# Chick-fil-A Restaurant <br> Planned Development Amendment PLNSUB2010-00112 1206 E 2100 South <br> Public Hearing: July 14, 2010 



Planning Division Department of Community \& Economic Development

## Applicant:

Deborah Kerr, Kerr Project Services, INC.

## Staff:

Michael Maloy, (801) 535-7118 michael.maloy@slcgov.com
Tax ID:
16-20-229-050-0000

## Current Zone:

CSHBD1 Sugar House Business District

## Lot Size:

$0.64 \pm$ acres ( $\approx 27,858 \mathrm{ft}^{2}$ )

## Master Plan Designation:

Business District Mixed Use - Town Center Scale Sugar
House Master Plan (published October 2005)
Council District:
District 7 - Søren D. Simonsen

## Community Council:

Sugar House Community Council - Philip Carlson, Chair

## Current Use:

Restaurant

## Applicable Land Use Regulations:

- Section 21A.26.060 CSHBD Sugar House Business District
- Chapter 21A. 55 Planned Development


## Notification:

- Notice mailed July 1, 2010
- Sign posted July 1, 2010
- Posted to Planning Division and Utah State Public Meeting websites July 1, 2010


## Attachments:

A. Development Plans
B. Letter to Planning Commission
C. Summary of CSHBD1 Compliance
D. Landscape Plan
E. Architectural Elevations \& Rendering
F. Citizen Comments
G. Department Comments
H. Traffic Impact Study
I. Sugar House Business District Design Guideline Handbook
J. Summary of Sugar House Design Compliance

## Request

The applicant, Deborah Kerr, requests preliminary approval to amend a commercial planned development located at 1206 E 2100 South. The purpose for the amendment is to demolish an existing restaurant, Lone Star Steakhouse, to construct a new restaurant, Chick-filA, with drive through service.

## Recommendation

Staff recommends the Planning Commission find Petition PLNSUB2010-00112 for a planned development amendment to demolish an existing restaurant and construct a new restaurant with drive through service to be a "major modification not in substantial compliance with the approved development plan. Furthermore, based upon findings contained within the staff report, staff recommends approval subject to compliance with the following conditions:

1. The proposed development is subject to compliance with all prior Planning Commission conditions of approval from May 15, 1997.
2. The proposed development is subject to compliance with all applicable Department Comments and City regulations.
3. Applicant shall re-orient principal building façade and entrance toward 2100 South in compliance with City policies.
4. Applicant shall relocate drive-through lane to the rear or side of the principal building, and shall not be located between the principal building and 2100 South.
5. Applicant shall install and maintain a sufficient layer of organic mulch within all plant beds to reduce heat and improve plant nutrition.
6. Where possible, additional accent lighting of architectural and landscape features is encouraged.
A. Property owner shall actively participate in the "Idle Free Utah" campaign and promote its message to employees and customers.

## Vicinity Map



## Background

## Project Description

The applicant, Deborah Kerr, requests approval to amend a commercial planned development located at 1206 E 2100 South. The purpose for the amendment is to demolish an existing restaurant, Lone Star Steakhouse, to construct a new restaurant, Chick-fil-A, with drive through service (see Attachment A - Development Plans). Although the project is located within a planned development, the developer intends to comply with all applicable City Codes (see Attachment B - Letter to Planning Commission and Attachment C - Summary of CSHBD1 Compliance).

The existing planned development, which includes the Homestead Studio Suites located at 1220 E 2100 South, was approved by the Planning Commission on May 15, 1997, subject to the following conditions:

1. Establishment of cross over easements for public pedestrian access on pedestrian corridors as approved through Conditional Use 410-247;
2. Establishment of cross over easements for vehicle access to Lot 3 for the purposes of property management and maintenance of Parley's Creek Open Space Corridor, emergency access and flood control maintenance by City, County, or designated private firms for individuals in the performance of work for the City or County;
3. That the final landscape plans within the development as a whole maintain an appropriate level of landscaping;
4. That pedestrian walks location and materials are appropriate;
5. That building materials and design are appropriate for Sugar House Business District and relates to pedestrian scale;
6. That Lot 4 be made available to Salt Lake City through acquisition or other means for public space as part of the Parley's Creek Open Space Corridor; and
7. That final development plans including landscaping, hard surfacing, pedestrian corridors, building design materials and design relationships of site plan to adjacent developments be approved by the Planning Commission Design Review Committee.

For reference, the subject property is Lot 1 of the Homestead Village Subdivision. As previously required by the Planning Commission, all existing "cross over easements for public pedestrian access on pedestrian corridors" and "cross over easements for vehicle access" will be maintained within the proposed development.

The subject property is zoned CSHBD1 Sugar House Business District and surrounded by commercial uses. The proposed restaurant and drive through are permitted uses in the CSHBD1 District. The proposal consists of one principal building that contains approximately 4,245 square feet, one accessory structure for storage of equipment and a dumpster, and one parking lot with approximately 22 parking spaces (see Attachment D Landscape Plan).

The proposed restaurant is adjacent to 2100 South Street. The front façade contains two outdoor patios and a porte-cochere that covers a portion of a single drive-through lane, which wraps around the restaurant. However, the primary entrance into the building is on the east side, adjacent to the proposed parking lot (see Attachment E - Architectural Elevations \& Rendering).

## Public Participation

## Public Comments

Staff received three letters from citizens prior to publication of this staff report. Two of the letters urge the Planning Commission to deny the petition based on negative traffic impacts, public safety concerns, and
insufficient pedestrian orientation. One letter urges the Planning Commission to approve the petition based on the applicant's "desire to work with the community" (see Attachment F - Citizen Comments).

## Community Council Comments

The applicant presented the planned development amendment to the Sugar House Community Council on May 5, 2010. During the meeting, several members of the Community Council expressed concerns regarding traffic impacts, public safety, and building orientation. As of publication of this staff report, staff had not received a written summary on the petition from the Sugar House Community Council.

## City Department Comments

Comments were solicited from all applicable City Departments and Divisions on April 5, 2010. All respondents recommended approval subject to compliance with City regulations and policies (see Attachment G Department Comments).

## Analysis and Findings

Whereas the petition includes demolition of an existing structure previously approved by the Planning Commission as the Homestead Village planned development, and construction of a new principal structure, Wilf Sommerkorn, Planning Director, determined the petition represents a "major modification" to the planned development. According to City Code 21A.55.160.C, the Planning Commission may determine whether or not the major modification "is in substantial conformity with the approved development plan." If not, the Planning Commission "shall review the request in accordance with the procedures set forth in the (Planned Development) section."

In the event that the Planning Commission determines the petition is a "major modification...not in substantial conformity with the approved development plan," staff has prepared the following analysis and findings based on applicable standards for planned developments.

City Code 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:
A. Planned Development Objectives: The planned development shall meet the purpose statement for a planned development and will achieve at least one of the objectives stated in said section;

Analysis: City Code 21A.55.010 provides the following purpose statement and objectives for planned developments:

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 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 and congruous with adjacent and nearby land developments. Through the flexibility of the planned development regulations, the city seeks to achieve any of the following specific objectives:
A. Combination and coordination of architectural styles, building forms, building materials, and building relationships;
B. Preservation and enhancement of desirable site characteristics such as natural topography, vegetation and geologic features, and the prevention of soil erosion;
C. Preservation of buildings which are architecturally or historically significant or contribute to the character of the city;
D. Use of design, landscape, or architectural features to create a pleasing environment;
E. Inclusion of special development amenities that are in the interest of the general public;
F. Elimination of blighted structures or incompatible uses through redevelopment or rehabilitation;
G. Inclusion of affordable housing with market rate housing; or
H. Utilization of "green" building techniques in development.

Finding: Staff finds the petition "is intended to encourage the efficient use of land and resources" and generally utilizes "design, landscape, and architectural features to create a pleasing environment." The applicant also intends to utilize "green" building techniques in the development. However, because the petition is not strictly compliant with the Sugar House Business District Design Guideline Handbook (see page 9 for further analysis), staff does not find the "planned development (as proposed) 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 and congruous with adjacent and nearby land developments."
B. Master Plan and Zoning Ordinance Compliance: The proposed planned development shall be:

1. Consistent with any adopted policy set forth in the citywide, community, and/or small area master plan and future land use map applicable to the site where the planned development will be located, and
2. Allowed by the zone where the planned development will be located or by another applicable provision of this title.

Analysis: The Sugar House Future Land Use Map identifies the property as Business District Mixed Use Town Center Scale, which is intended for "retail, commercial, and office uses with a broad mix of small and large tenants." Although the proposed land use is consistent with the future land use designation, and the proposal achieves many of the stated policies of the Sugar House Community Master Plan (SHCMP), staff questions compliance with the following policies:

- Honoring the historic scale and mass of buildings along 2100 South and 1100 East (italics added for emphasis, SHCMP, page 4);
- Incorporate pedestrian orientation and pedestrian amenities into development alternatives (italics added for emphasis, SHCMP, page 4);
- Require buildings to address the public-right-of-way with a pedestrian orientation, including a minimum percentage of non-reflective glass and entrances facing the street (italics added for emphasis, SHCMP, page 7);
- Reduce the number of opportunities where pedestrian and automobile routes intersect (italics added for emphasis, SHCMP, page 7);

Although the proposed building appears to reflect the historic scale of commercial architecture, it's massing and placement does not. Because of building design, setback, and a prominent drive-through, the development is arguably not "pedestrian oriented" but "auto oriented." This is further emphasized by the fact that the primary building entrance does not face 2100 South, which again is contrary to stated policy. Lastly, both pedestrian connections from 2100 South cross the proposed drive through lane, which design fails to achieve the stated policy.

As stated previously, the proposed use is allowed within the CSHBD1 Sugar House Business District, which the property is zoned.

Finding: The proposed use is consistent with the Sugar House Future Land Use Map and is allowed within the CSHBD1 District; however it does not achieve all of the applicable SHCMP policy statements.
C. Compatibility: The proposed planned development shall be compatible with the character of the site, adjacent properties, and existing development within the vicinity of the site where the use will be located. In determining compatibility, the planning commission shall consider:

1. Whether the street or other means of access to the site provide the necessary ingress/egress without materially degrading the service level on such street/access or any adjacent street/access;
2. Whether the planned development and its location will create unusual pedestrian or vehicle traffic patterns or volumes that would not be expected, based on:
a. Orientation of driveways and whether they direct traffic to major or local streets, and, if directed to local streets, the impact on the safety, purpose, and character of these streets;
b. Parking area locations and size, and whether parking plans are likely to encourage street side parking for the planned development which will adversely impact the reasonable use of adjacent property;
c. Hours of peak traffic to the proposed planned development and whether such traffic will unreasonably impair the use and enjoyment of adjacent property.
3. Whether the internal circulation system of the proposed planned development will be designed to mitigate adverse impacts on adjacent property from motorized, non-motorized, and pedestrian traffic;
4. Whether existing or proposed utility and public services will be adequate to support the proposed planned development at normal service levels and will be designed in a manner to avoid adverse impacts on adjacent land uses, public services, and utility resources;
5. Whether appropriate buffering or other mitigation measures, such as, but not limited to, landscaping, setbacks, building location, sound attenuation, odor control, will be provided to protect adjacent land uses from excessive light, noise, odor and visual impacts and other unusual disturbances from trash collection, deliveries, and mechanical equipment resulting from the proposed planned development; and
6. Whether the intensity, size, and scale of the proposed planned development is compatible with adjacent properties.

If a proposed conditional use will result in new construction or substantial remodeling of a commercial or mixed used development, the design of the premises where the use will be located shall conform to the conditional building and site design review standards set forth in chapter 21A. 59 of this title.

Analysis: Although not required by the Salt Lake City Transportation Division, the applicant provided a Traffic Impact Study (see Attachment H - Traffic Impact Study). Kevin Young, Transportation Planning Engineer, reviewed the report and found that the proposed street access, which is from an existing drive approach on 2100 South, and parking lot is sufficient for the development (see Attachment G - Department Comments).

With regard to public services, Justin Stoker, Engineer IV with Public Utilities Department, stated "no objection to the current proposal." With regard to "appropriate buffering" and compatibility with adjacent uses, the property is surrounded by existing commercial uses and the proposed use is similar to the existing use.

Finding: With respect to vehicle access, vehicle circulation, parking area, utility services, and buffering standards, staff finds the proposed planned development compatible with the character of the site, adjacent properties, and existing development within the vicinity of the site where the use will be located. Furthermore, the proposed use, restaurant with drive through, is a permitted use within the CSHBD1 District. However, because the proposal includes drive-through service, staff recommends the property owner actively participate in the "Idle Free Utah" campaign and promote its message to employees and customers.
D. Landscaping: Existing mature vegetation on a given parcel for development shall be maintained. Additional or new landscaping shall be appropriate for the scale of the development, and shall primarily consist of drought tolerant species;

Analysis: The applicant intends to maintain the existing landscape islands and streetscape where most of the mature vegetation is located. Landscaping located adjacent to the existing restaurant will be removed and replaced with primarily drought tolerant species. However, staff recommends installation of organic mulch rather than the proposed gravel mulch to reduce heat and improve plant nutrition.

