                                                                 | 343                                                                                 | 40                                                                                  |
| Peak Hour Factor             | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 228                                                                               | 316                                                                               | 268                                                                               | 314                                                                               | 97                                                                                | 186                                                                               | 711                                                                                 | 855                                                                                 | 319                                                                                 | 229                                                                                 | 679                                                                                 | 74                                                                                  |
| Arrive On Green              | 0.17                                                                              | 0.17                                                                              | 0.17                                                                              | 0.17                                                                              | 0.17                                                                              | 0.17                                                                              | 0.66                                                                                | 0.66                                                                                | 0.66                                                                                | 0.66                                                                                | 0.66                                                                                | 0.66                                                                                |
| Sat Flow, veh/h              | 1239                                                                              | 1870                                                                              | 1585                                                                              | 1319                                                                              | 572                                                                               | 1100                                                                              | 1000                                                                                | 1299                                                                                | 484                                                                                 | 236                                                                                 | 1032                                                                                | 112                                                                                 |
| Grp Volume(v), veh/h         | 18                                                                                | 48                                                                                | 32                                                                                | 142                                                                               | 0                                                                                 | 149                                                                               | 69                                                                                  | 0                                                                                   | 600                                                                                 | 493                                                                                 | 0                                                                                   | 0                                                                                   |
| Grp Sat Flow(s),veh/h/ln     | 1239                                                                              | 1870                                                                              | 1585                                                                              | 1319                                                                              | 0                                                                                 | 1672                                                                              | 1000                                                                                | 0                                                                                   | 1783                                                                                | 1380                                                                                | 0                                                                                   | 0                                                                                   |
| Q Serve(g_s), s              | 0.8                                                                               | 1.3                                                                               | 1.0                                                                               | 6.2                                                                               | 0.0                                                                               | 4.9                                                                               | 0.0                                                                                 | 0.0                                                                                 | 10.4                                                                                | 2.7                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Cycle Q Clear(g_c), s        | 5.7                                                                               | 1.3                                                                               | 1.0                                                                               | 7.5                                                                               | 0.0                                                                               | 4.9                                                                               | 2.3                                                                                 | 0.0                                                                                 | 10.4                                                                                | 13.2                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.66                                                                              | 1.00                                                                                |                                                                                     | 0.27                                                                                | 0.22                                                                                |                                                                                     | 0.08                                                                                |
| Lane Grp Cap(c), veh/h       | 228                                                                               | 316                                                                               | 268                                                                               | 314                                                                               | 0                                                                                 | 283                                                                               | 711                                                                                 | 0                                                                                   | 1174                                                                                | 982                                                                                 | 0                                                                                   | 0                                                                                   |
| V/C Ratio(X)                 | 0.08                                                                              | 0.15                                                                              | 0.12                                                                              | 0.45                                                                              | 0.00                                                                              | 0.53                                                                              | 0.10                                                                                | 0.00                                                                                | 0.51                                                                                | 0.50                                                                                | 0.00                                                                                | 0.00                                                                                |
| Avail Cap(c_a), veh/h        | 530                                                                               | 772                                                                               | 654                                                                               | 635                                                                               | 0                                                                                 | 691                                                                               | 711                                                                                 | 0                                                                                   | 1174                                                                                | 982                                                                                 | 0                                                                                   | 0                                                                                   |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 0.00                                                                                |
| Uniform Delay (d), s/veh     | 25.5                                                                              | 21.4                                                                              | 21.2                                                                              | 24.6                                                                              | 0.0                                                                               | 22.8                                                                              | 3.9                                                                                 | 0.0                                                                                 | 5.3                                                                                 | 5.1                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.1                                                                               | 0.1                                                                               | 0.4                                                                               | 0.0                                                                               | 0.6                                                                               | 0.3                                                                                 | 0.0                                                                                 | 1.6                                                                                 | 1.8                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.2                                                                               | 0.5                                                                               | 0.4                                                                               | 1.8                                                                               | 0.0                                                                               | 1.8                                                                               | 0.3                                                                                 | 0.0                                                                                 | 3.1                                                                                 | 2.4                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 25.5                                                                              | 21.4                                                                              | 21.3                                                                              | 24.9                                                                              | 0.0                                                                               | 23.4                                                                              | 4.2                                                                                 | 0.0                                                                                 | 6.9                                                                                 | 6.9                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | A                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     |                                                                                     |
| Approach Vol, veh/h          | 98                                                                                |                                                                                   |                                                                                   |                                                                                   | 291                                                                               |                                                                                   |                                                                                     |                                                                                     | 669                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 22.1                                                                              |                                                                                   |                                                                                   |                                                                                   | 24.2                                                                              |                                                                                   |                                                                                     |                                                                                     | 6.6                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 15.3                                                                              |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 15.3                                                                                |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.3                                                                               |                                                                                   |                                                                                   | 5.1                                                                               |                                                                                   |                                                                                   | 5.3                                                                                 |                                                                                     |                                                                                     | 5.1                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.7                                                                              |                                                                                   |                                                                                   | 24.9                                                                              |                                                                                   |                                                                                   | 39.7                                                                                |                                                                                     |                                                                                     | 24.9                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 12.4                                                                              |                                                                                   |                                                                                   | 7.7                                                                               |                                                                                   |                                                                                   | 15.2                                                                                |                                                                                     |                                                                                     | 9.5                                                                                 |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 2.3                                                                               |                                                                                   |                                                                                   | 0.2                                                                               |                                                                                   |                                                                                   | 2.0                                                                                 |                                                                                     |                                                                                     | 0.7                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 11.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

HCM 7th TWSC  
3: McClelland St & Sugarmon Dr

Existing Conditions

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 4.3  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      |      | ↕    |      |      | ↕    |      |      | ↕    |      |
| Traffic Vol, veh/h       | 45   | 166  | 20   | 20   | 181  | 63   | 34   | 9    | 30   | 49   | 7    | 52   |
| Future Vol, veh/h        | 45   | 166  | 20   | 20   | 181  | 63   | 34   | 9    | 30   | 49   | 7    | 52   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 47   | 175  | 21   | 21   | 191  | 66   | 36   | 9    | 32   | 52   | 7    | 55   |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |       |       | Minor2 |       |       |
|----------------------|--------|---|---|--------|---|---|--------|-------|-------|--------|-------|-------|
| Conflicting Flow All | 257    | 0 | 0 | 196    | 0 | 0 | 516    | 579   | 185   | 540    | 556   | 224   |
| Stage 1              | -      | - | - | -      | - | - | 280    | 280   | -     | 266    | 266   | -     |
| Stage 2              | -      | - | - | -      | - | - | 236    | 299   | -     | 274    | 291   | -     |
| Critical Hdwy        | 4.12   | - | - | 4.12   | - | - | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy       | 2.218  | - | - | 2.218  | - | - | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver   | 1308   | - | - | 1377   | - | - | 469    | 426   | 857   | 453    | 439   | 816   |
| Stage 1              | -      | - | - | -      | - | - | 727    | 679   | -     | 740    | 689   | -     |
| Stage 2              | -      | - | - | -      | - | - | 767    | 666   | -     | 732    | 672   | -     |
| Platoon blocked, %   |        | - | - |        | - | - |        |       |       |        |       |       |
| Mov Cap-1 Maneuver   | 1308   | - | - | 1377   | - | - | 406    | 402   | 857   | 402    | 414   | 816   |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 406    | 402   | -     | 402    | 414   | -     |
| Stage 1              | -      | - | - | -      | - | - | 697    | 651   | -     | 726    | 676   | -     |
| Stage 2              | -      | - | - | -      | - | - | 695    | 654   | -     | 666    | 645   | -     |

| Approach          | EB   | WB   | NB    | SB    |
|-------------------|------|------|-------|-------|
| HCM Ctrl Dly, s/v | 1.53 | 0.58 | 13.18 | 13.58 |
| HCM LOS           |      |      | B     | B     |

| Minor Lane/Major Mvmt | NBLn1 | EBL   | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)      | 517   | 343   | -   | -   | 130   | -   | -   | 533   |
| HCM Lane V/C Ratio    | 0.149 | 0.036 | -   | -   | 0.015 | -   | -   | 0.213 |
| HCM Ctrl Dly (s/v)    | 13.2  | 7.9   | 0   | -   | 7.7   | 0   | -   | 13.6  |
| HCM Lane LOS          | B     | A     | A   | -   | A     | A   | -   | B     |
| HCM 95th %tile Q(veh) | 0.5   | 0.1   | -   | -   | 0     | -   | -   | 0.8   |

## Queues

Existing Conditions

## 4: Highland Dr &amp; Simpson Ave



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 80   | 170  | 69   | 173  | 107  | 587  | 97   | 364  |
| v/c Ratio               | 0.51 | 0.51 | 0.43 | 0.51 | 0.15 | 0.47 | 0.19 | 0.29 |
| Control Delay (s/veh)   | 34.3 | 15.0 | 31.0 | 14.4 | 4.6  | 6.2  | 5.2  | 4.8  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 34.3 | 15.0 | 31.0 | 14.4 | 4.6  | 6.2  | 5.2  | 4.8  |
| Queue Length 50th (ft)  | 27   | 19   | 23   | 17   | 11   | 74   | 10   | 40   |
| Queue Length 95th (ft)  | 63   | 66   | 56   | 64   | 32   | 166  | 32   | 91   |
| Internal Link Dist (ft) |      | 135  |      | 226  |      | 265  |      | 267  |
| Turn Bay Length (ft)    | 65   |      | 75   |      | 100  |      | 50   |      |
| Base Capacity (vph)     | 471  | 768  | 479  | 769  | 695  | 1262 | 515  | 1273 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.17 | 0.22 | 0.14 | 0.22 | 0.15 | 0.47 | 0.19 | 0.29 |

## Intersection Summary

# HCM 7th Signalized Intersection Summary

## 4: Highland Dr & Simpson Ave

Existing Conditions

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 76                                                                                | 55                                                                                | 106                                                                               | 66                                                                                | 51                                                                                | 113                                                                               | 102                                                                                 | 497                                                                                 | 61                                                                                  | 92                                                                                  | 332                                                                                 | 14                                                                                  |
| Future Volume (veh/h)        | 76                                                                                | 55                                                                                | 106                                                                               | 66                                                                                | 51                                                                                | 113                                                                               | 102                                                                                 | 497                                                                                 | 61                                                                                  | 92                                                                                  | 332                                                                                 | 14                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 80                                                                                | 58                                                                                | 112                                                                               | 69                                                                                | 54                                                                                | 119                                                                               | 107                                                                                 | 523                                                                                 | 64                                                                                  | 97                                                                                  | 349                                                                                 | 15                                                                                  |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 244                                                                               | 113                                                                               | 219                                                                               | 247                                                                               | 103                                                                               | 228                                                                               | 672                                                                                 | 1039                                                                                | 127                                                                                 | 500                                                                                 | 1132                                                                                | 49                                                                                  |
| Arrive On Green              | 0.20                                                                              | 0.20                                                                              | 0.20                                                                              | 0.20                                                                              | 0.20                                                                              | 0.20                                                                              | 0.64                                                                                | 0.64                                                                                | 0.64                                                                                | 0.64                                                                                | 0.64                                                                                | 0.64                                                                                |
| Sat Flow, veh/h              | 1212                                                                              | 570                                                                               | 1102                                                                              | 1215                                                                              | 519                                                                               | 1145                                                                              | 1018                                                                                | 1634                                                                                | 200                                                                                 | 829                                                                                 | 1780                                                                                | 77                                                                                  |
| Grp Volume(v), veh/h         | 80                                                                                | 0                                                                                 | 170                                                                               | 69                                                                                | 0                                                                                 | 173                                                                               | 107                                                                                 | 0                                                                                   | 587                                                                                 | 97                                                                                  | 0                                                                                   | 364                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1212                                                                              | 0                                                                                 | 1672                                                                              | 1215                                                                              | 0                                                                                 | 1664                                                                              | 1018                                                                                | 0                                                                                   | 1834                                                                                | 829                                                                                 | 0                                                                                   | 1857                                                                                |
| Q Serve(g_s), s              | 3.9                                                                               | 0.0                                                                               | 5.6                                                                               | 3.3                                                                               | 0.0                                                                               | 5.8                                                                               | 3.3                                                                                 | 0.0                                                                                 | 10.7                                                                                | 4.4                                                                                 | 0.0                                                                                 | 5.5                                                                                 |
| Cycle Q Clear(g_c), s        | 9.7                                                                               | 0.0                                                                               | 5.6                                                                               | 9.0                                                                               | 0.0                                                                               | 5.8                                                                               | 8.8                                                                                 | 0.0                                                                                 | 10.7                                                                                | 15.1                                                                                | 0.0                                                                                 | 5.5                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.66                                                                              | 1.00                                                                              |                                                                                   | 0.69                                                                              | 1.00                                                                                |                                                                                     | 0.11                                                                                | 1.00                                                                                |                                                                                     | 0.04                                                                                |
| Lane Grp Cap(c), veh/h       | 244                                                                               | 0                                                                                 | 332                                                                               | 247                                                                               | 0                                                                                 | 331                                                                               | 672                                                                                 | 0                                                                                   | 1166                                                                                | 500                                                                                 | 0                                                                                   | 1180                                                                                |
| V/C Ratio(X)                 | 0.33                                                                              | 0.00                                                                              | 0.51                                                                              | 0.28                                                                              | 0.00                                                                              | 0.52                                                                              | 0.16                                                                                | 0.00                                                                                | 0.50                                                                                | 0.19                                                                                | 0.00                                                                                | 0.31                                                                                |
| Avail Cap(c_a), veh/h        | 491                                                                               | 0                                                                                 | 674                                                                               | 495                                                                               | 0                                                                                 | 671                                                                               | 672                                                                                 | 0                                                                                   | 1166                                                                                | 500                                                                                 | 0                                                                                   | 1180                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 26.7                                                                              | 0.0                                                                               | 22.3                                                                              | 26.3                                                                              | 0.0                                                                               | 22.3                                                                              | 7.1                                                                                 | 0.0                                                                                 | 6.1                                                                                 | 10.1                                                                                | 0.0                                                                                 | 5.1                                                                                 |
| Incr Delay (d2), s/veh       | 0.3                                                                               | 0.0                                                                               | 0.5                                                                               | 0.2                                                                               | 0.0                                                                               | 0.5                                                                               | 0.5                                                                                 | 0.0                                                                                 | 1.6                                                                                 | 0.9                                                                                 | 0.0                                                                                 | 0.7                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.1                                                                               | 0.0                                                                               | 2.1                                                                               | 0.9                                                                               | 0.0                                                                               | 2.2                                                                               | 0.7                                                                                 | 0.0                                                                                 | 3.4                                                                                 | 0.8                                                                                 | 0.0                                                                                 | 1.8                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 26.9                                                                              | 0.0                                                                               | 22.7                                                                              | 26.5                                                                              | 0.0                                                                               | 22.8                                                                              | 7.6                                                                                 | 0.0                                                                                 | 7.6                                                                                 | 11.0                                                                                | 0.0                                                                                 | 5.8                                                                                 |
| LnGrp LOS                    | C                                                                                 |                                                                                   | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | A                                                                                   |                                                                                     | A                                                                                   | B                                                                                   |                                                                                     | A                                                                                   |
| Approach Vol, veh/h          | 250                                                                               |                                                                                   |                                                                                   | 242                                                                               |                                                                                   |                                                                                   | 694                                                                                 |                                                                                     |                                                                                     | 461                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 24.1                                                                              |                                                                                   |                                                                                   | 23.8                                                                              |                                                                                   |                                                                                   | 7.6                                                                                 |                                                                                     |                                                                                     | 6.9                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 17.3                                                                              |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 17.3                                                                                |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.4                                                                               |                                                                                   |                                                                                   | 4.9                                                                               |                                                                                   |                                                                                   | 5.4                                                                                 |                                                                                     |                                                                                     | 4.9                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.6                                                                              |                                                                                   |                                                                                   | 25.1                                                                              |                                                                                   |                                                                                   | 39.6                                                                                |                                                                                     |                                                                                     | 25.1                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 12.7                                                                              |                                                                                   |                                                                                   | 11.7                                                                              |                                                                                   |                                                                                   | 17.1                                                                                |                                                                                     |                                                                                     | 11.0                                                                                |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 3.0                                                                               |                                                                                   |                                                                                   | 0.7                                                                               |                                                                                   |                                                                                   | 1.8                                                                                 |                                                                                     |                                                                                     | 0.7                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 12.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

HCM 7th TWSC  
5: Highland Dr/Higland Dr & North Driveway

Existing Conditions

| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 0         |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↑      | ↘    |      |
| Traffic Vol, veh/h       | 0         | 0      | 0    | 649    | 477  | 25   |
| Future Vol, veh/h        | 0         | 0      | 0    | 649    | 477  | 25   |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | -    |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 90        | 90     | 90   | 90     | 90   | 90   |
| Heavy Vehicles, %        | 2         | 2      | 2    | 2      | 2    | 2    |
| Mvmt Flow                | 0         | 0      | 0    | 721    | 530  | 28   |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 544    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 6.22   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 3.318  | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 539    | 0    | -      | -    | -    |
| Stage 1                  | 0         | -      | 0    | -      | -    | -    |
| Stage 2                  | 0         | -      | 0    | -      | -    | -    |
| Platoon blocked, %       |           |        |      | -      | -    | -    |
| Mov Cap-1 Maneuver       | -         | 539    | -    | -      | -    | -    |
| Mov Cap-2 Maneuver       | -         | -      | -    | -      | -    | -    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Approach                 | EB        | NB     |      | SB     |      |      |
| HCM Ctrl Dly, s/v        | 0         | 0      |      | 0      |      |      |
| HCM LOS                  | A         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | -         |        | -    | -      |      |      |
| HCM Lane V/C Ratio       | -         |        | -    | -      |      |      |
| HCM Ctrl Dly (s/v)       | -         |        | 0    | -      |      |      |
| HCM Lane LOS             | -         |        | A    | -      |      |      |
| HCM 95th %tile Q(veh)    | -         |        | -    | -      |      |      |



HCM 7th TWSC  
6: Highland Dr & South Driveway

Existing Conditions

| Intersection             |        |        |        |      |      |      |
|--------------------------|--------|--------|--------|------|------|------|
| Int Delay, s/veh         | 0.3    |        |        |      |      |      |
| Movement                 | EBL    | EBR    | NBL    | NBT  | SBT  | SBR  |
| Lane Configurations      | W      |        |        | ↑    | ↑    |      |
| Traffic Vol, veh/h       | 9      | 15     | 0      | 640  | 477  | 0    |
| Future Vol, veh/h        | 9      | 15     | 0      | 640  | 477  | 0    |
| Conflicting Peds, #/hr   | 0      | 0      | 0      | 0    | 0    | 0    |
| Sign Control             | Stop   | Stop   | Free   | Free | Free | Free |
| RT Channelized           | -      | None   | -      | None | -    | None |
| Storage Length           | 0      | -      | -      | -    | -    | -    |
| Veh in Median Storage, # | 0      | -      | -      | 0    | 0    | -    |
| Grade, %                 | 0      | -      | -      | 0    | 0    | -    |
| Peak Hour Factor         | 90     | 90     | 90     | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2      | 2      | 2      | 2    | 2    | 2    |
| Mvmt Flow                | 10     | 17     | 0      | 711  | 530  | 0    |
| Major/Minor              | Minor2 | Major1 | Major2 |      |      |      |
| Conflicting Flow All     | 1241   | 530    | -      | 0    | -    | 0    |
| Stage 1                  | 530    | -      | -      | -    | -    | -    |
| Stage 2                  | 711    | -      | -      | -    | -    | -    |
| Critical Hdwy            | 6.42   | 6.22   | -      | -    | -    | -    |
| Critical Hdwy Stg 1      | 5.42   | -      | -      | -    | -    | -    |
| Critical Hdwy Stg 2      | 5.42   | -      | -      | -    | -    | -    |
| Follow-up Hdwy           | 3.518  | 3.318  | -      | -    | -    | -    |
| Pot Cap-1 Maneuver       | 193    | 549    | 0      | -    | -    | -    |
| Stage 1                  | 590    | -      | 0      | -    | -    | -    |
| Stage 2                  | 487    | -      | 0      | -    | -    | -    |
| Platoon blocked, %       |        |        |        | -    | -    | -    |
| Mov Cap-1 Maneuver       | 193    | 549    | -      | -    | -    | -    |
| Mov Cap-2 Maneuver       | 330    | -      | -      | -    | -    | -    |
| Stage 1                  | 590    | -      | -      | -    | -    | -    |
| Stage 2                  | 487    | -      | -      | -    | -    | -    |
| Approach                 | EB     | NB     | SB     |      |      |      |
| HCM Ctrl Dly, s/v        | 13.71  | 0      | 0      |      |      |      |
| HCM LOS                  | B      |        |        |      |      |      |
| Minor Lane/Major Mvmt    | NBT    | EBLn1  | SBT    | SBR  |      |      |
| Capacity (veh/h)         | -      | 440    | -      | -    |      |      |
| HCM Lane V/C Ratio       | -      | 0.061  | -      | -    |      |      |
| HCM Ctrl Dly (s/v)       | -      | 13.7   | -      | -    |      |      |
| HCM Lane LOS             | -      | B      | -      | -    |      |      |
| HCM 95th %tile Q(veh)    | -      | 0.2    | -      | -    |      |      |

## 2028 Background Analysis

## 1: Highland Dr/1100 E &amp; 2100 S



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 49   | 328  | 32   | 348  | 67   | 247  | 66   | 129  | 187  |
| v/c Ratio               | 0.43 | 0.18 | 0.33 | 0.21 | 0.47 | 0.74 | 0.19 | 0.65 | 0.44 |
| Control Delay (s/veh)   | 68.2 | 16.5 | 66.6 | 17.2 | 65.3 | 59.8 | 7.8  | 67.8 | 41.6 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 68.2 | 16.5 | 66.6 | 17.2 | 65.3 | 59.8 | 7.8  | 67.8 | 41.6 |
| Queue Length 50th (ft)  | 38   | 70   | 25   | 71   | 52   | 189  | 0    | 99   | 122  |
| Queue Length 95th (ft)  | 85   | 118  | 63   | 123  | 106  | 290  | 31   | 181  | 209  |
| Internal Link Dist (ft) |      | 242  |      | 444  |      | 677  |      |      | 301  |
| Turn Bay Length (ft)    | 200  |      | 290  |      | 90   |      | 90   | 95   |      |
| Base Capacity (vph)     | 236  | 1787 | 236  | 1775 | 236  | 804  | 728  | 236  | 779  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.21 | 0.18 | 0.14 | 0.20 | 0.28 | 0.31 | 0.09 | 0.55 | 0.24 |

## Intersection Summary

# HCM 7th Signalized Intersection Summary

## 1: Highland Dr/1100 E & 2100 S

2028 Background

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 44                                                                                | 236                                                                               | 59                                                                                | 29                                                                                | 225                                                                               | 88                                                                                | 60                                                                                 | 222                                                                                 | 59                                                                                  | 116                                                                                 | 124                                                                                 | 44                                                                                  |
| Future Volume (veh/h)        | 44                                                                                | 236                                                                               | 59                                                                                | 29                                                                                | 225                                                                               | 88                                                                                | 60                                                                                 | 222                                                                                 | 59                                                                                  | 116                                                                                 | 124                                                                                 | 44                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                               | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 49                                                                                | 262                                                                               | 66                                                                                | 32                                                                                | 250                                                                               | 98                                                                                | 67                                                                                 | 247                                                                                 | 66                                                                                  | 129                                                                                 | 138                                                                                 | 49                                                                                  |
| Peak Hour Factor             | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                               | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 63                                                                                | 1527                                                                              | 378                                                                               | 50                                                                                | 1343                                                                              | 512                                                                               | 87                                                                                 | 302                                                                                 | 256                                                                                 | 158                                                                                 | 265                                                                                 | 94                                                                                  |
| Arrive On Green              | 0.04                                                                              | 0.54                                                                              | 0.54                                                                              | 0.03                                                                              | 0.53                                                                              | 0.53                                                                              | 0.05                                                                               | 0.16                                                                                | 0.16                                                                                | 0.09                                                                                | 0.20                                                                                | 0.20                                                                                |
| Sat Flow, veh/h              | 1781                                                                              | 2824                                                                              | 698                                                                               | 1781                                                                              | 2515                                                                              | 959                                                                               | 1781                                                                               | 1870                                                                                | 1585                                                                                | 1781                                                                                | 1318                                                                                | 468                                                                                 |
| Grp Volume(v), veh/h         | 49                                                                                | 163                                                                               | 165                                                                               | 32                                                                                | 175                                                                               | 173                                                                               | 67                                                                                 | 247                                                                                 | 66                                                                                  | 129                                                                                 | 0                                                                                   | 187                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 1777                                                                              | 1745                                                                              | 1781                                                                              | 1777                                                                              | 1698                                                                              | 1781                                                                               | 1870                                                                                | 1585                                                                                | 1781                                                                                | 0                                                                                   | 1786                                                                                |
| Q Serve(g_s), s              | 3.0                                                                               | 5.1                                                                               | 5.3                                                                               | 2.0                                                                               | 5.6                                                                               | 5.8                                                                               | 4.1                                                                                | 14.1                                                                                | 4.0                                                                                 | 7.8                                                                                 | 0.0                                                                                 | 10.3                                                                                |
| Cycle Q Clear(g_c), s        | 3.0                                                                               | 5.1                                                                               | 5.3                                                                               | 2.0                                                                               | 5.6                                                                               | 5.8                                                                               | 4.1                                                                                | 14.1                                                                                | 4.0                                                                                 | 7.8                                                                                 | 0.0                                                                                 | 10.3                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.40                                                                              | 1.00                                                                              |                                                                                   | 0.57                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.26                                                                                |
| Lane Grp Cap(c), veh/h       | 63                                                                                | 961                                                                               | 944                                                                               | 50                                                                                | 949                                                                               | 906                                                                               | 87                                                                                 | 302                                                                                 | 256                                                                                 | 158                                                                                 | 0                                                                                   | 360                                                                                 |
| V/C Ratio(X)                 | 0.78                                                                              | 0.17                                                                              | 0.17                                                                              | 0.63                                                                              | 0.18                                                                              | 0.19                                                                              | 0.77                                                                               | 0.82                                                                                | 0.26                                                                                | 0.82                                                                                | 0.00                                                                                | 0.52                                                                                |
| Avail Cap(c_a), veh/h        | 249                                                                               | 961                                                                               | 944                                                                               | 249                                                                               | 961                                                                               | 918                                                                               | 249                                                                                | 844                                                                                 | 715                                                                                 | 249                                                                                 | 0                                                                                   | 806                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 52.7                                                                              | 12.8                                                                              | 12.8                                                                              | 53.0                                                                              | 13.3                                                                              | 13.3                                                                              | 51.8                                                                               | 44.6                                                                                | 40.4                                                                                | 49.3                                                                                | 0.0                                                                                 | 39.2                                                                                |
| Incr Delay (d2), s/veh       | 7.4                                                                               | 0.4                                                                               | 0.4                                                                               | 4.8                                                                               | 0.0                                                                               | 0.0                                                                               | 10.3                                                                               | 5.4                                                                                 | 0.5                                                                                 | 8.8                                                                                 | 0.0                                                                                 | 1.7                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.5                                                                               | 2.1                                                                               | 2.1                                                                               | 0.9                                                                               | 2.2                                                                               | 2.2                                                                               | 2.1                                                                                | 6.9                                                                                 | 1.6                                                                                 | 3.9                                                                                 | 0.0                                                                                 | 4.7                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 60.1                                                                              | 13.2                                                                              | 13.2                                                                              | 57.8                                                                              | 13.3                                                                              | 13.4                                                                              | 62.1                                                                               | 50.0                                                                                | 40.9                                                                                | 58.2                                                                                | 0.0                                                                                 | 40.9                                                                                |
| LnGrp LOS                    | E                                                                                 | B                                                                                 | B                                                                                 | E                                                                                 | B                                                                                 | B                                                                                 | E                                                                                  | D                                                                                   | D                                                                                   | E                                                                                   |                                                                                     | D                                                                                   |
| Approach Vol, veh/h          | 377                                                                               |                                                                                   |                                                                                   | 380                                                                               |                                                                                   |                                                                                   | 380                                                                                |                                                                                     |                                                                                     | 316                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 19.3                                                                              |                                                                                   |                                                                                   | 17.1                                                                              |                                                                                   |                                                                                   | 50.6                                                                               |                                                                                     |                                                                                     | 48.0                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | B                                                                                 |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | D                                                                                  |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.7                                                                               | 65.0                                                                              | 10.0                                                                              | 27.5                                                                              | 8.5                                                                               | 64.2                                                                              | 14.4                                                                               | 23.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.6                                                                               | 5.4                                                                               | 4.6                                                                               | 5.3                                                                               | 4.6                                                                               | 5.4                                                                               | 4.6                                                                                | 5.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 15.4                                                                              | 59.6                                                                              | 15.4                                                                              | 49.7                                                                              | 15.4                                                                              | 59.6                                                                              | 15.4                                                                               | 49.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 4.0                                                                               | 7.3                                                                               | 6.1                                                                               | 12.3                                                                              | 5.0                                                                               | 7.8                                                                               | 9.8                                                                                | 16.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.0                                                                               | 0.1                                                                               | 1.7                                                                               | 0.0                                                                               | 1.1                                                                               | 0.1                                                                                | 1.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 33.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## 2: Highland Dr/Highland Dr &amp; Wilmington Ave



| Lane Group              | EBL  | EBT  | EBR  | WBL  | WBT  | NBL  | NBT  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 16   | 77   | 18   | 29   | 59   | 17   | 367  | 235  |
| v/c Ratio               | 0.10 | 0.36 | 0.09 | 0.19 | 0.26 | 0.02 | 0.26 | 0.18 |
| Control Delay (s/veh)   | 23.6 | 28.5 | 6.4  | 25.7 | 14.1 | 3.1  | 3.6  | 3.4  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 23.6 | 28.5 | 6.4  | 25.7 | 14.1 | 3.1  | 3.6  | 3.4  |
| Queue Length 50th (ft)  | 5    | 25   | 0    | 9    | 5    | 1    | 33   | 21   |
| Queue Length 95th (ft)  | 20   | 58   | 10   | 29   | 33   | 6    | 72   | 48   |
| Internal Link Dist (ft) |      | 248  |      |      | 208  |      | 10   | 677  |
| Turn Bay Length (ft)    | 200  |      | 180  | 50   |      | 75   |      |      |
| Base Capacity (vph)     | 551  | 767  | 671  | 542  | 709  | 870  | 1389 | 1282 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.03 | 0.10 | 0.03 | 0.05 | 0.08 | 0.02 | 0.26 | 0.18 |

## Intersection Summary



## HCM 7th Signalized Intersection Summary 2: Highland Dr/Highland Dr & Wilmington Ave

2028 Background

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |                                                                                   |  |  |                                                                                     |                                                                                     |  |                                                                                     |
| Traffic Volume (veh/h)       | 14                                                                                | 69                                                                                | 16                                                                                | 26                                                                                | 15                                                                                | 38                                                                                | 15                                                                                  | 271                                                                                 | 59                                                                                  | 38                                                                                  | 166                                                                                 | 8                                                                                   |
| Future Volume (veh/h)        | 14                                                                                | 69                                                                                | 16                                                                                | 26                                                                                | 15                                                                                | 38                                                                                | 15                                                                                  | 271                                                                                 | 59                                                                                  | 38                                                                                  | 166                                                                                 | 8                                                                                   |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 16                                                                                | 77                                                                                | 18                                                                                | 29                                                                                | 17                                                                                | 42                                                                                | 17                                                                                  | 301                                                                                 | 66                                                                                  | 42                                                                                  | 184                                                                                 | 9                                                                                   |
| Peak Hour Factor             | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 213                                                                               | 178                                                                               | 151                                                                               | 204                                                                               | 46                                                                                | 113                                                                               | 1007                                                                                | 1065                                                                                | 234                                                                                 | 237                                                                                 | 992                                                                                 | 46                                                                                  |
| Arrive On Green              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                |
| Sat Flow, veh/h              | 1344                                                                              | 1870                                                                              | 1585                                                                              | 1301                                                                              | 478                                                                               | 1180                                                                              | 1190                                                                                | 1486                                                                                | 326                                                                                 | 223                                                                                 | 1383                                                                                | 64                                                                                  |
| Grp Volume(v), veh/h         | 16                                                                                | 77                                                                                | 18                                                                                | 29                                                                                | 0                                                                                 | 59                                                                                | 17                                                                                  | 0                                                                                   | 367                                                                                 | 235                                                                                 | 0                                                                                   | 0                                                                                   |
| Grp Sat Flow(s),veh/h/ln     | 1344                                                                              | 1870                                                                              | 1585                                                                              | 1301                                                                              | 0                                                                                 | 1658                                                                              | 1190                                                                                | 0                                                                                   | 1812                                                                                | 1671                                                                                | 0                                                                                   | 0                                                                                   |
| Q Serve(g_s), s              | 0.6                                                                               | 2.2                                                                               | 0.6                                                                               | 1.2                                                                               | 0.0                                                                               | 1.8                                                                               | 0.0                                                                                 | 0.0                                                                                 | 4.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Cycle Q Clear(g_c), s        | 2.5                                                                               | 2.2                                                                               | 0.6                                                                               | 3.3                                                                               | 0.0                                                                               | 1.8                                                                               | 0.2                                                                                 | 0.0                                                                                 | 4.0                                                                                 | 2.3                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.71                                                                              | 1.00                                                                                |                                                                                     | 0.18                                                                                | 0.18                                                                                |                                                                                     | 0.04                                                                                |
| Lane Grp Cap(c), veh/h       | 213                                                                               | 178                                                                               | 151                                                                               | 204                                                                               | 0                                                                                 | 158                                                                               | 1007                                                                                | 0                                                                                   | 1299                                                                                | 1274                                                                                | 0                                                                                   | 0                                                                                   |
| V/C Ratio(X)                 | 0.08                                                                              | 0.43                                                                              | 0.12                                                                              | 0.14                                                                              | 0.00                                                                              | 0.37                                                                              | 0.02                                                                                | 0.00                                                                                | 0.28                                                                                | 0.18                                                                                | 0.00                                                                                | 0.00                                                                                |
| Avail Cap(c_a), veh/h        | 689                                                                               | 841                                                                               | 713                                                                               | 664                                                                               | 0                                                                                 | 745                                                                               | 1007                                                                                | 0                                                                                   | 1299                                                                                | 1274                                                                                | 0                                                                                   | 0                                                                                   |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 0.00                                                                                |
| Uniform Delay (d), s/veh     | 24.7                                                                              | 23.6                                                                              | 22.9                                                                              | 25.2                                                                              | 0.0                                                                               | 23.5                                                                              | 2.2                                                                                 | 0.0                                                                                 | 2.8                                                                                 | 2.5                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.6                                                                               | 0.1                                                                               | 0.1                                                                               | 0.0                                                                               | 0.5                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.5                                                                                 | 0.3                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.2                                                                               | 0.9                                                                               | 0.2                                                                               | 0.4                                                                               | 0.0                                                                               | 0.7                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.9                                                                                 | 0.5                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 24.7                                                                              | 24.2                                                                              | 23.1                                                                              | 25.3                                                                              | 0.0                                                                               | 24.0                                                                              | 2.3                                                                                 | 0.0                                                                                 | 3.3                                                                                 | 2.9                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | A                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     |                                                                                     |
| Approach Vol, veh/h          | 111                                                                               |                                                                                   |                                                                                   | 88                                                                                |                                                                                   |                                                                                   | 384                                                                                 |                                                                                     |                                                                                     | 235                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 24.1                                                                              |                                                                                   |                                                                                   | 24.5                                                                              |                                                                                   |                                                                                   | 3.3                                                                                 |                                                                                     |                                                                                     | 2.9                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 10.4                                                                              |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 10.4                                                                                |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.3                                                                               |                                                                                   |                                                                                   | 5.1                                                                               |                                                                                   |                                                                                   | 5.3                                                                                 |                                                                                     |                                                                                     | 5.1                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.7                                                                              |                                                                                   |                                                                                   | 24.9                                                                              |                                                                                   |                                                                                   | 39.7                                                                                |                                                                                     |                                                                                     | 24.9                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 6.0                                                                               |                                                                                   |                                                                                   | 4.5                                                                               |                                                                                   |                                                                                   | 4.3                                                                                 |                                                                                     |                                                                                     | 5.3                                                                                 |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 1.2                                                                               |                                                                                   |                                                                                   | 0.3                                                                               |                                                                                   |                                                                                   | 0.8                                                                                 |                                                                                     |                                                                                     | 0.2                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 8.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |        |                                                                                   |      |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
|--------------------------|--------|-----------------------------------------------------------------------------------|------|--------|-----------------------------------------------------------------------------------|------|--------|-----------------------------------------------------------------------------------|-------|--------|-------------------------------------------------------------------------------------|-------|
| Int Delay, s/veh         | 3.1    |                                                                                   |      |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Movement                 | EBL    | EBT                                                                               | EBR  | WBL    | WBT                                                                               | WBR  | NBL    | NBT                                                                               | NBR   | SBL    | SBT                                                                                 | SBR   |
| Lane Configurations      |        |  |      |        |  |      |        |  |       |        |  |       |
| Traffic Vol, veh/h       | 16     | 67                                                                                | 7    | 16     | 30                                                                                | 22   | 3      | 3                                                                                 | 6     | 13     | 1                                                                                   | 13    |
| Future Vol, veh/h        | 16     | 67                                                                                | 7    | 16     | 30                                                                                | 22   | 3      | 3                                                                                 | 6     | 13     | 1                                                                                   | 13    |
| Conflicting Peds, #/hr   | 0      | 0                                                                                 | 0    | 0      | 0                                                                                 | 0    | 0      | 0                                                                                 | 0     | 0      | 0                                                                                   | 0     |
| Sign Control             | Free   | Free                                                                              | Free | Free   | Free                                                                              | Free | Stop   | Stop                                                                              | Stop  | Stop   | Stop                                                                                | Stop  |
| RT Channelized           | -      | -                                                                                 | None | -      | -                                                                                 | None | -      | -                                                                                 | None  | -      | -                                                                                   | None  |
| Storage Length           | -      | -                                                                                 | -    | -      | -                                                                                 | -    | -      | -                                                                                 | -     | -      | -                                                                                   | -     |
| Veh in Median Storage, # | -      | 0                                                                                 | -    | -      | 0                                                                                 | -    | -      | 0                                                                                 | -     | -      | 0                                                                                   | -     |
| Grade, %                 | -      | 0                                                                                 | -    | -      | 0                                                                                 | -    | -      | 0                                                                                 | -     | -      | 0                                                                                   | -     |
| Peak Hour Factor         | 90     | 90                                                                                | 90   | 90     | 90                                                                                | 90   | 90     | 90                                                                                | 90    | 90     | 90                                                                                  | 90    |
| Heavy Vehicles, %        | 2      | 2                                                                                 | 2    | 2      | 2                                                                                 | 2    | 2      | 2                                                                                 | 2     | 2      | 2                                                                                   | 2     |
| Mvmt Flow                | 18     | 74                                                                                | 8    | 18     | 33                                                                                | 24   | 3      | 3                                                                                 | 7     | 14     | 1                                                                                   | 14    |
|                          |        |                                                                                   |      |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Major/Minor              | Major1 |                                                                                   |      | Major2 |                                                                                   |      | Minor1 |                                                                                   |       | Minor2 |                                                                                     |       |
| Conflicting Flow All     | 58     | 0                                                                                 | 0    | 82     | 0                                                                                 | 0    | 183    | 207                                                                               | 78    | 193    | 199                                                                                 | 46    |
| Stage 1                  | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 114    | 114                                                                               | -     | 81     | 81                                                                                  | -     |
| Stage 2                  | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 69     | 93                                                                                | -     | 112    | 118                                                                                 | -     |
| Critical Hdwy            | 4.12   | -                                                                                 | -    | 4.12   | -                                                                                 | -    | 7.12   | 6.52                                                                              | 6.22  | 7.12   | 6.52                                                                                | 6.22  |
| Critical Hdwy Stg 1      | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 6.12   | 5.52                                                                              | -     | 6.12   | 5.52                                                                                | -     |
| Critical Hdwy Stg 2      | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 6.12   | 5.52                                                                              | -     | 6.12   | 5.52                                                                                | -     |
| Follow-up Hdwy           | 2.218  | -                                                                                 | -    | 2.218  | -                                                                                 | -    | 3.518  | 4.018                                                                             | 3.318 | 3.518  | 4.018                                                                               | 3.318 |
| Pot Cap-1 Maneuver       | 1546   | -                                                                                 | -    | 1515   | -                                                                                 | -    | 778    | 690                                                                               | 982   | 767    | 697                                                                                 | 1024  |
| Stage 1                  | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 891    | 801                                                                               | -     | 927    | 828                                                                                 | -     |
| Stage 2                  | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 941    | 818                                                                               | -     | 893    | 798                                                                                 | -     |
| Platoon blocked, %       |        | -                                                                                 | -    |        | -                                                                                 | -    |        |                                                                                   |       |        |                                                                                     |       |
| Mov Cap-1 Maneuver       | 1546   | -                                                                                 | -    | 1515   | -                                                                                 | -    | 747    | 673                                                                               | 982   | 740    | 680                                                                                 | 1024  |
| Mov Cap-2 Maneuver       | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 747    | 673                                                                               | -     | 740    | 680                                                                                 | -     |
| Stage 1                  | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 880    | 792                                                                               | -     | 916    | 817                                                                                 | -     |
| Stage 2                  | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 915    | 808                                                                               | -     | 873    | 789                                                                                 | -     |
|                          |        |                                                                                   |      |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
|                          |        |                                                                                   |      |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Approach                 | EB     |                                                                                   | WB   |        |                                                                                   |      | NB     |                                                                                   |       | SB     |                                                                                     |       |
| HCM Ctrl Dly, s/v        | 1.31   |                                                                                   | 1.74 |        |                                                                                   |      | 9.45   |                                                                                   |       | 9.39   |                                                                                     |       |
| HCM LOS                  |        |                                                                                   |      |        |                                                                                   |      | A      |                                                                                   |       | A      |                                                                                     |       |
|                          |        |                                                                                   |      |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Minor Lane/Major Mvmt    | NBLn1  | EBL                                                                               | EBT  | EBR    | WBL                                                                               | WBT  | WBR    | SBLn1                                                                             |       |        |                                                                                     |       |
| Capacity (veh/h)         | 823    | 314                                                                               | -    | -      | 390                                                                               | -    | -      | 851                                                                               |       |        |                                                                                     |       |
| HCM Lane V/C Ratio       | 0.016  | 0.011                                                                             | -    | -      | 0.012                                                                             | -    | -      | 0.035                                                                             |       |        |                                                                                     |       |
| HCM Ctrl Dly (s/v)       | 9.4    | 7.4                                                                               | 0    | -      | 7.4                                                                               | 0    | -      | 9.4                                                                               |       |        |                                                                                     |       |
| HCM Lane LOS             | A      | A                                                                                 | A    | -      | A                                                                                 | A    | -      | A                                                                                 |       |        |                                                                                     |       |
| HCM 95th %tile Q(veh)    | 0      | 0                                                                                 | -    | -      | 0                                                                                 | -    | -      | 0.1                                                                               |       |        |                                                                                     |       |

## 4: Highland Dr &amp; Simpson Ave



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 20   | 80   | 13   | 48   | 30   | 368  | 32   | 173  |
| v/c Ratio               | 0.13 | 0.37 | 0.09 | 0.24 | 0.03 | 0.26 | 0.04 | 0.12 |
| Control Delay (s/veh)   | 24.8 | 16.0 | 23.6 | 13.4 | 2.8  | 3.3  | 2.9  | 2.8  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 24.8 | 16.0 | 23.6 | 13.4 | 2.8  | 3.3  | 2.9  | 2.8  |
| Queue Length 50th (ft)  | 6    | 8    | 4    | 3    | 2    | 30   | 2    | 13   |
| Queue Length 95th (ft)  | 23   | 40   | 17   | 27   | 9    | 67   | 9    | 32   |
| Internal Link Dist (ft) |      | 135  |      | 226  |      | 265  |      | 267  |
| Turn Bay Length (ft)    | 65   |      | 75   |      | 100  |      | 50   |      |
| Base Capacity (vph)     | 625  | 732  | 625  | 707  | 939  | 1434 | 786  | 1447 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.03 | 0.11 | 0.02 | 0.07 | 0.03 | 0.26 | 0.04 | 0.12 |

## Intersection Summary

# HCM 7th Signalized Intersection Summary

## 4: Highland Dr & Simpson Ave

2028 Background

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 18                                                                                | 22                                                                                | 50                                                                                | 12                                                                                | 7                                                                                 | 36                                                                                | 27                                                                                  | 302                                                                                 | 29                                                                                  | 29                                                                                  | 154                                                                                 | 2                                                                                   |
| Future Volume (veh/h)        | 18                                                                                | 22                                                                                | 50                                                                                | 12                                                                                | 7                                                                                 | 36                                                                                | 27                                                                                  | 302                                                                                 | 29                                                                                  | 29                                                                                  | 154                                                                                 | 2                                                                                   |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 20                                                                                | 24                                                                                | 56                                                                                | 13                                                                                | 8                                                                                 | 40                                                                                | 30                                                                                  | 336                                                                                 | 32                                                                                  | 32                                                                                  | 171                                                                                 | 2                                                                                   |
| Peak Hour Factor             | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 212                                                                               | 43                                                                                | 101                                                                               | 185                                                                               | 23                                                                                | 117                                                                               | 976                                                                                 | 1219                                                                                | 116                                                                                 | 797                                                                                 | 1337                                                                                | 16                                                                                  |
| Arrive On Green              | 0.09                                                                              | 0.09                                                                              | 0.09                                                                              | 0.09                                                                              | 0.09                                                                              | 0.09                                                                              | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                |
| Sat Flow, veh/h              | 1357                                                                              | 498                                                                               | 1163                                                                              | 1319                                                                              | 271                                                                               | 1355                                                                              | 1212                                                                                | 1681                                                                                | 160                                                                                 | 1014                                                                                | 1845                                                                                | 22                                                                                  |
| Grp Volume(v), veh/h         | 20                                                                                | 0                                                                                 | 80                                                                                | 13                                                                                | 0                                                                                 | 48                                                                                | 30                                                                                  | 0                                                                                   | 368                                                                                 | 32                                                                                  | 0                                                                                   | 173                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1357                                                                              | 0                                                                                 | 1661                                                                              | 1319                                                                              | 0                                                                                 | 1626                                                                              | 1212                                                                                | 0                                                                                   | 1842                                                                                | 1014                                                                                | 0                                                                                   | 1866                                                                                |
| Q Serve(g_s), s              | 0.8                                                                               | 0.0                                                                               | 2.5                                                                               | 0.5                                                                               | 0.0                                                                               | 1.5                                                                               | 0.4                                                                                 | 0.0                                                                                 | 3.8                                                                                 | 0.6                                                                                 | 0.0                                                                                 | 1.5                                                                                 |
| Cycle Q Clear(g_c), s        | 2.3                                                                               | 0.0                                                                               | 2.5                                                                               | 3.0                                                                               | 0.0                                                                               | 1.5                                                                               | 2.0                                                                                 | 0.0                                                                                 | 3.8                                                                                 | 4.4                                                                                 | 0.0                                                                                 | 1.5                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.70                                                                              | 1.00                                                                              |                                                                                   | 0.83                                                                              | 1.00                                                                                |                                                                                     | 0.09                                                                                | 1.00                                                                                |                                                                                     | 0.01                                                                                |
| Lane Grp Cap(c), veh/h       | 212                                                                               | 0                                                                                 | 144                                                                               | 185                                                                               | 0                                                                                 | 141                                                                               | 976                                                                                 | 0                                                                                   | 1335                                                                                | 797                                                                                 | 0                                                                                   | 1353                                                                                |
| V/C Ratio(X)                 | 0.09                                                                              | 0.00                                                                              | 0.56                                                                              | 0.07                                                                              | 0.00                                                                              | 0.34                                                                              | 0.03                                                                                | 0.00                                                                                | 0.28                                                                                | 0.04                                                                                | 0.00                                                                                | 0.13                                                                                |
| Avail Cap(c_a), veh/h        | 718                                                                               | 0                                                                                 | 763                                                                               | 677                                                                               | 0                                                                                 | 747                                                                               | 976                                                                                 | 0                                                                                   | 1335                                                                                | 797                                                                                 | 0                                                                                   | 1353                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 24.6                                                                              | 0.0                                                                               | 23.9                                                                              | 25.4                                                                              | 0.0                                                                               | 23.5                                                                              | 2.6                                                                                 | 0.0                                                                                 | 2.6                                                                                 | 3.3                                                                                 | 0.0                                                                                 | 2.3                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.0                                                                               | 1.2                                                                               | 0.1                                                                               | 0.0                                                                               | 0.5                                                                               | 0.1                                                                                 | 0.0                                                                                 | 0.5                                                                                 | 0.1                                                                                 | 0.0                                                                                 | 0.2                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.2                                                                               | 0.0                                                                               | 1.0                                                                               | 0.2                                                                               | 0.0                                                                               | 0.6                                                                               | 0.1                                                                                 | 0.0                                                                                 | 0.8                                                                                 | 0.1                                                                                 | 0.0                                                                                 | 0.3                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 24.6                                                                              | 0.0                                                                               | 25.2                                                                              | 25.5                                                                              | 0.0                                                                               | 24.0                                                                              | 2.6                                                                                 | 0.0                                                                                 | 3.1                                                                                 | 3.4                                                                                 | 0.0                                                                                 | 2.5                                                                                 |
| LnGrp LOS                    | C                                                                                 |                                                                                   | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | A                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     | A                                                                                   |
| Approach Vol, veh/h          | 100                                                                               |                                                                                   |                                                                                   | 61                                                                                |                                                                                   |                                                                                   | 398                                                                                 |                                                                                     |                                                                                     | 205                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 25.1                                                                              |                                                                                   |                                                                                   | 24.3                                                                              |                                                                                   |                                                                                   | 3.1                                                                                 |                                                                                     |                                                                                     | 2.6                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 9.6                                                                               |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 9.6                                                                                 |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.4                                                                               |                                                                                   |                                                                                   | 4.9                                                                               |                                                                                   |                                                                                   | 5.4                                                                                 |                                                                                     |                                                                                     | 4.9                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.6                                                                              |                                                                                   |                                                                                   | 25.1                                                                              |                                                                                   |                                                                                   | 39.6                                                                                |                                                                                     |                                                                                     | 25.1                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 5.8                                                                               |                                                                                   |                                                                                   | 4.5                                                                               |                                                                                   |                                                                                   | 6.4                                                                                 |                                                                                     |                                                                                     | 5.0                                                                                 |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 1.6                                                                               |                                                                                   |                                                                                   | 0.3                                                                               |                                                                                   |                                                                                   | 0.7                                                                                 |                                                                                     |                                                                                     | 0.1                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 7.5                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 0         |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↑      | ↘    |      |
| Traffic Vol, veh/h       | 0         | 0      | 0    | 344    | 201  | 8    |
| Future Vol, veh/h        | 0         | 0      | 0    | 344    | 201  | 8    |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | -    |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 90        | 90     | 90   | 90     | 90   | 90   |
| Heavy Vehicles, %        | 2         | 2      | 2    | 2      | 2    | 2    |
| Mvmt Flow                | 0         | 0      | 0    | 382    | 223  | 9    |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 228    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 6.22   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 3.318  | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 812    | 0    | -      | -    | -    |
| Stage 1                  | 0         | -      | 0    | -      | -    | -    |
| Stage 2                  | 0         | -      | 0    | -      | -    | -    |
| Platoon blocked, %       |           |        |      | -      | -    | -    |
| Mov Cap-1 Maneuver       | -         | 812    | -    | -      | -    | -    |
| Mov Cap-2 Maneuver       | -         | -      | -    | -      | -    | -    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Approach                 | EB        | NB     |      | SB     |      |      |
| HCM Ctrl Dly, s/v        | 0         | 0      |      | 0      |      |      |
| HCM LOS                  | A         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | -         |        | -    | -      |      |      |
| HCM Lane V/C Ratio       | -         |        | -    | -      |      |      |
| HCM Ctrl Dly (s/v)       | -         |        | 0    | -      |      |      |
| HCM Lane LOS             | -         |        | A    | -      |      |      |
| HCM 95th %tile Q(veh)    | -         |        | -    | -      |      |      |



HCM 7th TWSC  
6: Highland Dr & South Driveway

2028 Background

| Intersection             |                                                                                   |        |        |                                                                                   |                                                                                   |      |
|--------------------------|-----------------------------------------------------------------------------------|--------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 0.1                                                                               |        |        |                                                                                   |                                                                                   |      |
| Movement                 | EBL                                                                               | EBR    | NBL    | NBT                                                                               | SBT                                                                               | SBR  |
| Lane Configurations      |  |        |        |  |  |      |
| Traffic Vol, veh/h       | 3                                                                                 | 2      | 0      | 341                                                                               | 201                                                                               | 0    |
| Future Vol, veh/h        | 3                                                                                 | 2      | 0      | 341                                                                               | 201                                                                               | 0    |
| Conflicting Peds, #/hr   | 0                                                                                 | 0      | 0      | 0                                                                                 | 0                                                                                 | 0    |
| Sign Control             | Stop                                                                              | Stop   | Free   | Free                                                                              | Free                                                                              | Free |
| RT Channelized           | -                                                                                 | None   | -      | None                                                                              | -                                                                                 | None |
| Storage Length           | 0                                                                                 | -      | -      | -                                                                                 | -                                                                                 | -    |
| Veh in Median Storage, # | 0                                                                                 | -      | -      | 0                                                                                 | 0                                                                                 | -    |
| Grade, %                 | 0                                                                                 | -      | -      | 0                                                                                 | 0                                                                                 | -    |
| Peak Hour Factor         | 90                                                                                | 90     | 90     | 90                                                                                | 90                                                                                | 90   |
| Heavy Vehicles, %        | 2                                                                                 | 2      | 2      | 2                                                                                 | 2                                                                                 | 2    |
| Mvmt Flow                | 3                                                                                 | 2      | 0      | 379                                                                               | 223                                                                               | 0    |
| Major/Minor              | Minor2                                                                            | Major1 | Major2 |                                                                                   |                                                                                   |      |
| Conflicting Flow All     | 602                                                                               | 223    | -      | 0                                                                                 | -                                                                                 | 0    |
| Stage 1                  | 223                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Stage 2                  | 379                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy            | 6.42                                                                              | 6.22   | -      | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy Stg 1      | 5.42                                                                              | -      | -      | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy Stg 2      | 5.42                                                                              | -      | -      | -                                                                                 | -                                                                                 | -    |
| Follow-up Hdwy           | 3.518                                                                             | 3.318  | -      | -                                                                                 | -                                                                                 | -    |
| Pot Cap-1 Maneuver       | 463                                                                               | 816    | 0      | -                                                                                 | -                                                                                 | -    |
| Stage 1                  | 814                                                                               | -      | 0      | -                                                                                 | -                                                                                 | -    |
| Stage 2                  | 692                                                                               | -      | 0      | -                                                                                 | -                                                                                 | -    |
| Platoon blocked, %       |                                                                                   |        |        | -                                                                                 | -                                                                                 | -    |
| Mov Cap-1 Maneuver       | 463                                                                               | 816    | -      | -                                                                                 | -                                                                                 | -    |
| Mov Cap-2 Maneuver       | 549                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Stage 1                  | 814                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Stage 2                  | 692                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Approach                 | EB                                                                                | NB     | SB     |                                                                                   |                                                                                   |      |
| HCM Ctrl Dly, s/v        | 10.75                                                                             | 0      | 0      |                                                                                   |                                                                                   |      |
| HCM LOS                  | B                                                                                 |        |        |                                                                                   |                                                                                   |      |
| Minor Lane/Major Mvmt    | NBT                                                                               | EBLn1  | SBT    | SBR                                                                               |                                                                                   |      |
| Capacity (veh/h)         | -                                                                                 | 632    | -      | -                                                                                 |                                                                                   |      |
| HCM Lane V/C Ratio       | -                                                                                 | 0.009  | -      | -                                                                                 |                                                                                   |      |
| HCM Ctrl Dly (s/v)       | -                                                                                 | 10.7   | -      | -                                                                                 |                                                                                   |      |
| HCM Lane LOS             | -                                                                                 | B      | -      | -                                                                                 |                                                                                   |      |
| HCM 95th %tile Q(veh)    | -                                                                                 | 0      | -      | -                                                                                 |                                                                                   |      |

## 1: Highland Dr/1100 E &amp; 2100 S



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL   | SBT  |
|-------------------------|------|------|------|------|------|------|------|-------|------|
| Lane Group Flow (vph)   | 94   | 563  | 91   | 498  | 156  | 319  | 155  | 169   | 407  |
| v/c Ratio               | 0.69 | 0.39 | 0.67 | 0.35 | 0.84 | 0.66 | 0.33 | 0.88  | 0.85 |
| Control Delay (s/veh)   | 91.5 | 29.7 | 90.6 | 29.2 | 99.1 | 54.7 | 22.5 | 104.9 | 66.7 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  |
| Total Delay (s/veh)     | 91.5 | 29.7 | 90.6 | 29.2 | 99.1 | 54.7 | 22.5 | 104.9 | 66.7 |
| Queue Length 50th (ft)  | 89   | 184  | 86   | 160  | 149  | 272  | 56   | 163   | 363  |
| Queue Length 95th (ft)  | 164  | 276  | 159  | 243  | #315 | 389  | 123  | #348  | 511  |
| Internal Link Dist (ft) |      | 242  |      | 444  |      | 677  |      |       | 301  |
| Turn Bay Length (ft)    | 200  |      | 290  |      | 90   |      | 90   | 95    |      |
| Base Capacity (vph)     | 191  | 1441 | 191  | 1443 | 191  | 649  | 602  | 191   | 634  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    |
| Reduced v/c Ratio       | 0.49 | 0.39 | 0.48 | 0.35 | 0.82 | 0.49 | 0.26 | 0.88  | 0.64 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 7th Signalized Intersection Summary

## 1: Highland Dr/1100 E & 2100 S

2028 Background

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 92                                                                                | 405                                                                               | 147                                                                               | 89                                                                                | 369                                                                               | 119                                                                               | 153                                                                                 | 313                                                                                 | 152                                                                                 | 166                                                                                 | 316                                                                                 | 83                                                                                  |
| Future Volume (veh/h)        | 92                                                                                | 405                                                                               | 147                                                                               | 89                                                                                | 369                                                                               | 119                                                                               | 153                                                                                 | 313                                                                                 | 152                                                                                 | 166                                                                                 | 316                                                                                 | 83                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 94                                                                                | 413                                                                               | 150                                                                               | 91                                                                                | 377                                                                               | 121                                                                               | 156                                                                                 | 319                                                                                 | 155                                                                                 | 169                                                                                 | 322                                                                                 | 85                                                                                  |
| Peak Hour Factor             | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 116                                                                               | 1114                                                                              | 400                                                                               | 113                                                                               | 1149                                                                              | 364                                                                               | 180                                                                                 | 465                                                                                 | 394                                                                                 | 192                                                                                 | 365                                                                                 | 96                                                                                  |
| Arrive On Green              | 0.07                                                                              | 0.43                                                                              | 0.43                                                                              | 0.06                                                                              | 0.43                                                                              | 0.43                                                                              | 0.10                                                                                | 0.25                                                                                | 0.25                                                                                | 0.11                                                                                | 0.26                                                                                | 0.26                                                                                |
| Sat Flow, veh/h              | 1781                                                                              | 2561                                                                              | 920                                                                               | 1781                                                                              | 2655                                                                              | 841                                                                               | 1781                                                                                | 1870                                                                                | 1585                                                                                | 1781                                                                                | 1426                                                                                | 376                                                                                 |
| Grp Volume(v), veh/h         | 94                                                                                | 285                                                                               | 278                                                                               | 91                                                                                | 251                                                                               | 247                                                                               | 156                                                                                 | 319                                                                                 | 155                                                                                 | 169                                                                                 | 0                                                                                   | 407                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 1777                                                                              | 1705                                                                              | 1781                                                                              | 1777                                                                              | 1719                                                                              | 1781                                                                                | 1870                                                                                | 1585                                                                                | 1781                                                                                | 0                                                                                   | 1803                                                                                |
| Q Serve(g_s), s              | 7.1                                                                               | 14.8                                                                              | 15.1                                                                              | 6.9                                                                               | 12.8                                                                              | 13.1                                                                              | 11.8                                                                                | 21.2                                                                                | 11.2                                                                                | 12.8                                                                                | 0.0                                                                                 | 29.7                                                                                |
| Cycle Q Clear(g_c), s        | 7.1                                                                               | 14.8                                                                              | 15.1                                                                              | 6.9                                                                               | 12.8                                                                              | 13.1                                                                              | 11.8                                                                                | 21.2                                                                                | 11.2                                                                                | 12.8                                                                                | 0.0                                                                                 | 29.7                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.54                                                                              | 1.00                                                                              |                                                                                   | 0.49                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.21                                                                                |
| Lane Grp Cap(c), veh/h       | 116                                                                               | 772                                                                               | 741                                                                               | 113                                                                               | 769                                                                               | 744                                                                               | 180                                                                                 | 465                                                                                 | 394                                                                                 | 192                                                                                 | 0                                                                                   | 461                                                                                 |
| V/C Ratio(X)                 | 0.81                                                                              | 0.37                                                                              | 0.37                                                                              | 0.81                                                                              | 0.33                                                                              | 0.33                                                                              | 0.87                                                                                | 0.69                                                                                | 0.39                                                                                | 0.88                                                                                | 0.00                                                                                | 0.88                                                                                |
| Avail Cap(c_a), veh/h        | 200                                                                               | 772                                                                               | 741                                                                               | 200                                                                               | 772                                                                               | 747                                                                               | 200                                                                                 | 678                                                                                 | 575                                                                                 | 200                                                                                 | 0                                                                                   | 653                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 63.3                                                                              | 26.1                                                                              | 26.2                                                                              | 63.4                                                                              | 25.7                                                                              | 25.7                                                                              | 60.7                                                                                | 46.6                                                                                | 42.9                                                                                | 60.2                                                                                | 0.0                                                                                 | 49.0                                                                                |
| Incr Delay (d2), s/veh       | 5.0                                                                               | 1.4                                                                               | 1.4                                                                               | 5.1                                                                               | 0.1                                                                               | 0.1                                                                               | 28.1                                                                                | 1.8                                                                                 | 0.6                                                                                 | 31.6                                                                                | 0.0                                                                                 | 11.5                                                                                |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 3.4                                                                               | 6.6                                                                               | 6.5                                                                               | 3.3                                                                               | 5.5                                                                               | 5.4                                                                               | 6.8                                                                                 | 10.1                                                                                | 4.5                                                                                 | 7.5                                                                                 | 0.0                                                                                 | 14.9                                                                                |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 68.3                                                                              | 27.4                                                                              | 27.6                                                                              | 68.5                                                                              | 25.8                                                                              | 25.8                                                                              | 88.8                                                                                | 48.4                                                                                | 43.5                                                                                | 91.8                                                                                | 0.0                                                                                 | 60.5                                                                                |
| LnGrp LOS                    | E                                                                                 | C                                                                                 | C                                                                                 | E                                                                                 | C                                                                                 | C                                                                                 | F                                                                                   | D                                                                                   | D                                                                                   | F                                                                                   |                                                                                     | E                                                                                   |
| Approach Vol, veh/h          | 657                                                                               |                                                                                   |                                                                                   | 589                                                                               |                                                                                   |                                                                                   | 630                                                                                 |                                                                                     |                                                                                     | 576                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 33.4                                                                              |                                                                                   |                                                                                   | 32.4                                                                              |                                                                                   |                                                                                   | 57.2                                                                                |                                                                                     |                                                                                     | 69.7                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | E                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 13.3                                                                              | 65.0                                                                              | 18.4                                                                              | 40.4                                                                              | 13.5                                                                              | 64.7                                                                              | 19.4                                                                                | 39.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.6                                                                               | 5.4                                                                               | 4.6                                                                               | 5.3                                                                               | 4.6                                                                               | 5.4                                                                               | 4.6                                                                                 | 5.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 15.4                                                                              | 59.6                                                                              | 15.4                                                                              | 49.7                                                                              | 15.4                                                                              | 59.6                                                                              | 15.4                                                                                | 49.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 8.9                                                                               | 17.1                                                                              | 13.8                                                                              | 31.7                                                                              | 9.1                                                                               | 15.1                                                                              | 14.8                                                                                | 23.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.8                                                                               | 0.0                                                                               | 3.3                                                                               | 0.0                                                                               | 1.6                                                                               | 0.0                                                                                 | 2.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 47.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## 2: Highland Dr/Highland Dr &amp; Wilmington Ave



| Lane Group              | EBL  | EBT  | EBR  | WBL  | WBT  | NBL  | NBT  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 18   | 49   | 33   | 145  | 152  | 72   | 624  | 513  |
| v/c Ratio               | 0.08 | 0.15 | 0.11 | 0.62 | 0.41 | 0.12 | 0.52 | 0.54 |
| Control Delay (s/veh)   | 20.9 | 21.6 | 8.9  | 35.2 | 12.2 | 5.6  | 7.9  | 9.2  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.1  | 0.0  |
| Total Delay (s/veh)     | 20.9 | 21.6 | 8.9  | 35.2 | 12.2 | 5.6  | 8.0  | 9.2  |
| Queue Length 50th (ft)  | 6    | 16   | 0    | 51   | 17   | 8    | 95   | 85   |
| Queue Length 95th (ft)  | 20   | 40   | 19   | 101  | 59   | 28   | 217  | 206  |
| Internal Link Dist (ft) |      | 248  |      |      | 208  |      | 10   | 677  |
| Turn Bay Length (ft)    | 200  |      | 180  | 50   |      | 75   |      |      |
| Base Capacity (vph)     | 479  | 726  | 637  | 526  | 715  | 605  | 1197 | 943  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 65   | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.04 | 0.07 | 0.05 | 0.28 | 0.21 | 0.12 | 0.55 | 0.54 |

## Intersection Summary

## HCM 7th Signalized Intersection Summary 2: Highland Dr/Highland Dr & Wilmington Ave

2028 Background

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |                                                                                   |  |  |                                                                                     |                                                                                     |  |                                                                                     |
| Traffic Volume (veh/h)       | 17                                                                                | 48                                                                                | 32                                                                                | 141                                                                               | 50                                                                                | 97                                                                                | 70                                                                                  | 441                                                                                 | 164                                                                                 | 111                                                                                 | 346                                                                                 | 41                                                                                  |
| Future Volume (veh/h)        | 17                                                                                | 48                                                                                | 32                                                                                | 141                                                                               | 50                                                                                | 97                                                                                | 70                                                                                  | 441                                                                                 | 164                                                                                 | 111                                                                                 | 346                                                                                 | 41                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 18                                                                                | 49                                                                                | 33                                                                                | 145                                                                               | 52                                                                                | 100                                                                               | 72                                                                                  | 455                                                                                 | 169                                                                                 | 114                                                                                 | 357                                                                                 | 42                                                                                  |
| Peak Hour Factor             | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 229                                                                               | 322                                                                               | 273                                                                               | 316                                                                               | 98                                                                                | 189                                                                               | 678                                                                                 | 853                                                                                 | 317                                                                                 | 222                                                                                 | 662                                                                                 | 72                                                                                  |
| Arrive On Green              | 0.17                                                                              | 0.17                                                                              | 0.17                                                                              | 0.17                                                                              | 0.17                                                                              | 0.17                                                                              | 0.66                                                                                | 0.66                                                                                | 0.66                                                                                | 0.66                                                                                | 0.66                                                                                | 0.66                                                                                |
| Sat Flow, veh/h              | 1235                                                                              | 1870                                                                              | 1585                                                                              | 1316                                                                              | 572                                                                               | 1100                                                                              | 986                                                                                 | 1300                                                                                | 483                                                                                 | 227                                                                                 | 1009                                                                                | 110                                                                                 |
| Grp Volume(v), veh/h         | 18                                                                                | 49                                                                                | 33                                                                                | 145                                                                               | 0                                                                                 | 152                                                                               | 72                                                                                  | 0                                                                                   | 624                                                                                 | 513                                                                                 | 0                                                                                   | 0                                                                                   |
| Grp Sat Flow(s),veh/h/ln     | 1235                                                                              | 1870                                                                              | 1585                                                                              | 1316                                                                              | 0                                                                                 | 1672                                                                              | 986                                                                                 | 0                                                                                   | 1783                                                                                | 1346                                                                                | 0                                                                                   | 0                                                                                   |
| Q Serve(g_s), s              | 0.8                                                                               | 1.3                                                                               | 1.1                                                                               | 6.4                                                                               | 0.0                                                                               | 5.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 11.2                                                                                | 4.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Cycle Q Clear(g_c), s        | 5.8                                                                               | 1.3                                                                               | 1.1                                                                               | 7.7                                                                               | 0.0                                                                               | 5.0                                                                               | 2.7                                                                                 | 0.0                                                                                 | 11.2                                                                                | 15.2                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.66                                                                              | 1.00                                                                                |                                                                                     | 0.27                                                                                | 0.22                                                                                |                                                                                     | 0.08                                                                                |
| Lane Grp Cap(c), veh/h       | 229                                                                               | 322                                                                               | 273                                                                               | 316                                                                               | 0                                                                                 | 288                                                                               | 678                                                                                 | 0                                                                                   | 1170                                                                                | 956                                                                                 | 0                                                                                   | 0                                                                                   |
| V/C Ratio(X)                 | 0.08                                                                              | 0.15                                                                              | 0.12                                                                              | 0.46                                                                              | 0.00                                                                              | 0.53                                                                              | 0.11                                                                                | 0.00                                                                                | 0.53                                                                                | 0.54                                                                                | 0.00                                                                                | 0.00                                                                                |
| Avail Cap(c_a), veh/h        | 525                                                                               | 770                                                                               | 652                                                                               | 631                                                                               | 0                                                                                 | 688                                                                               | 678                                                                                 | 0                                                                                   | 1170                                                                                | 956                                                                                 | 0                                                                                   | 0                                                                                   |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 0.00                                                                                |
| Uniform Delay (d), s/veh     | 25.5                                                                              | 21.3                                                                              | 21.2                                                                              | 24.6                                                                              | 0.0                                                                               | 22.8                                                                              | 4.0                                                                                 | 0.0                                                                                 | 5.5                                                                                 | 5.5                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.1                                                                               | 0.1                                                                               | 0.4                                                                               | 0.0                                                                               | 0.6                                                                               | 0.3                                                                                 | 0.0                                                                                 | 1.7                                                                                 | 2.2                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.2                                                                               | 0.6                                                                               | 0.4                                                                               | 1.9                                                                               | 0.0                                                                               | 1.9                                                                               | 0.3                                                                                 | 0.0                                                                                 | 3.4                                                                                 | 2.6                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 25.5                                                                              | 21.4                                                                              | 21.3                                                                              | 25.0                                                                              | 0.0                                                                               | 23.4                                                                              | 4.4                                                                                 | 0.0                                                                                 | 7.2                                                                                 | 7.7                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | A                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     |                                                                                     |
| Approach Vol, veh/h          | 100                                                                               |                                                                                   |                                                                                   | 297                                                                               |                                                                                   |                                                                                   | 696                                                                                 |                                                                                     |                                                                                     | 513                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 22.1                                                                              |                                                                                   |                                                                                   | 24.2                                                                              |                                                                                   |                                                                                   | 6.9                                                                                 |                                                                                     |                                                                                     | 7.7                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 15.5                                                                              |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 15.5                                                                                |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.3                                                                               |                                                                                   |                                                                                   | 5.1                                                                               |                                                                                   |                                                                                   | 5.3                                                                                 |                                                                                     |                                                                                     | 5.1                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.7                                                                              |                                                                                   |                                                                                   | 24.9                                                                              |                                                                                   |                                                                                   | 39.7                                                                                |                                                                                     |                                                                                     | 24.9                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 13.2                                                                              |                                                                                   |                                                                                   | 7.8                                                                               |                                                                                   |                                                                                   | 17.2                                                                                |                                                                                     |                                                                                     | 9.7                                                                                 |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 2.4                                                                               |                                                                                   |                                                                                   | 0.2                                                                               |                                                                                   |                                                                                   | 2.1                                                                                 |                                                                                     |                                                                                     | 0.7                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 11.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



| Intersection             |        |                                                                                   |      |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
|--------------------------|--------|-----------------------------------------------------------------------------------|------|--------|-----------------------------------------------------------------------------------|------|--------|-----------------------------------------------------------------------------------|-------|--------|-------------------------------------------------------------------------------------|-------|
| Int Delay, s/veh         | 4.4    |                                                                                   |      |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Movement                 | EBL    | EBT                                                                               | EBR  | WBL    | WBT                                                                               | WBR  | NBL    | NBT                                                                               | NBR   | SBL    | SBT                                                                                 | SBR   |
| Lane Configurations      |        |  |      |        |  |      |        |  |       |        |  |       |
| Traffic Vol, veh/h       | 48     | 178                                                                               | 21   | 21     | 194                                                                               | 67   | 35     | 9                                                                                 | 31    | 50     | 7                                                                                   | 53    |
| Future Vol, veh/h        | 48     | 178                                                                               | 21   | 21     | 194                                                                               | 67   | 35     | 9                                                                                 | 31    | 50     | 7                                                                                   | 53    |
| Conflicting Peds, #/hr   | 0      | 0                                                                                 | 0    | 0      | 0                                                                                 | 0    | 0      | 0                                                                                 | 0     | 0      | 0                                                                                   | 0     |
| Sign Control             | Free   | Free                                                                              | Free | Free   | Free                                                                              | Free | Stop   | Stop                                                                              | Stop  | Stop   | Stop                                                                                | Stop  |
| RT Channelized           | -      | -                                                                                 | None | -      | -                                                                                 | None | -      | -                                                                                 | None  | -      | -                                                                                   | None  |
| Storage Length           | -      | -                                                                                 | -    | -      | -                                                                                 | -    | -      | -                                                                                 | -     | -      | -                                                                                   | -     |
| Veh in Median Storage, # | -      | 0                                                                                 | -    | -      | 0                                                                                 | -    | -      | 0                                                                                 | -     | -      | 0                                                                                   | -     |
| Grade, %                 | -      | 0                                                                                 | -    | -      | 0                                                                                 | -    | -      | 0                                                                                 | -     | -      | 0                                                                                   | -     |
| Peak Hour Factor         | 95     | 95                                                                                | 95   | 95     | 95                                                                                | 95   | 95     | 95                                                                                | 95    | 95     | 95                                                                                  | 95    |
| Heavy Vehicles, %        | 2      | 2                                                                                 | 2    | 2      | 2                                                                                 | 2    | 2      | 2                                                                                 | 2     | 2      | 2                                                                                   | 2     |
| Mvmt Flow                | 51     | 187                                                                               | 22   | 22     | 204                                                                               | 71   | 37     | 9                                                                                 | 33    | 53     | 7                                                                                   | 56    |
|                          |        |                                                                                   |      |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Major/Minor              | Major1 |                                                                                   |      | Major2 |                                                                                   |      | Minor1 |                                                                                   |       | Minor2 |                                                                                     |       |
| Conflicting Flow All     | 275    | 0                                                                                 | 0    | 209    | 0                                                                                 | 0    | 552    | 618                                                                               | 198   | 577    | 594                                                                                 | 239   |
| Stage 1                  | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 299    | 299                                                                               | -     | 284    | 284                                                                                 | -     |
| Stage 2                  | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 252    | 319                                                                               | -     | 293    | 311                                                                                 | -     |
| Critical Hdwy            | 4.12   | -                                                                                 | -    | 4.12   | -                                                                                 | -    | 7.12   | 6.52                                                                              | 6.22  | 7.12   | 6.52                                                                                | 6.22  |
| Critical Hdwy Stg 1      | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 6.12   | 5.52                                                                              | -     | 6.12   | 5.52                                                                                | -     |
| Critical Hdwy Stg 2      | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 6.12   | 5.52                                                                              | -     | 6.12   | 5.52                                                                                | -     |
| Follow-up Hdwy           | 2.218  | -                                                                                 | -    | 2.218  | -                                                                                 | -    | 3.518  | 4.018                                                                             | 3.318 | 3.518  | 4.018                                                                               | 3.318 |
| Pot Cap-1 Maneuver       | 1288   | -                                                                                 | -    | 1361   | -                                                                                 | -    | 445    | 405                                                                               | 843   | 428    | 418                                                                                 | 799   |
| Stage 1                  | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 709    | 666                                                                               | -     | 723    | 677                                                                                 | -     |
| Stage 2                  | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 752    | 653                                                                               | -     | 715    | 659                                                                                 | -     |
| Platoon blocked, %       |        | -                                                                                 | -    |        | -                                                                                 | -    |        |                                                                                   |       |        |                                                                                     |       |
| Mov Cap-1 Maneuver       | 1288   | -                                                                                 | -    | 1361   | -                                                                                 | -    | 381    | 379                                                                               | 843   | 376    | 392                                                                                 | 799   |
| Mov Cap-2 Maneuver       | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 381    | 379                                                                               | -     | 376    | 392                                                                                 | -     |
| Stage 1                  | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 678    | 636                                                                               | -     | 709    | 663                                                                                 | -     |
| Stage 2                  | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 678    | 640                                                                               | -     | 647    | 629                                                                                 | -     |
|                          |        |                                                                                   |      |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
|                          |        |                                                                                   |      |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Approach                 | EB     |                                                                                   |      | WB     |                                                                                   |      | NB     |                                                                                   |       | SB     |                                                                                     |       |
| HCM Ctrl Dly, s/v        | 1.54   |                                                                                   |      | 0.57   |                                                                                   |      | 13.71  |                                                                                   |       | 14.2   |                                                                                     |       |
| HCM LOS                  |        |                                                                                   |      |        |                                                                                   |      | B      |                                                                                   |       | B      |                                                                                     |       |
|                          |        |                                                                                   |      |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Minor Lane/Major Mvmt    | NBLn1  | EBL                                                                               | EBT  | EBR    | WBL                                                                               | WBT  | WBR    | SBLn1                                                                             |       |        |                                                                                     |       |
| Capacity (veh/h)         | 492    | 343                                                                               | -    | -      | 127                                                                               | -    | -      | 507                                                                               |       |        |                                                                                     |       |
| HCM Lane V/C Ratio       | 0.16   | 0.039                                                                             | -    | -      | 0.016                                                                             | -    | -      | 0.228                                                                             |       |        |                                                                                     |       |
| HCM Ctrl Dly (s/v)       | 13.7   | 7.9                                                                               | 0    | -      | 7.7                                                                               | 0    | -      | 14.2                                                                              |       |        |                                                                                     |       |
| HCM Lane LOS             | B      | A                                                                                 | A    | -      | A                                                                                 | A    | -      | B                                                                                 |       |        |                                                                                     |       |
| HCM 95th %tile Q(veh)    | 0.6    | 0.1                                                                               | -    | -      | 0                                                                                 | -    | -      | 0.9                                                                               |       |        |                                                                                     |       |

## 4: Highland Dr &amp; Simpson Ave



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 85   | 182  | 75   | 185  | 112  | 610  | 101  | 379  |
| v/c Ratio               | 0.54 | 0.52 | 0.47 | 0.52 | 0.16 | 0.49 | 0.21 | 0.30 |
| Control Delay (s/veh)   | 36.1 | 14.8 | 32.6 | 14.2 | 4.9  | 6.7  | 5.7  | 5.1  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 36.1 | 14.8 | 32.6 | 14.2 | 4.9  | 6.7  | 5.7  | 5.1  |
| Queue Length 50th (ft)  | 29   | 20   | 25   | 19   | 12   | 81   | 11   | 43   |
| Queue Length 95th (ft)  | 67   | 68   | 60   | 67   | 35   | 183  | 35   | 99   |
| Internal Link Dist (ft) |      | 135  |      | 226  |      | 265  |      | 267  |
| Turn Bay Length (ft)    | 65   |      | 75   |      | 100  |      | 50   |      |
| Base Capacity (vph)     | 448  | 775  | 456  | 776  | 680  | 1250 | 490  | 1260 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.19 | 0.23 | 0.16 | 0.24 | 0.16 | 0.49 | 0.21 | 0.30 |