Finding: The existing mature vegetation on the subject property shall be maintained and additional or new landscaping shall be appropriate for the scale of the development, and shall primarily consist of drought tolerant species.
E. Preservation: The proposed planned development shall preserve any historical, architectural, and environmental features of the property;

Analysis: As stated previously, the proposed planned development is to demolish an existing restaurant, which was permitted for construction on March 23, 1998. The existing building is not considered as historically or architecturally significant. With regard to environmental features, the property abuts an existing pedestrian path to the Hidden Hollow Nature Preserve, which access will not be restricted by the proposed development.

Finding: The proposed planned development will not impact any historical or architecturally significant structure, and will maintain access to the Hidden Hollow Nature Preserve.
F. Compliance with Other Applicable Regulations: The proposed planned development shall comply with any other applicable code or ordinance requirement.

Analysis: The subject property is located within the CSHBD1 District. As such, the proposed development is subject to compliance with additional regulations listed below.

Finding: Based upon a review of other applicable codes, staff does not find the petition wholly compliant with applicable regulations (see following discussion).

City Code 21A.55.090: Specific Standards for Planned Development in Certain Zoning Districts: Planned developments within the TC-75, RB, R-MU, MU, CN, CB, CSHBD districts, South State Street corridor overlay district and CS district (when the CS district is adjacent to an area of more than 60 percent residential zoning located within 300 feet of the subject parcel to be developed, either on the same block or across the street), may be approved subject to consideration of the following general conceptual guidelines (a positive finding for each is not required):

## A. The development shall be primarily oriented to the street, not an interior courtyard or parking lot;

Analysis: The primary entrance into the proposed restaurant is on the east façade, adjacent to the parking lot. Although the applicant has included architectural features along 2100 South, such as a porte-cochere and two small patios, staff does not agree with the applicant that the design will create a "strong street presence."

Finding: Although the front façade does include additional architectural detailing, the development is not primarily oriented to the street.

## B. The primary access shall be oriented to the pedestrian and mass transit;

Analysis: The development provides direct pedestrian access from 2100 South Street, and is located immediately adjacent to a Utah Transit Authority bus stop. Furthermore, the proposed development will maintain an existing pedestrian path from an adjacent hotel, the Homestead Village.

Finding: The primary access is oriented to the pedestrian and mass transit; however the proposed pedestrian pathways through the drive-through lane are discouraged by the SHCMP.

## C. The facade shall maintain detailing and glass in sufficient quantities to facilitate pedestrian interest and interaction;

Analysis: As summarized in the Petition Narrative, the proposal does include $41 \%$ non-reflective glass along the front façade, pedestrian paths from adjacent land uses, and two patios for outdoor dining. However, due to the location of the drive through, the primary building façade is setback approximately 21 feet from the property line, which will diminish pedestrian interest and interaction.

Finding: Although the building façade does contain appropriate amounts of glass and pedestrian access, the building setback is not conducive to facilitate pedestrian interest and interaction.

## D. Architectural detailing shall emphasize the pedestrian level of the building;

Analysis: The proposed building is essentially a single-story structure with additional height to screen roof mounted mechanical systems and create visual interest. Overall height is approximately 25 feet. As such, the proposed building is pedestrian in scale.

Finding: Proposed architectural detailing emphasizes the pedestrian level of the building.
E. Parking lots shall be appropriately screened and landscaped to minimize their impact on the neighborhood;

Analysis: The proposed development will utilize the existing parking lot and maintain most of the existing mature landscaping located within and around the subject property. The applicant also intends to retain an existing masonry wall that screens a portion of the parking lot. As stated previously, all surrounding land uses are commercial in nature.
F. Finding: The proposed parking lot shall be appropriately screened and landscaped to minimize their impact on the neighborhood.

## G. Parking lot lighting shall be shielded to eliminate excessive glare or light into adjacent neighborhoods;

Analysis: The applicant has stated that all lighting will be downward oriented and will use appropriate "cut-off" shields to prevent light glare. However, staff encourages installation of low powered accent lighting for architectural and landscape features.

Finding: Parking lot lighting shall be shielded to eliminate excessive glare or light into adjacent neighborhoods.

## H. Dumpsters and loading docks shall be appropriately screened or located within the structure; and

Analysis: The proposed development includes a separate, masonry enclosure to store a trash dumpster and other maintenance equipment. The proposed development does not include a loading dock.

Finding: The dumpster shall be appropriately screened or located within the structure.

## I. Signage shall emphasize the pedestrian/mass transit orientation.

Analysis: The development includes a monument sign constructed of building materials identical with the proposed restaurant. Wall mounted signs are primarily comprised of individual channel letters with smaller cabinet or "box" signs. Way-finding signage will be pedestrian in scale and visible from mass transit services.
J. Finding: Signage shall emphasize the pedestrian/mass transit orientation.

City Code 21A.26.060. C. Conformance with Adopted Business District Design Guideline Handbook: All new construction of principal buildings and additions that increase the off street parking requirement shall be subject to and shall conform with the adopted business district design guidelines handbook located as an appendix section in the Sugar House master plan.

Analysis: The Sugar House Business District Design Guideline Handbook contains 12 design categories and approximately 111 separate policies (see Attachment I - Sugar House Business District Design Guideline Handbook). In response, the applicant submitted a "summary" of compliance with these policies (see Attachment J - Summary of Sugar House Business Design Compliance). Although staff finds the proposal to be compliant with most of the stated policies, the petition is deficient with the following:

## Pedestrian/Bicycle System Design Guidelines

- Provide proper separation of pedestrian and vehicular movement at a scale that encourages activity and pedestrian comfort (italics added for emphasis, SHCMP, page 22).
- Orient public entrances to the street. Functional entrances every 30 linear feet is desirable (italics added for emphasis, SHCMP, page 22).
- Require continuous street frontages except for driveways, plazas and walkways that allow the pedestrian to get to parking located behind buildings (italics added for emphasis, SHCMP, page 22).


## Vehicular Circulation and Parking Design Guidelines

- Design interior drives and parking lots so that pedestrian, service, and vehicular conflicts are minimized (italics added for emphasis, SHCMP, page 23).


## Building Architecture and Siting

- Require the general pattern of buildings to include and emphasize the importance of public gathering spaces and pedestrian connections (italics added for emphasis, SHCMP, page 23).
- Consider the relationship of building forms to one another and to other elements of the Sugar House area so the effects will be complimentary and harmonious (italics added for emphasis, SHCMP, page 23).
- Orient buildings that are adjacent to the street, towards the street and promote a high quality image for each project (italics added for emphasis, SHCMP, page 23).

Finding: Although the proposal is largely compliant with the adopted Sugar House Business Design Guideline Handbook, staff does not find the proposal compliant with significant policies relative to pedestrian oriented design and building orientation.

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2100 \text { SOUTH STREET }
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I PRELIMINARY SITE PLAN



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## 6. DRIVE - THRU WINDOW



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7. STOREFRONT NOTES:
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 8. STUCCO:
 9. STUCCO COLORS




I. METAL AWNING:




14. ATTIC ACCESS PANEL:





2100 SOUTH STREET


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## rrigation notes










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(\%) POP-UP SPRAY SPRRNKLER

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$\left(\begin{array}{c}\text { c } \\ 120 \\ ) \\ \text { CONTROL VALVE }\end{array}\right.$

(B) IRRIGATION CONTROLLER SCIIE Mont







Chick-fil-A, Inc.
16 Technology Drive
Suite 148
Irvine, California 92618
Telephone Toll-free 888 CFA-WEST (888 232-9378)
www.chick-fil-a.com

July 7, 2010
City of Salt Lake City
Members of the Planning Commission
451 South State Street
Salt Lake City, UT 84114
Subject: Planned Development Objectives
Proposed Chick-fil-A/Sugar House
PLNSUB2010-00112
Honorable Members of the Commission:
In accordance with City Code 21A.55.101, the following identifies specific objectives that this application for a new Chick-fil-A restaurant will achieve:

1. The proposed Planned Development Amendment preserves the original site plan layout for this project (Homestead Village and restaurant). The existing plan has a single access off 2100 South, efficient parking fields for both businesses (no conflicts with the right-of-way) and pedestrian access to the proposed restaurant. The 9'0" pedestrian corridor easement for access to Hidden Hollow from 2100 South is preserved on the western boundary of the property.
2. The existing mature street front and on site parking lot trees and landscaping will be preserved as part of the proposed development. A new landscape palette using all drought tolerant plans to create a pleasing environment surrounding the building are proposed.
3. Chick-fil-A has adopted the following "green" building design features:

- Energy management controls for efficient HVAC (automatic setbacks based on building occupation) and Lighting usage (all fixtures are fluorescent)
- Low-E glass as part of a double pane window system
- Energy Star rated equipment, including all refrigerators and the signature Henny Penny fryers
- Solar Reflective Roof system exceeds LEED requirements ( $87.5 \%$ initial reflectivity and $95 \%$ emittance)
- All plumbing fixtures are low flow
- Chick-fil-A has adopted recycling programs for both construction waste and daily operations (in particular cardboard waste).
- All landscape materials are drought tolerant
- All building signage uses efficient LED lighting

4. There are no historically significant structures within the Planned Development. The proposed Chick-fil-A restaurant building is designed to blend with the existing architecture in this northern section of the Sugar House Community, at the request of the Community Council.
5. Chick-fil-A is sensitive to the pedestrian goals of the community. The proposed building siting and site circulation are intended to encourage the efficient use of the existing land and resources.

The proposed building has been designed to create a street front presence, with recognizable pedestrian pathways to the restaurant entry and patio areas for those customers who will frequent the business by bicycle or on foot. It is also critical that the site function effectively to allow a safe and efficient flow of traffic to, from and within the site. This efficiency is critical to create a safe environment for pedestrians, as well as to effectively serve the community at large $-95 \%$ of whom travel by car.

We hereby request your support for our project - Chick-fil-A has been embraced by the Salt Lake area community and we believe we will be a tremendous asset to the Sugar House Community.


Don Ikeler
Development Manager

## Chick-fil-A/Homestead Village Summary of CSHBD1 Compliance "Exhibit A"

| Code Section | Requirement | Description of Compliance |
| :---: | :---: | :---: |
| 21A.26.010 C-1 | Refuse Control | A trash enclosure is provided and is screened with landscaping |
| 21A.26.010 C-2 | Lighting | Lot lighting has been designed to be directed onsite without glare to surrounding properties |
| 21A.26.010 C-3 | Outdoor sales | Outdoor sales are not proposed. |
| 21A.26.010 D | Permitted Uses | Restaurants with drive-through facilities are a P (permitted) use within the Zone (Table 21A.26.080) |
| 21A.26.010 E | Conditional Uses | Not applicable |
| 21A.26.010 F | Accessory Uses, Structures | There are no accessory uses or structures proposed |
| 21A.26.010 G | Off Street Parking \& Loading | In accordance with Chapter 21A.44: <br> (9) spaces are required by Code (2 per 1000) (24) are provided. <br> (5) car drive thru stacking is required; (10) car stacking is provided. <br> No loading is required |
| 21A.26.010 H | Landscaping \& Buffering | The Landscape Plan is in conformance with section 21A. 48 of the Zoning Code as required |
| 21A.26.010 1 | Signs | Signage proposed conforms with Chapter 21A. 46 as required |
| 21A.26.010 J | Modification to Maximum Height | A modification to maximum height is not requested. Building is 25 feet, allowed is 30 feet. |
| 21A.26.010 K | Bed \& Breakfast Establishments | Not applicable |
| 21A.26.060 A | Purpose of the CSHBD | See Exhibit B - Design incorporates the goals of the CSHBD |
| 21A.26.060 B | Uses | Restaurants with drive-through facilities are a $P$ (permitted) use within the Zone (Table 21A.26.080) |
| 21A.26.060 C | Conformance with District Design Guideline Handbook | Design conforms with Design Guidelines. See Exhibit B |
| 21A.26.060 D | Conditional Building \& Site Design Review | Subject application |
| 21A.26.060 E | Minimum Lot Size | No minimum lot area or width is required |


| 21A.26.060 F 1-5 | Minimum Yard Requirements | Front yard: No minimum yard is required <br> Maximum setback: The maximum setback is 15 feet. The proposed building setback is zero. <br> Interior yards: None required <br> Rear yards: No minimum yard is required. <br> Buffer yards: Project does not abut residential |
| :---: | :---: | :---: |
| 21A.26.060 G1a | Maximum Height | Buildings cannot exceed 30 ft . in CSHBD1. Building height at its highest point is 25 ft . |
| 21A.26.060 H | Minimum First Floor Glass | First floor requirement is $40 \%$ glass surface. A total of $41 \%$ glass surface is provided. |
| 21A.26.060 I | Mechanical Equipment | All roof top equipment is screened by parapets and towers. |
| 21A.26.060 J | First Floor/Street Level Requirements | The restaurant use is allowed for street level buildings |
| 21A.26.060 K | Residential Requirement for Mixed Use | Not applicable |
| 21A.36.010 A | Enclosed Business Activity | All business activity is located within an enclosed building except where otherwise allowed (outdoor sales are permitted, patio not listed in code) |
| 21A.36.010 B | One Principle Building Per Lot | One building is proposed |
| 21A.36.010 C | Frontage of Lot on Public Street | The building frontage is adjacent to 2100 South St. |
| 21A.36.010 D | Hazardous Waste Prohibition | No hazardous waste is associated with the use. |
| 21A.36.010 E | Flag Lots in Nonresidential Districts | Not applicable |
| 21A.36.020 A | Conformance with District Requirements | The project is in conformance with District Requirements as noted above. |
| 21A.36.020 B | Obstructions in Required Yards | There are no required yards |
| 21A.36.020 C | Height Exceptions | Height exception is not required |
| 21A.36.020 D | Front \& Corner Side Yard Driveways | Not applicable - existing driveway or drive through lane do not encroach into a required setback. |
| 21A.40.160 | Ground Mounted Utility Boxes | Existing transformer will be screened with landscaping in accordance with existing regulations |



2100 SOUTH STREET




FRONT ELEVATION (NORTH)


DRIVE-THRU ELEVATION (SOUTH)


Onich-fil-s
PRELIMINARY ELEVATIONS Sugarhouse, UT
File Name: 09228E-ALL

Note:
All roof top mechanical equipment shall be located din
equiument well and d screened from view by parapet walls. COLOR AND MATERIAL LEGEND


104 Paint-Shemwin Williams - - tsw 2823 3 "Rockwood Clay"




## Attachment F

Citizen Comments

May 14, 2010

Planning Commission
c/o Michael Maloy
Planning Department
451 S State St
SLC, UT 84111

RE: Planning Commission consideration of Chik-Fil-A application

Dear Members of the Planning Commission:

I write to you today as a nearby resident of the proposed Chik-Fil-A drive thru restaurant being proposed at the current site housing Lonestar Steakhouse. I have resided at 1178 Ramona Ave for approximately 13 years and am very concerned about the impacts this development will bring to my neighborhood and to visitors of the Sugar House Business District.

There are a variety of problems associated with bringing a drive thru restaurant to this specific location. The traffic along 2100 S in this area is nightmanish at many times of the day. The volume of traffic at peak hours exceeds the roads capacity as people are trying to access the freeway or get to work. This development in question would have only 1 entrance and exit onto 2100 S making the flow even more difficult. Chik-Fil-A representatives commented their own traffic studies show there would be a queue of 3 cars attempting to exit the Homestead Suites site during these peak hours. This study says nothing about the effect of the increase "in \& out" traffic and queue will have on the flow of 2100 South. Additionally, even if the exit became a "right hand turn only" we all know people will try and turn left no matter what the conditions are because this is Utah and that is how we drive?

My primary concern with the amount of traffic along with section of 2100 is the issue of pedestrian safety. I currently sponsor the crosswalk on 2100 S and 1200 E in order to at least keep orange flags in supply. Not that they do much good. As a frequent pedestrian in this crosswalk I can no longer count the times I have nearly been hit or my dogs run over because a motorist failed to stop. The majority of the time the driver had plenty of time to stop and saw me waving my bright orange colored flag and made the conscious choice to speed through without regard to my safety. Unfortunately, I have more stories about witnessing near misses of others than I care to recount. I have been working with Councilman Simonsen to try and obtain a flashing light crosswalk (much like those recently replaced along 1300 E ) to at least try and calm traffic. There is no word on this request and the city is not able to provide other traffic calming measures at this time.

Additionally, it is important for the planning commission to review the proposed Woodbury/Westminster mixed use development proposal along 1300 E . They propose to relocate the pedestrian crosswalk at the intersection of 2100 S and Douglas St to the west side of that intersection to properly align it with the easement allowing pedestrian travel and access to Hidden Hollow. To put this in context the entrance/exit for a highly visited drive thru restaurant will be in-between to busy and dangerous crosswalks. The proximity to these crosswalks only exacerbates the efforts to calm traffic and highlight pedestrian's right of way through the crosswalk.

This is an acute impact to my neighborhood and visitors alike. How can we promote a pedestrian oriented business district when it is dangetous to be a pedestrian in this area? A drive thru restaurant in this particular spot seems
highly misplaced and there must be rrore appropriate sites within this area thatcan house a drive thru restaurant? I can think of many sites.

Please also consider the RDA property on Wilmington Ave will also be a Woodbury/Westminster mixed use building that provides student apartment housing. Both of these developments will be adding to the pedestrian traffic from those areas to Westminster College and adding to the potential for more conflicts and physical injury in the crosswalks aforementioned.

Chik-Fil-A representatives also noted the full support of the Homestead Suites of their proposal. I am certainly not surprised by their support. I walked my dog along this stretch of 2100 S for 3 years at 6:30am every day, and witnessed the residents of the Homestead Suites attempt to cross 2100 S to get to Catl's Jr. This was the closest offering of coffee and breakfast so a fast food restaurant located within the parking lot would be a positive thing to Homestead Suites. Ironically this only illustrates my point about the difficulty and danger in crossing 2100 S .

Finally, the design of the Chik-Fil-A, while pleasing and attractive is not oriented to the sidewalk. The location of the drive thru creates a visual and physical obstacle for pedestrians to access the entrance provided on the northwest corner of the building. The Sugar House Business District Master Plan calls for retail to be oriented to the street to invite foot traffic. Additionally the SHBDMP calls for enhanced pedestrian crosswalks and traffic calming measures. I wonder how much longer we can ignore the vision of the master plan and needs of residents and patrons of the business district and still think we will be able to retroactively implement these measures.

I urge the planning commission to seriously consider the very real impact a drive thru restaurant will have on the residents nearby with the additional traffic added to a street system that already fails to meet load at various times of the day. Please address the lack of pedestrian safety and traffic calming measures in this area before approving this proposal.

Sincerely,

Amy Barry
1178 Ramona Ave
801-699-6924
Sugar House Community Council Trustee

| From: | Scott Kisling [scott.kisling@comcast.net] |
| :--- | :--- |
| Sent: | Thursday, July 01, 2010 2:30 PM |
| To: | Maloy, Michael |
| Cc: | Sugar House CC Chair |
| Subject: | PLNSUB2010-00112 Chick-fil-A Restaurant |
| Categories: | Other |

Mr. Maloy,
As a private citizen but former Sugar House Community Council Chair during the City's 2001 update of the Sugar House Master Plan I would be very disappointed if the Planning Commission were to approve a drive-through restaurant in the Sugar House Business District zone. As not doubt others will point out specifically during the hearing, every applicable master plan encourages pedestrian-oriented businesses and restaurants over automobile-oriented ones. It was considered important enough to be placed on page 1 of the SHMP under "General Goals," and again on page 11 under "Multi-modal Priorities." Issues caused by automobiles and primarily automobile-oriented businesses and restaurants are discussed throughout the document.

Drive-through business and restaurants are discouraged in the Gray Report of the 1980s, the Wikstrom Study of the 1990s and others, including minor reports stating that pedestrian access along the public transportation corridor of 21 st South would be squandered by the use of land for primarily automotive uses.

I would be very happy for Chick-fil-A to open a conventional restaurant, especially if done within the existing building, but only if it conformed to the guidance of our Master Plans.

Believe me, those master plans were a result of extensive discussion that included existing land owners, business owners, developers, and Westminster College, as well as representatives from the walking, shopping and, yes... driving, communities. Much compromise was made by all stakeholders at the time each master plan was written. With no changes in the public's desire over several decades there is no reason for further compromise.

Thank you for your effort to improve the City for all of us.
Sincerely,
Scott Kisling
2409 Lynwood Drive

# Memo 

To: Judi Short, Chair, Sugar House Community Council Land Use and Zoning Committee<br>From: Elaine J. Brown, Trustee representing the Dilworth Neighborhood of the Sugar House Community Council<br>CC: Salt Lake City Planning Commission, J.T. Martin, Soren Simonsen<br>Date: 7/3/2010<br>Re: Sugar House Chick-fil-A Proposal

I wholeheartedly support the Chick-fil-A proposal presented at the May 5, 2010 Sugar House Community Council Meeting. I was particularly impressed with their statements regarding their desire to work with the community in which they are planning a store by:

- Researching the area to determine if the store will be a success, pointing out that they have never had a failure despite the current negative economic conditions. They have done that research and concluded that they can be successful in the proposed spot. Moreover, according to their representatives social media networks including Facebook and Twitter also reflect strong potential support of a Sugar House Chick-fil-A.
- Ordinarily constructing new restaurants that will fit into the surrounding area, rather than trying to remodel an existing building. They plan to demolish the Lone Star building to construct their proposed design.
- Seeking local individuals with which to partner in running the store rather than bringing people in from out of town, keeping both staff and management local
- Supporting local community causes, such as the continuation of the Sugar House fireworks that they heard about during the May 5 meeting as they waited to present their proposal. I was especially impressed by this inasmuch as there is so much pressure to promote local business, but it has been national chains who have stepped up to the plate to ensure the continuity of this Sugar House tradition including Chick-fil-A who is already demonstrating its potential support of local Sugar House issues

I was impressed with the design plans presented:

- Unlike the Lone Star, Chick-fil-A's proposed entrances will face east, not the busy 2100 South. While it is true that they will face a parking lot, it is still better than entering off 2100 South.
- I like the patio dining area and by all accounts diners do too as evidenced by the strong support of establishments that offer an outdoor dining option, which is also enticing to foot traffic, promoting the walk-able aspect of Sugar House.
- The drive thru entrance and exit into the Homestead Suites Parking lot keeps this traffic off the busy 2100 South thoroughfare.

I think Chick-fil-A's Sunday closing policy will be viewed favorably by many in this community and will help promote local employment since it ensures that all employees have one guaranteed weekend day off.

Although Chick-fil-A food is considered fast food, it is, as their representatives pointed out, of higher quality and there are no value items. I can personally attest to the quality of the food since I consider myself a Chick-fil-A junkie; it is delicious!

Lastly, high end family-type dining options are somewhat limited in the traditional heart of Sugar House and especially in the Commons area. A Chick-fil-A will bring better balance.

I urge strong support of the Chick-fil-A proposal by the Sugar House Community Council, the Salt Lake City Planning Commission and the City Council.

From: Walsh, Barry
Sent: Wednesday, April 07, 2010 10:55 AM
To: Maloy, Michael
Cc: Young, Kevin; Drummond, Randy; Itchon, Edward; Garcia, Peggy; Butcher, Larry
Subject:
Pet PLNSUB2010-00112

Categories: Other

April 7, 2010

Michael Maloy, Planning

Re: Planned development Petition PLNSUB2010-00112 for construction of a new Chick-fil-A restaurant at 1206 E 2100 South.

The division of transportation review comments and recommendations area as follows:

The site has an existing restaurant (Lone Star) that was built with the six stalls per 1,000 sf. parking requirement and provided 30 parking spaces with varying widths. The new proposed building is the same size with the new parking requirement of only two stalls per 1,000 sf. And is providing 30 parking stalls (plan notes 24 ) with a uniform $8^{\prime}-6^{\prime \prime}$ stall width. The new design is also proposing a drive-up window with five plus vehicle stacking as required.
For transportation's final review, we need a fully dimensioned civil site plan showing parking stall width, depth, isle width, etc. we also need the dimensions of the drive-up isle width, radii, etc. include overhead awning height dimensions of $8^{\prime}-2^{\prime \prime}$ minimum.
Please correct the parking calculations and include the ADA provision and the $5 \%$ bike parking with bike rack detail and location.

Sincerely,

Barry Walsh

```
Cc Kevin Young, P.E.
Randy Drummond, P.E.
Ted Itchon, Fire
Peggy Garcia, Public Utilities
Larry Butcher, Permits
File.
```


## Maloy, Michael

From:
Sent:
To:
Cc:
Subject:
Attachments:
Categories:

Hardman, Alan
Thursday, April 15, 2010 9:20 AM
Maloy, Michael
Butcher, Larry
PLNSUB2010-00112 Chick-fil-A
DRT 1206 East 2100 South October 28 2009.doc

Other

Hi, Michael,

Please see the attached DRT comments which address the preliminary zoning issues for this petition. I have also posted the review and completed the task in accela.

Alan

| Address: | 1206 East 2100 South |
| :--- | :--- |
| Project Name: | Chick-Fil-A |
| Contact: | Deborah Kerr 801 273-4649 debkerr@kpsinc.com |
| Date Reviewed: | October 28, 2009 |
| Zone: | CSHBD1 |

The Development Review Team (DRT) is designed to provide PRELIMINARY review to assist in the design of the complete site plan. A compiete review of the site plan will take place upon submittal of the completed site plan to the Permits Counter.