## Intersection Summary

# HCM 7th Signalized Intersection Summary

## 4: Highland Dr & Simpson Ave

2028 Background

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 81                                                                                | 59                                                                                | 114                                                                               | 71                                                                                | 55                                                                                | 121                                                                               | 106                                                                                 | 517                                                                                 | 63                                                                                  | 96                                                                                  | 345                                                                                 | 15                                                                                  |
| Future Volume (veh/h)        | 81                                                                                | 59                                                                                | 114                                                                               | 71                                                                                | 55                                                                                | 121                                                                               | 106                                                                                 | 517                                                                                 | 63                                                                                  | 96                                                                                  | 345                                                                                 | 15                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 85                                                                                | 62                                                                                | 120                                                                               | 75                                                                                | 58                                                                                | 127                                                                               | 112                                                                                 | 544                                                                                 | 66                                                                                  | 101                                                                                 | 363                                                                                 | 16                                                                                  |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 247                                                                               | 119                                                                               | 231                                                                               | 250                                                                               | 109                                                                               | 239                                                                               | 648                                                                                 | 1026                                                                                | 125                                                                                 | 472                                                                                 | 1115                                                                                | 49                                                                                  |
| Arrive On Green              | 0.21                                                                              | 0.21                                                                              | 0.21                                                                              | 0.21                                                                              | 0.21                                                                              | 0.21                                                                              | 0.63                                                                                | 0.63                                                                                | 0.63                                                                                | 0.63                                                                                | 0.63                                                                                | 0.63                                                                                |
| Sat Flow, veh/h              | 1199                                                                              | 570                                                                               | 1102                                                                              | 1202                                                                              | 522                                                                               | 1143                                                                              | 1004                                                                                | 1636                                                                                | 199                                                                                 | 811                                                                                 | 1778                                                                                | 78                                                                                  |
| Grp Volume(v), veh/h         | 85                                                                                | 0                                                                                 | 182                                                                               | 75                                                                                | 0                                                                                 | 185                                                                               | 112                                                                                 | 0                                                                                   | 610                                                                                 | 101                                                                                 | 0                                                                                   | 379                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1199                                                                              | 0                                                                                 | 1672                                                                              | 1202                                                                              | 0                                                                                 | 1665                                                                              | 1004                                                                                | 0                                                                                   | 1835                                                                                | 811                                                                                 | 0                                                                                   | 1856                                                                                |
| Q Serve(g_s), s              | 4.3                                                                               | 0.0                                                                               | 6.1                                                                               | 3.7                                                                               | 0.0                                                                               | 6.2                                                                               | 3.7                                                                                 | 0.0                                                                                 | 11.7                                                                                | 5.0                                                                                 | 0.0                                                                                 | 6.0                                                                                 |
| Cycle Q Clear(g_c), s        | 10.5                                                                              | 0.0                                                                               | 6.1                                                                               | 9.8                                                                               | 0.0                                                                               | 6.2                                                                               | 9.7                                                                                 | 0.0                                                                                 | 11.7                                                                                | 16.7                                                                                | 0.0                                                                                 | 6.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.66                                                                              | 1.00                                                                              |                                                                                   | 0.69                                                                              | 1.00                                                                                |                                                                                     | 0.11                                                                                | 1.00                                                                                |                                                                                     | 0.04                                                                                |
| Lane Grp Cap(c), veh/h       | 247                                                                               | 0                                                                                 | 350                                                                               | 250                                                                               | 0                                                                                 | 349                                                                               | 648                                                                                 | 0                                                                                   | 1151                                                                                | 472                                                                                 | 0                                                                                   | 1165                                                                                |
| V/C Ratio(X)                 | 0.34                                                                              | 0.00                                                                              | 0.52                                                                              | 0.30                                                                              | 0.00                                                                              | 0.53                                                                              | 0.17                                                                                | 0.00                                                                                | 0.53                                                                                | 0.21                                                                                | 0.00                                                                                | 0.33                                                                                |
| Avail Cap(c_a), veh/h        | 472                                                                               | 0                                                                                 | 665                                                                               | 476                                                                               | 0                                                                                 | 662                                                                               | 648                                                                                 | 0                                                                                   | 1151                                                                                | 472                                                                                 | 0                                                                                   | 1165                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 26.9                                                                              | 0.0                                                                               | 22.1                                                                              | 26.5                                                                              | 0.0                                                                               | 22.2                                                                              | 7.8                                                                                 | 0.0                                                                                 | 6.6                                                                                 | 11.2                                                                                | 0.0                                                                                 | 5.5                                                                                 |
| Incr Delay (d2), s/veh       | 0.3                                                                               | 0.0                                                                               | 0.4                                                                               | 0.2                                                                               | 0.0                                                                               | 0.5                                                                               | 0.6                                                                                 | 0.0                                                                                 | 1.7                                                                                 | 1.0                                                                                 | 0.0                                                                                 | 0.7                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.2                                                                               | 0.0                                                                               | 2.3                                                                               | 1.0                                                                               | 0.0                                                                               | 2.3                                                                               | 0.8                                                                                 | 0.0                                                                                 | 3.9                                                                                 | 0.9                                                                                 | 0.0                                                                                 | 2.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 27.2                                                                              | 0.0                                                                               | 22.6                                                                              | 26.7                                                                              | 0.0                                                                               | 22.7                                                                              | 8.4                                                                                 | 0.0                                                                                 | 8.3                                                                                 | 12.3                                                                                | 0.0                                                                                 | 6.3                                                                                 |
| LnGrp LOS                    | C                                                                                 |                                                                                   | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | A                                                                                   |                                                                                     | A                                                                                   | B                                                                                   |                                                                                     | A                                                                                   |
| Approach Vol, veh/h          | 267                                                                               |                                                                                   |                                                                                   | 260                                                                               |                                                                                   |                                                                                   | 722                                                                                 |                                                                                     |                                                                                     | 480                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 24.0                                                                              |                                                                                   |                                                                                   | 23.8                                                                              |                                                                                   |                                                                                   | 8.3                                                                                 |                                                                                     |                                                                                     | 7.5                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 18.1                                                                              |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 18.1                                                                                |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.4                                                                               |                                                                                   |                                                                                   | 4.9                                                                               |                                                                                   |                                                                                   | 5.4                                                                                 |                                                                                     |                                                                                     | 4.9                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.6                                                                              |                                                                                   |                                                                                   | 25.1                                                                              |                                                                                   |                                                                                   | 39.6                                                                                |                                                                                     |                                                                                     | 25.1                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 13.7                                                                              |                                                                                   |                                                                                   | 12.5                                                                              |                                                                                   |                                                                                   | 18.7                                                                                |                                                                                     |                                                                                     | 11.8                                                                                |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 3.2                                                                               |                                                                                   |                                                                                   | 0.7                                                                               |                                                                                   |                                                                                   | 1.9                                                                                 |                                                                                     |                                                                                     | 0.7                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 12.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 0         |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↑      | ↘    |      |
| Traffic Vol, veh/h       | 0         | 0      | 0    | 675    | 496  | 25   |
| Future Vol, veh/h        | 0         | 0      | 0    | 675    | 496  | 25   |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | -    |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 90        | 90     | 90   | 90     | 90   | 90   |
| Heavy Vehicles, %        | 2         | 2      | 2    | 2      | 2    | 2    |
| Mvmt Flow                | 0         | 0      | 0    | 750    | 551  | 28   |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 565    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 6.22   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 3.318  | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 524    | 0    | -      | -    | -    |
| Stage 1                  | 0         | -      | 0    | -      | -    | -    |
| Stage 2                  | 0         | -      | 0    | -      | -    | -    |
| Platoon blocked, %       |           |        |      | -      | -    | -    |
| Mov Cap-1 Maneuver       | -         | 524    | -    | -      | -    | -    |
| Mov Cap-2 Maneuver       | -         | -      | -    | -      | -    | -    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Approach                 | EB        | NB     |      | SB     |      |      |
| HCM Ctrl Dly, s/v        | 0         | 0      |      | 0      |      |      |
| HCM LOS                  | A         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | -         |        | -    | -      |      |      |
| HCM Lane V/C Ratio       | -         |        | -    | -      |      |      |
| HCM Ctrl Dly (s/v)       | -         |        | 0    | -      |      |      |
| HCM Lane LOS             | -         |        | A    | -      |      |      |
| HCM 95th %tile Q(veh)    | -         |        | -    | -      |      |      |

| Intersection             |        |        |        |      |      |      |
|--------------------------|--------|--------|--------|------|------|------|
| Int Delay, s/veh         | 0.3    |        |        |      |      |      |
| Movement                 | EBL    | EBR    | NBL    | NBT  | SBT  | SBR  |
| Lane Configurations      | W      |        |        | ↑    | ↑    |      |
| Traffic Vol, veh/h       | 9      | 15     | 0      | 666  | 496  | 0    |
| Future Vol, veh/h        | 9      | 15     | 0      | 666  | 496  | 0    |
| Conflicting Peds, #/hr   | 0      | 0      | 0      | 0    | 0    | 0    |
| Sign Control             | Stop   | Stop   | Free   | Free | Free | Free |
| RT Channelized           | -      | None   | -      | None | -    | None |
| Storage Length           | 0      | -      | -      | -    | -    | -    |
| Veh in Median Storage, # | 0      | -      | -      | 0    | 0    | -    |
| Grade, %                 | 0      | -      | -      | 0    | 0    | -    |
| Peak Hour Factor         | 90     | 90     | 90     | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2      | 2      | 2      | 2    | 2    | 2    |
| Mvmt Flow                | 10     | 17     | 0      | 740  | 551  | 0    |
| Major/Minor              | Minor2 | Major1 | Major2 |      |      |      |
| Conflicting Flow All     | 1291   | 551    | -      | 0    | -    | 0    |
| Stage 1                  | 551    | -      | -      | -    | -    | -    |
| Stage 2                  | 740    | -      | -      | -    | -    | -    |
| Critical Hdwy            | 6.42   | 6.22   | -      | -    | -    | -    |
| Critical Hdwy Stg 1      | 5.42   | -      | -      | -    | -    | -    |
| Critical Hdwy Stg 2      | 5.42   | -      | -      | -    | -    | -    |
| Follow-up Hdwy           | 3.518  | 3.318  | -      | -    | -    | -    |
| Pot Cap-1 Maneuver       | 180    | 534    | 0      | -    | -    | -    |
| Stage 1                  | 577    | -      | 0      | -    | -    | -    |
| Stage 2                  | 472    | -      | 0      | -    | -    | -    |
| Platoon blocked, %       |        |        |        | -    | -    | -    |
| Mov Cap-1 Maneuver       | 180    | 534    | -      | -    | -    | -    |
| Mov Cap-2 Maneuver       | 318    | -      | -      | -    | -    | -    |
| Stage 1                  | 577    | -      | -      | -    | -    | -    |
| Stage 2                  | 472    | -      | -      | -    | -    | -    |
| Approach                 | EB     | NB     | SB     |      |      |      |
| HCM Ctrl Dly, s/v        | 14.02  | 0      | 0      |      |      |      |
| HCM LOS                  | B      |        |        |      |      |      |
| Minor Lane/Major Mvmt    | NBT    | EBLn1  | SBT    | SBR  |      |      |
| Capacity (veh/h)         | -      | 426    | -      | -    |      |      |
| HCM Lane V/C Ratio       | -      | 0.063  | -      | -    |      |      |
| HCM Ctrl Dly (s/v)       | -      | 14     | -      | -    |      |      |
| HCM Lane LOS             | -      | B      | -      | -    |      |      |
| HCM 95th %tile Q(veh)    | -      | 0.2    | -      | -    |      |      |



## 2028 Background Plus Project Analysis

## 1: Highland Dr/1100 E &amp; 2100 S



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 54   | 351  | 53   | 348  | 67   | 247  | 66   | 129  | 190  |
| v/c Ratio               | 0.47 | 0.20 | 0.47 | 0.20 | 0.48 | 0.75 | 0.19 | 0.67 | 0.46 |
| Control Delay (s/veh)   | 71.2 | 17.5 | 71.2 | 17.1 | 67.7 | 62.7 | 7.9  | 71.2 | 43.8 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 71.2 | 17.5 | 71.2 | 17.1 | 67.7 | 62.7 | 7.9  | 71.2 | 43.8 |
| Queue Length 50th (ft)  | 43   | 75   | 42   | 72   | 53   | 192  | 0    | 101  | 128  |
| Queue Length 95th (ft)  | 93   | 128  | 93   | 125  | 108  | 297  | 31   | #190 | 217  |
| Internal Link Dist (ft) |      | 242  |      | 444  |      | 677  |      |      | 301  |
| Turn Bay Length (ft)    | 200  |      | 290  |      | 90   |      | 90   | 95   |      |
| Base Capacity (vph)     | 229  | 1724 | 229  | 1721 | 229  | 779  | 708  | 229  | 755  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.24 | 0.20 | 0.23 | 0.20 | 0.29 | 0.32 | 0.09 | 0.56 | 0.25 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 7th Signalized Intersection Summary

## 1: Highland Dr/1100 E & 2100 S

2028 Plus Project

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 49                                                                                | 236                                                                               | 80                                                                                | 48                                                                                | 225                                                                               | 88                                                                                | 60                                                                                  | 222                                                                                 | 59                                                                                  | 116                                                                                 | 127                                                                                 | 44                                                                                  |
| Future Volume (veh/h)        | 49                                                                                | 236                                                                               | 80                                                                                | 48                                                                                | 225                                                                               | 88                                                                                | 60                                                                                  | 222                                                                                 | 59                                                                                  | 116                                                                                 | 127                                                                                 | 44                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 54                                                                                | 262                                                                               | 89                                                                                | 53                                                                                | 250                                                                               | 98                                                                                | 67                                                                                  | 247                                                                                 | 66                                                                                  | 129                                                                                 | 141                                                                                 | 49                                                                                  |
| Peak Hour Factor             | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 70                                                                                | 1399                                                                              | 464                                                                               | 68                                                                                | 1341                                                                              | 511                                                                               | 87                                                                                  | 301                                                                                 | 255                                                                                 | 157                                                                                 | 266                                                                                 | 93                                                                                  |
| Arrive On Green              | 0.04                                                                              | 0.53                                                                              | 0.53                                                                              | 0.04                                                                              | 0.53                                                                              | 0.53                                                                              | 0.05                                                                                | 0.16                                                                                | 0.16                                                                                | 0.09                                                                                | 0.20                                                                                | 0.20                                                                                |
| Sat Flow, veh/h              | 1781                                                                              | 2621                                                                              | 870                                                                               | 1781                                                                              | 2515                                                                              | 959                                                                               | 1781                                                                                | 1870                                                                                | 1585                                                                                | 1781                                                                                | 1326                                                                                | 461                                                                                 |
| Grp Volume(v), veh/h         | 54                                                                                | 176                                                                               | 175                                                                               | 53                                                                                | 175                                                                               | 173                                                                               | 67                                                                                  | 247                                                                                 | 66                                                                                  | 129                                                                                 | 0                                                                                   | 190                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 1777                                                                              | 1714                                                                              | 1781                                                                              | 1777                                                                              | 1698                                                                              | 1781                                                                                | 1870                                                                                | 1585                                                                                | 1781                                                                                | 0                                                                                   | 1787                                                                                |
| Q Serve(g_s), s              | 3.4                                                                               | 5.7                                                                               | 5.9                                                                               | 3.3                                                                               | 5.7                                                                               | 5.9                                                                               | 4.2                                                                                 | 14.2                                                                                | 4.1                                                                                 | 7.9                                                                                 | 0.0                                                                                 | 10.6                                                                                |
| Cycle Q Clear(g_c), s        | 3.4                                                                               | 5.7                                                                               | 5.9                                                                               | 3.3                                                                               | 5.7                                                                               | 5.9                                                                               | 4.2                                                                                 | 14.2                                                                                | 4.1                                                                                 | 7.9                                                                                 | 0.0                                                                                 | 10.6                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.51                                                                              | 1.00                                                                              |                                                                                   | 0.57                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.26                                                                                |
| Lane Grp Cap(c), veh/h       | 70                                                                                | 949                                                                               | 915                                                                               | 68                                                                                | 947                                                                               | 905                                                                               | 87                                                                                  | 301                                                                                 | 255                                                                                 | 157                                                                                 | 0                                                                                   | 359                                                                                 |
| V/C Ratio(X)                 | 0.78                                                                              | 0.19                                                                              | 0.19                                                                              | 0.78                                                                              | 0.18                                                                              | 0.19                                                                              | 0.77                                                                                | 0.82                                                                                | 0.26                                                                                | 0.82                                                                                | 0.00                                                                                | 0.53                                                                                |
| Avail Cap(c_a), veh/h        | 246                                                                               | 949                                                                               | 915                                                                               | 246                                                                               | 949                                                                               | 906                                                                               | 246                                                                                 | 833                                                                                 | 706                                                                                 | 246                                                                                 | 0                                                                                   | 796                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 53.2                                                                              | 13.5                                                                              | 13.5                                                                              | 53.2                                                                              | 13.5                                                                              | 13.6                                                                              | 52.5                                                                                | 45.3                                                                                | 41.0                                                                                | 50.0                                                                                | 0.0                                                                                 | 39.9                                                                                |
| Incr Delay (d2), s/veh       | 6.7                                                                               | 0.4                                                                               | 0.5                                                                               | 6.8                                                                               | 0.0                                                                               | 0.0                                                                               | 10.3                                                                                | 5.5                                                                                 | 0.5                                                                                 | 9.4                                                                                 | 0.0                                                                                 | 1.7                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.6                                                                               | 2.4                                                                               | 2.4                                                                               | 1.6                                                                               | 2.3                                                                               | 2.2                                                                               | 2.1                                                                                 | 7.0                                                                                 | 1.6                                                                                 | 3.9                                                                                 | 0.0                                                                                 | 4.8                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 59.8                                                                              | 13.9                                                                              | 14.0                                                                              | 60.0                                                                              | 13.5                                                                              | 13.6                                                                              | 62.8                                                                                | 50.7                                                                                | 41.5                                                                                | 59.4                                                                                | 0.0                                                                                 | 41.6                                                                                |
| LnGrp LOS                    | E                                                                                 | B                                                                                 | B                                                                                 | E                                                                                 | B                                                                                 | B                                                                                 | E                                                                                   | D                                                                                   | D                                                                                   | E                                                                                   |                                                                                     | D                                                                                   |
| Approach Vol, veh/h          | 405                                                                               |                                                                                   |                                                                                   | 401                                                                               |                                                                                   |                                                                                   | 380                                                                                 |                                                                                     |                                                                                     | 319                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 20.1                                                                              |                                                                                   |                                                                                   | 19.7                                                                              |                                                                                   |                                                                                   | 51.3                                                                                |                                                                                     |                                                                                     | 48.8                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | D                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 8.9                                                                               | 65.0                                                                              | 10.0                                                                              | 27.7                                                                              | 9.0                                                                               | 64.9                                                                              | 14.5                                                                                | 23.3                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.6                                                                               | 5.4                                                                               | 4.6                                                                               | 5.3                                                                               | 4.6                                                                               | 5.4                                                                               | 4.6                                                                                 | 5.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 15.4                                                                              | 59.6                                                                              | 15.4                                                                              | 49.7                                                                              | 15.4                                                                              | 59.6                                                                              | 15.4                                                                                | 49.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 5.3                                                                               | 7.9                                                                               | 6.2                                                                               | 12.6                                                                              | 5.4                                                                               | 7.9                                                                               | 9.9                                                                                 | 16.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.1                                                                               | 0.1                                                                               | 1.7                                                                               | 0.0                                                                               | 1.1                                                                               | 0.1                                                                                 | 1.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 33.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## 2: Highland Dr/Highland Dr &amp; Wilmington Ave



| Lane Group              | EBL  | EBT  | EBR  | WBL  | WBT  | NBL  | NBT  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 16   | 77   | 18   | 41   | 59   | 17   | 367  | 282  |
| v/c Ratio               | 0.10 | 0.36 | 0.08 | 0.27 | 0.26 | 0.02 | 0.26 | 0.22 |
| Control Delay (s/veh)   | 23.6 | 28.3 | 6.4  | 27.6 | 14.0 | 3.1  | 3.6  | 3.6  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 23.6 | 28.3 | 6.4  | 27.6 | 14.0 | 3.1  | 3.6  | 3.6  |
| Queue Length 50th (ft)  | 5    | 25   | 0    | 13   | 5    | 1    | 33   | 26   |
| Queue Length 95th (ft)  | 20   | 58   | 10   | 38   | 33   | 6    | 72   | 58   |
| Internal Link Dist (ft) |      | 248  |      |      | 208  |      | 10   | 677  |
| Turn Bay Length (ft)    | 200  |      | 180  | 50   |      | 75   |      |      |
| Base Capacity (vph)     | 555  | 772  | 675  | 546  | 714  | 833  | 1386 | 1300 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.03 | 0.10 | 0.03 | 0.08 | 0.08 | 0.02 | 0.26 | 0.22 |

## Intersection Summary

# HCM 7th Signalized Intersection Summary 2: Highland Dr/Highland Dr & Wilmington Ave

2028 Plus Project

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |                                                                                   |  |  |                                                                                     |                                                                                     |  |                                                                                     |
| Traffic Volume (veh/h)       | 14                                                                                | 69                                                                                | 16                                                                                | 37                                                                                | 15                                                                                | 38                                                                                | 15                                                                                  | 271                                                                                 | 59                                                                                  | 38                                                                                  | 208                                                                                 | 8                                                                                   |
| Future Volume (veh/h)        | 14                                                                                | 69                                                                                | 16                                                                                | 37                                                                                | 15                                                                                | 38                                                                                | 15                                                                                  | 271                                                                                 | 59                                                                                  | 38                                                                                  | 208                                                                                 | 8                                                                                   |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 16                                                                                | 77                                                                                | 18                                                                                | 41                                                                                | 17                                                                                | 42                                                                                | 17                                                                                  | 301                                                                                 | 66                                                                                  | 42                                                                                  | 231                                                                                 | 9                                                                                   |
| Peak Hour Factor             | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 225                                                                               | 195                                                                               | 165                                                                               | 215                                                                               | 50                                                                                | 123                                                                               | 971                                                                                 | 1055                                                                                | 231                                                                                 | 200                                                                                 | 1049                                                                                | 39                                                                                  |
| Arrive On Green              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                |
| Sat Flow, veh/h              | 1344                                                                              | 1870                                                                              | 1585                                                                              | 1301                                                                              | 478                                                                               | 1180                                                                              | 1140                                                                                | 1486                                                                                | 326                                                                                 | 178                                                                                 | 1478                                                                                | 55                                                                                  |
| Grp Volume(v), veh/h         | 16                                                                                | 77                                                                                | 18                                                                                | 41                                                                                | 0                                                                                 | 59                                                                                | 17                                                                                  | 0                                                                                   | 367                                                                                 | 282                                                                                 | 0                                                                                   | 0                                                                                   |
| Grp Sat Flow(s),veh/h/ln     | 1344                                                                              | 1870                                                                              | 1585                                                                              | 1301                                                                              | 0                                                                                 | 1658                                                                              | 1140                                                                                | 0                                                                                   | 1812                                                                                | 1710                                                                                | 0                                                                                   | 0                                                                                   |
| Q Serve(g_s), s              | 0.6                                                                               | 2.2                                                                               | 0.6                                                                               | 1.7                                                                               | 0.0                                                                               | 1.8                                                                               | 0.0                                                                                 | 0.0                                                                                 | 4.1                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Cycle Q Clear(g_c), s        | 2.5                                                                               | 2.2                                                                               | 0.6                                                                               | 3.9                                                                               | 0.0                                                                               | 1.8                                                                               | 0.2                                                                                 | 0.0                                                                                 | 4.1                                                                                 | 2.9                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.71                                                                              | 1.00                                                                                |                                                                                     | 0.18                                                                                | 0.15                                                                                |                                                                                     | 0.03                                                                                |
| Lane Grp Cap(c), veh/h       | 225                                                                               | 195                                                                               | 165                                                                               | 215                                                                               | 0                                                                                 | 173                                                                               | 971                                                                                 | 0                                                                                   | 1286                                                                                | 1288                                                                                | 0                                                                                   | 0                                                                                   |
| V/C Ratio(X)                 | 0.07                                                                              | 0.39                                                                              | 0.11                                                                              | 0.19                                                                              | 0.00                                                                              | 0.34                                                                              | 0.02                                                                                | 0.00                                                                                | 0.29                                                                                | 0.22                                                                                | 0.00                                                                                | 0.00                                                                                |
| Avail Cap(c_a), veh/h        | 682                                                                               | 833                                                                               | 706                                                                               | 658                                                                               | 0                                                                                 | 738                                                                               | 971                                                                                 | 0                                                                                   | 1286                                                                                | 1288                                                                                | 0                                                                                   | 0                                                                                   |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 0.00                                                                                |
| Uniform Delay (d), s/veh     | 24.4                                                                              | 23.4                                                                              | 22.7                                                                              | 25.2                                                                              | 0.0                                                                               | 23.3                                                                              | 2.4                                                                                 | 0.0                                                                                 | 3.0                                                                                 | 2.8                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Incr Delay (d2), s/veh       | 0.0                                                                               | 0.5                                                                               | 0.1                                                                               | 0.2                                                                               | 0.0                                                                               | 0.4                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.6                                                                                 | 0.4                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.2                                                                               | 0.9                                                                               | 0.2                                                                               | 0.5                                                                               | 0.0                                                                               | 0.7                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.9                                                                                 | 0.7                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 24.5                                                                              | 23.9                                                                              | 22.8                                                                              | 25.4                                                                              | 0.0                                                                               | 23.7                                                                              | 2.4                                                                                 | 0.0                                                                                 | 3.5                                                                                 | 3.2                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | A                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     |                                                                                     |
| Approach Vol, veh/h          | 111                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 384                                                                                 |                                                                                     |                                                                                     | 282                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 23.8                                                                              |                                                                                   |                                                                                   | 24.4                                                                              |                                                                                   |                                                                                   | 3.5                                                                                 |                                                                                     |                                                                                     | 3.2                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 10.9                                                                              |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 10.9                                                                                |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.3                                                                               |                                                                                   |                                                                                   | 5.1                                                                               |                                                                                   |                                                                                   | 5.3                                                                                 |                                                                                     |                                                                                     | 5.1                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.7                                                                              |                                                                                   |                                                                                   | 24.9                                                                              |                                                                                   |                                                                                   | 39.7                                                                                |                                                                                     |                                                                                     | 24.9                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 6.1                                                                               |                                                                                   |                                                                                   | 4.5                                                                               |                                                                                   |                                                                                   | 4.9                                                                                 |                                                                                     |                                                                                     | 5.9                                                                                 |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 1.2                                                                               |                                                                                   |                                                                                   | 0.3                                                                               |                                                                                   |                                                                                   | 0.9                                                                                 |                                                                                     |                                                                                     | 0.2                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 8.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |        |       |      |        |       |      |        |       |       |        |       |       |
|--------------------------|--------|-------|------|--------|-------|------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 2.6    |       |      |        |       |      |        |       |       |        |       |       |
| Movement                 | EBL    | EBT   | EBR  | WBL    | WBT   | WBR  | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |        | ↔     |      |        | ↔     |      |        | ↔     |       |        | ↔     |       |
| Traffic Vol, veh/h       | 16     | 67    | 7    | 16     | 64    | 27   | 3      | 3     | 6     | 13     | 1     | 13    |
| Future Vol, veh/h        | 16     | 67    | 7    | 16     | 64    | 27   | 3      | 3     | 6     | 13     | 1     | 13    |
| Conflicting Peds, #/hr   | 0      | 0     | 0    | 0      | 0     | 0    | 0      | 0     | 0     | 0      | 0     | 0     |
| Sign Control             | Free   | Free  | Free | Free   | Free  | Free | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -      | -     | None | -      | -     | None | -      | -     | None  | -      | -     | None  |
| Storage Length           | -      | -     | -    | -      | -     | -    | -      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -      | 0     | -    | -      | 0     | -    | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -      | 0     | -    | -      | 0     | -    | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 90     | 90    | 90   | 90     | 90    | 90   | 90     | 90    | 90    | 90     | 90    | 90    |
| Heavy Vehicles, %        | 2      | 2     | 2    | 2      | 2     | 2    | 2      | 2     | 2     | 2      | 2     | 2     |
| Mvmt Flow                | 18     | 74    | 8    | 18     | 71    | 30   | 3      | 3     | 7     | 14     | 1     | 14    |
| Major/Minor              | Major1 |       |      | Major2 |       |      | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 101    | 0     | 0    | 82     | 0     | 0    | 221    | 251   | 78    | 233    | 239   | 86    |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 114    | 114   | -     | 122    | 122   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 107    | 137   | -     | 112    | 118   | -     |
| Critical Hdwy            | 4.12   | -     | -    | 4.12   | -     | -    | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -      | -     | -    | -      | -     | -    | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -      | -     | -    | -      | -     | -    | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218  | -     | -    | 2.218  | -     | -    | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1491   | -     | -    | 1515   | -     | -    | 735    | 652   | 982   | 721    | 662   | 973   |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 891    | 801   | -     | 883    | 795   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 898    | 783   | -     | 893    | 798   | -     |
| Platoon blocked, %       | -      | -     | -    | -      | -     | -    | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver       | 1491   | -     | -    | 1515   | -     | -    | 705    | 636   | 982   | 695    | 645   | 973   |
| Mov Cap-2 Maneuver       | -      | -     | -    | -      | -     | -    | 705    | 636   | -     | 695    | 645   | -     |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 880    | 791   | -     | 872    | 785   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 873    | 774   | -     | 873    | 788   | -     |
| Approach                 | EB     |       |      | WB     |       |      | NB     |       |       | SB     |       |       |
| HCM Ctrl Dly, s/v        | 1.32   |       |      | 1.11   |       |      | 9.6    |       |       | 9.66   |       |       |
| HCM LOS                  |        |       |      |        |       |      | A      |       |       | A      |       |       |
| Minor Lane/Major Mvmt    | NBLn1  | EBL   | EBT  | EBR    | WBL   | WBT  | WBR    | SBLn1 |       |        |       |       |
| Capacity (veh/h)         | 796    | 314   | -    | -      | 254   | -    | -      | 803   |       |        |       |       |
| HCM Lane V/C Ratio       | 0.017  | 0.012 | -    | -      | 0.012 | -    | -      | 0.037 |       |        |       |       |
| HCM Ctrl Dly (s/v)       | 9.6    | 7.4   | 0    | -      | 7.4   | 0    | -      | 9.7   |       |        |       |       |
| HCM Lane LOS             | A      | A     | A    | -      | A     | A    | -      | A     |       |        |       |       |
| HCM 95th %tile Q(veh)    | 0.1    | 0     | -    | -      | 0     | -    | -      | 0.1   |       |        |       |       |



## 4: Highland Dr &amp; Simpson Ave



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 20   | 80   | 13   | 48   | 30   | 368  | 32   | 266  |
| v/c Ratio               | 0.13 | 0.37 | 0.09 | 0.24 | 0.03 | 0.26 | 0.04 | 0.19 |
| Control Delay (s/veh)   | 24.8 | 16.0 | 23.6 | 13.4 | 2.8  | 3.3  | 2.9  | 2.9  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 24.8 | 16.0 | 23.6 | 13.4 | 2.8  | 3.3  | 2.9  | 2.9  |
| Queue Length 50th (ft)  | 6    | 8    | 4    | 3    | 2    | 30   | 2    | 19   |
| Queue Length 95th (ft)  | 23   | 40   | 17   | 27   | 9    | 67   | 9    | 46   |
| Internal Link Dist (ft) |      | 135  |      | 226  |      | 265  |      | 267  |
| Turn Bay Length (ft)    | 65   |      | 75   |      | 100  |      | 50   |      |
| Base Capacity (vph)     | 625  | 732  | 625  | 707  | 862  | 1434 | 786  | 1418 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.03 | 0.11 | 0.02 | 0.07 | 0.03 | 0.26 | 0.04 | 0.19 |

## Intersection Summary

# HCM 7th Signalized Intersection Summary 4: Highland Dr & Simpson Ave

2028 Plus Project

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 18                                                                                | 22                                                                                | 50                                                                                | 12                                                                                | 7                                                                                 | 36                                                                                | 27                                                                                  | 302                                                                                 | 29                                                                                  | 29                                                                                  | 200                                                                                 | 40                                                                                  |
| Future Volume (veh/h)        | 18                                                                                | 22                                                                                | 50                                                                                | 12                                                                                | 7                                                                                 | 36                                                                                | 27                                                                                  | 302                                                                                 | 29                                                                                  | 29                                                                                  | 200                                                                                 | 40                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 20                                                                                | 24                                                                                | 56                                                                                | 13                                                                                | 8                                                                                 | 40                                                                                | 30                                                                                  | 336                                                                                 | 32                                                                                  | 32                                                                                  | 222                                                                                 | 44                                                                                  |
| Peak Hour Factor             | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 212                                                                               | 43                                                                                | 101                                                                               | 185                                                                               | 23                                                                                | 117                                                                               | 886                                                                                 | 1219                                                                                | 116                                                                                 | 797                                                                                 | 1099                                                                                | 218                                                                                 |
| Arrive On Green              | 0.09                                                                              | 0.09                                                                              | 0.09                                                                              | 0.09                                                                              | 0.09                                                                              | 0.09                                                                              | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                | 0.72                                                                                |
| Sat Flow, veh/h              | 1357                                                                              | 498                                                                               | 1163                                                                              | 1319                                                                              | 271                                                                               | 1355                                                                              | 1113                                                                                | 1681                                                                                | 160                                                                                 | 1014                                                                                | 1516                                                                                | 300                                                                                 |
| Grp Volume(v), veh/h         | 20                                                                                | 0                                                                                 | 80                                                                                | 13                                                                                | 0                                                                                 | 48                                                                                | 30                                                                                  | 0                                                                                   | 368                                                                                 | 32                                                                                  | 0                                                                                   | 266                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1357                                                                              | 0                                                                                 | 1661                                                                              | 1319                                                                              | 0                                                                                 | 1626                                                                              | 1113                                                                                | 0                                                                                   | 1842                                                                                | 1014                                                                                | 0                                                                                   | 1816                                                                                |
| Q Serve(g_s), s              | 0.8                                                                               | 0.0                                                                               | 2.5                                                                               | 0.5                                                                               | 0.0                                                                               | 1.5                                                                               | 0.5                                                                                 | 0.0                                                                                 | 3.8                                                                                 | 0.6                                                                                 | 0.0                                                                                 | 2.6                                                                                 |
| Cycle Q Clear(g_c), s        | 2.3                                                                               | 0.0                                                                               | 2.5                                                                               | 3.0                                                                               | 0.0                                                                               | 1.5                                                                               | 3.1                                                                                 | 0.0                                                                                 | 3.8                                                                                 | 4.4                                                                                 | 0.0                                                                                 | 2.6                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.70                                                                              | 1.00                                                                              |                                                                                   | 0.83                                                                              | 1.00                                                                                |                                                                                     | 0.09                                                                                | 1.00                                                                                |                                                                                     | 0.17                                                                                |
| Lane Grp Cap(c), veh/h       | 212                                                                               | 0                                                                                 | 144                                                                               | 185                                                                               | 0                                                                                 | 141                                                                               | 886                                                                                 | 0                                                                                   | 1335                                                                                | 797                                                                                 | 0                                                                                   | 1317                                                                                |
| V/C Ratio(X)                 | 0.09                                                                              | 0.00                                                                              | 0.56                                                                              | 0.07                                                                              | 0.00                                                                              | 0.34                                                                              | 0.03                                                                                | 0.00                                                                                | 0.28                                                                                | 0.04                                                                                | 0.00                                                                                | 0.20                                                                                |
| Avail Cap(c_a), veh/h        | 718                                                                               | 0                                                                                 | 763                                                                               | 677                                                                               | 0                                                                                 | 747                                                                               | 886                                                                                 | 0                                                                                   | 1335                                                                                | 797                                                                                 | 0                                                                                   | 1317                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 24.6                                                                              | 0.0                                                                               | 23.9                                                                              | 25.4                                                                              | 0.0                                                                               | 23.5                                                                              | 2.9                                                                                 | 0.0                                                                                 | 2.6                                                                                 | 3.3                                                                                 | 0.0                                                                                 | 2.4                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.0                                                                               | 1.2                                                                               | 0.1                                                                               | 0.0                                                                               | 0.5                                                                               | 0.1                                                                                 | 0.0                                                                                 | 0.5                                                                                 | 0.1                                                                                 | 0.0                                                                                 | 0.3                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.2                                                                               | 0.0                                                                               | 1.0                                                                               | 0.2                                                                               | 0.0                                                                               | 0.6                                                                               | 0.1                                                                                 | 0.0                                                                                 | 0.8                                                                                 | 0.1                                                                                 | 0.0                                                                                 | 0.5                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 24.6                                                                              | 0.0                                                                               | 25.2                                                                              | 25.5                                                                              | 0.0                                                                               | 24.0                                                                              | 3.0                                                                                 | 0.0                                                                                 | 3.1                                                                                 | 3.4                                                                                 | 0.0                                                                                 | 2.8                                                                                 |
| LnGrp LOS                    | C                                                                                 |                                                                                   | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | A                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     | A                                                                                   |
| Approach Vol, veh/h          | 100                                                                               |                                                                                   |                                                                                   | 61                                                                                |                                                                                   |                                                                                   | 398                                                                                 |                                                                                     |                                                                                     | 298                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 25.1                                                                              |                                                                                   |                                                                                   | 24.3                                                                              |                                                                                   |                                                                                   | 3.1                                                                                 |                                                                                     |                                                                                     | 2.8                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 9.6                                                                               |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 9.6                                                                                 |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.4                                                                               |                                                                                   |                                                                                   | 4.9                                                                               |                                                                                   |                                                                                   | 5.4                                                                                 |                                                                                     |                                                                                     | 4.9                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.6                                                                              |                                                                                   |                                                                                   | 25.1                                                                              |                                                                                   |                                                                                   | 39.6                                                                                |                                                                                     |                                                                                     | 25.1                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 5.8                                                                               |                                                                                   |                                                                                   | 4.5                                                                               |                                                                                   |                                                                                   | 6.4                                                                                 |                                                                                     |                                                                                     | 5.0                                                                                 |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 1.6                                                                               |                                                                                   |                                                                                   | 0.3                                                                               |                                                                                   |                                                                                   | 1.2                                                                                 |                                                                                     |                                                                                     | 0.1                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 7.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 1.2       |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↑      | ↘    |      |
| Traffic Vol, veh/h       | 0         | 83     | 0    | 344    | 201  | 60   |
| Future Vol, veh/h        | 0         | 83     | 0    | 344    | 201  | 60   |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | -    |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 90        | 90     | 90   | 90     | 90   | 90   |
| Heavy Vehicles, %        | 2         | 2      | 2    | 2      | 2    | 2    |
| Mvmt Flow                | 0         | 92     | 0    | 382    | 223  | 67   |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 257    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 6.22   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 3.318  | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 782    | 0    | -      | -    | -    |
| Stage 1                  | 0         | -      | 0    | -      | -    | -    |
| Stage 2                  | 0         | -      | 0    | -      | -    | -    |
| Platoon blocked, %       | -         | -      | -    | -      | -    | -    |
| Mov Cap-1 Maneuver       | -         | 782    | -    | -      | -    | -    |
| Mov Cap-2 Maneuver       | -         | -      | -    | -      | -    | -    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Approach                 | EB        | NB     |      | SB     |      |      |
| HCM Ctrl Dly, s/v        | 10.22     | 0      |      | 0      |      |      |
| HCM LOS                  | B         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | - 782     |        | -    | -      |      |      |
| HCM Lane V/C Ratio       | - 0.118   |        | -    | -      |      |      |
| HCM Ctrl Dly (s/v)       | - 10.2    |        | -    | -      |      |      |
| HCM Lane LOS             | - B       |        | -    | -      |      |      |
| HCM 95th %tile Q(veh)    | - 0.4     |        | -    | -      |      |      |

HCM 7th TWSC  
6: Highland Dr & South Driveway

2028 Plus Project

| Intersection             |                                                                                   |        |        |                                                                                   |                                                                                   |      |
|--------------------------|-----------------------------------------------------------------------------------|--------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 0.1                                                                               |        |        |                                                                                   |                                                                                   |      |
| Movement                 | EBL                                                                               | EBR    | NBL    | NBT                                                                               | SBT                                                                               | SBR  |
| Lane Configurations      |  |        |        |  |  |      |
| Traffic Vol, veh/h       | 3                                                                                 | 2      | 0      | 341                                                                               | 284                                                                               | 0    |
| Future Vol, veh/h        | 3                                                                                 | 2      | 0      | 341                                                                               | 284                                                                               | 0    |
| Conflicting Peds, #/hr   | 0                                                                                 | 0      | 0      | 0                                                                                 | 0                                                                                 | 0    |
| Sign Control             | Stop                                                                              | Stop   | Free   | Free                                                                              | Free                                                                              | Free |
| RT Channelized           | -                                                                                 | None   | -      | None                                                                              | -                                                                                 | None |
| Storage Length           | 0                                                                                 | -      | -      | -                                                                                 | -                                                                                 | -    |
| Veh in Median Storage, # | 0                                                                                 | -      | -      | 0                                                                                 | 0                                                                                 | -    |
| Grade, %                 | 0                                                                                 | -      | -      | 0                                                                                 | 0                                                                                 | -    |
| Peak Hour Factor         | 90                                                                                | 90     | 90     | 90                                                                                | 90                                                                                | 90   |
| Heavy Vehicles, %        | 2                                                                                 | 2      | 2      | 2                                                                                 | 2                                                                                 | 2    |
| Mvmt Flow                | 3                                                                                 | 2      | 0      | 379                                                                               | 316                                                                               | 0    |
| Major/Minor              | Minor2                                                                            | Major1 | Major2 |                                                                                   |                                                                                   |      |
| Conflicting Flow All     | 694                                                                               | 316    | -      | 0                                                                                 | -                                                                                 | 0    |
| Stage 1                  | 316                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Stage 2                  | 379                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy            | 6.42                                                                              | 6.22   | -      | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy Stg 1      | 5.42                                                                              | -      | -      | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy Stg 2      | 5.42                                                                              | -      | -      | -                                                                                 | -                                                                                 | -    |
| Follow-up Hdwy           | 3.518                                                                             | 3.318  | -      | -                                                                                 | -                                                                                 | -    |
| Pot Cap-1 Maneuver       | 409                                                                               | 725    | 0      | -                                                                                 | -                                                                                 | -    |
| Stage 1                  | 739                                                                               | -      | 0      | -                                                                                 | -                                                                                 | -    |
| Stage 2                  | 692                                                                               | -      | 0      | -                                                                                 | -                                                                                 | -    |
| Platoon blocked, %       |                                                                                   |        |        | -                                                                                 | -                                                                                 | -    |
| Mov Cap-1 Maneuver       | 409                                                                               | 725    | -      | -                                                                                 | -                                                                                 | -    |
| Mov Cap-2 Maneuver       | 512                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Stage 1                  | 739                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Stage 2                  | 692                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Approach                 | EB                                                                                | NB     | SB     |                                                                                   |                                                                                   |      |
| HCM Ctrl Dly, s/v        | 11.26                                                                             | 0      | 0      |                                                                                   |                                                                                   |      |
| HCM LOS                  | B                                                                                 |        |        |                                                                                   |                                                                                   |      |
| Minor Lane/Major Mvmt    | NBT                                                                               | EBLn1  | SBT    | SBR                                                                               |                                                                                   |      |
| Capacity (veh/h)         | -                                                                                 | 580    | -      | -                                                                                 |                                                                                   |      |
| HCM Lane V/C Ratio       | -                                                                                 | 0.01   | -      | -                                                                                 |                                                                                   |      |
| HCM Ctrl Dly (s/v)       | -                                                                                 | 11.3   | -      | -                                                                                 |                                                                                   |      |
| HCM Lane LOS             | -                                                                                 | B      | -      | -                                                                                 |                                                                                   |      |
| HCM 95th %tile Q(veh)    | -                                                                                 | 0      | -      | -                                                                                 |                                                                                   |      |

## 1: Highland Dr/1100 E &amp; 2100 S



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL   | NBT  | NBR  | SBL   | SBT  |
|-------------------------|------|------|------|------|-------|------|------|-------|------|
| Lane Group Flow (vph)   | 96   | 591  | 115  | 498  | 156   | 319  | 155  | 169   | 412  |
| v/c Ratio               | 0.70 | 0.42 | 0.76 | 0.34 | 0.86  | 0.66 | 0.33 | 0.90  | 0.86 |
| Control Delay (s/veh)   | 93.0 | 30.6 | 96.6 | 29.4 | 102.6 | 55.0 | 22.7 | 109.3 | 68.1 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  |
| Total Delay (s/veh)     | 93.0 | 30.6 | 96.6 | 29.4 | 102.6 | 55.0 | 22.7 | 109.3 | 68.1 |
| Queue Length 50th (ft)  | 94   | 201  | 112  | 164  | 153   | 279  | 58   | 168   | 379  |
| Queue Length 95th (ft)  | 166  | 288  | #207 | 243  | #315  | 389  | 123  | #348  | 519  |
| Internal Link Dist (ft) |      | 242  |      | 444  |       | 677  |      |       | 301  |
| Turn Bay Length (ft)    | 200  |      | 290  |      | 90    |      | 90   | 95    |      |
| Base Capacity (vph)     | 187  | 1416 | 187  | 1445 | 187   | 638  | 594  | 187   | 623  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0     | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0     | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0     | 0    |
| Reduced v/c Ratio       | 0.51 | 0.42 | 0.61 | 0.34 | 0.83  | 0.50 | 0.26 | 0.90  | 0.66 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 7th Signalized Intersection Summary

## 1: Highland Dr/1100 E & 2100 S

2028 Plus Project

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 94                                                                                | 405                                                                               | 174                                                                               | 113                                                                               | 369                                                                               | 119                                                                               | 153                                                                                 | 313                                                                                 | 152                                                                                 | 166                                                                                 | 320                                                                                 | 83                                                                                  |
| Future Volume (veh/h)        | 94                                                                                | 405                                                                               | 174                                                                               | 113                                                                               | 369                                                                               | 119                                                                               | 153                                                                                 | 313                                                                                 | 152                                                                                 | 166                                                                                 | 320                                                                                 | 83                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 96                                                                                | 413                                                                               | 178                                                                               | 115                                                                               | 377                                                                               | 121                                                                               | 156                                                                                 | 319                                                                                 | 155                                                                                 | 169                                                                                 | 327                                                                                 | 85                                                                                  |
| Peak Hour Factor             | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 118                                                                               | 1028                                                                              | 438                                                                               | 138                                                                               | 1154                                                                              | 366                                                                               | 179                                                                                 | 468                                                                                 | 397                                                                                 | 192                                                                                 | 368                                                                                 | 96                                                                                  |
| Arrive On Green              | 0.07                                                                              | 0.42                                                                              | 0.42                                                                              | 0.08                                                                              | 0.43                                                                              | 0.43                                                                              | 0.10                                                                                | 0.25                                                                                | 0.25                                                                                | 0.11                                                                                | 0.26                                                                                | 0.26                                                                                |
| Sat Flow, veh/h              | 1781                                                                              | 2427                                                                              | 1034                                                                              | 1781                                                                              | 2655                                                                              | 841                                                                               | 1781                                                                                | 1870                                                                                | 1585                                                                                | 1781                                                                                | 1431                                                                                | 372                                                                                 |
| Grp Volume(v), veh/h         | 96                                                                                | 301                                                                               | 290                                                                               | 115                                                                               | 251                                                                               | 247                                                                               | 156                                                                                 | 319                                                                                 | 155                                                                                 | 169                                                                                 | 0                                                                                   | 412                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 1777                                                                              | 1684                                                                              | 1781                                                                              | 1777                                                                              | 1719                                                                              | 1781                                                                                | 1870                                                                                | 1585                                                                                | 1781                                                                                | 0                                                                                   | 1803                                                                                |
| Q Serve(g_s), s              | 7.5                                                                               | 16.6                                                                              | 16.9                                                                              | 9.0                                                                               | 13.1                                                                              | 13.4                                                                              | 12.2                                                                                | 21.7                                                                                | 11.4                                                                                | 13.2                                                                                | 0.0                                                                                 | 31.0                                                                                |
| Cycle Q Clear(g_c), s        | 7.5                                                                               | 16.6                                                                              | 16.9                                                                              | 9.0                                                                               | 13.1                                                                              | 13.4                                                                              | 12.2                                                                                | 21.7                                                                                | 11.4                                                                                | 13.2                                                                                | 0.0                                                                                 | 31.0                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.61                                                                              | 1.00                                                                              |                                                                                   | 0.49                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.21                                                                                |
| Lane Grp Cap(c), veh/h       | 118                                                                               | 752                                                                               | 713                                                                               | 138                                                                               | 772                                                                               | 747                                                                               | 179                                                                                 | 468                                                                                 | 397                                                                                 | 192                                                                                 | 0                                                                                   | 464                                                                                 |
| V/C Ratio(X)                 | 0.82                                                                              | 0.40                                                                              | 0.41                                                                              | 0.84                                                                              | 0.32                                                                              | 0.33                                                                              | 0.87                                                                                | 0.68                                                                                | 0.39                                                                                | 0.88                                                                                | 0.00                                                                                | 0.89                                                                                |
| Avail Cap(c_a), veh/h        | 195                                                                               | 752                                                                               | 713                                                                               | 195                                                                               | 772                                                                               | 747                                                                               | 195                                                                                 | 660                                                                                 | 560                                                                                 | 195                                                                                 | 0                                                                                   | 637                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 64.9                                                                              | 28.2                                                                              | 28.3                                                                              | 64.1                                                                              | 26.2                                                                              | 26.3                                                                              | 62.4                                                                                | 47.7                                                                                | 43.8                                                                                | 61.9                                                                                | 0.0                                                                                 | 50.3                                                                                |
| Incr Delay (d2), s/veh       | 5.1                                                                               | 1.6                                                                               | 1.7                                                                               | 13.8                                                                              | 0.1                                                                               | 0.1                                                                               | 29.8                                                                                | 1.8                                                                                 | 0.6                                                                                 | 33.3                                                                                | 0.0                                                                                 | 12.5                                                                                |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 3.6                                                                               | 7.5                                                                               | 7.2                                                                               | 4.6                                                                               | 5.6                                                                               | 5.6                                                                               | 7.0                                                                                 | 10.4                                                                                | 4.6                                                                                 | 7.8                                                                                 | 0.0                                                                                 | 15.6                                                                                |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 70.0                                                                              | 29.8                                                                              | 30.0                                                                              | 77.9                                                                              | 26.3                                                                              | 26.4                                                                              | 92.2                                                                                | 49.4                                                                                | 44.5                                                                                | 95.3                                                                                | 0.0                                                                                 | 62.8                                                                                |
| LnGrp LOS                    | E                                                                                 | C                                                                                 | C                                                                                 | E                                                                                 | C                                                                                 | C                                                                                 | F                                                                                   | D                                                                                   | D                                                                                   | F                                                                                   |                                                                                     | E                                                                                   |
| Approach Vol, veh/h          | 687                                                                               |                                                                                   |                                                                                   | 613                                                                               |                                                                                   |                                                                                   | 630                                                                                 |                                                                                     |                                                                                     | 581                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 35.5                                                                              |                                                                                   |                                                                                   | 36.0                                                                              |                                                                                   |                                                                                   | 58.8                                                                                |                                                                                     |                                                                                     | 72.3                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | E                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 15.5                                                                              | 65.0                                                                              | 18.8                                                                              | 41.5                                                                              | 13.9                                                                              | 66.6                                                                              | 19.8                                                                                | 40.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.6                                                                               | 5.4                                                                               | 4.6                                                                               | 5.3                                                                               | 4.6                                                                               | 5.4                                                                               | 4.6                                                                                 | 5.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 15.4                                                                              | 59.6                                                                              | 15.4                                                                              | 49.7                                                                              | 15.4                                                                              | 59.6                                                                              | 15.4                                                                                | 49.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 11.0                                                                              | 18.9                                                                              | 14.2                                                                              | 33.0                                                                              | 9.5                                                                               | 15.4                                                                              | 15.2                                                                                | 23.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.9                                                                               | 0.0                                                                               | 3.3                                                                               | 0.0                                                                               | 1.6                                                                               | 0.0                                                                                 | 2.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 50.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



## 2: Highland Dr/Highland Dr &amp; Wilmington Ave



| Lane Group              | EBL  | EBT  | EBR  | WBL  | WBT  | NBL  | NBT  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 18   | 49   | 33   | 160  | 152  | 72   | 624  | 568  |
| v/c Ratio               | 0.08 | 0.14 | 0.10 | 0.65 | 0.39 | 0.13 | 0.53 | 0.61 |
| Control Delay (s/veh)   | 20.5 | 21.1 | 8.7  | 35.8 | 11.7 | 6.1  | 8.3  | 10.8 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.1  | 0.0  |
| Total Delay (s/veh)     | 20.5 | 21.1 | 8.7  | 35.8 | 11.7 | 6.1  | 8.4  | 10.8 |
| Queue Length 50th (ft)  | 6    | 16   | 0    | 57   | 17   | 9    | 99   | 104  |
| Queue Length 95th (ft)  | 20   | 40   | 19   | 111  | 59   | 30   | 229  | 257  |
| Internal Link Dist (ft) |      | 248  |      |      | 208  |      | 10   | 677  |
| Turn Bay Length (ft)    | 200  |      | 180  | 50   |      | 75   |      |      |
| Base Capacity (vph)     | 474  | 719  | 631  | 520  | 708  | 561  | 1183 | 938  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 64   | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.04 | 0.07 | 0.05 | 0.31 | 0.21 | 0.13 | 0.56 | 0.61 |

## Intersection Summary

## HCM 7th Signalized Intersection Summary 2: Highland Dr/Highland Dr & Wilmington Ave

2028 Plus Project

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |                                                                                   |  |  |                                                                                     |                                                                                     |  |                                                                                     |
| Traffic Volume (veh/h)       | 17                                                                                | 48                                                                                | 32                                                                                | 155                                                                               | 50                                                                                | 97                                                                                | 70                                                                                  | 441                                                                                 | 164                                                                                 | 111                                                                                 | 400                                                                                 | 41                                                                                  |
| Future Volume (veh/h)        | 17                                                                                | 48                                                                                | 32                                                                                | 155                                                                               | 50                                                                                | 97                                                                                | 70                                                                                  | 441                                                                                 | 164                                                                                 | 111                                                                                 | 400                                                                                 | 41                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 18                                                                                | 49                                                                                | 33                                                                                | 160                                                                               | 52                                                                                | 100                                                                               | 72                                                                                  | 455                                                                                 | 169                                                                                 | 114                                                                                 | 412                                                                                 | 42                                                                                  |
| Peak Hour Factor             | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 242                                                                               | 341                                                                               | 289                                                                               | 329                                                                               | 104                                                                               | 201                                                                               | 630                                                                                 | 842                                                                                 | 313                                                                                 | 205                                                                                 | 705                                                                                 | 67                                                                                  |
| Arrive On Green              | 0.18                                                                              | 0.18                                                                              | 0.18                                                                              | 0.18                                                                              | 0.18                                                                              | 0.18                                                                              | 0.65                                                                                | 0.65                                                                                | 0.65                                                                                | 0.65                                                                                | 0.65                                                                                | 0.65                                                                                |
| Sat Flow, veh/h              | 1235                                                                              | 1870                                                                              | 1585                                                                              | 1316                                                                              | 572                                                                               | 1100                                                                              | 937                                                                                 | 1300                                                                                | 483                                                                                 | 207                                                                                 | 1088                                                                                | 103                                                                                 |
| Grp Volume(v), veh/h         | 18                                                                                | 49                                                                                | 33                                                                                | 160                                                                               | 0                                                                                 | 152                                                                               | 72                                                                                  | 0                                                                                   | 624                                                                                 | 568                                                                                 | 0                                                                                   | 0                                                                                   |
| Grp Sat Flow(s),veh/h/ln     | 1235                                                                              | 1870                                                                              | 1585                                                                              | 1316                                                                              | 0                                                                                 | 1672                                                                              | 937                                                                                 | 0                                                                                   | 1783                                                                                | 1399                                                                                | 0                                                                                   | 0                                                                                   |
| Q Serve(g_s), s              | 0.8                                                                               | 1.3                                                                               | 1.1                                                                               | 7.1                                                                               | 0.0                                                                               | 5.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 11.6                                                                                | 4.8                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Cycle Q Clear(g_c), s        | 5.8                                                                               | 1.3                                                                               | 1.1                                                                               | 8.5                                                                               | 0.0                                                                               | 5.0                                                                               | 3.0                                                                                 | 0.0                                                                                 | 11.6                                                                                | 16.5                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.66                                                                              | 1.00                                                                                |                                                                                     | 0.27                                                                                | 0.20                                                                                |                                                                                     | 0.07                                                                                |
| Lane Grp Cap(c), veh/h       | 242                                                                               | 341                                                                               | 289                                                                               | 329                                                                               | 0                                                                                 | 305                                                                               | 630                                                                                 | 0                                                                                   | 1155                                                                                | 977                                                                                 | 0                                                                                   | 0                                                                                   |
| V/C Ratio(X)                 | 0.07                                                                              | 0.14                                                                              | 0.11                                                                              | 0.49                                                                              | 0.00                                                                              | 0.50                                                                              | 0.11                                                                                | 0.00                                                                                | 0.54                                                                                | 0.58                                                                                | 0.00                                                                                | 0.00                                                                                |
| Avail Cap(c_a), veh/h        | 518                                                                               | 760                                                                               | 644                                                                               | 623                                                                               | 0                                                                                 | 680                                                                               | 630                                                                                 | 0                                                                                   | 1155                                                                                | 977                                                                                 | 0                                                                                   | 0                                                                                   |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 0.00                                                                                |
| Uniform Delay (d), s/veh     | 25.1                                                                              | 21.0                                                                              | 20.9                                                                              | 24.6                                                                              | 0.0                                                                               | 22.5                                                                              | 4.3                                                                                 | 0.0                                                                                 | 5.8                                                                                 | 6.1                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Incr Delay (d2), s/veh       | 0.0                                                                               | 0.1                                                                               | 0.1                                                                               | 0.4                                                                               | 0.0                                                                               | 0.5                                                                               | 0.4                                                                                 | 0.0                                                                                 | 1.8                                                                                 | 2.5                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.2                                                                               | 0.6                                                                               | 0.4                                                                               | 2.1                                                                               | 0.0                                                                               | 1.9                                                                               | 0.3                                                                                 | 0.0                                                                                 | 3.6                                                                                 | 3.2                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 25.2                                                                              | 21.1                                                                              | 21.0                                                                              | 25.0                                                                              | 0.0                                                                               | 23.0                                                                              | 4.7                                                                                 | 0.0                                                                                 | 7.7                                                                                 | 8.6                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | A                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     |                                                                                     |
| Approach Vol, veh/h          | 100                                                                               |                                                                                   |                                                                                   | 312                                                                               |                                                                                   |                                                                                   | 696                                                                                 |                                                                                     |                                                                                     | 568                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 21.8                                                                              |                                                                                   |                                                                                   | 24.0                                                                              |                                                                                   |                                                                                   | 7.4                                                                                 |                                                                                     |                                                                                     | 8.6                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 16.3                                                                              |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 16.3                                                                                |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.3                                                                               |                                                                                   |                                                                                   | 5.1                                                                               |                                                                                   |                                                                                   | 5.3                                                                                 |                                                                                     |                                                                                     | 5.1                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.7                                                                              |                                                                                   |                                                                                   | 24.9                                                                              |                                                                                   |                                                                                   | 39.7                                                                                |                                                                                     |                                                                                     | 24.9                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 13.6                                                                              |                                                                                   |                                                                                   | 7.8                                                                               |                                                                                   |                                                                                   | 18.5                                                                                |                                                                                     |                                                                                     | 10.5                                                                                |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 2.4                                                                               |                                                                                   |                                                                                   | 0.2                                                                               |                                                                                   |                                                                                   | 2.3                                                                                 |                                                                                     |                                                                                     | 0.7                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 11.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 4.4  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↔    |      |      | ↔    |      |      | ↔    |      |      | ↔    |      |
| Traffic Vol, veh/h       | 48   | 178  | 21   | 21   | 210  | 69   | 35   | 9    | 31   | 50   | 7    | 53   |
| Future Vol, veh/h        | 48   | 178  | 21   | 21   | 210  | 69   | 35   | 9    | 31   | 50   | 7    | 53   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 51   | 187  | 22   | 22   | 221  | 73   | 37   | 9    | 33   | 53   | 7    | 56   |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |       |       | Minor2 |       |       |
|----------------------|--------|---|---|--------|---|---|--------|-------|-------|--------|-------|-------|
| Conflicting Flow All | 294    | 0 | 0 | 209    | 0 | 0 | 568    | 637   | 198   | 595    | 612   | 257   |
| Stage 1              | -      | - | - | -      | - | - | 299    | 299   | -     | 302    | 302   | -     |
| Stage 2              | -      | - | - | -      | - | - | 269    | 338   | -     | 293    | 311   | -     |
| Critical Hdwy        | 4.12   | - | - | 4.12   | - | - | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy       | 2.218  | - | - | 2.218  | - | - | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver   | 1268   | - | - | 1361   | - | - | 433    | 395   | 843   | 416    | 408   | 781   |
| Stage 1              | -      | - | - | -      | - | - | 709    | 666   | -     | 708    | 665   | -     |
| Stage 2              | -      | - | - | -      | - | - | 737    | 641   | -     | 715    | 659   | -     |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver   | 1268   | - | - | 1361   | - | - | 370    | 370   | 843   | 365    | 382   | 781   |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 370    | 370   | -     | 365    | 382   | -     |
| Stage 1              | -      | - | - | -      | - | - | 677    | 636   | -     | 694    | 652   | -     |
| Stage 2              | -      | - | - | -      | - | - | 663    | 628   | -     | 646    | 629   | -     |

| Approach          | EB   | WB   | NB    | SB    |
|-------------------|------|------|-------|-------|
| HCM Ctrl Dly, s/v | 1.55 | 0.54 | 13.94 | 14.52 |
| HCM LOS           |      |      | B     | B     |

| Minor Lane/Major Mvmt | NBLn1 | EBL  | EBT | EBR | WBL   | WBT | WBR | SBLn1 |
|-----------------------|-------|------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h)      | 481   | 343  | -   | -   | 120   | -   | -   | 493   |
| HCM Lane V/C Ratio    | 0.164 | 0.04 | -   | -   | 0.016 | -   | -   | 0.235 |
| HCM Ctrl Dly (s/v)    | 13.9  | 8    | 0   | -   | 7.7   | 0   | -   | 14.5  |
| HCM Lane LOS          | B     | A    | A   | -   | A     | A   | -   | B     |
| HCM 95th %tile Q(veh) | 0.6   | 0.1  | -   | -   | 0     | -   | -   | 0.9   |

## 4: Highland Dr &amp; Simpson Ave



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 85   | 182  | 75   | 185  | 112  | 610  | 101  | 420  |
| v/c Ratio               | 0.54 | 0.52 | 0.47 | 0.52 | 0.17 | 0.49 | 0.21 | 0.34 |
| Control Delay (s/veh)   | 36.1 | 14.8 | 32.6 | 14.2 | 5.0  | 6.7  | 5.7  | 5.3  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 36.1 | 14.8 | 32.6 | 14.2 | 5.0  | 6.7  | 5.7  | 5.3  |
| Queue Length 50th (ft)  | 29   | 20   | 25   | 19   | 12   | 81   | 11   | 48   |
| Queue Length 95th (ft)  | 67   | 68   | 60   | 67   | 35   | 183  | 35   | 110  |
| Internal Link Dist (ft) |      | 135  |      | 226  |      | 265  |      | 267  |
| Turn Bay Length (ft)    | 65   |      | 75   |      | 100  |      | 50   |      |
| Base Capacity (vph)     | 448  | 775  | 456  | 776  | 648  | 1250 | 490  | 1253 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.19 | 0.23 | 0.16 | 0.24 | 0.17 | 0.49 | 0.21 | 0.34 |

## Intersection Summary

# HCM 7th Signalized Intersection Summary

## 4: Highland Dr & Simpson Ave

2028 Plus Project

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 81                                                                                | 59                                                                                | 114                                                                               | 71                                                                                | 55                                                                                | 121                                                                               | 106                                                                                 | 517                                                                                 | 63                                                                                  | 96                                                                                  | 366                                                                                 | 33                                                                                  |
| Future Volume (veh/h)        | 81                                                                                | 59                                                                                | 114                                                                               | 71                                                                                | 55                                                                                | 121                                                                               | 106                                                                                 | 517                                                                                 | 63                                                                                  | 96                                                                                  | 366                                                                                 | 33                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 85                                                                                | 62                                                                                | 120                                                                               | 75                                                                                | 58                                                                                | 127                                                                               | 112                                                                                 | 544                                                                                 | 66                                                                                  | 101                                                                                 | 385                                                                                 | 35                                                                                  |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 247                                                                               | 119                                                                               | 231                                                                               | 250                                                                               | 109                                                                               | 239                                                                               | 614                                                                                 | 1026                                                                                | 125                                                                                 | 472                                                                                 | 1060                                                                                | 96                                                                                  |
| Arrive On Green              | 0.21                                                                              | 0.21                                                                              | 0.21                                                                              | 0.21                                                                              | 0.21                                                                              | 0.21                                                                              | 0.63                                                                                | 0.63                                                                                | 0.63                                                                                | 0.63                                                                                | 0.63                                                                                | 0.63                                                                                |
| Sat Flow, veh/h              | 1199                                                                              | 570                                                                               | 1102                                                                              | 1202                                                                              | 522                                                                               | 1143                                                                              | 967                                                                                 | 1636                                                                                | 199                                                                                 | 811                                                                                 | 1689                                                                                | 154                                                                                 |
| Grp Volume(v), veh/h         | 85                                                                                | 0                                                                                 | 182                                                                               | 75                                                                                | 0                                                                                 | 185                                                                               | 112                                                                                 | 0                                                                                   | 610                                                                                 | 101                                                                                 | 0                                                                                   | 420                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1199                                                                              | 0                                                                                 | 1672                                                                              | 1202                                                                              | 0                                                                                 | 1665                                                                              | 967                                                                                 | 0                                                                                   | 1835                                                                                | 811                                                                                 | 0                                                                                   | 1843                                                                                |
| Q Serve(g_s), s              | 4.3                                                                               | 0.0                                                                               | 6.1                                                                               | 3.7                                                                               | 0.0                                                                               | 6.2                                                                               | 4.0                                                                                 | 0.0                                                                                 | 11.7                                                                                | 5.0                                                                                 | 0.0                                                                                 | 6.9                                                                                 |
| Cycle Q Clear(g_c), s        | 10.5                                                                              | 0.0                                                                               | 6.1                                                                               | 9.8                                                                               | 0.0                                                                               | 6.2                                                                               | 10.9                                                                                | 0.0                                                                                 | 11.7                                                                                | 16.7                                                                                | 0.0                                                                                 | 6.9                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.66                                                                              | 1.00                                                                              |                                                                                   | 0.69                                                                              | 1.00                                                                                |                                                                                     | 0.11                                                                                | 1.00                                                                                |                                                                                     | 0.08                                                                                |
| Lane Grp Cap(c), veh/h       | 247                                                                               | 0                                                                                 | 350                                                                               | 250                                                                               | 0                                                                                 | 349                                                                               | 614                                                                                 | 0                                                                                   | 1151                                                                                | 472                                                                                 | 0                                                                                   | 1156                                                                                |
| V/C Ratio(X)                 | 0.34                                                                              | 0.00                                                                              | 0.52                                                                              | 0.30                                                                              | 0.00                                                                              | 0.53                                                                              | 0.18                                                                                | 0.00                                                                                | 0.53                                                                                | 0.21                                                                                | 0.00                                                                                | 0.36                                                                                |
| Avail Cap(c_a), veh/h        | 472                                                                               | 0                                                                                 | 665                                                                               | 476                                                                               | 0                                                                                 | 662                                                                               | 614                                                                                 | 0                                                                                   | 1151                                                                                | 472                                                                                 | 0                                                                                   | 1156                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 26.9                                                                              | 0.0                                                                               | 22.1                                                                              | 26.5                                                                              | 0.0                                                                               | 22.2                                                                              | 8.3                                                                                 | 0.0                                                                                 | 6.6                                                                                 | 11.2                                                                                | 0.0                                                                                 | 5.7                                                                                 |
| Incr Delay (d2), s/veh       | 0.3                                                                               | 0.0                                                                               | 0.4                                                                               | 0.2                                                                               | 0.0                                                                               | 0.5                                                                               | 0.7                                                                                 | 0.0                                                                                 | 1.7                                                                                 | 1.0                                                                                 | 0.0                                                                                 | 0.9                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.2                                                                               | 0.0                                                                               | 2.3                                                                               | 1.0                                                                               | 0.0                                                                               | 2.3                                                                               | 0.8                                                                                 | 0.0                                                                                 | 3.9                                                                                 | 0.9                                                                                 | 0.0                                                                                 | 2.3                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 27.2                                                                              | 0.0                                                                               | 22.6                                                                              | 26.7                                                                              | 0.0                                                                               | 22.7                                                                              | 9.0                                                                                 | 0.0                                                                                 | 8.3                                                                                 | 12.3                                                                                | 0.0                                                                                 | 6.6                                                                                 |
| LnGrp LOS                    | C                                                                                 |                                                                                   | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | A                                                                                   |                                                                                     | A                                                                                   | B                                                                                   |                                                                                     | A                                                                                   |
| Approach Vol, veh/h          | 267                                                                               |                                                                                   |                                                                                   | 260                                                                               |                                                                                   |                                                                                   | 722                                                                                 |                                                                                     |                                                                                     | 521                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 24.0                                                                              |                                                                                   |                                                                                   | 23.8                                                                              |                                                                                   |                                                                                   | 8.4                                                                                 |                                                                                     |                                                                                     | 7.7                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 18.1                                                                              |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 18.1                                                                                |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.4                                                                               |                                                                                   |                                                                                   | 4.9                                                                               |                                                                                   |                                                                                   | 5.4                                                                                 |                                                                                     |                                                                                     | 4.9                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.6                                                                              |                                                                                   |                                                                                   | 25.1                                                                              |                                                                                   |                                                                                   | 39.6                                                                                |                                                                                     |                                                                                     | 25.1                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 13.7                                                                              |                                                                                   |                                                                                   | 12.5                                                                              |                                                                                   |                                                                                   | 18.7                                                                                |                                                                                     |                                                                                     | 11.8                                                                                |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 3.2                                                                               |                                                                                   |                                                                                   | 0.7                                                                               |                                                                                   |                                                                                   | 2.1                                                                                 |                                                                                     |                                                                                     | 0.7                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 12.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |        |        |        |      |      |      |
|--------------------------|--------|--------|--------|------|------|------|
| Int Delay, s/veh         | 0.4    |        |        |      |      |      |
| Movement                 | EBL    | EBR    | NBL    | NBT  | SBT  | SBR  |
| Lane Configurations      |        | ↗      |        | ↑    | ↘    |      |
| Traffic Vol, veh/h       | 0      | 38     | 0      | 675  | 496  | 92   |
| Future Vol, veh/h        | 0      | 38     | 0      | 675  | 496  | 92   |
| Conflicting Peds, #/hr   | 0      | 0      | 0      | 0    | 0    | 0    |
| Sign Control             | Stop   | Stop   | Free   | Free | Free | Free |
| RT Channelized           | -      | None   | -      | None | -    | None |
| Storage Length           | -      | 0      | -      | -    | -    | -    |
| Veh in Median Storage, # | 0      | -      | -      | 0    | 0    | -    |
| Grade, %                 | 0      | -      | -      | 0    | 0    | -    |
| Peak Hour Factor         | 90     | 90     | 90     | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2      | 2      | 2      | 2    | 2    | 2    |
| Mvmt Flow                | 0      | 42     | 0      | 750  | 551  | 102  |
| Major/Minor              | Minor2 | Major1 | Major2 |      |      |      |
| Conflicting Flow All     | -      | 602    | -      | 0    | -    | 0    |
| Stage 1                  | -      | -      | -      | -    | -    | -    |
| Stage 2                  | -      | -      | -      | -    | -    | -    |
| Critical Hdwy            | -      | 6.22   | -      | -    | -    | -    |
| Critical Hdwy Stg 1      | -      | -      | -      | -    | -    | -    |
| Critical Hdwy Stg 2      | -      | -      | -      | -    | -    | -    |
| Follow-up Hdwy           | -      | 3.318  | -      | -    | -    | -    |
| Pot Cap-1 Maneuver       | 0      | 499    | 0      | -    | -    | -    |
| Stage 1                  | 0      | -      | 0      | -    | -    | -    |
| Stage 2                  | 0      | -      | 0      | -    | -    | -    |
| Platoon blocked, %       | -      | -      | -      | -    | -    | -    |
| Mov Cap-1 Maneuver       | -      | 499    | -      | -    | -    | -    |
| Mov Cap-2 Maneuver       | -      | -      | -      | -    | -    | -    |
| Stage 1                  | -      | -      | -      | -    | -    | -    |
| Stage 2                  | -      | -      | -      | -    | -    | -    |
| Approach                 | EB     | NB     | SB     |      |      |      |
| HCM Ctrl Dly, s/v        | 12.87  | 0      | 0      |      |      |      |
| HCM LOS                  | B      |        |        |      |      |      |
| Minor Lane/Major Mvmt    | NBT    | EBLn1  | SBT    | SBR  |      |      |
| Capacity (veh/h)         | -      | 499    | -      | -    |      |      |
| HCM Lane V/C Ratio       | -      | 0.085  | -      | -    |      |      |
| HCM Ctrl Dly (s/v)       | -      | 12.9   | -      | -    |      |      |
| HCM Lane LOS             | -      | B      | -      | -    |      |      |
| HCM 95th %tile Q(veh)    | -      | 0.3    | -      | -    |      |      |



| Intersection             |                                                                                   |        |        |                                                                                   |                                                                                   |      |
|--------------------------|-----------------------------------------------------------------------------------|--------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 0.3                                                                               |        |        |                                                                                   |                                                                                   |      |
| Movement                 | EBL                                                                               | EBR    | NBL    | NBT                                                                               | SBT                                                                               | SBR  |
| Lane Configurations      |  |        |        |  |  |      |
| Traffic Vol, veh/h       | 9                                                                                 | 15     | 0      | 666                                                                               | 534                                                                               | 0    |
| Future Vol, veh/h        | 9                                                                                 | 15     | 0      | 666                                                                               | 534                                                                               | 0    |
| Conflicting Peds, #/hr   | 0                                                                                 | 0      | 0      | 0                                                                                 | 0                                                                                 | 0    |
| Sign Control             | Stop                                                                              | Stop   | Free   | Free                                                                              | Free                                                                              | Free |
| RT Channelized           | -                                                                                 | None   | -      | None                                                                              | -                                                                                 | None |
| Storage Length           | 0                                                                                 | -      | -      | -                                                                                 | -                                                                                 | -    |
| Veh in Median Storage, # | 0                                                                                 | -      | -      | 0                                                                                 | 0                                                                                 | -    |
| Grade, %                 | 0                                                                                 | -      | -      | 0                                                                                 | 0                                                                                 | -    |
| Peak Hour Factor         | 90                                                                                | 90     | 90     | 90                                                                                | 90                                                                                | 90   |
| Heavy Vehicles, %        | 2                                                                                 | 2      | 2      | 2                                                                                 | 2                                                                                 | 2    |
| Mvmt Flow                | 10                                                                                | 17     | 0      | 740                                                                               | 593                                                                               | 0    |
| Major/Minor              | Minor2                                                                            | Major1 | Major2 |                                                                                   |                                                                                   |      |
| Conflicting Flow All     | 1333                                                                              | 593    | -      | 0                                                                                 | -                                                                                 | 0    |
| Stage 1                  | 593                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Stage 2                  | 740                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy            | 6.42                                                                              | 6.22   | -      | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy Stg 1      | 5.42                                                                              | -      | -      | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy Stg 2      | 5.42                                                                              | -      | -      | -                                                                                 | -                                                                                 | -    |
| Follow-up Hdwy           | 3.518                                                                             | 3.318  | -      | -                                                                                 | -                                                                                 | -    |
| Pot Cap-1 Maneuver       | 170                                                                               | 505    | 0      | -                                                                                 | -                                                                                 | -    |
| Stage 1                  | 552                                                                               | -      | 0      | -                                                                                 | -                                                                                 | -    |
| Stage 2                  | 472                                                                               | -      | 0      | -                                                                                 | -                                                                                 | -    |
| Platoon blocked, %       |                                                                                   |        |        | -                                                                                 | -                                                                                 | -    |
| Mov Cap-1 Maneuver       | 170                                                                               | 505    | -      | -                                                                                 | -                                                                                 | -    |
| Mov Cap-2 Maneuver       | 309                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Stage 1                  | 552                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Stage 2                  | 472                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Approach                 | EB                                                                                | NB     | SB     |                                                                                   |                                                                                   |      |
| HCM Ctrl Dly, s/v        | 14.44                                                                             | 0      | 0      |                                                                                   |                                                                                   |      |
| HCM LOS                  | B                                                                                 |        |        |                                                                                   |                                                                                   |      |
| Minor Lane/Major Mvmt    | NBT                                                                               | EBLn1  | SBT    | SBR                                                                               |                                                                                   |      |
| Capacity (veh/h)         | -                                                                                 | 408    | -      | -                                                                                 |                                                                                   |      |
| HCM Lane V/C Ratio       | -                                                                                 | 0.065  | -      | -                                                                                 |                                                                                   |      |
| HCM Ctrl Dly (s/v)       | -                                                                                 | 14.4   | -      | -                                                                                 |                                                                                   |      |
| HCM Lane LOS             | -                                                                                 | B      | -      | -                                                                                 |                                                                                   |      |
| HCM 95th %tile Q(veh)    | -                                                                                 | 0.2    | -      | -                                                                                 |                                                                                   |      |

## 2033 Background Analysis

## 1: Highland Dr/1100 E &amp; 2100 S



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 51   | 345  | 33   | 365  | 74   | 272  | 72   | 136  | 197  |
| v/c Ratio               | 0.45 | 0.20 | 0.34 | 0.22 | 0.50 | 0.76 | 0.20 | 0.67 | 0.44 |
| Control Delay (s/veh)   | 70.5 | 17.7 | 68.5 | 18.5 | 67.1 | 60.2 | 8.9  | 70.1 | 41.7 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 70.5 | 17.7 | 68.5 | 18.5 | 67.1 | 60.2 | 8.9  | 70.1 | 41.7 |
| Queue Length 50th (ft)  | 41   | 77   | 27   | 80   | 59   | 214  | 0    | 107  | 132  |
| Queue Length 95th (ft)  | 90   | 131  | 66   | 136  | 117  | 319  | 36   | #210 | 222  |
| Internal Link Dist (ft) |      | 242  |      | 444  |      | 677  |      |      | 301  |
| Turn Bay Length (ft)    | 200  |      | 290  |      | 90   |      | 90   | 95   |      |
| Base Capacity (vph)     | 231  | 1748 | 231  | 1736 | 231  | 786  | 713  | 231  | 761  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.22 | 0.20 | 0.14 | 0.21 | 0.32 | 0.35 | 0.10 | 0.59 | 0.26 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 7th Signalized Intersection Summary