## Project Description: New restaurant with drive-through.

## Ken Brown/Zoning:

Will need to obtain a separate demolition permit and a new certified address. Proposal will need to provide parking calculations for the use. The site plan will need to document all cross access \& drainage easements. Proposal to comply with the design guidelines handbook located as an appedix section in the Sugar House Master Plan. Reduction of maximum setback may be authorized throught the Conditional building \& site design review process. Discussed minimum $1^{\text {st }}$ floor glass, mechanical equipment screening, ground mounted utility boxes, etc. Will need to discuss with the Planning Dept. whether this proposal will require modification of Petition \#410-247. Gave applicant a copy of the CSHBD1 requirements.

## Barry Walsh/Transportation:

Demo existing building \& re-certify address. Need verification access easements, P.U.D. Need parking calculation to include ADA \& $5 \%$ bike. Drive up window requires 5 car stacking. (Show min. $18^{\prime}$ inside radii \& $28^{\prime}$ outside radii-12' land). Outdoor dining over $500 \mathrm{~s} / \mathrm{f}$ to be included in parking calculations.

## Ted Itchon/Fire:

Cooking protection, Class I hood \& duct extinguishing system. Fire extinguishers K \& $2 \mathrm{~A}: 10 \mathrm{BC}$ rated, in dining area. Provide fire sprinkler system with interconnection to remote station.

## Brad Stewart/Public Utilities:

Demolishing existing building. Need civil site plan showing water, sewer, drainage. Need interior plumbing plans. Need grease interceptor. On site plan, show existing utilities \& proposed. Abandon all un-needed water \& sewer connections. No water meters in driveways. If moving water meter more than three feet, must abandon at main \& re-tap.

## Randy Drummond \& Chris Norlem/Engineering:

At the time of application for approval, an inventory of the condition of the existing street and/or access-way improvements will occur. The condition of said improvements will be determined, and any sub-standard improvements (curb, gutter, sidewalk, asphalt paving, etc.) will be required to be either repaired or replaced as a condition of approval of the project. Certified address required. See Alice Montoya at 535-7248. Public Way Permit
is required for project completion. Licensed, bonded and insured Contractor to obtain permit to install or repair required street improvements. Site plan required. Demolition permit required.


## Maloy, Michael

From:
Lucas, Duran
Sent:
Friday, April 16, 2010 10:11 AM
To:
Subject:
Maloy, Michael
PLNSUB2010-00112
Categories:

Other

April 16, 2010
Re: PLNSUB2010-00112
Michael,
Property Management has reviewed the referenced petition. The petitioner's development does not seem to be encroaching on any city property or public right-of-way, however, if at any time the planned development changes and an encroachment results, the petitioner will then be required to sign a lease agreement for the encroachment. With that being said, we have no objection to the petitioner's request and will defer to the other City departments' comments.

Duran Lucas
Property Management

ai


Hours Spent: Hours spent:
Action by Department
PU Engineer Est. Completion Date Display Comment in ACA Public Ulilities department has no objection to the current proposal. Prior to construction, civil engineer demolition plans and End Time:

Buable:
Yes
Trme Tracking Start Date Com Dispa in ACA

3

## Quicktinks

Fire
General Reports
Ground Transportation
GHAZE

- Inspections
> Planning
Transportation
> Utilities
My Reports
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Fire

| Difection | Street Name | Street Type first Name | Last Name |
| :--- | :--- | :--- | :--- |
| E | 2100 S |  | Christine | Gebhart Public Uaities department has no objection to the current proposal. Prior to construction, civil engineer demaition plans and

$\pm$ GeTo $\quad$ Wo Task Details Pubbic
Assigned Date

04/06/2010
Current Status
Complete
Action By
Owner
Contact


## Maloy, Michael

| From: | Young, Kevin |
| :--- | :--- |
| Sent: | Thursday, July 01, 2010 3:26 PM |
| To: | Maloy, Michael; Wallsh, Barry |
| Subject: | FW: Chick-fil-ATraffic Study |
| Attachments: | Traffic Study May 2010.pdf |
| Follow Up Flag: | Follow up |
| Flag Status: | Flagged |
| Categories: | Other |

Michael,
I apologize for the delay in getting back to you regarding the Chick-fil-A traffic study.
The traffic study looked at current traffic conditions and the projected traffic conditions with the project included. The traffic study indicates that there will be an increase in traffic volume with the new Chick-fil-A restaurant, as compared to the existing Lone Star restaurant. The 1300 East/2100 South intersection currently operates at a LOS E. With the addition of the Chick-fil-A restaurant, this intersection will continue to operate at a LOS E, but with a small increase in overall delay. No mitigation measures were recommended in the study or are required at this intersection.

The project access on 2100 South operates at an overall LOS A, with or without the project. However, if individual movements are considered, the northbound movement out of the project currently operates at a LOS D. With the addition of the projected Chick-fil-a traffic, this northbound movement out of the project access degrades to LOS E. Queuing to exit this access currently occurs on-site and any increase in queuing will also occur on-site and not impact 2100 South. No mitigation measures were recommended or are required at this access.

Kevin
Kevin J. Young, P.E.
Transportation Planning Engineer
801-535-7108

From: Maloy, Michael
Sent: Wednesday, June 09, 2010 2:59 PM
To: Walsh, Barry
Subject: FW: Chick-fil-A/Traffic Study
Barry:
Can you review and comment on this study for me ASAP? Thanks!
Sincerely,
Michael Maloy, AICP
Principal Planner
Salt Lake City Corp
PO Box 145480
451 S State Street Rm 406
Salt Lake City, Utah 84114-5480
(801) 535-7118 Office
(801) 535-6174 Fax
michael.maloy@sicgov.com

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# Chick-fil-A Traffic Impact Study 



# 1206 East 2100 South Salt Lake City, Utah 84106 

May 2010
UT10-213

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## EXECUTIVE SUMMARY

This study addresses the traffic impacts associated with the proposed Chick-fil-A restaurant located at 1206 East 2100 South, Salt Lake City, Utah. The proposed development is located in the Sugar House area south of 2100 South between 1200 East and Douglas Street. The location is currently occupied by the Lone Star Steakhouse.

2100 South is the major thoroughfare running east and west through Sugar House adjacent to the subject property. There is an existing single point of access to this five lane roadway, with a single lane into the property and a single lane exiting the property. The street access will not be relocated or modified. No additional access points are proposed.

The Homestead Village hotel shares the access. None of the adjacent properties currently have cross access and the northeast portion of the property is separated by grades in excess of fifteen feet from the adjacent properties.

2100 South has two through lanes eastbound and two through lanes westbound with a center turn lane. This condition exists at the entire property frontage. A pedestrian cross walk is located in front of the proposed Chick-fil-A building at 1200 East. There is also a pedestrian cross walk at Douglas. These crossings are not signalized.

There is a major shopping center to the west of the property with various retail and restaurant tenants. While a few of the buildings front 2100 South, the predominant portion of the center surrounds a major parking field in the center of the property which serves the center's businesses.

Directly across 2100 South from the Homestead Village property, there is an existing Carl's Jr. restaurant with a drive-thru as well as a Jiffy Lube and Tune car service center.

East of the property is a residential condominium project adjacent to the Chick-fil-A / Homestead Village land. Further east, at the intersection of 1300, is a gas station with a car wash facility, and a Kentucky Fried Chicken with drive-thru.

## TRAFFIC ANALYSIS

The following is an outline of the traffic analysis performed by Hales Engineering for the traffic conditions of this project.

## Existing (2010) Background Conditions Analysis

Hales Engineering performed weekday p.m. (4:00 to 6:00) peak period traffic counts at the following intersections on Wednesday, February 10, 2010:

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- 1200 East / 2100 South
- Project Access / 2100 South
- Douglas Street / 2100 South
- 1300 East / 2100 South

Because the development is a restaurant with peak usage during the midday lunch hour, Hales Engineering counted the project access between 11:00 a.m. and 1:00 p.m. to verify that the p.m. peak hour is the controlling time period (highest volume time of day). The counts showed that the p.m. peak hour is the controlling hour because traffic volumes on 2100 South were 21 percent higher during the evening than the midday hour.

Therefore, the weekday p.m. peak hour was chosen for analysis. Detailed count data is included in Appendix A.

Due to the existing saturated traffic conditions at the 1300 East / 2100 South intersection (as is shown in Table ES-1), the intersection experiences constrained movements and currently operates at a level of service (LOS E).

## Project Conditions Analysis

The proposed land use for the development has been identified as follows:

- Chick-fil-A Restaurant:
$4,245 \mathrm{sq} \mathrm{ft}$

The projected trip generation for the development is as follows:

- Noon Peak Hour: 259 vph
- p.m. Peak Hour: 170 vph
o Entering: 88 vph
o Exiting: 82 vph
Trip generation information specific to Chick-fil-A restaurants was provided for several other existing projects and compared with ITE Trip Generation data. By comparison, the trip generation information provided by Chick-fil-A was greater than the ITE trip generation for a fast food restaurant with a drive through window. Therefore, the higher specific Chick-fil-A trip generation information was used for this study providing a more conservative analysis for this project. As will be discussed in the body of the report, a 50 percent pass-by reduction was taken to account for trips already on the roadway that will enter the site.


## Existing (2010) Plus Project Conditions Analysis

As shown in Table ES-1, both study intersections will experience constrained levels of service (LOS E) conditions. At 1300 East / 2100 South LOS E is an existing condition. The

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Project Access / 2100 South reduction in service only impacts the subject property as the site is designed to accommodate the project related delays.

| TABLE ES-1 <br> P.M. Peak Hour <br> Salt Lake City Chick-fil-A - TIS |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Intersection | Existing 2010 <br> Background | Existing 2010 <br> Plus Project |  |  |  |
| Description |  |  |  | LOS (Sec/Veh') | LOS (Sec/Veh') |
| Project Access / 2100 South | NB / D (26.8) | NB / E (49.2) |  |  |  |
| 1300 East / 2100 South | E (68.7) | E (74.7) |  |  |  |
| 1. Intersection LOS and delay (seconds/venicle) values represent the overall intersection average <br> for signalized and all-way stop controlled intersections and the worst approach for all other <br> unsignalized intersections. |  |  |  |  |  |
| Source: Hales Engineering, February 2010 |  |  |  |  |  |

## RECOMMENDATIONS

The following mitigation measures are recommended:

## Existing (2010) Background Conditions Analysis

No mitigation measures are recommended.
Existing (2010) Plus Project Conditions Analysis
No mitigation measures are recommended.

## Summary of Key Findings/Recommendations

The following is a summary of key findings and recommendations:

- The 1300 East / 2100 South intersection currently experiences LOS E conditions. However, no mitigation measures are recommended because increasing capacity at this intersection would not be feasible and would require impacting adjacent land uses.
- By adding the project traffic, the LOS for the project access will degrade from LOS D to LOS E. Although vehicles are platooned quite well along 2100 South, and several


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large gaps do occur, there are still occasions when vehicles will need to wait on average longer than 35 seconds in order to turn left or right out of the development. This condition only impacts the subject property, which has been designed to accommodate the impacted vehicles. The LOS E does not impact through traffic or pedestrian movements along 2100 South.

- Although queuing will occur on-site when gaps are not available in the 2100 South traffic stream, the site is sufficiently designed to accommodate the additional stacked vehicles. The average queue length is estimated to be approximately 70 feet or approximately 3 vehicles. However, the $95^{\text {th }}$ percentile (projected worst case) queue length will be approximately 140 feet or 7 vehicles which will be contained on-site.


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## TABLE OF CONTENTS

EXECUTIVE SUMMARY ..... 1
TRAFFIC ANALYSIS ..... 1
RECOMMENDATIONS ..... 3
TABLE OF CONTENTS .....  i
LIST OF TABLES ..... ii
I. INTRODUCTION ..... 1
A. Purpose ..... 1
B. SCOPE ..... 1
B. Analysis Methodology ..... 2
C. Level of Service Standards ..... 2
II. EXISTING (2010) BACKGROUND CONDITIONS ..... 4
A. PURPOSE ..... 4
B. Roadway System ..... 4
C. Traffic Volumes ..... 4
D. Level of Service Analysis ..... 5
E. Mitigation Measures ..... 6
III. PROJECT CONDITIONS ..... 7
A. Purpose ..... 7
B. Project Description ..... 7
C. Trip Generation ..... 7
D. Trip Distribution and Assignment ..... 8
IV. EXISTING (2010) PLUS PROJECT CONDITIONS ..... 9
A. Purpose ..... 9
B. Traffic Volumes ..... 9
C. Level of Service Analysis ..... 9
D. Queuing Analysis ..... 9
E. Mitigation Measures ..... 10
Appendix A: Turning Movement CountsAppendix B: LOS ResultsAppendix C: Project Site Plan
Appendix D: FiguresAppendix E: 95 ${ }^{\text {th }}$ Percentile Queue Lengths

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## LIST OF TABLES

Table 1 Level of Service Descriptions .................................................................................... 3
Table 2 Existing (2010) Background p.m. Peak Hour Level of Service ................................... 5
Table 3 Existing (2010) Plus Project p.m. Peak Hour Level of Service ................................. 10

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## I. INTRODUCTION

## A. Purpose

This study addresses the traffic impacts associated with the proposed Chick-fil-A restaurant located at 1206 East 2100 South, Salt Lake City, Utah. The proposed development is located in the Sugar House area south of 2100 South between 1200 East and Douglas Street. The location is currently occupied by the Lone Star Steakhouse.

2100 South is the major thoroughfare running east and west through Sugar House adjacent to the subject property. There is an existing single point of access to this five lane roadway, with a single lane into the property and a single lane exiting the property. The street access will not be relocated or modified. No additional access points are proposed.

The Homestead Village hotel shares the access. None of the adjacent properties currently have cross access and the northeast portion of the property is separated by grades in excess of fifteen feet from the adjacent properties.

2100 South has two through lanes eastbound and two through lanes westbound with a center turn lane. This condition exists at the entire property frontage. A pedestrian cross walk is located in front of the proposed Chick-fil-A building at 1200 East. There is also a pedestrian cross walk at Douglas. These crossings are not signalized.

There is a major shopping center to the west of the property with various retail and restaurant tenants. While a few of the buildings front 2100 South, the predominant portion of the center surrounds a major parking field in the center of the property which serves the center's businesses.

Directly across 2100 South from the Homestead Village property, there is an existing Carl's Jr. restaurant with a drive-thru as well as a Jiffy Lube and Tune car service center.

East of the property is a residential condominium project adjacent to the Chick-fil-A / Homestead Village land. Further east, at the intersection of 1300, is a gas station with a car wash facility, and a Kentucky Fried Chicken with drive-thru.

## B. Scope

The study area was defined based on conversations with the development team and Salt Lake City engineering staff. This study was scoped to evaluate the traffic operational performance impacts of the project on the following intersections:

- Project Access / 2100 South
- 1300 East / 2100 South


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## C. Analysis Methodology

Level of service (LOS) is a term that describes the operating performance of an intersection or roadway. LOS is measured quantitatively and reported on a scale from A to F, with A representing the best performance and $F$ the worst. Table 1 provides a brief description of each LOS letter designation and an accompanying average delay per vehicle for both signalized and unsignalized intersections.

The Highway Capacity Manual 2000 (HCM 2000) methodology was used in this study to remain consistent with "state-of-the-practice" professional standards. This methodology has different quantitative evaluations for signalized and unsignalized intersections. For signalized and all-way stop intersections, the LOS is provided for the overall intersection (weighted average of all approach delays). For all other unsignalized intersections LOS is reported based on the worst approach. Hales Engineering has also calculated overall delay values for unsignalized intersections, which provides additional information and represents the overall intersection conditions rather than just the worst approach.

## D. Level of Service Standards

For the purposes of this study, a minimum overall intersection performance for each of the study intersections was set at LOS D. However, if LOS E or F conditions exist, an explanation and/or mitigation measures will be presented where feasible. An LOS D threshold is consistent with "state-of-the-practice" traffic engineering principles for urbanized areas.

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Table 1 Level of Service Descriptions


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## II. EXISTING (2010) BACKGROUND CONDITIONS

## A. Purpose

The purpose of the existing (2010) background analysis is to study the intersections and roadways during the peak travel periods of the day with background traffic and geometric conditions. Through this analysis, background traffic operational deficiencies can be identified and potential mitigation measures recommended. This analysis will provide a baseline condition that may be compared to the build conditions to identify the impacts of the development.

## B. Roadway System

The primary roadway that will provide access to the project site is described below:
2100 South - is a city-operated roadway classified by Salt Lake City as an arterial street that provides direct access to the proposed site. This roadway is currently composed of a five-lane cross section with two travel lanes in each direction, and a center two-way left turn lane (TWLTL). No shoulders exist, therefore on street parking is not permitted. The posted speed limit on 2100 South is 30 mph .

## C. Traffic Volumes

Hales Engineering performed weekday p.m. (4:00 to 6:00) peak period traffic counts at the following intersections:

- 1200 East / 2100 South
- Project Access / 2100 South
- Douglas Street / 2100 South
- 1300 East / 2100 South

Because the development is a restaurant with peak usage during the midday lunch hour, Hales Engineering counted the project access between 11:00 a.m. and 1:00 p.m. to verify that the p.m. peak hour is the controlling time period (highest volume time of day). The counts showed that the p.m. peak hour is the controlling hour because traffic volumes on 2100 South were 21 percent higher during the evening than the midday hour. Therefore, the weekday p.m. peak hour was chosen for analysis. The p.m. peak hour was determined to be between 5:00 and 6:00 p.m. The traffic counts were seasonally adjusted based on data obtained from a UDOTcontrolled automated traffic recorder (ATR) located near the site. Detailed count data is included in Appendix A.

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Because the new Chick-fil-A development will be occupying the Lone Star Steakhouse parcel, it was necessary to determine the amount of traffic generated by the Steakhouse so that it can be subtracted from the existing roadway network before adding the new project traffic from the Chick-fil-A. During data collection efforts, Hales Engineering also quantified the number of trips entering and exiting the Lone Star Stake House. During the p.m. peak hour, the following trips were observed for the Steakhouse:

- Entering: 15 vehicles per hour (vph)
- Exiting: 6 vph
- Total: 21 vph


## D. Level of Service Analysis

Using Synchro/SimTraffic, which follow the Highway Capacity Manual (HCM) 2000 methodology introduced in Chapter I, the p.m. peak hour LOS was computed for each study intersection. The results of this analysis are reported in Table 2 (see Appendix B for the detailed LOS reports). Multiple runs of SimTraffic were used to provide a statistical evaluation of the interaction between the intersections. These results serve as a baseline condition for the impact analysis of the proposed development during existing (2010) conditions. As shown in Table 2, due to the existing saturated traffic conditions at the 1300 East / 2100 South intersection, it experiences constrained movements and operates at a level of service (LOS E).

Table 2 Existing (2010) Background p.m. Peak Hour Level of Service


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## E. Mitigation Measures

The 1300 East / 2100 South intersection currently experiences LOS E conditions. However, no mitigation measures are recommended because increasing capacity at this intersection would not be feasible and would require impacting adjacent land uses. All other study intersections appear to operate at acceptable levels.

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## III. PROJECT CONDITIONS

## A. Purpose

The project conditions analysis explains the type and intensity of development. This provides the basis for trip generation, distribution, and assignment of project trips to the surrounding study intersections defined in the Introduction.

## B. Project Description

This study addresses the traffic impacts associated with the proposed Chick-fil-A restaurant located in Salt Lake City, Utah. The proposed development is located in the Sugar House area south of 2100 South between 1200 East and Douglas Street. The location is currently occupied by the Lone Star Steakhouse.

A site plan for the proposed development has been included in Appendix C.
The proposed land use for the development has been identified as follows:

- Chick-fil-A Restaurant:
$4,245 \mathrm{sq} \mathrm{ft}$


## C. Trip Generation

Trip generation for the development was calculated using trip generation rates obtained from a study of other Chick-fil-A restaurants. The study, completed by Austin-Foust Associates, Inc., of four similar sites in southern California showed that the average trip generation rate for a Chick-fil-A restaurant is 61 trips per 1,000 square feet during the noon peak hour and 40 trips per 1,000 square feet during the p.m. peak hour. Entering versus exiting rates were not available, therefore Hales Engineering used distribution percentages for the "Fast-Food Restaurant with Drive-Through Window (Land Use Code 934)" published in the Institute of Transportation Engineers (ITE) Trip Generation (8 ${ }^{\text {th }}$ Edition, 2008). Based on this information, trip generation for the proposed project is as follows:

- Noon Peak Hour: 259 vph
- p.m. Peak Hour: 170 vph
o Entering: 88 vph
o Exiting: 82 vph
The rates for the Chick-fil-A restaurants were compared with the rates for "Fast-Food Restaurant with Drive-Through Window" in Trip Generation. According to ITE, the average trip generation rate is 33.84 trips per 1,000 square feet. Therefore, the Chick-fil-A data is higher than the ITE data.


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The trip generation rates identify gross trips to and from a facility as if it were a stand-alone activity. Gross ITE trip generation rates do not account for trips already on adjacent roadways or for internal capture. While internal capture may occur between the on-site hotel and the Chick-fil-A, these trips were considered to be nominal and therefore not reduced from the overall trip generation. Based on the synergy of the surrounding developments and some nearby office land uses some walk up pedestrian traffic will likely visit the site, however, no reductions were taken for this either as it could not be quantified for this site prior to opening. However, pass-by trips for a fast-food restaurant are significant. According to data from the ITE Trip Generation Handbook (2 $2^{\text {nd }}$ Edition, 2004), approximately 50 percent of fast-food restaurant traffic can be attributed to pass-by trips. Given the high traffic volume on 2100 South (greater than 20,000 vehicles per day), the 50 percent pass-by trip reduction appears to be reasonable.

Although the Sugar House area has several bus routes that service 2100 South, Hales Engineering did not make any reductions for transit mode share. This helps ensure that the traffic estimates for the site are conservatively high.

## D. Trip Distribution and Assignment

Project traffic is assigned to the roadway network based on the type of trip and the proximity of project access points to major streets, high population densities, and regional trip attractions. Existing travel patterns observed during data collection also provide helpful guidance to establishing these distribution percentages, especially in close proximity to the site. The resulting overall distribution of project generated trips is as follows:

To/from the Development:

- $30 \%$ West ( 2100 North)
- 10\% North (1300 East)
- $40 \%$ East ( 2100 South)
- $20 \%$ South (1300 East)

These trip distribution assumptions were used to assign the p.m. peak hour generated traffic at the study intersections to create a trip assignment for the proposed development. Trip assignment is shown in Appendix D.

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## IV. EXISTING (2010) PLUS PROJECT CONDITIONS

## A. Purpose

This section of the report examines the traffic impacts of the proposed project at each of the study intersections. The net trips generated by the proposed development were combined with the existing background traffic volumes to create the existing plus project conditions. This scenario provides valuable insight into the potential impacts of the proposed project on background traffic conditions.

## B. Traffic Volumes

Project trips were assigned to the study intersections based on the trip distribution percentages discussed in Chapter III and permitted intersection turning movements.

The existing (2010) plus project p.m. peak hour volumes were generated for the study intersections and are shown in Appendix D.

## C. Level of Service Analysis

Using Synchro/SimTraffic, which follow the Highway Capacity Manual (HCM) 2000 methodology introduced in Chapter I, the p.m. peak hour LOS was computed for each study intersection. The results of this analysis are reported in Table 3 (see Appendix B for the detailed LOS reports). Multiple runs of SimTraffic were used to provide a statistical evaluation of the interaction between the intersections. As shown in Table 3, both study intersections experience failing levels of service.

## D. Queuing Analysis

Queuing will occur on site when gaps are not available in the traffic stream. The average queue length is estimated to be approximately 70 feet ( 3 vehicles). However, the $95^{\text {th }}$ percentile queue length will be approximately 140 feet ( 7 vehicles). This will be long enough to cause some congestion internal to the site. The queue should not impede ingress traffic because vehicles entering the site can continue to the south to the hotel, or turn right (west) into the Chick-fil-A without being blocked. Vehicles exiting the Chick-fil-A will primarily exit from the south parking area because of the location of the end of the drive through. Therefore, queuing is less likely to impede this egress.

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## E. Mitigation Measures

No mitigation measures are recommended.
By adding the project traffic, the LOS for the project access will degrade from LOS D to LOS E. Although vehicles are platooned quite well along 2100 South, and several large gaps do occur, there are still occasions when vehicles will need to wait on average longer than 35 seconds in order to turn left or right out of the development. This condition only impacts the subject property, which has been designed to accommodate the impacted vehicles. The LOS E does not impact through traffic or pedestrian movements along 2100 South.

Although queuing will occur on-site when gaps are not available in the 2100 South traffic stream, the site is sufficiently designed to accommodate the additional stacked vehicles. The average queue length is estimated to be approximately 70 feet or approximately 3 vehicles. However, the $95^{\text {th }}$ percentile (projected worst case) queue length will be approximately 140 feet or 7 vehicles which will be contained on-site.