## 1: Highland Dr/1100 E & 2100 S

2033 Background

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 46                                                                                | 248                                                                               | 62                                                                                | 30                                                                                | 237                                                                               | 92                                                                                | 67                                                                                 | 245                                                                                 | 65                                                                                  | 122                                                                                 | 131                                                                                 | 46                                                                                  |
| Future Volume (veh/h)        | 46                                                                                | 248                                                                               | 62                                                                                | 30                                                                                | 237                                                                               | 92                                                                                | 67                                                                                 | 245                                                                                 | 65                                                                                  | 122                                                                                 | 131                                                                                 | 46                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                               | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 51                                                                                | 276                                                                               | 69                                                                                | 33                                                                                | 263                                                                               | 102                                                                               | 74                                                                                 | 272                                                                                 | 72                                                                                  | 136                                                                                 | 146                                                                                 | 51                                                                                  |
| Peak Hour Factor             | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                               | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 66                                                                                | 1492                                                                              | 367                                                                               | 51                                                                                | 1310                                                                              | 495                                                                               | 95                                                                                 | 328                                                                                 | 278                                                                                 | 164                                                                                 | 283                                                                                 | 99                                                                                  |
| Arrive On Green              | 0.04                                                                              | 0.53                                                                              | 0.53                                                                              | 0.03                                                                              | 0.52                                                                              | 0.52                                                                              | 0.05                                                                               | 0.18                                                                                | 0.18                                                                                | 0.09                                                                                | 0.21                                                                                | 0.21                                                                                |
| Sat Flow, veh/h              | 1781                                                                              | 2828                                                                              | 695                                                                               | 1781                                                                              | 2522                                                                              | 953                                                                               | 1781                                                                               | 1870                                                                                | 1585                                                                                | 1781                                                                                | 1324                                                                                | 463                                                                                 |
| Grp Volume(v), veh/h         | 51                                                                                | 172                                                                               | 173                                                                               | 33                                                                                | 183                                                                               | 182                                                                               | 74                                                                                 | 272                                                                                 | 72                                                                                  | 136                                                                                 | 0                                                                                   | 197                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 1777                                                                              | 1745                                                                              | 1781                                                                              | 1777                                                                              | 1699                                                                              | 1781                                                                               | 1870                                                                                | 1585                                                                                | 1781                                                                                | 0                                                                                   | 1787                                                                                |
| Q Serve(g_s), s              | 3.2                                                                               | 5.7                                                                               | 5.9                                                                               | 2.1                                                                               | 6.2                                                                               | 6.5                                                                               | 4.6                                                                                | 15.9                                                                                | 4.4                                                                                 | 8.5                                                                                 | 0.0                                                                                 | 11.0                                                                                |
| Cycle Q Clear(g_c), s        | 3.2                                                                               | 5.7                                                                               | 5.9                                                                               | 2.1                                                                               | 6.2                                                                               | 6.5                                                                               | 4.6                                                                                | 15.9                                                                                | 4.4                                                                                 | 8.5                                                                                 | 0.0                                                                                 | 11.0                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.40                                                                              | 1.00                                                                              |                                                                                   | 0.56                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.26                                                                                |
| Lane Grp Cap(c), veh/h       | 66                                                                                | 938                                                                               | 921                                                                               | 51                                                                                | 923                                                                               | 882                                                                               | 95                                                                                 | 328                                                                                 | 278                                                                                 | 164                                                                                 | 0                                                                                   | 382                                                                                 |
| V/C Ratio(X)                 | 0.78                                                                              | 0.18                                                                              | 0.19                                                                              | 0.65                                                                              | 0.20                                                                              | 0.21                                                                              | 0.78                                                                               | 0.83                                                                                | 0.26                                                                                | 0.83                                                                                | 0.00                                                                                | 0.52                                                                                |
| Avail Cap(c_a), veh/h        | 243                                                                               | 938                                                                               | 921                                                                               | 243                                                                               | 938                                                                               | 897                                                                               | 243                                                                                | 823                                                                                 | 698                                                                                 | 243                                                                                 | 0                                                                                   | 786                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 53.9                                                                              | 13.9                                                                              | 14.0                                                                              | 54.3                                                                              | 14.5                                                                              | 14.6                                                                              | 52.8                                                                               | 45.0                                                                                | 40.2                                                                                | 50.4                                                                                | 0.0                                                                                 | 39.2                                                                                |
| Incr Delay (d2), s/veh       | 7.1                                                                               | 0.4                                                                               | 0.5                                                                               | 5.1                                                                               | 0.0                                                                               | 0.0                                                                               | 9.6                                                                                | 5.4                                                                                 | 0.5                                                                                 | 11.9                                                                                | 0.0                                                                                 | 1.5                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.6                                                                               | 2.4                                                                               | 2.4                                                                               | 1.0                                                                               | 2.5                                                                               | 2.5                                                                               | 2.3                                                                                | 7.8                                                                                 | 1.8                                                                                 | 4.3                                                                                 | 0.0                                                                                 | 5.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 61.0                                                                              | 14.4                                                                              | 14.4                                                                              | 59.4                                                                              | 14.6                                                                              | 14.6                                                                              | 62.4                                                                               | 50.4                                                                                | 40.7                                                                                | 62.2                                                                                | 0.0                                                                                 | 40.7                                                                                |
| LnGrp LOS                    | E                                                                                 | B                                                                                 | B                                                                                 | E                                                                                 | B                                                                                 | B                                                                                 | E                                                                                  | D                                                                                   | D                                                                                   | E                                                                                   |                                                                                     | D                                                                                   |
| Approach Vol, veh/h          | 396                                                                               |                                                                                   |                                                                                   | 398                                                                               |                                                                                   |                                                                                   | 418                                                                                |                                                                                     |                                                                                     | 333                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 20.4                                                                              |                                                                                   |                                                                                   | 18.3                                                                              |                                                                                   |                                                                                   | 50.8                                                                               |                                                                                     |                                                                                     | 49.5                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | D                                                                                  |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.8                                                                               | 65.0                                                                              | 10.6                                                                              | 29.5                                                                              | 8.8                                                                               | 64.1                                                                              | 15.0                                                                               | 25.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.6                                                                               | 5.4                                                                               | 4.6                                                                               | 5.3                                                                               | 4.6                                                                               | 5.4                                                                               | 4.6                                                                                | 5.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 15.4                                                                              | 59.6                                                                              | 15.4                                                                              | 49.7                                                                              | 15.4                                                                              | 59.6                                                                              | 15.4                                                                               | 49.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 4.1                                                                               | 7.9                                                                               | 6.6                                                                               | 13.0                                                                              | 5.2                                                                               | 8.5                                                                               | 10.5                                                                               | 17.9                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.0                                                                               | 0.1                                                                               | 1.8                                                                               | 0.0                                                                               | 1.1                                                                               | 0.1                                                                                | 1.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 34.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## 2: Highland Dr/Highland Dr &amp; Wilmington Ave



| Lane Group              | EBL  | EBT  | EBR  | WBL  | WBT  | NBL  | NBT  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 17   | 81   | 19   | 30   | 62   | 18   | 404  | 262  |
| v/c Ratio               | 0.11 | 0.37 | 0.09 | 0.19 | 0.26 | 0.02 | 0.29 | 0.21 |
| Control Delay (s/veh)   | 23.6 | 28.5 | 6.7  | 25.6 | 14.0 | 3.2  | 3.8  | 3.6  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 23.6 | 28.5 | 6.7  | 25.6 | 14.0 | 3.2  | 3.8  | 3.6  |
| Queue Length 50th (ft)  | 5    | 26   | 0    | 10   | 6    | 1    | 38   | 24   |
| Queue Length 95th (ft)  | 21   | 61   | 11   | 30   | 34   | 7    | 82   | 55   |
| Internal Link Dist (ft) |      | 248  |      |      | 208  |      | 10   | 677  |
| Turn Bay Length (ft)    | 200  |      | 180  | 50   |      | 75   |      |      |
| Base Capacity (vph)     | 552  | 770  | 673  | 541  | 713  | 846  | 1384 | 1259 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.03 | 0.11 | 0.03 | 0.06 | 0.09 | 0.02 | 0.29 | 0.21 |

## Intersection Summary

## HCM 7th Signalized Intersection Summary 2: Highland Dr/Highland Dr & Wilmington Ave

2033 Background

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |                                                                                   |  |  |                                                                                     |                                                                                     |  |                                                                                     |
| Traffic Volume (veh/h)       | 15                                                                                | 73                                                                                | 17                                                                                | 27                                                                                | 16                                                                                | 40                                                                                | 16                                                                                  | 299                                                                                 | 65                                                                                  | 43                                                                                  | 184                                                                                 | 9                                                                                   |
| Future Volume (veh/h)        | 15                                                                                | 73                                                                                | 17                                                                                | 27                                                                                | 16                                                                                | 40                                                                                | 16                                                                                  | 299                                                                                 | 65                                                                                  | 43                                                                                  | 184                                                                                 | 9                                                                                   |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 17                                                                                | 81                                                                                | 19                                                                                | 30                                                                                | 18                                                                                | 44                                                                                | 18                                                                                  | 332                                                                                 | 72                                                                                  | 48                                                                                  | 204                                                                                 | 10                                                                                  |
| Peak Hour Factor             | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 215                                                                               | 185                                                                               | 157                                                                               | 205                                                                               | 48                                                                                | 116                                                                               | 992                                                                                 | 1063                                                                                | 231                                                                                 | 239                                                                                 | 972                                                                                 | 45                                                                                  |
| Arrive On Green              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                |
| Sat Flow, veh/h              | 1340                                                                              | 1870                                                                              | 1585                                                                              | 1295                                                                              | 482                                                                               | 1177                                                                              | 1167                                                                                | 1489                                                                                | 323                                                                                 | 228                                                                                 | 1362                                                                                | 63                                                                                  |
| Grp Volume(v), veh/h         | 17                                                                                | 81                                                                                | 19                                                                                | 30                                                                                | 0                                                                                 | 62                                                                                | 18                                                                                  | 0                                                                                   | 404                                                                                 | 262                                                                                 | 0                                                                                   | 0                                                                                   |
| Grp Sat Flow(s),veh/h/ln     | 1340                                                                              | 1870                                                                              | 1585                                                                              | 1295                                                                              | 0                                                                                 | 1659                                                                              | 1167                                                                                | 0                                                                                   | 1812                                                                                | 1653                                                                                | 0                                                                                   | 0                                                                                   |
| Q Serve(g_s), s              | 0.7                                                                               | 2.3                                                                               | 0.6                                                                               | 1.2                                                                               | 0.0                                                                               | 1.9                                                                               | 0.0                                                                                 | 0.0                                                                                 | 4.6                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Cycle Q Clear(g_c), s        | 2.6                                                                               | 2.3                                                                               | 0.6                                                                               | 3.5                                                                               | 0.0                                                                               | 1.9                                                                               | 0.2                                                                                 | 0.0                                                                                 | 4.6                                                                                 | 2.6                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.71                                                                              | 1.00                                                                                |                                                                                     | 0.18                                                                                | 0.18                                                                                |                                                                                     | 0.04                                                                                |
| Lane Grp Cap(c), veh/h       | 215                                                                               | 185                                                                               | 157                                                                               | 205                                                                               | 0                                                                                 | 164                                                                               | 992                                                                                 | 0                                                                                   | 1294                                                                                | 1257                                                                                | 0                                                                                   | 0                                                                                   |
| V/C Ratio(X)                 | 0.08                                                                              | 0.44                                                                              | 0.12                                                                              | 0.15                                                                              | 0.00                                                                              | 0.38                                                                              | 0.02                                                                                | 0.00                                                                                | 0.31                                                                                | 0.21                                                                                | 0.00                                                                                | 0.00                                                                                |
| Avail Cap(c_a), veh/h        | 683                                                                               | 838                                                                               | 710                                                                               | 657                                                                               | 0                                                                                 | 743                                                                               | 992                                                                                 | 0                                                                                   | 1294                                                                                | 1257                                                                                | 0                                                                                   | 0                                                                                   |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 0.00                                                                                |
| Uniform Delay (d), s/veh     | 24.7                                                                              | 23.6                                                                              | 22.8                                                                              | 25.2                                                                              | 0.0                                                                               | 23.5                                                                              | 2.3                                                                                 | 0.0                                                                                 | 2.9                                                                                 | 2.6                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.6                                                                               | 0.1                                                                               | 0.1                                                                               | 0.0                                                                               | 0.5                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.6                                                                                 | 0.4                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.2                                                                               | 1.0                                                                               | 0.2                                                                               | 0.4                                                                               | 0.0                                                                               | 0.7                                                                               | 0.0                                                                                 | 0.0                                                                                 | 1.0                                                                                 | 0.6                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 24.7                                                                              | 24.2                                                                              | 23.0                                                                              | 25.4                                                                              | 0.0                                                                               | 24.0                                                                              | 2.3                                                                                 | 0.0                                                                                 | 3.6                                                                                 | 3.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | A                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     |                                                                                     |
| Approach Vol, veh/h          | 117                                                                               |                                                                                   |                                                                                   | 92                                                                                |                                                                                   |                                                                                   | 422                                                                                 |                                                                                     |                                                                                     | 262                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 24.1                                                                              |                                                                                   |                                                                                   | 24.4                                                                              |                                                                                   |                                                                                   | 3.5                                                                                 |                                                                                     |                                                                                     | 3.0                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 10.6                                                                              |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 10.6                                                                                |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.3                                                                               |                                                                                   |                                                                                   | 5.1                                                                               |                                                                                   |                                                                                   | 5.3                                                                                 |                                                                                     |                                                                                     | 5.1                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.7                                                                              |                                                                                   |                                                                                   | 24.9                                                                              |                                                                                   |                                                                                   | 39.7                                                                                |                                                                                     |                                                                                     | 24.9                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 6.6                                                                               |                                                                                   |                                                                                   | 4.6                                                                               |                                                                                   |                                                                                   | 4.6                                                                                 |                                                                                     |                                                                                     | 5.5                                                                                 |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 1.3                                                                               |                                                                                   |                                                                                   | 0.3                                                                               |                                                                                   |                                                                                   | 0.9                                                                                 |                                                                                     |                                                                                     | 0.2                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 8.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



| Intersection             |        |       |      |        |       |      |        |       |       |        |       |       |
|--------------------------|--------|-------|------|--------|-------|------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 2.9    |       |      |        |       |      |        |       |       |        |       |       |
| Movement                 | EBL    | EBT   | EBR  | WBL    | WBT   | WBR  | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |        | ↕     |      |        | ↕     |      |        | ↕     |       |        | ↕     |       |
| Traffic Vol, veh/h       | 19     | 80    | 9    | 19     | 36    | 27   | 3      | 3     | 6     | 14     | 1     | 14    |
| Future Vol, veh/h        | 19     | 80    | 9    | 19     | 36    | 27   | 3      | 3     | 6     | 14     | 1     | 14    |
| Conflicting Peds, #/hr   | 0      | 0     | 0    | 0      | 0     | 0    | 0      | 0     | 0     | 0      | 0     | 0     |
| Sign Control             | Free   | Free  | Free | Free   | Free  | Free | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -      | -     | None | -      | -     | None | -      | -     | None  | -      | -     | None  |
| Storage Length           | -      | -     | -    | -      | -     | -    | -      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -      | 0     | -    | -      | 0     | -    | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -      | 0     | -    | -      | 0     | -    | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 90     | 90    | 90   | 90     | 90    | 90   | 90     | 90    | 90    | 90     | 90    | 90    |
| Heavy Vehicles, %        | 2      | 2     | 2    | 2      | 2     | 2    | 2      | 2     | 2     | 2      | 2     | 2     |
| Mvmt Flow                | 21     | 89    | 10   | 21     | 40    | 30   | 3      | 3     | 7     | 16     | 1     | 16    |
| Major/Minor              | Major1 |       |      | Major2 |       |      | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 70     | 0     | 0    | 99     | 0     | 0    | 219    | 248   | 94    | 230    | 238   | 55    |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 136    | 136   | -     | 97     | 97    | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 83     | 112   | -     | 133    | 141   | -     |
| Critical Hdwy            | 4.12   | -     | -    | 4.12   | -     | -    | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -      | -     | -    | -      | -     | -    | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -      | -     | -    | -      | -     | -    | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218  | -     | -    | 2.218  | -     | -    | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1531   | -     | -    | 1494   | -     | -    | 737    | 654   | 963   | 725    | 663   | 1012  |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 867    | 784   | -     | 909    | 815   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 925    | 803   | -     | 871    | 780   | -     |
| Platoon blocked, %       | -      | -     | -    | -      | -     | -    | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver       | 1531   | -     | -    | 1494   | -     | -    | 704    | 635   | 963   | 695    | 643   | 1012  |
| Mov Cap-2 Maneuver       | -      | -     | -    | -      | -     | -    | 704    | 635   | -     | 695    | 643   | -     |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 854    | 772   | -     | 896    | 803   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 897    | 791   | -     | 848    | 769   | -     |
| Approach                 | EB     |       |      | WB     |       |      | NB     |       |       | SB     |       |       |
| HCM Ctrl Dly, s/v        | 1.3    |       |      | 1.72   |       |      | 9.64   |       |       | 9.59   |       |       |
| HCM LOS                  |        |       |      |        |       |      | A      |       |       | A      |       |       |
| Minor Lane/Major Mvmt    | NBLn1  | EBL   | EBT  | EBR    | WBL   | WBT  | WBR    | SBLn1 |       |        |       |       |
| Capacity (veh/h)         | 789    | 310   | -    | -      | 384   | -    | -      | 816   |       |        |       |       |
| HCM Lane V/C Ratio       | 0.017  | 0.014 | -    | -      | 0.014 | -    | -      | 0.039 |       |        |       |       |
| HCM Ctrl Dly (s/v)       | 9.6    | 7.4   | 0    | -      | 7.4   | 0    | -      | 9.6   |       |        |       |       |
| HCM Lane LOS             | A      | A     | A    | -      | A     | A    | -      | A     |       |        |       |       |
| HCM 95th %tile Q(veh)    | 0.1    | 0     | -    | -      | 0     | -    | -      | 0.1   |       |        |       |       |

## 4: Highland Dr &amp; Simpson Ave



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 24   | 97   | 16   | 58   | 33   | 406  | 36   | 191  |
| v/c Ratio               | 0.16 | 0.41 | 0.11 | 0.27 | 0.04 | 0.29 | 0.05 | 0.13 |
| Control Delay (s/veh)   | 25.0 | 16.1 | 23.9 | 13.2 | 2.9  | 3.5  | 3.0  | 3.0  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 25.0 | 16.1 | 23.9 | 13.2 | 2.9  | 3.5  | 3.0  | 3.0  |
| Queue Length 50th (ft)  | 8    | 9    | 5    | 3    | 2    | 35   | 3    | 15   |
| Queue Length 95th (ft)  | 26   | 46   | 20   | 30   | 10   | 79   | 10   | 37   |
| Internal Link Dist (ft) |      | 135  |      | 226  |      | 265  |      | 267  |
| Turn Bay Length (ft)    | 65   |      | 75   |      | 100  |      | 50   |      |
| Base Capacity (vph)     | 608  | 747  | 608  | 720  | 916  | 1422 | 753  | 1435 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.04 | 0.13 | 0.03 | 0.08 | 0.04 | 0.29 | 0.05 | 0.13 |

## Intersection Summary

# HCM 7th Signalized Intersection Summary

## 4: Highland Dr & Simpson Ave

2033 Background

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 22                                                                                | 27                                                                                | 60                                                                                | 14                                                                                | 9                                                                                 | 43                                                                                | 30                                                                                  | 333                                                                                 | 32                                                                                  | 32                                                                                  | 170                                                                                 | 2                                                                                   |
| Future Volume (veh/h)        | 22                                                                                | 27                                                                                | 60                                                                                | 14                                                                                | 9                                                                                 | 43                                                                                | 30                                                                                  | 333                                                                                 | 32                                                                                  | 32                                                                                  | 170                                                                                 | 2                                                                                   |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 24                                                                                | 30                                                                                | 67                                                                                | 16                                                                                | 10                                                                                | 48                                                                                | 33                                                                                  | 370                                                                                 | 36                                                                                  | 36                                                                                  | 189                                                                                 | 2                                                                                   |
| Peak Hour Factor             | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 221                                                                               | 52                                                                                | 117                                                                               | 189                                                                               | 28                                                                                | 137                                                                               | 941                                                                                 | 1196                                                                                | 116                                                                                 | 748                                                                                 | 1317                                                                                | 14                                                                                  |
| Arrive On Green              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                |
| Sat Flow, veh/h              | 1345                                                                              | 514                                                                               | 1149                                                                              | 1298                                                                              | 281                                                                               | 1347                                                                              | 1192                                                                                | 1678                                                                                | 163                                                                                 | 979                                                                                 | 1847                                                                                | 20                                                                                  |
| Grp Volume(v), veh/h         | 24                                                                                | 0                                                                                 | 97                                                                                | 16                                                                                | 0                                                                                 | 58                                                                                | 33                                                                                  | 0                                                                                   | 406                                                                                 | 36                                                                                  | 0                                                                                   | 191                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1345                                                                              | 0                                                                                 | 1664                                                                              | 1298                                                                              | 0                                                                                 | 1628                                                                              | 1192                                                                                | 0                                                                                   | 1841                                                                                | 979                                                                                 | 0                                                                                   | 1867                                                                                |
| Q Serve(g_s), s              | 0.9                                                                               | 0.0                                                                               | 3.1                                                                               | 0.7                                                                               | 0.0                                                                               | 1.8                                                                               | 0.5                                                                                 | 0.0                                                                                 | 4.5                                                                                 | 0.8                                                                                 | 0.0                                                                                 | 1.8                                                                                 |
| Cycle Q Clear(g_c), s        | 2.8                                                                               | 0.0                                                                               | 3.1                                                                               | 3.8                                                                               | 0.0                                                                               | 1.8                                                                               | 2.3                                                                                 | 0.0                                                                                 | 4.5                                                                                 | 5.3                                                                                 | 0.0                                                                                 | 1.8                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.69                                                                              | 1.00                                                                              |                                                                                   | 0.83                                                                              | 1.00                                                                                |                                                                                     | 0.09                                                                                | 1.00                                                                                |                                                                                     | 0.01                                                                                |
| Lane Grp Cap(c), veh/h       | 221                                                                               | 0                                                                                 | 169                                                                               | 189                                                                               | 0                                                                                 | 165                                                                               | 941                                                                                 | 0                                                                                   | 1313                                                                                | 748                                                                                 | 0                                                                                   | 1331                                                                                |
| V/C Ratio(X)                 | 0.11                                                                              | 0.00                                                                              | 0.57                                                                              | 0.08                                                                              | 0.00                                                                              | 0.35                                                                              | 0.04                                                                                | 0.00                                                                                | 0.31                                                                                | 0.05                                                                                | 0.00                                                                                | 0.14                                                                                |
| Avail Cap(c_a), veh/h        | 693                                                                               | 0                                                                                 | 752                                                                               | 644                                                                               | 0                                                                                 | 736                                                                               | 941                                                                                 | 0                                                                                   | 1313                                                                                | 748                                                                                 | 0                                                                                   | 1331                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 24.5                                                                              | 0.0                                                                               | 23.8                                                                              | 25.6                                                                              | 0.0                                                                               | 23.2                                                                              | 2.9                                                                                 | 0.0                                                                                 | 2.9                                                                                 | 3.9                                                                                 | 0.0                                                                                 | 2.5                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.0                                                                               | 1.2                                                                               | 0.1                                                                               | 0.0                                                                               | 0.5                                                                               | 0.1                                                                                 | 0.0                                                                                 | 0.6                                                                                 | 0.1                                                                                 | 0.0                                                                                 | 0.2                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.3                                                                               | 0.0                                                                               | 1.2                                                                               | 0.2                                                                               | 0.0                                                                               | 0.7                                                                               | 0.1                                                                                 | 0.0                                                                                 | 1.0                                                                                 | 0.1                                                                                 | 0.0                                                                                 | 0.4                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 24.6                                                                              | 0.0                                                                               | 25.0                                                                              | 25.7                                                                              | 0.0                                                                               | 23.7                                                                              | 3.0                                                                                 | 0.0                                                                                 | 3.5                                                                                 | 4.0                                                                                 | 0.0                                                                                 | 2.8                                                                                 |
| LnGrp LOS                    | C                                                                                 |                                                                                   | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | A                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     | A                                                                                   |
| Approach Vol, veh/h          | 121                                                                               |                                                                                   |                                                                                   | 74                                                                                |                                                                                   |                                                                                   | 439                                                                                 |                                                                                     |                                                                                     | 227                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 24.9                                                                              |                                                                                   |                                                                                   | 24.1                                                                              |                                                                                   |                                                                                   | 3.5                                                                                 |                                                                                     |                                                                                     | 3.0                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 10.5                                                                              |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 10.5                                                                                |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.4                                                                               |                                                                                   |                                                                                   | 4.9                                                                               |                                                                                   |                                                                                   | 5.4                                                                                 |                                                                                     |                                                                                     | 4.9                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.6                                                                              |                                                                                   |                                                                                   | 25.1                                                                              |                                                                                   |                                                                                   | 39.6                                                                                |                                                                                     |                                                                                     | 25.1                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 6.5                                                                               |                                                                                   |                                                                                   | 5.1                                                                               |                                                                                   |                                                                                   | 7.3                                                                                 |                                                                                     |                                                                                     | 5.8                                                                                 |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 1.8                                                                               |                                                                                   |                                                                                   | 0.3                                                                               |                                                                                   |                                                                                   | 0.8                                                                                 |                                                                                     |                                                                                     | 0.2                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 8.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 0         |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↑      | ↘    |      |
| Traffic Vol, veh/h       | 0         | 0      | 0    | 380    | 222  | 8    |
| Future Vol, veh/h        | 0         | 0      | 0    | 380    | 222  | 8    |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | -    |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 90        | 90     | 90   | 90     | 90   | 90   |
| Heavy Vehicles, %        | 2         | 2      | 2    | 2      | 2    | 2    |
| Mvmt Flow                | 0         | 0      | 0    | 422    | 247  | 9    |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 251    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 6.22   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 3.318  | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 788    | 0    | -      | -    | -    |
| Stage 1                  | 0         | -      | 0    | -      | -    | -    |
| Stage 2                  | 0         | -      | 0    | -      | -    | -    |
| Platoon blocked, %       |           |        |      | -      | -    | -    |
| Mov Cap-1 Maneuver       | -         | 788    | -    | -      | -    | -    |
| Mov Cap-2 Maneuver       | -         | -      | -    | -      | -    | -    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Approach                 | EB        | NB     |      | SB     |      |      |
| HCM Ctrl Dly, s/v        | 0         | 0      |      | 0      |      |      |
| HCM LOS                  | A         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | -         |        | -    | -      |      |      |
| HCM Lane V/C Ratio       | -         |        | -    | -      |      |      |
| HCM Ctrl Dly (s/v)       | -         |        | 0    | -      |      |      |
| HCM Lane LOS             | -         |        | A    | -      |      |      |
| HCM 95th %tile Q(veh)    | -         |        | -    | -      |      |      |

HCM 7th TWSC  
6: Highland Dr & South Driveway

2033 Background

| Intersection             |        |        |        |      |      |      |
|--------------------------|--------|--------|--------|------|------|------|
| Int Delay, s/veh         | 0.1    |        |        |      |      |      |
| Movement                 | EBL    | EBR    | NBL    | NBT  | SBT  | SBR  |
| Lane Configurations      | W      |        |        | ↑    | ↑    |      |
| Traffic Vol, veh/h       | 3      | 2      | 0      | 377  | 222  | 0    |
| Future Vol, veh/h        | 3      | 2      | 0      | 377  | 222  | 0    |
| Conflicting Peds, #/hr   | 0      | 0      | 0      | 0    | 0    | 0    |
| Sign Control             | Stop   | Stop   | Free   | Free | Free | Free |
| RT Channelized           | -      | None   | -      | None | -    | None |
| Storage Length           | 0      | -      | -      | -    | -    | -    |
| Veh in Median Storage, # | 0      | -      | -      | 0    | 0    | -    |
| Grade, %                 | 0      | -      | -      | 0    | 0    | -    |
| Peak Hour Factor         | 90     | 90     | 90     | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2      | 2      | 2      | 2    | 2    | 2    |
| Mvmt Flow                | 3      | 2      | 0      | 419  | 247  | 0    |
| Major/Minor              | Minor2 | Major1 | Major2 |      |      |      |
| Conflicting Flow All     | 666    | 247    | -      | 0    | -    | 0    |
| Stage 1                  | 247    | -      | -      | -    | -    | -    |
| Stage 2                  | 419    | -      | -      | -    | -    | -    |
| Critical Hdwy            | 6.42   | 6.22   | -      | -    | -    | -    |
| Critical Hdwy Stg 1      | 5.42   | -      | -      | -    | -    | -    |
| Critical Hdwy Stg 2      | 5.42   | -      | -      | -    | -    | -    |
| Follow-up Hdwy           | 3.518  | 3.318  | -      | -    | -    | -    |
| Pot Cap-1 Maneuver       | 425    | 792    | 0      | -    | -    | -    |
| Stage 1                  | 794    | -      | 0      | -    | -    | -    |
| Stage 2                  | 664    | -      | 0      | -    | -    | -    |
| Platoon blocked, %       |        |        |        | -    | -    | -    |
| Mov Cap-1 Maneuver       | 425    | 792    | -      | -    | -    | -    |
| Mov Cap-2 Maneuver       | 520    | -      | -      | -    | -    | -    |
| Stage 1                  | 794    | -      | -      | -    | -    | -    |
| Stage 2                  | 664    | -      | -      | -    | -    | -    |
| Approach                 | EB     | NB     | SB     |      |      |      |
| HCM Ctrl Dly, s/v        | 11.03  | 0      | 0      |      |      |      |
| HCM LOS                  | B      |        |        |      |      |      |
| Minor Lane/Major Mvmt    | NBT    | EBLn1  | SBT    | SBR  |      |      |
| Capacity (veh/h)         | -      | 603    | -      | -    |      |      |
| HCM Lane V/C Ratio       | -      | 0.009  | -      | -    |      |      |
| HCM Ctrl Dly (s/v)       | -      | 11     | -      | -    |      |      |
| HCM Lane LOS             | -      | B      | -      | -    |      |      |
| HCM 95th %tile Q(veh)    | -      | 0      | -      | -    |      |      |

## 1: Highland Dr/1100 E &amp; 2100 S



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL   | NBT  | NBR  | SBL   | SBT  |
|-------------------------|------|------|------|------|-------|------|------|-------|------|
| Lane Group Flow (vph)   | 98   | 592  | 95   | 524  | 172   | 353  | 171  | 179   | 428  |
| v/c Ratio               | 0.71 | 0.42 | 0.69 | 0.37 | 0.92  | 0.71 | 0.35 | 0.96  | 0.87 |
| Control Delay (s/veh)   | 93.4 | 31.3 | 92.8 | 30.6 | 112.2 | 56.4 | 24.3 | 120.0 | 68.8 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  |
| Total Delay (s/veh)     | 93.4 | 31.3 | 92.8 | 30.6 | 112.2 | 56.4 | 24.3 | 120.0 | 68.8 |
| Queue Length 50th (ft)  | 95   | 204  | 92   | 176  | 170   | 309  | 70   | 177   | 390  |
| Queue Length 95th (ft)  | 170  | 294  | 165  | 258  | #356  | 437  | 142  | #374  | 542  |
| Internal Link Dist (ft) |      | 242  |      | 444  |       | 677  |      |       | 301  |
| Turn Bay Length (ft)    | 200  |      | 290  |      | 90    |      | 90   | 95    |      |
| Base Capacity (vph)     | 187  | 1415 | 187  | 1416 | 187   | 637  | 593  | 187   | 623  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0     | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0     | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0     | 0    |
| Reduced v/c Ratio       | 0.52 | 0.42 | 0.51 | 0.37 | 0.92  | 0.55 | 0.29 | 0.96  | 0.69 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.



# HCM 7th Signalized Intersection Summary

## 1: Highland Dr/1100 E & 2100 S

2033 Background

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 96                                                                                | 426                                                                               | 154                                                                               | 93                                                                                | 388                                                                               | 125                                                                               | 169                                                                                | 346                                                                                 | 168                                                                                 | 175                                                                                 | 332                                                                                 | 87                                                                                  |
| Future Volume (veh/h)        | 96                                                                                | 426                                                                               | 154                                                                               | 93                                                                                | 388                                                                               | 125                                                                               | 169                                                                                | 346                                                                                 | 168                                                                                 | 175                                                                                 | 332                                                                                 | 87                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                               | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 98                                                                                | 435                                                                               | 157                                                                               | 95                                                                                | 396                                                                               | 128                                                                               | 172                                                                                | 353                                                                                 | 171                                                                                 | 179                                                                                 | 339                                                                                 | 89                                                                                  |
| Peak Hour Factor             | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                               | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 120                                                                               | 1077                                                                              | 385                                                                               | 116                                                                               | 1108                                                                              | 354                                                                               | 193                                                                                | 497                                                                                 | 421                                                                                 | 193                                                                                 | 380                                                                                 | 100                                                                                 |
| Arrive On Green              | 0.07                                                                              | 0.42                                                                              | 0.42                                                                              | 0.07                                                                              | 0.42                                                                              | 0.42                                                                              | 0.11                                                                               | 0.27                                                                                | 0.27                                                                                | 0.11                                                                                | 0.27                                                                                | 0.27                                                                                |
| Sat Flow, veh/h              | 1781                                                                              | 2565                                                                              | 917                                                                               | 1781                                                                              | 2649                                                                              | 846                                                                               | 1781                                                                               | 1870                                                                                | 1585                                                                                | 1781                                                                                | 1428                                                                                | 375                                                                                 |
| Grp Volume(v), veh/h         | 98                                                                                | 300                                                                               | 292                                                                               | 95                                                                                | 264                                                                               | 260                                                                               | 172                                                                                | 353                                                                                 | 171                                                                                 | 179                                                                                 | 0                                                                                   | 428                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 1777                                                                              | 1705                                                                              | 1781                                                                              | 1777                                                                              | 1718                                                                              | 1781                                                                               | 1870                                                                                | 1585                                                                                | 1781                                                                                | 0                                                                                   | 1803                                                                                |
| Q Serve(g_s), s              | 7.7                                                                               | 16.7                                                                              | 17.0                                                                              | 7.5                                                                               | 14.4                                                                              | 14.7                                                                              | 13.5                                                                               | 24.2                                                                                | 12.6                                                                                | 14.1                                                                                | 0.0                                                                                 | 32.4                                                                                |
| Cycle Q Clear(g_c), s        | 7.7                                                                               | 16.7                                                                              | 17.0                                                                              | 7.5                                                                               | 14.4                                                                              | 14.7                                                                              | 13.5                                                                               | 24.2                                                                                | 12.6                                                                                | 14.1                                                                                | 0.0                                                                                 | 32.4                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.54                                                                              | 1.00                                                                              |                                                                                   | 0.49                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.21                                                                                |
| Lane Grp Cap(c), veh/h       | 120                                                                               | 746                                                                               | 716                                                                               | 116                                                                               | 743                                                                               | 719                                                                               | 193                                                                                | 497                                                                                 | 421                                                                                 | 193                                                                                 | 0                                                                                   | 479                                                                                 |
| V/C Ratio(X)                 | 0.82                                                                              | 0.40                                                                              | 0.41                                                                              | 0.82                                                                              | 0.36                                                                              | 0.36                                                                              | 0.89                                                                               | 0.71                                                                                | 0.41                                                                                | 0.93                                                                                | 0.00                                                                                | 0.89                                                                                |
| Avail Cap(c_a), veh/h        | 193                                                                               | 746                                                                               | 716                                                                               | 193                                                                               | 746                                                                               | 722                                                                               | 193                                                                                | 655                                                                                 | 555                                                                                 | 193                                                                                 | 0                                                                                   | 632                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 65.3                                                                              | 28.7                                                                              | 28.8                                                                              | 65.5                                                                              | 28.2                                                                              | 28.3                                                                              | 62.4                                                                               | 47.1                                                                                | 42.9                                                                                | 62.7                                                                                | 0.0                                                                                 | 50.1                                                                                |
| Incr Delay (d2), s/veh       | 5.9                                                                               | 1.6                                                                               | 1.7                                                                               | 5.2                                                                               | 0.1                                                                               | 0.1                                                                               | 35.6                                                                               | 2.4                                                                                 | 0.6                                                                                 | 43.9                                                                                | 0.0                                                                                 | 13.6                                                                                |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 3.7                                                                               | 7.5                                                                               | 7.4                                                                               | 3.6                                                                               | 6.2                                                                               | 6.2                                                                               | 8.1                                                                                | 11.7                                                                                | 5.1                                                                                 | 8.8                                                                                 | 0.0                                                                                 | 16.4                                                                                |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 71.2                                                                              | 30.3                                                                              | 30.5                                                                              | 70.6                                                                              | 28.3                                                                              | 28.4                                                                              | 98.0                                                                               | 49.6                                                                                | 43.5                                                                                | 106.6                                                                               | 0.0                                                                                 | 63.7                                                                                |
| LnGrp LOS                    | E                                                                                 | C                                                                                 | C                                                                                 | E                                                                                 | C                                                                                 | C                                                                                 | F                                                                                  | D                                                                                   | D                                                                                   | F                                                                                   |                                                                                     | E                                                                                   |
| Approach Vol, veh/h          | 690                                                                               |                                                                                   |                                                                                   | 619                                                                               |                                                                                   |                                                                                   | 696                                                                                |                                                                                     |                                                                                     | 607                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 36.2                                                                              |                                                                                   |                                                                                   | 34.8                                                                              |                                                                                   |                                                                                   | 60.0                                                                               |                                                                                     |                                                                                     | 76.4                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | E                                                                                  |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 13.9                                                                              | 65.0                                                                              | 20.0                                                                              | 43.0                                                                              | 14.1                                                                              | 64.7                                                                              | 20.0                                                                               | 43.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.6                                                                               | 5.4                                                                               | 4.6                                                                               | 5.3                                                                               | 4.6                                                                               | 5.4                                                                               | 4.6                                                                                | 5.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 15.4                                                                              | 59.6                                                                              | 15.4                                                                              | 49.7                                                                              | 15.4                                                                              | 59.6                                                                              | 15.4                                                                               | 49.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 9.5                                                                               | 19.0                                                                              | 15.5                                                                              | 34.4                                                                              | 9.7                                                                               | 16.7                                                                              | 16.1                                                                               | 26.2                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.9                                                                               | 0.0                                                                               | 3.3                                                                               | 0.0                                                                               | 1.7                                                                               | 0.0                                                                                | 2.8                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 51.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## 2: Highland Dr/Highland Dr &amp; Wilmington Ave



| Lane Group              | EBL  | EBT  | EBR  | WBL  | WBT  | NBL  | NBT  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 19   | 52   | 34   | 153  | 160  | 79   | 689  | 568  |
| v/c Ratio               | 0.09 | 0.16 | 0.11 | 0.63 | 0.41 | 0.14 | 0.58 | 0.68 |
| Control Delay (s/veh)   | 20.8 | 21.4 | 8.7  | 35.6 | 12.1 | 6.0  | 9.0  | 13.4 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.1  | 0.0  |
| Total Delay (s/veh)     | 20.8 | 21.4 | 8.7  | 35.6 | 12.1 | 6.0  | 9.1  | 13.4 |
| Queue Length 50th (ft)  | 6    | 17   | 0    | 54   | 18   | 10   | 115  | 111  |
| Queue Length 95th (ft)  | 21   | 42   | 19   | 106  | 61   | 32   | 265  | #317 |
| Internal Link Dist (ft) |      | 248  |      |      | 208  |      | 10   | 677  |
| Turn Bay Length (ft)    | 200  |      | 180  | 50   |      | 75   |      |      |
| Base Capacity (vph)     | 472  | 723  | 635  | 523  | 716  | 566  | 1189 | 838  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 61   | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.04 | 0.07 | 0.05 | 0.29 | 0.22 | 0.14 | 0.61 | 0.68 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 7th Signalized Intersection Summary

## 2: Highland Dr/Highland Dr & Wilmington Ave

2033 Background

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |                                                                                   |  |  |                                                                                     |                                                                                     |  |                                                                                     |
| Traffic Volume (veh/h)       | 18                                                                                | 50                                                                                | 33                                                                                | 148                                                                               | 53                                                                                | 102                                                                               | 77                                                                                  | 487                                                                                 | 181                                                                                 | 123                                                                                 | 383                                                                                 | 45                                                                                  |
| Future Volume (veh/h)        | 18                                                                                | 50                                                                                | 33                                                                                | 148                                                                               | 53                                                                                | 102                                                                               | 77                                                                                  | 487                                                                                 | 181                                                                                 | 123                                                                                 | 383                                                                                 | 45                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 19                                                                                | 52                                                                                | 34                                                                                | 153                                                                               | 55                                                                                | 105                                                                               | 79                                                                                  | 502                                                                                 | 187                                                                                 | 127                                                                                 | 395                                                                                 | 46                                                                                  |
| Peak Hour Factor             | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 232                                                                               | 336                                                                               | 285                                                                               | 323                                                                               | 103                                                                               | 197                                                                               | 583                                                                                 | 845                                                                                 | 315                                                                                 | 206                                                                                 | 607                                                                                 | 65                                                                                  |
| Arrive On Green              | 0.18                                                                              | 0.18                                                                              | 0.18                                                                              | 0.18                                                                              | 0.18                                                                              | 0.18                                                                              | 0.65                                                                                | 0.65                                                                                | 0.65                                                                                | 0.65                                                                                | 0.65                                                                                | 0.65                                                                                |
| Sat Flow, veh/h              | 1226                                                                              | 1870                                                                              | 1585                                                                              | 1311                                                                              | 575                                                                               | 1098                                                                              | 948                                                                                 | 1299                                                                                | 484                                                                                 | 205                                                                                 | 933                                                                                 | 100                                                                                 |
| Grp Volume(v), veh/h         | 19                                                                                | 52                                                                                | 34                                                                                | 153                                                                               | 0                                                                                 | 160                                                                               | 79                                                                                  | 0                                                                                   | 689                                                                                 | 568                                                                                 | 0                                                                                   | 0                                                                                   |
| Grp Sat Flow(s),veh/h/ln     | 1226                                                                              | 1870                                                                              | 1585                                                                              | 1311                                                                              | 0                                                                                 | 1673                                                                              | 948                                                                                 | 0                                                                                   | 1783                                                                                | 1239                                                                                | 0                                                                                   | 0                                                                                   |
| Q Serve(g_s), s              | 0.9                                                                               | 1.4                                                                               | 1.1                                                                               | 6.8                                                                               | 0.0                                                                               | 5.3                                                                               | 0.0                                                                                 | 0.0                                                                                 | 13.5                                                                                | 8.6                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Cycle Q Clear(g_c), s        | 6.2                                                                               | 1.4                                                                               | 1.1                                                                               | 8.2                                                                               | 0.0                                                                               | 5.3                                                                               | 3.7                                                                                 | 0.0                                                                                 | 13.5                                                                                | 22.1                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.66                                                                              | 1.00                                                                                |                                                                                     | 0.27                                                                                | 0.22                                                                                |                                                                                     | 0.08                                                                                |
| Lane Grp Cap(c), veh/h       | 232                                                                               | 336                                                                               | 285                                                                               | 323                                                                               | 0                                                                                 | 301                                                                               | 583                                                                                 | 0                                                                                   | 1159                                                                                | 878                                                                                 | 0                                                                                   | 0                                                                                   |
| V/C Ratio(X)                 | 0.08                                                                              | 0.15                                                                              | 0.12                                                                              | 0.47                                                                              | 0.00                                                                              | 0.53                                                                              | 0.14                                                                                | 0.00                                                                                | 0.59                                                                                | 0.65                                                                                | 0.00                                                                                | 0.00                                                                                |
| Avail Cap(c_a), veh/h        | 511                                                                               | 763                                                                               | 646                                                                               | 622                                                                               | 0                                                                                 | 682                                                                               | 583                                                                                 | 0                                                                                   | 1159                                                                                | 878                                                                                 | 0                                                                                   | 0                                                                                   |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 0.00                                                                                |
| Uniform Delay (d), s/veh     | 25.5                                                                              | 21.1                                                                              | 21.0                                                                              | 24.6                                                                              | 0.0                                                                               | 22.7                                                                              | 4.4                                                                                 | 0.0                                                                                 | 6.1                                                                                 | 7.1                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.1                                                                               | 0.1                                                                               | 0.4                                                                               | 0.0                                                                               | 0.5                                                                               | 0.5                                                                                 | 0.0                                                                                 | 2.2                                                                                 | 3.7                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.2                                                                               | 0.6                                                                               | 0.4                                                                               | 2.0                                                                               | 0.0                                                                               | 2.0                                                                               | 0.4                                                                                 | 0.0                                                                                 | 4.1                                                                                 | 3.4                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 25.6                                                                              | 21.2                                                                              | 21.1                                                                              | 25.0                                                                              | 0.0                                                                               | 23.3                                                                              | 4.9                                                                                 | 0.0                                                                                 | 8.3                                                                                 | 10.8                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | A                                                                                   |                                                                                     | A                                                                                   | B                                                                                   |                                                                                     |                                                                                     |
| Approach Vol, veh/h          | 105                                                                               |                                                                                   |                                                                                   | 313                                                                               |                                                                                   |                                                                                   | 768                                                                                 |                                                                                     |                                                                                     | 568                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 22.0                                                                              |                                                                                   |                                                                                   | 24.1                                                                              |                                                                                   |                                                                                   | 8.0                                                                                 |                                                                                     |                                                                                     | 10.8                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 16.1                                                                              |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 16.1                                                                                |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.3                                                                               |                                                                                   |                                                                                   | 5.1                                                                               |                                                                                   |                                                                                   | 5.3                                                                                 |                                                                                     |                                                                                     | 5.1                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.7                                                                              |                                                                                   |                                                                                   | 24.9                                                                              |                                                                                   |                                                                                   | 39.7                                                                                |                                                                                     |                                                                                     | 24.9                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 15.5                                                                              |                                                                                   |                                                                                   | 8.2                                                                               |                                                                                   |                                                                                   | 24.1                                                                                |                                                                                     |                                                                                     | 10.2                                                                                |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 2.8                                                                               |                                                                                   |                                                                                   | 0.2                                                                               |                                                                                   |                                                                                   | 2.2                                                                                 |                                                                                     |                                                                                     | 0.7                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 12.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |        |                                                                                   |      |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
|--------------------------|--------|-----------------------------------------------------------------------------------|------|--------|-----------------------------------------------------------------------------------|------|--------|-----------------------------------------------------------------------------------|-------|--------|-------------------------------------------------------------------------------------|-------|
| Int Delay, s/veh         | 4.6    |                                                                                   |      |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Movement                 | EBL    | EBT                                                                               | EBR  | WBL    | WBT                                                                               | WBR  | NBL    | NBT                                                                               | NBR   | SBL    | SBT                                                                                 | SBR   |
| Lane Configurations      |        |  |      |        |  |      |        |  |       |        |  |       |
| Traffic Vol, veh/h       | 57     | 211                                                                               | 25   | 25     | 230                                                                               | 80   | 36     | 10                                                                                | 32    | 53     | 8                                                                                   | 56    |
| Future Vol, veh/h        | 57     | 211                                                                               | 25   | 25     | 230                                                                               | 80   | 36     | 10                                                                                | 32    | 53     | 8                                                                                   | 56    |
| Conflicting Peds, #/hr   | 0      | 0                                                                                 | 0    | 0      | 0                                                                                 | 0    | 0      | 0                                                                                 | 0     | 0      | 0                                                                                   | 0     |
| Sign Control             | Free   | Free                                                                              | Free | Free   | Free                                                                              | Free | Stop   | Stop                                                                              | Stop  | Stop   | Stop                                                                                | Stop  |
| RT Channelized           | -      | -                                                                                 | None | -      | -                                                                                 | None | -      | -                                                                                 | None  | -      | -                                                                                   | None  |
| Storage Length           | -      | -                                                                                 | -    | -      | -                                                                                 | -    | -      | -                                                                                 | -     | -      | -                                                                                   | -     |
| Veh in Median Storage, # | -      | 0                                                                                 | -    | -      | 0                                                                                 | -    | -      | 0                                                                                 | -     | -      | 0                                                                                   | -     |
| Grade, %                 | -      | 0                                                                                 | -    | -      | 0                                                                                 | -    | -      | 0                                                                                 | -     | -      | 0                                                                                   | -     |
| Peak Hour Factor         | 95     | 95                                                                                | 95   | 95     | 95                                                                                | 95   | 95     | 95                                                                                | 95    | 95     | 95                                                                                  | 95    |
| Heavy Vehicles, %        | 2      | 2                                                                                 | 2    | 2      | 2                                                                                 | 2    | 2      | 2                                                                                 | 2     | 2      | 2                                                                                   | 2     |
| Mvmt Flow                | 60     | 222                                                                               | 26   | 26     | 242                                                                               | 84   | 38     | 11                                                                                | 34    | 56     | 8                                                                                   | 59    |
|                          |        |                                                                                   |      |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Major/Minor              | Major1 |                                                                                   |      | Major2 |                                                                                   |      | Minor1 |                                                                                   |       | Minor2 |                                                                                     |       |
| Conflicting Flow All     | 326    | 0                                                                                 | 0    | 248    | 0                                                                                 | 0    | 654    | 734                                                                               | 235   | 684    | 705                                                                                 | 284   |
| Stage 1                  | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 355    | 355                                                                               | -     | 337    | 337                                                                                 | -     |
| Stage 2                  | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 299    | 379                                                                               | -     | 347    | 368                                                                                 | -     |
| Critical Hdwy            | 4.12   | -                                                                                 | -    | 4.12   | -                                                                                 | -    | 7.12   | 6.52                                                                              | 6.22  | 7.12   | 6.52                                                                                | 6.22  |
| Critical Hdwy Stg 1      | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 6.12   | 5.52                                                                              | -     | 6.12   | 5.52                                                                                | -     |
| Critical Hdwy Stg 2      | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 6.12   | 5.52                                                                              | -     | 6.12   | 5.52                                                                                | -     |
| Follow-up Hdwy           | 2.218  | -                                                                                 | -    | 2.218  | -                                                                                 | -    | 3.518  | 4.018                                                                             | 3.318 | 3.518  | 4.018                                                                               | 3.318 |
| Pot Cap-1 Maneuver       | 1233   | -                                                                                 | -    | 1317   | -                                                                                 | -    | 380    | 347                                                                               | 804   | 363    | 361                                                                                 | 755   |
| Stage 1                  | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 662    | 629                                                                               | -     | 677    | 641                                                                                 | -     |
| Stage 2                  | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 710    | 615                                                                               | -     | 669    | 621                                                                                 | -     |
| Platoon blocked, %       |        | -                                                                                 | -    |        | -                                                                                 | -    |        |                                                                                   |       |        |                                                                                     |       |
| Mov Cap-1 Maneuver       | 1233   | -                                                                                 | -    | 1317   | -                                                                                 | -    | 315    | 320                                                                               | 804   | 310    | 332                                                                                 | 755   |
| Mov Cap-2 Maneuver       | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 315    | 320                                                                               | -     | 310    | 332                                                                                 | -     |
| Stage 1                  | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 625    | 594                                                                               | -     | 661    | 625                                                                                 | -     |
| Stage 2                  | -      | -                                                                                 | -    | -      | -                                                                                 | -    | 630    | 599                                                                               | -     | 594    | 586                                                                                 | -     |
|                          |        |                                                                                   |      |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
|                          |        |                                                                                   |      |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Approach                 | EB     |                                                                                   |      | WB     |                                                                                   |      | NB     |                                                                                   |       | SB     |                                                                                     |       |
| HCM Ctrl Dly, s/v        | 1.57   |                                                                                   |      | 0.58   |                                                                                   |      | 15.63  |                                                                                   |       | 16.53  |                                                                                     |       |
| HCM LOS                  |        |                                                                                   |      |        |                                                                                   |      | C      |                                                                                   |       | C      |                                                                                     |       |
|                          |        |                                                                                   |      |        |                                                                                   |      |        |                                                                                   |       |        |                                                                                     |       |
| Minor Lane/Major Mvmt    | NBLn1  | EBL                                                                               | EBT  | EBR    | WBL                                                                               | WBT  | WBR    | SBLn1                                                                             |       |        |                                                                                     |       |
| Capacity (veh/h)         | 420    | 343                                                                               | -    | -      | 128                                                                               | -    | -      | 434                                                                               |       |        |                                                                                     |       |
| HCM Lane V/C Ratio       | 0.195  | 0.049                                                                             | -    | -      | 0.02                                                                              | -    | -      | 0.283                                                                             |       |        |                                                                                     |       |
| HCM Ctrl Dly (s/v)       | 15.6   | 8.1                                                                               | 0    | -      | 7.8                                                                               | 0    | -      | 16.5                                                                              |       |        |                                                                                     |       |
| HCM Lane LOS             | C      | A                                                                                 | A    | -      | A                                                                                 | A    | -      | C                                                                                 |       |        |                                                                                     |       |
| HCM 95th %tile Q(veh)    | 0.7    | 0.2                                                                               | -    | -      | 0.1                                                                               | -    | -      | 1.2                                                                               |       |        |                                                                                     |       |

## 4: Highland Dr &amp; Simpson Ave



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 102  | 216  | 88   | 220  | 123  | 675  | 112  | 418  |
| v/c Ratio               | 0.67 | 0.55 | 0.56 | 0.54 | 0.20 | 0.56 | 0.27 | 0.34 |
| Control Delay (s/veh)   | 44.5 | 14.6 | 37.0 | 13.4 | 5.9  | 8.4  | 7.4  | 6.1  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 44.5 | 14.6 | 37.0 | 13.4 | 5.9  | 8.4  | 7.4  | 6.1  |
| Queue Length 50th (ft)  | 36   | 25   | 30   | 22   | 14   | 105  | 14   | 54   |
| Queue Length 95th (ft)  | 81   | 78   | 70   | 74   | 44   | 245  | 47   | 126  |
| Internal Link Dist (ft) |      | 135  |      | 226  |      | 265  |      | 267  |
| Turn Bay Length (ft)    | 65   |      | 75   |      | 100  |      | 50   |      |
| Base Capacity (vph)     | 383  | 783  | 392  | 787  | 625  | 1215 | 417  | 1225 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.27 | 0.28 | 0.22 | 0.28 | 0.20 | 0.56 | 0.27 | 0.34 |

## Intersection Summary

# HCM 7th Signalized Intersection Summary

## 4: Highland Dr & Simpson Ave

2033 Background

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 97                                                                                | 70                                                                                | 135                                                                               | 84                                                                                | 65                                                                                | 144                                                                               | 117                                                                                 | 571                                                                                 | 70                                                                                  | 106                                                                                 | 381                                                                                 | 16                                                                                  |
| Future Volume (veh/h)        | 97                                                                                | 70                                                                                | 135                                                                               | 84                                                                                | 65                                                                                | 144                                                                               | 117                                                                                 | 571                                                                                 | 70                                                                                  | 106                                                                                 | 381                                                                                 | 16                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 102                                                                               | 74                                                                                | 142                                                                               | 88                                                                                | 68                                                                                | 152                                                                               | 123                                                                                 | 601                                                                                 | 74                                                                                  | 112                                                                                 | 401                                                                                 | 17                                                                                  |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 256                                                                               | 139                                                                               | 266                                                                               | 260                                                                               | 124                                                                               | 278                                                                               | 580                                                                                 | 982                                                                                 | 121                                                                                 | 392                                                                                 | 1072                                                                                | 45                                                                                  |
| Arrive On Green              | 0.24                                                                              | 0.24                                                                              | 0.24                                                                              | 0.24                                                                              | 0.24                                                                              | 0.24                                                                              | 0.60                                                                                | 0.60                                                                                | 0.60                                                                                | 0.60                                                                                | 0.60                                                                                | 0.60                                                                                |
| Sat Flow, veh/h              | 1161                                                                              | 573                                                                               | 1099                                                                              | 1165                                                                              | 514                                                                               | 1149                                                                              | 969                                                                                 | 1633                                                                                | 201                                                                                 | 764                                                                                 | 1781                                                                                | 76                                                                                  |
| Grp Volume(v), veh/h         | 102                                                                               | 0                                                                                 | 216                                                                               | 88                                                                                | 0                                                                                 | 220                                                                               | 123                                                                                 | 0                                                                                   | 675                                                                                 | 112                                                                                 | 0                                                                                   | 418                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1161                                                                              | 0                                                                                 | 1672                                                                              | 1165                                                                              | 0                                                                                 | 1663                                                                              | 969                                                                                 | 0                                                                                   | 1834                                                                                | 764                                                                                 | 0                                                                                   | 1857                                                                                |
| Q Serve(g_s), s              | 5.5                                                                               | 0.0                                                                               | 7.4                                                                               | 4.7                                                                               | 0.0                                                                               | 7.6                                                                               | 4.9                                                                                 | 0.0                                                                                 | 15.3                                                                                | 7.1                                                                                 | 0.0                                                                                 | 7.6                                                                                 |
| Cycle Q Clear(g_c), s        | 13.1                                                                              | 0.0                                                                               | 7.4                                                                               | 12.1                                                                              | 0.0                                                                               | 7.6                                                                               | 12.5                                                                                | 0.0                                                                                 | 15.3                                                                                | 22.4                                                                                | 0.0                                                                                 | 7.6                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.66                                                                              | 1.00                                                                              |                                                                                   | 0.69                                                                              | 1.00                                                                                |                                                                                     | 0.11                                                                                | 1.00                                                                                |                                                                                     | 0.04                                                                                |
| Lane Grp Cap(c), veh/h       | 256                                                                               | 0                                                                                 | 405                                                                               | 260                                                                               | 0                                                                                 | 402                                                                               | 580                                                                                 | 0                                                                                   | 1103                                                                                | 392                                                                                 | 0                                                                                   | 1117                                                                                |
| V/C Ratio(X)                 | 0.40                                                                              | 0.00                                                                              | 0.53                                                                              | 0.34                                                                              | 0.00                                                                              | 0.55                                                                              | 0.21                                                                                | 0.00                                                                                | 0.61                                                                                | 0.29                                                                                | 0.00                                                                                | 0.37                                                                                |
| Avail Cap(c_a), veh/h        | 418                                                                               | 0                                                                                 | 638                                                                               | 423                                                                               | 0                                                                                 | 634                                                                               | 580                                                                                 | 0                                                                                   | 1103                                                                                | 392                                                                                 | 0                                                                                   | 1117                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 27.5                                                                              | 0.0                                                                               | 21.7                                                                              | 27.0                                                                              | 0.0                                                                               | 21.8                                                                              | 10.0                                                                                | 0.0                                                                                 | 8.3                                                                                 | 15.3                                                                                | 0.0                                                                                 | 6.7                                                                                 |
| Incr Delay (d2), s/veh       | 0.4                                                                               | 0.0                                                                               | 0.4                                                                               | 0.3                                                                               | 0.0                                                                               | 0.4                                                                               | 0.8                                                                                 | 0.0                                                                                 | 2.5                                                                                 | 1.8                                                                                 | 0.0                                                                                 | 1.0                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.5                                                                               | 0.0                                                                               | 2.8                                                                               | 1.3                                                                               | 0.0                                                                               | 2.8                                                                               | 1.1                                                                                 | 0.0                                                                                 | 5.5                                                                                 | 1.3                                                                                 | 0.0                                                                                 | 2.7                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 27.9                                                                              | 0.0                                                                               | 22.1                                                                              | 27.3                                                                              | 0.0                                                                               | 22.2                                                                              | 10.8                                                                                | 0.0                                                                                 | 10.8                                                                                | 17.2                                                                                | 0.0                                                                                 | 7.7                                                                                 |
| LnGrp LOS                    | C                                                                                 |                                                                                   | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | B                                                                                   |                                                                                     | B                                                                                   | B                                                                                   |                                                                                     | A                                                                                   |
| Approach Vol, veh/h          | 318                                                                               |                                                                                   |                                                                                   | 308                                                                               |                                                                                   |                                                                                   | 798                                                                                 |                                                                                     |                                                                                     | 530                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 24.0                                                                              |                                                                                   |                                                                                   | 23.7                                                                              |                                                                                   |                                                                                   | 10.8                                                                                |                                                                                     |                                                                                     | 9.7                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | B                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 20.8                                                                              |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 20.8                                                                                |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.4                                                                               |                                                                                   |                                                                                   | 4.9                                                                               |                                                                                   |                                                                                   | 5.4                                                                                 |                                                                                     |                                                                                     | 4.9                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.6                                                                              |                                                                                   |                                                                                   | 25.1                                                                              |                                                                                   |                                                                                   | 39.6                                                                                |                                                                                     |                                                                                     | 25.1                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 17.3                                                                              |                                                                                   |                                                                                   | 15.1                                                                              |                                                                                   |                                                                                   | 24.4                                                                                |                                                                                     |                                                                                     | 14.1                                                                                |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 3.6                                                                               |                                                                                   |                                                                                   | 0.8                                                                               |                                                                                   |                                                                                   | 2.0                                                                                 |                                                                                     |                                                                                     | 0.8                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 14.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 0         |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↑      | ↘    |      |
| Traffic Vol, veh/h       | 0         | 0      | 0    | 745    | 548  | 25   |
| Future Vol, veh/h        | 0         | 0      | 0    | 745    | 548  | 25   |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | -    |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 90        | 90     | 90   | 90     | 90   | 90   |
| Heavy Vehicles, %        | 2         | 2      | 2    | 2      | 2    | 2    |
| Mvmt Flow                | 0         | 0      | 0    | 828    | 609  | 28   |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 623    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 6.22   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 3.318  | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 486    | 0    | -      | -    | -    |
| Stage 1                  | 0         | -      | 0    | -      | -    | -    |
| Stage 2                  | 0         | -      | 0    | -      | -    | -    |
| Platoon blocked, %       | -         | -      | -    | -      | -    | -    |
| Mov Cap-1 Maneuver       | -         | 486    | -    | -      | -    | -    |
| Mov Cap-2 Maneuver       | -         | -      | -    | -      | -    | -    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Approach                 | EB        | NB     |      | SB     |      |      |
| HCM Ctrl Dly, s/v        | 0         | 0      |      | 0      |      |      |
| HCM LOS                  | A         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | -         |        | -    | -      |      |      |
| HCM Lane V/C Ratio       | -         |        | -    | -      |      |      |
| HCM Ctrl Dly (s/v)       | -         |        | 0    | -      |      |      |
| HCM Lane LOS             | -         |        | A    | -      |      |      |
| HCM 95th %tile Q(veh)    | -         |        | -    | -      |      |      |

HCM 7th TWSC  
6: Highland Dr & South Driveway

2033 Background

| Intersection             |        |        |        |      |      |      |
|--------------------------|--------|--------|--------|------|------|------|
| Int Delay, s/veh         | 0.3    |        |        |      |      |      |
| Movement                 | EBL    | EBR    | NBL    | NBT  | SBT  | SBR  |
| Lane Configurations      | W      |        |        | ↑    | ↑    |      |
| Traffic Vol, veh/h       | 9      | 15     | 0      | 735  | 548  | 0    |
| Future Vol, veh/h        | 9      | 15     | 0      | 735  | 548  | 0    |
| Conflicting Peds, #/hr   | 0      | 0      | 0      | 0    | 0    | 0    |
| Sign Control             | Stop   | Stop   | Free   | Free | Free | Free |
| RT Channelized           | -      | None   | -      | None | -    | None |
| Storage Length           | 0      | -      | -      | -    | -    | -    |
| Veh in Median Storage, # | 0      | -      | -      | 0    | 0    | -    |
| Grade, %                 | 0      | -      | -      | 0    | 0    | -    |
| Peak Hour Factor         | 90     | 90     | 90     | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2      | 2      | 2      | 2    | 2    | 2    |
| Mvmt Flow                | 10     | 17     | 0      | 817  | 609  | 0    |
| Major/Minor              | Minor2 | Major1 | Major2 |      |      |      |
| Conflicting Flow All     | 1426   | 609    | -      | 0    | -    | 0    |
| Stage 1                  | 609    | -      | -      | -    | -    | -    |
| Stage 2                  | 817    | -      | -      | -    | -    | -    |
| Critical Hdwy            | 6.42   | 6.22   | -      | -    | -    | -    |
| Critical Hdwy Stg 1      | 5.42   | -      | -      | -    | -    | -    |
| Critical Hdwy Stg 2      | 5.42   | -      | -      | -    | -    | -    |
| Follow-up Hdwy           | 3.518  | 3.318  | -      | -    | -    | -    |
| Pot Cap-1 Maneuver       | 149    | 495    | 0      | -    | -    | -    |
| Stage 1                  | 543    | -      | 0      | -    | -    | -    |
| Stage 2                  | 434    | -      | 0      | -    | -    | -    |
| Platoon blocked, %       |        |        |        | -    | -    | -    |
| Mov Cap-1 Maneuver       | 149    | 495    | -      | -    | -    | -    |
| Mov Cap-2 Maneuver       | 287    | -      | -      | -    | -    | -    |
| Stage 1                  | 543    | -      | -      | -    | -    | -    |
| Stage 2                  | 434    | -      | -      | -    | -    | -    |
| Approach                 | EB     | NB     | SB     |      |      |      |
| HCM Ctrl Dly, s/v        | 14.92  | 0      | 0      |      |      |      |
| HCM LOS                  | B      |        |        |      |      |      |
| Minor Lane/Major Mvmt    | NBT    | EBLn1  | SBT    | SBR  |      |      |
| Capacity (veh/h)         | -      | 389    | -      | -    |      |      |
| HCM Lane V/C Ratio       | -      | 0.068  | -      | -    |      |      |
| HCM Ctrl Dly (s/v)       | -      | 14.9   | -      | -    |      |      |
| HCM Lane LOS             | -      | B      | -      | -    |      |      |
| HCM 95th %tile Q(veh)    | -      | 0.2    | -      | -    |      |      |

## 2033 Background Plus Project Analysis

## 1: Highland Dr/1100 E &amp; 2100 S



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 57   | 368  | 54   | 365  | 74   | 272  | 72   | 136  | 200  |
| v/c Ratio               | 0.49 | 0.22 | 0.48 | 0.22 | 0.51 | 0.77 | 0.20 | 0.69 | 0.46 |
| Control Delay (s/veh)   | 73.5 | 18.9 | 73.2 | 18.5 | 69.6 | 63.0 | 8.9  | 74.0 | 43.7 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 73.5 | 18.9 | 73.2 | 18.5 | 69.6 | 63.0 | 8.9  | 74.0 | 43.7 |
| Queue Length 50th (ft)  | 47   | 84   | 44   | 81   | 60   | 217  | 0    | 109  | 137  |
| Queue Length 95th (ft)  | 99   | 142  | 96   | 138  | 119  | 326  | 37   | #218 | 231  |
| Internal Link Dist (ft) |      | 242  |      | 444  |      | 677  |      |      | 301  |
| Turn Bay Length (ft)    | 200  |      | 290  |      | 90   |      | 90   | 95   |      |
| Base Capacity (vph)     | 224  | 1685 | 224  | 1683 | 224  | 761  | 693  | 224  | 739  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.25 | 0.22 | 0.24 | 0.22 | 0.33 | 0.36 | 0.10 | 0.61 | 0.27 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 7th Signalized Intersection Summary

## 1: Highland Dr/1100 E & 2100 S

2033 Plus Project

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 51                                                                                | 248                                                                               | 83                                                                                | 49                                                                                | 237                                                                               | 92                                                                                | 67                                                                                 | 245                                                                                 | 65                                                                                  | 122                                                                                 | 134                                                                                 | 46                                                                                  |
| Future Volume (veh/h)        | 51                                                                                | 248                                                                               | 83                                                                                | 49                                                                                | 237                                                                               | 92                                                                                | 67                                                                                 | 245                                                                                 | 65                                                                                  | 122                                                                                 | 134                                                                                 | 46                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                               | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 57                                                                                | 276                                                                               | 92                                                                                | 54                                                                                | 263                                                                               | 102                                                                               | 74                                                                                 | 272                                                                                 | 72                                                                                  | 136                                                                                 | 149                                                                                 | 51                                                                                  |
| Peak Hour Factor             | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                               | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 74                                                                                | 1370                                                                              | 447                                                                               | 70                                                                                | 1307                                                                              | 494                                                                               | 95                                                                                 | 327                                                                                 | 277                                                                                 | 164                                                                                 | 284                                                                                 | 97                                                                                  |
| Arrive On Green              | 0.04                                                                              | 0.52                                                                              | 0.52                                                                              | 0.04                                                                              | 0.52                                                                              | 0.52                                                                              | 0.05                                                                               | 0.17                                                                                | 0.17                                                                                | 0.09                                                                                | 0.21                                                                                | 0.21                                                                                |
| Sat Flow, veh/h              | 1781                                                                              | 2634                                                                              | 859                                                                               | 1781                                                                              | 2522                                                                              | 953                                                                               | 1781                                                                               | 1870                                                                                | 1585                                                                                | 1781                                                                                | 1332                                                                                | 456                                                                                 |
| Grp Volume(v), veh/h         | 57                                                                                | 184                                                                               | 184                                                                               | 54                                                                                | 183                                                                               | 182                                                                               | 74                                                                                 | 272                                                                                 | 72                                                                                  | 136                                                                                 | 0                                                                                   | 200                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 1777                                                                              | 1716                                                                              | 1781                                                                              | 1777                                                                              | 1699                                                                              | 1781                                                                               | 1870                                                                                | 1585                                                                                | 1781                                                                                | 0                                                                                   | 1788                                                                                |
| Q Serve(g_s), s              | 3.6                                                                               | 6.4                                                                               | 6.6                                                                               | 3.4                                                                               | 6.3                                                                               | 6.6                                                                               | 4.7                                                                                | 16.1                                                                                | 4.5                                                                                 | 8.6                                                                                 | 0.0                                                                                 | 11.3                                                                                |
| Cycle Q Clear(g_c), s        | 3.6                                                                               | 6.4                                                                               | 6.6                                                                               | 3.4                                                                               | 6.3                                                                               | 6.6                                                                               | 4.7                                                                                | 16.1                                                                                | 4.5                                                                                 | 8.6                                                                                 | 0.0                                                                                 | 11.3                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.50                                                                              | 1.00                                                                              |                                                                                   | 0.56                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.25                                                                                |
| Lane Grp Cap(c), veh/h       | 74                                                                                | 924                                                                               | 893                                                                               | 70                                                                                | 921                                                                               | 880                                                                               | 95                                                                                 | 327                                                                                 | 277                                                                                 | 164                                                                                 | 0                                                                                   | 382                                                                                 |
| V/C Ratio(X)                 | 0.78                                                                              | 0.20                                                                              | 0.21                                                                              | 0.78                                                                              | 0.20                                                                              | 0.21                                                                              | 0.78                                                                               | 0.83                                                                                | 0.26                                                                                | 0.83                                                                                | 0.00                                                                                | 0.52                                                                                |
| Avail Cap(c_a), veh/h        | 239                                                                               | 924                                                                               | 893                                                                               | 239                                                                               | 924                                                                               | 884                                                                               | 239                                                                                | 811                                                                                 | 688                                                                                 | 239                                                                                 | 0                                                                                   | 776                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 54.4                                                                              | 14.7                                                                              | 14.8                                                                              | 54.5                                                                              | 14.8                                                                              | 14.9                                                                              | 53.5                                                                               | 45.6                                                                                | 40.9                                                                                | 51.1                                                                                | 0.0                                                                                 | 39.9                                                                                |
| Incr Delay (d2), s/veh       | 6.4                                                                               | 0.5                                                                               | 0.5                                                                               | 6.7                                                                               | 0.0                                                                               | 0.0                                                                               | 9.7                                                                                | 5.5                                                                                 | 0.5                                                                                 | 12.5                                                                                | 0.0                                                                                 | 1.6                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.8                                                                               | 2.7                                                                               | 2.7                                                                               | 1.7                                                                               | 2.6                                                                               | 2.5                                                                               | 2.4                                                                                | 7.9                                                                                 | 1.8                                                                                 | 4.4                                                                                 | 0.0                                                                                 | 5.2                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 60.7                                                                              | 15.2                                                                              | 15.3                                                                              | 61.2                                                                              | 14.9                                                                              | 14.9                                                                              | 63.2                                                                               | 51.1                                                                                | 41.4                                                                                | 63.6                                                                                | 0.0                                                                                 | 41.5                                                                                |
| LnGrp LOS                    | E                                                                                 | B                                                                                 | B                                                                                 | E                                                                                 | B                                                                                 | B                                                                                 | E                                                                                  | D                                                                                   | D                                                                                   | E                                                                                   |                                                                                     | D                                                                                   |
| Approach Vol, veh/h          | 425                                                                               |                                                                                   |                                                                                   | 419                                                                               |                                                                                   |                                                                                   | 418                                                                                |                                                                                     |                                                                                     | 336                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 21.3                                                                              |                                                                                   |                                                                                   | 20.9                                                                              |                                                                                   |                                                                                   | 51.6                                                                               |                                                                                     |                                                                                     | 50.4                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | D                                                                                  |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 9.1                                                                               | 65.0                                                                              | 10.7                                                                              | 29.8                                                                              | 9.3                                                                               | 64.8                                                                              | 15.2                                                                               | 25.3                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.6                                                                               | 5.4                                                                               | 4.6                                                                               | 5.3                                                                               | 4.6                                                                               | 5.4                                                                               | 4.6                                                                                | 5.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 15.4                                                                              | 59.6                                                                              | 15.4                                                                              | 49.7                                                                              | 15.4                                                                              | 59.6                                                                              | 15.4                                                                               | 49.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 5.4                                                                               | 8.6                                                                               | 6.7                                                                               | 13.3                                                                              | 5.6                                                                               | 8.6                                                                               | 10.6                                                                               | 18.1                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 1.1                                                                               | 0.1                                                                               | 1.8                                                                               | 0.0                                                                               | 1.1                                                                               | 0.1                                                                                | 1.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 35.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## 2: Highland Dr/Highland Dr &amp; Wilmington Ave



| Lane Group              | EBL  | EBT  | EBR  | WBL  | WBT  | NBL  | NBT  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 17   | 81   | 19   | 42   | 62   | 18   | 404  | 309  |
| v/c Ratio               | 0.11 | 0.37 | 0.09 | 0.27 | 0.26 | 0.02 | 0.29 | 0.24 |
| Control Delay (s/veh)   | 23.5 | 28.4 | 6.7  | 27.5 | 14.0 | 3.2  | 3.8  | 3.8  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 23.5 | 28.4 | 6.7  | 27.5 | 14.0 | 3.2  | 3.8  | 3.8  |
| Queue Length 50th (ft)  | 5    | 26   | 0    | 14   | 6    | 1    | 38   | 30   |
| Queue Length 95th (ft)  | 21   | 61   | 11   | 38   | 34   | 7    | 82   | 65   |
| Internal Link Dist (ft) |      | 248  |      |      | 208  |      | 10   | 677  |
| Turn Bay Length (ft)    | 200  |      | 180  | 50   |      | 75   |      |      |
| Base Capacity (vph)     | 555  | 774  | 677  | 544  | 717  | 809  | 1382 | 1278 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.03 | 0.10 | 0.03 | 0.08 | 0.09 | 0.02 | 0.29 | 0.24 |

## Intersection Summary



## HCM 7th Signalized Intersection Summary 2: Highland Dr/Highland Dr & Wilmington Ave

2033 Plus Project

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |                                                                                   |  |  |                                                                                     |                                                                                     |  |                                                                                     |
| Traffic Volume (veh/h)       | 15                                                                                | 73                                                                                | 17                                                                                | 38                                                                                | 16                                                                                | 40                                                                                | 16                                                                                  | 299                                                                                 | 65                                                                                  | 43                                                                                  | 226                                                                                 | 9                                                                                   |
| Future Volume (veh/h)        | 15                                                                                | 73                                                                                | 17                                                                                | 38                                                                                | 16                                                                                | 40                                                                                | 16                                                                                  | 299                                                                                 | 65                                                                                  | 43                                                                                  | 226                                                                                 | 9                                                                                   |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 17                                                                                | 81                                                                                | 19                                                                                | 42                                                                                | 18                                                                                | 44                                                                                | 18                                                                                  | 332                                                                                 | 72                                                                                  | 48                                                                                  | 251                                                                                 | 10                                                                                  |
| Peak Hour Factor             | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 226                                                                               | 202                                                                               | 171                                                                               | 216                                                                               | 52                                                                                | 127                                                                               | 958                                                                                 | 1053                                                                                | 228                                                                                 | 206                                                                                 | 1025                                                                                | 39                                                                                  |
| Arrive On Green              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                |
| Sat Flow, veh/h              | 1340                                                                              | 1870                                                                              | 1585                                                                              | 1295                                                                              | 482                                                                               | 1177                                                                              | 1118                                                                                | 1489                                                                                | 323                                                                                 | 186                                                                                 | 1450                                                                                | 55                                                                                  |
| Grp Volume(v), veh/h         | 17                                                                                | 81                                                                                | 19                                                                                | 42                                                                                | 0                                                                                 | 62                                                                                | 18                                                                                  | 0                                                                                   | 404                                                                                 | 309                                                                                 | 0                                                                                   | 0                                                                                   |
| Grp Sat Flow(s),veh/h/ln     | 1340                                                                              | 1870                                                                              | 1585                                                                              | 1295                                                                              | 0                                                                                 | 1659                                                                              | 1118                                                                                | 0                                                                                   | 1812                                                                                | 1692                                                                                | 0                                                                                   | 0                                                                                   |
| Q Serve(g_s), s              | 0.7                                                                               | 2.3                                                                               | 0.6                                                                               | 1.8                                                                               | 0.0                                                                               | 1.9                                                                               | 0.0                                                                                 | 0.0                                                                                 | 4.7                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Cycle Q Clear(g_c), s        | 2.6                                                                               | 2.3                                                                               | 0.6                                                                               | 4.0                                                                               | 0.0                                                                               | 1.9                                                                               | 0.2                                                                                 | 0.0                                                                                 | 4.7                                                                                 | 3.3                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.71                                                                              | 1.00                                                                                |                                                                                     | 0.18                                                                                | 0.16                                                                                |                                                                                     | 0.03                                                                                |
| Lane Grp Cap(c), veh/h       | 226                                                                               | 202                                                                               | 171                                                                               | 216                                                                               | 0                                                                                 | 179                                                                               | 958                                                                                 | 0                                                                                   | 1281                                                                                | 1270                                                                                | 0                                                                                   | 0                                                                                   |
| V/C Ratio(X)                 | 0.08                                                                              | 0.40                                                                              | 0.11                                                                              | 0.19                                                                              | 0.00                                                                              | 0.35                                                                              | 0.02                                                                                | 0.00                                                                                | 0.32                                                                                | 0.24                                                                                | 0.00                                                                                | 0.00                                                                                |
| Avail Cap(c_a), veh/h        | 676                                                                               | 829                                                                               | 703                                                                               | 650                                                                               | 0                                                                                 | 735                                                                               | 958                                                                                 | 0                                                                                   | 1281                                                                                | 1270                                                                                | 0                                                                                   | 0                                                                                   |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 0.00                                                                                |
| Uniform Delay (d), s/veh     | 24.4                                                                              | 23.4                                                                              | 22.6                                                                              | 25.2                                                                              | 0.0                                                                               | 23.2                                                                              | 2.4                                                                                 | 0.0                                                                                 | 3.1                                                                                 | 2.9                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.5                                                                               | 0.1                                                                               | 0.2                                                                               | 0.0                                                                               | 0.4                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.6                                                                                 | 0.5                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.2                                                                               | 1.0                                                                               | 0.2                                                                               | 0.5                                                                               | 0.0                                                                               | 0.7                                                                               | 0.0                                                                                 | 0.0                                                                                 | 1.1                                                                                 | 0.8                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 24.5                                                                              | 23.8                                                                              | 22.7                                                                              | 25.4                                                                              | 0.0                                                                               | 23.6                                                                              | 2.5                                                                                 | 0.0                                                                                 | 3.7                                                                                 | 3.3                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | A                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     |                                                                                     |
| Approach Vol, veh/h          | 117                                                                               |                                                                                   |                                                                                   | 104                                                                               |                                                                                   |                                                                                   | 422                                                                                 |                                                                                     |                                                                                     | 309                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 23.8                                                                              |                                                                                   |                                                                                   | 24.4                                                                              |                                                                                   |                                                                                   | 3.7                                                                                 |                                                                                     |                                                                                     | 3.3                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 11.2                                                                              |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 11.2                                                                                |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.3                                                                               |                                                                                   |                                                                                   | 5.1                                                                               |                                                                                   |                                                                                   | 5.3                                                                                 |                                                                                     |                                                                                     | 5.1                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.7                                                                              |                                                                                   |                                                                                   | 24.9                                                                              |                                                                                   |                                                                                   | 39.7                                                                                |                                                                                     |                                                                                     | 24.9                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 6.7                                                                               |                                                                                   |                                                                                   | 4.6                                                                               |                                                                                   |                                                                                   | 5.3                                                                                 |                                                                                     |                                                                                     | 6.0                                                                                 |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 1.3                                                                               |                                                                                   |                                                                                   | 0.3                                                                               |                                                                                   |                                                                                   | 1.0                                                                                 |                                                                                     |                                                                                     | 0.2                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 8.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |        |       |      |        |       |      |        |       |       |        |       |       |
|--------------------------|--------|-------|------|--------|-------|------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 2.5    |       |      |        |       |      |        |       |       |        |       |       |
| Movement                 | EBL    | EBT   | EBR  | WBL    | WBT   | WBR  | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |        | ↔     |      |        | ↔     |      |        | ↔     |       |        | ↔     |       |
| Traffic Vol, veh/h       | 19     | 80    | 9    | 19     | 70    | 32   | 3      | 3     | 6     | 14     | 1     | 14    |
| Future Vol, veh/h        | 19     | 80    | 9    | 19     | 70    | 32   | 3      | 3     | 6     | 14     | 1     | 14    |
| Conflicting Peds, #/hr   | 0      | 0     | 0    | 0      | 0     | 0    | 0      | 0     | 0     | 0      | 0     | 0     |
| Sign Control             | Free   | Free  | Free | Free   | Free  | Free | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -      | -     | None | -      | -     | None | -      | -     | None  | -      | -     | None  |
| Storage Length           | -      | -     | -    | -      | -     | -    | -      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -      | 0     | -    | -      | 0     | -    | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -      | 0     | -    | -      | 0     | -    | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 90     | 90    | 90   | 90     | 90    | 90   | 90     | 90    | 90    | 90     | 90    | 90    |
| Heavy Vehicles, %        | 2      | 2     | 2    | 2      | 2     | 2    | 2      | 2     | 2     | 2      | 2     | 2     |
| Mvmt Flow                | 21     | 89    | 10   | 21     | 78    | 36   | 3      | 3     | 7     | 16     | 1     | 16    |
| Major/Minor              | Major1 |       |      | Major2 |       |      | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 113    | 0     | 0    | 99     | 0     | 0    | 257    | 292   | 94    | 271    | 279   | 96    |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 136    | 136   | -     | 138    | 138   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 121    | 156   | -     | 133    | 141   | -     |
| Critical Hdwy            | 4.12   | -     | -    | 4.12   | -     | -    | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -      | -     | -    | -      | -     | -    | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -      | -     | -    | -      | -     | -    | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218  | -     | -    | 2.218  | -     | -    | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1476   | -     | -    | 1494   | -     | -    | 696    | 619   | 963   | 682    | 629   | 961   |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 867    | 784   | -     | 865    | 783   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 884    | 769   | -     | 871    | 780   | -     |
| Platoon blocked, %       | -      | -     | -    | -      | -     | -    | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver       | 1476   | -     | -    | 1494   | -     | -    | 663    | 600   | 963   | 653    | 610   | 961   |
| Mov Cap-2 Maneuver       | -      | -     | -    | -      | -     | -    | 663    | 600   | -     | 653    | 610   | -     |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 854    | 772   | -     | 852    | 771   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 855    | 757   | -     | 848    | 768   | -     |
| Approach                 | EB     |       |      | WB     |       |      | NB     |       |       | SB     |       |       |
| HCM Ctrl Dly, s/v        | 1.31   |       |      | 1.17   |       |      | 9.81   |       |       | 9.88   |       |       |
| HCM LOS                  |        |       |      |        |       |      | A      |       |       | A      |       |       |
| Minor Lane/Major Mvmt    | NBLn1  | EBL   | EBT  | EBR    | WBL   | WBT  | WBR    | SBLn1 |       |        |       |       |
| Capacity (veh/h)         | 762    | 310   | -    | -      | 266   | -    | -      | 771   |       |        |       |       |
| HCM Lane V/C Ratio       | 0.017  | 0.014 | -    | -      | 0.014 | -    | -      | 0.042 |       |        |       |       |
| HCM Ctrl Dly (s/v)       | 9.8    | 7.5   | 0    | -      | 7.4   | 0    | -      | 9.9   |       |        |       |       |
| HCM Lane LOS             | A      | A     | A    | -      | A     | A    | -      | A     |       |        |       |       |
| HCM 95th %tile Q(veh)    | 0.1    | 0     | -    | -      | 0     | -    | -      | 0.1   |       |        |       |       |