Table 3 Existing (2010) Plus Project p.m. Peak Hour Level of Service

| Intersection |  | Worst Approach |  |  | Overall Intersection |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Description | Control | Approach ${ }^{1,3}$ | Aver. Delay (Sec/Veh) ${ }^{1}$ | LOS $^{1}$ | Aver. Delay (Sec/Veh) ${ }^{2}$ | LOS ${ }^{2}$ |
| Project Access / 2100 South | NB Stop | NB | 49.2 | E | 3.4 | A |
| 1300 East/ 2100 South | Signal | - |  | - | 74.7 | E |
| 1. This represents the worst approach LOS and delay (seconds / vehicle) and is only reported for non-all-way-stop unsignalized intersections. <br> 2. This represents the overall intersection LOS and delay (seconds / vehicle). <br> 3. $\mathrm{SB}=$ Southbound approach, etc. <br> Source: Hales Engineering, February 2010 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

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## APPENDIX A Turning Movement Counts






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## APPENDIX B <br> LOS Results

# HALES (1)ENGINEERING 

## SimTraffic LOS Report

Project:
Analysis Period: Time Period:

SLC - Chick-fil-A TIS
Existing 2010 Background
PM Peak Hour
Project \#: UT10-213

Intersection: 2100 South \& 1200 East
Type: Unsignalized

| Approach | Movement | Demand Volume | Volume Served |  | Delay/Veh (sec) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Avg | \% | Avg | LOS |
| SB | L | 48 | 52 | 109 | 94.6 | $F$ |
|  | R | 52 | 53 | 102 | 68.7 | $F$ |
|  | Subtotal | 100 | 105 | 105 | 81.5 | F |
| EB | L | 44 | 44 | 99 | 11.4 | $B$ |
|  | T | 1,076 | 1,080 | 100 | 1.6 | A |
|  | Subtotal | 1,120 | 1,124 | 100 | 2.0 | A |
| WB | T | 795 | 794 | 100 | 0.5 | A |
|  | R | 39 | 43 | 110 | 0.3 | A |
|  | Subtotal | 834 | 837 | 100 | 0.5 | A |
|  |  |  |  |  |  |  |
| Total |  | 2,054 | 2,066 | 101 | 5.4 | A |


| Intersection: | 2100 South \& Project Access |
| :--- | :--- |
| Type: | Unsignalized |


| Approach | Movement | Demand Volume | Volume Served |  | Delay/Veh (sec) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Avg | \% | Avg | LOS |
| NB | L | 7 | 8 | 110 | 37.7 | E |
|  | R | 19 | 20 | 107 | 22.5 | C |
|  | Subtotal | 26 | 28 | 108 | 26.8 | D |
| EB | T | 1,113 | 1,119 | 101 | 1.2 | A |
|  | R | 11 | 13 | 116 | 1.8 | A |
|  | Subtotal | 1,124 | 1,132 | 101 | 1.2 | A |
| WB | L | 19 | 20 | 107 | 8.6 | A |
|  | T | 828 | 830 | 100 | 0.4 | A |
|  | Subtotal | 847 | 850 | 100 | 0.6 | A |
|  |  |  |  |  |  |  |
| Total |  | 1,996 | 2,010 | 101 | 1.3 | A |

# HALES (1)ENGINEERING 

## SimTraffic LOS Report

Project:
Analysis Period: Time Period:

SLC - Chick-fil-A TIS
Existing 2010 Background
PM Peak Hour
Project \#: UT10-213

Intersection: 2100 South \& Douglas Street
Type:
Unsignalized

| Approach | Movement | Demand Volume | Volume Served |  | Delay/Veh (sec) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Avg | \% | Avg | LOS |
| SB | L | 12 | 11 | 90 | 60.8 | $F$ |
|  | R | 24 | 26 | 109 | 23.4 | C |
|  | Subtotal | 36 | 37 | 103 | 34.5 | D |
| EB | L | 20 | 18 | 91 | 6.3 | A |
|  | T | 1,112 | 1,121 | 101 | 3.0 | A |
|  | Subtotal | 1,132 | 1,139 | 101 | 3.1 | A |
| WB | T | 822 | 824 | 100 | 1.7 | A |
|  | R | 20 | 21 | 106 | 1.9 | A |
|  | Subtotal | 842 | 845 | 100 | 1.7 | A |
|  |  |  |  |  |  |  |
| Total |  | 2,010 | 2,021 | 101 | 3.1 | A |

Intersection: 2100 South \& 1300 East
Type:
Signalized

| Approach | Movement | Demand Volume | Volume Served |  | Delay/Veh (sec) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Avg | \% | Avg | LOS |
| NB | L | 242 | 240 | 99 | 73.3 | E |
|  | T | 828 | 824 | 99 | 27.6 | C |
|  | R | 727 | 708 | 97 | 11.3 | $B$ |
|  | Subtotal | 1,797 | 1,772 | 99 | 27.3 | C |
| SB | L | 67 | 66 | 98 | 122.2 | $F$ |
|  | T | 806 | 783 | 97 | 109.7 | $F$ |
|  | R | 84 | 85 | 101 | 116.8 | $F$ |
|  | Subtotal | 957 | 934 | 98 | 111.2 | $F$ |
| EB | L | 128 | 131 | 102 | 76.4 | E |
|  | T | 564 | 561 | 100 | 43.3 | D |
|  | R | 433 | 440 | 102 | 37.7 | D |
|  | Subtotal | 1,125 | 1,132 | 101 | 45.0 | D |
| WB | L | 486 | 440 | 91 | 215.9 | $F$ |
|  | T | 516 | 519 | 101 | 57.7 | $E$ |
|  | R | 63 | 60 | 95 | 56.5 | $E$ |
|  | Subtotal | 1,065 | 1,019 | 96 | 125.9 | F |
| Total |  | 4,944 | 4,857 | 98 | 68.7 | E |

1:2100 South \& 1200 East Performance by movement Interval \#1 5:00

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.3 |
| Delay / Veh (s) | 11.3 | 0.9 | 0.5 | 0.3 | 30.9 | 14.2 | 2.1 |
| Vehicles Entered | 11 | 255 | 188 | 11 | 13 | 11 | 489 |
| Vehicles Exited | 11 | 255 | 187 | 11 | 14 | 11 | 489 |
| Hourly Exit Rate | 44 | 1020 | 748 | 44 | 56 | 44 | 1956 |
| Input Volume | 43 | 1041 | 769 | 38 | 46 | 50 | 1987 |
| \% of Volume | 102 | 98 | 97 | 116 | 122 | 88 | 98 |

## 1: 2100 South \& 1200 East Performance by movement Interval \#2 5:15

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.2 | 0.0 | 0.0 | 0.3 | 0.3 | 0.9 |
| Delay / Veh (s) | 14.1 | 2.2 | 0.5 | 0.3 | 94.3 | 76.7 | 5.9 |
| Vehicles Entered | 12 | 300 | 212 | 10 | 14 | 15 | 563 |
| Vehicles Exited | 12 | 299 | 212 | 10 | 12 | 15 | 560 |
| Hourly Exit Rate | 48 | 1196 | 848 | 40 | 48 | 60 | 2240 |
| Input Volume | 48 | 1182 | 874 | 43 | 53 | 57 | 2257 |
| \% of Volume | 100 | 101 | 97 | 93 | 91 | 105 | 99 |

## 1: 2100 South \& 1200 East Performance by movement Interval \#3 5:30

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.2 | 0.0 | 0.0 | 0.6 | 0.4 | 1.2 |
| Delay / Veh (s) | 10.3 | 2.2 | 0.6 | 0.4 | 166.6 | 88.7 | 8.5 |
| Vehicles Entered | 11 | 269 | 205 | 12 | 14 | 14 | 525 |
| Vehicles Exited | 11 | 270 | 205 | 11 | 15 | 15 | 527 |
| Hourly Exit Rate | 44 | 1080 | 820 | 44 | 60 | 60 | 2108 |
| Input Volume | 43 | 1041 | 769 | 38 | 46 | 50 | 1987 |
| \% of Volume | 102 | 104 | 107 | 116 | 130 | 120 | 106 |

## 1: 2100 South \& 1200 East Performance by movement Interval \#4 5:45

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.1 | 0.0 | 0.0 | 0.3 | 0.3 | 0.7 |
| Delay / Veh (s) | 9.3 | 0.9 | 0.5 | 0.1 | 84.2 | 83.7 | 4.8 |
| Vehicles Entered | 9 | 256 | 190 | 11 | 11 | 12 | 489 |
| Vehicles Exited | 10 | 256 | 190 | 11 | 12 | 13 | 492 |
| Hourly Exit Rate | 40 | 1024 | 760 | 44 | 48 | 52 | 1968 |
| Input Volume | 43 | 1041 | 769 | 38 | 46 | 50 | 1987 |
| \% of Volume | 93 | 98 | 99 | 116 | 104 | 104 | 99 |

1:2100 South \& 1200 East Performance by movement Entire Run

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.1 | 0.5 | 0.1 | 0.0 | 1.4 | 1.0 | 3.1 |
| Delay / Veh (s) | 11.4 | 1.6 | 0.5 | 0.3 | 94.6 | 68.7 | 5.4 |
| Vehicles Entered | 43 | 1081 | 795 | 43 | 52 | 53 | 2067 |
| Vehicles Exited | 44 | 1080 | 794 | 43 | 52 | 53 | 2066 |
| Hourly Exit Rate | 44 | 1080 | 794 | 43 | 52 | 53 | 2066 |
| Input Volume | 44 | 1076 | 795 | 39 | 48 | 52 | 2054 |
| \% of Volume | 99 | 100 | 100 | 110 | 109 | 102 | 101 |

## 2: 2100 South \& Project Access Performance by movement Interval \#1 5:00

| Movement | EBT | EBR | WBL | WBT | NBL | NBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| Delay / Veh (s) | 0.5 | 0.6 | 7.9 | 0.4 | 27.7 | 9.9 | 0.8 |
| Vehicles Entered | 265 | 3 | 6 | 198 | 2 | 6 | 480 |
| Vehicles Exited | 266 | 3 | 6 | 197 | 2 | 6 | 480 |
| Hourly Exit Rate | 1064 | 12 | 24 | 788 | 8 | 24 | 1920 |
| Input Volume | 1076 | 11 | 18 | 800 | 7 | 18 | 1930 |
| \% of Volume | 99 | 109 | 133 | 98 | 114 | 133 | 99 |

2: 2100 South \& Project Access Performance by movement Interval \#2 5:15

| Movement | EBT | EBR | WBL | WBT | NBL | NBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 |
| Delay / Veh (s) | 1.7 | 3.0 | 12.0 | 0.5 | 44.9 | 19.2 | 1.6 |
| Vehicles Entered | 308 | 3 | 4 | 218 | 2 | 5 | 540 |
| Vehicles Exited | 307 | 3 | 5 | 220 | 2 | 5 | 542 |
| Hourly Exit Rate | 1228 | 12 | 20 | 880 | 8 | 20 | 2168 |
| Input Volume | 1224 | 12 | 21 | 910 | 8 | 21 | 2196 |
| \% of Volume | 100 | 100 | 95 | 97 | 100 | 95 | 99 |

## 2: 2100 South \& Project Access Performance by movement Interval \#3 5:30

| Movement | EBT | EBR | WBL | WBT | NBL | NBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.3 |
| Delay / Veh (s) | 2.1 | 3.9 | 8.2 | 0.5 | 56.4 | 52.1 | 2.2 |
| Vehicles Entered | 282 | 3 | 4 | 216 | 2 | 5 | 512 |
| Vehicles Exited | 283 | 3 | 4 | 215 | 2 | 5 | 512 |
| Hourly Exit Rate | 1132 | 12 | 16 | 860 | 8 | 20 | 2048 |
| Input Volume | 1076 | 11 | 18 | 800 | 7 | 18 | 1930 |
| \% of Volume | 105 | 109 | 89 | 108 | 114 | 111 | 106 |

## 2: 2100 South \& Project Access Performance by movement Interval \#4 5:45

| Movement | EBT | EBR | WBL | WBT | NBL | NBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| Delay / Veh (s) | 0.3 | 0.1 | 6.3 | 0.4 | 21.6 | 6.8 | 0.6 |
| Vehicles Entered | 264 | 4 | 5 | 198 | 2 | 5 | 478 |
| Vehicles Exited | 264 | 4 | 5 | 199 | 2 | 5 | 479 |
| Hourly Exit Rate | 1056 | 16 | 20 | 796 | 8 | 20 | 1916 |
| Input Volume | 1076 | 11 | 18 | 800 | 7 | 18 | 1930 |
| \% of Volume | 98 | 145 | 111 | 100 | 114 | 111 | 99 |

## 2: 2100 South \& Project Access Performance by movement Entire Run

| Movement | EBT | EBR | WBL | WBT | NBL | NBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.4 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.7 |
| Delay / Veh (s) | 1.2 | 1.8 | 8.6 | 0.4 | 37.7 | 22.5 | 1.3 |
| Vehicles Entered | 1119 | 13 | 20 | 830 | 8 | 20 | 2010 |
| Vehicles Exited | 1119 | 13 | 20 | 830 | 8 | 20 | 2010 |
| Hourly Exit Rate | 1119 | 13 | 20 | 830 | 8 | 20 | 2010 |
| Input Volume | 1113 | 11 | 19 | 828 | 7 | 19 | 1996 |
| \% of Volume | 101 | 116 | 107 | 100 | 110 | 107 | 101 |

3: 2100 South \& Douglas Street Performance by movement Interval \#1 5:00

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 |
| Delay / Veh (s) | 7.1 | 1.5 | 1.6 | 1.6 | 20.2 | 8.7 | 1.8 |
| Vehicles Entered | 4 | 267 | 198 | 4 | 2 | 6 | 481 |
| Vehicles Exited | 4 | 266 | 198 | 4 | 2 | 6 | 480 |
| Hourly Exit Rate | 16 | 1064 | 792 | 16 | 8 | 24 | 1920 |
| Input Volume | 19 | 1075 | 795 | 19 | 12 | 23 | 1943 |
| \% of Volume | 84 | 99 | 100 | 84 | 67 | 104 | 99 |

## 3: 2100 South \& Douglas Street Performance by movement Interval \#2 5:15

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.6 |
| Delay / Veh (s) | 6.4 | 4.8 | 1.7 | 1.7 | 60.3 | 16.0 | 3.9 |
| Vehicles Entered | 6 | 304 | 215 | 6 | 2 | 6 | 539 |
| Vehicles Exited | 6 | 302 | 216 | 6 | 2 | 6 | 538 |
| Hourly Exit Rate | 24 | 1208 | 864 | 24 | 8 | 24 | 2152 |
| Input Volume | 22 | 1222 | 904 | 22 | 13 | 26 | 2209 |
| \% of Volume | 109 | 99 | 96 | 109 | 62 | 92 | 97 |

## 3: 2100 South \& Douglas Street Performance by movement Interval \#3 5:30

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.4 | 0.1 | 0.0 | 0.1 | 0.1 | 0.7 |
| Delay / Veh (s) | 7.1 | 4.5 | 1.8 | 1.8 | 112.3 | 55.9 | 4.7 |
| Vehicles Entered | 3 | 285 | 215 | 6 | 3 | 8 | 520 |
| Vehicles Exited | 4 | 287 | 214 | 6 | 3 | 6 | 520 |
| Hourly Exit Rate | 16 | 1148 | 856 | 24 | 12 | 24 | 2080 |
| Input Volume | 19 | 1075 | 795 | 19 | 12 | 23 | 1943 |
| \% of Volume | 84 | 107 | 108 | 126 | 100 | 104 | 107 |

## 3: 2100 South \& Douglas Street Performance by movement Interval \#4 5:45

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 |
| Delay / Veh (s) | 4.6 | 0.9 | 1.6 | 2.5 | 42.7 | 9.9 | 1.7 |
| Vehicles Entered | 4 | 265 | 195 | 5 | 4 | 6 | 479 |
| Vehicles Exited | 4 | 265 | 196 | 5 | 4 | 7 | 481 |
| Hourly Exit Rate | 16 | 1060 | 784 | 20 | 16 | 28 | 1924 |
| Input Volume | 19 | 1075 | 795 | 19 | 12 | 23 | 1943 |
| \% of Volume | 84 | 99 | 99 | 105 | 133 | 122 | 99 |

3: 2100 South \& Douglas Street Performance by movement Entire Run

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.9 | 0.4 | 0.0 | 0.2 | 0.2 | 1.7 |
| Delay / Veh (s) | 6.3 | 3.0 | 1.7 | 1.9 | 60.8 | 23.4 | 3.1 |
| Vehicles Entered | 18 | 1121 | 823 | 21 | 11 | 26 | 2020 |
| Vehicles Exited | 18 | 1121 | 824 | 21 | 11 | 26 | 2021 |
| Hourly Exit Rate | 18 | 1121 | 824 | 21 | 11 | 26 | 2021 |
| Input Volume | 20 | 1112 | 822 | 20 | 12 | 24 | 2010 |
| \% of Volume | 91 | 101 | 100 | 106 | 90 | 109 | 101 |

## 4: 2100 South \& 1300 East Performance by movement Interval \#1 5:00

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.4 | 1.5 | 0.9 | 2.5 | 1.3 | 0.1 | 0.8 | 1.6 | 0.5 | 0.3 | 2.5 |
| Delay / Veh (s) | 56.1 | 39.2 | 30.8 | 82.0 | 35.9 | 32.5 | 54.3 | 28.1 | 10.7 | 68.6 | 49.9 |
| Vehicles Entered | 29 | 136 | 104 | 116 | 123 | 15 | 55 | 206 | 176 | 16 | 187 |
| Vehicles Exited | 26 | 146 | 105 | 105 | 129 | 16 | 57 | 208 | 174 | 15 | 176 |
| Hourly Exit Rate | 104 | 584 | 420 | 420 | 516 | 64 | 228 | 832 | 696 | 60 | 704 |
| Input Volume | 124 | 545 | 419 | 470 | 499 | 61 | 234 | 801 | 703 | 65 | 779 |
| \% of Volume | 84 | 107 | 100 | 89 | 103 | 105 | 97 | 104 | 99 | 92 | 90 |

## 4: 2100 South \& 1300 East Performance by movement Interval \#1 5:00

| Movement | All |
| :--- | ---: |
| Total Delay (hr) | 12.8 |
| Delay / Veh (s) | 39.0 |
| Vehicles Entered | 1183 |
| Vehicles Exited | 1175 |
| Hourly Exit Rate | 4700 |
| Input Volume | 4781 |
| \% of Volume | 98 |

4: 2100 South \& 1300 East Performance by movement Interval \#2 5:15

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.9 | 2.0 | 1.5 | 5.7 | 2.0 | 0.2 | 1.6 | 1.8 | 0.8 | 0.5 | 5.6 |
| Delay / Veh (s) | 85.9 | 50.1 | 46.6 | 170.8 | 50.6 | 45.0 | 86.4 | 28.7 | 14.0 | 105.6 | 95.5 |
| Vehicles Entered | 36 | 150 | 118 | 127 | 145 | 17 | 69 | 223 | 196 | 18 | 213 |
| Vehicles Exited | 37 | 140 | 110 | 115 | 134 | 15 | 62 | 219 | 197 | 18 | 207 |
| Hourly Exit Rate | 148 | 560 | 440 | 460 | 536 | 60 | 248 | 876 | 788 | 72 | 828 |
| Input Volume | 141 | 619 | 476 | 534 | 567 | 69 | 266 | 910 | 799 | 74 | 886 |
| \% of Volume | 105 | 90 | 92 | 86 | 95 | 87 | 93 | 96 | 99 | 97 | 93 |

## 4: 2100 South \& 1300 East Performance by movement Interval \#2 5:15

| Movement | All |
| :--- | ---: |
| Total Delay (hr) | 23.1 |
| Delay / Veh (s) | 63.6 |
| Vehicles Entered | 1336 |
| Vehicles Exited | 1278 |
| Hourly Exit Rate | 5112 |
| Input Volume | 5433 |
| $\%$ of Volume | 94 |

## 4: 2100 South \& 1300 East Performance by movement Interval \#3 5:30

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| SBR |  |  |  |  |  |  |  |  |  |  |  |
| Total Delay (hr) | 0.8 | 1.6 | 1.4 | 8.6 | 2.0 | 0.3 | 1.3 | 1.5 | 0.5 | 0.8 | 8.5 |
| Delay / Veh (s) | 89.8 | 38.9 | 40.7 | 293.6 | 54.2 | 60.1 | 79.0 | 27.0 | 10.2 | 181.7 | 160.8 |
| Vehicles Entered | 35 | 139 | 117 | 111 | 128 | 16 | 57 | 200 | 169 | 16 | 190 |
| Vehicles Exited | 34 | 148 | 124 | 102 | 137 | 17 | 62 | 205 | 171 | 15 | 192 |
| Hourly Exit Rate | 136 | 592 | 496 | 408 | 548 | 68 | 248 | 820 | 684 | 60 | 768 |
| Input Volume | 124 | 545 | 419 | 470 | 499 | 61 | 234 | 801 | 703 | 65 | 779 |
| \% of Volume | 110 | 109 | 118 | 87 | 110 | 111 | 106 | 102 | 97 | 92 | 99 |

## 4: 2100 South \& 1300 East Performance by movement Interval \#3 5:30

| Movement | All |
| :--- | ---: |
| Total Delay (hr) | 28.4 |
| Delay / Veh (s) | 84.0 |
| Vehicles Entered | 1200 |
| Vehicles Exited | 1229 |
| Hourly Exit Rate | 4916 |
| Input Volume | 4781 |
| $\%$ of Volume | 103 |

4: 2100 South \& 1300 East Performance by movement Interval \#4 5:45

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.7 | 1.6 | 0.9 | 10.3 | 3.1 | 0.3 | 1.2 | 1.4 | 0.5 | 0.7 | 7.5 |
| Delay / Veh (s) | 71.0 | 45.0 | 30.9 | 320.8 | 92.2 | 93.8 | 71.0 | 26.2 | 10.0 | 133.9 | 129.1 |
| Vehicles Entered | 32 | 135 | 103 | 113 | 125 | 13 | 61 | 195 | 167 | 17 | 208 |
| Vehicles Exited | 34 | 127 | 100 | 118 | 119 | 13 | 58 | 192 | 166 | 18 | 210 |
| Hourly Exit Rate | 136 | 508 | 400 | 472 | 476 | 52 | 232 | 768 | 664 | 72 | 840 |
| Input Volume | 124 | 545 | 419 | 470 | 499 | 61 | 234 | 801 | 703 | 65 | 779 |
| \% of Volume | 110 | 93 | 95 | 100 | 95 | 85 | 99 | 96 | 94 | 111 | 108 |

## 4: 2100 South \& 1300 East Performance by movement Interval \#4 5:45

| Movement | All |
| :--- | ---: |
| Total Delay (hr) | 29.0 |
| Delay / Veh (s) | 88.2 |
| Vehicles Entered | 1190 |
| Vehicles Exited | 1177 |
| Hourly Exit Rate | 4708 |
| Input Volume | 4781 |
| \% of Volume | 98 |

4: 2100 South \& 1300 East Performance by movement Entire Run

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Total Delay (hr) | 2.8 | 6.8 | 4.6 | 27.2 | 8.3 | 0.9 | 4.9 | 6.3 | 2.2 | 2.2 | 24.1 | 2.8 |
| Delay / Veh (s) | 76.4 | 43.3 | 37.7 | 215.9 | 57.7 | 56.5 | 73.3 | 27.6 | 11.3 | 122.2 | 109.7 | 116.8 |
| Vehicles Entered | 131 | 561 | 442 | 468 | 521 | 60 | 242 | 824 | 708 | 67 | 799 | 88 |
| Vehicles Exited | 131 | 561 | 440 | 440 | 519 | 60 | 240 | 824 | 708 | 66 | 783 | 85 |
| Hourly Exit Rate | 131 | 561 | 440 | 440 | 519 | 60 | 240 | 824 | 708 | 66 | 783 | 85 |
| Input Volume | 128 | 564 | 433 | 486 | 516 | 63 | 242 | 828 | 727 | 67 | 806 | 84 |
| \% of Volume | 102 | 100 | 102 | 91 | 101 | 95 | 99 | 99 | 97 | 98 | 97 | 101 |

## 4: 2100 South \& 1300 East Performance by movement Entire Run

| Movement | All |
| :--- | ---: |
| Total Delay (hr) | 93.2 |
| Delay / Veh (s) | 68.7 |
| Vehicles Entered | 4911 |
| Vehicles Exited | 4857 |
| Hourly Exit Rate | 4857 |
| Input Volume | 4944 |
| \% of Volume | 98 |

Total Network Performance By Interval

|  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Interval Start | $5: 00$ | $5: 15$ | $5: 30$ | $5: 45$ | All |
| Total Delay (hr) | 13.9 | 25.4 | 31.1 | 30.5 | 100.9 |
| Delay / Veh (s) | 41.3 | 67.5 | 89.5 | 89.6 | 72.0 |
| Vehicles Entered | 1220 | 1389 | 1235 | 1225 | 5073 |
| Vehicles Exited | 1207 | 1324 | 1266 | 1222 | 5018 |
| Hourly Exit Rate | 4828 | 5296 | 5064 | 4888 | 5018 |
| Input Volume | 15574 | 17702 | 15574 | 15574 | 16106 |
| \% of Volume | 31 | 30 | 33 | 31 | 31 |

Intersection: 1:2100 South \& 1200 East, Interval \#1

| Movement | EB | EB | WB | SB |
| :--- | ---: | ---: | ---: | ---: |
| Directions Served | L | T | TR | LR |
| Maximum Queue (ft) | 43 | 10 | 4 | 91 |
| Average Queue (ft) | 18 | 2 | 1 | 54 |
| 95th Queue (ft) | 48 | 21 | 7 | 101 |
| Link Distance (ft) |  | 422 | 127 | 465 |
| Upstream Blk Time (\%) |  |  |  |  |
| Queuing Penalty (veh) |  |  |  |  |
| Storage Bay Dist (ft) | 50 |  |  |  |
| Storage Blk Time (\%) | 1 |  |  |  |
| Queuing Penalty (veh) | 3 |  |  |  |