## 4: Highland Dr &amp; Simpson Ave



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 24   | 97   | 16   | 58   | 33   | 406  | 36   | 284  |
| v/c Ratio               | 0.16 | 0.41 | 0.11 | 0.27 | 0.04 | 0.29 | 0.05 | 0.20 |
| Control Delay (s/veh)   | 25.0 | 16.1 | 23.9 | 13.2 | 3.0  | 3.5  | 3.0  | 3.0  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 25.0 | 16.1 | 23.9 | 13.2 | 3.0  | 3.5  | 3.0  | 3.0  |
| Queue Length 50th (ft)  | 8    | 9    | 5    | 3    | 2    | 35   | 3    | 22   |
| Queue Length 95th (ft)  | 26   | 46   | 20   | 30   | 10   | 79   | 10   | 52   |
| Internal Link Dist (ft) |      | 135  |      | 226  |      | 265  |      | 267  |
| Turn Bay Length (ft)    | 65   |      | 75   |      | 100  |      | 50   |      |
| Base Capacity (vph)     | 608  | 747  | 608  | 720  | 843  | 1422 | 753  | 1409 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.04 | 0.13 | 0.03 | 0.08 | 0.04 | 0.29 | 0.05 | 0.20 |

## Intersection Summary

# HCM 7th Signalized Intersection Summary

## 4: Highland Dr & Simpson Ave

2033 Plus Project

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 22                                                                                | 27                                                                                | 60                                                                                | 14                                                                                | 9                                                                                 | 43                                                                                | 30                                                                                  | 333                                                                                 | 32                                                                                  | 32                                                                                  | 216                                                                                 | 40                                                                                  |
| Future Volume (veh/h)        | 22                                                                                | 27                                                                                | 60                                                                                | 14                                                                                | 9                                                                                 | 43                                                                                | 30                                                                                  | 333                                                                                 | 32                                                                                  | 32                                                                                  | 216                                                                                 | 40                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 24                                                                                | 30                                                                                | 67                                                                                | 16                                                                                | 10                                                                                | 48                                                                                | 33                                                                                  | 370                                                                                 | 36                                                                                  | 36                                                                                  | 240                                                                                 | 44                                                                                  |
| Peak Hour Factor             | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                              | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 221                                                                               | 52                                                                                | 117                                                                               | 189                                                                               | 28                                                                                | 137                                                                               | 852                                                                                 | 1196                                                                                | 116                                                                                 | 748                                                                                 | 1097                                                                                | 201                                                                                 |
| Arrive On Green              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.10                                                                              | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                | 0.71                                                                                |
| Sat Flow, veh/h              | 1345                                                                              | 514                                                                               | 1149                                                                              | 1298                                                                              | 281                                                                               | 1347                                                                              | 1095                                                                                | 1678                                                                                | 163                                                                                 | 979                                                                                 | 1538                                                                                | 282                                                                                 |
| Grp Volume(v), veh/h         | 24                                                                                | 0                                                                                 | 97                                                                                | 16                                                                                | 0                                                                                 | 58                                                                                | 33                                                                                  | 0                                                                                   | 406                                                                                 | 36                                                                                  | 0                                                                                   | 284                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1345                                                                              | 0                                                                                 | 1664                                                                              | 1298                                                                              | 0                                                                                 | 1628                                                                              | 1095                                                                                | 0                                                                                   | 1841                                                                                | 979                                                                                 | 0                                                                                   | 1820                                                                                |
| Q Serve(g_s), s              | 0.9                                                                               | 0.0                                                                               | 3.1                                                                               | 0.7                                                                               | 0.0                                                                               | 1.8                                                                               | 0.6                                                                                 | 0.0                                                                                 | 4.5                                                                                 | 0.8                                                                                 | 0.0                                                                                 | 2.9                                                                                 |
| Cycle Q Clear(g_c), s        | 2.8                                                                               | 0.0                                                                               | 3.1                                                                               | 3.8                                                                               | 0.0                                                                               | 1.8                                                                               | 3.5                                                                                 | 0.0                                                                                 | 4.5                                                                                 | 5.3                                                                                 | 0.0                                                                                 | 2.9                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.69                                                                              | 1.00                                                                              |                                                                                   | 0.83                                                                              | 1.00                                                                                |                                                                                     | 0.09                                                                                | 1.00                                                                                |                                                                                     | 0.15                                                                                |
| Lane Grp Cap(c), veh/h       | 221                                                                               | 0                                                                                 | 169                                                                               | 189                                                                               | 0                                                                                 | 165                                                                               | 852                                                                                 | 0                                                                                   | 1313                                                                                | 748                                                                                 | 0                                                                                   | 1298                                                                                |
| V/C Ratio(X)                 | 0.11                                                                              | 0.00                                                                              | 0.57                                                                              | 0.08                                                                              | 0.00                                                                              | 0.35                                                                              | 0.04                                                                                | 0.00                                                                                | 0.31                                                                                | 0.05                                                                                | 0.00                                                                                | 0.22                                                                                |
| Avail Cap(c_a), veh/h        | 693                                                                               | 0                                                                                 | 752                                                                               | 644                                                                               | 0                                                                                 | 736                                                                               | 852                                                                                 | 0                                                                                   | 1313                                                                                | 748                                                                                 | 0                                                                                   | 1298                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 24.5                                                                              | 0.0                                                                               | 23.8                                                                              | 25.6                                                                              | 0.0                                                                               | 23.2                                                                              | 3.3                                                                                 | 0.0                                                                                 | 2.9                                                                                 | 3.9                                                                                 | 0.0                                                                                 | 2.7                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.0                                                                               | 1.2                                                                               | 0.1                                                                               | 0.0                                                                               | 0.5                                                                               | 0.1                                                                                 | 0.0                                                                                 | 0.6                                                                                 | 0.1                                                                                 | 0.0                                                                                 | 0.4                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.3                                                                               | 0.0                                                                               | 1.2                                                                               | 0.2                                                                               | 0.0                                                                               | 0.7                                                                               | 0.1                                                                                 | 0.0                                                                                 | 1.0                                                                                 | 0.1                                                                                 | 0.0                                                                                 | 0.7                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 24.6                                                                              | 0.0                                                                               | 25.0                                                                              | 25.7                                                                              | 0.0                                                                               | 23.7                                                                              | 3.4                                                                                 | 0.0                                                                                 | 3.5                                                                                 | 4.0                                                                                 | 0.0                                                                                 | 3.1                                                                                 |
| LnGrp LOS                    | C                                                                                 |                                                                                   | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | A                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     | A                                                                                   |
| Approach Vol, veh/h          | 121                                                                               |                                                                                   |                                                                                   | 74                                                                                |                                                                                   |                                                                                   | 439                                                                                 |                                                                                     |                                                                                     | 320                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 24.9                                                                              |                                                                                   |                                                                                   | 24.1                                                                              |                                                                                   |                                                                                   | 3.5                                                                                 |                                                                                     |                                                                                     | 3.2                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 10.5                                                                              |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 10.5                                                                                |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.4                                                                               |                                                                                   |                                                                                   | 4.9                                                                               |                                                                                   |                                                                                   | 5.4                                                                                 |                                                                                     |                                                                                     | 4.9                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.6                                                                              |                                                                                   |                                                                                   | 25.1                                                                              |                                                                                   |                                                                                   | 39.6                                                                                |                                                                                     |                                                                                     | 25.1                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 6.5                                                                               |                                                                                   |                                                                                   | 5.1                                                                               |                                                                                   |                                                                                   | 7.3                                                                                 |                                                                                     |                                                                                     | 5.8                                                                                 |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 1.8                                                                               |                                                                                   |                                                                                   | 0.3                                                                               |                                                                                   |                                                                                   | 1.3                                                                                 |                                                                                     |                                                                                     | 0.2                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 7.7                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 1.2       |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↑      | ↘    |      |
| Traffic Vol, veh/h       | 0         | 83     | 0    | 380    | 222  | 60   |
| Future Vol, veh/h        | 0         | 83     | 0    | 380    | 222  | 60   |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | -    |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 90        | 90     | 90   | 90     | 90   | 90   |
| Heavy Vehicles, %        | 2         | 2      | 2    | 2      | 2    | 2    |
| Mvmt Flow                | 0         | 92     | 0    | 422    | 247  | 67   |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 280    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 6.22   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 3.318  | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 759    | 0    | -      | -    | -    |
| Stage 1                  | 0         | -      | 0    | -      | -    | -    |
| Stage 2                  | 0         | -      | 0    | -      | -    | -    |
| Platoon blocked, %       | -         | -      | -    | -      | -    | -    |
| Mov Cap-1 Maneuver       | -         | 759    | -    | -      | -    | -    |
| Mov Cap-2 Maneuver       | -         | -      | -    | -      | -    | -    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Approach                 | EB        | NB     |      | SB     |      |      |
| HCM Ctrl Dly, s/v        | 10.4      | 0      |      | 0      |      |      |
| HCM LOS                  | B         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | - 759     |        | -    | -      |      |      |
| HCM Lane V/C Ratio       | - 0.122   |        | -    | -      |      |      |
| HCM Ctrl Dly (s/v)       | - 10.4    |        | -    | -      |      |      |
| HCM Lane LOS             | - B       |        | -    | -      |      |      |
| HCM 95th %tile Q(veh)    | - 0.4     |        | -    | -      |      |      |

| Intersection             |                                                                                   |        |        |                                                                                   |                                                                                   |      |
|--------------------------|-----------------------------------------------------------------------------------|--------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 0.1                                                                               |        |        |                                                                                   |                                                                                   |      |
| Movement                 | EBL                                                                               | EBR    | NBL    | NBT                                                                               | SBT                                                                               | SBR  |
| Lane Configurations      |  |        |        |  |  |      |
| Traffic Vol, veh/h       | 3                                                                                 | 2      | 0      | 377                                                                               | 305                                                                               | 0    |
| Future Vol, veh/h        | 3                                                                                 | 2      | 0      | 377                                                                               | 305                                                                               | 0    |
| Conflicting Peds, #/hr   | 0                                                                                 | 0      | 0      | 0                                                                                 | 0                                                                                 | 0    |
| Sign Control             | Stop                                                                              | Stop   | Free   | Free                                                                              | Free                                                                              | Free |
| RT Channelized           | -                                                                                 | None   | -      | None                                                                              | -                                                                                 | None |
| Storage Length           | 0                                                                                 | -      | -      | -                                                                                 | -                                                                                 | -    |
| Veh in Median Storage, # | 0                                                                                 | -      | -      | 0                                                                                 | 0                                                                                 | -    |
| Grade, %                 | 0                                                                                 | -      | -      | 0                                                                                 | 0                                                                                 | -    |
| Peak Hour Factor         | 90                                                                                | 90     | 90     | 90                                                                                | 90                                                                                | 90   |
| Heavy Vehicles, %        | 2                                                                                 | 2      | 2      | 2                                                                                 | 2                                                                                 | 2    |
| Mvmt Flow                | 3                                                                                 | 2      | 0      | 419                                                                               | 339                                                                               | 0    |
| Major/Minor              | Minor2                                                                            | Major1 | Major2 |                                                                                   |                                                                                   |      |
| Conflicting Flow All     | 758                                                                               | 339    | -      | 0                                                                                 | -                                                                                 | 0    |
| Stage 1                  | 339                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Stage 2                  | 419                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy            | 6.42                                                                              | 6.22   | -      | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy Stg 1      | 5.42                                                                              | -      | -      | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy Stg 2      | 5.42                                                                              | -      | -      | -                                                                                 | -                                                                                 | -    |
| Follow-up Hdwy           | 3.518                                                                             | 3.318  | -      | -                                                                                 | -                                                                                 | -    |
| Pot Cap-1 Maneuver       | 375                                                                               | 703    | 0      | -                                                                                 | -                                                                                 | -    |
| Stage 1                  | 722                                                                               | -      | 0      | -                                                                                 | -                                                                                 | -    |
| Stage 2                  | 664                                                                               | -      | 0      | -                                                                                 | -                                                                                 | -    |
| Platoon blocked, %       |                                                                                   |        |        | -                                                                                 | -                                                                                 | -    |
| Mov Cap-1 Maneuver       | 375                                                                               | 703    | -      | -                                                                                 | -                                                                                 | -    |
| Mov Cap-2 Maneuver       | 486                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Stage 1                  | 722                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Stage 2                  | 664                                                                               | -      | -      | -                                                                                 | -                                                                                 | -    |
| Approach                 | EB                                                                                | NB     | SB     |                                                                                   |                                                                                   |      |
| HCM Ctrl Dly, s/v        | 11.56                                                                             | 0      | 0      |                                                                                   |                                                                                   |      |
| HCM LOS                  | B                                                                                 |        |        |                                                                                   |                                                                                   |      |
| Minor Lane/Major Mvmt    | NBT                                                                               | EBLn1  | SBT    | SBR                                                                               |                                                                                   |      |
| Capacity (veh/h)         | -                                                                                 | 555    | -      | -                                                                                 |                                                                                   |      |
| HCM Lane V/C Ratio       | -                                                                                 | 0.01   | -      | -                                                                                 |                                                                                   |      |
| HCM Ctrl Dly (s/v)       | -                                                                                 | 11.6   | -      | -                                                                                 |                                                                                   |      |
| HCM Lane LOS             | -                                                                                 | B      | -      | -                                                                                 |                                                                                   |      |
| HCM 95th %tile Q(veh)    | -                                                                                 | 0      | -      | -                                                                                 |                                                                                   |      |



## 1: Highland Dr/1100 E &amp; 2100 S



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL   | NBT  | NBR  | SBL   | SBT  |
|-------------------------|------|------|------|------|-------|------|------|-------|------|
| Lane Group Flow (vph)   | 100  | 620  | 119  | 524  | 172   | 353  | 171  | 179   | 432  |
| v/c Ratio               | 0.72 | 0.45 | 0.78 | 0.37 | 0.93  | 0.70 | 0.35 | 0.97  | 0.88 |
| Control Delay (s/veh)   | 95.6 | 32.1 | 99.0 | 30.8 | 116.4 | 56.8 | 24.5 | 124.8 | 70.1 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0   | 0.0  |
| Total Delay (s/veh)     | 95.6 | 32.1 | 99.0 | 30.8 | 116.4 | 56.8 | 24.5 | 124.8 | 70.1 |
| Queue Length 50th (ft)  | 99   | 222  | 118  | 180  | 175   | 317  | 72   | 183   | 406  |
| Queue Length 95th (ft)  | 172  | 305  | #218 | 258  | #356  | 437  | 142  | #374  | 551  |
| Internal Link Dist (ft) |      | 242  |      | 444  |       | 677  |      |       | 301  |
| Turn Bay Length (ft)    | 200  |      | 290  |      | 90    |      | 90   | 95    |      |
| Base Capacity (vph)     | 184  | 1393 | 184  | 1420 | 184   | 627  | 585  | 184   | 613  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0     | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0     | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0     | 0    |
| Reduced v/c Ratio       | 0.54 | 0.45 | 0.65 | 0.37 | 0.93  | 0.56 | 0.29 | 0.97  | 0.70 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 7th Signalized Intersection Summary

## 1: Highland Dr/1100 E & 2100 S

2033 Plus Project

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 98                                                                                | 426                                                                               | 181                                                                               | 117                                                                               | 388                                                                               | 125                                                                               | 169                                                                                 | 346                                                                                 | 168                                                                                 | 175                                                                                 | 336                                                                                 | 87                                                                                  |
| Future Volume (veh/h)        | 98                                                                                | 426                                                                               | 181                                                                               | 117                                                                               | 388                                                                               | 125                                                                               | 169                                                                                 | 346                                                                                 | 168                                                                                 | 175                                                                                 | 336                                                                                 | 87                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 100                                                                               | 435                                                                               | 185                                                                               | 119                                                                               | 396                                                                               | 128                                                                               | 172                                                                                 | 353                                                                                 | 171                                                                                 | 179                                                                                 | 343                                                                                 | 89                                                                                  |
| Peak Hour Factor             | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 121                                                                               | 1001                                                                              | 422                                                                               | 141                                                                               | 1117                                                                              | 357                                                                               | 189                                                                                 | 499                                                                                 | 423                                                                                 | 189                                                                                 | 382                                                                                 | 99                                                                                  |
| Arrive On Green              | 0.07                                                                              | 0.41                                                                              | 0.41                                                                              | 0.08                                                                              | 0.42                                                                              | 0.42                                                                              | 0.11                                                                                | 0.27                                                                                | 0.27                                                                                | 0.11                                                                                | 0.27                                                                                | 0.27                                                                                |
| Sat Flow, veh/h              | 1781                                                                              | 2436                                                                              | 1026                                                                              | 1781                                                                              | 2649                                                                              | 846                                                                               | 1781                                                                                | 1870                                                                                | 1585                                                                                | 1781                                                                                | 1432                                                                                | 372                                                                                 |
| Grp Volume(v), veh/h         | 100                                                                               | 316                                                                               | 304                                                                               | 119                                                                               | 264                                                                               | 260                                                                               | 172                                                                                 | 353                                                                                 | 171                                                                                 | 179                                                                                 | 0                                                                                   | 432                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 1777                                                                              | 1686                                                                              | 1781                                                                              | 1777                                                                              | 1718                                                                              | 1781                                                                                | 1870                                                                                | 1585                                                                                | 1781                                                                                | 0                                                                                   | 1803                                                                                |
| Q Serve(g_s), s              | 8.0                                                                               | 18.5                                                                              | 18.8                                                                              | 9.6                                                                               | 14.6                                                                              | 15.0                                                                              | 13.9                                                                                | 24.8                                                                                | 12.9                                                                                | 14.5                                                                                | 0.0                                                                                 | 33.5                                                                                |
| Cycle Q Clear(g_c), s        | 8.0                                                                               | 18.5                                                                              | 18.8                                                                              | 9.6                                                                               | 14.6                                                                              | 15.0                                                                              | 13.9                                                                                | 24.8                                                                                | 12.9                                                                                | 14.5                                                                                | 0.0                                                                                 | 33.5                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.61                                                                              | 1.00                                                                              |                                                                                   | 0.49                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.21                                                                                |
| Lane Grp Cap(c), veh/h       | 121                                                                               | 730                                                                               | 692                                                                               | 141                                                                               | 749                                                                               | 725                                                                               | 189                                                                                 | 499                                                                                 | 423                                                                                 | 189                                                                                 | 0                                                                                   | 481                                                                                 |
| V/C Ratio(X)                 | 0.82                                                                              | 0.43                                                                              | 0.44                                                                              | 0.84                                                                              | 0.35                                                                              | 0.36                                                                              | 0.91                                                                                | 0.71                                                                                | 0.40                                                                                | 0.95                                                                                | 0.00                                                                                | 0.90                                                                                |
| Avail Cap(c_a), veh/h        | 189                                                                               | 730                                                                               | 692                                                                               | 189                                                                               | 749                                                                               | 725                                                                               | 189                                                                                 | 641                                                                                 | 543                                                                                 | 189                                                                                 | 0                                                                                   | 618                                                                                 |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 66.7                                                                              | 30.6                                                                              | 30.7                                                                              | 65.9                                                                              | 28.5                                                                              | 28.6                                                                              | 64.2                                                                                | 48.1                                                                                | 43.7                                                                                | 64.4                                                                                | 0.0                                                                                 | 51.3                                                                                |
| Incr Delay (d2), s/veh       | 8.3                                                                               | 1.9                                                                               | 2.0                                                                               | 17.5                                                                              | 0.1                                                                               | 0.1                                                                               | 40.7                                                                                | 2.5                                                                                 | 0.6                                                                                 | 50.0                                                                                | 0.0                                                                                 | 14.6                                                                                |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 4.0                                                                               | 8.4                                                                               | 8.1                                                                               | 5.1                                                                               | 6.4                                                                               | 6.3                                                                               | 8.4                                                                                 | 12.0                                                                                | 5.2                                                                                 | 9.2                                                                                 | 0.0                                                                                 | 17.1                                                                                |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 75.1                                                                              | 32.5                                                                              | 32.7                                                                              | 83.4                                                                              | 28.6                                                                              | 28.7                                                                              | 104.9                                                                               | 50.6                                                                                | 44.3                                                                                | 114.4                                                                               | 0.0                                                                                 | 65.9                                                                                |
| LnGrp LOS                    | E                                                                                 | C                                                                                 | C                                                                                 | F                                                                                 | C                                                                                 | C                                                                                 | F                                                                                   | D                                                                                   | D                                                                                   | F                                                                                   |                                                                                     | E                                                                                   |
| Approach Vol, veh/h          | 720                                                                               |                                                                                   |                                                                                   | 643                                                                               |                                                                                   |                                                                                   | 696                                                                                 |                                                                                     |                                                                                     | 611                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 38.5                                                                              |                                                                                   |                                                                                   | 38.8                                                                              |                                                                                   |                                                                                   | 62.5                                                                                |                                                                                     |                                                                                     | 80.1                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | E                                                                                   |                                                                                     |                                                                                     | F                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                   | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 16.1                                                                              | 65.0                                                                              | 20.0                                                                              | 44.0                                                                              | 14.5                                                                              | 66.6                                                                              | 20.0                                                                                | 44.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.6                                                                               | 5.4                                                                               | 4.6                                                                               | 5.3                                                                               | 4.6                                                                               | 5.4                                                                               | 4.6                                                                                 | 5.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 15.4                                                                              | 59.6                                                                              | 15.4                                                                              | 49.7                                                                              | 15.4                                                                              | 59.6                                                                              | 15.4                                                                                | 49.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 11.6                                                                              | 20.8                                                                              | 15.9                                                                              | 35.5                                                                              | 10.0                                                                              | 17.0                                                                              | 16.5                                                                                | 26.8                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 2.0                                                                               | 0.0                                                                               | 3.2                                                                               | 0.0                                                                               | 1.7                                                                               | 0.0                                                                                 | 2.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 54.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | D                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## 2: Highland Dr/Highland Dr &amp; Wilmington Ave



| Lane Group              | EBL  | EBT  | EBR  | WBL  | WBT  | NBL  | NBT  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 19   | 52   | 34   | 167  | 160  | 79   | 689  | 624  |
| v/c Ratio               | 0.08 | 0.15 | 0.10 | 0.66 | 0.40 | 0.15 | 0.59 | 0.75 |
| Control Delay (s/veh)   | 20.4 | 21.0 | 8.5  | 36.0 | 11.6 | 6.5  | 9.5  | 17.1 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.1  | 0.0  |
| Total Delay (s/veh)     | 20.4 | 21.0 | 8.5  | 36.0 | 11.6 | 6.5  | 9.7  | 17.1 |
| Queue Length 50th (ft)  | 6    | 17   | 0    | 59   | 18   | 10   | 120  | 138  |
| Queue Length 95th (ft)  | 21   | 41   | 19   | 114  | 61   | 34   | 278  | #418 |
| Internal Link Dist (ft) |      | 248  |      |      | 208  |      | 10   | 677  |
| Turn Bay Length (ft)    | 200  |      | 180  | 50   |      | 75   |      |      |
| Base Capacity (vph)     | 471  | 720  | 632  | 520  | 713  | 524  | 1172 | 832  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 61   | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.04 | 0.07 | 0.05 | 0.32 | 0.22 | 0.15 | 0.62 | 0.75 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 7th Signalized Intersection Summary 2: Highland Dr/Highland Dr & Wilmington Ave

2033 Plus Project

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |  |  |  |                                                                                   |  |  |                                                                                     |                                                                                     |  |                                                                                     |
| Traffic Volume (veh/h)       | 18                                                                                | 50                                                                                | 33                                                                                | 162                                                                               | 53                                                                                | 102                                                                               | 77                                                                                  | 487                                                                                 | 181                                                                                 | 123                                                                                 | 437                                                                                 | 45                                                                                  |
| Future Volume (veh/h)        | 18                                                                                | 50                                                                                | 33                                                                                | 162                                                                               | 53                                                                                | 102                                                                               | 77                                                                                  | 487                                                                                 | 181                                                                                 | 123                                                                                 | 437                                                                                 | 45                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 19                                                                                | 52                                                                                | 34                                                                                | 167                                                                               | 55                                                                                | 105                                                                               | 79                                                                                  | 502                                                                                 | 187                                                                                 | 127                                                                                 | 451                                                                                 | 46                                                                                  |
| Peak Hour Factor             | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 244                                                                               | 354                                                                               | 300                                                                               | 334                                                                               | 109                                                                               | 208                                                                               | 533                                                                                 | 835                                                                                 | 311                                                                                 | 191                                                                                 | 643                                                                                 | 61                                                                                  |
| Arrive On Green              | 0.19                                                                              | 0.19                                                                              | 0.19                                                                              | 0.19                                                                              | 0.19                                                                              | 0.19                                                                              | 0.64                                                                                | 0.64                                                                                | 0.64                                                                                | 0.64                                                                                | 0.64                                                                                | 0.64                                                                                |
| Sat Flow, veh/h              | 1226                                                                              | 1870                                                                              | 1585                                                                              | 1311                                                                              | 575                                                                               | 1098                                                                              | 901                                                                                 | 1299                                                                                | 484                                                                                 | 188                                                                                 | 1001                                                                                | 95                                                                                  |
| Grp Volume(v), veh/h         | 19                                                                                | 52                                                                                | 34                                                                                | 167                                                                               | 0                                                                                 | 160                                                                               | 79                                                                                  | 0                                                                                   | 689                                                                                 | 624                                                                                 | 0                                                                                   | 0                                                                                   |
| Grp Sat Flow(s),veh/h/ln     | 1226                                                                              | 1870                                                                              | 1585                                                                              | 1311                                                                              | 0                                                                                 | 1673                                                                              | 901                                                                                 | 0                                                                                   | 1783                                                                                | 1284                                                                                | 0                                                                                   | 0                                                                                   |
| Q Serve(g_s), s              | 0.9                                                                               | 1.4                                                                               | 1.1                                                                               | 7.5                                                                               | 0.0                                                                               | 5.3                                                                               | 0.0                                                                                 | 0.0                                                                                 | 13.9                                                                                | 10.3                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| Cycle Q Clear(g_c), s        | 6.2                                                                               | 1.4                                                                               | 1.1                                                                               | 9.0                                                                               | 0.0                                                                               | 5.3                                                                               | 4.3                                                                                 | 0.0                                                                                 | 13.9                                                                                | 24.2                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.66                                                                              | 1.00                                                                                |                                                                                     | 0.27                                                                                | 0.20                                                                                |                                                                                     | 0.07                                                                                |
| Lane Grp Cap(c), veh/h       | 244                                                                               | 354                                                                               | 300                                                                               | 334                                                                               | 0                                                                                 | 317                                                                               | 533                                                                                 | 0                                                                                   | 1146                                                                                | 895                                                                                 | 0                                                                                   | 0                                                                                   |
| V/C Ratio(X)                 | 0.08                                                                              | 0.15                                                                              | 0.11                                                                              | 0.50                                                                              | 0.00                                                                              | 0.51                                                                              | 0.15                                                                                | 0.00                                                                                | 0.60                                                                                | 0.70                                                                                | 0.00                                                                                | 0.00                                                                                |
| Avail Cap(c_a), veh/h        | 505                                                                               | 754                                                                               | 639                                                                               | 614                                                                               | 0                                                                                 | 674                                                                               | 533                                                                                 | 0                                                                                   | 1146                                                                                | 895                                                                                 | 0                                                                                   | 0                                                                                   |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 0.00                                                                                |
| Uniform Delay (d), s/veh     | 25.2                                                                              | 20.9                                                                              | 20.8                                                                              | 24.6                                                                              | 0.0                                                                               | 22.5                                                                              | 4.7                                                                                 | 0.0                                                                                 | 6.4                                                                                 | 7.9                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.1                                                                               | 0.1                                                                               | 0.4                                                                               | 0.0                                                                               | 0.5                                                                               | 0.6                                                                                 | 0.0                                                                                 | 2.3                                                                                 | 4.5                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.2                                                                               | 0.6                                                                               | 0.4                                                                               | 2.2                                                                               | 0.0                                                                               | 2.0                                                                               | 0.4                                                                                 | 0.0                                                                                 | 4.4                                                                                 | 4.2                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 25.3                                                                              | 21.0                                                                              | 20.8                                                                              | 25.1                                                                              | 0.0                                                                               | 22.9                                                                              | 5.3                                                                                 | 0.0                                                                                 | 8.8                                                                                 | 12.3                                                                                | 0.0                                                                                 | 0.0                                                                                 |
| LnGrp LOS                    | C                                                                                 | C                                                                                 | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | A                                                                                   |                                                                                     | A                                                                                   | B                                                                                   |                                                                                     |                                                                                     |
| Approach Vol, veh/h          | 105                                                                               |                                                                                   |                                                                                   | 327                                                                               |                                                                                   |                                                                                   | 768                                                                                 |                                                                                     |                                                                                     | 624                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 21.7                                                                              |                                                                                   |                                                                                   | 24.0                                                                              |                                                                                   |                                                                                   | 8.4                                                                                 |                                                                                     |                                                                                     | 12.3                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 16.8                                                                              |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 16.8                                                                                |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.3                                                                               |                                                                                   |                                                                                   | 5.1                                                                               |                                                                                   |                                                                                   | 5.3                                                                                 |                                                                                     |                                                                                     | 5.1                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.7                                                                              |                                                                                   |                                                                                   | 24.9                                                                              |                                                                                   |                                                                                   | 39.7                                                                                |                                                                                     |                                                                                     | 24.9                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 15.9                                                                              |                                                                                   |                                                                                   | 8.2                                                                               |                                                                                   |                                                                                   | 26.2                                                                                |                                                                                     |                                                                                     | 11.0                                                                                |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 2.8                                                                               |                                                                                   |                                                                                   | 0.2                                                                               |                                                                                   |                                                                                   | 2.4                                                                                 |                                                                                     |                                                                                     | 0.8                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 13.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 4.6  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↔    |      |      | ↔    |      |      | ↔    |      |      | ↔    |      |
| Traffic Vol, veh/h       | 57   | 211  | 25   | 25   | 246  | 82   | 36   | 10   | 32   | 53   | 8    | 56   |
| Future Vol, veh/h        | 57   | 211  | 25   | 25   | 246  | 82   | 36   | 10   | 32   | 53   | 8    | 56   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized           | -    | -    | None | -    | -    | None | -    | -    | None | -    | -    | None |
| Storage Length           | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   | 95   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 60   | 222  | 26   | 26   | 259  | 86   | 38   | 11   | 34   | 56   | 8    | 59   |

| Major/Minor          | Major1 |   |   | Major2 |   |   | Minor1 |       |       | Minor2 |       |       |
|----------------------|--------|---|---|--------|---|---|--------|-------|-------|--------|-------|-------|
| Conflicting Flow All | 345    | 0 | 0 | 248    | 0 | 0 | 671    | 753   | 235   | 702    | 723   | 302   |
| Stage 1              | -      | - | - | -      | - | - | 355    | 355   | -     | 355    | 355   | -     |
| Stage 2              | -      | - | - | -      | - | - | 316    | 398   | -     | 347    | 368   | -     |
| Critical Hdwy        | 4.12   | - | - | 4.12   | - | - | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1  | -      | - | - | -      | - | - | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2  | -      | - | - | -      | - | - | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy       | 2.218  | - | - | 2.218  | - | - | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver   | 1214   | - | - | 1317   | - | - | 370    | 339   | 804   | 353    | 352   | 738   |
| Stage 1              | -      | - | - | -      | - | - | 662    | 629   | -     | 663    | 630   | -     |
| Stage 2              | -      | - | - | -      | - | - | 695    | 603   | -     | 669    | 621   | -     |
| Platoon blocked, %   | -      | - | - | -      | - | - | -      | -     | -     | -      | -     | -     |
| Mov Cap-1 Maneuver   | 1214   | - | - | 1317   | - | - | 305    | 311   | 804   | 301    | 324   | 738   |
| Mov Cap-2 Maneuver   | -      | - | - | -      | - | - | 305    | 311   | -     | 301    | 324   | -     |
| Stage 1              | -      | - | - | -      | - | - | 624    | 593   | -     | 646    | 614   | -     |
| Stage 2              | -      | - | - | -      | - | - | 615    | 588   | -     | 593    | 585   | -     |

| Approach          | EB   | WB   | NB    | SB    |
|-------------------|------|------|-------|-------|
| HCM Ctrl Dly, s/v | 1.58 | 0.55 | 15.94 | 16.98 |
| HCM LOS           |      |      | C     | C     |

| Minor Lane/Major Mvmt | NBLn1 | EBL   | EBT | EBR | WBL  | WBT | WBR | SBLn1 |
|-----------------------|-------|-------|-----|-----|------|-----|-----|-------|
| Capacity (veh/h)      | 411   | 343   | -   | -   | 121  | -   | -   | 423   |
| HCM Lane V/C Ratio    | 0.2   | 0.049 | -   | -   | 0.02 | -   | -   | 0.291 |
| HCM Ctrl Dly (s/v)    | 15.9  | 8.1   | 0   | -   | 7.8  | 0   | -   | 17    |
| HCM Lane LOS          | C     | A     | A   | -   | A    | A   | -   | C     |
| HCM 95th %tile Q(veh) | 0.7   | 0.2   | -   | -   | 0.1  | -   | -   | 1.2   |

## 4: Highland Dr &amp; Simpson Ave



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 102  | 216  | 88   | 220  | 123  | 675  | 112  | 459  |
| v/c Ratio               | 0.67 | 0.55 | 0.56 | 0.54 | 0.21 | 0.56 | 0.27 | 0.38 |
| Control Delay (s/veh)   | 44.5 | 14.6 | 37.0 | 13.4 | 6.1  | 8.4  | 7.4  | 6.3  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay (s/veh)     | 44.5 | 14.6 | 37.0 | 13.4 | 6.1  | 8.4  | 7.4  | 6.3  |
| Queue Length 50th (ft)  | 36   | 25   | 30   | 22   | 14   | 105  | 14   | 60   |
| Queue Length 95th (ft)  | 81   | 78   | 70   | 74   | 45   | 245  | 47   | 141  |
| Internal Link Dist (ft) |      | 135  |      | 226  |      | 265  |      | 267  |
| Turn Bay Length (ft)    | 65   |      | 75   |      | 100  |      | 50   |      |
| Base Capacity (vph)     | 383  | 783  | 392  | 787  | 589  | 1215 | 417  | 1219 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.27 | 0.28 | 0.22 | 0.28 | 0.21 | 0.56 | 0.27 | 0.38 |

## Intersection Summary



# HCM 7th Signalized Intersection Summary 4: Highland Dr & Simpson Ave

2033 Plus Project

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 97                                                                                | 70                                                                                | 135                                                                               | 84                                                                                | 65                                                                                | 144                                                                               | 117                                                                                 | 571                                                                                 | 70                                                                                  | 106                                                                                 | 402                                                                                 | 34                                                                                  |
| Future Volume (veh/h)        | 97                                                                                | 70                                                                                | 135                                                                               | 84                                                                                | 65                                                                                | 144                                                                               | 117                                                                                 | 571                                                                                 | 70                                                                                  | 106                                                                                 | 402                                                                                 | 34                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Lane Width Adj.              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 102                                                                               | 74                                                                                | 142                                                                               | 88                                                                                | 68                                                                                | 152                                                                               | 123                                                                                 | 601                                                                                 | 74                                                                                  | 112                                                                                 | 423                                                                                 | 36                                                                                  |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 256                                                                               | 139                                                                               | 266                                                                               | 260                                                                               | 124                                                                               | 278                                                                               | 547                                                                                 | 982                                                                                 | 121                                                                                 | 392                                                                                 | 1022                                                                                | 87                                                                                  |
| Arrive On Green              | 0.24                                                                              | 0.24                                                                              | 0.24                                                                              | 0.24                                                                              | 0.24                                                                              | 0.24                                                                              | 0.60                                                                                | 0.60                                                                                | 0.60                                                                                | 0.60                                                                                | 0.60                                                                                | 0.60                                                                                |
| Sat Flow, veh/h              | 1161                                                                              | 573                                                                               | 1099                                                                              | 1165                                                                              | 514                                                                               | 1149                                                                              | 933                                                                                 | 1633                                                                                | 201                                                                                 | 764                                                                                 | 1700                                                                                | 145                                                                                 |
| Grp Volume(v), veh/h         | 102                                                                               | 0                                                                                 | 216                                                                               | 88                                                                                | 0                                                                                 | 220                                                                               | 123                                                                                 | 0                                                                                   | 675                                                                                 | 112                                                                                 | 0                                                                                   | 459                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1161                                                                              | 0                                                                                 | 1672                                                                              | 1165                                                                              | 0                                                                                 | 1663                                                                              | 933                                                                                 | 0                                                                                   | 1834                                                                                | 764                                                                                 | 0                                                                                   | 1844                                                                                |
| Q Serve(g_s), s              | 5.5                                                                               | 0.0                                                                               | 7.4                                                                               | 4.7                                                                               | 0.0                                                                               | 7.6                                                                               | 5.3                                                                                 | 0.0                                                                                 | 15.3                                                                                | 7.1                                                                                 | 0.0                                                                                 | 8.7                                                                                 |
| Cycle Q Clear(g_c), s        | 13.1                                                                              | 0.0                                                                               | 7.4                                                                               | 12.1                                                                              | 0.0                                                                               | 7.6                                                                               | 14.0                                                                                | 0.0                                                                                 | 15.3                                                                                | 22.4                                                                                | 0.0                                                                                 | 8.7                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.66                                                                              | 1.00                                                                              |                                                                                   | 0.69                                                                              | 1.00                                                                                |                                                                                     | 0.11                                                                                | 1.00                                                                                |                                                                                     | 0.08                                                                                |
| Lane Grp Cap(c), veh/h       | 256                                                                               | 0                                                                                 | 405                                                                               | 260                                                                               | 0                                                                                 | 402                                                                               | 547                                                                                 | 0                                                                                   | 1103                                                                                | 392                                                                                 | 0                                                                                   | 1110                                                                                |
| V/C Ratio(X)                 | 0.40                                                                              | 0.00                                                                              | 0.53                                                                              | 0.34                                                                              | 0.00                                                                              | 0.55                                                                              | 0.22                                                                                | 0.00                                                                                | 0.61                                                                                | 0.29                                                                                | 0.00                                                                                | 0.41                                                                                |
| Avail Cap(c_a), veh/h        | 418                                                                               | 0                                                                                 | 638                                                                               | 423                                                                               | 0                                                                                 | 634                                                                               | 547                                                                                 | 0                                                                                   | 1103                                                                                | 392                                                                                 | 0                                                                                   | 1110                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 27.5                                                                              | 0.0                                                                               | 21.7                                                                              | 27.0                                                                              | 0.0                                                                               | 21.8                                                                              | 10.7                                                                                | 0.0                                                                                 | 8.3                                                                                 | 15.3                                                                                | 0.0                                                                                 | 7.0                                                                                 |
| Incr Delay (d2), s/veh       | 0.4                                                                               | 0.0                                                                               | 0.4                                                                               | 0.3                                                                               | 0.0                                                                               | 0.4                                                                               | 1.0                                                                                 | 0.0                                                                                 | 2.5                                                                                 | 1.8                                                                                 | 0.0                                                                                 | 1.1                                                                                 |
| Initial Q Delay(d3), s/veh   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.5                                                                               | 0.0                                                                               | 2.8                                                                               | 1.3                                                                               | 0.0                                                                               | 2.8                                                                               | 1.1                                                                                 | 0.0                                                                                 | 5.5                                                                                 | 1.3                                                                                 | 0.0                                                                                 | 3.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d), s/veh        | 27.9                                                                              | 0.0                                                                               | 22.1                                                                              | 27.3                                                                              | 0.0                                                                               | 22.2                                                                              | 11.6                                                                                | 0.0                                                                                 | 10.8                                                                                | 17.2                                                                                | 0.0                                                                                 | 8.1                                                                                 |
| LnGrp LOS                    | C                                                                                 |                                                                                   | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 | B                                                                                   |                                                                                     | B                                                                                   | B                                                                                   |                                                                                     | A                                                                                   |
| Approach Vol, veh/h          | 318                                                                               |                                                                                   |                                                                                   | 308                                                                               |                                                                                   |                                                                                   | 798                                                                                 |                                                                                     |                                                                                     | 571                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 24.0                                                                              |                                                                                   |                                                                                   | 23.7                                                                              |                                                                                   |                                                                                   | 10.9                                                                                |                                                                                     |                                                                                     | 9.9                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | B                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 2                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 45.0                                                                              |                                                                                   |                                                                                   | 20.8                                                                              |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 20.8                                                                                |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 5.4                                                                               |                                                                                   |                                                                                   | 4.9                                                                               |                                                                                   |                                                                                   | 5.4                                                                                 |                                                                                     |                                                                                     | 4.9                                                                                 |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 39.6                                                                              |                                                                                   |                                                                                   | 25.1                                                                              |                                                                                   |                                                                                   | 39.6                                                                                |                                                                                     |                                                                                     | 25.1                                                                                |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 17.3                                                                              |                                                                                   |                                                                                   | 15.1                                                                              |                                                                                   |                                                                                   | 24.4                                                                                |                                                                                     |                                                                                     | 14.1                                                                                |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 3.6                                                                               |                                                                                   |                                                                                   | 0.8                                                                               |                                                                                   |                                                                                   | 2.2                                                                                 |                                                                                     |                                                                                     | 0.8                                                                                 |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th Control Delay, s/veh | 14.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 7th LOS                  | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 0.4       |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↑      | ↘    |      |
| Traffic Vol, veh/h       | 0         | 38     | 0    | 745    | 548  | 92   |
| Future Vol, veh/h        | 0         | 38     | 0    | 745    | 548  | 92   |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | -    |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 90        | 90     | 90   | 90     | 90   | 90   |
| Heavy Vehicles, %        | 2         | 2      | 2    | 2      | 2    | 2    |
| Mvmt Flow                | 0         | 42     | 0    | 828    | 609  | 102  |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 660    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 6.22   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 3.318  | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 463    | 0    | -      | -    | -    |
| Stage 1                  | 0         | -      | 0    | -      | -    | -    |
| Stage 2                  | 0         | -      | 0    | -      | -    | -    |
| Platoon blocked, %       |           |        |      | -      | -    | -    |
| Mov Cap-1 Maneuver       | -         | 463    | -    | -      | -    | -    |
| Mov Cap-2 Maneuver       | -         | -      | -    | -      | -    | -    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Approach                 | EB        | NB     |      | SB     |      |      |
| HCM Ctrl Dly, s/v        | 13.55     | 0      |      | 0      |      |      |
| HCM LOS                  | B         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | - 463     |        | -    | -      |      |      |
| HCM Lane V/C Ratio       | - 0.091   |        | -    | -      |      |      |
| HCM Ctrl Dly (s/v)       | - 13.6    |        | -    | -      |      |      |
| HCM Lane LOS             | - B       |        | -    | -      |      |      |
| HCM 95th %tile Q(veh)    | - 0.3     |        | -    | -      |      |      |

| Intersection             |        |        |        |      |      |      |
|--------------------------|--------|--------|--------|------|------|------|
| Int Delay, s/veh         | 0.3    |        |        |      |      |      |
| Movement                 | EBL    | EBR    | NBL    | NBT  | SBT  | SBR  |
| Lane Configurations      | W      |        |        | ↑    | ↑    |      |
| Traffic Vol, veh/h       | 9      | 15     | 0      | 735  | 586  | 0    |
| Future Vol, veh/h        | 9      | 15     | 0      | 735  | 586  | 0    |
| Conflicting Peds, #/hr   | 0      | 0      | 0      | 0    | 0    | 0    |
| Sign Control             | Stop   | Stop   | Free   | Free | Free | Free |
| RT Channelized           | -      | None   | -      | None | -    | None |
| Storage Length           | 0      | -      | -      | -    | -    | -    |
| Veh in Median Storage, # | 0      | -      | -      | 0    | 0    | -    |
| Grade, %                 | 0      | -      | -      | 0    | 0    | -    |
| Peak Hour Factor         | 90     | 90     | 90     | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2      | 2      | 2      | 2    | 2    | 2    |
| Mvmt Flow                | 10     | 17     | 0      | 817  | 651  | 0    |
| Major/Minor              | Minor2 | Major1 | Major2 |      |      |      |
| Conflicting Flow All     | 1468   | 651    | -      | 0    | -    | 0    |
| Stage 1                  | 651    | -      | -      | -    | -    | -    |
| Stage 2                  | 817    | -      | -      | -    | -    | -    |
| Critical Hdwy            | 6.42   | 6.22   | -      | -    | -    | -    |
| Critical Hdwy Stg 1      | 5.42   | -      | -      | -    | -    | -    |
| Critical Hdwy Stg 2      | 5.42   | -      | -      | -    | -    | -    |
| Follow-up Hdwy           | 3.518  | 3.318  | -      | -    | -    | -    |
| Pot Cap-1 Maneuver       | 141    | 468    | 0      | -    | -    | -    |
| Stage 1                  | 519    | -      | 0      | -    | -    | -    |
| Stage 2                  | 434    | -      | 0      | -    | -    | -    |
| Platoon blocked, %       |        |        |        | -    | -    | -    |
| Mov Cap-1 Maneuver       | 141    | 468    | -      | -    | -    | -    |
| Mov Cap-2 Maneuver       | 279    | -      | -      | -    | -    | -    |
| Stage 1                  | 519    | -      | -      | -    | -    | -    |
| Stage 2                  | 434    | -      | -      | -    | -    | -    |
| Approach                 | EB     | NB     | SB     |      |      |      |
| HCM Ctrl Dly, s/v        | 15.38  | 0      | 0      |      |      |      |
| HCM LOS                  | C      |        |        |      |      |      |
| Minor Lane/Major Mvmt    | NBT    | EBLn1  | SBT    | SBR  |      |      |
| Capacity (veh/h)         | -      | 374    | -      | -    |      |      |
| HCM Lane V/C Ratio       | -      | 0.071  | -      | -    |      |      |
| HCM Ctrl Dly (s/v)       | -      | 15.4   | -      | -    |      |      |
| HCM Lane LOS             | -      | C      | -      | -    |      |      |
| HCM 95th %tile Q(veh)    | -      | 0.2    | -      | -    |      |      |



# GEM Sugar House: PD + DR Graphic Submittal

Salt Lake City, Utah



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| LD1 | LIGHTING CONCEPT DESIGN       |

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**ZONING SUMMARY**  
ZONE LOT SIZE: 28,107 SF (0.645 ACRES)  
ZONING DISTRICT: MU-11  
CONTEXT: TRANSIT (RE: SITE MAP)  
FRONT LOT LINE: HIGHLAND DRIVE  
SIDE LOT LINE: SUGARMONT DR (PUBLIC TRAIL)  
WILMINGTON AVE (PRIVATE)  
PROPOSED USE: MIXED-USE RESIDENTIAL

| BUILDING HEIGHT<br>REQUIRED/ALLOWED | PROPOSED             |
|-------------------------------------|----------------------|
| 125'                                |                      |
| 150' + 3LVLS@12'MAX                 | 182'-8" (16 STORIES) |
| (185' TOTAL MAX)                    |                      |

\*ADDITIONAL BUILDING HEIGHT (UP TO 150') ALLOWED WITH 10% OPEN SPACE AT GROUND LEVEL AND 100% ENHANCED ACTIVE USE ON STREET-FACING FACADE (REFER TO SITE PLAN AND ACTIVE USE SUMMARY). 3 ADDITIONAL STORIES AT 12' MAX HEIGHT PER STORY ALLOWED WITH AFFORDABLE HOUSING INCENTIVES. **REQUEST TO PROVIDE 2 ADDITIONAL STORIES ABOVE 150' WITH HEIGHTS EXCEEDING 12' PER STORY TO ACCOMMODATE COMMERCIAL SPACE AND PENTHOUSE UNITS.**

**MINIMUM YARD REQUIREMENTS**  
FRONT, CORNER, SIDE, REAR: NONE

| GROUND FLOOR ACTIVE USE  |      |
|--------------------------|------|
| HIGHLAND DR              | 100% |
| WILMINGTON AVE (PRIVATE) | NONE |
| SUGARMONT (PUBLIC TRAIL) | NONE |

| STEPBACK REQUIREMENTS<br>UPPER LEVEL FRONT STEPBAC |      |
|----------------------------------------------------|------|
| HIGHLAND DR                                        | 10'  |
| WILMINGTON AVE (PRIVATE)                           | NONE |
| SUGARMONT (PUBLIC TRAIL)                           | NONE |

| LOWER LEVEL INTERIOR STEPBAC |                                |
|------------------------------|--------------------------------|
| HIGHLAND DR                  | NONE                           |
| WILMINGTON AVE (PRIVATE)     | NONE                           |
| SUGARMONT (PUBLIC TRAIL)     | 10' (1ST FULL FLOOR ABOVE 30') |

| SUGAR HOUSE LOWER LEVEL FRONT STEPBAC |                                |
|---------------------------------------|--------------------------------|
| HIGHLAND DR                           | 10' (1ST FULL FLOOR ABOVE 30') |
| WILMINGTON AVE (PRIVATE)              | NONE                           |
| SUGARMONT (PUBLIC TRAIL)              | NONE                           |

**STEPBACK REQUESTS:**  
1. REQUEST TO ALLOW PORTION OF BUILDING IN UPPER LEVEL FRONT STEPBAC DUE TO STRUCTURAL CONSTRAINTS (RE: PLANS).  
2. REQUEST TO ALLOW PORTION OF BUILDING WITHIN SUGAR HOUSE LOWER LEVEL FRONT STEPBAC DUE TO SMALL SITE (RE: PLANS & SECTIONS).

**ENHANCED ACTIVE USE (HIGHLAND DR ONLY)**  
ENHANCED ACTIVE USE REQ: 100% (185')

- RETAIL (BANK + BIKE CAFE): 80'
- LOBBY EXCEPTION (25% MAX): 34' (18%)
- OUTDOOR ACTIVE (25% MAX): 38' (21%)
- VEHICLE ACCESS EXCEPTION: 33'

MINIMUM DEPTH: 25'  
MINIMUM HEIGHT: 12'

**OPEN SPACE CALCULATIONS**  
10% OF SITE REQ: 2,810 SF

AREA IN ROW: 1,524 SF (DEEDED PARCEL 2)  
ADDITIONAL AREA: 2,120 SF  
TOTAL OPEN AREA: 3,440 SF

| VEHICLE PARKING | REQUIRED/ALLOWED | PROPOSED |
|-----------------|------------------|----------|
|-----------------|------------------|----------|

|                     |                 |                              |
|---------------------|-----------------|------------------------------|
| <b>MULTI-FAMILY</b> |                 |                              |
| STUDIO (57)         | NO MINIMUM (0)  |                              |
| 1BED (79)           | NO MINIMUM (0)  |                              |
| 2BED+ (60)          | NO MINIMUM (0)  |                              |
| <b>SUBTOTAL:</b>    | <b>0 SPACES</b> | <b>155 SPACES</b><br>(4 ADA) |

|                   |                 |                             |
|-------------------|-----------------|-----------------------------|
| <b>COMMERCIAL</b> |                 |                             |
| RETAIL (BANK)     | NO MINIMUM (0)  |                             |
| CAFE / RESTAURANT | NO MINIMUM (0)  |                             |
| <b>SUBTOTAL:</b>  | <b>0 SPACES</b> | <b>14 SPACES</b><br>(1 ADA) |

|                      |          |                    |
|----------------------|----------|--------------------|
| <b>TOTAL PARKING</b> | <b>0</b> | <b>169 (5 ADA)</b> |
|----------------------|----------|--------------------|

|                                  |  |           |
|----------------------------------|--|-----------|
| <b>EV PARKING</b>                |  |           |
| 1 EV SPACE PER 25 PARKING SPACES |  | 7 SPACES  |
| 20% EV READY PARKING SPACES      |  | 34 SPACES |

|                                                                                |                         |                 |
|--------------------------------------------------------------------------------|-------------------------|-----------------|
| <b>BIKE PARKING</b>                                                            | <b>REQUIRED/ALLOWED</b> | <b>PROPOSED</b> |
| RESIDENTIAL (196)                                                              | 1 PER 2 (98)'           | 10 + 45 SECURE  |
| COMMERCIAL                                                                     | 1 PER 2,000SF (5)       | 6               |
| 1 SECURE/ENCLOSED BIKE PARKING SATISFIES REQUIREMENTS OF 2 BIKE PARKING SPACES |                         |                 |

|                |                         |                 |
|----------------|-------------------------|-----------------|
| <b>LOADING</b> | <b>REQUIRED/ALLOWED</b> | <b>PROPOSED</b> |
| MULTI-FAMILY   | 80-200 UNITS (1 SHORT)  | 1 SHORT         |
| COMMERCIAL     | < 50,000SF (NONE)       | NONE            |



HIGHLAND DR



SUGARMONT DR / PARLEY'S TRAIL (PUBLIC TRAIL)



WILMINGTON AVE (PRIVATE DRIVE)

## SITE PHOTOS

## SITE MAP (NOT TO SCALE)



SCALE: 1" = 20'-0"

0' 10' 20' 40' 80'



| Level | RESIDENTIAL  |                |                     |       |              |         |               |  | COMMERCIAL   |         |               | BOH          | TOTALS  |
|-------|--------------|----------------|---------------------|-------|--------------|---------|---------------|--|--------------|---------|---------------|--------------|---------|
|       | Residential  |                |                     |       | Amenity      | Parking |               |  | Retail       | Parking |               |              |         |
|       | Count        | GSF            | Rentable            | EFF % | GSF          | Count   | GSF           |  | GSF          | Count   | GSF           | GSF          | GSF     |
| R     |              |                |                     |       |              |         |               |  |              |         |               |              | -       |
| 16    | 4            | 8,315          | 5,565               | 63%   | 585          |         |               |  | 5,100        |         |               |              | 14,000  |
| 15    | 16           | 16,825         | 13,815              | 82%   |              |         |               |  |              |         |               |              | 16,825  |
| 14    | 16           | 16,825         | 13,815              | 82%   |              |         |               |  |              |         |               |              | 16,825  |
| 13    | 16           | 16,825         | 13,815              | 82%   |              |         |               |  |              |         |               |              | 16,825  |
| 12    | 16           | 16,825         | 13,815              | 82%   |              |         |               |  |              |         |               |              | 16,825  |
| 11    | 16           | 16,825         | 13,815              | 82%   |              |         |               |  |              |         |               |              | 16,825  |
| 10    | 16           | 16,825         | 13,815              | 82%   |              |         |               |  |              |         |               |              | 16,825  |
| 9     | 22           | 16,825         | 13,815              | 82%   |              |         |               |  |              |         |               |              | 16,825  |
| 8     | 22           | 16,825         | 13,815              | 82%   |              |         |               |  |              |         |               |              | 16,825  |
| 7     | 22           | 16,825         | 13,815              | 82%   |              |         |               |  |              |         |               |              | 16,825  |
| 6     | 22           | 16,825         | 13,815              | 82%   |              |         |               |  |              |         |               |              | 16,825  |
| 5     | 8            | 7,650          | 3,825               | 26%   | 6,805        |         |               |  |              |         |               |              | 14,455  |
| 4     |              | 1,345          |                     |       |              | 45      | 23,390        |  |              |         |               |              | 24,735  |
| 3     |              | 1,345          |                     |       |              | 55      | 25,875        |  |              |         |               |              | 27,220  |
| 2     |              | 1,345          |                     |       |              | 55      | 25,875        |  |              |         |               |              | 27,220  |
| 1     |              | 1,345          |                     |       | 2,090        |         |               |  | 3,875        | 14      | 14,050        | 4,565        | 25,925  |
| TOTAL | Units<br>196 | GSF<br>189,595 | Rentable<br>147,540 |       | GSF<br>9,480 | 155     | GSF<br>75,140 |  | GSF<br>8,975 | 14      | GSF<br>14,050 | GSF<br>4,565 | 301,805 |

|     |                   |
|-----|-------------------|
| 753 | AVERAGE UNIT SIZE |
|-----|-------------------|

169 TOTAL PARKING  
0.86 /UNIT

| TARGET UNIT MIX |      |       |
|-----------------|------|-------|
| TYPE            | %    | COUNT |
| STUDIO          | 29%  | 57    |
| 1 BED           | 40%  | 79    |
| 2 BED           | 27%  | 52    |
| 3 BED           | 4%   | 8     |
| TOTAL           | 100% | 196   |

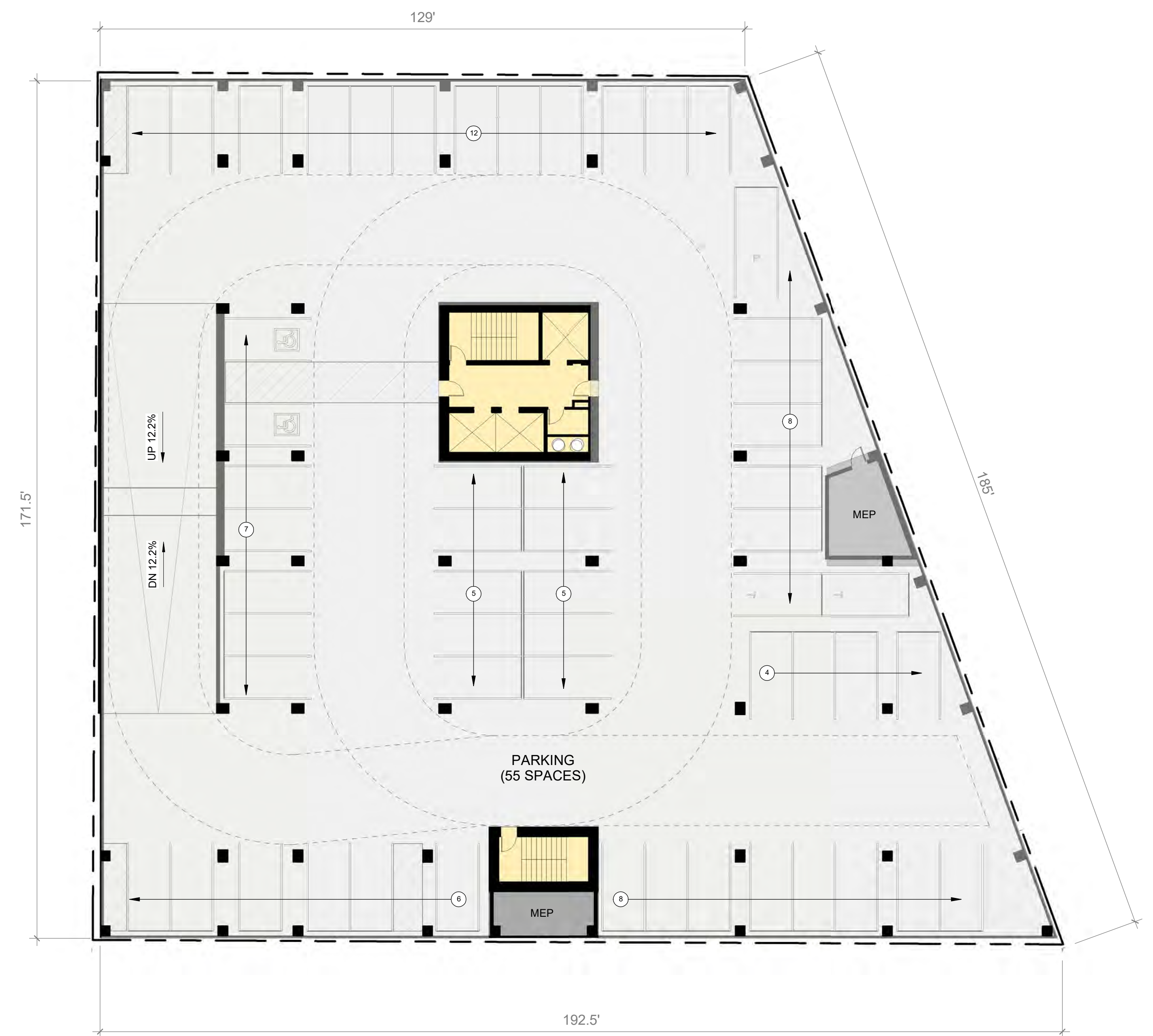
| REQ PARKING |        |
|-------------|--------|
| /UNIT       | SPACES |
| 0           | 0      |
| 0           | 0      |
| 0           | 0      |
| 0           | 0      |
| 0           | 0      |

| REQ PARKING |   |
|-------------|---|
| / GFA       |   |
| 0           | 0 |





LEVEL 1

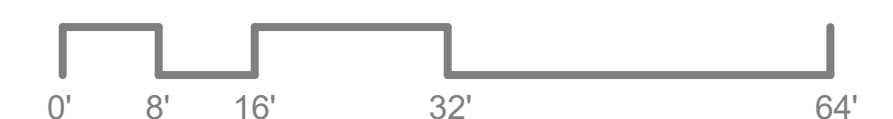


LEVEL 2&3

- |                                                                                                                                                       |                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #f4a460; border: 1px solid black;"></span> RESIDENTIAL               | <span style="display: inline-block; width: 15px; height: 10px; background-color: #c8a2a2; border: 1px solid black;"></span> RETAIL / COMMERCIAL |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #fff9c4; border: 1px solid black;"></span> CIRCULATION / RESI B.O.H. | <span style="display: inline-block; width: 15px; height: 10px; background-color: #e0e0e0; border: 1px solid black;"></span> PARKING             |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #a0a0c8; border: 1px solid black;"></span> AMENITY                   | <span style="display: inline-block; width: 15px; height: 10px; background-color: #808080; border: 1px solid black;"></span> B.O.H.              |



SCALE: 1/16" = 1'-0"



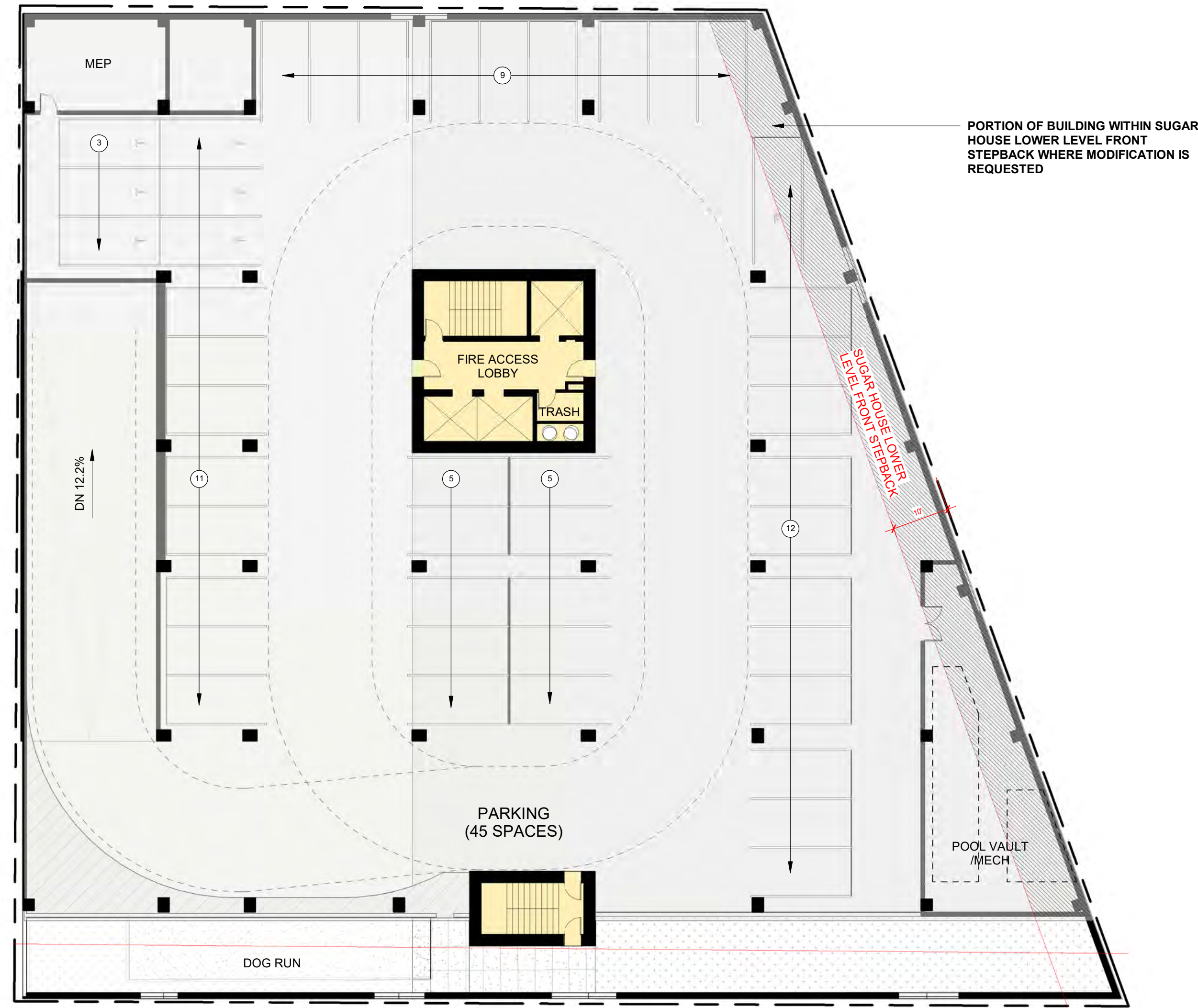
GEM SUGAR HOUSE

PD + DR

LEVEL 1-3

Date 2026.02.18



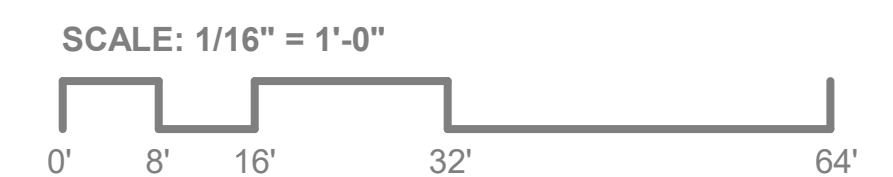


LEVEL 4



LEVEL 5

- |                                                                                                                                                       |                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
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| <span style="display: inline-block; width: 15px; height: 15px; background-color: #fff9c4; border: 1px solid black;"></span> CIRCULATION / RESI B.O.H. | <span style="display: inline-block; width: 15px; height: 15px; background-color: #e0e0e0; border: 1px solid black;"></span> PARKING             |
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GEM SUGAR HOUSE

PD + DR

LEVEL 4 & 5

Date 2026.02.18





LEVEL 6-15



LEVEL 16

- |                                                                                                                                                       |                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
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| <span style="display: inline-block; width: 15px; height: 15px; background-color: #fff9c4; border: 1px solid black;"></span> CIRCULATION / RESI B.O.H. | <span style="display: inline-block; width: 15px; height: 15px; background-color: #e0e0e0; border: 1px solid black;"></span> PARKING             |
| <span style="display: inline-block; width: 15px; height: 15px; background-color: #a7a7d9; border: 1px solid black;"></span> AMENITY                   | <span style="display: inline-block; width: 15px; height: 15px; background-color: #808080; border: 1px solid black;"></span> B.O.H.              |



SCALE: 1/16" = 1'-0"



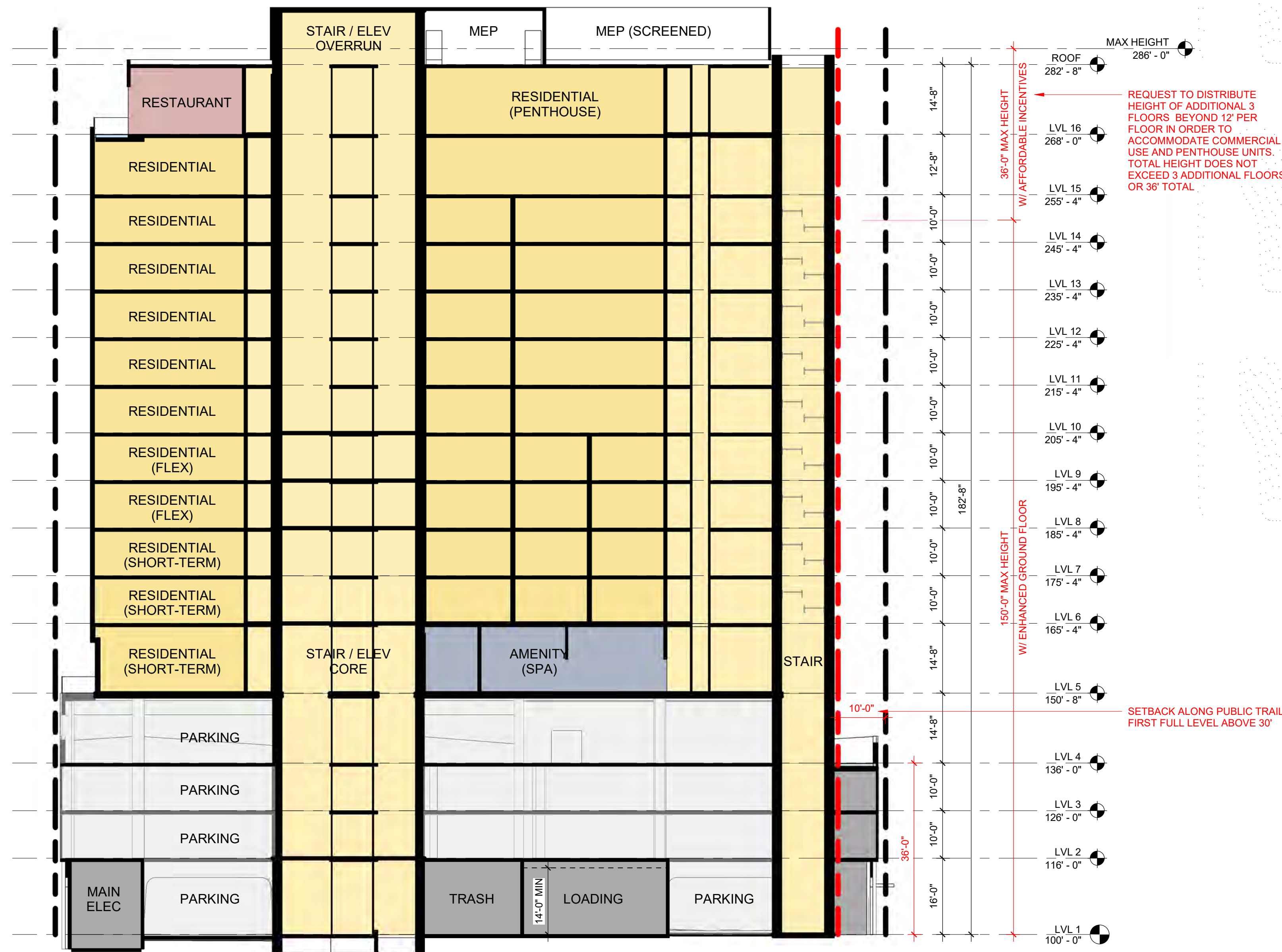
GEM SUGAR HOUSE

PD + DR

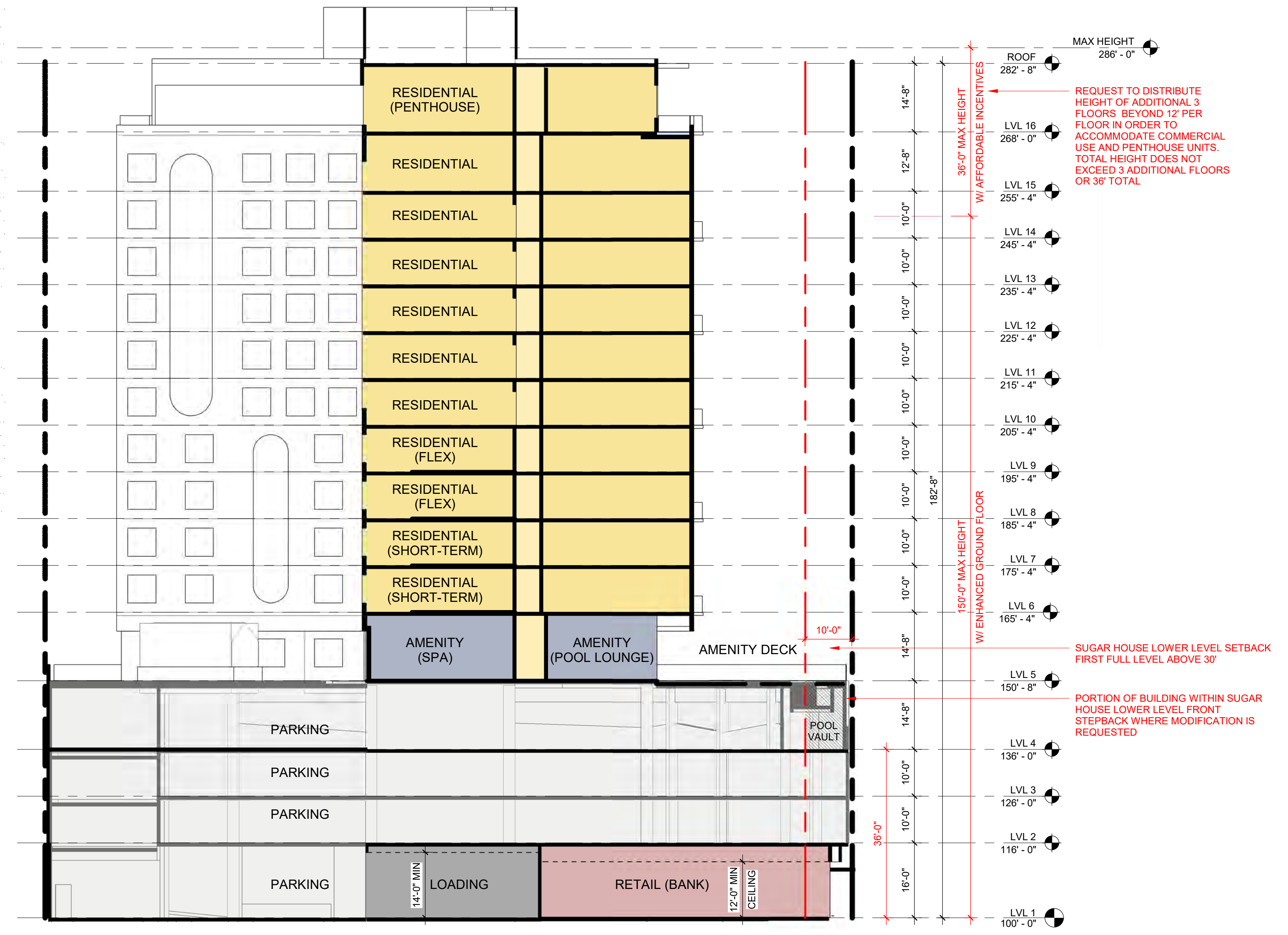
LEVEL 6 - 16

Date 2026.02.18





SECTION NORTH-SOUTH



SECTION EAST-WEST

- RESIDENTIAL
- CIRCULATION / RESI B.O.H.
- AMENITY
- RETAIL / COMMERCIAL
- PARKING
- B.O.H.







SOUTH ELEVATION



EAST ELEVATION



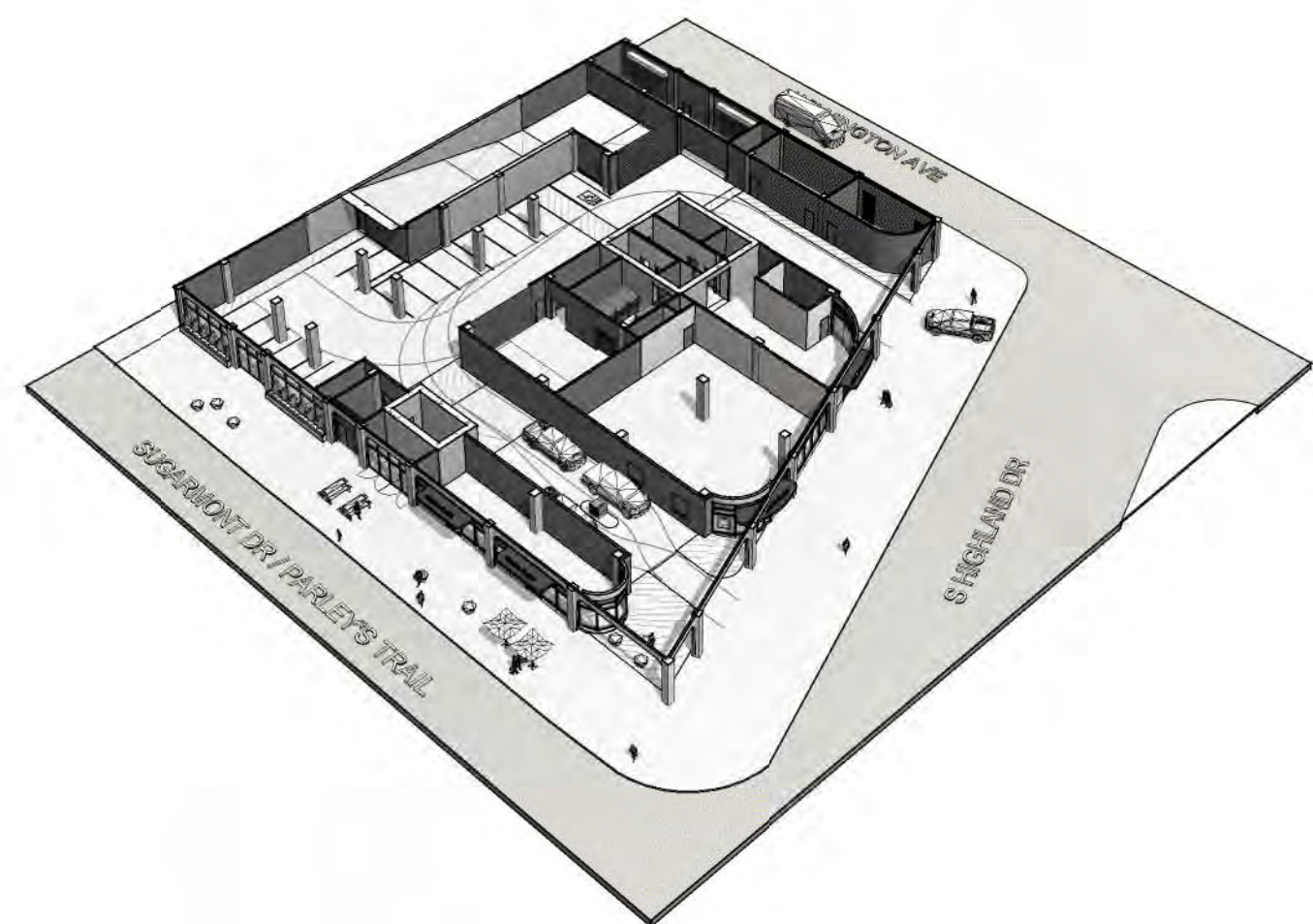


ELEVATION NORTH

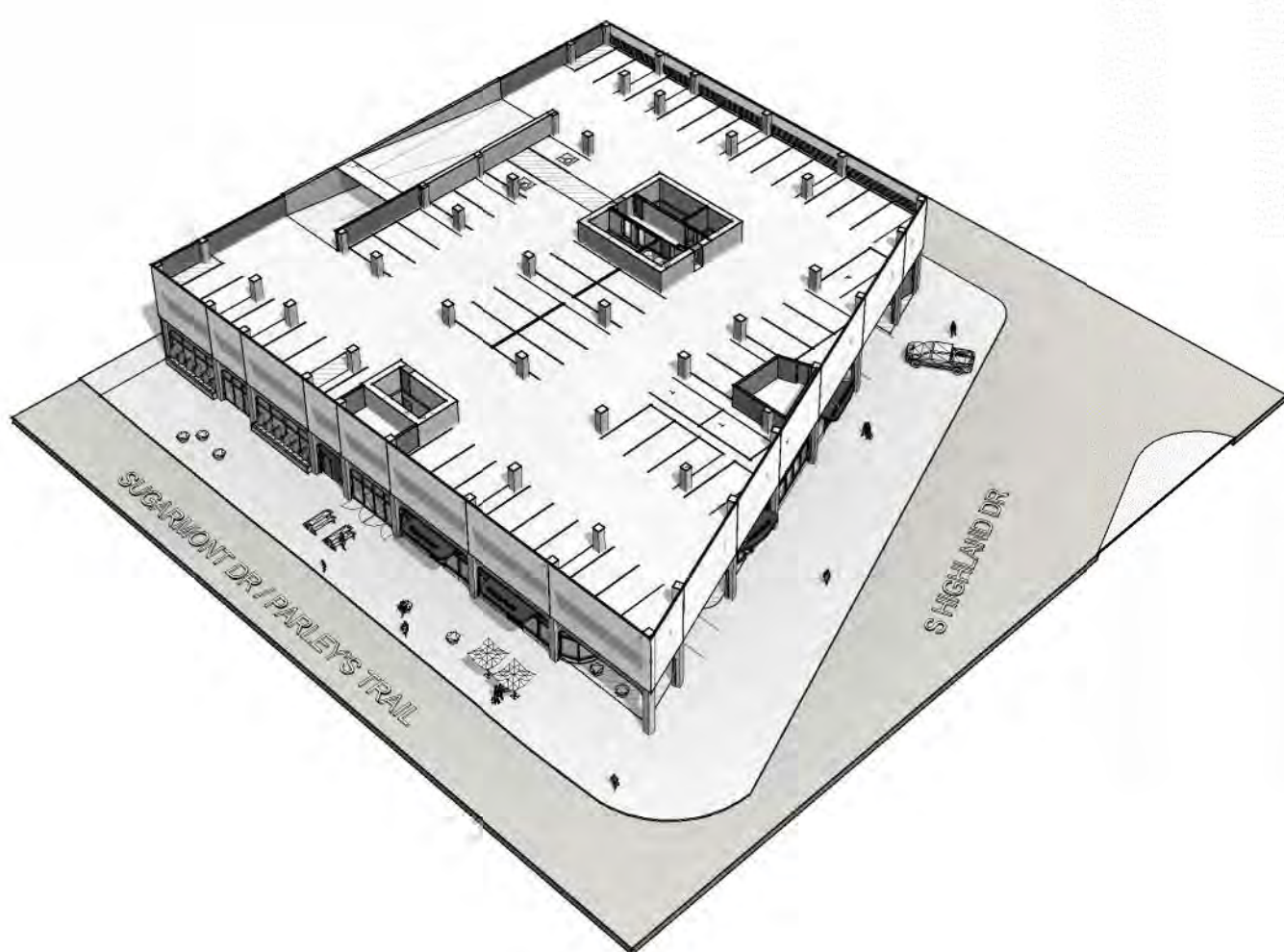


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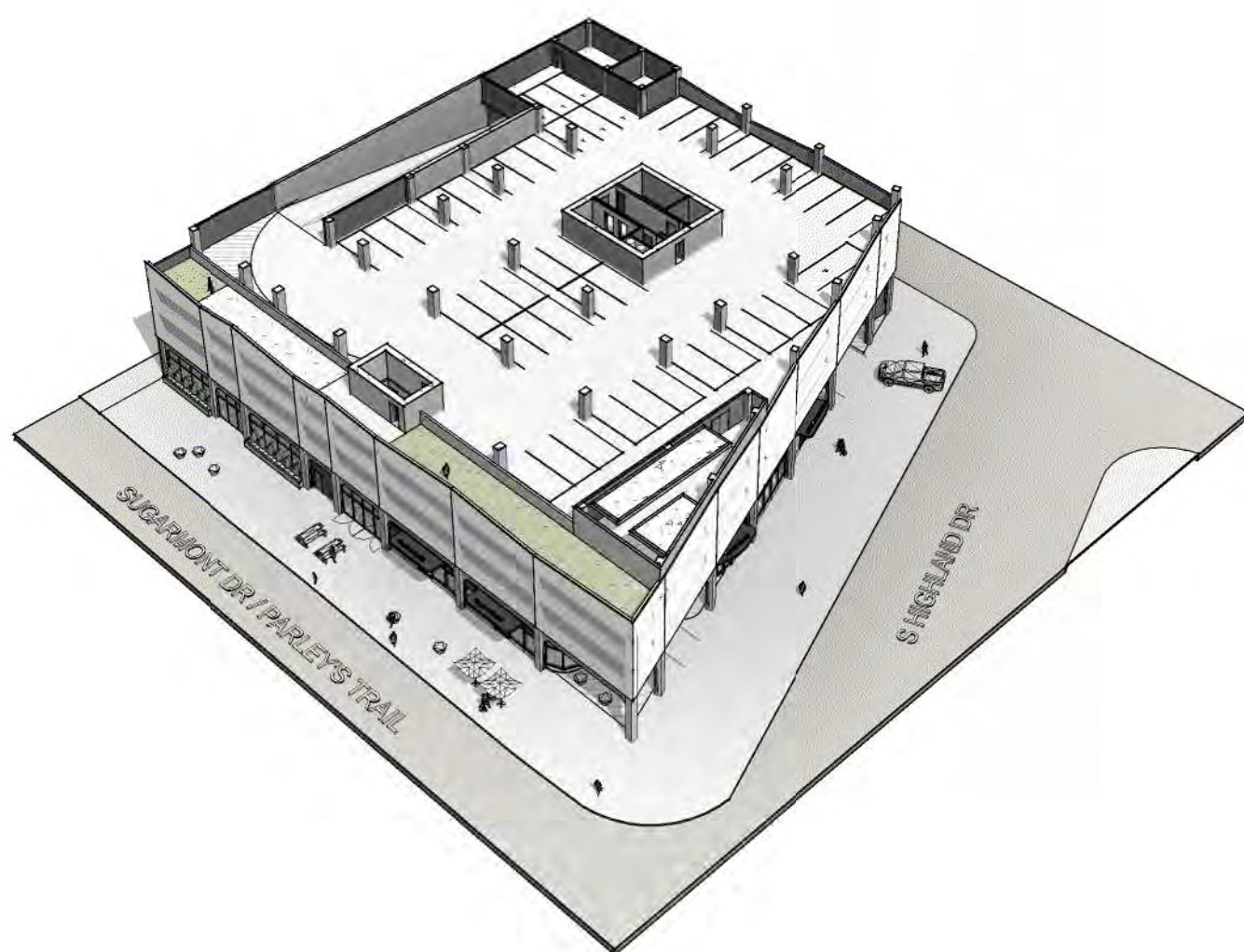




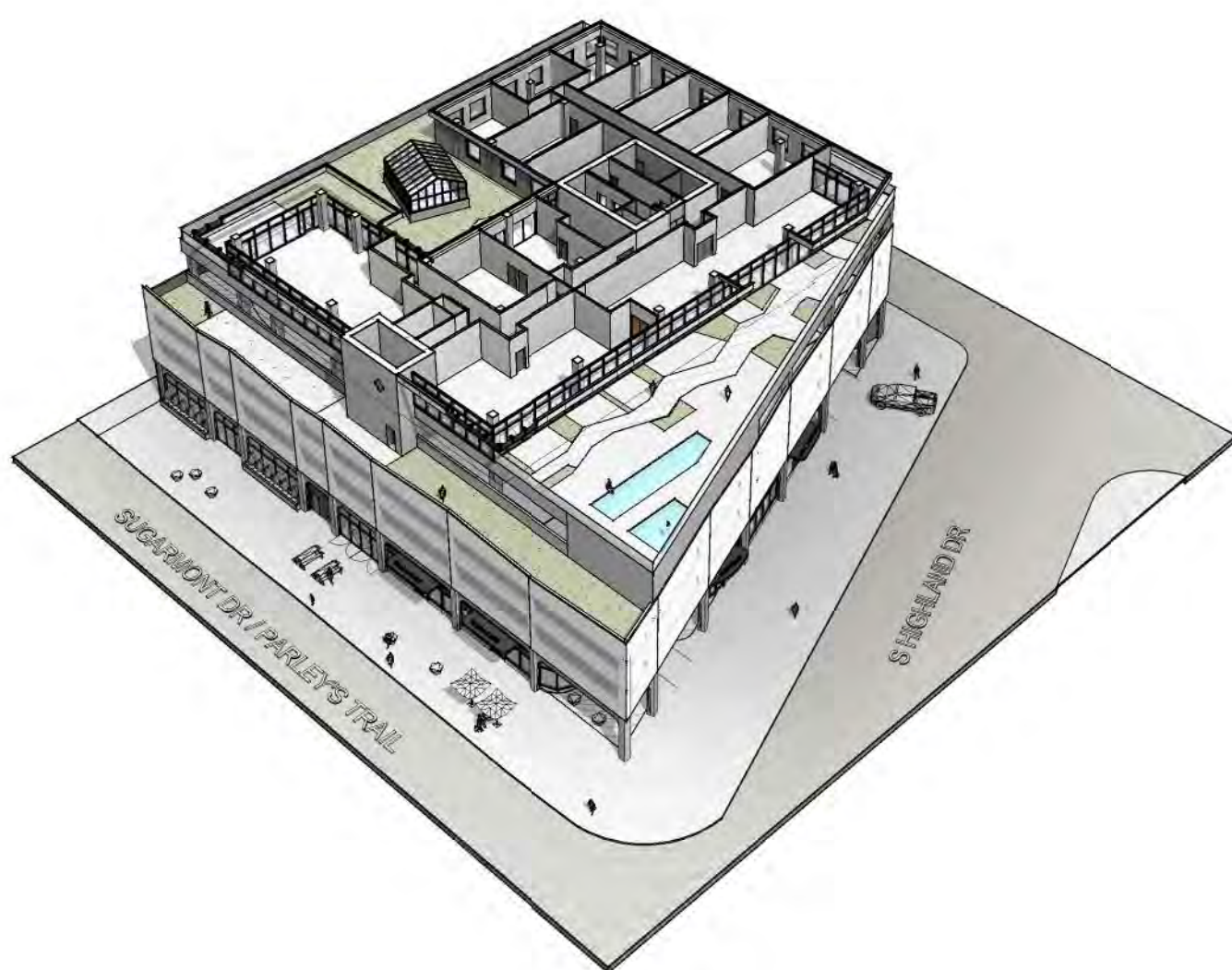
3D PLAN L1



3D PLAN L3



3D PLAN L4



3D PLAN L5



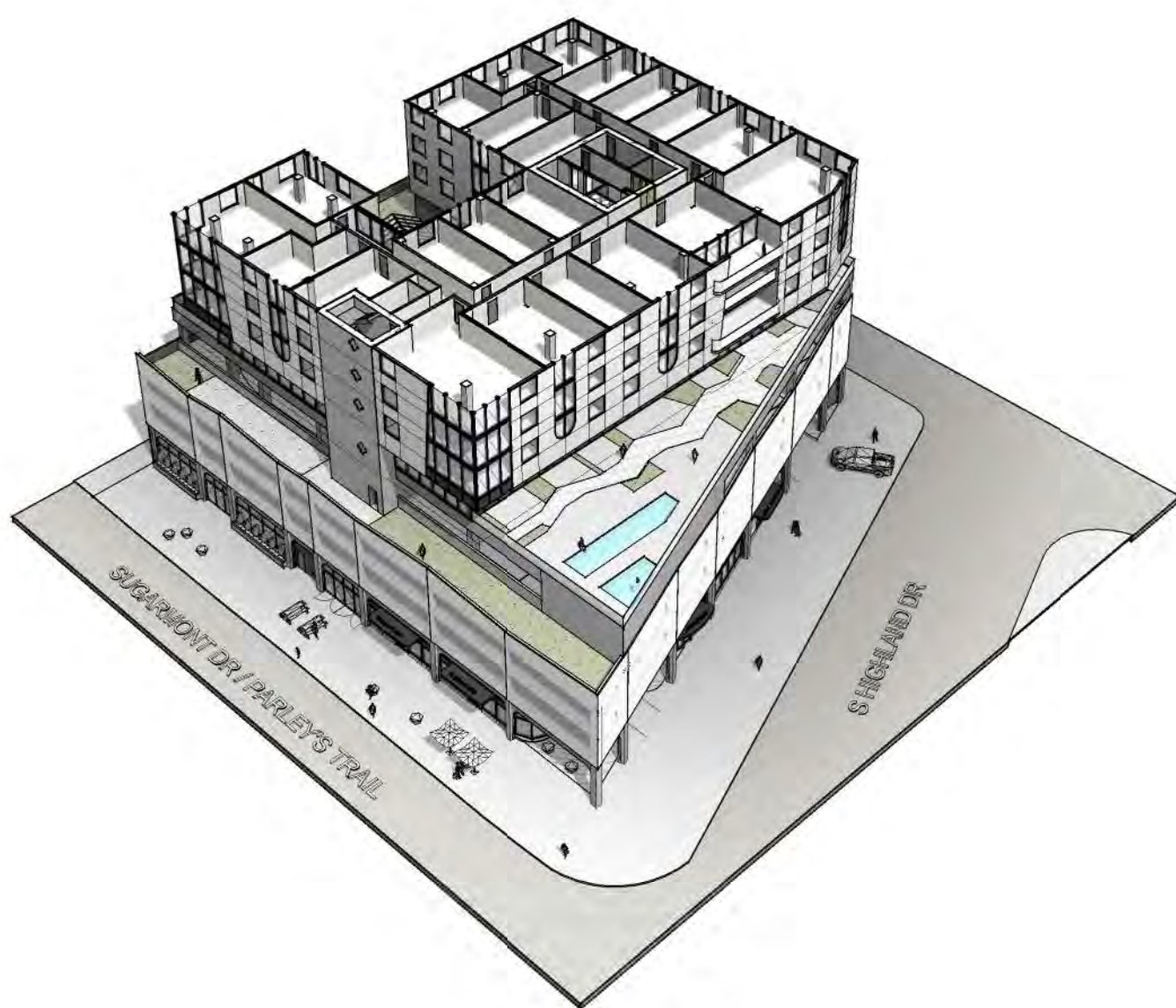
3D PLAN TOTAL



3D PLAN L16



3D PLAN L12

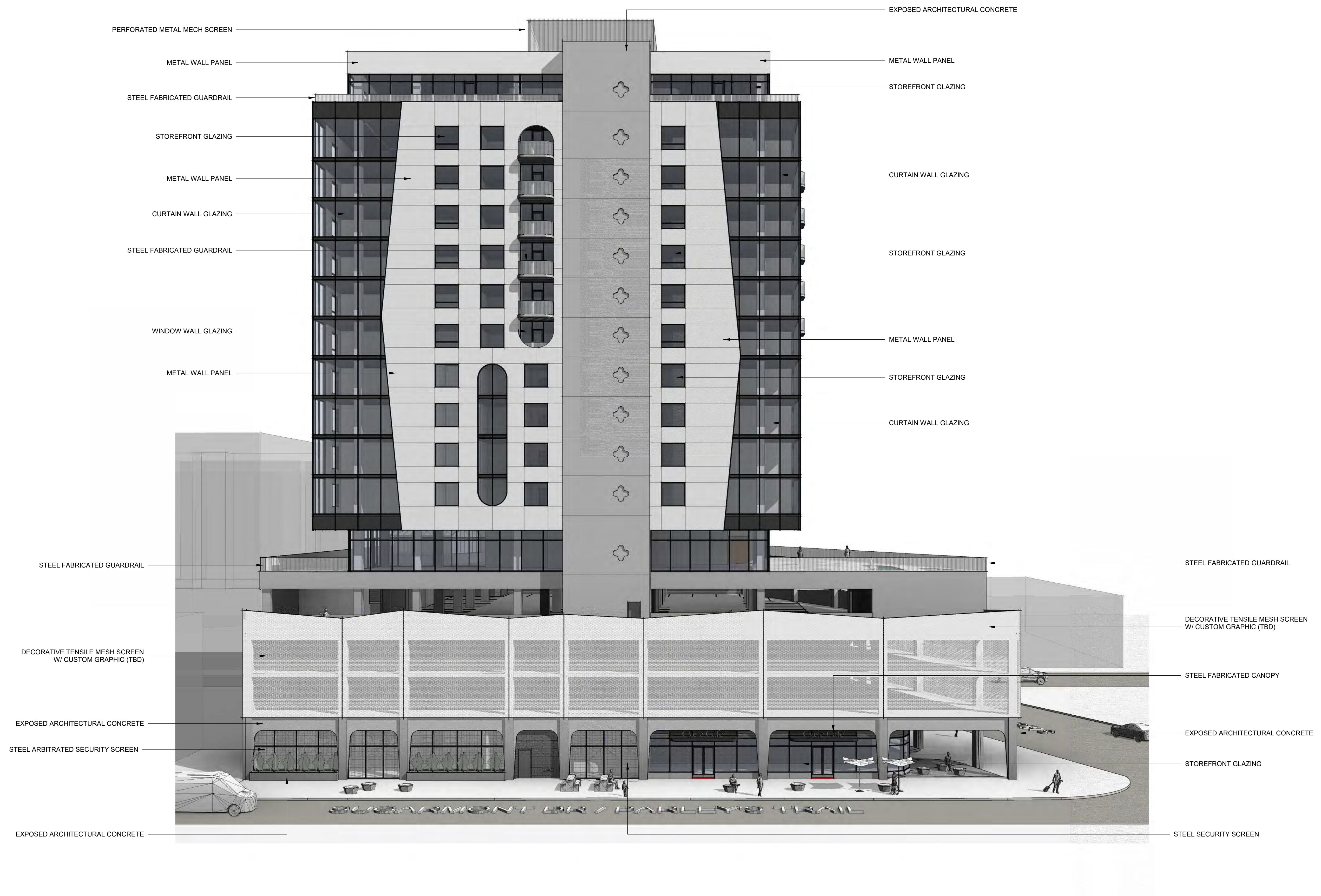


3D PLAN L8

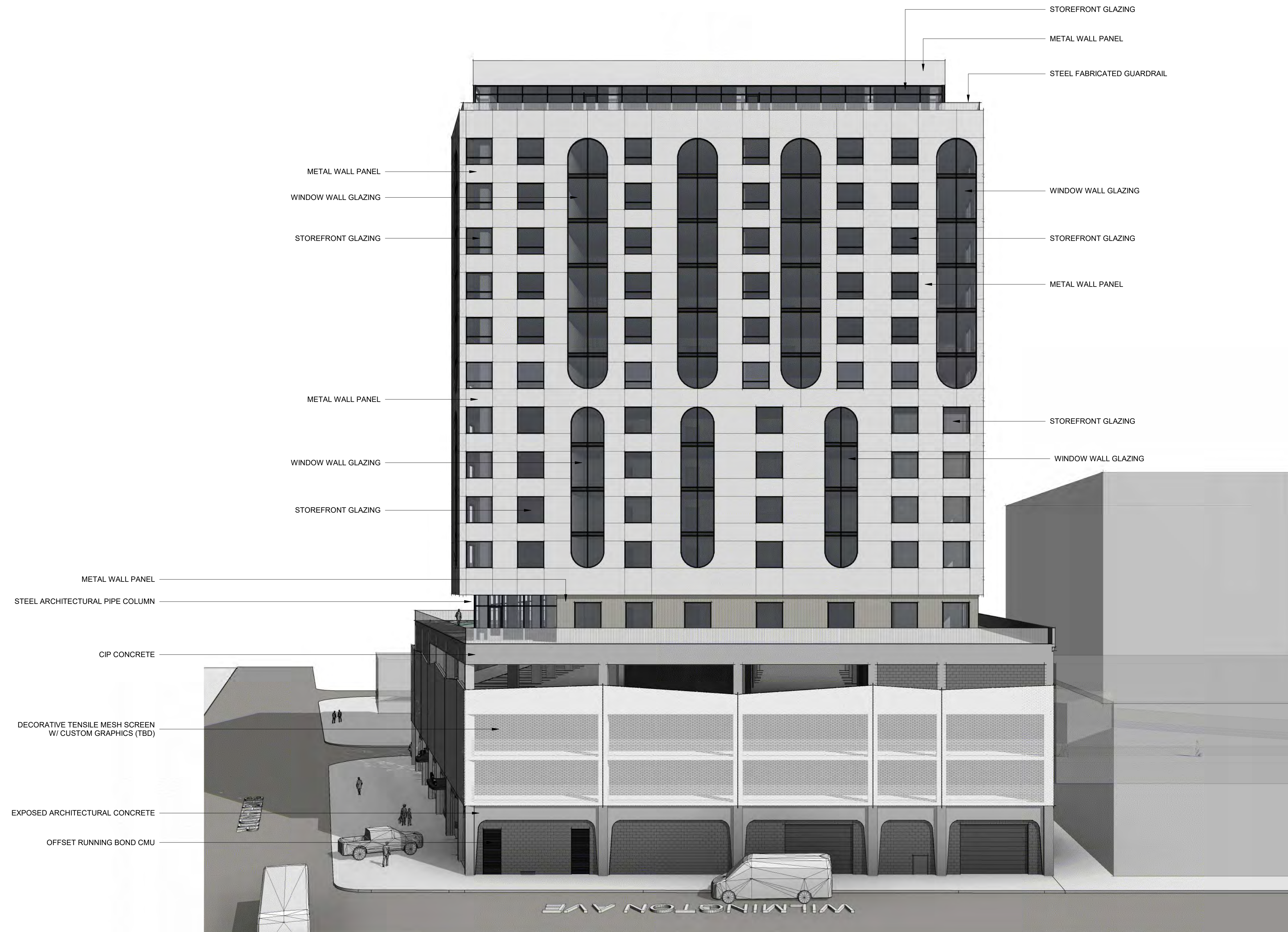




















3D SE



3D NE





3D NW



3D SW





















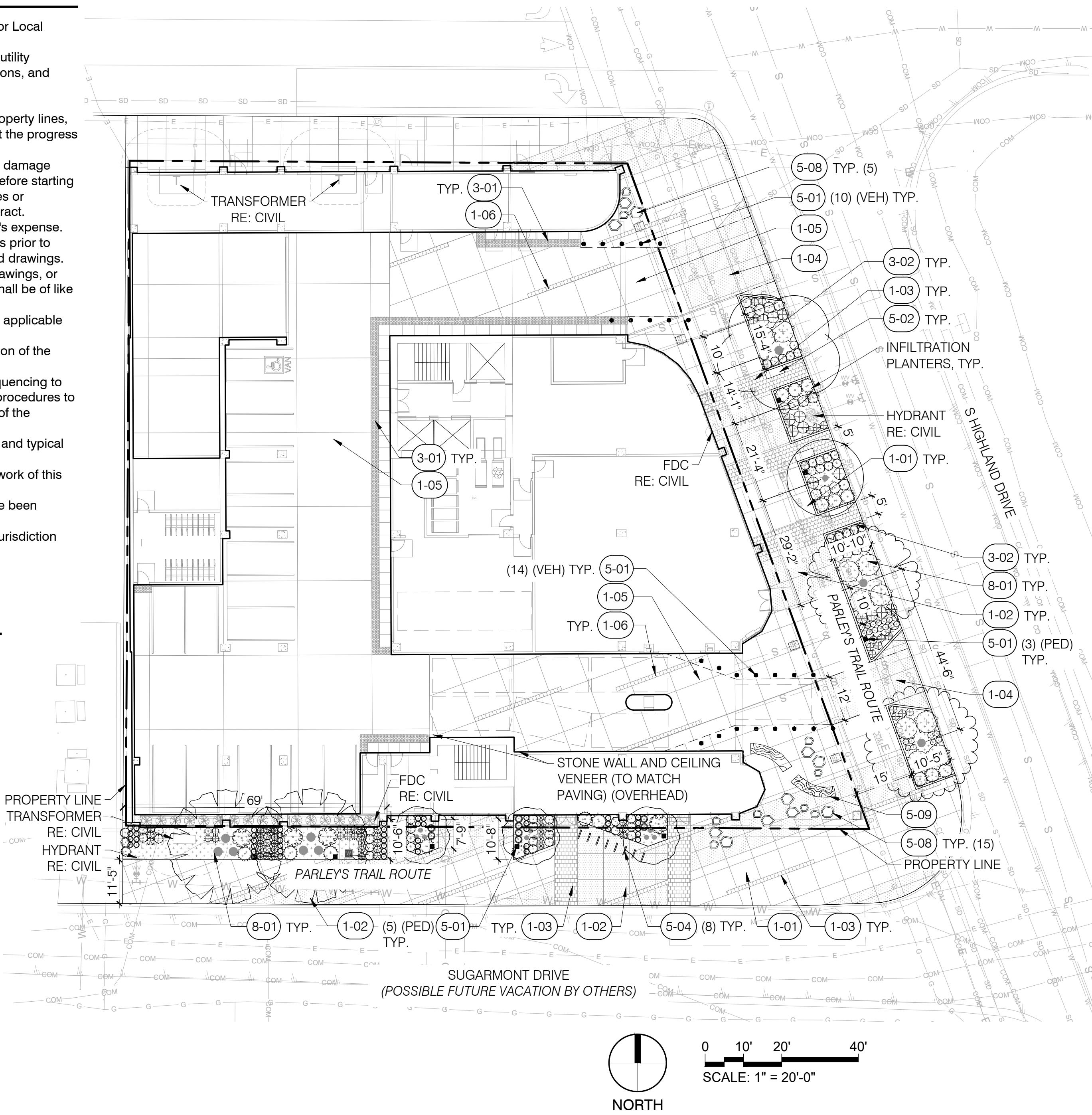


GENERAL NOTES

- All work shall be performed in accordance with plans approved by the City or Local Jurisdiction.
- Base information provided by Engineer. Refer to survey, plat, roadway and utility drawings, and other available documents for property limits, existing conditions, and horizontal and vertical control.
- The limits of work occur at the right-of-way or as shown on plans.
- Verify existing site conditions including walls, vegetation, fences, utilities, property lines, limits of roadways, curbs and gutters, and other obstructions that may affect the progress of work.
- Locate utilities and maintain their location during all phases of work. Do not damage utility lines/structures. Notify Owner's Representative of any discrepancies before starting any work. Contractor shall be responsible for location of underground utilities or structures, whether or not shown or detailed and installed by any other contract. Restoration of utilities damaged by the Contractor shall be at the Contractor's expense.
- Thoroughly review the site conditions, drawings, and technical specifications prior to construction. Complete the work of this project in accordance with approved drawings.
- Anything mentioned in the technical specifications and not shown on the drawings, or shown on the drawings and not mentioned in the technical specifications, shall be of like effect as if shown on or mentioned in both.
- Construction installation, materials, testing and inspection shall comply with applicable codes and ordinances.
- Take necessary steps to protect and maintain all finished work for the duration of the contract until final acceptance.
- These drawings do not specify safety materials, equipment, methods or sequencing to protect persons and property. Direct and implement safety operations and procedures to protect the Owner, other Contractors, the Public, and other for the duration of the contract.
- Notes and details on specific drawings take precedence over general notes and typical details.
- Obtain necessary permits from all jurisdictions as required to construct the work of this project.
- The work of this contract will not be considered complete until all areas have been cleaned of all dirt and debris and all damaged items are repaired.
- All proposed landscaping in the right-of-way shall be per the City or Local Jurisdiction standards.

LAYOUT NOTES

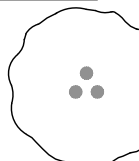
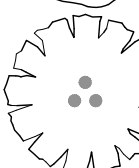
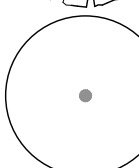
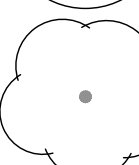
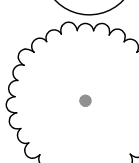
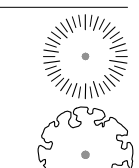
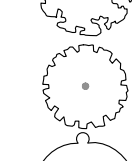
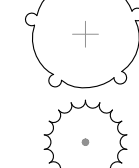
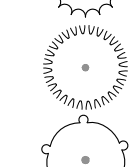
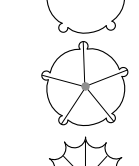
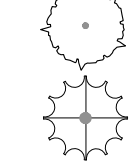
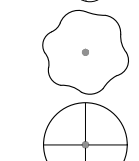
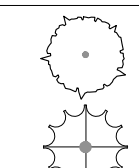
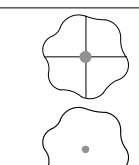
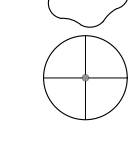
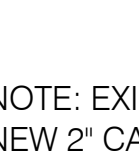
- Verify existing site information including, but not limited to street grades, utilities, property lines, limits of roadways, curbs, and gutters taken from the Civil Engineer's drawings.
- All work shall comply with applicable codes and ordinances.
- Take all dimensions from back of curb, face of wall or building, and centerline of trees unless otherwise noted.
- All dimensions called out as 'equal' are equidistant measurements.
- Written dimensions supercede scaled dimensions. Do not scale drawings, if there is a question regarding dimensions, contact Dig Studio for verification.
- All angles to match those noted on drawing and all lines of paving to be parallel unless otherwise noted. Maintain horizontal alignment of adjacent elements as noted on drawings.
- Reference to north refers to true north. Reference to scale is for full sized drawings only. Do not scale from drawings.
- Concrete slabs or footings shall be doweled into abutting walls, foundations and footings where shown doweled on the plan.
- Provide expansion joints in concrete paving, curbs, and walls, a maximum distance of 30 feet apart and at all intersections. Provide expansion joints where new curbs, walls, and any new concrete abuts existing concrete paving, buildings, curbs, and walls unless otherwise noted.
- Provide control joints evenly spaced between expansion joints as shown on drawings, except where special score joint pattern is specified.
- Sleeves and conduits shall be installed a minimum of 18 inches below finished grade and shall extend 12 inches beyond back of curbs, walls, and paving.
- Coordinate and field verify all sleeving locations for all utility, electrical, and irrigation prior to construction.
- Proposed trees in the right-of-way shall be pre-approved by the City and shall be a minimum of 20' from property corners at intersections, 30' from stop signs, 20' from street lights, outside of 30' corner sight triangles and 10' from edge of driveways, alleys and hydrants.
- Contractor to field verify all quantities, areas, and dimensions.
- Bring any layout discrepancies to the attention of the Landscape Architect immediately.



REFERENCE NOTES SCHEDULE

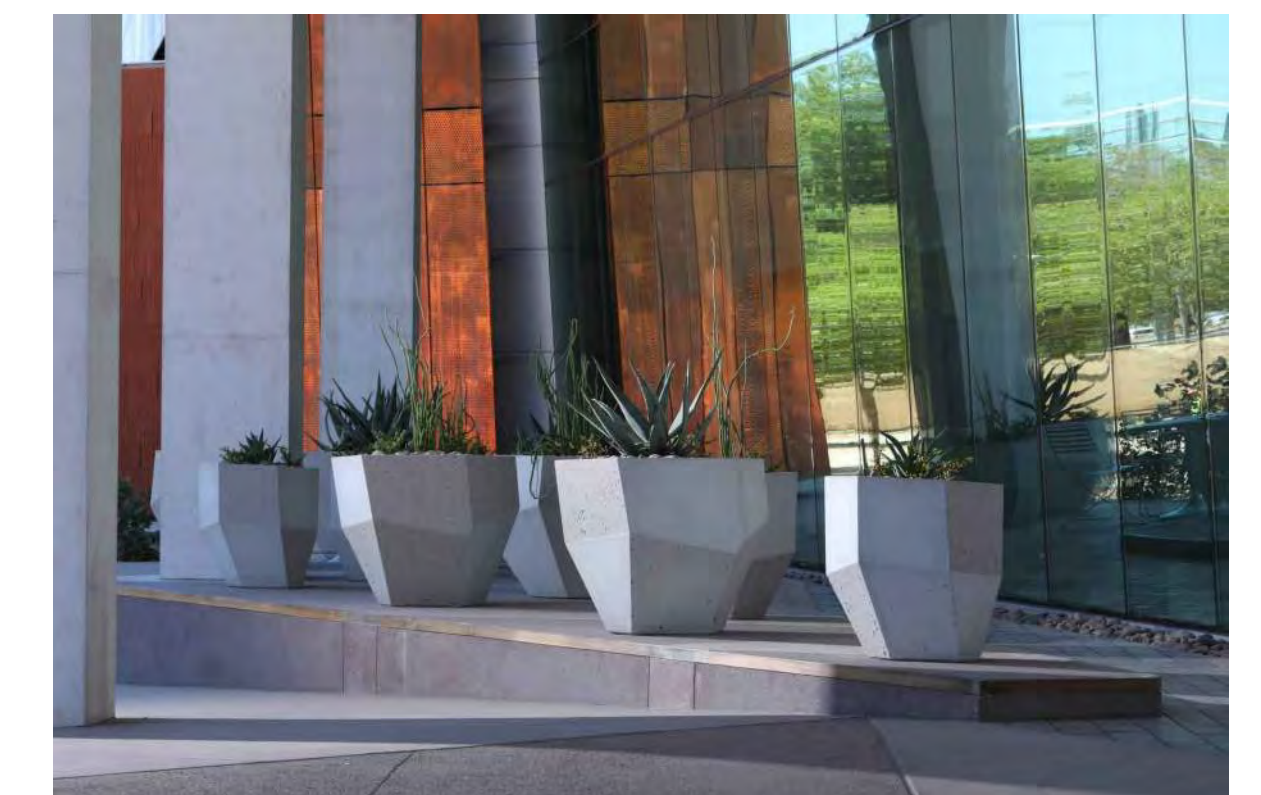
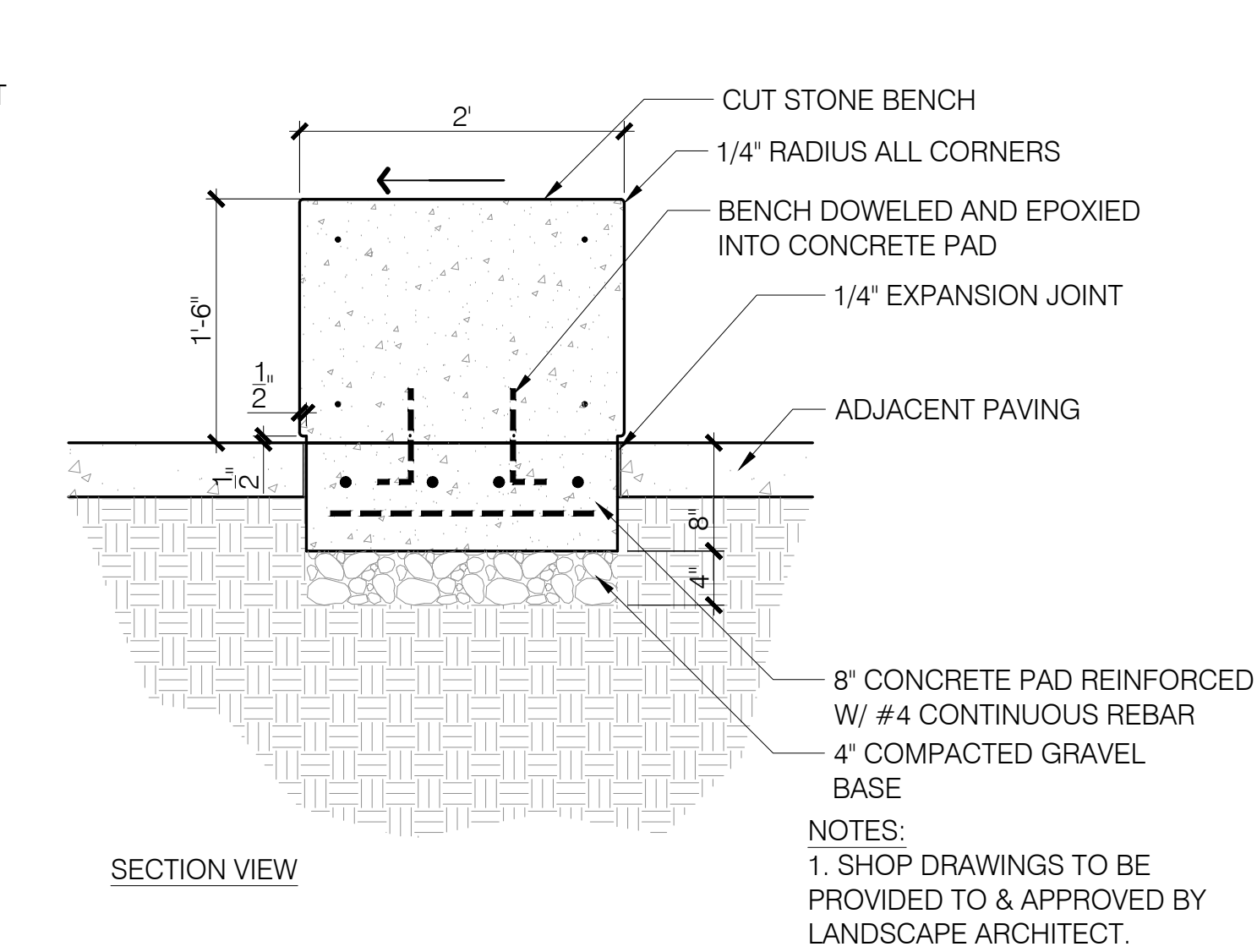
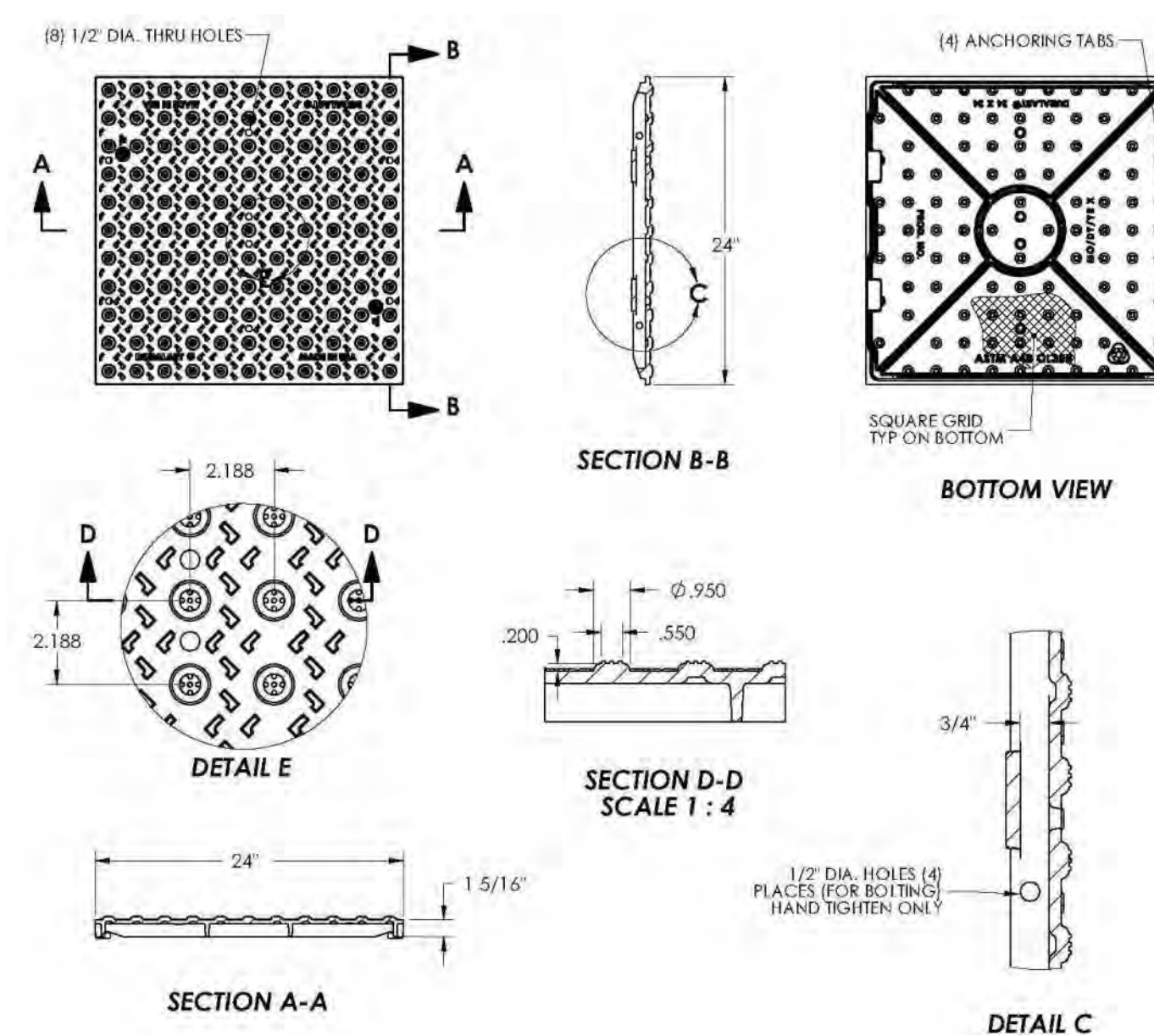
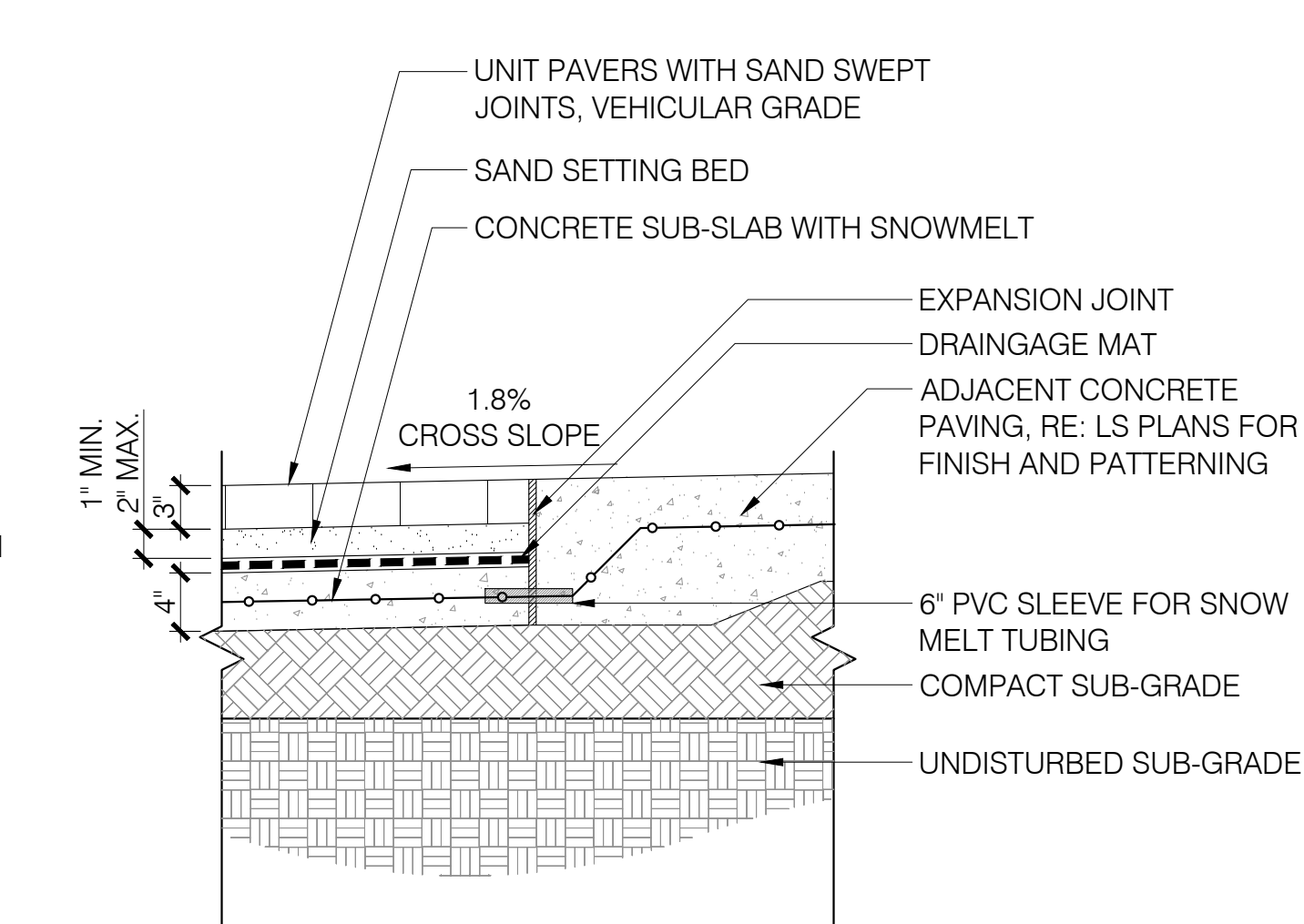
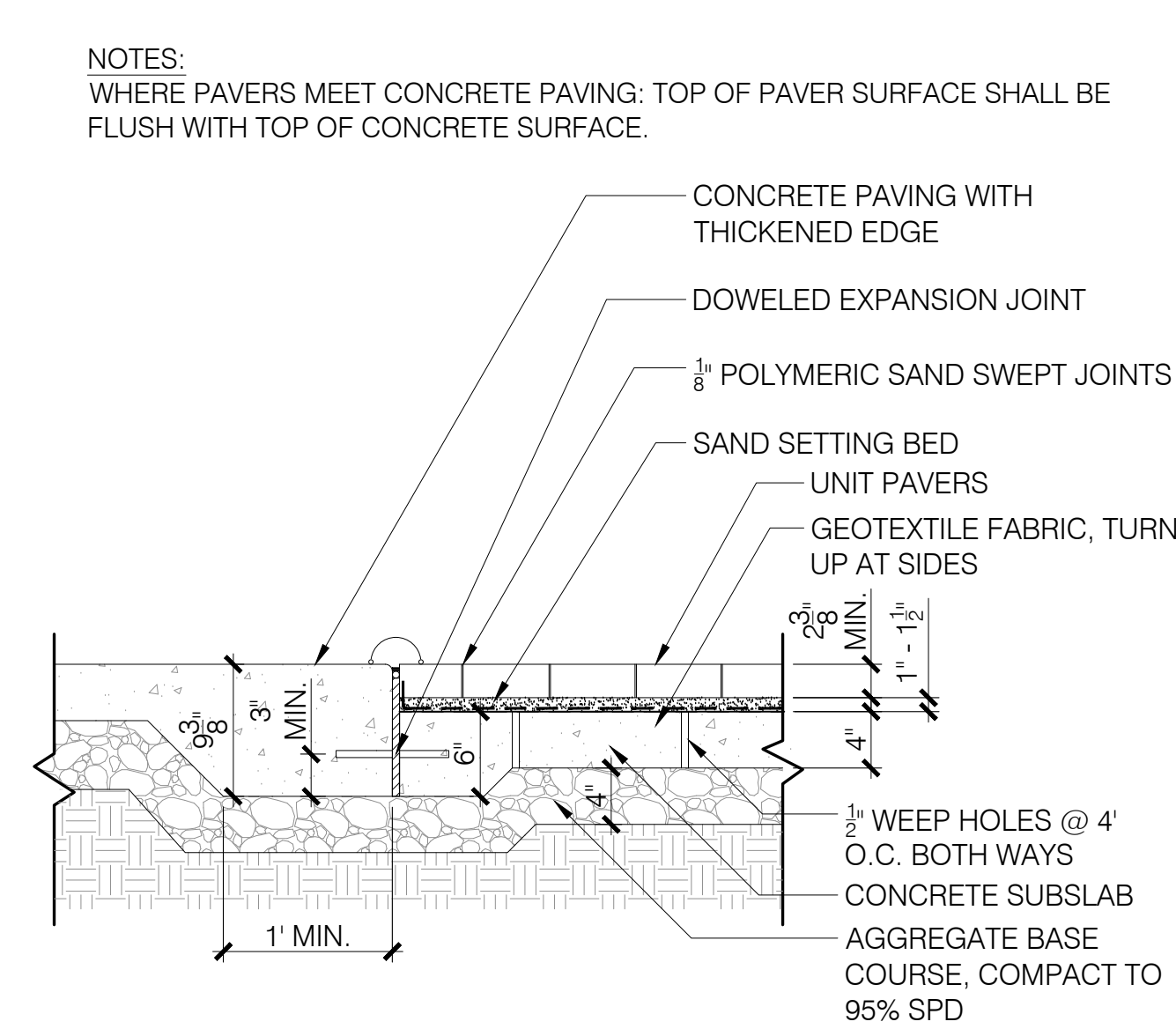
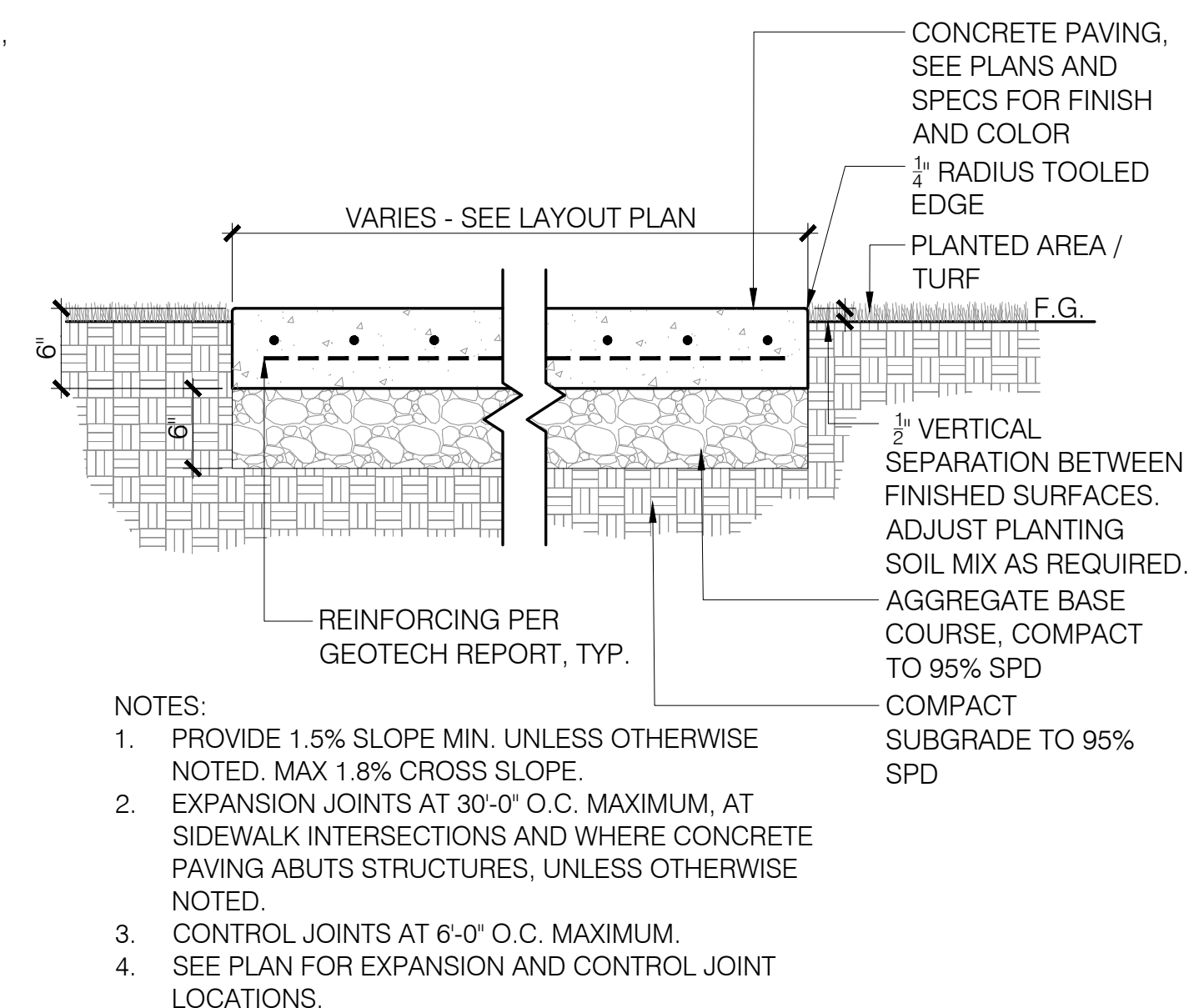
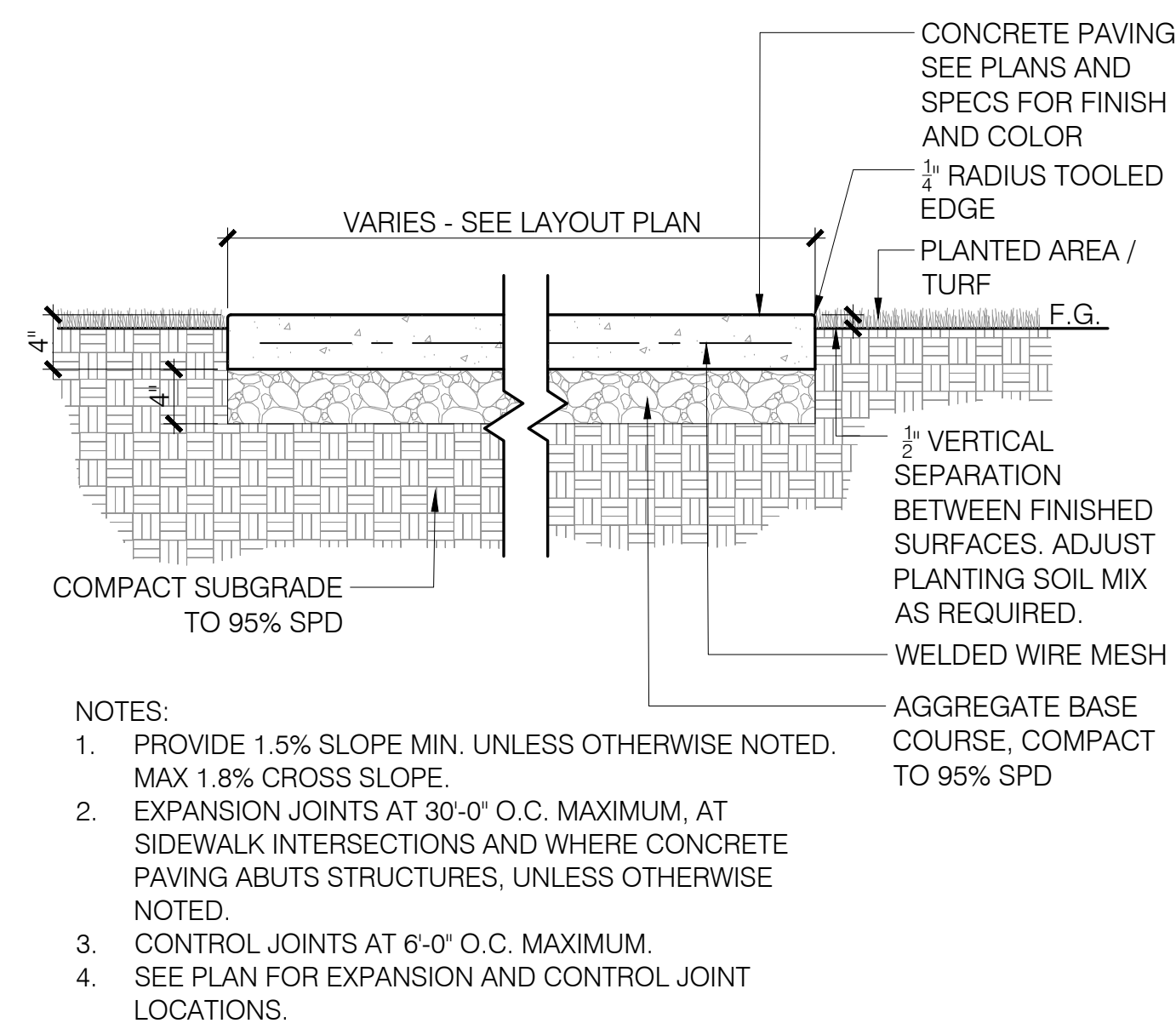
| CODE                              | DESCRIPTION                              |
|-----------------------------------|------------------------------------------|
| <b>1 - PAVING &amp; SURFACING</b> |                                          |
| 1-01                              | CONCRETE PAVING (PEDESTRIAN)             |
| 1-02                              | SAND FINISH CONCRETE PAVING (PEDESTRIAN) |
| 1-03                              | COBBLE PAVERS (PEDESTRIAN)               |
| 1-04                              | SAND FINISH CONCRETE PAVING (VEHICULAR)  |
| 1-05                              | CONCRETE PAVING (VEHICULAR)              |
| 1-06                              | COBBLE PAVERS (VEHICULAR)                |
| <b>3 - METALS</b>                 |                                          |
| 3-01                              | TRUNCATED DOMES                          |
| 3-02                              | TRAIL EDGE PLANTER GUARDRAIL             |
| <b>5 - FURNISHINGS</b>            |                                          |
| 5-01                              | PARLEY'S TRAIL BOLLARD                   |
| 5-02                              | CUT STONE BENCH                          |
| 5-04                              | BIKE RACK (SLC STANDARD)                 |
| 5-08                              | QUARTZ SERIES PLANTERS                   |
| 5-09                              | NAGUISA BENCH SCULPTURE                  |
| <b>8 - PLANTING</b>               |                                          |
| 8-01                              | WOOD MULCH                               |

PLANT SCHEDULE

| SYMBOL                                                                                | CODE    | QTY | BOTANICAL / COMMON NAME                                                         |
|---------------------------------------------------------------------------------------|---------|-----|---------------------------------------------------------------------------------|
| TREES                                                                                 |         |     |                                                                                 |
|    | AME GRA | 3   | AMELANCHIER X GRANDIFLORA `AUTUMN BRILLIANCE`<br>AUTUMN BRILLIANCE SERVICEBERRY |
|    | BET OCC | 2   | BETULA NIGRA `CULLY`<br>HERITAGE RIVER BIRCH, CLUMP                             |
|    | EXI COX | 1   | EXI EXISTING TREE<br>PROTECT IN PLACE OR TRANSPLANT                             |
|    | GIN AUT | 1   | GINKGO BILOBA `AUTUMN GOLD`<br>AUTUMN GOLD MAIDENHAIR TREE                      |
|    | GLE SH2 | 1   | GLEDITSIA TRIACANTHOS INERMIS `SHADEMASTER`<br>SHADEMASTER LOCUST               |
|    | PLA MO3 | 1   | PLATANUS X ACERIFOLIA `MORTON CIRCLE` TM<br>EXCLAMATION! LONDON PLANE TREE      |
| SHRUBS                                                                                |         |     |                                                                                 |
|    | ARC PAN | 8   | ARCTOSTAPHYLOS X COLORADENSIS `PANCHITO`<br>PANCHITO MANZANITA                  |
|    | CHA MIL | 4   | CHAMAEBATIARIA MILLEFOLIUM<br>FERNBUSH                                          |
|    | CHR NAU | 3   | CHRYSOTHAMNUS NAUSEOSUS NAUSEOSUS<br>DWARF BLUE RABBITBRUSH                     |
|   | COR RE5 | 10  | CORNUS SERICEA<br>RED TWIG DOGWOOD                                              |
|  | PIN JA8 | 16  | PINUS MUGO `JAKOBSEN`<br>JAKOBSEN MUGO PINE                                     |
|  | STA LAV | 47  | STACHYS LAVANDULIFOLIA<br>PINK COTTON LAMB'S EAR                                |
|  | SYM ALB | 17  | SYMPHORICARPOS ALBUS<br>COMMON SNOWBERRY                                        |
|  | VER THA | 16  | VERBASCUM THAPSUS<br>COMMON MULLEIN                                             |
|  | YUC GLA | 20  | YUCCA GLAUCA<br>SOAPWEED                                                        |
| GRASSES                                                                               |         |     |                                                                                 |
|  | BOU BLO | 50  | BOUTELOUA GRACILIS `BLONDE AMBITION`<br>BLONDE AMBITION BLUE GRAMA              |
|  | SOR NUT | 10  | SORGHASTRUM NUTANS<br>INDIAN GRASS                                              |
| PERENNIALS                                                                            |         |     |                                                                                 |
|  | COR VER | 15  | COREOPSIS VERTICILLATA `MOONBEAM`<br>THREADLEAF COREOPSIS                       |
|  | ECH ALB | 22  | ECHINACEA PURPUREA `ALBA`<br>WHITE CONEFLOWER                                   |
|  | NEP BLU | 14  | NEPETA X FAASSENII `BLUE WONDER`<br>BLUE WONDER CATMINT                         |

NOTE: EXISTING TREES ARE 1.5" CAL OR LESS AND MAY BE REPLACED WITH NEW 2" CAL STOCK IF NOT IN GOOD HEALTH.







## **PLANTING NOTES**

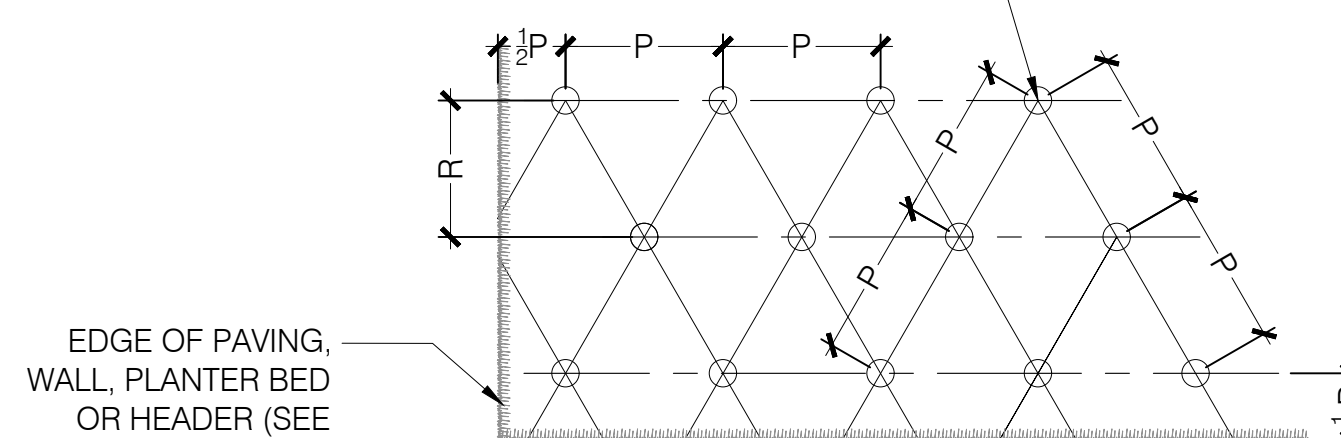
1. All plant materials shall meet or exceed current American Standard for Nursery Stock (ANSI Z60.1-2004) and SLC Forestry Standards and accompanying Rules and Regulations.
2. All plants will be balled and burlapped or container grown. Bare root or spaced plants will not be accepted.
3. Supply all plant material in quantities sufficient to complete the planting bed as shown on the drawings.
4. All plants will be inspected and approved by the Owner's Representative prior to delivery to the site.
5. Any proposed substitutions of plant species shall be approved by the Landscape Architect prior to delivery to the site.
6. Obtain Landscape Architects approval of finish grading prior to the start of planting.
7. Stake locations of all proposed trees and edges of new planting beds for approval by the Landscape Architect 48 hours prior to the commencement of planting.
8. Landscape Contractor shall be responsible for becoming aware of all underground utilities, pipes, and structures. The Landscape Contractor shall be held responsible for contacting all utility companies for field location of underground utility lines prior to any excavation. Landscape Contractor shall take sole responsibility for any cost of utility repair due to damage caused by his operations.
9. Do not willfully proceed with construction as designed when it is obvious that unknown obstructions and/or grade differences exist that may not have been known during design. Such conditions shall be immediately brought to the attention of the Landscape Architect. The Landscape Contractor shall assume full responsibility for all necessary revisions due to failure to give such notification.
10. Landscape Contractor shall be responsible for any coordination with subcontractors as required to accomplish planting operations.
11. See specifications for planting requirements, soil preparation testing, materials, and execution. Arrange for visit of Landscape Architect for review and approval a minimum of 48 hours prior to installation.

2. See details and specifications for staking method, plant pit dimensions, and backfill requirements.
13. Landscape Contractor shall provide per-unit costs for every size of plant materials, and by type, as called out on planting plans. Unit cost to include the plant material itself and installation, including all labor, amendments, fertilizers, etc., as detailed and specified for each size.
14. Landscape Contractor is responsible to do their own quantity takeoffs for all plant materials and sizes shown on plans.
15. The Landscape Contractor shall be responsible for positive drainage throughout the site with accurately set flow lines. No low spots or ponding of surface water will be accepted in final work.
16. Coordinate installation of large plant material with installation of wall footings, bridge abutments and pavements. Any damage to improvements by others is the responsibility of the Landscape Contractor.
17. The Landscape Contractor shall allow for the addition of specified quantities of soil amendments, conditioners and mulch in soil preparation and finish grading.
18. Imported soil shall be used to supplement the existing soil as necessary to meet the finish grade requirements at planting areas.
19. The Landscape Contractor shall verify soil test at his expense prior to planting and will follow test recommendations and Landscape Architect's approval for soil amendments.
20. The Landscape Contractor shall receive the specified subgrade elevation, of +/- one tenth of a foot below finish grade.
21. The Landscape Contractor shall be responsible to furnish and install amended or imported soil in any planting areas as necessary to achieve the specified finish planting grades unless otherwise noted on plans or specs.
22. The Landscape Architect reserves the right to adjust the location of plant material during installation as appropriate to the project. For trees in the right-of-way by Builder or Contractor, adjustments of 5'-0" or more must have prior authorization of Landscape Architect.

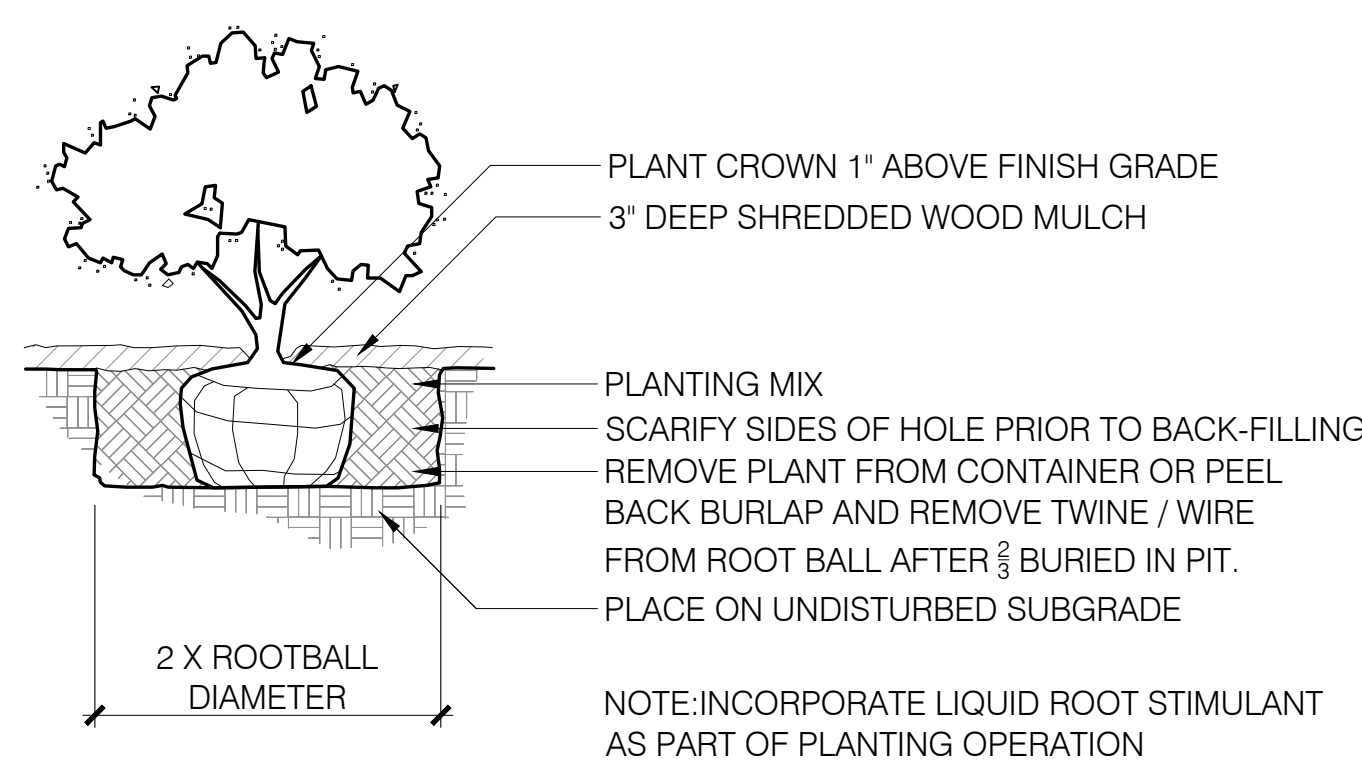
23. Contractor is to familiarize himself with the layout, grading, and civil engineering documents to coordinate actual location of trees and shrubs.
24. Maintenance Statement: All landscaping shown on this plan shall be maintained in a neat and adequate manner. Required maintenance activities shall include, but not limited to, mowing of lawns, trimming of hedges, adequate irrigation, replacement of dead, diseased or unsightly landscaping, removal of weeds from planted areas, and appropriate pruning of plant materials.
25. Take dimensions from back of curb, center line of trees, and centerline of light pole bases, unless otherwise noted.
26. Take all dimensions perpendicular to any reference line, centerline, or back of curb.
27. Written dimensions supersede scaled dimensions. Do not scale drawings, if there is a question regarding dimension, contact Landscape Architect for verification.
28. All landscaped areas shall be irrigated with an automatic irrigation system. Lawn areas will be sprayed and shrubs will be drip irrigated. Natural areas, such as those with prairie types of grasses and native shrub species, are designed to irrigate through grow-in and then be shut off except during severe drought. Contractor shall be responsible for taps, backflow prevention and winterization systems, sleeving under paved areas and all sprinkler system components necessary for a fully functional system. Trees shall be on a separate zone from turf.
29. Street Trees shall be placed 5'-0" min from buried utilities.
30. All proposed landscaping in the right-of-way shall be per City Standards. Trees to be in accordance with current City Standards including approved species; family, genus and species, quantity and percentage limits; and limitations on the quantity of same-species trees in a row. Installation of trees in right-of-way to be per City detail.
31. Proposed trees in the right-of-way shall be pre-approved by the Landscape Architect and shall be a minimum of 20' from property corners at intersections, 20' from street lights, outside of 30' corner sight triangles and 10' from edge of driveways, alleys and hydrants.

| P<br>TRIANGULAR | R<br>ROW            | AREA PER PLANT<br>SQ.FT. |
|-----------------|---------------------|--------------------------|
| 4"              | 3 $\frac{1}{16}$ "  | .096                     |
| 6"              | 5 $\frac{1}{4}$ "   | .22                      |
| 8"              | 7"                  | .385                     |
| 10"             | 8 $\frac{3}{4}$ "   | .60                      |
| 12"             | 10 $\frac{5}{8}$ "  | .87                      |
| 18"             | 1-3 $\frac{5}{8}$ " | 1.95                     |
| 24"             | 1-8 $\frac{3}{4}$ " | 3.46                     |
| 30"             | 2-2"                | 5.42                     |
| 3'              | 2-7"                | 7.80                     |
| 4'              | 3-5 $\frac{1}{2}$ " | 13.84                    |
| 5'              | 4-4"                | 21.65                    |
| 6'              | 5-2 $\frac{3}{4}$ " | 31.20                    |

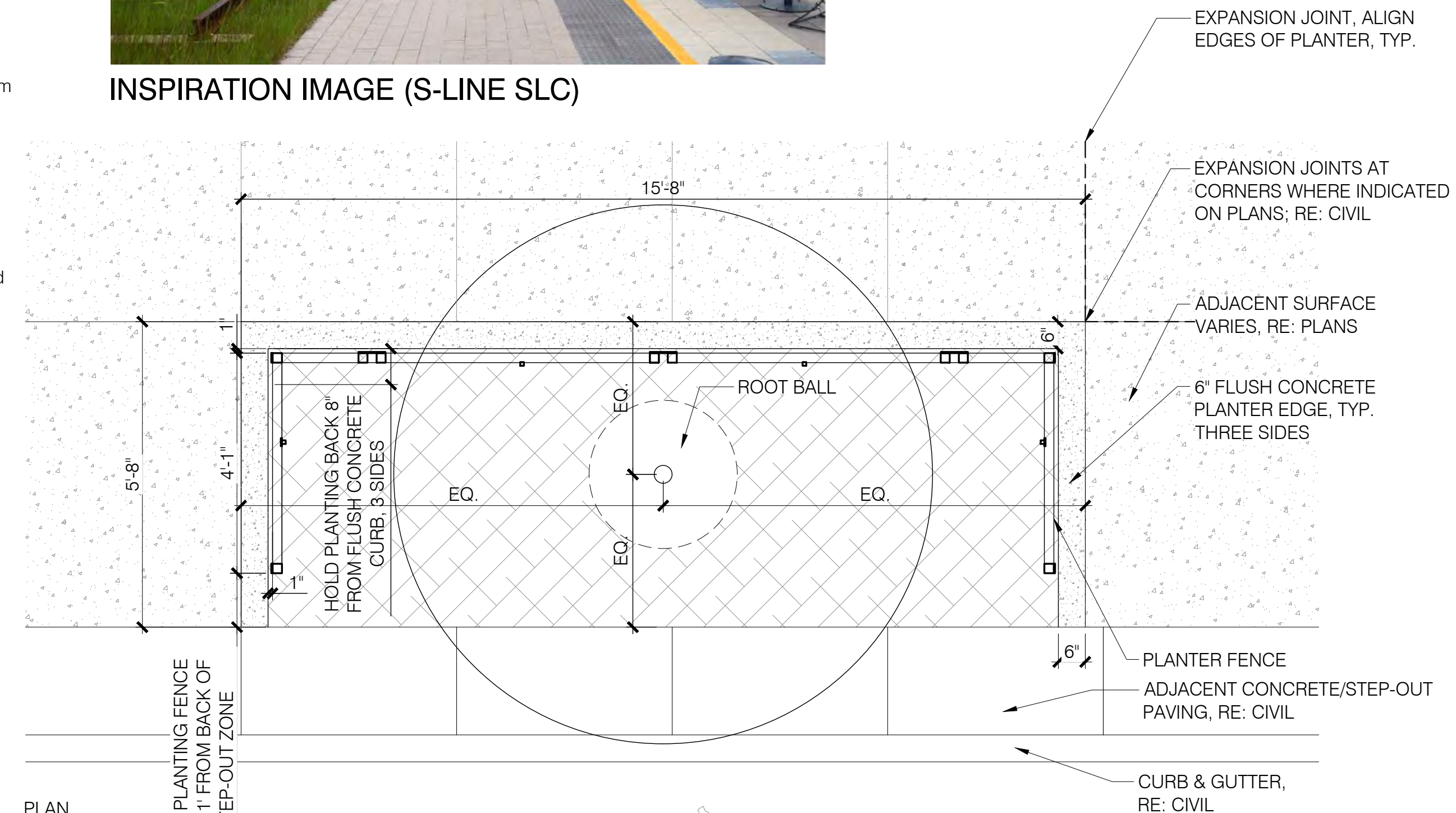
FOR TRIANGULAR SPACING OF SHRUBS,  
PERENNIALS AND GROUNDCOVERS.  
SEE PLANT SPACING DISTANCE.



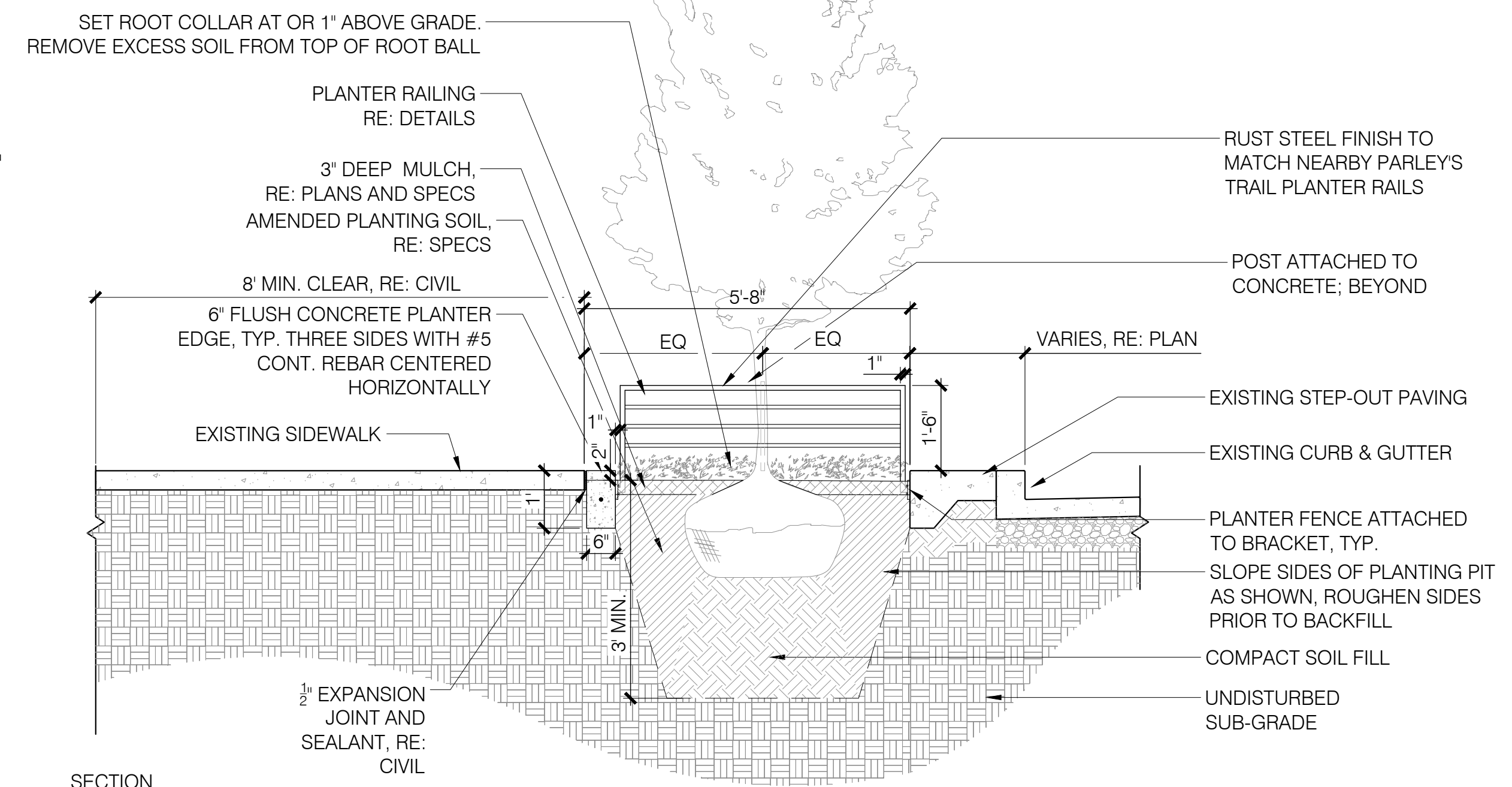
## SHRUB AND PERENNIAL SPACING

$$3/8^{\circ} = 1'-0"$$
 SHRUB AND ORNAMENTAL GRASS PLANTING
$$1/2^* = 1'-0$$


INSPIRATION IMAGE (S-LINE SLC)



### PLAN



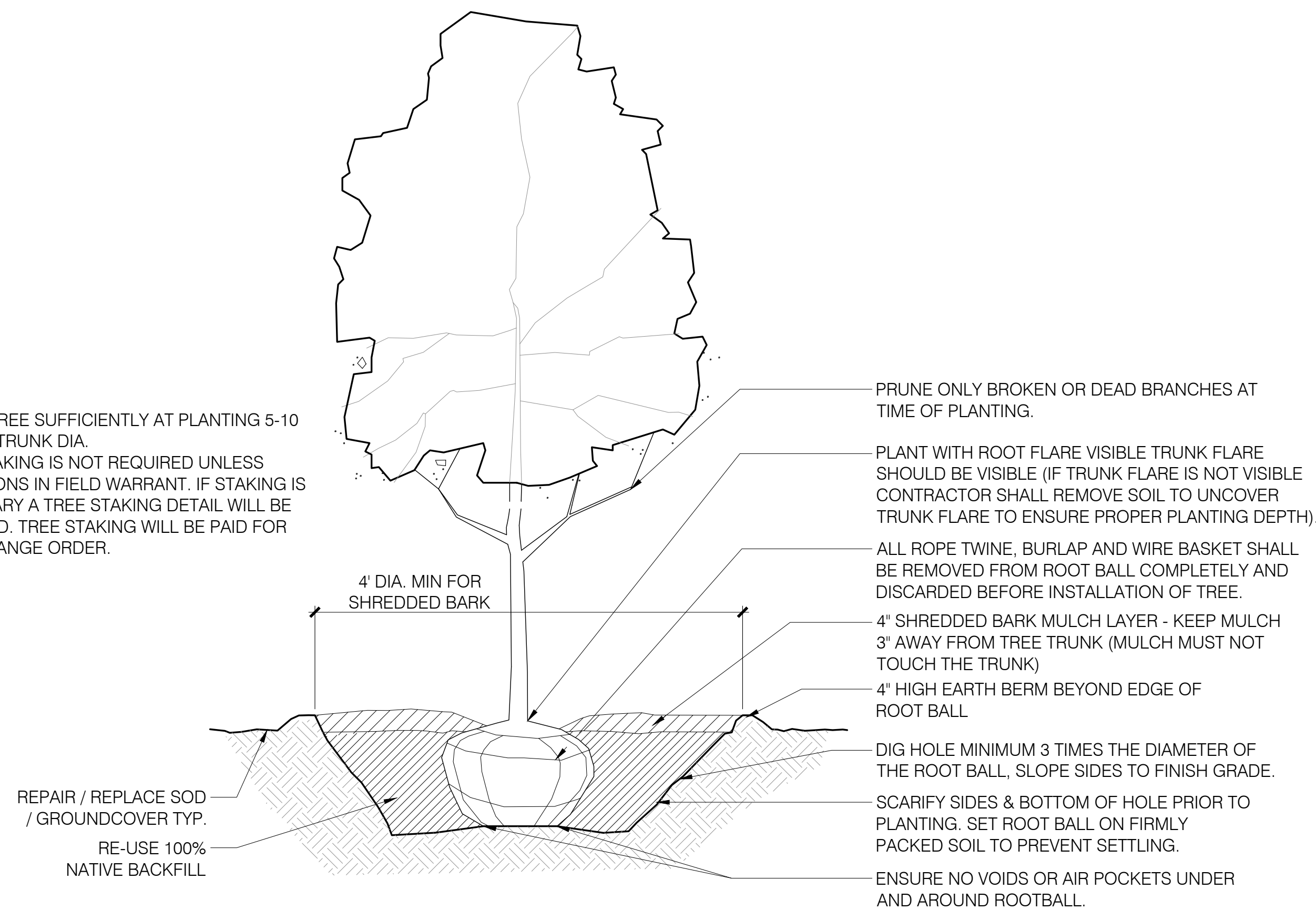
## SECTION

## 4 TRAIL EDGE PLANTER GUARDRAIL

$$1/2' = 1/2$$

- NOTES:

1. WATER TREE SUFFICIENTLY AT PLANTING 5-10 GAL. / 1" TRUNK DIA.
2. TREE STAKING IS NOT REQUIRED UNLESS CONDITIONS IN FIELD WARRANT. IF STAKING IS NECESSARY A TREE STAKING DETAIL WILL BE PROVIDED. TREE STAKING WILL BE PAID FOR WITH CHANGE ORDER.



URBAN FORESTRY TREE PLANTING DETAIL

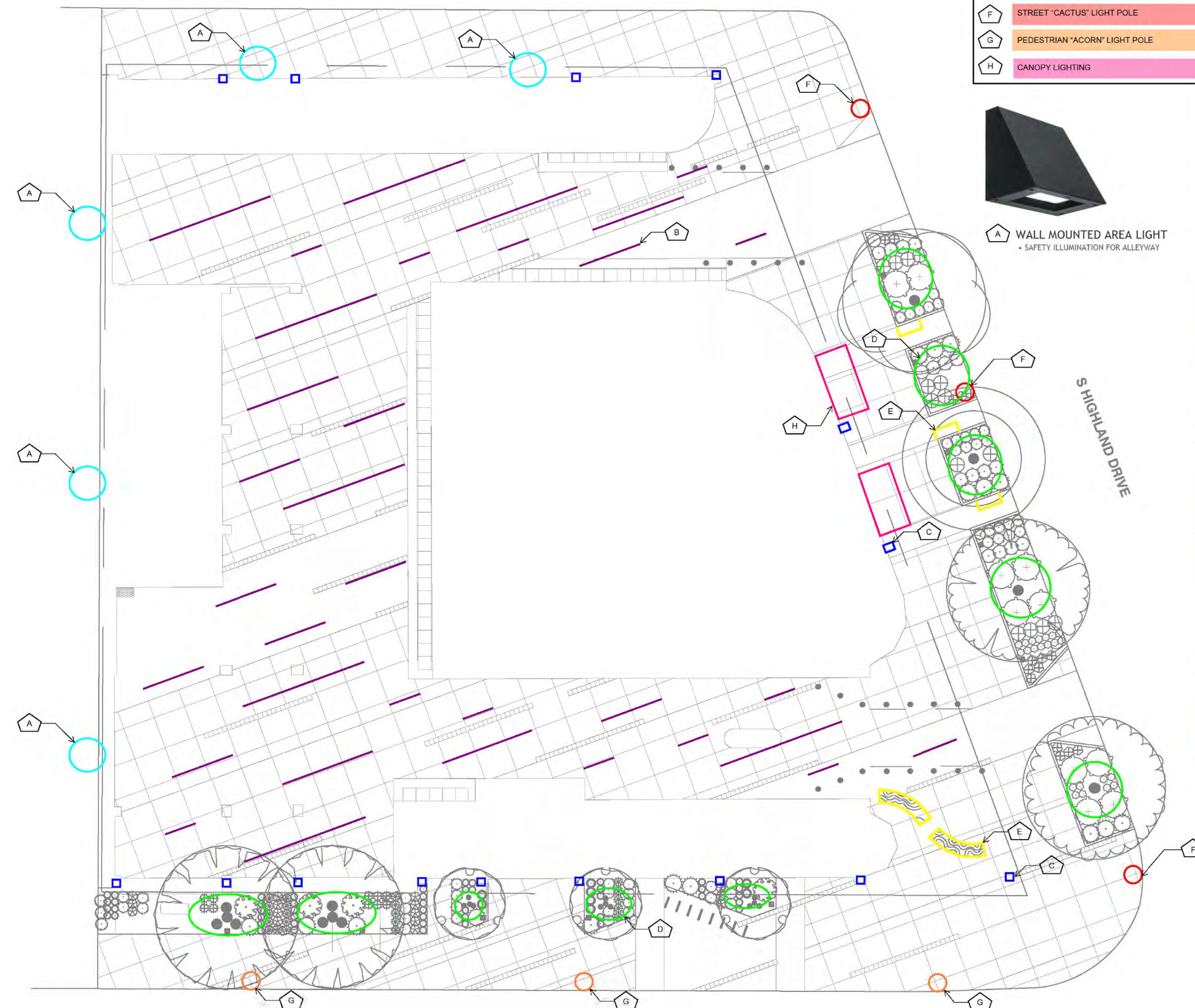
$$1/2' = 1'-0$$




| LIGHTING CONCEPT PLAN LEGEND |                                            |
|------------------------------|--------------------------------------------|
| A                            | WALL MOUNTED AREA LIGHT                    |
| B                            | CEILING RECESSED GARAGE LINEAR LIGHTING    |
| C                            | WALL MOUNTED AREA LIGHTING / ACCENT SCENCE |
| D                            | TREE ACCENT LIGHT                          |
| E                            | BENCH TOEKICK LIGHT                        |
| F                            | STREET "CACTUS" LIGHT POLE                 |
| G                            | PEDESTRIAN "ACORN" LIGHT POLE              |
| H                            | CANOPY LIGHTING                            |

**LIGHTING PLAN GENERAL NOTES:**

1. ALL LIGHT FIXTURES NOT SPECIFICALLY INTENDED TO ACCENT LANDSCAPING OR ARCHITECTURAL ELEMENTS WILL BE FULL-CUTOFF AND WILL NOT PRODUCE LIGHT SPILL PAST THE PROPERTY LINE. ALL ACCENT LIGHTING WILL BE AIMED AND ORIENTED TO REDUCE LIGHT SPILL PAST THE PROPERTY LINE OR INTO THE SKY.
2. ALL EXTERIOR LIGHT SOURCES WILL BE 3000K CCT.
3. STREET LIGHTS / PEDESTRIAN LIGHTS WILL BE THE STANDARD SALT LAKE CITY "CACTUS POLE" AND "PEDESTRIAN ACORN" TO MATCH THE EXISTING LIGHTS ON ADJACENT BLOCKS.



A WALL MOUNTED AREA LIGHT  
• SAFETY ILLUMINATION FOR ALLEYWAY



B CEILING RECESSED PORTE COCHERE LINEAR LIGHTING  
• TO BE PARALLEL WITH DIRECTION OF CEILING TEXTURE



C IN-GRADE COLUMN UPLIGHT  
• NARROW BEAM UPLIGHT ACCENTING ARCHITECTURE



D TREE ACCENT LIGHT  
• IN-GRADE LOW OUTPUT FIXTURES WITH GLARE SHIELDS THROUGHOUT LANDSCAPING AREAS



E BENCH TOEKICK LIGHT  
• FLEXIBLE LED CHANNEL AT TOE KICK OF CAST IN PLACE CONCRETE BENCHES



F STREET "CACTUS" LIGHT POLE  
• 3-HEAD ACORN LIGHT TO MATCH SUGARHOUSE STANDARD

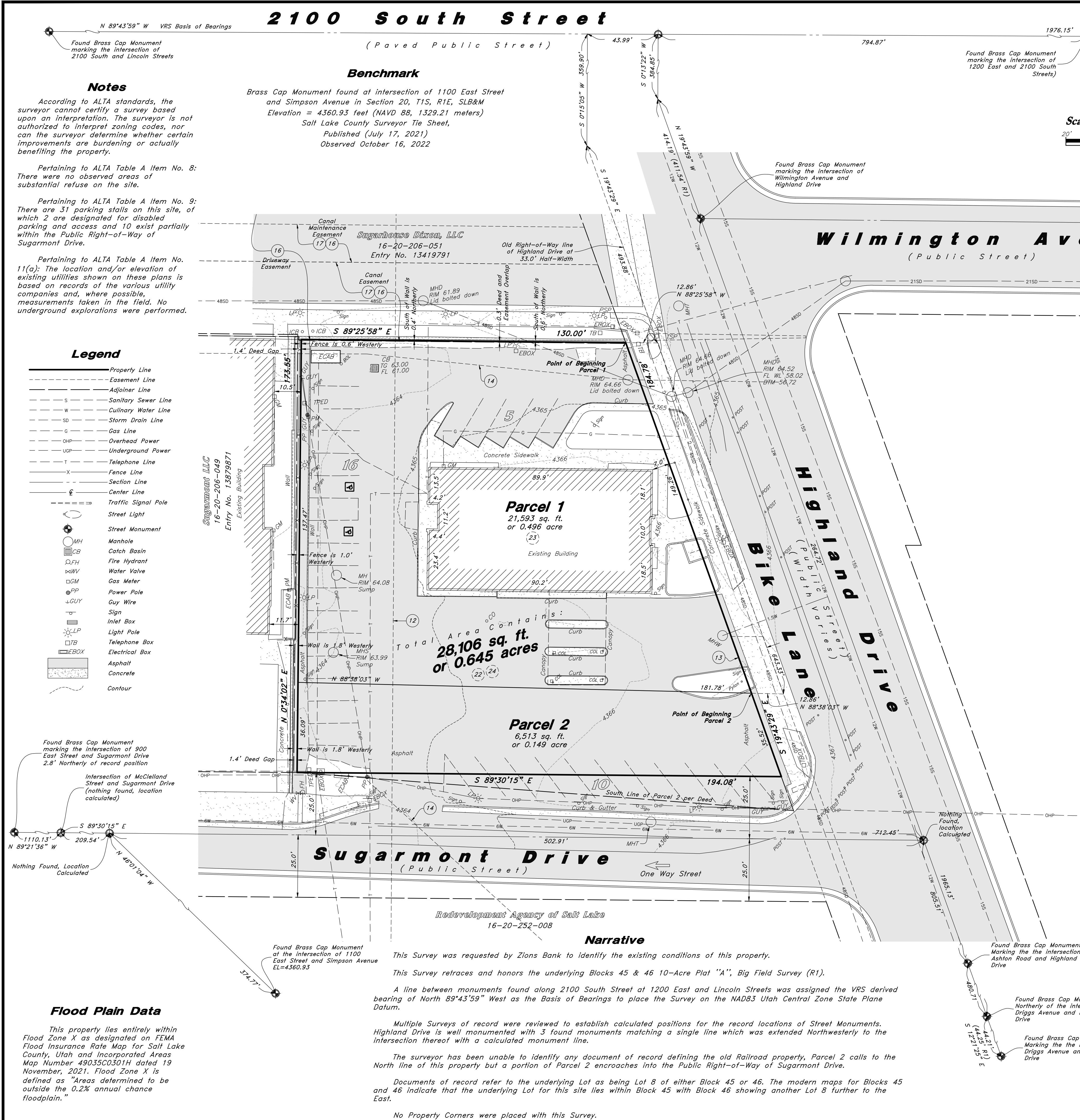


H SIGN CANOPY LIGHT  
DECORATIVE LIGHTING FEATURE AT BUILDING ENTRY CANOPIES



G PEDESTRIAN "ACORN" LIGHT POLE  
• SINGLE HEAD ACORN LIGHT TO MATCH SUGARHOUSE STANDARD





**Vicinity Map**  
Not to Scale

**Title Information**  
This survey was completed using Title Report Commitment No. 22-14590-WTR Revision No. 4 dated October 28, 2022 issued by Real Advantage Title Insurance Company.  
The following survey related items circled (Solid) from Schedule B, Part II of the title report are plotted on the survey:  
The following survey related items circled (Dashed) from Schedule B, Part II of the title report blanket all or a portion of this site but contain nothing to plot:  
The following survey related items not circled from Schedule B, Part II of the title report could not be plotted:  
12 Subject to any portion of 11th East which has been vacated as shown on the official plat, affects the Westerly portion of the site.  
13 Easement and/or Right-of-Way to Salt Lake City, a municipal corporation recorded September 16, 1930 as Entry No. 662009 in Book 74 at Page 232, dedicates Highland Drive from 33' Half-Width to that of the existing 45', plots within the existing Right-of-Way of Highland Drive to the East and does not affect this site.  
14 Easement and/or Right-of-Way to Utah Power & Light Company recorded March 27, 1958 as Entry No. 1584292 in Book 1492 at Page 289 describes multiple pole line easements, one of which affects the North portion of this site with another terminating near the South line of this site.  
15 Easement and/or Right-of-Way to Utah Power & Light Company recorded October 7, 1969 as Entry No. 2305889 in Book 2796 at Page 115 contains pole line easements that plot Northerly and do not affect this site.  
16 Driveway Agreement and Termination of Declaration of Restrictions and Grant of Easements recorded September 29, 2016, Entry No. 12377465, in Book 10482 at Page 2705 and Amendment recorded October 24, 2019, as Entry No. 13107568, in Book 1085, at Page 3149, and Affidavit recorded October 25, 2019, as Entry No. 13108884, in Book 10851, at Page 2014, of the Official Records. The documents reveal a Driveway Easement, Canal Easement, & Canal Maintenance Easement Plotting Northerly adjacent to this site. This site is not listed as party to these agreements. The Driveway and Canal Easements overlap the North line of this site with the South line thereof being contiguous with the Deed to the North.  
17 Easement and/or Right-of-Way to Salt Lake City Corporation recorded September 29, 2016 Entry No. 12377450 in Book 10482 on Page 2598 reveals the same Canal and Maintenance Agreements from Exception No. 16 above.  
20 Terms and Conditions of that certain Notice of Adoption of Redevelopment Plan Entitled "Sugar House Neighborhood Development Plan" dated September 19, 1986 recorded November 10, 1985 as Entry No. 4346572 in Book 5838 at Page 887 of Official Records, this site is specifically exempted from this redevelopment area, does not affect this site.  
21 Terms and Conditions of that certain Resolution No. 8 of 1991 recorded February 28, 1991 as Entry No. 5032613 in Book 6293 at Page 2781, blankets this site but contains nothing to plot this site is specifically exempted from this redevelopment area, does not affect this site.  
22 Terms and Conditions of that certain Resolution No. 2 of 1994 recorded January 14, 1994 as Entry No. 5712253 at Book 6850 in Page 2924 blankets this site along with more land, but contains nothing to plot.  
23 Terms and Conditions of that certain Certification of Noncompliance recorded May 6, 1996 as Entry No. 6348767 in Book 7392 at Page 7392, affects Parcel 1, contains nothing to plot.  
24 Terms and Conditions of that certain Resolution No. 4 of 1997 recorded January 24, 1997 as Entry No. 6556942 in Book 7584 at Page 1587, blankets this site along with more land, but contains nothing to plot.  
\* Exception No.'s 1-11, 18-19 and 25-29 are general and/or standard exceptions that do not reveal matters of survey.

**Record Descriptions**  
The Land referred to herein below is situated in the County of Salt Lake, State of Utah, and is described as follows:  
Commencing at City Monument at intersection of 21st South Street and Highland Drive; thence North 89°58'51" West 43.99 feet; thence South 0°04'13" East 363.62 feet; thence along the original West line of Highland Drive South 20°02'46" East 459.81 feet; thence North 89°45'15" West 12.79 feet to the point of beginning of the parcel herein described, said point lying within Lot 8, Block 46, Ten Acre Plat "A", Big Field Survey; thence from said point of beginning South 20°02'46" East 149.26 feet; thence North 88°57'20" West 181.78 feet; thence North 0°14'45" East 137.47 feet; thence South 89°45'15" East 130.00 feet to the point of beginning.  
Tax Parcel No.: 16-20-206-031  
Commencing North 89°58'51" West 43.99 feet; thence South 0°04'13" East 363.62 feet; thence South 20°02'46" East 639.07 feet; thence North 88°57'20" West 12.85 feet from the City monument at the intersection of 21st South Street and Highland Drive; thence North 88°57'20" West 181.78 feet; thence South 0°14'45" West 36.11 feet more or less to a point in the RR Southerly property line; thence Easterly along said Southerly property line 200.00 feet, more or less to a point in the Southwesterly line of Highland Drive; thence North 20°02'46" West along Southwesterly line of Highland Drive 50.00 feet more or less to the point of beginning.  
Tax Parcel No.: 16-20-206-032

**Certification**  
To: Zions First National Bank Inc., a Utah Corporation and Real Advantage Title Insurance Company:  
This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 2, 3, 4, 5, 7(a), 8, 9, and 11(a) of Table A thereof. The fieldwork was completed on October 16, 2022.  
Date: Dec 27, 2022  
David M. Hamilton  
Utah PLS No. 12966234

**ALTA / NSPS Land Title Survey**  
**Zions Bank Sugarhouse**  
2200 South Highland Drive  
Salt Lake City, Utah 84106  
A part of Lot 8, Block 45, 10-Acre Plat "A", Big Field Survey and the Northeast Quarter of Section 20, T1S, R1E, SLB&M, U.S. Survey

**21 Dec, 2022**  
SHEET NO. **1**



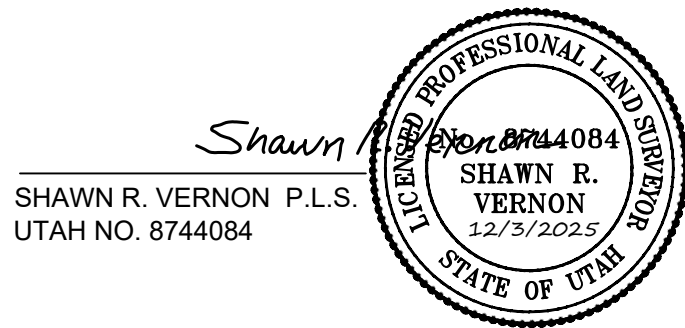
ALTA/NSPS LAND TITLE SURVEY  
FOR  
ZIONS BANK SUGARHOUSE  
PART OF LOT 8, BLOCK 45, 10-ACRE PLAT "A", BIG FIELD SURVEY,  
BEING LOCATED IN THE NORTHEAST QUARTER OF SECTION 20,  
TOWNSHIP 1 SOUTH, RANGE 1 EAST, SALT LAKE BASE & MERIDIAN  
SALT LAKE CITY, SALT LAKE COUNTY, UTAH  
DECEMBER 2025

SURVEYOR'S CERTIFICATE:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 4, 5, 11(A), 11(B), 16 AND 17 OF TABLE A THEREOF.

THE FIELD WORK WAS COMPLETED ON OCTOBER 6, 2025.

DATE OF PLAT OR MAP: DECEMBER 10, 2025.



LEGAL DESCRIPTION (RECORD)

PARCEL 1:

COMMENCING AT CITY MONUMENT AT INTERSECTION OF 21ST STREET AND HIGHLAND DRIVE; THENCE NORTH 89°58'51" WEST 43.99 FEET; THENCE SOUTH 0°04'13" EAST 363.62 FEET; THENCE ALONG THE ORIGINAL WEST LINE OF HIGHLAND DRIVE SOUTH 20°02'46" EAST 489.81 FEET; THENCE NORTH 89°45'15" WEST 12.79 FEET TO THE POINT OF BEGINNING OF THE PARCEL HEREIN DESCRIBED, SAID POINT LYING WITHIN LOT 8, BLOCK 46, TEN ACRE PLOT "A", BIG FIELD SURVEY; THENCE FROM SAID POINT OF BEGINNING SOUTH 20°02'46" EAST 149.26 FEET; THENCE NORTH 88°57'20" WEST 181.78 FEET; THENCE NORTH 0°14'45" EAST 137.47 FEET; THENCE SOUTH 89°45'15" EAST 130.00 FEET TO THE POINT OF BEGINNING.

PARCEL 2:  
COMMENCING AT CIT MONUMENT AT INTERSECTION OS 21ST SOUTH STREET AND HIGHLAND DRIVE; THENCE NORTH 89°58'51" WEST 43.99 FEET; THENCE SOUTH 0°04'13" EAST 363.62 FEET; THENCE ALONG THE ORIGINAL WEST LINE OF HIGHLAND DRIVE SOUTH 20°02'46" EAST 639.07 FEET; THENCE NORTH 88°57'20" WEST 12.85 FEET TO THE POINT OF BEGINNING OF THE PARCEL HEREIN DESCRIBED, SAID POINT LYING WITHIN LOT 8, BLOCK 45, TEN ACRE PLAT "A", BIG FIELD SURVEY; THENCE FROM SAID POINT OF BEGINNING CONTINUING NORTH 88°57'20" WEST 181.78 FEET; THENCE SOUTH 0°14'45" WEST 36.11 FEET, MORE OR LESS, TO A POINT IN THE RAILROAD COMPANY'S SOUTHERN PROPERTY LINE; THENCE EASTERLY ALONG SAID SOUTHERLY PROPERTY LINE A DISTANCE OF 200 FEET, MORE OR LESS, TO A POINT IN THE SOUTHWESTERLY LINE OF HIGHLAND DRIVE A DISTANCE OF 50 FEET, MORE OR LESS, TO THE POINT OF BEGINNING.

TABLE A ITEMS:

- ITEM 2) THE ADDRESS FOR THIS SITE IS:  
2220 SOUTH HIGHLAND DRIVE  
SALT LAKE CITY, UTAH 84106
- ITEM 4) THE GROSS LAND AREA IS: 28,107 SQ. FT. OR 0.645 ACRES.
- ITEM 11) UTILITY INFORMATION SHOWN HEREON IS PLOTTED FROM INFORMATION PROVIDED TO THE SURVEYOR AT THE TIME THIS SURVEY WAS COMPLETED VIA INFORMATION PROVIDED BY UTILITY PROVIDERS, AS WELL AS AND SITE PLAN DRAWINGS THAT MAY HAVE BEEN PROVIDED AT THE TIME OF THE SURVEY, AND COMPARED TO PHYSICAL EVIDENCE FOUND ON THE SITE. THE SURVEYOR DEEMS NO RESPONSIBILITIES FOR ANY CHANGES OR DISCREPANCIES ON THE SITE WITH WHAT WAS PROVIDED AT THE TIME OF THE SURVEY. THEREFORE, IT IS RECOMMENDED TO VERIFY INFORMATION PRIOR TO ANY SITE CONSTRUCTION OR EXCAVATIONS. NO UNDERGROUND EXPLORATIONS HAVE BEEN PERFORMED TO VERIFY THE EXACT LOCATIONS AND SIZING AND ARE SOLELY BASED ON FIELD EVIDENCE AND DETAILS PROVIDED BY OTHERS.
- ITEM 16) THERE IS NO EVIDENCE OF CURRENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS OBSERVED IN THE PROCESS OF COMPLETING THE FIELDWORK.
- ITEM 17) THERE WAS NO EVIDENCE WAS OBSERVED DURING THE FIELDWORK OR DISCOVERED IN PROCESS OF CONDUCTING THIS SURVEY OF ANY PROPOSED CHANGES IN STREET RIGHT OF WAY LINES.

SCHEDULE B EXCEPTIONS:

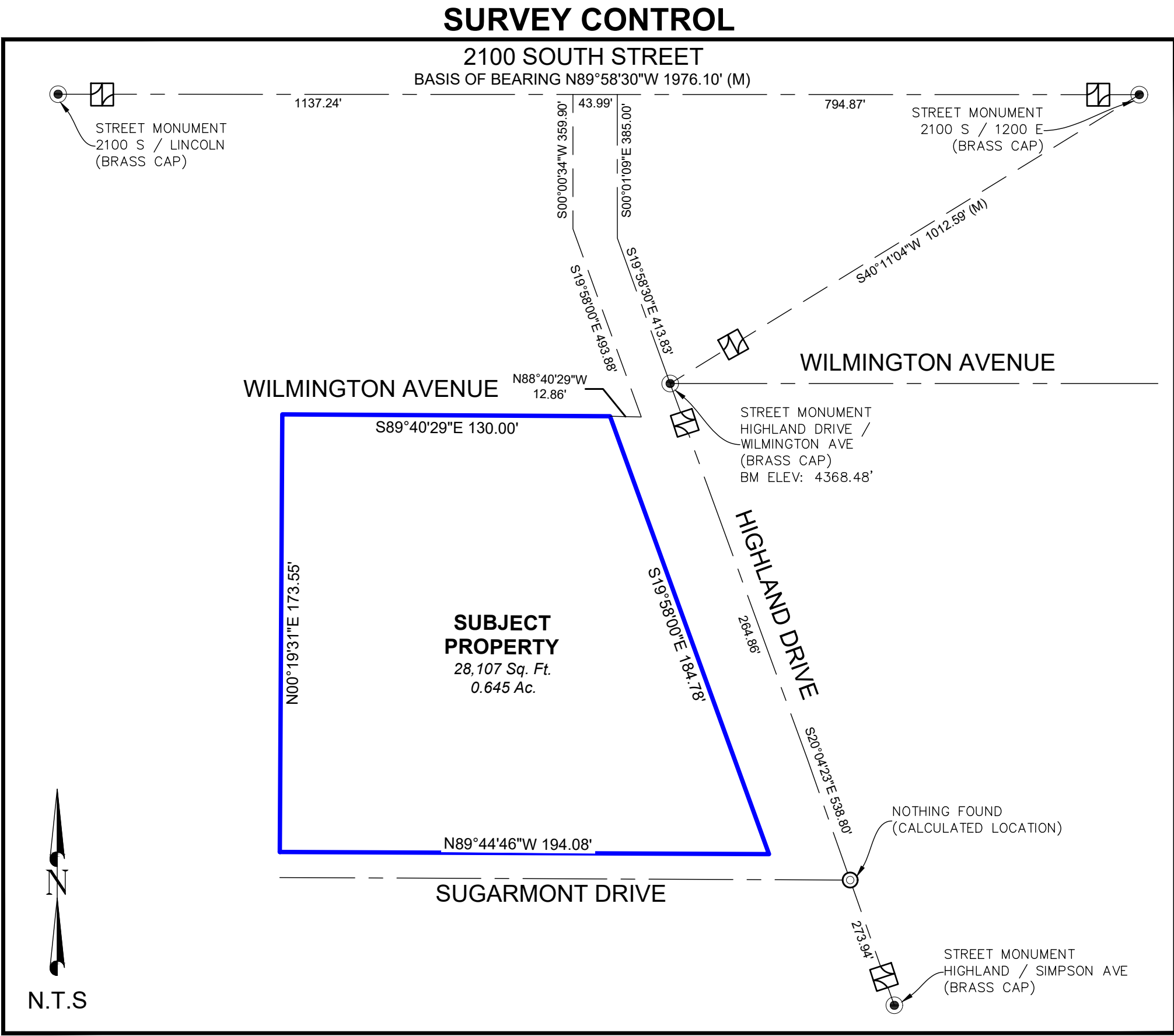
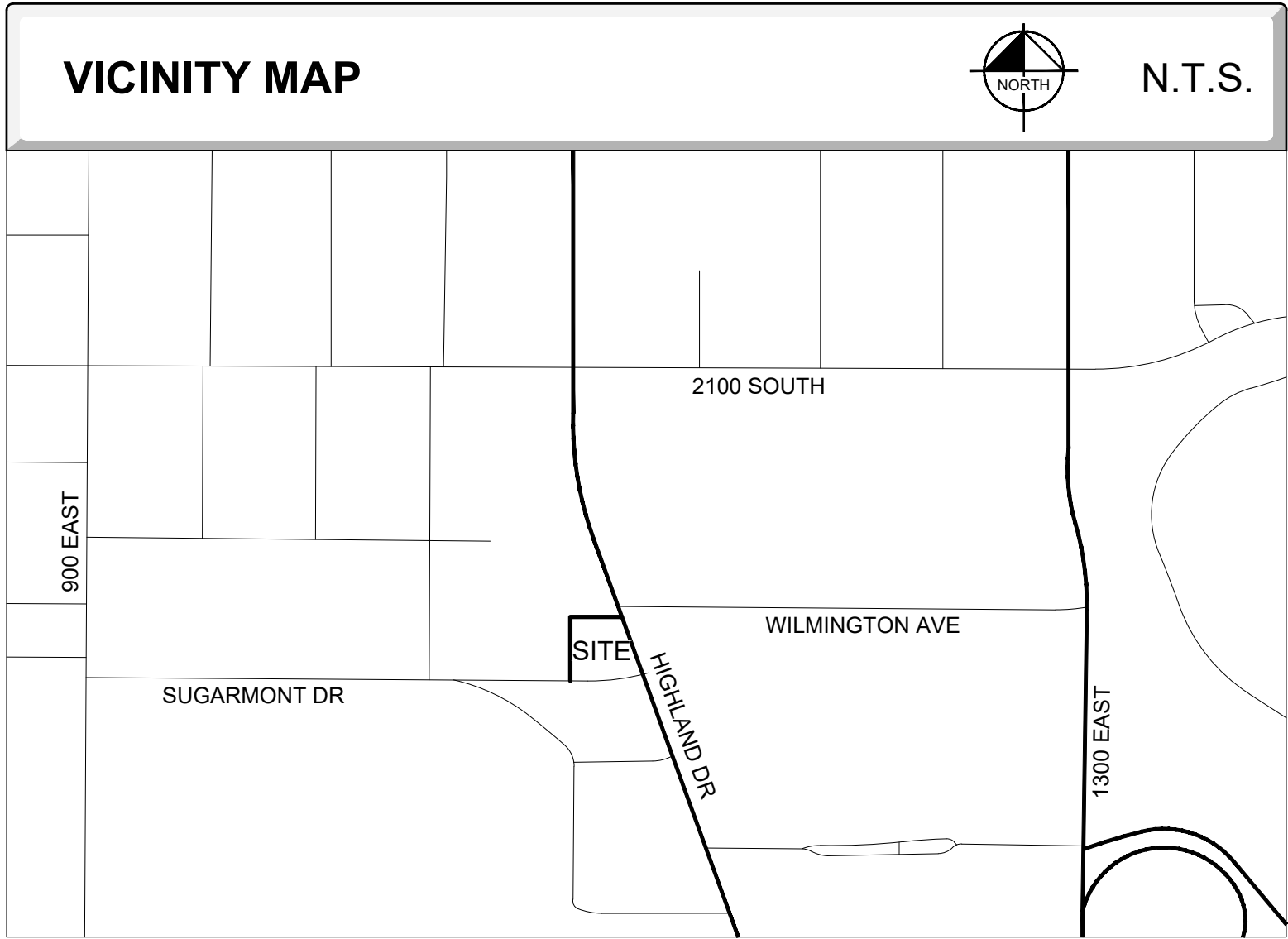
EXCEPT AS OTHERWISE EXPRESSLY NOTED IN NOTES BELOW, KIMLEY-HORN AND ASSOCIATES, INC. DID NOT EXAMINE OR ADDRESS THE EFFECTS, FEES OR ASSESSMENTS DUE, TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS, RESERVATIONS AND/OR RESTRICTIONS CONTAINED IN THE DOCUMENTS REFERRED TO IN ANY ITEMS SHOWN IN THE TITLE COMMITMENT. EASEMENTS AND PUBLIC DOCUMENTS SHOWN OR NOTED HEREON WERE EXAMINED AS TO LOCATION AND STATED PURPOSE AND WERE NOT EXAMINED AS TO RESERVATIONS, RESTRICTIONS, CONDITIONS, OBLIGATIONS, TERMS, OR AS TO THE RIGHT TO GRANT THE SAME.

EXCEPTIONS 1 - 12 AND 16 - 18 ARE NOT SHOWN AS THEY ARE NOT A SURVEY RELATED ITEM.

- 13 AN EASEMENT AGREEMENT FOR PUBLIC STREET AND INCIDENTAL PURPOSES RECORDED SEPTEMBER 16, 1930 AS ENTRY NO. 662009 IN BOOK 74 AT PAGE 232 OF OFFICIAL RECORDS.  
(SURVEY FINDINGS: DOES NOT AFFECT THIS SIDE, NOT PLOTTED)
- 14 AN EASEMENT OVER, ACROSS OR THROUGH THE LAND FOR POLE LINE AND INCIDENTAL PURPOSES, AS GRANTED TO UTAH POWER & LIGHT COMPANY, A CORPORATION, ITS SUCCESSORS IN INTEREST AND ASSIGNS BY INSTRUMENT RECORDED MARCH 27, 1958 AS ENTRY NO. 1584292 IN BOOK 1492 AT PAGE 289 OF OFFICIAL RECORDS.  
(SURVEY FINDINGS: THE ABOVE EASEMENT PURPORTS TO AFFECT THE SUBJECT PROPERTY, BUT THE EXACT LOCATION CANNOT BE DETERMINED BECAUSE OF A BLANKET OR INCOMPLETE LEGAL DESCRIPTION)
- 15 AN EASEMENT OVER, ACROSS OR THROUGH THE LAND FOR POLE LINE AND INCIDENTAL PURPOSES, AS GRANTED TO UTAH POWER & LIGHT COMPANY, A CORPORATION, ITS SUCCESSORS IN INTEREST AND ASSIGNS AND LICENSES BY INSTRUMENT RECORDED OCTOBER 07, 1959 AS ENTRY NO. 2305889 IN BOOK 2796 AT PAGE 115 OF OFFICIAL RECORDS.  
(SURVEY FINDINGS: THE ABOVE EASEMENT PURPORTS TO AFFECT THE SUBJECT PROPERTY, BUT THE EXACT LOCATION CANNOT BE DETERMINED BECAUSE OF A BLANKET OR INCOMPLETE LEGAL DESCRIPTION)

COMMENTS:

- TITLE REPORT ..... FIRST AMERICAN TITLE INSURANCE COMPANY  
COMMITMENT NO.: NCS-1273552-SLC1  
COMMITMENT DATE: JULY 31, 2025 AT 7:30 AM
- BOUNDARY LINES ..... WERE ESTABLISHED FROM SECTION MONUMENTS, VARIOUS DEEDS AND RECORD OF SURVEYS.
- EASEMENTS ..... PLOTTABLE EASEMENTS ARE SHOWN FROM AN OWNER SUPPLIED TITLE REPORT. BECAUSE OUR SERVICE IS LIMITED TO REPORTING ON EASEMENT LOCATIONS, WE STRONGLY RECOMMEND LEGAL COUNSEL TO BE RETAINED TO REPORT ON TITLE PAPERS IN THEIR ENTIRETY.
- BASIS OF BEARINGS ..... THE BASIS OF BEARING FOR THIS SURVEY IS N89°58'30"W BETWEEN STREET MONUMENTS IN 2100 SOUTH STREET AT THE INTERSECTIONS OF 1200 EAST AND LINCOLN AVE.
- OWNER ..... PARCEL 1: ZIONS FIRST NATIONAL BANK, A NATIONAL ASSOCIATION  
PARCEL 2: ZIONS FIRST NATIONAL BANK, A NATIONAL BANKING ASSOCIATION
- NOTES ..... 1) THIS ALTA/NSPS LAND TITLE SURVEY WAS PREFORMED AT THE REQUEST OF ZIONS BANK.  
2) THE PURPOSE OF THIS SURVEY WAS TO SHOW THE BOUNDARY OF THE THIS PROPERTY BASED ON OFFICIAL RECORDS AS WELL AS A TITLE REPORT PROVIDED TO THE SURVEYOR. THIS INFORMATION WAS USED TO VERIFY BOUNDARIES AND EASEMENTS IN COMPARISON TO PHYSICAL FEATURES AND EVIDENCE FOUND ON THE GROUND.



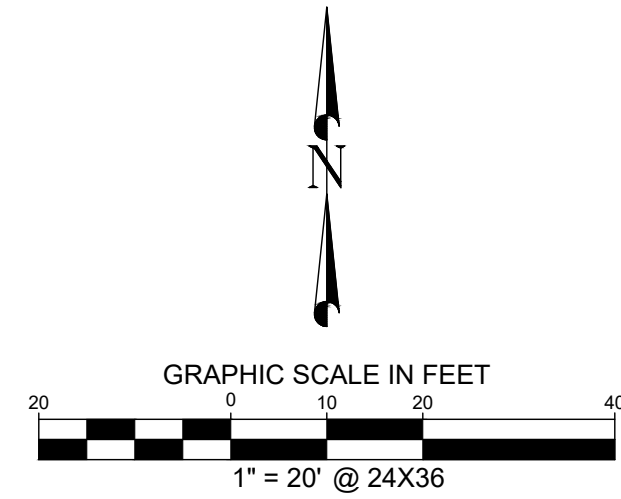
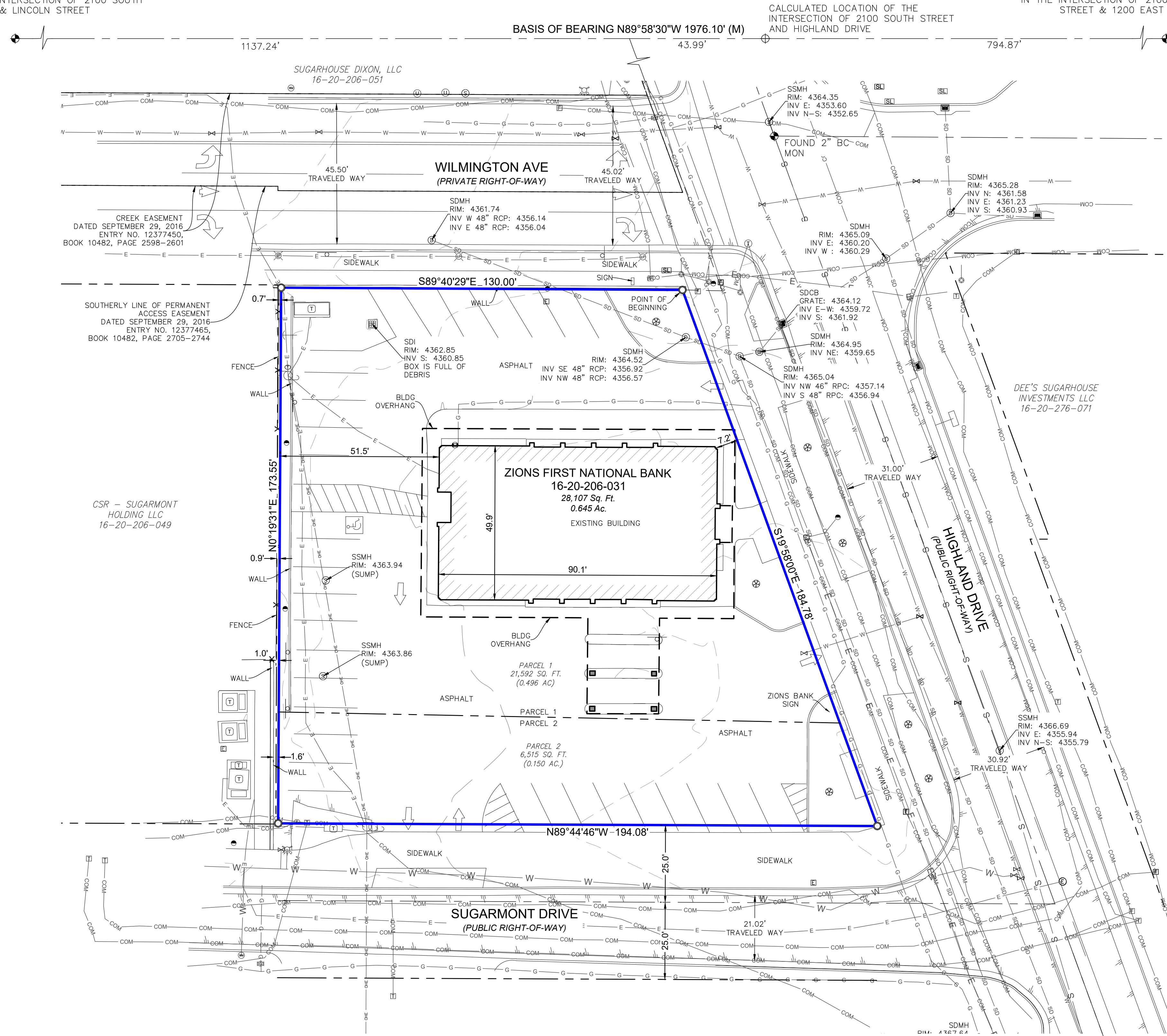


ALTA/NSPS LAND TITLE SURVEY  
FOR  
ZIONS BANK SUGARHOUSE  
PART OF LOT 8, BLOCK 45, 10-ACRE PLAT "A", BIG FIELD SURVEY,  
BEING LOCATED IN THE NORTHEAST QUARTER OF SECTION 20,  
TOWNSHIP 1 SOUTH, RANGE 1 EAST, SALT LAKE BASE & MERIDIAN  
SALT LAKE CITY, SALT LAKE COUNTY, UTAH  
DECEMBER 2025

FOUND 4" BRASS CAP MONUMENT  
IN THE INTERSECTION OF 2100 SOUTH  
STREET & LINCOLN STREET

2100 SOUTH STREET

FOUND 4" BRASS CAP MONUMENT  
IN THE INTERSECTION OF 2100 SOUTH  
STREET & 1200 EAST STREET



| LEGEND |                          |
|--------|--------------------------|
| ---    | BOUNDARY LINE            |
| ---    | TEL. LINE                |
| ---    | ADJOINER LINE            |
| ---    | RIGHT-OF-WAY LINE        |
| ---    | EXISTING FENCE           |
| ---    | EXISTING BUILDING        |
| ---    | SIDEWALK                 |
| ---    | BUILDING                 |
| ---    | BUILDING OVERHANG        |
| ---    | OVERHEAD ELECTRICAL LINE |
| ---    | OVERHEAD TELEPHONE LINE  |
| ---    | COMMUNICATION LINE       |
| ---    | ELECTRICAL LINE          |
| ---    | IRRIGATION LINE          |
| ---    | UNKNOWN LINE             |
| ---    | GAS LINE                 |
| ---    | FIBER LINE               |
| ---    | TELEPHONE LINE           |
| ---    | STORM DRAIN              |
| ---    | SEWER LINE               |
| ---    | WATER LINE               |
| ---    | LIGHT POLE               |
| ---    | ELECTRICAL MANHOLE       |
| ---    | TRAFFIC SIGNAL POLE      |
| ---    | ELECTRICAL BOX           |
| ---    | ELECTRICAL PED           |
| ---    | ELECTRIC TRANSFORMER     |
| ---    | POWER POLE               |
| ---    | GUY WIRE                 |
| ---    | COMM BOX                 |
| ---    | TELEPHONE MANHOLE        |
| ---    | TELEPHONE PED.           |
| ---    | TELEPHONE BOX            |
| ---    | FIBER BOX                |
| ---    | HANDICAP PARKING         |
| ---    | STREET LIGHT BOX         |
| ---    | SEWER MANHOLE            |
| ---    | SEWER CLEANOUT           |
| ---    | STORM DRAIN MANHOLE      |
| ---    | CATCH BASIN              |
| ---    | INLET BOX                |



# **ATTACHMENT C: Revised Plan Set & Narrative**

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## GEM Sugar House: Planned Development Narrative 3

2026.07.24

### Project Description

- 1. Description of your proposed use. If involving a residential development Include number, size, and type of dwelling units in each building, and the overall dwelling unit density.*

GEM Sugar House is a new 16-story mixed-use multifamily development. The project is submitted under the MU-11 zoning district and assumes additional height permitted through the Affordable Housing Incentive.

The ground level will include a new commercial space for Zions Bank, which will be permitted under a separate tenant improvement (TI) permit. The bank will maintain drive-through access, as shown on the plans. An additional small retail space on the southeast corner will also be permitted under a separate TI permit. Other ground-floor program includes a residential lobby, loading and back-of-house functions, and parking. The north east corner of the property has been relinquished to a public utility easement, as such levels 1-5 pull back from the intersection of Highland Drive and Willmington Ave faceting the building corner, and echoing the enhanced landscape treatment along Parleys trail.

Levels 2 through 4 consist of structured parking, with Level 4 stepping back along Parley's Trail at the south property line. Level 5 includes residential amenity spaces, a pool, spa, and pool deck, leasing offices, and residential units at the northwest corner.

Levels 6 through 15 are residential, comprising a mix of hotel and long-term rental units. Level 16 includes additional residential units and a TI-ready space intended for a future restaurant.

The project is anticipated to include approximately 191 residential units, consisting of a mix of studio units (30%), one-bedroom units (40%), two-bedroom units (25%), and three-bedroom units (5%). The average unit size across all unit types is approximately 775 square feet. This diverse unit mix supports the MU-11 zoning district's intent to provide a range of housing options that accommodate varied household sizes, lifestyles, and affordability levels while reinforcing a compact, walkable, mixed-use urban environment.

- 2. A complete description of the proposed planned development including the zoning regulations being modified.*

GEM Sugar House requests additional height through two mechanisms, as outlined below:

- Height up to 150 feet:  
The project proposes height up to 150 feet with 10 percent ground-level open space and enhanced active use along street-facing façades. Enhanced active use is proposed along Highland Drive only, as the south side of the site is designed to function as a public trail rather than a street frontage.





- Affordable Housing Incentive Height:  
The Affordable Housing Incentive allows up to three additional stories above 150 feet, with a maximum height of 12 feet per story. The project proposes two additional stories above 150 feet, with floor-to-floor heights exceeding 12 feet to accommodate commercial space and penthouse units.

GEM Sugar House requests the following modifications to the prescribed Zoning requirements:

1. We request that our project Zoning assumes Sugarmont Drive will be converted to a Public Trail
2. Through the Affordable Housing Incentives we are requesting 2 additional stories above 150ft with floor-to-floor heights of 12'-8" and 14'-8"
  - Refer to Sections on sheet A8 of Graphic Submittal
  - These floor-to-floor heights are to accommodate additional ceiling heights and MEP transitions for a rooftop restaurant tenant and penthouse units
3. We request encroachment into the Sugar House Lower Level Front Stepback:
  - Refer to Level 4 and Level 5 floor plans on sheet A5 of Graphic Submittal
  - Refer to Level 6-15 and Level 16 floor plans on sheet A6 of Graphic Submittal
  - Refer to Section East-West on sheet A8 of Graphic Submittal
  - This encroachment allows for additional parking at Level 4 and outdoor landscaped common amenity space at Level 5
  - The encroachment from L6-L16 is limited to a small area at the northeast corner of the building to maintain structural efficiency
  - Stepback at L6-L16 far exceed 10' for most of the building
4. We request encroachment into the Lower Level Stepback required at a Public Trail to allow for weather protection over parking:
  - Refer to Level 4 and Level 5 floor plans on sheet A5 of Graphic Submittal
  - Refer to Section North-South on Sheet A8 of Graphic Submittal
  - This encroachment allows for additional covered parking at Level 4
  - The general mass of the building steps back just above Level 4. The encroachment at Level 5 is limited to a light steel framed roof structure over the Level 4 parking
5. We request encroachment into the Lower Level Stepback required at a Public Trail for unit balconies:
  - Refer to Level 6-15 floor plan on sheet A6 of Graphic Submittal
  - Refer to Section North-South on sheet A8 of Graphic Submittal
  - We would like to provide unit balconies on this prominent south side of the building to help provide architectural depth and relief to the façade and capitalize on view for residents. Additionally, the draft code included a provision allowing a percentage of the building to encroach, which informed the siting of our project early in the design process.
6. We request encroachment into the Upper Level Front Stepback:
  - Refer to Level 16 floor plan on A6 of Graphic Submittal

- Refer to Section North-South on sheet A8 of Graphic Submittal
  - The encroachment at L6-L16 is limited to a small area at the northeast corner of the building due to structural constraints
7. We request two curb cuts along Highland Drive
- Refer to sheet A1 in the Graphic Submittal
  - This is required to accommodate the bank drive-thru since our only vehicular access is along Highland Drive (i.e. Public Trail to the south and the private drive Wilmington to the north).
8. We request including a portion of ground floor outdoor space that is not open to the sky in our Ground Floor Open Space requirement related to height incentives:
- Refer to sheet A2 in the Graphic Submittal
  - The project site is challenging due to the oblique property line along Highland Drive, a private road to the north and RMP transformer access requirements, a Public Utility canal easement at the northeast corner of the site, a ground level drive-thru, and adjacency to a Public Trail. Many of these factors are desired for our vision of the project's multifaceted connectivity to and extension of the neighborhood. In balancing the project program and site opportunities, most of the open space designed to meet the Ground Floor Open Space requirements is not directly open to the sky. That said, we believe that when viewed in conjunction with the immediate context (i.e. Parley's Trail and Fairmont Park) our project design provides a pedestrian experience in alignment with the goals of the open space planning requirements. Additionally, we provide substantial above grade open space at the Level 5 landscaped common amenity deck and Level 16 public restaurant roof deck.
9. We request that glass block count toward a portion of the ground level glass facing Highland Drive
- Refer to East Elevation Ground Floor on sheet A9 in the Graphic Submittal
  - Refer to Exterior Material Legend on sheet A11 in the Graphic Submittal
  - We are proposing clear glass block at the residential lobby glazing. This will only obscure direct vision at the mortar joints as vision is preserved through the glass block masonry units. The glass block provides interest, texture, and subtle variation between the bank tenant next door and the residential lobby, and ties into glass block used elsewhere on the project speaking to the "gem" theme.
3. *When the proposed planned development includes provisions for common open space or recreational facilities, a statement describing the provision to be made for the care and maintenance of such open space or recreational facilities.*

This information is still in development and will be provided with a future submittal.

4. *Describe the plan for long term maintenance of all private infrastructure as stated in 21A.55.110 of the Planned Development ordinance.*

This information is still in development and will be provided with a future submittal.





## GEM Sugar House Planned Development Information

1. *Demonstrate how your project meets the purpose and at least one objective of a planned development as stated in 21A.55.010 of the planned development ordinance: Encourage creative and innovative site planning and building design that results in superior design quality and improved compatibility with surrounding uses.*

The GEM Sugar House project advances this objective through an integrated approach to site planning, building massing, and land use that responds to the Sugar House neighborhood context and the intent of the MU-11 zoning district. The project combines a diverse residential program with neighborhood-serving ground-floor commercial uses organized to activate the public realm and support walkability and access to daily needs. Building massing and architectural articulation are designed to reduce perceived scale, provide transitions to adjacent properties, and relate to the surrounding urban context. Publicly oriented amenities and pedestrian connections, including direct adjacency to Parley's Trail, further support compatibility with surrounding uses.

2. *Demonstrate how your project meets the Standards for Planned Developments as stated in 21A.55.050 of the Planned Development ordinance:*

### A. Planned Development Objectives

The proposed planned development meets the purpose of a Planned Development as stated in Section 21A.55.010 and achieves the objective of encouraging creative and innovative site planning and building design. The project incorporates coordinated massing, stepped building forms, integrated parking, and trail-oriented open space that respond to site-specific conditions, including adjacency to Parley's Trail and the Sugar House mixed-use context. The requested modifications to zoning regulations are limited and necessary to allow this coordinated design approach. Strict application of zoning standards would constrain building organization, pedestrian connectivity, and massing strategies that are central to the project's design intent. The proposed PD deviations directly support achieving a more cohesive and context-responsive development.

### B. Master Plan Compatibility

The planned development is generally consistent with applicable Citywide, community, and small area Master Plan policies. The project supports adopted goals for compact, mixed-use development, increased housing opportunities, and pedestrian- and trail-oriented urban environments within the Sugar House area.

### C. Design and Compatibility



The proposed planned development is compatible with the surrounding area and is designed to achieve an enhanced product relative to strict application of land use regulations, as further described in the Design Review narrative.

Building scale, massing, and intensity are consistent with the MU-11 zoning district and surrounding urban context, with step-backs above the podium and articulation at multiple levels to reduce perceived mass. Building orientation prioritizes streets and pedestrian connections, with active ground-floor uses and transparent façades. Setbacks along the site perimeter provide space for amenities, buffering, sightlines, and maintenance while maintaining neighborhood character. Any PD deviations related to setbacks or massing are necessary to implement these design strategies and do not create adverse impacts.

Ground-floor façades are designed to facilitate pedestrian interest and interaction. Service areas, loading, and utilities are fully screened and internalized. Parking areas are structured and buffered to minimize impacts on adjacent uses. Lighting and materials are selected to support pedestrian comfort and compatibility with the surrounding area.

#### D. Landscaping

Landscaping is designed at a scale appropriate to the development and to soften building edges, provide buffering, and enhance pedestrian spaces. Existing and proposed landscaping elements are coordinated with the site design to lessen potential impacts on adjacent properties.

#### E. Mobility

The planned development supports City transportation goals by promoting safe and efficient circulation for pedestrians, vehicles, and bicycles. Vehicular access is limited and designed to minimize impacts on surrounding streets. Pedestrian connectivity to sidewalks, Parley's Trail, and adjacent uses is emphasized. Emergency access and loading functions are accommodated internally and in a manner that minimizes conflicts with pedestrian movement. Any PD deviations related to circulation are intended to improve site function and safety.

#### F. Existing Site Features

The site plan and building design consider existing site conditions and surrounding development patterns and integrate features that contribute to neighborhood character where feasible.

#### G. Utilities

Existing and planned utilities are adequate to serve the development and will be reviewed and addressed through standard City permitting processes. The planned development will not have a detrimental effect on surrounding properties or infrastructure.





3. Demonstrate how the proposed planned development is compatible with other property in the neighborhood.

The proposed GEM Sugar House Planned Development is compatible with surrounding properties in use, scale, massing, and relationship to the public realm. Located within the MU-11 zoning district, the project's mixed-use program aligns with the existing and planned development pattern of the Sugar House neighborhood. Building massing reinforces the street edge along Highland Drive and Sugarmont Drive while incorporating podium and tower step-backs to reduce perceived height and provide appropriate transitions to adjacent properties. Ground-floor uses and building orientation prioritize pedestrian activity and connectivity to public sidewalks and Parley's Trail, while vehicular access and service functions are consolidated to minimize impacts on nearby properties and streets. Architectural articulation, landscaping, screening, and lighting further support compatibility and contribute positively to the neighborhood's evolving mixed-use character.

## Conclusion

Gardner Group and Engine 8 Architecture, along with our respective capital and design partners intend to deliver a thoughtful, high-quality project that will contribute to the growing Sugar House neighborhood. The GEM Sugar House project will enhance the neighborhood with additional housing, much needed hotel rooms, thoughtful food & beverage, and community supporting in-person and drive-thru banking. The project will also provide a significant outpost to Parley's Trail, helping to support and activate SLC's growing trail network. Lastly, we aim to add to the vibrant and interesting architectural context with a design informed and inspired by neighborhood's rich and interesting history.

If you have any questions, or concerns we welcome the opportunity to further explain and demonstrate our commitment to revitalizing this area and are eager to work with Salt Lake City in delivering this project and the surrounding neighborhood.



# GEM Sugar House: PD + DR Graphic Submittal 3

Salt Lake City, Utah



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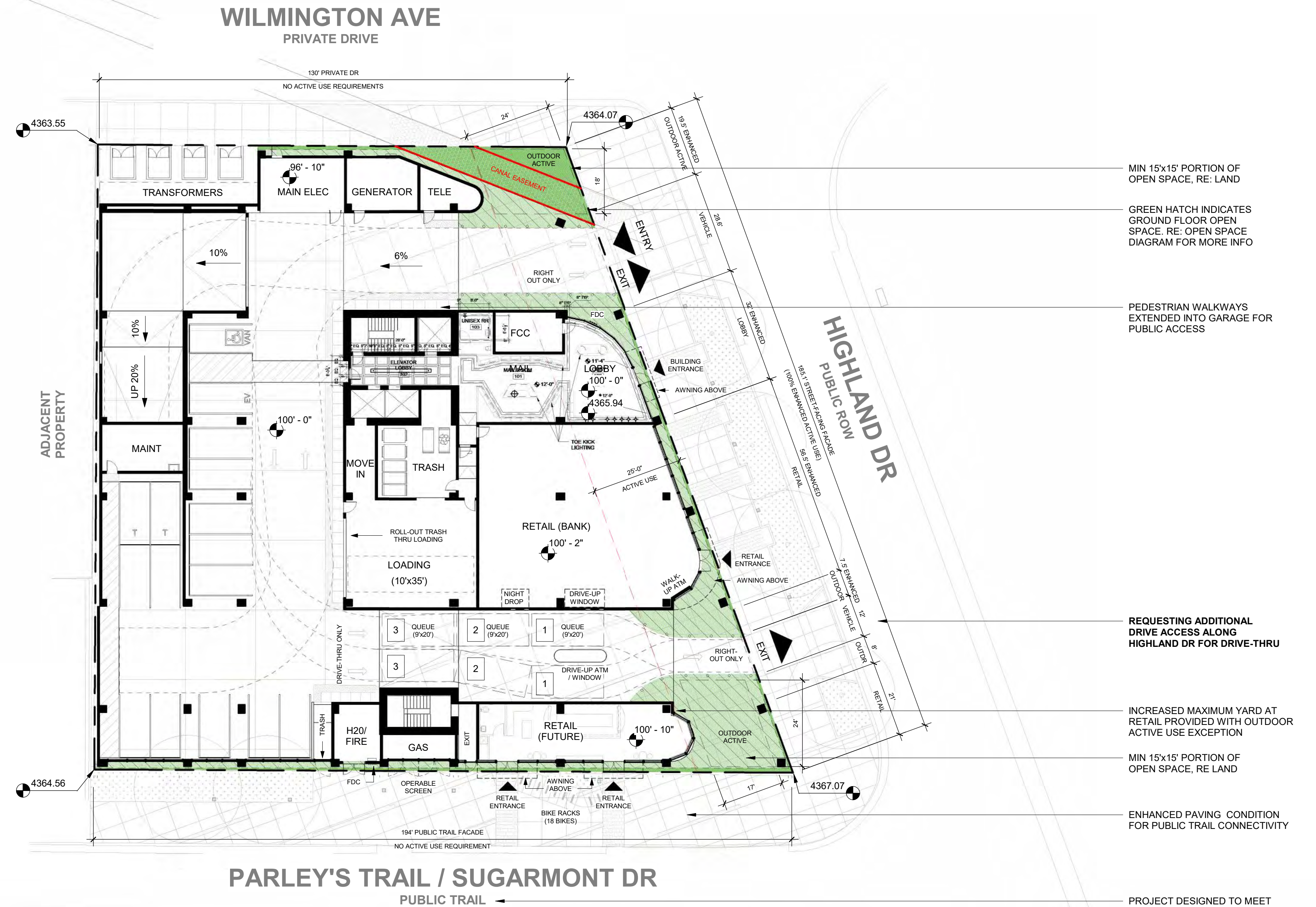
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AVERAGE GRADE PLANE (AGP) CALCULATIONS

NE: 4364.07  
SE: 4367.07  
SW: 4364.56  
NW: 4363.55

AVERAGE: 4364.81

PROJECT ELEVATIONS

LOBBY: 4365.94 (ELEVATION 100'-0")  
AVERAGE: 4364.81 (ELEVATION 98'-10")

BUILDING COVERAGE

TOTAL SITE: 28,107 SF  
BUILDING COVERAGE: 26,670 SF (95%)

GROUND FLOOR ACTIVE USE CALCULATIONS

100% ENHANCED ACTIVE USE ON HIGHLAND DR REQUIRED

HIGHLAND DR FRONTAGE = 185'  
PROVIDED:

RETAIL: 25' + 55' = 80'  
LOBBY: 36' (20% OF FRONTAGE)  
OUTDOOR ACTIVE: 4' + 9' + 24' = 37' (20% OF FRONTAGE)  
DRIVE ENTRIES (EXCLUDED): 20' + 12' = 32'

ZONING SUMMARY

ZONE LOT SIZE: 28,107 SF (0.645 ACRES)  
ZONING DISTRICT: MU-11  
CONTEXT: TRANSIT (RE: SITE MAP)  
FRONT LOT LINE: HIGHLAND DRIVE  
SIDE LOT LINE: SUGARMONT DR (PUBLIC TRAIL)  
WILMINGTON AVE (PRIVATE)  
MIXED-USE RESIDENTIAL

BUILDING HEIGHT

| REQUIRED/ALLOWED    | PROPOSED              |
|---------------------|-----------------------|
| 125'                |                       |
| 150' + 3LVLS@12'MAX | 182'-10" (16 STORIES) |
| (186' TOTAL MAX)    |                       |

\*ADDITIONAL BUILDING HEIGHT (UP TO 150') ALLOWED WITH 10% OPEN SPACE AT GROUND LEVEL AND 100% ENHANCED ACTIVE USE ON STREET-FACING FACADE (REFER TO SITE PLAN, ACTIVE USE SUMMARY AND OPEN SPACE DIAGRAMS).  
3 ADDITIONAL STORIES AT 12' MAX HEIGHT PER STORY ALLOWED WITH AFFORDABLE HOUSING INCENTIVES. **REQUEST TO PROVIDE 2 ADDITIONAL STORIES ABOVE 150' WITH HEIGHTS EXCEEDING 12' PER STORY TO ACCOMMODATE COMMERCIAL SPACE AND PENTHOUSE UNITS.**

YARD REQUIREMENTS

MINIMUM FRONT, CORNER, SIDE, REAR: NONE  
MAXIMUM: 20' (MAY BE INCREASED W/ OUTDOOR ACTIVE USE EXCEPTION)

GROUND FLOOR ACTIVE USE

|                          |      |
|--------------------------|------|
| HIGHLAND DR              | 100% |
| WILMINGTON AVE (PRIVATE) | NONE |
| SUGARMONT (PUBLIC TRAIL) | NONE |

STEPBACK REQUIREMENTS

UPPER LEVEL FRONT STEPBACK

|                          |      |
|--------------------------|------|
| HIGHLAND DR              | 10'  |
| WILMINGTON AVE (PRIVATE) | NONE |
| SUGARMONT (PUBLIC TRAIL) | NONE |

LOWER LEVEL INTERIOR STEPBACK

|                          |                                |
|--------------------------|--------------------------------|
| HIGHLAND DR              | NONE                           |
| WILMINGTON AVE (PRIVATE) | NONE                           |
| SUGARMONT (PUBLIC TRAIL) | 10' (1ST FULL FLOOR ABOVE 30') |

SUGAR HOUSE LOWER LEVEL FRONT STEPBACK

|                          |                                |
|--------------------------|--------------------------------|
| HIGHLAND DR              | 10' (1ST FULL FLOOR ABOVE 30') |
| WILMINGTON AVE (PRIVATE) | NONE                           |
| SUGARMONT (PUBLIC TRAIL) | NONE                           |

STEPBACK REQUESTS:

1. REQUEST TO ALLOW PORTION OF BUILDING WITHIN SUGAR HOUSE LOWER LEVEL FRONT STEPBACK DUE TO SMALL SITE (RE: PLANS & SECTIONS).
2. REQUEST TO ALLOW ROOF STRUCTURE ABOVE PARKING WITHIN LOWER LEVEL STEPBACK AT PUBLIC TRAIL.
3. REQUEST TO ALLOW PORTION OF BUILDING IN UPPER LEVEL FRONT STEPBACK DUE TO STRUCTURAL CONSTRAINTS (RE: PLANS).

ENHANCED ACTIVE USE (HIGHLAND DR ONLY)

ENHANCED ACTIVE USE REQ: 100% (185')

- RETAIL (BANK + FUTURE): 80'
- LOBBY EXCEPTION (25% MAX = 46'): 36'
- OUTDOOR ACTIVE (25% MAX = 46'): 37'
- VEHICLE ACCESS EXCEPTION : 32'

MINIMUM DEPTH: 25'  
MINIMUM HEIGHT: 12'

OPEN SPACE CALCULATIONS

REQ OPEN SPACE (10%): 2,810 SF  
REFER TO OPEN SPACE DIAGRAMS FOR PROVIDED OPEN SPACE

VEHICLE PARKING

|                        | REQUIRED/ALLOWED | PROPOSED          |
|------------------------|------------------|-------------------|
| <b>MULTI-FAMILY</b>    |                  |                   |
| STUDIO (30)            | NO MINIMUM (0)   |                   |
| 1BED (52)              | NO MINIMUM (0)   |                   |
| 2BED (46)              | NO MINIMUM (0)   |                   |
| 3BED (11)              | NO MINIMUM (0)   |                   |
| <b>SUBTOTAL (139):</b> | <b>0 SPACES</b>  | <b>132 SPACES</b> |

HOTEL (UNITS/BEDROOMS)

|                          |                  |                  |
|--------------------------|------------------|------------------|
| STUDIO (25/25)           | MAX 1.5 PER BED  | (37.5)           |
| 1BED (23/23)             | MAX 1.5 PER BED  | (34.5)           |
| 2BED (4/8)               | MAX 1.5 PER BED  | (12)             |
| <b>SUBTOTAL (52/56):</b> | <b>84 SPACES</b> | <b>16 SPACES</b> |

COMMERCIAL

|                   |                 |                  |
|-------------------|-----------------|------------------|
| RETAIL (BANK)     | NO MINIMUM (0)  |                  |
| CAFE / RESTAURANT | NO MINIMUM (0)  |                  |
| <b>SUBTOTAL:</b>  | <b>0 SPACES</b> | <b>16 SPACES</b> |

**TOTAL PARKING 0 164 (4 ADA)**

EV PARKING

|                                  |           |
|----------------------------------|-----------|
| 1 EV SPACE PER 25 PARKING SPACES | 7 SPACES  |
| 20% EV READY PARKING SPACES      | 33 SPACES |

BIKE PARKING

|                                                                                | REQUIRED/ALLOWED    | PROPOSED      |
|--------------------------------------------------------------------------------|---------------------|---------------|
| RESIDENTIAL (139)                                                              | 1 PER 2 (70)        | 5 + 38 SECURE |
| INST/HOTEL (31,875 SF)                                                         | 1 PER 3,000 SF (11) | 5 + 6 SECURE  |
| COMMERCIAL                                                                     | 1 PER 2,000SF (5)   | 6             |
| 1 SECURE/ENCLOSED BIKE PARKING SATISFIES REQUIREMENTS OF 2 BIKE PARKING SPACES |                     |               |

LOADING

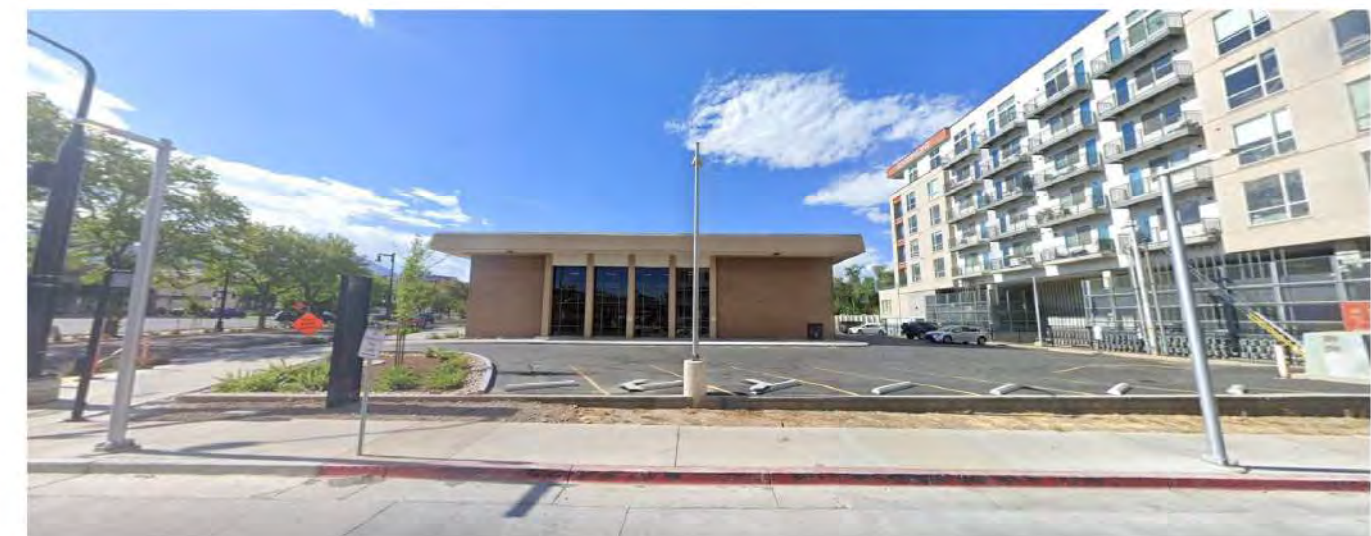
|                    | REQUIRED/ALLOWED       | PROPOSED |
|--------------------|------------------------|----------|
| MULTI-FAMILY       | 80-200 UNITS (1 SHORT) | 1 SHORT  |
| HOTEL (48,400 GSF) | < 50,000SF (NONE)      | NONE     |
| COMMERCIAL         | < 50,000SF (NONE)      | NONE     |



HIGHLAND DR



SUGARMONT DR / PARLEY'S TRAIL (PUBLIC TRAIL)



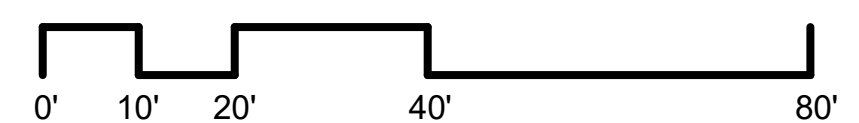
WILMINGTON AVE (PRIVATE DRIVE)

SITE PHOTOS

SITE MAP (NOT TO SCALE)



SCALE: 1" = 20'-0"



GEM SUGAR HOUSE

SITE PLAN & ZONING SUMMARY

Date 2026.07.24

DD QA/QC





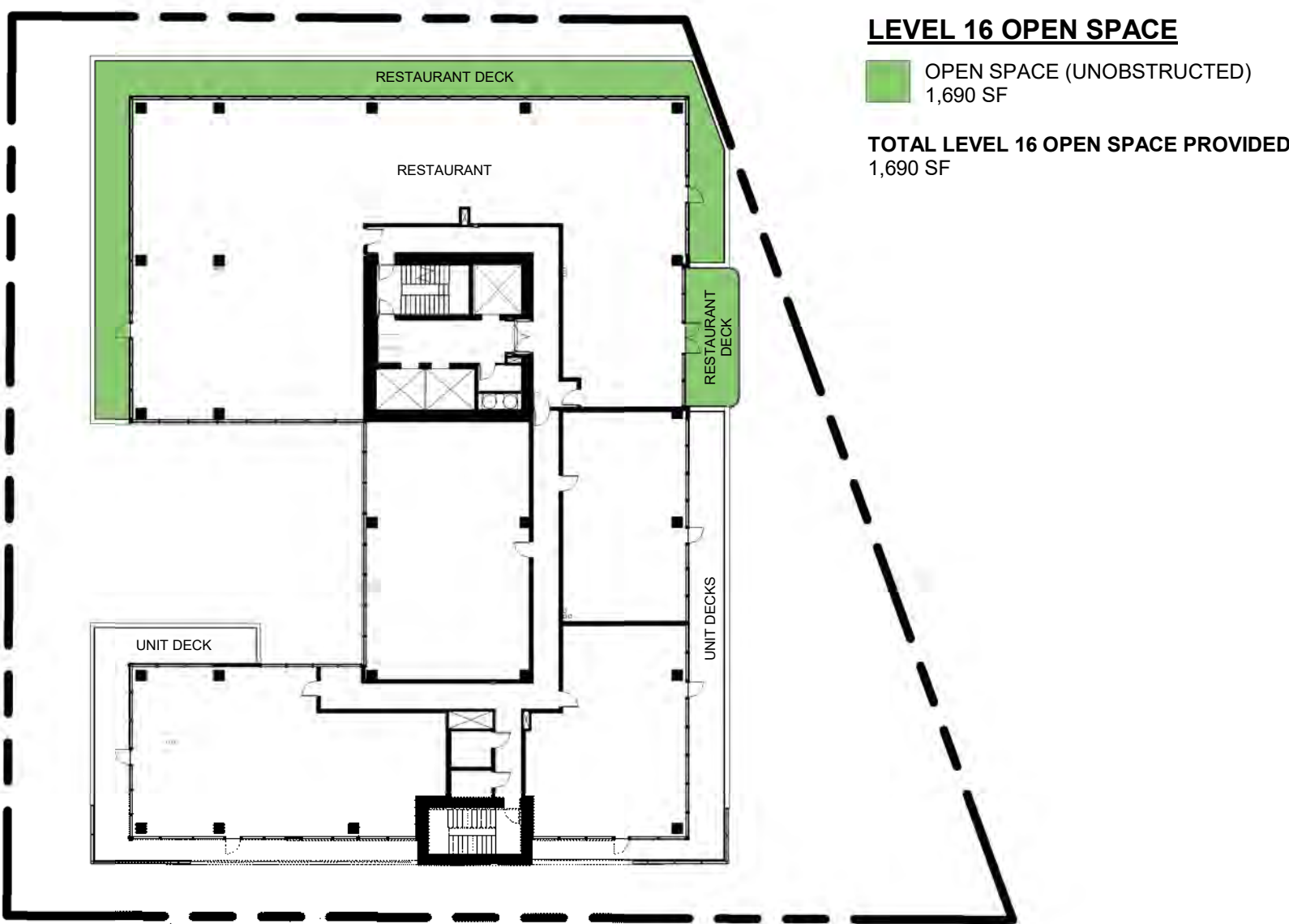
OPEN SPACE 3D VIEW 1



OPEN SPACE 3D VIEW 2



OPEN SPACE 3D VIEW 3



OPEN SPACE DIAGRAM - LEVEL 16



OPEN SPACE DIAGRAM - LEVEL 5



OPEN SPACE DIAGRAM - LEVEL 1

**OPEN SPACE REQUIREMENTS:**

**21A.25.010.D: GENERAL OPEN SPACE**  
MINIMUM 10% OF THE LOT AREA SHALL BE PROVIDED AS OPEN SPACE AREA (MAY INCLUDE LANDSCAPED YARDS, PATIOS, DINING AREAS, COMMON BALCONIES, ROOFTOP GARDENS, AND OTHER SIMILAR OUTDOOR LIVING SPACES. PRIVATE BALCONIES EXCLUDED)

**21A.25.070.C.2: INCREASED BUILDING HEIGHT OPEN SPACE**  
MINIMUM 10% OF THE LOT AREA SHALL BE OPEN SPACE AREA AT THE GROUND LEVEL WITH AN OUTDOOR ACTIVE SPACE (MIDBLOCK WALKWAYS WITH A PUBLIC ACCESS EASEMENT, PLAZAS, OUTDOOR DINING AREA, OUTDOOR RECREATION AREA, OR SIMILAR)

**OPEN SPACE CALCULATIONS:**

**TOTAL ZONE LOT AREA:** 28,107 SF  
**TOTAL OPEN SPACE REQ (10%):** 2,810 SF

**OPEN SPACE PROVIDED**  
LEVEL 1: 2,960 SF PUBLIC OPEN SPACE AT GROUND LEVEL  
LEVEL 5: 8,615 SF COMMON OPEN SPACE  
LEVEL 16: 1,690 SF RESTAURANT OPEN SPACE  
**TOTAL:** 13,265 SF

**REQUESTING MODIFICATION TO ALLOW GROUND FLOOR OPEN SPACE UNDER BUILDING (REFER TO LEVEL 1 OPEN SPACE DIAGRAM).**

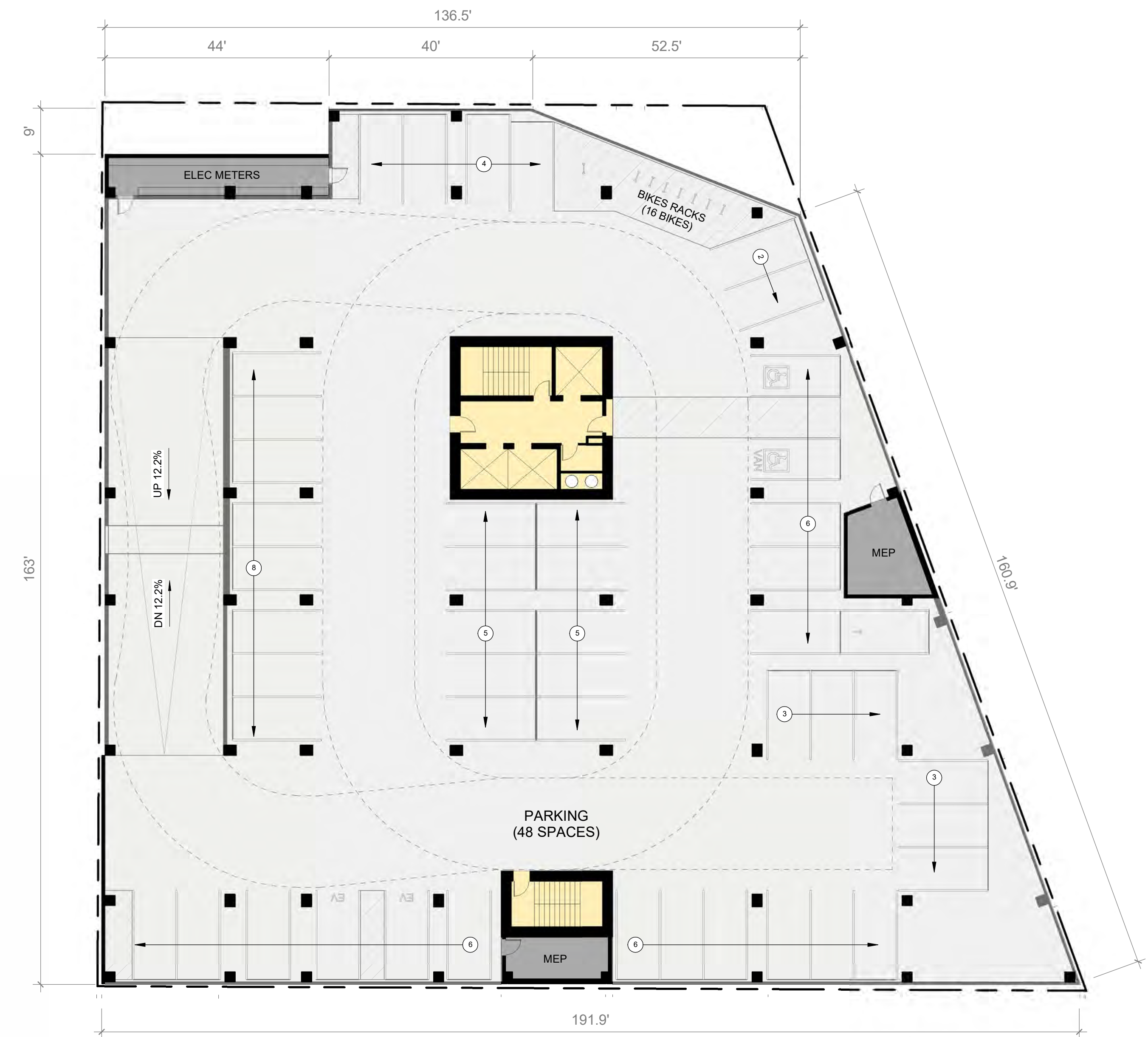
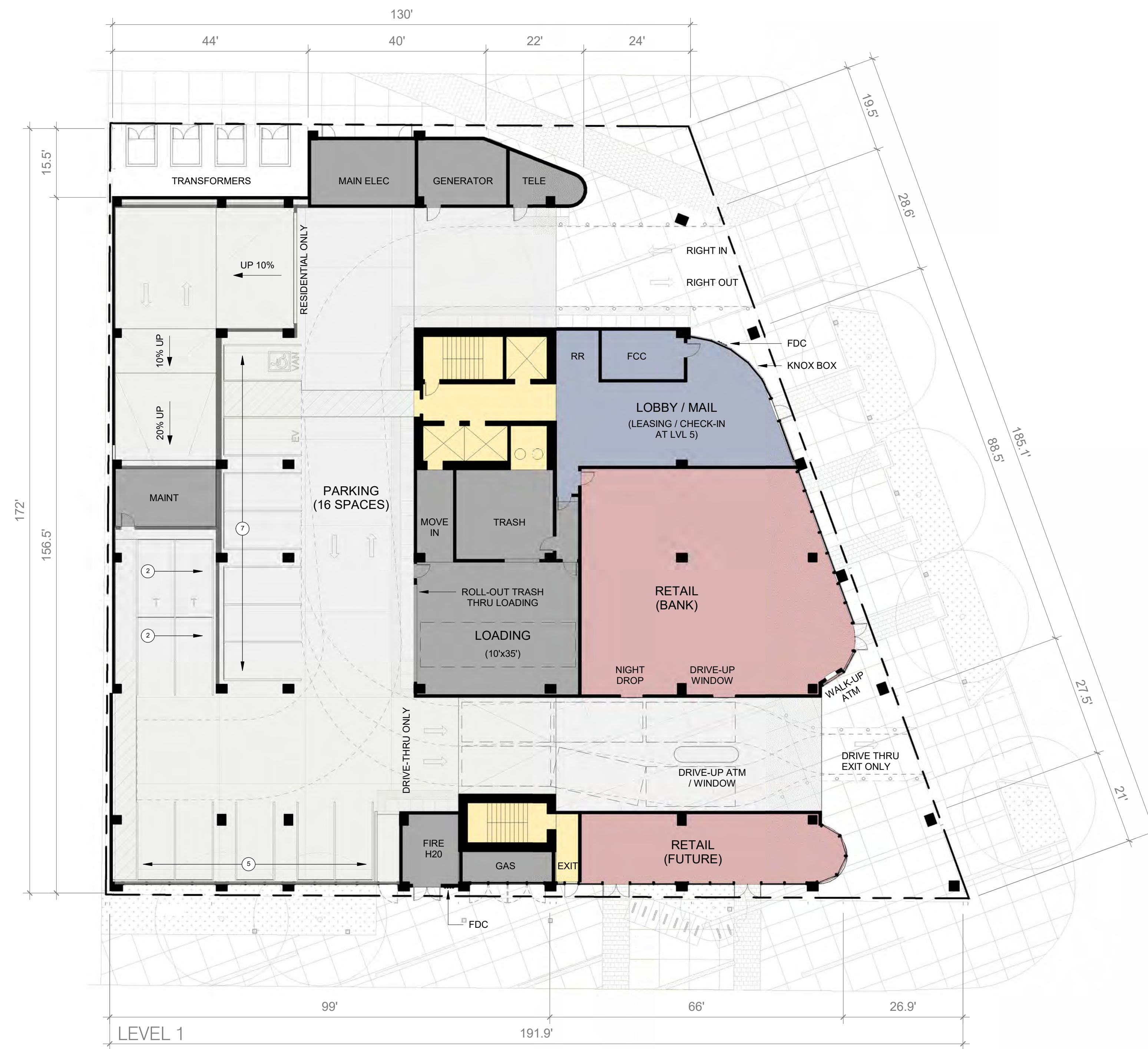


| Level | RESIDENTIAL |         |          |       |         |         |        | COMMERCIAL |         |        | BOH   | TOTALS  |
|-------|-------------|---------|----------|-------|---------|---------|--------|------------|---------|--------|-------|---------|
|       | Residential |         |          |       | Amenity | Parking |        | Retail     | Parking |        |       |         |
|       | Count       | GSF     | Rentable | EFF % | GSF     | Count   | GSF    | GSF        | Count   | GSF    | GSF   |         |
| R     |             |         |          |       |         |         |        |            |         |        |       | -       |
| 16    | 4           | 8,245   | 5,645    | 68%   |         |         |        | 5,250      |         |        |       | 13,495  |
| 15    | 11          | 16,750  | 13,790   | 82%   |         |         |        |            |         |        |       | 16,750  |
| 14    | 16          | 16,750  | 13,790   | 82%   |         |         |        |            |         |        |       | 16,750  |
| 13    | 16          | 16,750  | 13,790   | 82%   |         |         |        |            |         |        |       | 16,750  |
| 12    | 16          | 16,750  | 13,790   | 82%   |         |         |        |            |         |        |       | 16,750  |
| 11    | 16          | 16,750  | 13,790   | 82%   |         |         |        |            |         |        |       | 16,750  |
| 10    | 16          | 16,750  | 13,790   | 82%   |         |         |        |            |         |        |       | 16,750  |
| 9     | 22          | 16,810  | 13,820   | 82%   |         |         |        |            |         |        |       | 16,810  |
| 8     | 22          | 16,810  | 13,820   | 82%   |         |         |        |            |         |        |       | 16,810  |
| 7     | 22          | 16,810  | 13,820   | 82%   |         |         |        |            |         |        |       | 16,810  |
| 6     | 22          | 16,810  | 13,820   | 82%   |         |         |        |            |         |        |       | 16,810  |
| 5     | 8           | 7,830   | 4,235    | 29%   | 6,950   |         |        |            |         |        |       | 14,780  |
| 4     |             | 1,310   |          |       |         | 52      | 21,330 |            |         |        | 1,460 | 24,100  |
| 3     |             | 1,310   |          |       |         | 48      | 24,660 |            |         |        | 655   | 26,625  |
| 2     |             | 1,310   |          |       |         | 48      | 24,660 |            |         |        | 655   | 26,625  |
| 1     |             | 1,390   |          |       | 1,220   |         |        | 3,965      | 16      | 13,045 | 3,705 | 23,325  |
| TOTAL | 191         | 189,135 | 147,900  |       | 8,170   | 148     | 70,650 | 9,215      | 16      | 13,045 | 6,475 | 296,690 |

|     |                   |
|-----|-------------------|
| 774 | AVERAGE UNIT SIZE |
|-----|-------------------|

164 TOTAL PARKING  
0.86 /UNIT





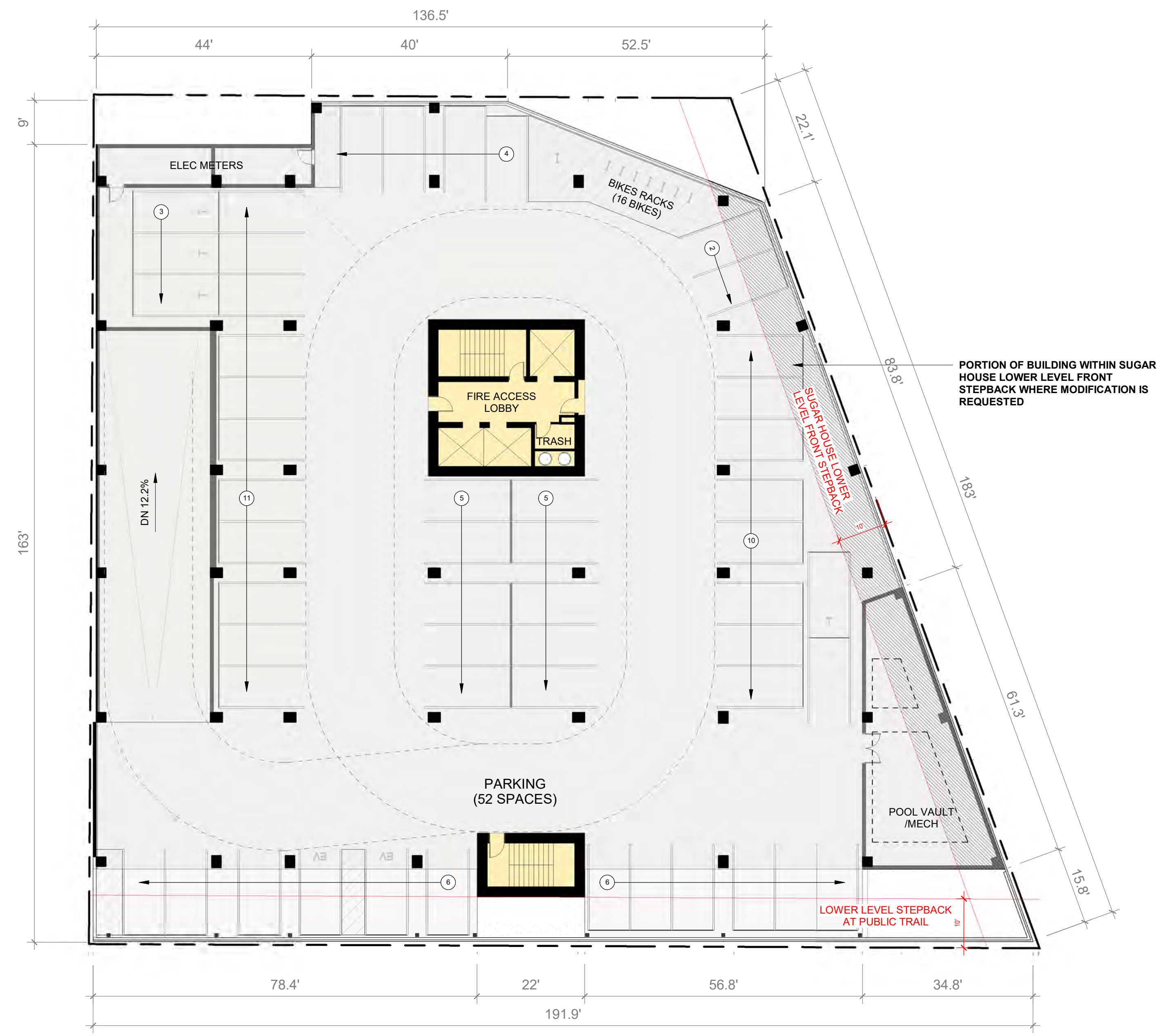
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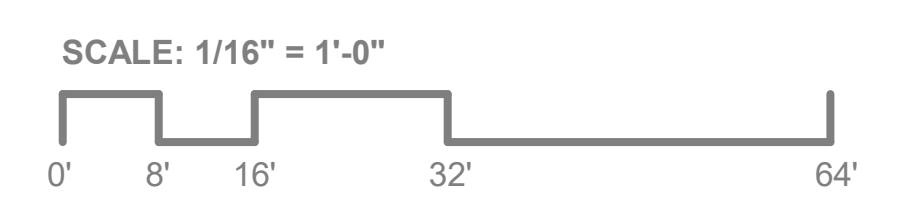
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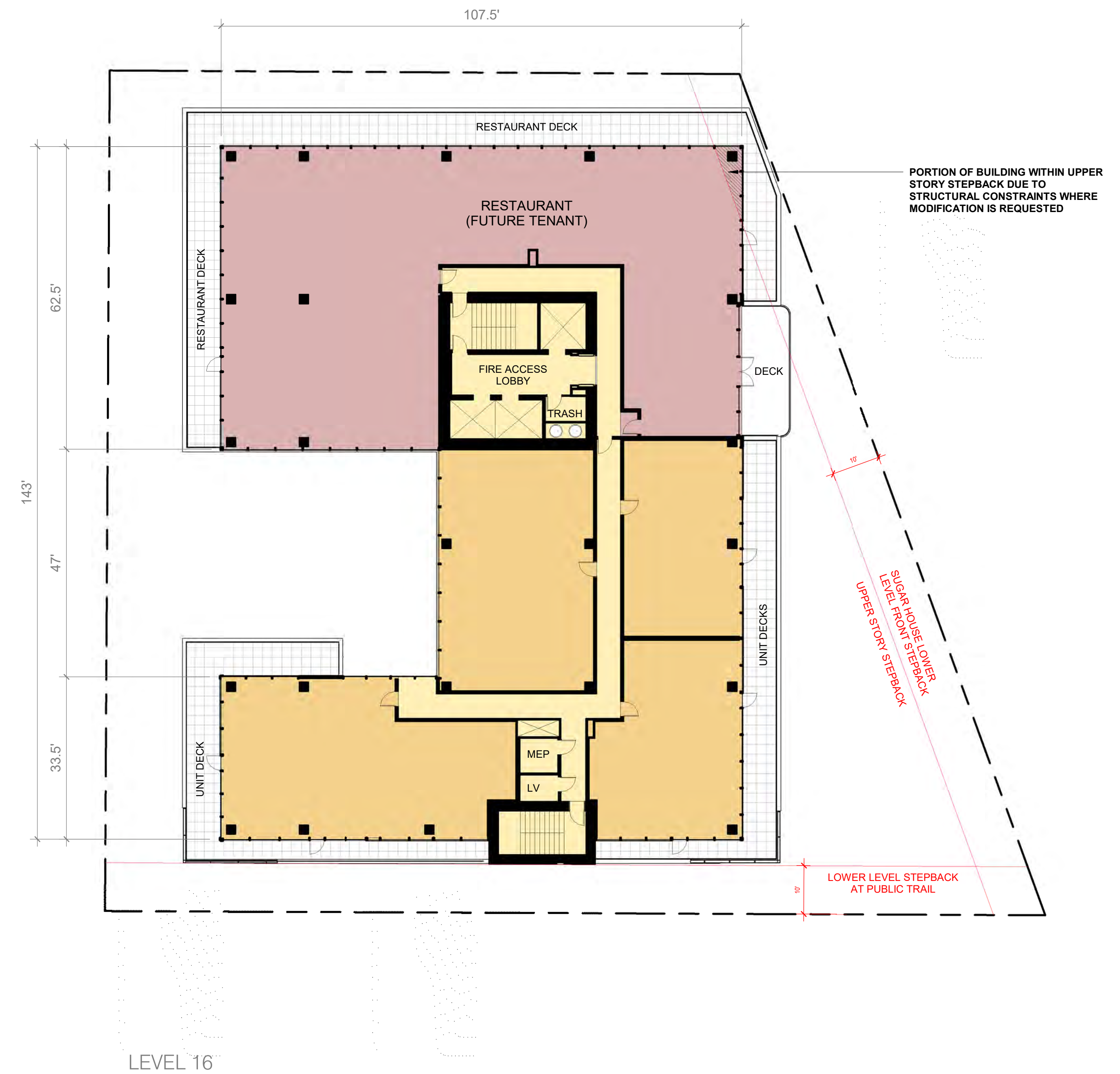




- RESIDENTIAL
- CIRCULATION / RESI B.O.H.
- AMENITY
- RETAIL / COMMERCIAL
- PARKING
- B.O.H.







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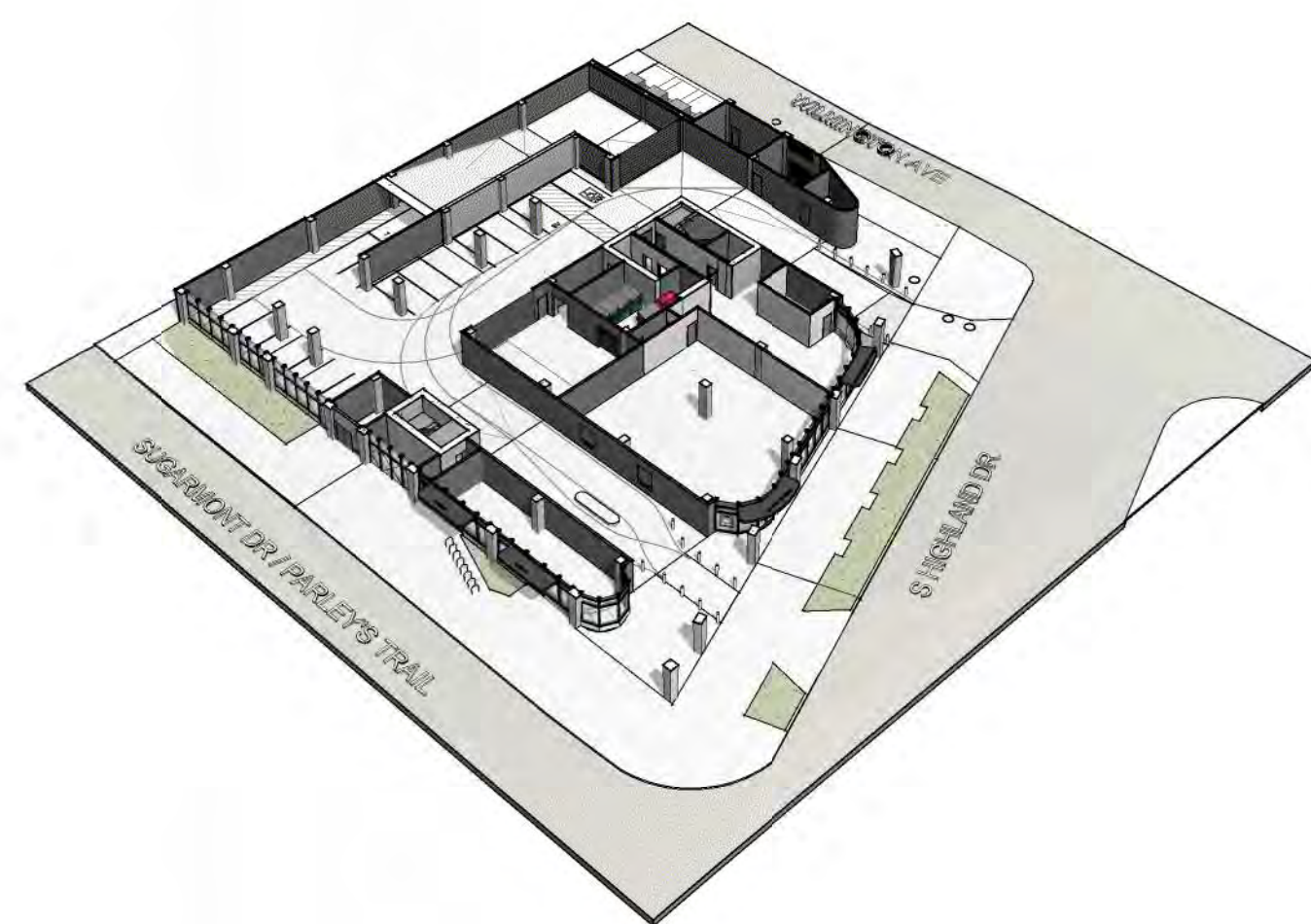
GEM SUGAR HOUSE

LEVEL 6 - 16

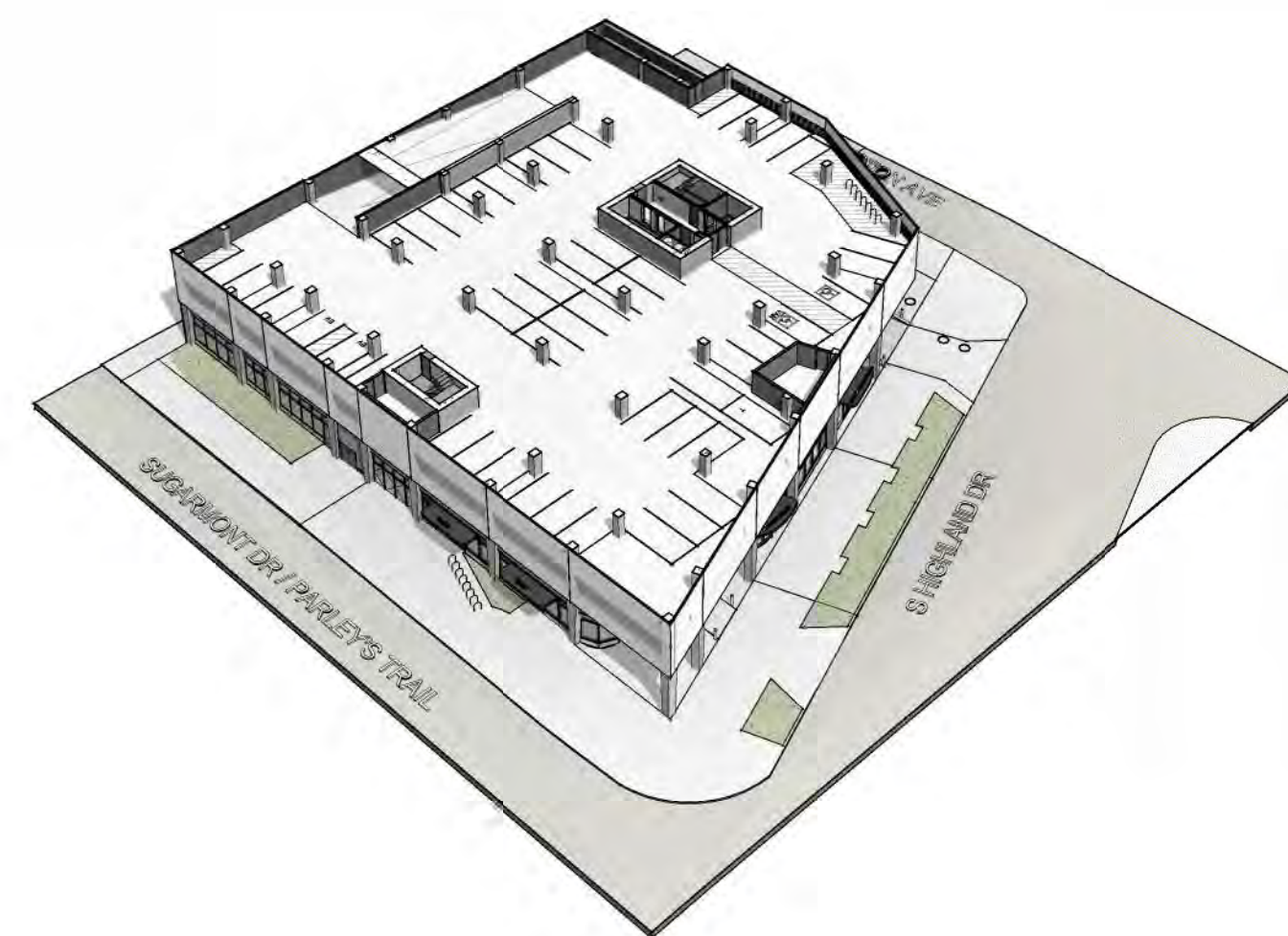
PD + DR 3

Date 2026.07.24

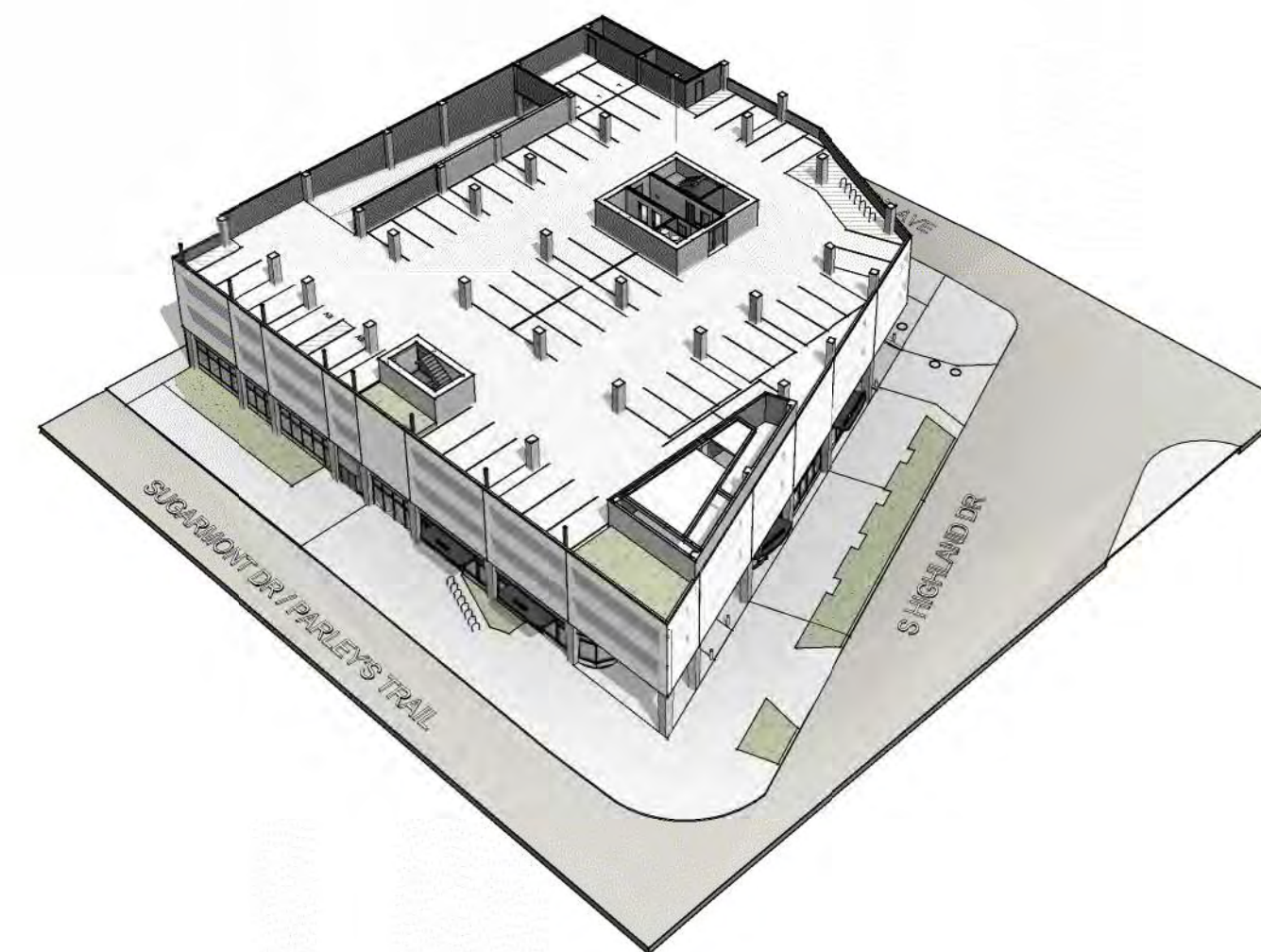




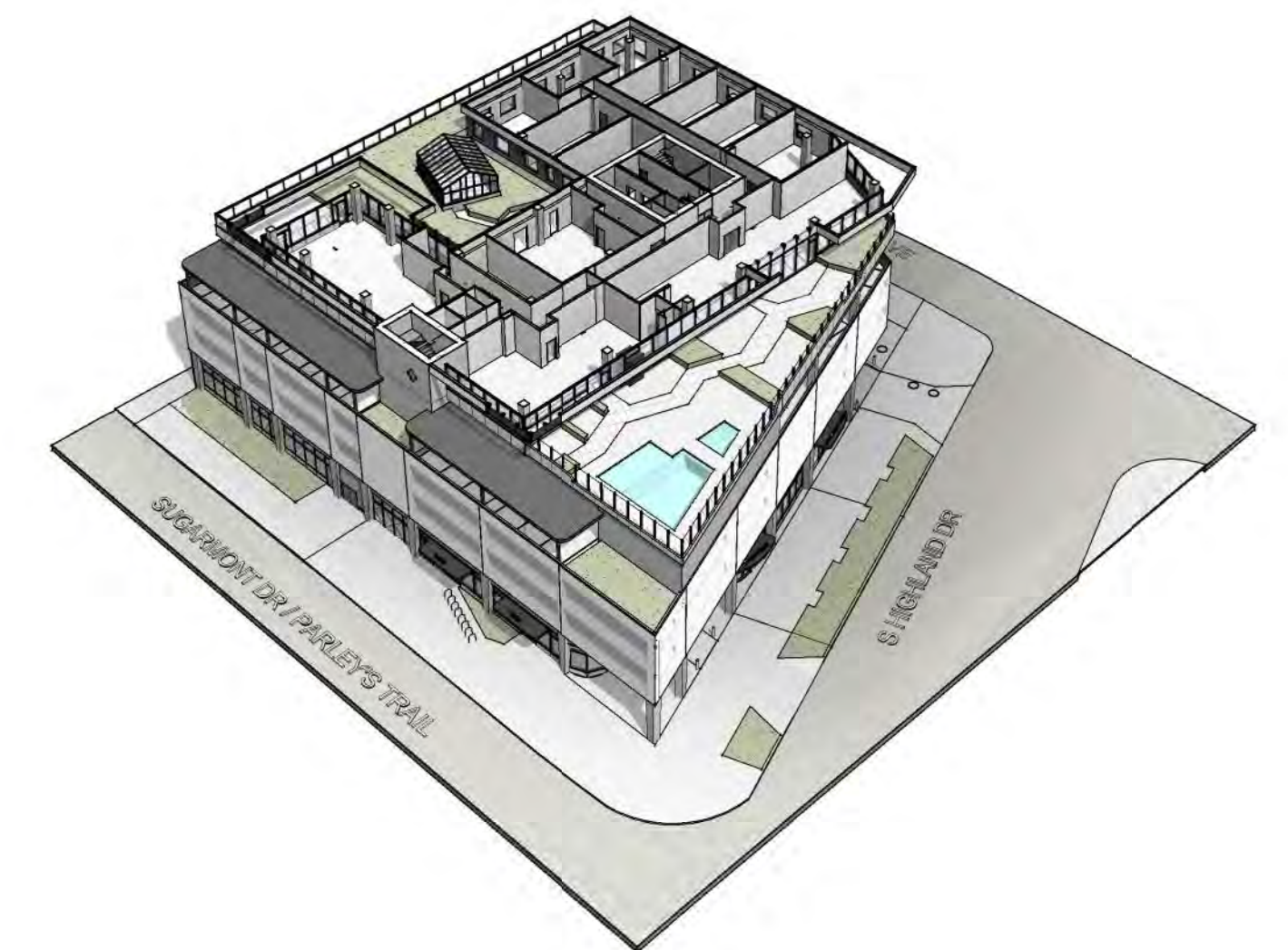
3D PLAN L1



3D PLAN L3



3D PLAN L4



3D PLAN L5



3D PLAN TOTAL



3D PLAN L16

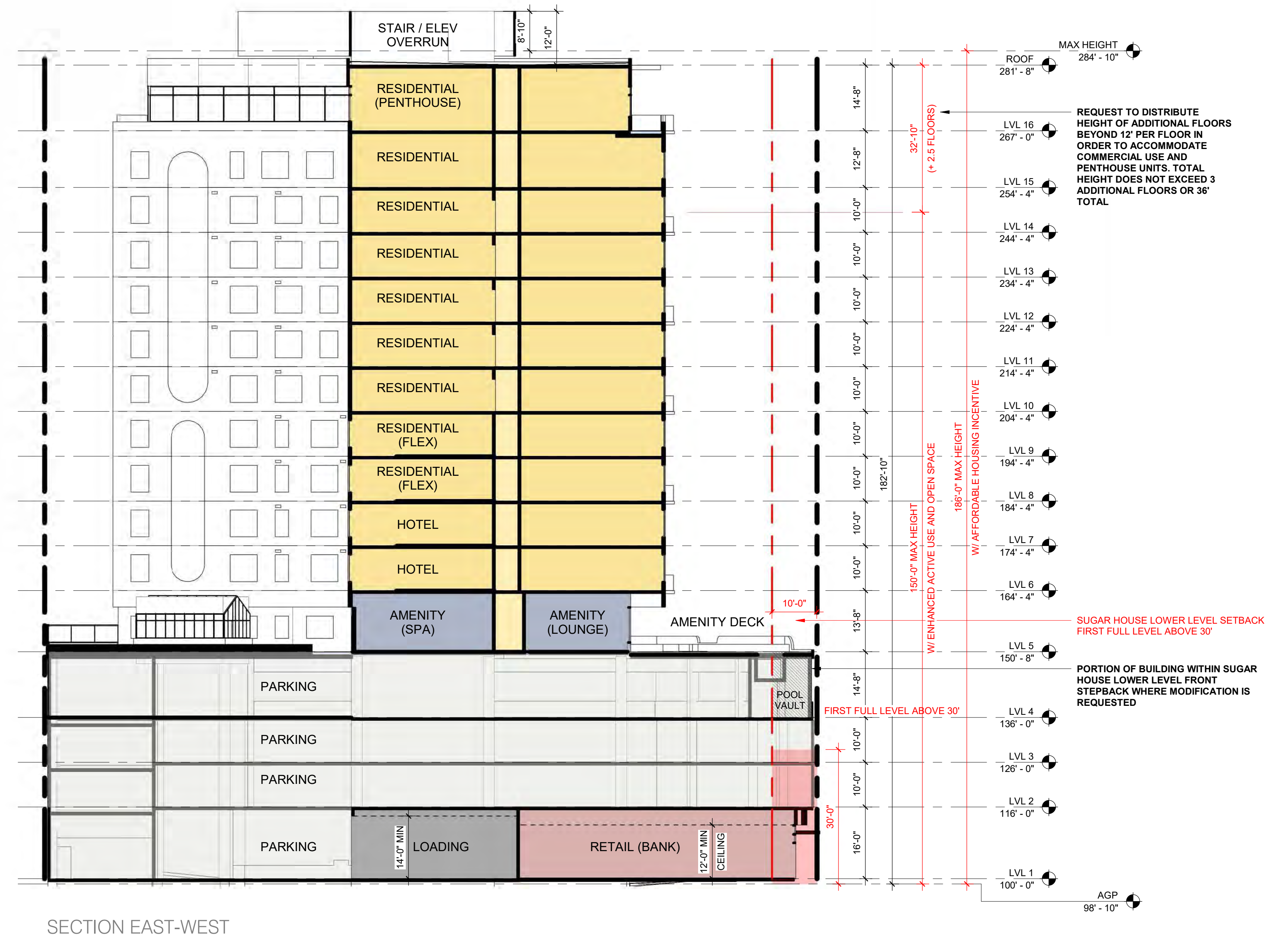
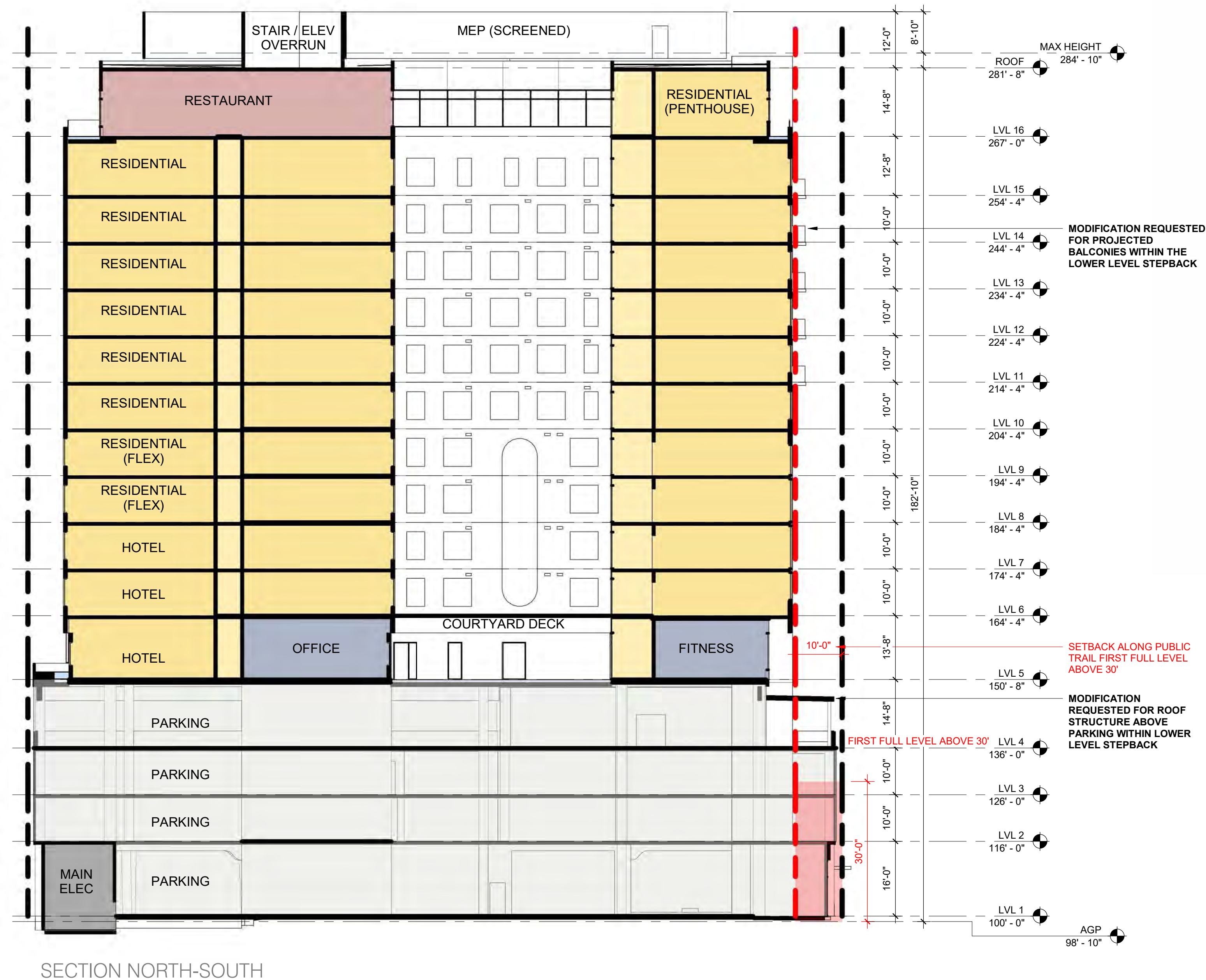


3D PLAN L12



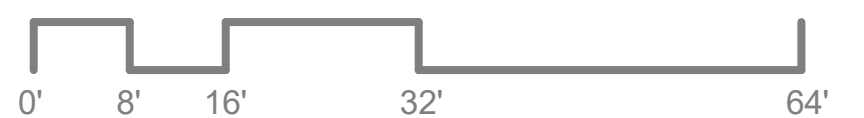
3D PLAN L8





|                                                                                       |                              |                                                                                       |                     |
|---------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------|---------------------|
|  | RESIDENTIAL                  |  | RETAIL / COMMERCIAL |
|  | CIRCULATION<br>/ RESI B.O.H. |  | PARKING             |
|  | AMENITY                      |  | B.O.H.              |

SCALE: 1/16" = 1'-0"







SOUTH ELEVATION

NO BUILDING MATERIAL REQUIREMENTS ALONG PARLEY'S TRAIL (NOT A STREET FACING FACADE)

PARKING GARAGE SCREENING ADJACENT OTHER PUBLIC SPACE (PARLEY'S TRAIL). RE: EXTERIOR MATERIAL LEGEND AND 3D ELEVATIONS.



DECORATIVE SCREEN PANEL MURAL EXAMPLES



EAST ELEVATION  
(ELEVATION ALIGNED PERPENDICULAR TO RESIDENTIAL TOWER FACADE)

RAD HATCH INDICATES AREA OF NON-DURABLE MATERIAL

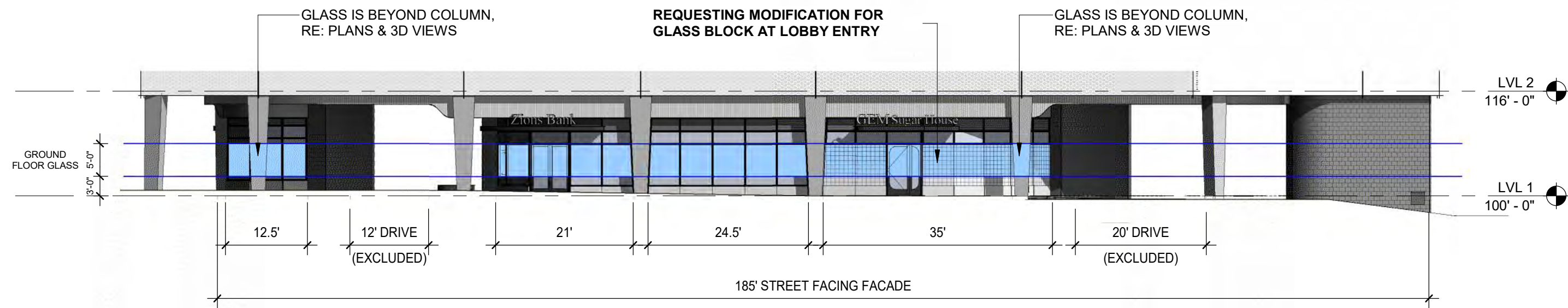
UPPER FLOOR BUILDING MATERIALS (LVL 5-16)

TOTAL FACADE AREA = 20,350 SF  
15% MIN GLASS = 3,053 SF  
GLASS PROVIDED = 9,065 SF  
70% MIN DURABLE MATERIALS (WINDOWS & DOORS EXCLUDED)  
TOTAL FACADE W/OUT GLASS = 11,285 SF  
30% MAX NON-DURABLE = 3,385 SF  
TOTAL NON-DURABLE PROVIDED = 780 SF

REQUESTING MODIFICATION TO LIMIT GARAGE SCREENING ON LEVEL 4

UPPER FLOOR BUILDING MATERIALS (LVL 2-4)

15% MIN GLASS. PARKING GARAGE EXEMPT  
PARKING GARAGE SCREENING. RE: EXTERIOR MATERIAL LEGEND AND 3D ELEVATIONS.



EAST ELEV GROUND FLOOR  
(ELEVATION ALIGNED PERPENDICULAR TO GROUND FLOOR FACADE)

GROUND FLOOR BUILDING MATERIALS

HIGHLAND DR FRONTAGE = 185' W/ DRIVE ENTRIES EXCLUDED = 153'  
60% MIN GLASS = 153' x 0.6 = 91.8' MIN  
GLASS PROVIDED = 12.5' + 21' + 24.5' + 35' = 93'  
70% MIN DURABLE MATERIALS (WINDOWS & DOORS EXCLUDED)  
100% OF MATERIALS USED AT THE GROUND FLOOR ARE DURABLE. RE: EXTERIOR MATERIAL LEGEND AND 3D ELEVATIONS.

SCALE: 1/16" = 1'-0"







ELEVATION NORTH

NO BUILDING MATERIAL REQUIREMENTS ALONG WILMINGTON AVE (PRIVATE DRIVE)  
(NOT A STREET FACING FACADE)



ELEVATION WEST

NO BUILDING MATERIAL REQUIREMENTS ON SIDE INTERIOR  
(NOT A STREET FACING FACADE)

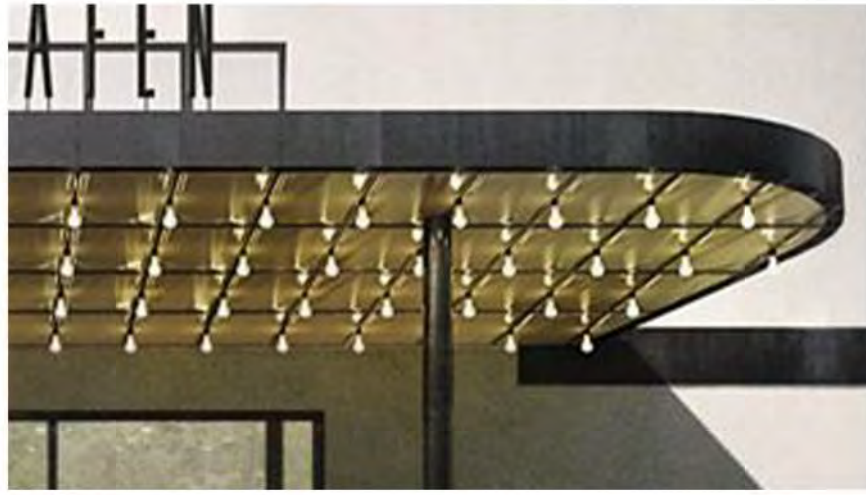




**DECORATIVE SCREENING PANEL (FLEXFACADE)**  
COLOR: CUSTOM GRAPHIC MURAL  
COMMENTS: 34% OPEN  
TYPE MARK: EX-DSP



**STEEL FABRICATED SCREEN/GUARD**  
COLOR: TBD  
COMMENTS: STEEL FRAME W/ STEEL MESH INFILL  
TYPE MARK: EX-SFS



**STEEL FRAMED CANOPY**  
COLOR: TBD  
COMMENTS: COLLECTS WATER & DEPOSITS IN STORM DRAIN  
TYPE MARK: EX-SFC



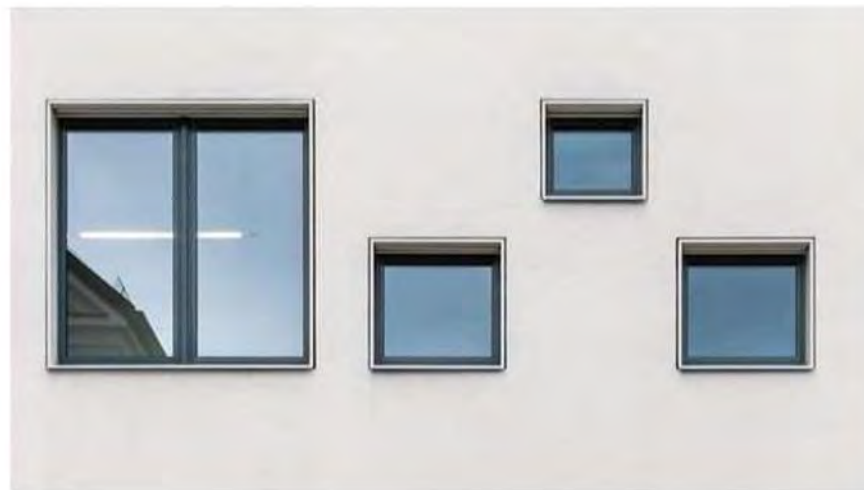
**BALCONY GUARDS**  
COLOR: TBD  
COMMENTS: WELDED STEEL  
TYPE MARK: EX-BG



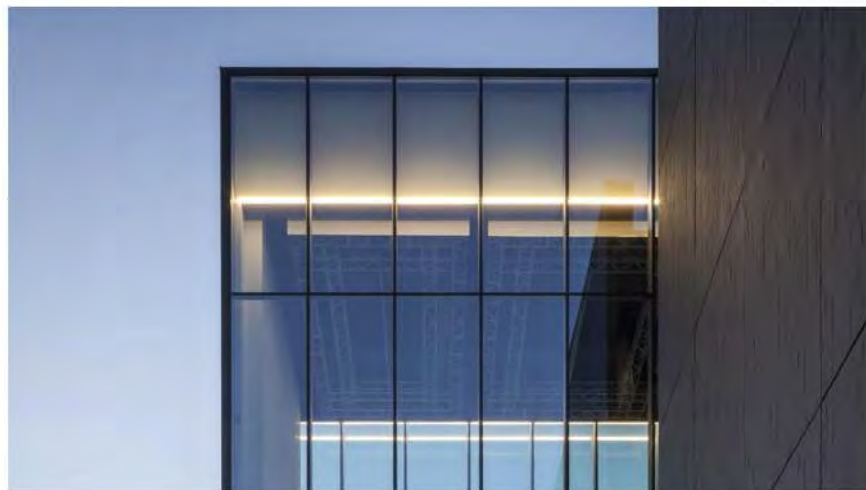
**GLASS WIND SCREEN**  
COLOR: TBD  
COMMENTS: VERT STEEL SUPPORTS, CURVED AND EXPOSED TOP EDGE  
TYPE MARK: EX-GWS



**STOREFRONT 1**  
COLOR: CUSTOM COLOR TBD  
COMMENTS: SEGMENTED TO ACHIEVE CURVES  
TYPE MARK: EX-SF1



**STOREFRONT 2**  
COLOR: CUSTOM TBD  
COMMENTS: PUNCHED WINDOWS AT UNITS  
TYPE MARK: EX-SF2



**CURTAIN WALL**  
COLOR: CUSTOM TBD  
COMMENTS: STRUCTURAL SILICONE GLAZING (SSG)  
TYPE MARK: EX-CW



**WINDOW WALL**  
COLOR: CUSTOM TBD  
COMMENTS: CURVED MULLIONS AT ARCHED OPENINGS  
TYPE MARK: EX-WW



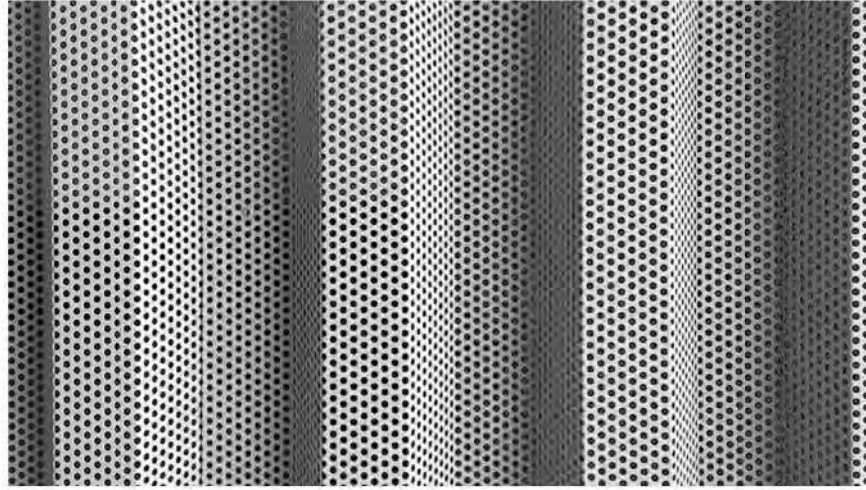
**GLASS BLOCK**  
COLOR: CLEAR  
COMMENTS: STACKED BOND  
TYPE MARK: EX-GB



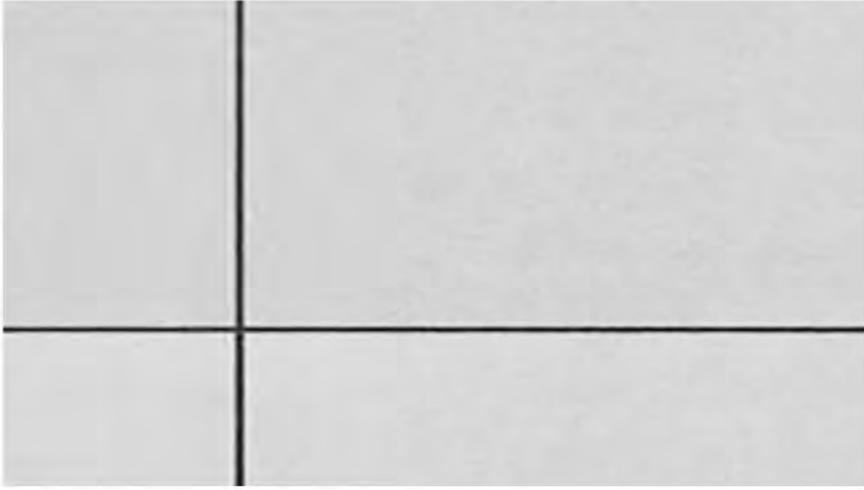
**METAL WALL PANEL 1**  
COLOR: CUSTOM TBD  
COMMENTS: 1" CORRUGATION W/ CONCEALED FASTENERS  
TYPE MARK: EX-MP1



**METAL WALL PANEL 2**  
COLOR: CUSTOM TBD  
COMMENTS: 7/8" CORRUGATION W/ EXPOSED FASTENERS  
TYPE MARK: EX-MP2



**METAL WALL PANEL 3**  
COLOR: TBD  
COMMENTS: PERFORATED, 1 1/2" CORRUGATIONS  
TYPE MARK: EX-MP3



**STUCCO**  
COLOR: LIGHT GREY  
COMMENTS: SMOOTH/FINE FINISH  
TYPE MARK: EX-ST1



**PREFINISHED METAL COMPOSITE MATERIAL**  
COLOR: BLACK  
COMMENTS: BLACK SEALANT  
TYPE MARK: EX-MCM



**CAST-IN-PLACE CONCRETE**  
EXPOSED ARCHITECTURAL SMOOTH FINISH  
TYPE MARK: EX-AEC



**CMU**  
COLOR: STANDARD  
COMMENTS: STANDARD CMU, RUNNING BOND  
TYPE MARK: EX-MU1



**OFFSET GROUND FACE CMU**  
COLOR: TBD  
COMMENTS: ALTERNATING OFFSET  
TYPE MARK: EX-MU2



**FLUTED CMU**  
COLOR: TBD  
COMMENTS: 4" BLOCK  
TYPE MARK: EX-MU3



**CAST STONE VENEER**  
COLOR: TBD  
COMMENTS: MODULAR PRECAST VENEER PANEL  
TYPE MARK: EX-CSV

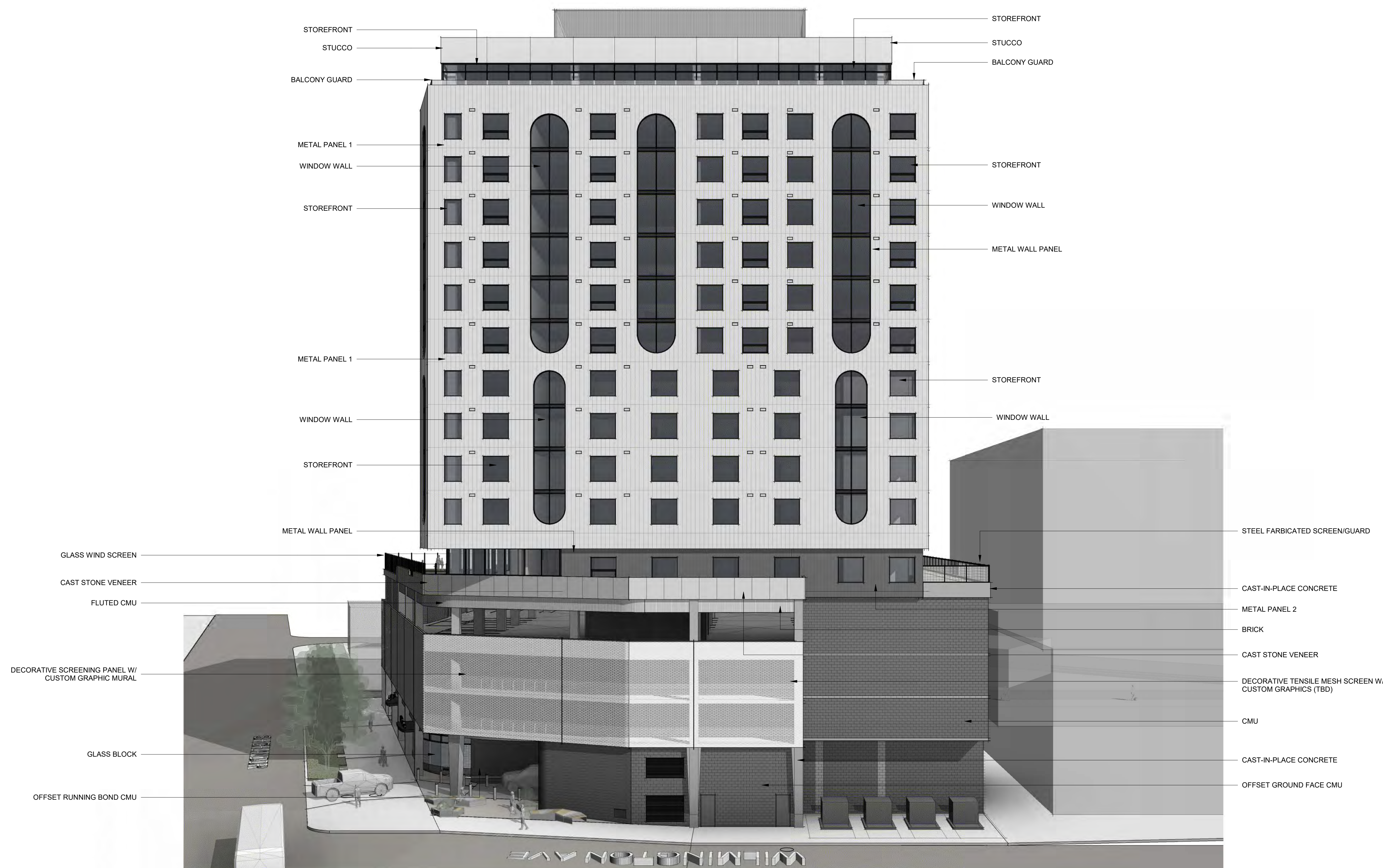




















3D SE



3D NE





3D NW



3D SW

























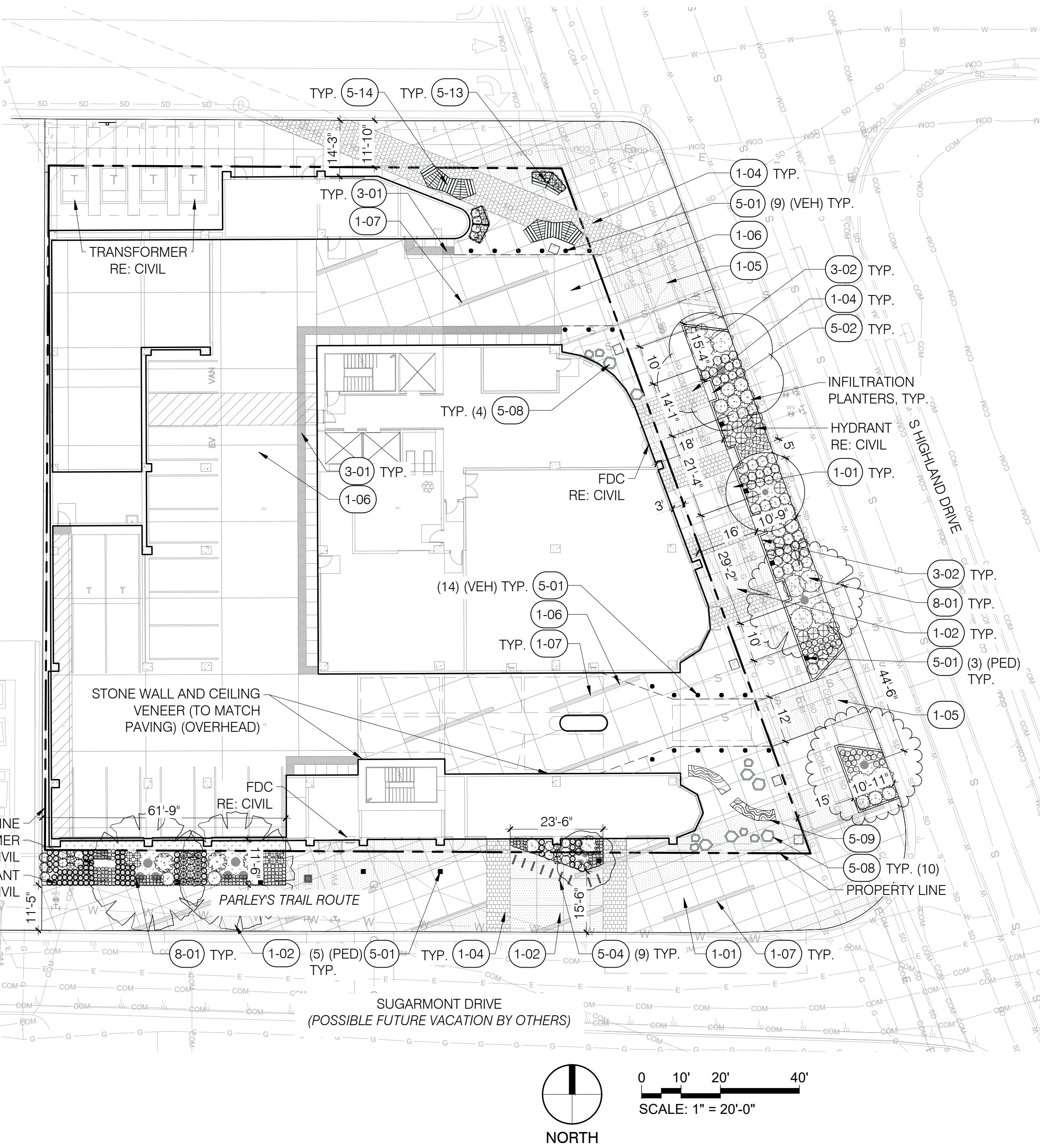


GENERAL NOTES

- All work shall be performed in accordance with plans approved by the City or Local Jurisdiction.
- Base information provided by Engineer. Refer to survey, plat, roadway and utility drawings, and other available documents for property limits, existing conditions, and horizontal and vertical control.
- The limits of work occur at the right-of-way or as shown on plans.
- Verify existing site conditions including walls, vegetation, fences, utilities, property lines, limits of roadways, curbs and gutters, and other obstructions that may affect the progress of work.
- Locate utilities and maintain their location during all phases of work. Do not damage utility lines/structures. Notify Owner's Representative of any discrepancies before starting any work. Contractor shall be responsible for location of underground utilities or structures, whether or not shown or detailed and installed by any other contract. Restoration of utilities damaged by the Contractor shall be at the Contractor's expense.
- Thoroughly review the site conditions, drawings, and technical specifications prior to construction. Complete the work of this project in accordance with approved drawings.
- Anything mentioned in the technical specifications and not shown on the drawings, or shown on the drawings and not mentioned in the technical specifications, shall be of like effect as if shown on or mentioned in both.
- Construction installation, materials, testing and inspection shall comply with applicable codes and ordinances.
- Take necessary steps to protect and maintain all finished work for the duration of the contract until final acceptance.
- These drawings do not specify safety materials, equipment, methods or sequencing to protect persons and property. Direct and implement safety operations and procedures to protect the Owner, other Contractors, the Public, and other for the duration of the contract.
- Notes and details on specific drawings take precedence over general notes and typical details.
- Obtain necessary permits from all jurisdictions as required to construct the work of this project.
- The work of this contract will not be considered complete until all areas have been cleaned of all dirt and debris and all damaged items are repaired.
- All proposed landscaping in the right-of-way shall be per the City or Local Jurisdiction standards.

LAYOUT NOTES

- Verify existing site information including, but not limited to street grades, utilities, property lines, limits of roadways, curbs, and gutters taken from the Civil Engineer's drawings.
- All work shall comply with applicable codes and ordinances.
- Take all dimensions from back of curb, face of wall or building, and centerline of trees unless otherwise noted.
- All dimensions called out as 'equal' are equidistant measurements.
- Written dimensions supercede scaled dimensions. Do not scale drawings, if there is a question regarding dimensions, contact Dig Studio for verification.
- All angles to match those noted on drawing and all lines of paving to be parallel unless otherwise noted. Maintain horizontal alignment of adjacent elements as noted on drawings.
- Reference to north refers to true north. Reference to scale is for full sized drawings only. Do not scale from drawings.
- Concrete slabs or footings shall be doweled into abutting walls, foundations and footings where shown doweled on the plan.
- Provide expansion joints in concrete paving, curbs, and walls, a maximum distance of 30 feet apart and at all intersections. Provide expansion joints where new curbs, walls, and any new concrete abuts existing concrete paving, buildings, curbs, and walls unless otherwise noted.
- Provide control joints evenly spaced between expansion joints as shown on drawings, except where special score joint pattern is specified.
- Sleeves and conduits shall be installed a minimum of 18 inches below finished grade and shall extend 12 inches beyond back of curbs, walls, and paving.
- Coordinate and field verify all sleeving locations for all utility, electrical, and irrigation prior to construction.
- Proposed trees in the right-of-way shall be pre-approved by the City and shall be a minimum of 20' from property corners at intersections, 30' from stop signs, 20' from street lights, outside of 30' corner sight triangles and 10' from edge of driveways, alleys and hydrants.
- Contractor to field verify all quantities, areas, and dimensions.
- Bring any layout discrepancies to the attention of the Landscape Architect immediately.



| LANDSCAPE YARD TAKEOFFS (PROPERTY LINE TO CURB) |               |  |      |
|-------------------------------------------------|---------------|--|------|
| VEGETATION                                      | 1,624 SQ.FT.  |  | 17%  |
| TURF                                            | 0 SQ.FT.      |  | 0 %  |
| IMPERVIOUS SURFACES                             | 8,383 SQ.FT.  |  | 83%  |
| TOTALS                                          | 10,007 SQ.FT. |  | 100% |

| LANDSCAPE YARD TAKEOFFS (PROPERTY LINE TO BUILDING) |              |  |      |
|-----------------------------------------------------|--------------|--|------|
| VEGETATION                                          | 219 SQ.FT.   |  | 8%   |
| TURF                                                | 0 SQ.FT.     |  | 0 %  |
| IMPERVIOUS SURFACES                                 | 2,626 SQ.FT. |  | 92%  |
| TOTALS                                              | 2,845 SQ.FT. |  | 100% |

REFERENCE NOTES SCHEDULE

| CODE                              | DESCRIPTION                              |
|-----------------------------------|------------------------------------------|
| <b>1 - PAVING &amp; SURFACING</b> |                                          |
| 1-01                              | CONCRETE PAVING (PEDESTRIAN)             |
| 1-02                              | SAND FINISH CONCRETE PAVING (PEDESTRIAN) |
| 1-04                              | COBBLE PAVERS (PEDESTRIAN)               |
| 1-05                              | SAND FINISH CONCRETE PAVING (VEHICULAR)  |
| 1-06                              | CONCRETE PAVING (VEHICULAR)              |
| 1-07                              | TINED CONCRETE (VEHICULAR)               |

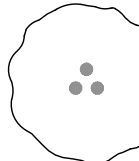
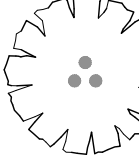
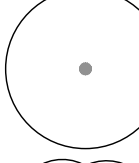
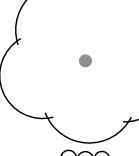
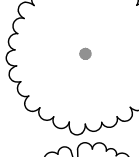
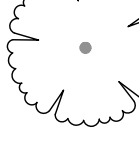
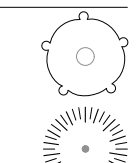
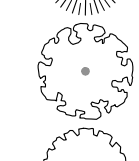
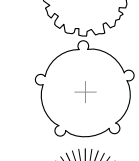
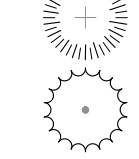
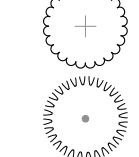
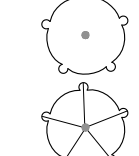
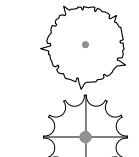
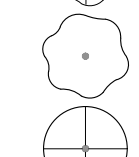
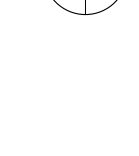
|                   |                              |
|-------------------|------------------------------|
| <b>3 - METALS</b> |                              |
| 3-01              | TRUNCATED DOMES              |
| 3-02              | TRAIL EDGE PLANTER GUARDRAIL |

|                        |                          |
|------------------------|--------------------------|
| <b>5 - FURNISHINGS</b> |                          |
| 5-01                   | PARLEY'S TRAIL BOLLARD   |
| 5-02                   | CUT STONE BENCH          |
| 5-04                   | BIKE RACK (SLC STANDARD) |
| 5-08                   | QUARTZ SERIES PLANTERS   |
| 5-09                   | NAGUISA BENCH SCULPTURE  |
| 5-13                   | UNITY PLANTER MODULES    |
| 5-14                   | UNITY BENCH MODULES      |

|                     |            |
|---------------------|------------|
| <b>8 - PLANTING</b> |            |
| 8-01                | WOOD MULCH |

\* EXISTING STREET TREES ON HIGHLAND DRIVE TO BE REPLACED WITH NEW TREES OF CALIPER EQUAL TO OR EXCEEDING CURRENT SIZE OF EXISTING TREES (2.5" CAL. MIN.). SITE CONSTRAINTS, ANTICIPATED CONSTRUCTION IMPACTS, AND YOUNG AGE OF EXISTING STREET TREES PREVENT PROTECTING IN PLACE.

PLANT SCHEDULE

| SYMBOL                                                                                | CODE    | QTY | BOTANICAL / COMMON NAME                                                         |
|---------------------------------------------------------------------------------------|---------|-----|---------------------------------------------------------------------------------|
| TREES                                                                                 |         |     |                                                                                 |
|    | AME GRA | 1   | AMELANCHIER X GRANDIFLORA `AUTUMN BRILLIANCE`<br>AUTUMN BRILLIANCE SERVICEBERRY |
|    | BET OCC | 2   | BETULA NIGRA `CULLY`<br>HERITAGE RIVER BIRCH, CLUMP                             |
|    | EXI COX | 1   | EXI EXISTING TREE<br>PROTECT IN PLACE OR TRANSPLANT                             |
|    | GIN AUT | 1   | GINKGO BILOBA `AUTUMN GOLD`<br>AUTUMN GOLD MAIDENHAIR TREE                      |
|    | GLE SH2 | 1   | GLEDITSIA TRIACANTHOS INERMIS `SHADEMASTER`<br>SHADEMASTER LOCUST               |
|    | PLA MO3 | 1   | PLATANUS X ACERIFOLIA `MORTON CIRCLE` TM<br>EXCLAMATION! LONDON PLANE TREE      |
| SHRUBS                                                                                |         |     |                                                                                 |
|    | ARC UVA | 56  | ARCTOSTAPHYLOS UVA-URSI<br>KINNICKINICK                                         |
|    | ARC PAN | 2   | ARCTOSTAPHYLOS X COLORADENSIS `PANCHITO`<br>PANCHITO MANZANITA                  |
|   | CHA MIL | 4   | CHAMAEBATIARIA MILLEFOLIUM<br>FERNBUSH                                          |
|  | CHR NAU | 3   | CHRYSOTHAMNUS NAUSEOSUS NAUSEOSUS<br>DWARF BLUE RABBITBRUSH                     |
|  | COR RE5 | 8   | CORNUS SERICEA<br>RED TWIG DOGWOOD                                              |
|  | NAS TEN | 55  | NASSELLA TENUISSIMA<br>MEXICAN FEATHER GRASS                                    |
|  | PIN JA8 | 16  | PINUS MUGO `JAKOBSEN`<br>JAKOBSEN MUGO PINE                                     |
|  | SAL BCP | 3   | SALVIA PACHYPHYLLA `MULBERRY FLAMBE`<br>MULBERRY FLAMBE ROSE SAGE               |
|  | STA LAV | 28  | STACHYS LAVANDULIFOLIA<br>PINK COTTON LAMB'S EAR                                |
|  | SYM ALB | 25  | SYMPHORICARPOS ALBUS<br>COMMON SNOWBERRY                                        |
|  | VER THA | 11  | VERBASCUM THAPSUS<br>COMMON MULLEIN                                             |
|  | YUC GLA | 10  | YUCCA GLAUCA<br>SOAPWEED                                                        |
| GRASSES                                                                               |         |     |                                                                                 |
|  | BOU BLO | 44  | BOUTELOUA GRACILIS `BLONDE AMBITION`<br>BLONDE AMBITION BLUE GRAMA              |
|  | SOR NUT | 10  | SORGHASTRUM NUTANS<br>INDIAN GRASS                                              |
| GROUND COVERS                                                                         |         |     |                                                                                 |
|  | CYN HDT | 125 | CYNODON X `PWIN04S`<br>DOG TUFF BERMUDAGRASS                                    |
| PERENNIALS                                                                            |         |     |                                                                                 |
|  | COR VER | 20  | COREOPSIS VERTICILLATA `MOONBEAM`<br>THREADLEAF COREOPSIS                       |
|  | ECH ALB | 36  | ECHINACEA PURPUREA `ALBA`<br>WHITE CONEFLOWER                                   |
|  | NEP BLU | 16  | NEPETA X FAASSENII `BLUE WONDER`<br>BLUE WONDER CATMINT                         |







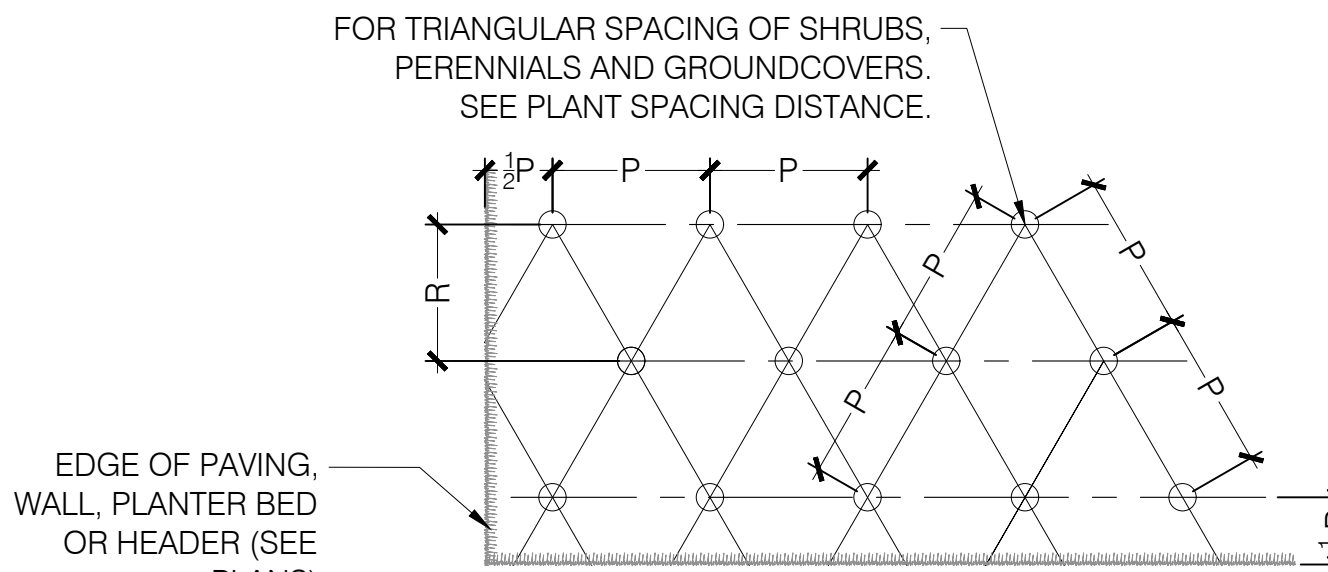
PLANTING NOTES

1. All plant materials shall meet or exceed current American Standard for Nursery Stock (ANSI Z60.1-2004) and SLC Forestry Standards and accompanying Rules and Regulations.
2. All plants will be balled and burlapped or container grown. Bare root or spaded plants will not be accepted.
3. Supply all plant material in quantities sufficient to complete the planting bed as shown on the drawings.
4. All plants will be inspected and approved by the Owner's Representative prior to delivery to the site.
5. Any proposed substitutions of plant species shall be approved by the Landscape Architect prior to delivery to the site.
6. Obtain Landscape Architects approval of finish grading prior to the start of planting.
7. Stake locations of all proposed trees and edges of new planting beds for approval by the Landscape Architect 48 hours prior to the commencement of planting.
8. Landscape Contractor shall be responsible for becoming aware of all underground utilities, pipes, and structures. The Landscape Contractor shall be held responsible for contacting all utility companies for field location of underground utility lines prior to any excavation. Landscape Contractor shall take sole responsibility for any cost of utility repair due to damage caused by his operations.
9. Do not willfully proceed with construction as designed when it is obvious that unknown obstructions and/or grade differences exist that may not have been known during design. Such conditions shall be immediately brought to the attention of the Landscape Architect. The Landscape Contractor shall assume full responsibility for all necessary revisions due to failure to give such notification.
10. Landscape Contractor shall be responsible for any coordination with subcontractors as required to accomplish planting operations.
11. See specifications for planting requirements, soil preparation testing, materials, and execution. Arrange for visit of Landscape Architect for review and approval a minimum of 48 hours prior to installation.

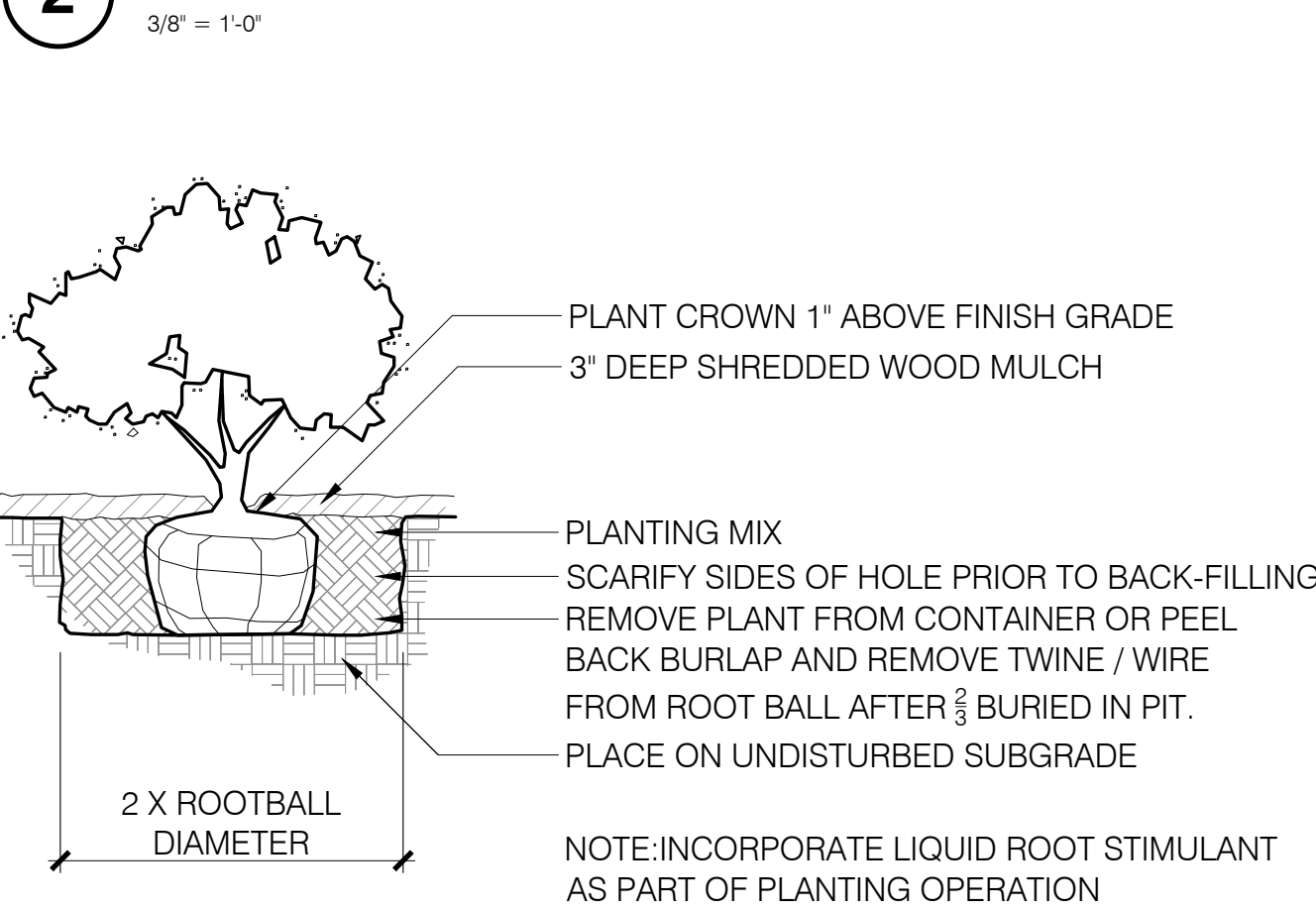
12. See details and specifications for staking method, plant pit dimensions, and backfill requirements.
13. Landscape Contractor shall provide per-unit costs for every size of plant materials, and by type, as called out on planting plans. Unit cost to include the plant material itself and installation, including all labor, amendments, fertilizers, etc., as detailed and specified for each size.
14. Landscape Contractor is responsible to do their own quantity takeoffs for all plant materials and sizes shown on plans.
15. The Landscape Contractor shall be responsible for positive drainage throughout the site with accurately set flow lines. No low spots or ponding of surface water will be accepted in final work.
16. Coordinate installation of large plant material with installation of wall footings, bridge abutments and pavements. Any damage to improvements by others is the responsibility of the Landscape Contractor.
17. The Landscape Contractor shall allow for the addition of specified quantities of soil amendments, conditioners and mulch in soil preparation and finish grading.
18. Imported soil shall be used to supplement the existing soil as necessary to meet the finish grade requirements at planting areas.
19. The Landscape Contractor shall verify soil test at his expense prior to planting and will follow test recommendations and Landscape Architect's approval for soil amendments.
20. The Landscape Contractor shall receive the specified subgrade elevation, of +/- one tenth of a foot below finish grade.
21. The Landscape Contractor shall be responsible to furnish and install amended or imported soil in any planting areas as necessary to achieve the specified finish planting grades unless otherwise noted on plans or specs.
22. The Landscape Architect reserves the right to adjust the location of plant material during installation as appropriate to the project. For trees in the right-of-way by Builder or Contractor, adjustments of 5'-0" or more must have prior authorization of Landscape Architect.

23. Contractor is to familiarize himself with the layout, grading, and civil engineering documents to coordinate actual location of trees and shrubs.
24. Maintenance Statement: All landscaping shown on this plan shall be maintained in a neat and adequate manner. Required maintenance activities shall include, but not limited to, mowing of lawns, trimming of hedges, adequate irrigation, replacement of dead, diseased or unsightly landscaping, removal of weeds from planted areas, and appropriate pruning of plant materials.
25. Take dimensions from back of curb, center line of trees, and centerline of light pole bases, unless otherwise noted.
26. Take all dimensions perpendicular to any reference line, centerline, or back of curb.
27. Written dimensions supersede scaled dimensions. Do not scale drawings, if there is a question regarding dimension, contact Landscape Architect for verification.
28. All landscaped areas shall be irrigated with an automatic irrigation system. Lawn areas will be sprayed and shrubs will be drip irrigated. Natural areas, such as those with prairie types of grasses and native shrub species, are designed to irrigate through grow-in and then be shut off except during severe drought. Contractor shall be responsible for taps, backflow prevention and winterization systems, sleeving under paved areas and all sprinkler system components necessary for a fully functional system. Trees shall be on a separate zone from turf.
29. Street Trees shall be placed 5'-0" min from buried utilities.
30. All proposed landscaping in the right-of-way shall be per City Standards. Trees to be in accordance with current City Standards including approved species; family, genus and species, quantity and percentage limits; and limitations on the quantity of same-species trees in a row. Installation of trees in right-of-way to be per City detail.
31. Proposed trees in the right-of-way shall be pre-approved by the Landscape Architect and shall be a minimum of 20' from property corners at intersections, 20' from street lights, outside of 30' corner sight triangles and 10' from edge of driveways, alleys and hydrants.

| P<br>TRIANGULAR | R<br>ROW  | AREA PER PLANT<br>SQ. FT. |
|-----------------|-----------|---------------------------|
| 4"              | 3 7/16"   | .096                      |
| 6"              | 5 1/4"    | .22                       |
| 8"              | 7"        | .385                      |
| 10"             | 8 3/4"    | .60                       |
| 12"             | 10 5/8"   | .87                       |
| 18"             | 1'-3 5/8" | 1.95                      |
| 24"             | 1'-8 3/4" | 3.46                      |
| 30"             | 2'-2"     | 5.42                      |
| 3'              | 2'-7"     | 7.80                      |
| 4'              | 3'-5 1/2" | 13.84                     |
| 5'              | 4'-4"     | 21.65                     |
| 6'              | 5'-2 3/8" | 31.20                     |



2 SHRUB AND PERENNIAL SPACING

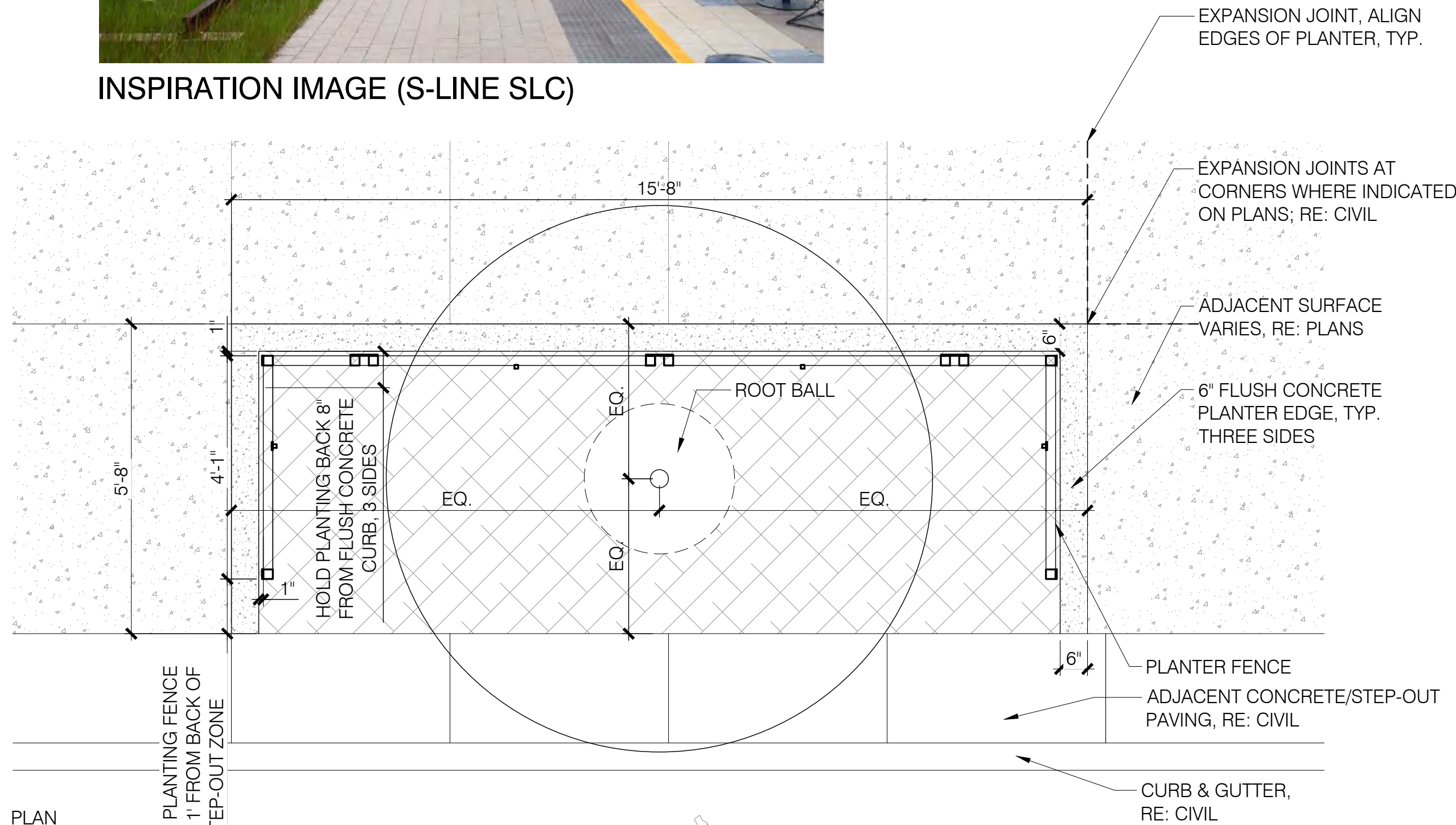


3 SHRUB AND ORNAMENTAL GRASS PLANTING

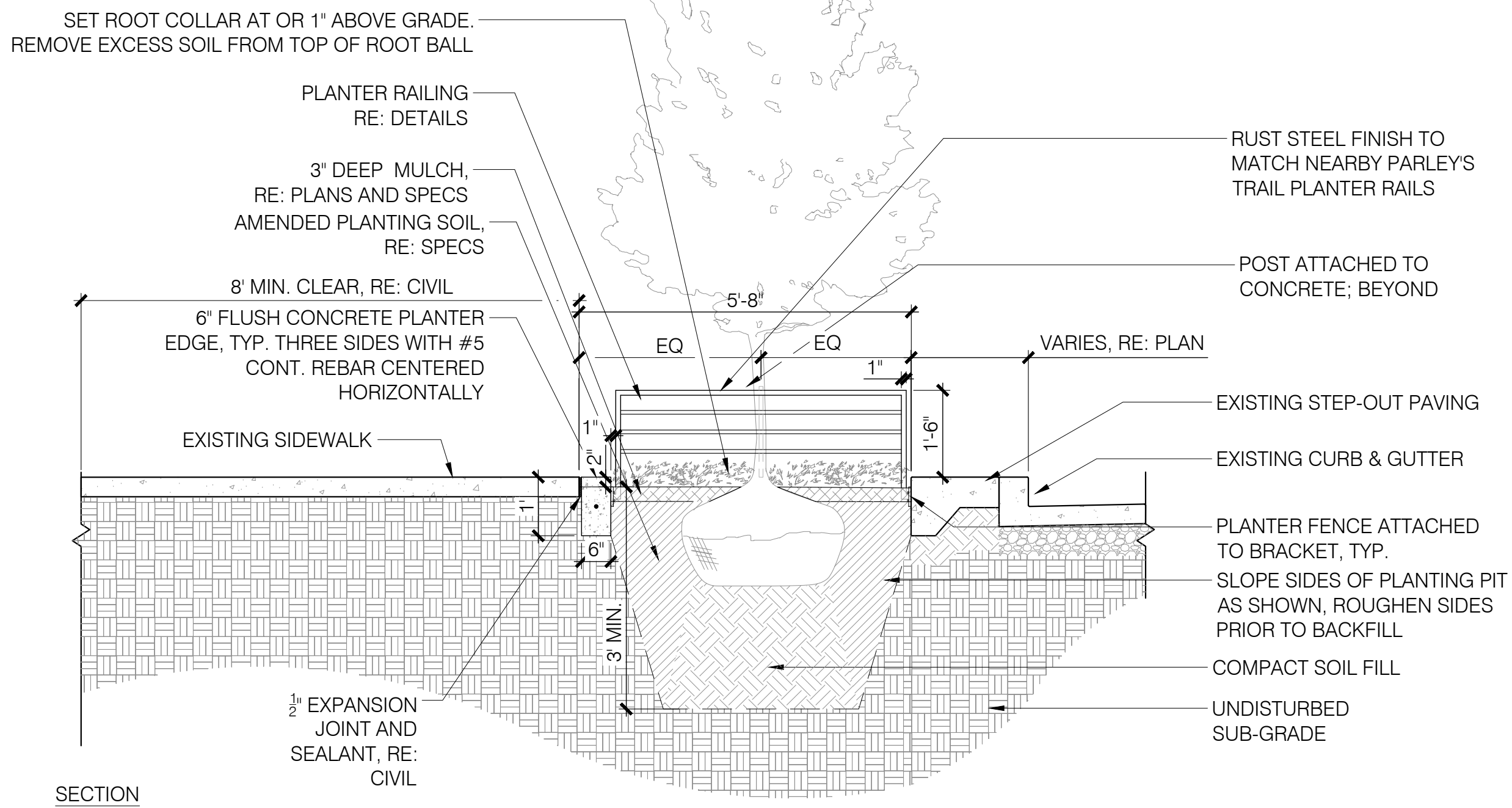
1/2" = 1'-0"



INSPIRATION IMAGE (S-LINE SLC)



PLAN



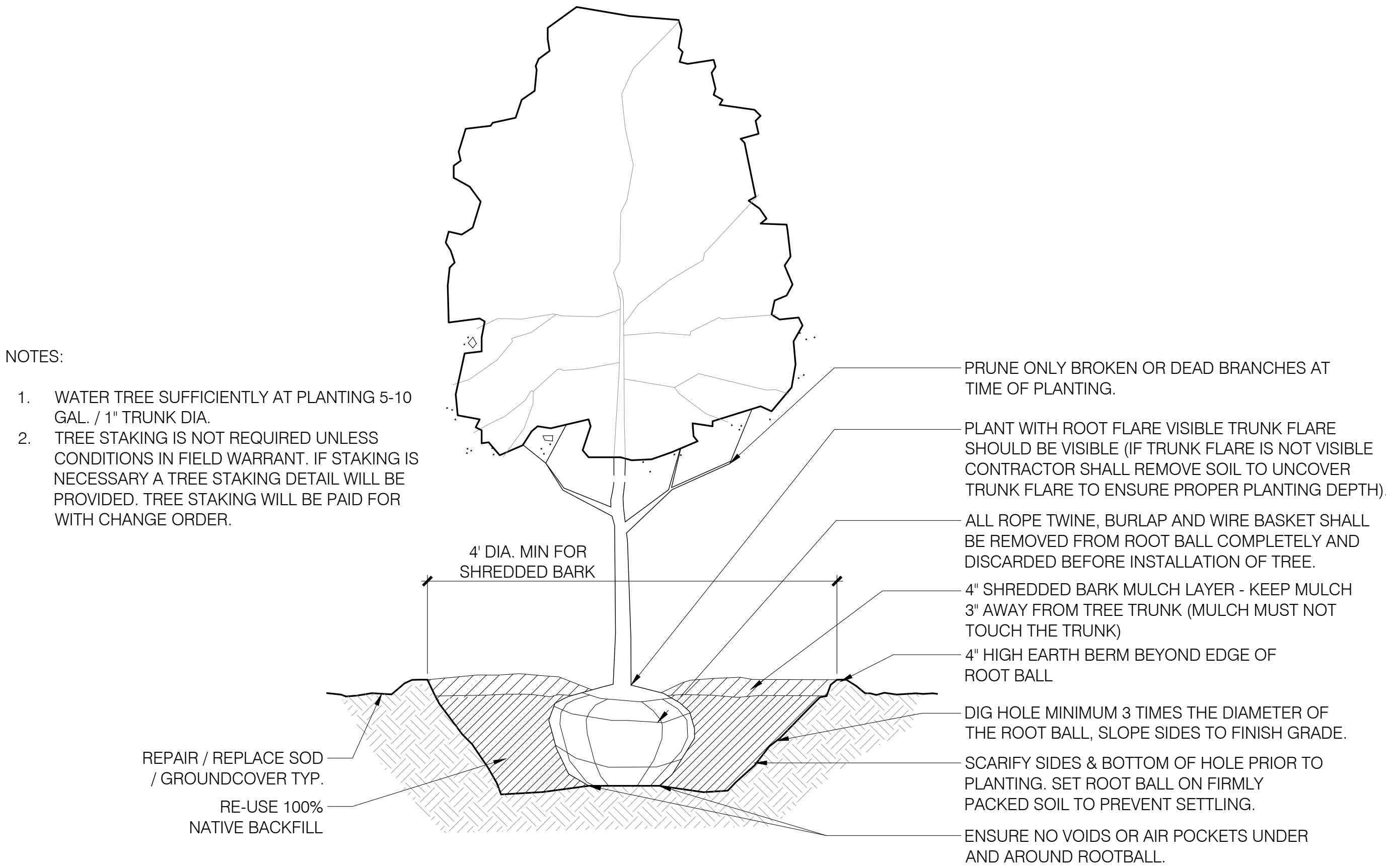
SECTION

4 TRAIL EDGE PLANTER GUARDRAIL

1/2" = 1'-0"

NOTES:

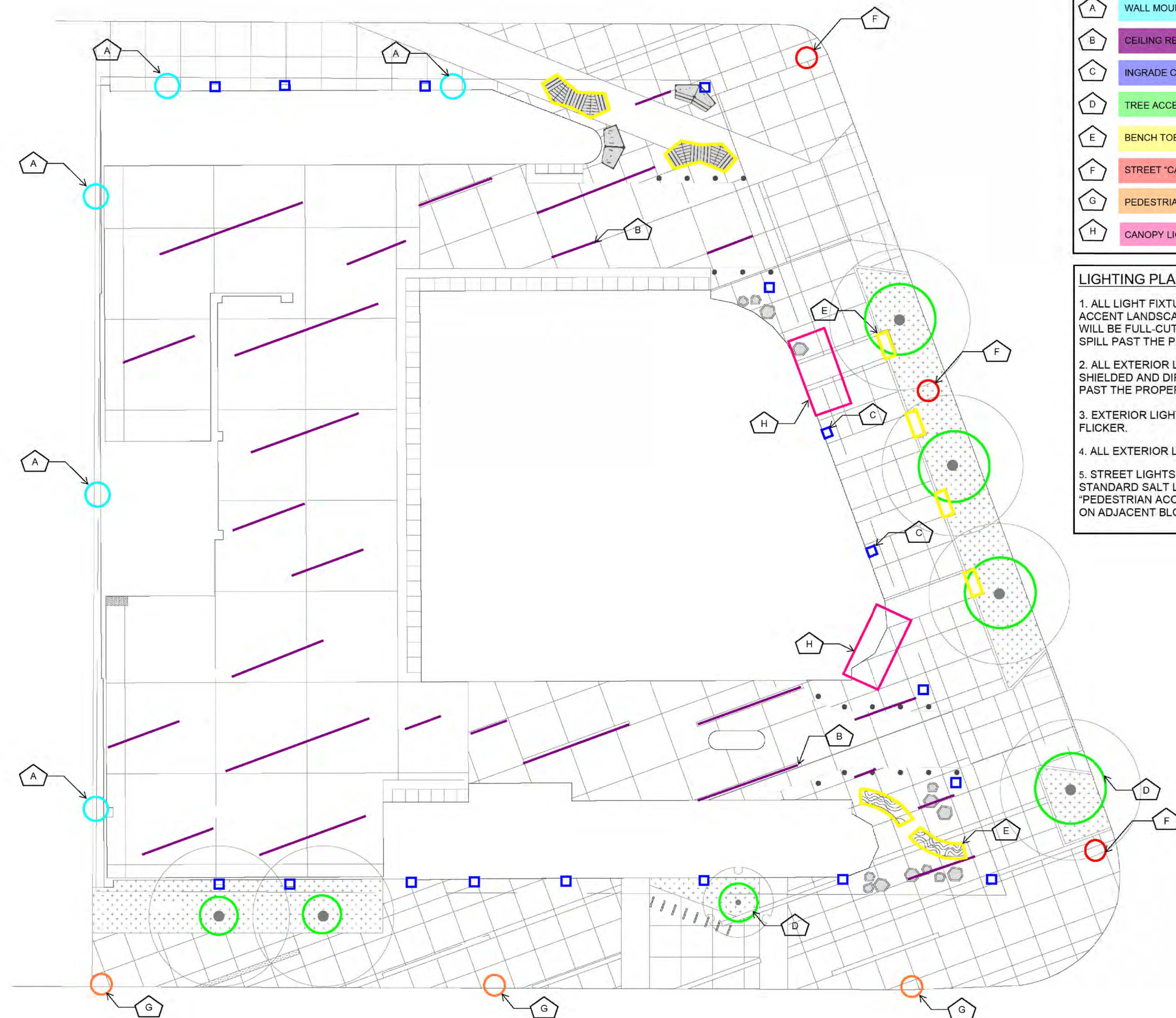
1. WATER TREE SUFFICIENTLY AT PLANTING 5-10 GAL. / 1" TRUNK DIA.
2. TREE STAKING IS NOT REQUIRED UNLESS CONDITIONS IN FIELD WARRANT. IF STAKING IS NECESSARY A TREE STAKING DETAIL WILL BE PROVIDED. TREE STAKING WILL BE PAID FOR WITH CHANGE ORDER.



1 URBAN FORESTRY TREE PLANTING DETAIL

1/2" = 1'-0"





| LIGHTING CONCEPT PLAN LEGEND |                                         |
|------------------------------|-----------------------------------------|
| A                            | WALL MOUNTED AREA LIGHT                 |
| B                            | CEILING RECESSED GARAGE LINEAR LIGHTING |
| C                            | INGRADE COLUMN ACCENT LIGHT             |
| D                            | TREE ACCENT LIGHT                       |
| E                            | BENCH TOEKICK LIGHT                     |
| F                            | STREET "CACTUS" LIGHT POLE              |
| G                            | PEDESTRIAN "ACORN" LIGHT POLE           |
| H                            | CANOPY LIGHTING                         |

- LIGHTING PLAN GENERAL NOTES:**
1. ALL LIGHT FIXTURES NOT SPECIFICALLY INTENDED TO ACCENT LANDSCAPING OR ARCHITECTURAL ELEMENTS WILL BE FULL-CUTOFF AND WILL NOT PRODUCE LIGHT SPILL PAST THE PROPERTY LINE.
  2. ALL EXTERIOR LIGHTING ON THIS PORPRTY WILL BE SHIELDED AND DIRECTED TO PREVENT LIGHT TRESPASS PAST THE PROPERTY LINE OR INTO THE SKY.
  3. EXTERIOR LIGHTING WILL NOT STROBE, FLASH, OR FLICKER.
  4. ALL EXTERIOR LIGHT SOURCES WILL BE 3000K CCT.
  5. STREET LIGHTS / PEDESTRIAN LIGHTS WILL BE THE STANDARD SALT LAKE CITY "CACTUS POLE" AND "PEDESTRIAN ACORN" TO MATCH THE EXISTING LIGHTS ON ADJACENT BLOCKS.



A WALL MOUNTED AREA LIGHT  
• SAFETY ILLUMINATION FOR ALLEYWAY



H SIGN CANOPY LIGHT  
DECORATIVE LIGHTING FEATURE AT BUILDING ENTRY CANOPIES



B CEILING RECESSED PORTE COCHERE LINEAR LIGHTING  
• TO BE PARALLEL WITH DIRECTION OF CEILING TEXTURE



C IN-GRADE COLUMN UPLIGHT  
• NARROW BEAM UPLIGHT ACCENTING ARCHITECTURE



D TREE ACCENT LIGHT  
• IN-GRADE LOW OUTPUT FIXTURES WITH GLARE SHIELDS THROUGHOUT LANDSCAPING AREAS



E BENCH TOEKICK LIGHT  
• FLEXIBLE LED CHANNEL AT TOE KICK OF CAST IN PLACE CONCRETE BENCHES



F STREET "CACTUS" LIGHT POLE  
• 3-HEAD ACORN LIGHT TO MATCH SUGARHOUSE STANDARD



G PEDESTRIAN "ACORN" LIGHT POLE  
• SINGLE HEAD ACORN LIGHT TO MATCH SUGARHOUSE STANDARD



# ATTACHMENT D: Property and Vicinity Photos

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*Existing Zions Bank building, facing northwest*

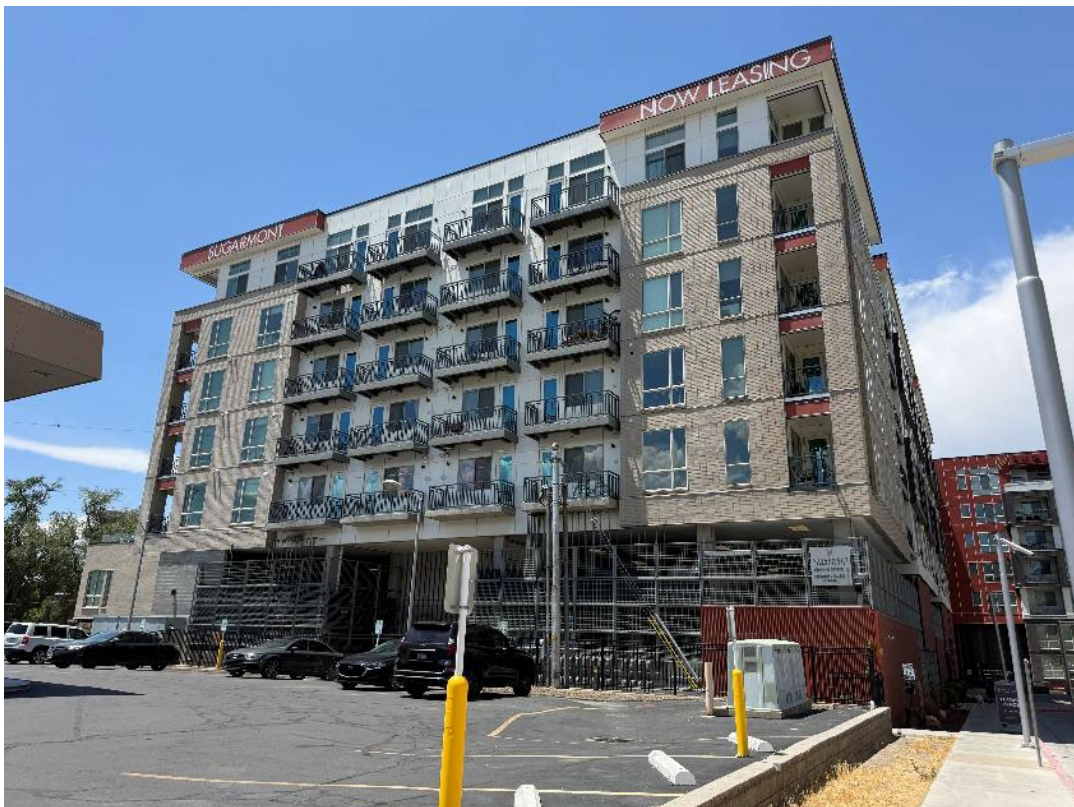


*Drive through on south side of building, facing north*





*Existing Zions Bank building, facing southwest*



*Rear of subject property and the abutting Sugarmont Apartments*





*Existing sidewalk/Parley's Trail along Highland Drive*



*Sugarmont Drive, facing west*





*Sugar Alley building to the north of the subject property, facing northwest*



*Shopping center to the east of the subject property, facing east*





*Former Deseret Industries site, property is owned by the Community Reinvestment Agency*



# ATTACHMENT E: MU-11 Zoning Standards

## MU-11 MIXED USE 11 DISTRICT:

**Purpose:** The MU-11 Mixed Use 11 District generally includes buildings up to 8 stories in height, with taller buildings up to eleven (11) stories allowed through the design review process. Development regulations are based on types of buildings and differ based on the building types as indicated. The district contains a mix of uses that include commercial, technical, high-density residential, and other supportive land uses.

| Standard                       | Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Proposed                                                                                                                                                                                         | Finding                                                                                                                                                                                                           |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Ground Floor Use</b>        | The following regulations apply to the ground floor use area required by Table 21A.37.060. Enhanced active use, as indicated in Subsection 21A.37.050.A.2, is required when located along the following streets:<br><br>...<br><br>7. Highland Drive, from 2100 South to I-80.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 90% plus remainder meets outdoor active use.                                                                                                                                                     | <b>Complies. 100% enhanced active use is required. Approximately 90% is provided and the remainder meets the outdoor active use requirements. The lobby frontage meets the lobby exception in 21A.37.050.A.2.</b> |
| <b>Maximum Building Height</b> | <u>Multi-family Residential/Storefront/Vertical Mixed Use:</u> Maximum height of 125'. Buildings in excess of 85' require design review in accordance with Chapter 21A.59.<br><br>Properties located in the areas bounded by (1) 400 South to the I-15 West Temple Off-ramp and 300 West to I-15 or (2) McClelland Street and extending along the eastern boundary of Fairmont Park to 1300 East and 2100 South to I-80, may be allowed up to 150 feet in height through the design review process of <a href="#">Chapter 21A.59</a> , subject to the following:<br><br>1. At least 10% of the lot shall be open space area at the ground level with an outdoor active space, such as midblock walkways with a public access easement, plazas, outdoor dining area, outdoor recreation area, or similar. The applicant may | Unobstructed open space: 590 sq.ft. (2%), ~2,110 sq. ft is obstructed at ~14' (7.5%), and an additional 220 sq. ft. is unobstructed at ~60' (0.8%).<br><br>Enhanced active use: 100%, see above. | <b>Does not comply. Proposal includes 2% unobstructed open space. Does not meet requirements. Modification requested with Planned Development. See discussion in Key Consideration 2.</b>                         |



|                            |                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                            |                 |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
|                            | <p>expand the park strip to accommodate a portion or all of the 10% open space area; and</p> <p>2. The development includes at least one of the following uses: 100% enhanced active use” (as defined and regulated in Subsection <a href="#">21A.37.050</a>.A.2) within the required ground floor use area or a midblock walkway at least 20 feet wide.</p> |                                                                                                                                                                                                                                                                                                                                                            |                 |
| <b>Front Corner Yards:</b> | <p><b>and Side</b></p> <p><u>Multi-family Residential/Storefront/Vertical Mixed Use:</u></p> <p>No minimum, maximum of 20’</p>                                                                                                                                                                                                                               | None proposed.                                                                                                                                                                                                                                                                                                                                             | <b>Complies</b> |
| <b>Interior Side Yard</b>  | None, except when interior side yard abuts an R-1, R-2, FR, SR, FB-UN1, RMF-30, RMF-35, MU-2, or MU-3 zone, the minimum is 10’.                                                                                                                                                                                                                              | NA                                                                                                                                                                                                                                                                                                                                                         | <b>NA</b>       |
| <b>Rear Yard</b>           | None, except when the rear yard abuts an R-1, R-2, FR, SR, FB-UN1, RMF-30, RMF-35, MU-2, or MU-3 zone, the minimum is 20’.                                                                                                                                                                                                                                   | None proposed.                                                                                                                                                                                                                                                                                                                                             | <b>Complies</b> |
| <b>Open Space Area</b>     | <p>Shall comply with open space requirements in <a href="#">21A.25.010</a>.D.</p> <p>A minimum of 10% of the lot area shall be provided as open space.</p>                                                                                                                                                                                                   | <p>This calculation includes landscaped yards, patios, dining areas, common balconies, rooftop gardens, and other similar outdoor living spaces. This area must be unobstructed, per the definition. The proposal provides 10,870 sq. ft. of open space area. The obstructed areas on the ground and fifth floors area excluded from this calculation.</p> | <b>Complies</b> |



|                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                           |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Additional Height Allowance (21A.25.010.I)</b> | <p>When a qualifying “Enhanced Active Ground Floor Use” is provided within the ground floor use area required by Subsection <a href="#">21A.37.050.A</a> or this chapter, any additional vertical ceiling space over eight feet (8') in height (measured to the finished ceiling) on that floor may be added to the total allowable height of the building.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>Ground floor is 16'; an additional 8' may be added to the total allowable height of the building.</p>                                                                                                                   | <p><b>Complies. Roof is 181'10”, max height of building is 284'10”. Elevator/stair towers are permitted to extend an additional 16'. MEP screening extends an additional 8'10” to 192'10”. A maximum height of 194' is permitted with the AHI and this allowance.</b></p> |
| <b>Parking Requirements (21A.44)</b>              | <p>Complete review of parking will be completed at building permit stage.</p> <p>Vehicular Parking:<br/>Minimum = No spaces required<br/>Maximum =<br/>Residential: 2 spaces per studio or 1-bedroom = 164 and 3 spaces per 2+ bedroom = 171</p> <p>Nonresidential:<br/>Financial Institution &amp; Retail:<br/>Minimum = No spaces required<br/>Maximum: 2 per 1,000 sq ft. = 8 spaces<br/>Restaurant:<br/>Minimum = No spaces required<br/>Maximum: 5 per 1,000 sq ft. tasting/seating area = Approx. 10 spaces<br/>Hotel/motel:<br/>Minimum = No spaces required<br/>Maximum: 1.5 spaces per guest bedroom x 56 bedrooms = 84 spaces<br/>Total permitted = 437</p> <p>Other required parking:<br/>EV parking = 1 space per 25 spaces provided<br/>EV ready = 20% of spaces<br/>Accessible = 1 per 50<br/>Bicycle = 1 per 2 units and 1 per 2,000 sq. ft. commercial</p> | <p>Vehicular spaces provided = 164</p> <p>Other requires parking:<br/>EV parking spaces: 7</p> <p>EV ready spaces: 33</p> <p>Accessible spaces: 4<br/>Bicycle provided: 10 + 44 secure spaces and 6 commercial spaces.</p> | <p><b>Complies</b></p>                                                                                                                                                                                                                                                    |



# MU-11 DESIGN STANDARDS (21A.37): Storefront and Vertical Mixed Use Building Type

| REGULATION                                                                                                                                                                                                                                                                                                                                                                        | PROPOSED | Finding                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Ground floor use:</b> enhanced active use (75%) ( <a href="#">21A.37.050.A.2</a> ) The ground floor use space shall be occupied by an “enhanced active ground floor use” such as retail, restaurants, bars, art studios, civic spaces (theaters, museums, etc.), and other uses determined by substantially similar by the planning director and/or planning commission.       | ~90%     | <b>Complies, there is a financial institution with a drive-through and lobby area on the ground floor.</b>                                                                                                                                         |
| <b>Building materials:</b> ground floor (%) ( <a href="#">21A.37.050.B3</a> ) Other than windows and doors, a minimum of 70% of the ground floor facade's wall area of any street facing facade shall be clad in durable materials according to <a href="#">Table 21A.37.060</a> . Other materials may be used for the remainder of the ground floor facade adjacent to a street. | 100%     | <b>Complies, proposed materials are cast-in-place concrete and fluted CMU block.</b>                                                                                                                                                               |
| <b>Building materials:</b> upper floors (%) ( <a href="#">21A.37.050.B4</a> ) Floors above the ground floor level shall include durable materials on a minimum of 70% of any street facing building facade of those additional floors according to <a href="#">Table 21A.37.060</a> . Windows and doors are not included in that minimum amount.                                  | 93%      | <b>93% is claimed as durable; remaining percentage is stucco. The exterior is metal wall panel and information must be provided that it meets the durable requirements. This will be reviewed during the administrative Design Review process.</b> |
| <b>Glass:</b> ground floor (%) ( <a href="#">21A.37.050.C1</a> ) The ground floor building elevation of all new buildings facing a street, and <b>all new ground floor additions</b> facing a street, shall have a minimum of 60% glass.                                                                                                                                          | 38%      | <b>38% meets the requirement for ground floor glass. An additional 35' in length is glass block at the lobby entry. A modification for this is requested with the administrative Design Review process.</b>                                        |
| <b>Glass:</b> upper floors (%) ( <a href="#">21A.37.050.C2</a> ) Above the first floor of any multi-story building, the surface area of the facade of each floor facing a street must contain a minimum                                                                                                                                                                           | 45%      | <b>Complies</b>                                                                                                                                                                                                                                    |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                        |                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| percentage of 15% glass according to <a href="#">Table 21A.37.060</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                        |                       |
| <b>Blank wall:</b> maximum length (feet) ( <a href="#">21A.37.050</a> .E) The maximum length of any blank wall uninterrupted by windows, doors, art or architectural detailing at the ground floor level along any street facing facade shall be 30'. Changes in plane, texture, materials, scale of materials, patterns, art, or other architectural detailing are acceptable methods to create variety and scale. This shall include architectural features such as bay windows, recessed or projected entrances or windows, balconies, cornices, columns, or other similar architectural features. The architectural feature shall be either recessed a minimum of 12" or projected a minimum of 12". | There are no areas greater than 30' in length along the street facade that do not have windows, doors, or other architectural features that provide variety and scale. | <b>Complies</b>       |
| <b>Street facing facade maximum length (feet):</b> ( <a href="#">21A.37.050</a> .F) This requirement sets the maximum length of a single street facing facade of a structure at 200'. The purpose of this is to have building massing that is more consistent with the historic development pattern of buildings in Salt Lake City. No street facing building wall may be longer than specified along a street line according to <a href="#">Table 21A.37.060</a> . For buildings longer than seventy five feet (75'), the space between additional buildings along the street in a development site shall be at least fifteen feet (15').                                                               | Property frontage is less than 200'.                                                                                                                                   | <b>Complies</b>       |
| <b>Upper floor step back:</b> Upper level front (feet) ( <a href="#">21A.37.050</a> .G1) Street facing facades of buildings over eighty five feet (85') in height shall have an upper level stepback with a minimum depth of 10'. The stepback can be at any height of the building above the ground floor. This provision shall be considered complied with if a front or corner side yard setback is provided that is equal to or greater than the requirement in <a href="#">Table 21A.37.060</a> .                                                                                                                                                                                                   | Upper level setback of 34' at 50'.                                                                                                                                     | <b>Complies</b>       |
| <b>Landmark Buildings Stepback:</b> ( <a href="#">21A.37.050</a> .G2) This requirement is intended to promote a transition in scale between new buildings and lower scale historic buildings. This applies to properties abutting local historic landmark sites that include buildings less than fifty feet (50') in height. This does not apply when a right-of-way separates the properties. New buildings shall be designed so that no portion of the building within twenty                                                                                                                                                                                                                          | NA                                                                                                                                                                     | <b>Not applicable</b> |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| five feet (25') of the abutting property line is taller than the height of a 45 degree angular plane extending from the top of the landmark building toward the new building, as shown in Illustration of <a href="#">Regulation 21A.37.050.G.2</a> Height Transitions.                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                      |
| <b>Upper floor step back:</b> lower level interior ( <a href="#">21A.37.050.G.3</a> ) For buildings on property that abuts a parcel in (1) an R-1, R-2, SR, FR, FB-UN1, RMF-30, RMF-35, MU-2, or MU-3 zoning district, (2) a public trail, or (3) a public open space, floors that are entirely located above a height of thirty feet (30') from average finished grade shall be set back at least ten feet (10') from the required minimum yard located along the abutting parcel. This regulation does not apply when the parcel is separated from the subject property by a street or alley.                        | Parking roof structure extends into required stepback at first full level above 30'. The stepback is at the floor above at ~50'.                                                                                                                                                                                     | <b>Does not comply. Property abuts a public trail on Sugarmont. Modification request with administrative Design Review for parking roof structure that is within the stepback on the first full level above 30'.</b> |
| <b>Sugar House Lower Level Front Stepback:</b> This stepback applies to buildings located in the area bounded by McClelland Street and extending along the eastern boundary of Fairmont Park to 1300 East and 2100 South to I-80. For such buildings, floors that are entirely located above thirty feet (30') in height from average finished grade shall be set back a minimum horizontal distance of ten feet (10') from the front and corner side lot lines. This provision shall be considered complied with if a front or corner side yard setback is provided that is equal to or greater than the requirement. | The pool vault is in this area on the first full level above 30'. The stepback is at the floor above at ~50'. Also an additional stepback modification request for a small area at the northeast corner of the fifth and 16 <sup>th</sup> floors, and a larger area on floors 6-15 northeast corner of the building. | <b>Does not comply. Modifications requested with administrative Design Review for pool vault and northeast corner of the building.</b>                                                                               |
| <b>Lighting:</b> exterior ( <a href="#">21A.37.050.H</a> ) All exterior lighting shall be shielded and directed down to prevent light trespass onto adjacent properties. Exterior lighting shall not strobe, flash, or flicker.                                                                                                                                                                                                                                                                                                                                                                                        | This will be reviewed as part administrative design review process.                                                                                                                                                                                                                                                  | NA                                                                                                                                                                                                                   |
| <b>Lighting:</b> parking lot ( <a href="#">21A.37.050.I</a> ) Poles for the parking lot/structure security lighting are limited to sixteen feet (16') in height and the globe shall be shielded and the lighting directed down to minimize light encroachment onto adjacent residential properties or into upper level residential units in multistory buildings. Lightproof fencing is required adjacent to residential properties.                                                                                                                                                                                   | This will be reviewed as part of the administrative Design Review process.                                                                                                                                                                                                                                           | NA                                                                                                                                                                                                                   |
| <b>Screening of mechanical equipment (<a href="#">21A.37.050.J</a>):</b> All mechanical equipment for a building shall be screened from public                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | This will be reviewed as part of the                                                                                                                                                                                                                                                                                 | NA                                                                                                                                                                                                                   |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                          |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----|
| view and sited to minimize their visibility and impact.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | administrative Design Review process.                                                                                                    |    |
| <b>Screening of service areas (21A.37.050.K):</b> Service areas, loading facilities, refuse containers, utility meters, and similar areas shall be screened from public view or located along a side or rear yard. All screening enclosures visible from the street shall be incorporated into the building architecture or site design. All screening enclosures shall be a minimum of one foot higher than the object being screened, and in the case of fences and/or masonry walls the height shall not exceed eight feet (8'). Dumpsters shall be located a minimum of twenty five feet (25') from any building on an adjacent lot that contains a residential dwelling or be located inside of an enclosed building or structure.                                                                                                                                                                                                                                                                                                                                                                                     | This will be reviewed as part of the administrative Design Review process.                                                               | NA |
| <b>Parking Garages or Structures (21A.37.050L):</b> The following standards shall apply to parking garages or structures whether stand-alone or incorporated into a building: <p>9. <b>Parking structures shall be designed to conceal the view of all parked cars and drive ramps and improve visual character when adjacent to a public street or other public space. In addition to the materials authorized in Subsection 21A.37.050.B.4, allowed materials include heavy gauge metal screen, precast concrete panels, live green or landscaped walls, laminated or safety glass, decorative panels, or other materials matching the building materials and character of the principal building. The planning director may approve other materials not listed if the materials are in keeping with the nature of the parking structure. If parking is included on floors above the ground floor, a minimum of fifty percent (50%) of the surface area of the façade of each floor facing a street shall be wrapped in solid materials.</b></p> <p>9. <b>Façade elements shall align to parking levels. Internal</b></p> | Met on levels 2 and 3. Requesting a modification for level 4. This will be reviewed as part of the administrative Design Review process. | NA |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| <p>circulation shall allow parking surfaces to be level (without any slope) along each parking garage façade adjacent to a public street or public open space. All ramps between levels shall be located along building facades that are not adjacent to a public street or public space or shall be located internally so that they are not visible from adjacent public streets or public spaces.</p> <p>9. No horizontal length of the parking garage façade adjacent to a public street or public open space shall extend longer than forty feet (40') without the inclusion of architectural elements such as decorative grillwork, louvers, translucent screens, alternating building materials, and other external features to avoid visual monotony.</p> <p>9. The location of elevators and stairs shall be highlighted through the use of architectural features or changes in façade colors, textures, or materials so that visitors can easily identify these entry points both internally and externally.</p> <p>9. Signage and wayfinding shall be integrated with the architecture of the parking structure and be architecturally compatible with the design. The entrances of public parking structures shall be clearly signed from public streets.</p> <p>9. Interior garage lighting shall not produce glaring sources toward adjacent properties while providing safe and adequate lighting levels. The use of sensor dimmable LEDs and white stained ceilings are a good strategy to control light levels on site while improving energy efficiency.</p> <p>7. Parking structures shall be designed to minimize vehicle noise and odors in the public realm. Venting and fan locations shall not be located on the primary street-facing façade or</p> |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|



|                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                   |                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------|
| <p>next to public spaces, and shall be located as far as possible from adjacent residential land uses.</p> <p>8. If the parking structure is adjacent to a midblock walkway, pedestrian oriented elements shall be provided. These may include, but are not limited to, lighting, seating and vegetation.</p> <p>9. No special design and setback restrictions shall apply to below ground parking facilities.</p> |                                                                                   |                  |
| <p><b>Public Improvements (21A.37.050.M):</b> The following public improvements are required to be installed where noted as required in <a href="#">Table 21A.37.060</a> for any new buildings. The specified improvements are subject to all additional, applicable standards adopted for public right-of-way improvements by city departments, including transportation, public utilities, and engineering.</p>  | <p>This will be reviewed as part of the administrative Design Review process.</p> | <p><b>NA</b></p> |



# ATTACHMENT G: Standards for Drive-through Facilities and Stacking Areas

## 21A.44.080 DRIVE-THROUGH FACILITIES AND VEHICLE STACKING AREAS

A.2.a Conditional Uses: A traffic study addressing both on site and off site traffic and circulation impacts is required as part of a conditional use application to allow a drive-through facility. If said study indicates a greater vehicle stacking is needed, that distance shall apply.

### Staff Analysis:

The proposal includes two stacking lanes with three stacking spaces each, resulting in a combined 120' of stacking length. The applicant provided a traffic impact study which indicates that the project will have a negligible impact on the surrounding network, with a projected increase in vehicle delay of less than one second per vehicle at adjacent signalized and stop controlled intersections. Queuing lengths are expected to remain within acceptable limits through the 2032 horizon year. The study therefore indicates a greater distance is not required.

### Finding: Complies

B.1 In zoning districts where uses with drive-through facilities are allowed and where no front or corner side yard setback is required, the drive-through lanes shall not be located between the front or corner side lot line and any walls of the principal building.

### Staff Analysis:

The proposed drive-through facility is located entirely internally within the building and will not be located between either the front or corner side lot lines.

### Finding: Complies

B.2 Drive-through lanes shall be arranged to avoid conflicts with site access points, access to parking or loading spaces, and internal circulation routes, to the maximum extent practicable.

### Staff Analysis:

The proposal includes two access points on Highland Drive. The south access is proposed to serve only as the bank drive-through exit and will be limited to right-out only. The north access will serve all other residential and commercial traffic. Due to the proximity to the traffic signal at Highland Drive and Wilmington Ave, this exit will be limited to right-in/right-out access only and will serve all commercial and residential site traffic other than the drive through exit.

### Finding: Complies

B.3 A by-pass lane, driveway, or other circulation area around a drive-through facility stacking lane shall be provided for all uses other than automated car washes and financial institutions.

### Staff Analysis:



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The proposal is for a financial institution.                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Finding: Not Applicable</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| B.4 All required stacking spaces shall measure 9 feet in width by 20 feet and shall be counted from the final service window.                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Staff Analysis:</b><br>The provided drawings document six stacking stalls, each measuring 9 feet in width by 20 feet.                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| B.5 Air quality: Drive through facilities shall post idle-free signs pursuant to Chapter 12.58 of this code.                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Staff Analysis:</b><br>The applicant has not provided a signage plan; however, drawings documenting idle-free signs shall be submitted for zoning review prior to issuance of any building permit.                                                                                                                                                                                                                                                                                                           |
| <b>Finding: Complies With Conditions</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| B.6 When a drive through use adjoins any residential use or any residential zoning district, a minimum eight foot high masonry wall shall be erected and maintained along such property line.                                                                                                                                                                                                                                                                                                                   |
| <b>Staff Analysis:</b><br>The proposed drive-through facility is located entirely within the building and therefore does not directly adjoin any residential use or residential district.                                                                                                                                                                                                                                                                                                                       |
| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| B.7 No drive through use shall allow vehicles to block any portion of the right of way for any period of time.                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Staff Analysis:</b><br>The proposal provides for ample stacking stalls to prevent blocking the right of way.                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| B.8 Drive through facilities shall be allowed one additional drive approach for exiting vehicles that is marked with a stop sign within five feet of the property line along a street. The driveway shall be a minimum of fifty feet (50') from any other driveway. No driveway may be located within fifty feet (50') of the back of curb of an intersecting street.                                                                                                                                           |
| <b>Staff Analysis:</b><br>While the drive-through exit is greater than fifty feet away from the other driveway, each driveway is within fifty feet of an intersection. However, both driveways are existing and the proposal will decrease the degree of noncompliance. Additionally, the applicant shall provide drawings documenting a stop sign for the drive-through exit within five feet of the property line along a street shall be submitted for zoning review prior to issuance of a building permit. |



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| <b>Finding: Complies With Conditions</b>                                                                                                                                                                                            |
| B.9 All drive through facilities that have an indoor customer area shall provide a direct pedestrian walkway and entry to the front of the building that does not require crossing a parking stall, drive aisle or stacking lane.   |
| <b>Staff Analysis:</b><br>A customer entrance is provided on the east façade along Highland Drive, directly accessible via the sidewalk.                                                                                            |
| <b>Finding: Complies</b>                                                                                                                                                                                                            |
| B.10 All parking areas shall include marked pedestrian paths through the parking lot to the closest building entrance. Pedestrian paths shall be marked by a change in paving material or striping.                                 |
| <b>Staff Analysis:</b><br>In addition to the customer entrance is provided on the east façade, an additional entrance is provided in the interior parking garage of the building; the pedestrian path is striped to distinguish it. |
| <b>Finding: Complies</b>                                                                                                                                                                                                            |
| B.11 Loudspeakers shall comply with all applicable Salt Lake County Health Department ordinances regulating noise.                                                                                                                  |
| <b>Staff Analysis:</b><br>The drive-through will be subject to enforcement action if Salt Lake County Health Department ordinances are violated.                                                                                    |
| <b>Finding: Complies</b>                                                                                                                                                                                                            |



# ATTACHMENT H: Planned Development Standards

**21A.55.050: Standards for Planned Developments:** The planning commission may approve, approve with conditions, or deny a planned development based upon written findings of fact according to each of the following standards. It is the responsibility of the applicant to provide written and graphic evidence demonstrating compliance with the following standards.

The Finding for each standard is the recommendation of the Planning Division based on the facts associated with the proposal, the discussion that follows, and the input received during the engagement process. Input received after the staff report is published has not been considered in this report.

**A. Planned Development Objectives:** The planned development shall meet the purpose statement for a planned development (section 21A.55.010 of this chapter) and will achieve at least one of the objectives stated in said section. To determine if a planned development objective has been achieved, the applicant shall demonstrate that at least one of the strategies associated with the objective are included in the proposed planned development.

The applicant shall also demonstrate why modifications to the zoning regulations are necessary to meet the purpose statement for a planned development. The Planning Commission should consider the relationship between the proposed modifications to the zoning regulations and the purpose of a planned development, and determine if the project will result in a more enhanced product than would be achievable through strict application of the land use regulations.

**Planned Development Purpose Statement:** A planned development is intended to encourage the efficient use of land and resources, promoting greater efficiency in public and utility services and encouraging innovation in the planning and building of all types of development. Further, a planned development implements the purpose statement of the zoning district in which the project is located, utilizing an alternative approach to the design of the property and related physical facilities. A planned development incorporates special development characteristics that help to achieve City goals identified in adopted Master Plans and that provide an overall benefit to the community as determined by the planned development objectives. A planned development will result in a more enhanced product than would be achievable through strict application of land use regulations, while enabling the development to be compatible with adjacent and nearby land developments.

**Discussion:** The proposal meets the Planned Development purpose statement. The existing site is underutilized and the proposal maintains the existing use and adds additional commercial uses and residential units. It also meets master plan policies and initiatives. The Planned Development is necessary to allow for the proposed uses in this location.

**Finding:** ☒ **Meets Purpose Statement** ☐ **Does Not Meet Purpose Statement**

**A. Open Space And Natural Lands:** Preserving, protecting or creating open space and natural lands:

1. Inclusion of community gathering places or public recreational opportunities, such as new trails or trails that connect to existing or planned trail systems, playgrounds or other similar types of facilities.



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| <ol style="list-style-type: none"> <li>2. Preservation of critical lands, watershed areas, riparian corridors and/or the urban forest.</li> <li>3. Development of connected greenways and/or wildlife corridors.</li> <li>4. Daylighting of creeks/water bodies.</li> <li>5. Inclusion of local food production areas, such as community gardens.</li> <li>6. Clustering of development to preserve open spaces.</li> </ol>                                                                                                     |
| <b>Discussion:</b><br>Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Finding:</b> <input type="checkbox"/> Objective Satisfied <input checked="" type="checkbox"/> Objective Not Satisfied                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>B. Historic Preservation:</b> <ol style="list-style-type: none"> <li>1. Preservation, restoration, or adaptive reuse of buildings or structures that contribute to the character of the City either architecturally and/or historically, and that contribute to the general welfare of the residents of the City.</li> <li>2. Preservation of, or enhancement to, historically significant landscapes that contribute to the character of the City and contribute to the general welfare of the City's residents.</li> </ol> |
| <b>Discussion:</b> Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Finding:</b> <input type="checkbox"/> Objective Satisfied <input checked="" type="checkbox"/> Objective Not Satisfied                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>C. Housing:</b> Providing affordable housing or types of housing that helps achieve the City's housing goals and policies: <ol style="list-style-type: none"> <li>1. At least twenty percent (20%) of the housing must be for those with incomes that are at or below eighty percent (80%) of the area median income.</li> <li>2. The proposal includes housing types that are not commonly found in the existing neighborhood but are of a scale that is typical to the neighborhood.</li> </ol>                            |
| <b>Discussion:</b> The proposed development will use the Affordable Housing Incentives. With the incentives, it will provide 5% of the units that will be affordable to those earning up to 30% AMI, which meets the Type C requirement in Section 21A.52.050.                                                                                                                                                                                                                                                                  |
| <b>Finding:</b> <input checked="" type="checkbox"/> Objective Satisfied <input type="checkbox"/> Objective Not Satisfied                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>D. Mobility:</b> Enhances accessibility and mobility: <ol style="list-style-type: none"> <li>1. Creating new interior block walkway connections that connect through a block or improve connectivity to transit or the bicycle network.</li> <li>2. Improvements that encourage transportation options other than just the automobile.</li> </ol>                                                                                                                                                                            |
| <b>Discussion:</b> Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Finding:</b> <input type="checkbox"/> Objective Satisfied <input checked="" type="checkbox"/> Objective Not Satisfied                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>E. Sustainability: Creation of a project that achieves exceptional performance with regards to resource consumption and impact on natural systems:</b> <ol style="list-style-type: none"> <li>1. <b>Energy Use And Generation:</b> Design of the building, its systems, and/or site that allow for a significant reduction in energy usage as compared with other</li> </ol>                                                                                                                                                 |



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| <p><b>buildings of similar type and/or the generation of energy from an on-site renewable resource.</b></p> <p><b>2. Reuse Of Priority Site: Locate on a brownfield where soil or groundwater contamination has been identified, and where the local, State, or national authority (whichever has jurisdiction) requires its remediation. Perform remediation to the satisfaction of that authority.</b></p>                                                                                                                                                                                                                                                                                        |
| <b>Discussion:</b> Not applicable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Finding:</b> <input type="checkbox"/> Objective Satisfied <input checked="" type="checkbox"/> Objective Not Satisfied                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p><b>F. Master Plan Implementation: A project that helps implement portions of an adopted Master Plan in instances where the Master Plan provides specific guidance on the character of the immediate vicinity of the proposal:</b></p> <p><b>1. A project that is consistent with the guidance of the Master Plan related to building scale, building orientation, site layout, or other similar character-defining features.</b></p>                                                                                                                                                                                                                                                             |
| <p><b>Discussion:</b> The proposed development is consistent with the citywide <i>Plan Salt Lake</i> and <i>Housing SLC</i>. It is also consistent with the <i>Sugar House Plan</i>. The proposal is consistent with numerous policies in the plans. The scale of the building is taller than identified in the plan policies, but is permitted by the MU-11 zoning district in conjunction with the affordable housing incentives, and additional height allowances. The proposed building orientation, site layout, mix of uses, and location near transit, infrastructure, and services are consistent with city and neighborhood plans and policies. See discussion in Key Consideration 1.</p> |

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| <p><b>B. Master Plan Compatibility:</b> The proposed planned development is generally consistent with adopted policies set forth in the Citywide, community, and/or small area Master Plan that is applicable to the site where the planned development will be located.</p>                                                                                      |
| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                          |
| <p><b>Discussion:</b> The proposed development is consistent with the citywide <i>Plan Salt Lake</i> and <i>Housing SLC</i>, and the neighborhood plan, the <i>Sugar House Plan</i>. See discussion in Key Consideration 1.</p>                                                                                                                                   |
| <b>Condition(s):</b>                                                                                                                                                                                                                                                                                                                                              |
| <p><b>C. Design And Compatibility:</b> The proposed planned development is compatible with the area the planned development will be located and is designed to achieve a more enhanced product than would be achievable through strict application of land use regulations. In determining design and compatibility, the Planning Commission should consider:</p> |
| <p>1. Whether the scale, mass, and intensity of the proposed planned development is compatible with the neighborhood where the planned development will be located and/or the policies stated in an applicable Master Plan related to building and site design;</p>                                                                                               |
| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                          |



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| <p><b>Discussion:</b> The proposed scale, mass, and intensity of the development is permitted by the MU-11 zoning district in conjunction with the Affordable Housing Incentives</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <p><b>Condition(s): NA</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p>2. Whether the building orientation and building materials in the proposed planned development are compatible with the neighborhood where the planned development will be located and/or the policies stated in an applicable Master Plan related to building and site design;</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <p><b>Finding: Complies</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <p><b>Discussion:</b> The proposed building orientation and building materials are compatible with the neighborhood and policies in city plans, including the Sugar House Plan.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <p><b>Condition(s): NA</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p>3. Whether building setbacks along the perimeter of the development:</p> <ul style="list-style-type: none"> <li>a. Maintain the visual character of the neighborhood or the character described in the applicable Master Plan.</li> <li>b. Provide sufficient space for private amenities.</li> <li>c. Provide sufficient open space buffering between the proposed development and neighboring properties to minimize impacts related to privacy and noise.</li> <li>d. Provide adequate sight lines to streets, driveways and sidewalks.</li> <li>e. Provide sufficient space for maintenance.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p><b>Finding: Complies</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <p><b>Discussion:</b> The proposed building setbacks maintain the visual character of the neighborhood as described in the <i>Sugar House Plan</i>. See Key Consideration 1 for further details. Sufficient space is provided for private amenities and maintenance. There is a large amenity deck on Level 5 that includes a pool and courtyard area. The proposed development provides obstructed “open space” at the percentage required by the MU-11 zoning district. The Planned Development request includes a modification to this requirement since much of the open space is obstructed. Impacts related to privacy and noise are unlikely to be affected by this modification as the building has frontage on three streets, two of which are private. The rear elevation, which abuts the Sugarmont Apartments, has a stepback above the amenity deck level of approximately 16’ and this provides an additional buffer between the units in the two buildings. Below this stepback is a wall, which will not negatively impact the adjacent property in terms of privacy and noise. The proposed development meets the requirements for sight lines to streets, driveways, and sidewalks.</p> |
| <p><b>Condition(s): NA</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p>4. Whether building facades offer ground floor transparency, access, and architectural detailing to facilitate pedestrian interest and interaction;</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |



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| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Discussion:</b> The building facades offer ground floor transparency, access, and architectural detailing. The building faces Highland Drive and has frontage along streets to the north and south. The ground floors have 38% non-obscured glass and there are entries on Highland and Sugarmont Drives for the respective businesses and to access the hotel and residential units on the upper stories. Architectural detailing on the building includes the variety of materials from the cast stone on the ground floor to the decorative tensile mesh on the parking levels, and the combination of glass and metal panels on the hotel and residential levels. The materials on the hotel and residential levels wrap all sides of the building and provide visual interest when approaching the building and from greater distances. |
| <b>Condition(s): NA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 5. Whether lighting is designed for safety and visual interest while minimizing impacts on surrounding property;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Discussion:</b> The proposed lighting will be reviewed with the administrative design review application. It will meet the required standards, or, if a modification is necessary, meet the required design review standards.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Condition(s): NA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 6. Whether dumpsters, loading docks and/or service areas are appropriately screened;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Discussion:</b> The dumpsters, loading berth, and other service areas are located internal to the building and meet the required standards.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Condition(s): NA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 7. Whether parking areas are appropriately buffered from adjacent uses.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Discussion:</b> The parking areas are located internal to the building and will not impact adjacent uses.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Condition(s): NA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

**D. Landscaping:** The proposed planned development preserves, maintains or provides native landscaping where appropriate. In determining the landscaping for the proposed planned development, the Planning Commission should consider:



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| 1. Whether mature native trees located along the periphery of the property and along the street are preserved and maintained;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Discussion:</b> There are not mature, native trees on the property. Street trees must be maintained as required by urban forestry.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Condition(s): NA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 2. Whether existing landscaping that provides additional buffering to the abutting properties is maintained and preserved;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Discussion:</b> There is not existing landscaping that provides buffering to the abutting properties.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Condition(s): NA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 3. Whether proposed landscaping is designed to lessen potential impacts created by the proposed planned development;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Discussion:</b> The proposed landscaping will have additional park strip plantings in excess of those currently in place. There will also be additional plantings on the west portion of the south elevation along Sugarmont Drive. The street trees will likely provide additional shade in the future. The park strip plantings will improve the buffer between pedestrians and the roadway. One of the applicant's requests with the Planned Development is to reduce the required open space. Additional open space could lessen potential impacts of the development. However, the applicant is proposing significant amenity areas above grade that will provide "open space" for residents. |
| <b>Condition(s): NA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 4. Whether proposed landscaping is appropriate for the scale of the development.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Discussion:</b> The proposed landscaping is appropriate for the scale of the development, especially as the building covers 95% of the lot.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>E. Mobility:</b> The proposed planned development supports Citywide transportation goals and promotes safe and efficient circulation within the site and surrounding neighborhood. In determining mobility, the Planning Commission should consider:                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 1. Whether drive access to local streets will negatively impact the safety, purpose and character of the street;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

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| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Discussion:</b> The applicant has worked with Transportation and provided a traffic impact study (TIS) to assess the impact of the proposal on the surrounding area. Transportation identified that the TIS indicates that the project will have a negligible impact on the nearby intersections. Transportation does not recommend installing physical barriers in the right-of-way to enforce turn restrictions as they would narrow travel lanes and/or the methods are frequently ignored or damaged. |
| <b>Condition(s): NA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2. Whether the site design considers safe circulation for a range of transportation options including: <ul style="list-style-type: none"> <li>a. Safe and accommodating pedestrian environment and pedestrian oriented design;</li> <li>b. Bicycle facilities and connections where appropriate, and orientation to transit where available; and</li> <li>c. Minimizing conflicts between different transportation modes;</li> </ul>                                                                         |
| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Discussion:</b> The proposal will maintain the existing sidewalk and trail widths. The applicant is providing the required bicycle parking, including many secure spaces. Conflicts between drivers and pedestrians and cyclists can be minimized with signage that can be reviewed with the building permit application.                                                                                                                                                                                 |
| <b>Condition(s): NA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 3. Whether the site design of the proposed development promotes or enables access to adjacent uses and amenities;                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Discussion:</b> The subject property fronts public or private streets on three sides. Sidewalks and the trail connect to adjacent properties and provide access to those uses and amenities.                                                                                                                                                                                                                                                                                                              |
| <b>Condition(s): NA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 4. Whether the proposed design provides adequate emergency vehicle access;                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Discussion:</b> The proposal is required to comply with all department requirements, including fire code requirements.                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Condition(s): NA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 5. Whether loading access and service areas are adequate for the site and minimize impacts to the surrounding area and public rights-of-way.                                                                                                                                                                                                                                                                                                                                                                 |



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| <b>Finding: Complies</b>                                                                                                     |
| <b>Discussion:</b> The proposed loading access and service areas meet requirements and are located internal to the building. |
| <b>Condition(s): NA</b>                                                                                                      |

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| <b>F. Existing Site Features:</b> The proposed planned development preserves natural and built features that significantly contribute to the character of the neighborhood and/or environment.                                               |
| <b>Finding: Complies</b>                                                                                                                                                                                                                     |
| <b>Discussion:</b> The existing site includes a Zions Bank, minimal landscaping, and a relatively large paved area/parking lot. The existing building does not significantly contribute to the character of the neighborhood or environment. |
| <b>Condition(s): NA</b>                                                                                                                                                                                                                      |

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| <b>G. Utilities:</b> Existing and/or planned utilities will adequately serve the development and not have a detrimental effect on the surrounding area.                                                                                               |
| <b>Finding: Complies</b>                                                                                                                                                                                                                              |
| <b>Discussion:</b> The applicant has been working with Public Utilities and Rocky Mountain Power and has made modifications based on their requirements. The proposal will need to comply with all requirements from other divisions and departments. |
| <b>Condition(s): NA</b>                                                                                                                                                                                                                               |

# ATTACHMENT I: Conditional Use Standards

## Conditional Use Standards

An application for a conditional use is required by Chapter 21A.54 and Utah Code 10-9a-507 to be approved if the proposal complies with the adopted standards of review and if any reasonably anticipated detrimental impact can be mitigated. Under Utah Code 10-9a-507, the standards must be objective and mitigating any reasonably anticipated detrimental impact is required to be interpreted to mean reduce, not eliminate, the impact.

The Finding for each standard is the recommendation of the Planning Division based on the facts associated with the proposal, the discussion that follows, and the input received during the engagement process. Input received after the staff report is published has not been considered in this report.

| 21A.54.080.A: Approval Standards                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <b>Standard 1:</b> The use complies with applicable provisions of this title;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Discussion:</b><br>The proposed use is within the MU-11 Mixed Use 11 zoning district which allows for a financial institution with drive-through facilities to be approved through the conditional use process. The proposal complies with the applicable zoning regulations, the conditional use standards, and the standards for drive-through facilities and vehicle stacking areas.                                                                                                                                                                                                                                                                                                                                         |
| <b>Standard 2:</b> The use is compatible, or with conditions of approval can be made compatible, with surrounding uses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Discussion:</b><br>To the north of the subject property is the Residences at Sugar Alley, which includes first-floor commercial uses in addition to multi-family apartments. To the south is the former Deseret Industries building that is now owned by the Community Reinvestment Agency. To the east is a shopping center, which includes a UPS Store and Tsunami, and to the west are the Sugarmont Apartments. Zions Bank has been operating as a financial institution with drive-through facility at this location since at least 1979, with surrounding uses having developed in the context of the existing drive-through. The proposed conditional use will represent a continuation of a previously established use. |
| <b>Standard 3:</b> The use is consistent with applicable adopted city planning policies, documents, and master plans; and                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Finding: Complies</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |



**Discussion:**

The Sugar House Master Plan classifies 2200 S Highland Drive as “Business District Mixed Use – Town Center Scale”. Town Center Scale Mixed Use as focused “around a transit/pedestrian oriented commercial/retail with a strong street presence with a strong street presence; wide sidewalks, street furnishings, lighting and landscaping or a delineated and developed open space system of the same character”. The proposed financial institution with drive-through facility features both transit and pedestrian access while also featuring wide sidewalks with landscaping. The proposed use is consistent with applicable adopted city planning policies, documents, and master plans.

**Standard 4:** The anticipated detrimental effects of a proposed use can be mitigated by the imposition of reasonable conditions

**Finding: Complies****Discussion:**

Staff does not anticipate any detrimental effects caused by the proposed use which would warrant conditions. A Traffic Impact Study (TIS) has been provided by the applicant and reviewed by the Transportation Division. The TIS indicates that the project will have a negligible impact on the surrounding transportation network, with a projected increase in vehicle delay of less than one second per vehicle at adjacent intersections.

**21A.54.080.B: Detrimental Effects Determination****1. This title specifically authorizes the use where it is located;****Finding: No Detrimental Impact****Discussion:**

The proposed use is listed as a conditional use in the applicable land use table.

**2. The use is consistent with applicable policies set forth in adopted citywide, community, and small area master plans and future land use maps;****Finding: No Detrimental Impact****Discussion:**

See discussion of Standard 21A.54.080.A.3 above. The proposed use is consistent with applicable policies set forth in adopted citywide, community, and small area master plans and future land use maps.

**3. The use is well suited to the character of the site, and adjacent uses as shown by an analysis of the intensity, size, and scale of the use compared to existing uses in the surrounding area;**

**Finding: No Detrimental Impact****Discussion:**

The proposed use will not alter the current site in terms of scale and size, as it is replacing an existing financial institution with drive-through facility. The use is thus well-suited to the character of the site and uses in the surrounding area.

**4. The mass, scale, style, design, and architectural detailing of the surrounding structures as they relate to the proposed have been considered;**

**Finding: No Detrimental Impact****Discussion:**

The financial institution with drive-through will be situated on the ground floor of a 16-story mixed-use building with approximately 191 hotel and residential units above. The overall building design is subject to Design Review and Planned Development approvals, however, the design as presented is consistent with the contemporary podium-style construction of the surrounding structures.

**5. Access points and driveways are designed to minimize grading of natural topography, direct vehicular traffic onto major streets, and not impede traffic flows;**

**Finding: No Detrimental Impact****Discussion:**

Existing and proposed vehicle access is provided via Highland Drive to the east. Both exits onto Highland Drive will be marked as right-out only to properly direct vehicular traffic and minimize any potential impacts on traffic flow.

**6. The internal circulation system is designed to mitigate adverse impacts on adjacent property from motorized, nonmotorized, and pedestrian traffic;**

**Finding: No Detrimental Impact****Discussion:**

The project proposes two access points on Highland Drive. The south access is proposed to serve only as the bank drive-through exit and will be limited to right-out only. The north access will serve all other residential and commercial traffic. Due to the proximity to the traffic signal at Highland Drive and Wilmington Ave, the exit will be limited to right-in/right-out access only and will serve all commercial and residential site traffic other than the drive-through exit.

**7. The site is designed to enable access and circulation for pedestrian and bicycles;**

**Finding: No Detrimental Impact****Discussion:**



Pedestrian access is provided via sidewalks to entrances along Highland Drive on the east, as well as a walk-up ATM. Bicycle access to the site is provided via Highland Drive to the east and Sugarmont Drive to the south. There are 10 existing bicycle racks and the applicant is proposing to install 16 publicly accessible bicycle racks on the exterior.

**8. Access to the site does not unreasonably impact the service level of any abutting or adjacent street;**

**Finding: No Detrimental Impact**

**Discussion:**

The Transportation Department has reviewed the request and has indicated they have no concerns with the ability of nearby public roads to handle increased traffic or access to the site.

**9. The location and design of off street parking complies with applicable standards of this code;**

**Finding: No Detrimental Impact**

**Discussion:**

Off-street parking is proposed to be provided on the ground level of the parking garage and provides for more parking stalls than are required for the proposed use.

**10. Utility capacity is sufficient to support the use at normal service levels;**

**Finding: No Detrimental Impact**

**Discussion:**

Public Utilities has reviewed the conditional use petition and has identified no concerns regarding utility capacity.

**11. The use is appropriately screened, buffered, or separated from adjoining dissimilar uses to mitigate potential use conflicts;**

**Finding: No Detrimental Impact**

**Discussion:**

The proposed drive-through will be located entirely within the ground floor of the proposed mixed-use building, thereby separating the drive-through from adjoining uses.

**12. The use meets city sustainability plans, does not significantly impact the quality of surrounding air and water, encroach into a river or stream, or introduce any**

**hazard or environmental damage to any adjacent property, including cigarette smoke;**

**Finding: No Detrimental Impact**

**Discussion:**

As the proposed financial institution with drive-through facility is replacing an existing financial institution with drive-through facility, there will be no change in impact. The TIS indicates that the project will have a negligible impact on the surrounding transportation network, with a projected increase in vehicle delay of less than one second per vehicle at adjacent intersections.

**13. The hours of operation and delivery of the use are compatible with surrounding uses;**

**Finding: No Detrimental Impact**

**Discussion:**

The proposed hours of operation remain unchanged from the existing hours of operation for Zions Bank.

**14. Signs and lighting are compatible with, and do not negatively impact surrounding uses;**

**Finding: No Detrimental Impact**

**Discussion:**

Any signs and lighting will be confined to that necessary to provide safety on the site including for adequate security while being minimized in order to not impact adjacent properties or surrounding uses. Additionally, any proposed signs shall be subject to Section 21A.46.090: Sign Regulations for Mixed Use Districts.

**15. The proposed use does not undermine preservation of historic resources and structures.**

**Finding: No Detrimental Impact**

**Discussion:**

The subject site is not within a national or local historic district nor is it a designated local landmark site.



# ATTACHMENT J: Public Process and Comments

## Public Notice, Meetings, Comments

The following is a list of public meetings that have been held, and other public input opportunities, related to the proposed project since the applications were submitted:

- June 11, 2026 – The Sugar House Community Council was sent the 45-day required notice for recognized community organizations. The Council did not request for staff to attend their meeting.
- June 12, 2026 – Property owners and residents within 300 feet of the development were provided early notification of the proposal.
- June – August, 2026 – The project was posted to the Online Open House webpage.

Notice of the public hearing for the proposal included:

- July 29, 2026
  - Public hearing notice mailed
  - Public notice posted on City and State websites and Planning Division listserv
- July 30, 2026
  - Public hearing notice sign posted on the property

## Public Input:

Staff has received comments from the Sugar House Community Council and members of the public and they are attached.

# ATTACHMENT K: Department Review Comments

## Department Comments

This proposal was reviewed by the following departments. Any requirement identified by a City Department is required to be complied with.

### Planning:

**Contact:** Sara Javoronok, [sara.javoronok@slc.gov](mailto:sara.javoronok@slc.gov), 801-535-7625 & Noah Elmore, [noah.elmore@slc.gov](mailto:noah.elmore@slc.gov), 801-535-7971

If you have engineering plans, please submit them.

Zoning code references can be accessed from here: [Am Legal Zoning Ordinance](#)

21A.25.010.D – MU - Open Space – The open space area identified cannot include drive aisles. For the affordable housing incentives, it can include the 5<sup>th</sup> floor amenity areas. Identify the open space square footage, where it's located, and how it meets the subsections in this standard. Please clarify what the red hatch area is and why this should count towards the open space. Staff is not aware of a dedication of land for the trail. Modification of the open space can be part of the Planned Development request.

21A.25.010.G – MU - General Yard and Setback Provisions – The provided landscape yards must meet the requirements of 21A.48. Identify the percentage of landscaping in the front and corner side yards. Modifying this requirement can be part of the Planned Development request.

21A.25.010.I – MU - Building height is measured from finished grade. Identify finished grade on plans.

Table 21A.25.070.C.2 – MU - The additional height up to 150' requires that at least 10% of the lot shall be open space. Identify the ground level open space and this cannot include drive aisles. Modifying this requirement can be part of the Planned Development request.

21A.37.050 and 21A.37.060 – Design Standards – Identify how these standards are met or request a modification with Design Review. Provide a narrative description or tables that provide the specific percentage, material, etc. Include the following:

- When required, separate ground floor materials and percentages from those on the upper floors.
- Provide material samples in a pdf.
- Provide a description of the “bike café” use.
- Identify location of HVAC equipment and utility meters and how they are screened.
- Identify location of all transformers.

21A.44.060.A.6.9 – Parking – Provide info to confirm that garage doors and vehicle staging standard is met.

21A.48.050 – Landscaping – Provide a summary table identifying that the landscaping plan standards and requirements are met. Modifications to this may be requested with the Planned Development.

21A.55.040.A.3 – Planned Development – Provide a written statement with supporting graphics showing how the proposed planned development is compatible with other property in the neighborhood.

21.54.060.A.7 and 21A.44.080.A.2 – Provide the traffic study as requested.



## **Fire:**

**Seth Hutchinson** – [seth.hutchinson@slc.gov](mailto:seth.hutchinson@slc.gov) 801-535-7164

Here are my comments for this planned development they are the same as what I gave the applicant in DRT:

\*The comments provided are limited to the information that has been submitted. Additional comments may arise as more information is provided, or an official application is made for a building permit. Applicant shall do their own due diligence to ensure that the minimum requirements of all currently adopted construction and life safety codes, standards, and city ordinances are met.

\*Aerial fire apparatus access roadway location must be provided in accordance with Appendix D in the IFC. Aerial access must be a minimum of 26 feet wide excluding curb and gutter, located within 15 and 30 feet from the proposed building, all weather surface, at least 25% of the perimeter of the building, no obstructions including trees powerlines, or anything else, and must meet all the requirements from Appendix D in the IFC.

\*This is a highrise being proposed, and must meet all the requirements from the IFC for such. A fire pump in accordance with Section 913 in the IFC, Secondary water supply complying with Section 914.3.1 and 914.3.2 in the IFC, a fire command center complying with 508.1 in the IFC, and all other IFC requirements for a high Rise.

\*Verify that fire hydrants meet all the requirements from Section 507 and Appendices B and C in the IFC.

\*Fire department access roadways must be provided as required in Section 503 and Appendix D in the IFC. FD access roads must be 20 feet wide, 13 foot 6 inches in clear height, all weather surface capable of supporting 75,000 pounds, and located within 150 feet of all ground level exterior walls of the proposed building.

\*FDC must be on the address side of the building.

\*A Knox Box must be installed, contact SLC Fire Prevention Bureau for information on this, 801-799-4150.

\*Emergency Responder Radio Coverage must meet requirements in Section 510 in the IFC.

Building should be prepped, with conduit run for ERRC system, and tested for Emergency Responder Radio Coverage (ERRC) as required by Section 510 of the IFC. If radio strength throughout the building does not meet the requirements in Section 510 in the IFC, then an ERRC system must be installed to meet code requirements.

\*Reviewed by Seth Hutchinson. If you have any questions email is the preferred method of contact: [seth.hutchinson@slc.gov](mailto:seth.hutchinson@slc.gov), phone (801) 535-7164.

## **Urban Forestry:**

**Rick Nelson** – [rick.nelson@slc.gov](mailto:rick.nelson@slc.gov) 801.972.7839 or 801.972.7818

There are four existing trees in the public ROW parkstrip along Highland Dr that must be preserved. The city code requires trees to be planted in the public ROW at an average rate of one tree for every 30' of street frontage.

## **Police:**

**Andrew Cluff** – [andrew.cluff@slc.gov](mailto:andrew.cluff@slc.gov), 801-799-3805

No public safety concerns.

## **Public Utilities:**

**Kristeen Beitel** – [kristeen.beitel@slc.gov](mailto:kristeen.beitel@slc.gov), 801-483-6733

*The following comments are provided for information only and do not provide official project review or approval.*

*With increased densification, the applicant must consider the potential increase in construction costs resulting from required offsite utility improvements, potentially downstream of the subject property. Densification may place greater demands on water, sewer, and storm drain systems, which could exceed the capacity of the existing infrastructure. Property owners and developers will be required to upgrade the offsite public utilities to ensure sufficient capacity for the new development.*

*The Jordan & Salt Lake City Canal runs through the northeast corner of this property. This is an existing 48" RCP pipe that runs in north/south under the sidewalk along Highland Drive that was installed by 2021. Near the Highland Drive/Wilmington Avenue intersection the canal turns northwest and crosses the subject property via an existing easement. Once the canal gets in the roadway of Wilmington, the canal then turns west. There is also an existing canal diversion structure under the sidewalk near the Highland Drive/Wilmington Avenue intersection that was installed in 2021. There is an existing 24" RCP pipe that connects to the diversion structure from the east that is conveying irrigation water from Sugar House Park. **Any modifications to the existing canal and existing canal easement must be approved by SLCDPU.** Coordination has been ongoing between the property owner and SLCDPU, but no determination has been made. Please continue to coordinate with SLCDPU.*

- Public Utility permit, connection, survey, & inspection fees will apply.
- All utility design & construction must comply with APWA Standards & SLCPU Standard Practices.
- All utilities must meet horizontal and vertical clearance requirements. Water and sewer lines require 10 feet minimum horizontal separation and 18" minimum vertical separation. Sewer must maintain 5 feet minimum horizontal separation and 12" vertical separation from any non-water utilities. Water must maintain 3 feet minimum horizontal separation and 12" vertical separation from any non-sewer utilities.
- Streetlights may be required at a 150-200 foot spacing. The exact type of light will be determined at time of review.
- A Public Utilities Demolition Permit through the Public Utilities Contracts office at 1530 South West Temple, will be required for this project. This is a separate permit from the Building Demolition Permit.
- This property is served by an existing 12" Ductile Iron Pipe (DIP) water main in Highland Drive that was installed in 2023. There is also an existing 6" DIP water main in Sugarmont Drive that was installed in 1973.
- There is an existing 1-1/2" culinary water meter and water service on the east side of the property.
- There is an existing 6" Type K copper fire water service on the south side of the property.
- Any unused water service must be killed at the water main per SLCDPU standards. One culinary water meter & fire lines are permitted per parcel. If the parcel is larger than 0.5 acres, a separate irrigation meter is also permitted. Each service must have a separate tap to the main.
- Applicant must provide fire flow & culinary water demands to SLCPU for review. The public water system will be modeled with these demands. If the demand is not adequately delivered, a water main upsizing will be required at the property owner's expense. Required improvements on the public water system will be determined by the Development Review Engineer. New water mains must cross the entire frontage of the property. A plan & profile & Engineer's cost estimate must be submitted for review. The property owner is required to bond for the amount of the approved cost estimate.
- This property is served by an existing 15" PVC sewer main in Highland Drive that was installed in 2015.



- There is an existing sewer lateral on the east side of the property.
- Any unused sewer laterals must be capped and plugged at the main per SLCDPU standards.
- Applicant must provide sewer demand calculations to SLCPU for review. The expected maximum daily flow (gpd) from the development will be modeled to determine the impacts on the public sewer system. If one or more reaches of the sewer system reach capacity as a result of the development, sewer main upsizing will be required at the property owner's expense. These improvements could be down the line from your project. Required improvements on the public sewer system will be determined by the Development Review Engineer. A plan & profile & Engineer's cost estimate must be submitted for review. The property owner is required to bond for the amount of the approved cost estimate.
- Site stormwater must be collected on site & routed to the public storm drain system. Stormwater cannot discharge across property lines or public sidewalks.
- Stormwater treatment is required prior to discharge to the public storm drain. Utilize stormwater Best Management Practices (BMPs) to remove solids & oils. Green infrastructure should be used whenever possible. Sand/oil separators are commonly used to treat stormwater runoff from uncovered parking areas (if more than 7 uncovered parking stalls).
- If the lot is over one acre, then stormwater detention is required. The allowable release rate is 0.2 cfs per acre. Detention must be sized using the 100-year 3-hour design storm using the farmer Fletcher rainfall distribution. Provide a complete Technical Drainage Study including all calculations, figures, model output, certification, summary & discussion.
- Green Infrastructure & LID treatment of stormwater is a design requirement & required by the Salt Lake City UPDES permit for Municipal Separate Storm Sewer System (MS4). This permit was updated with this requirement in June 2021. The applicant will need to provide options for stormwater treatment & retention for the 80<sup>th</sup> percentile storm. If additional property is not available, there are other options such as green roof, or other best management practices. Lack of room or cost is generally not an exception for this requirement.
- The existing streetlights will be required to remain lit during the construction. If damaged the contractor will be required to fix the streetlight to meet the current SLCDPU Standards at developers' expense.

### **Building Code:**

**Steven Collett – [Steven.Collett@slc.gov](mailto:Steven.Collett@slc.gov), 385-261-3615**

No specific Building Code comments in regard to the Planned Development

All future construction within the corporate limits of Salt Lake City shall be per the State of Utah adopted construction codes and to include any state or local amendments to those codes. RE: Title 15A State Construction and Fire Codes Act.

Existing structures on adjacent parcels shall not be made less complying to the construction codes because of the development and/or construction.

Any building code corrective action comments will be posted under the building permit application review.

### **Transportation:**

**Jena Carver – [jena.carver@slc.gov](mailto:jena.carver@slc.gov), 801-573-5058**

A Traffic Impact Study (TIS), prepared by Kimley-Horn and Associates, was reviewed by the Transportation Division in March 2026. The study evaluated existing and future vehicle delay and queue lengths at adjacent intersections for the project's opening year (2028) and a future horizon year (2032).

The TIS indicates that the project will have a negligible impact on the surrounding network, with a projected increase in vehicle delay of less than one second per vehicle at adjacent signalized and stop controlled intersections. Queuing lengths are expected to remain within acceptable limits through the 2032 horizon year.

The project proposes two access points on Highland Drive. The south access is proposed to serve only as the bank drive-through exit and will be limited to right-out only. The north access will serve all other residential and commercial traffic. Due to the proximity to the traffic signal at Highland Drive and Wilmington Ave, this exit will be limited to right-in/right-out access only and will serve all commercial and residential site traffic other than the drive through exit.

While the TIS suggests physical barriers (such as concrete medians or delineators) to enforce left turn restrictions, Transportation recommends against the installation of physical measures within the public right-of-way. A raised median would narrow travel lanes on Highland Drive below standard safety widths and flexible delineators and striping are frequently damaged or ignored and do not provide a permanent solution for non-compliant left turns. Transportation recommends that the applicant utilize on-site directional signage to encourage compliance with the right-in/right-out provision without compromising the Highland Drive cross-section. These measures can be reviewed and implemented with the building permit application.