Intersection: 1:2100 South \& 1200 East, Interval \#2

| Movement | EB | EB | EB | WB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | TR | LR |
| Maximum Queue (ft) | 50 | 26 | 61 | 8 | 192 |
| Average Queue (ft) | 20 | 7 | 24 | 1 | 110 |
| 95th Queue (ft) | 54 | 69 | 126 | 13 | 261 |
| Link Distance (ft) |  | 422 | 422 | 127 | 465 |
| Upstream Blk Time (\%) |  |  |  |  | 1 |
| Queuing Penalty (veh) |  |  |  |  | 0 |
| Storage Bay Dist (ft) | 50 |  |  |  |  |
| Storage Blk Time (\%) | 2 | 0 |  |  |  |
| Queuing Penalty (veh) | 11 | 0 |  |  |  |

Intersection: 1:2100 South \& 1200 East, Interval \#3

| Movement | EB | EB | EB | WB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | TR | LR |
| Maximum Queue (ft) | 37 | 17 | 61 | 8 | 215 |
| Average Queue (ft) | 20 | 4 | 29 | 1 | 137 |
| 95th Queue (ft) | 46 | 45 | 147 | 13 | 373 |
| Link Distance (ft) |  | 422 | 422 | 127 | 465 |
| Upstream Blk Time (\%) |  |  |  |  | 6 |
| Queuing Penalty (veh) |  |  |  |  | 0 |
| Storage Bay Dist (ft) | 50 |  |  |  |  |
| Storage Blk Time (\%) | 0 |  |  |  |  |
| Queuing Penalty (veh) | 2 |  |  |  |  |

Intersection: 1:2100 South \& 1200 East, Interval \#4

| Movement | EB | SB |
| :--- | ---: | ---: |
| Directions Served | L | LR |
| Maximum Queue (ft) | 40 | 150 |
| Average Queue (tt) | 18 | 89 |
| 95th Queue (tt) | 47 | 283 |
| Link Distance (ft) |  | 465 |
| Upstream Blk Time (\%) |  | 2 |
| Queuing Penalty (veh) |  | 0 |
| Storage Bay Dist (tt) | 50 |  |
| Storage Blk Time (\%) | 0 |  |
| Queuing Penalty (veh) | 2 |  |

Intersection: 1:2100 South \& 1200 East, All Intervals

| Movement | EB | EB | EB | WB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | TR | LR |
| Maximum Queue (ft) | 60 | 26 | 76 | 20 | 263 |
| Average Queue (ft) | 19 | 3 | 14 | 1 | 97 |
| 95th Queue (ft) | 49 | 40 | 95 | 10 | 276 |
| Link Distance (ft) |  | 422 | 422 | 127 | 465 |
| Upstream Blk Time (\%) |  |  |  |  | 2 |
| Queuing Penalty (veh) |  |  |  |  | 0 |
| Storage Bay Dist (ft) | 50 |  |  |  |  |
| Storage Blk Time (\%) | 1 | 0 |  |  |  |
| Queuing Penalty (veh) | 4 | 0 |  |  |  |

Intersection: 2: 2100 South \& Project Access, Interval \#1

| Movement | EB | EB | WB | NB |
| :--- | ---: | ---: | ---: | ---: |
| Directions Served | T | TR | L | LR |
| Maximum Queue (ft) | 8 | 20 | 32 | 44 |
| Average Queue (ft) | 1 | 6 | 13 | 23 |
| 95th Queue (ft) | 18 | 48 | 39 | 51 |
| Link Distance (ft) | 127 | 127 |  | 143 |
| Upstream Blk Time (\%) |  | 0 |  |  |
| Queuing Penalty (veh) |  | 1 |  |  |
| Storage Bay Dist (ft) |  |  | 50 |  |
| Storage Blk Time (\%) |  |  | 0 |  |
| Queuing Penalty (veh) |  |  | 1 |  |

Intersection: 2: 2100 South \& Project Access, Interval \#2

| Movement | EB | EB | WB | NB |
| :--- | ---: | ---: | ---: | ---: |
| Directions Served | T | TR | L | LR |
| Maximum Queue (ft) | 26 | 59 | 35 | 55 |
| Average Queue (tt) | 7 | 30 | 13 | 27 |
| 95th Queue (tt) | 49 | 121 | 39 | 63 |
| Link Distance (tt) | 127 | 127 |  | 143 |
| Upstream Blk Time (\%) | 0 | 5 |  |  |
| Queuing Penalty (veh) | 1 | 29 |  |  |
| Storage Bay Dist (tt) |  |  | 50 |  |
| Storage Blk Time (\%) |  |  | 0 |  |
| Queuing Penalty (veh) |  |  | 1 |  |

## Intersection: 2: 2100 South \& Project Access, Interval \#3

| Movement | EB | EB | WB | NB |
| :--- | ---: | ---: | ---: | ---: |
| Directions Served | T | TR | L | LR |
| Maximum Queue (ft) | 36 | 50 | 30 | 59 |
| Average Queue (ft) | 11 | 35 | 10 | 27 |
| 95th Queue (ft) | 66 | 133 | 33 | 78 |
| Link Distance (ft) | 127 | 127 |  | 143 |
| Upstream Blk Time (\%) | 0 | 6 |  | 0 |
| Queuing Penalty (veh) | 0 | 31 |  | 0 |
| Storage Bay Dist (ft) |  |  | 50 |  |
| Storage Blk Time (\%) |  |  | 0 |  |
| Queuing Penalty (veh) |  |  | 1 |  |

Intersection: 2: 2100 South \& Project Access, Interval \#4

| Movement | WB | NB |
| :--- | ---: | ---: |
| Directions Served | L | LR |
| Maximum Queue (ft) | 33 | 40 |
| Average Queue (ft) | 11 | 21 |
| 95th Queue (ft) | 37 | 50 |
| Link Distance (ft) |  | 143 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) | 50 |  |
| Storage Blk Time (\%) | 0 |  |
| Queuing Penalty (veh) | 1 |  |

Intersection: 2: 2100 South \& Project Access, All Intervals

| Movement | EB | EB | WB | NB |
| :--- | ---: | ---: | ---: | ---: |
| Directions Served | T | TR | L | LR |
| Maximum Queue (ft) | 45 | 80 | 44 | 70 |
| Average Queue (ft) | 5 | 18 | 12 | 24 |
| 95th Queue (ft) | 41 | 92 | 37 | 62 |
| Link Distance (ft) | 127 | 127 |  | 143 |
| Upstream Blk Time (\%) | 0 | 3 |  | 0 |
| Queuing Penalty (veh) | 0 | 15 |  | 0 |
| Storage Bay Dist (ft) |  |  | 50 |  |
| Storage Blk Time (\%) |  |  | 0 |  |
| Queuing Penalty (veh) |  |  | 1 |  |

## Intersection: 3: 2100 South \& Douglas Street, Interval \#1

| Movement | EB | EB | EB | SB |
| :--- | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | LR |
| Maximum Queue (ft) | 28 | 38 | 83 | 36 |
| Average Queue (ft) | 9 | 7 | 23 | 25 |
| 95th Queue (ft) | 31 | 56 | 104 | 47 |
| Link Distance (ft) |  | 173 | 173 | 432 |
| Upstream Blk Time (\%) |  |  | 1 |  |
| Queuing Penalty (veh) |  |  | 6 |  |
| Storage Bay Dist (ft) | 50 |  |  |  |
| Storage Blk Time (\%) | 0 | 0 |  |  |
| Queuing Penalty (veh) | 0 | 0 |  |  |

## Intersection: 3: 2100 South \& Douglas Street, Interval \#2

| Movement | EB | EB | EB | SB |
| :--- | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | LR |
| Maximum Queue (ft) | 31 | 109 | 151 | 50 |
| Average Queue (ft) | 10 | 48 | 87 | 26 |
| 95th Queue (ft) | 34 | 152 | 211 | 57 |
| Link Distance (ft) |  | 173 | 173 | 432 |
| Upstream Blk Time (\%) |  | 0 | 7 |  |
| Queuing Penalty (veh) |  | 2 | 42 |  |
| Storage Bay Dist (ft) | 50 |  |  |  |
| Storage Blk Time (\%) | 0 | 3 |  |  |
| Queuing Penalty (veh) | 0 | 1 |  |  |

Intersection: 3: 2100 South \& Douglas Street, Interval \#3

| Movement | EB | EB | EB | WB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | TR | LR |
| Maximum Queue (ft) | 31 | 114 | 146 | 5 | 76 |
| Average Queue (tt) | 7 | 33 | 77 | 1 | 42 |
| 95th Queue (ft) | 28 | 126 | 204 | 8 | 107 |
| Link Distance (ft) |  | 173 | 173 | 324 | 432 |
| Upstream Blk Time (\%) |  | 0 | 9 |  |  |
| Queuing Penalty (veh) |  | 0 | 47 |  |  |
| Storage Bay Dist (tt) | 50 |  |  |  |  |
| Storage Blk Time (\%) | 0 | 1 |  |  |  |
| Queuing Penalty (veh) | 0 | 0 |  |  |  |

## Intersection: 3: 2100 South \& Douglas Street, Interval \#4

| Movement | EB | EB | EB | SB |
| :--- | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | LR |
| Maximum Queue (ft) | 28 | 24 | 85 | 70 |
| Average Queue (ft) | 7 | 4 | 18 | 32 |
| 95th Queue (ft) | 28 | 34 | 88 | 77 |
| Link Distance (ft) |  | 173 | 173 | 432 |
| Upstream Blk Time (\%) |  |  | 0 |  |
| Queuing Penalty (veh) |  |  | 0 |  |
| Storage Bay Dist (ft) | 50 |  |  |  |
| Storage Blk Time (\%) | 0 | 0 |  |  |
| Queuing Penalty (veh) | 0 | 0 |  |  |

Intersection: 3: 2100 South \& Douglas Street, All Intervals

| Movement | EB | EB | EB | WB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | TR | LR |
| Maximum Queue (ft) | 31 | 144 | 178 | 5 | 93 |
| Average Queue (ft) | 8 | 23 | 51 | 0 | 31 |
| 95th Queue (ft) | 31 | 104 | 167 | 4 | 77 |
| Link Distance (ft) |  | 173 | 173 | 324 | 432 |
| Upstream Blk Time (\%) |  | 0 | 4 |  |  |
| Queuing Penalty (veh) |  | 1 | 24 |  |  |
| Storage Bay Dist (ft) | 50 |  |  |  |  |
| Storage Blk Time (\%) | 0 | 1 |  |  |  |
| Queuing Penalty (veh) | 0 | 0 |  |  |  |

Intersection: 4: 2100 South \& 1300 East, Interval \#1

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| NB |  |  |  |  |  |  |  |  |  |  |  |
| Directions Served | L | T | T | R | L | L | T | TR | L | T | T |
| R |  |  |  |  |  |  |  |  |  |  |  |
| Maximum Queue (ft) | 163 | 296 | 330 | 195 | 252 | 269 | 227 | 239 | 212 | 289 | 289 |
| Average Queue (ft) | 95 | 208 | 262 | 181 | 183 | 199 | 155 | 179 | 144 | 188 | 207 |
| 95th Queue (ft) | 177 | 321 | 376 | 230 | 282 | 295 | 238 | 253 | 226 | 299 | 305 |
| (ft) |  | 324 | 324 |  |  |  | 768 | 768 |  | 749 | 749 |
| Link Distance | 749 |  |  |  |  |  |  |  |  |  |  |
| Upstream Blk Time (\%) |  | 0 | 5 |  |  |  |  |  |  |  |  |
| Queuing Penalty (veh) |  | 1 | 29 |  |  |  |  |  |  |  |  |
| Storage Bay Dist (ft) | 115 |  |  | 115 | 310 | 310 |  |  | 220 |  |  |
| Storage Blk Time (\%) | 7 | 27 | 33 | 29 | 0 | 1 |  |  | 2 | 3 |  |
| Queuing Penalty (veh) | 18 | 34 | 136 | 79 | 1 | 2 |  |  | 8 | 8 |  |

Intersection: 4: 2100 South \& 1300 East, Interval \#1

| Movement | SB | SB | SB |
| :--- | ---: | ---: | ---: |
| Directions Served | L | T | TR |
| Maximum Queue (ft) | 98 | 407 | 424 |
| Average Queue (ft) | 51 | 283 | 304 |
| 95th Queue (ft) | 109 | 442 | 454 |
| Link Distance (ft) |  | 474 | 474 |
| Upstream Blk Time (\%) |  | 0 | 1 |
| Queuing Penalty (veh) |  | 0 | 0 |
| Storage Bay Dist (ft) | 60 |  |  |
| Storage Blk Time (\%) | 6 | 55 |  |
| Queuing Penalty (veh) | 22 | 36 |  |

Intersection: 4: 2100 South \& 1300 East, Interval \#2

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB | NB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | R | L | L | T | TR | L | T | T | R |
| Maximum Queue (ft) | 194 | 337 | 342 | 195 | 404 | 483 | 431 | 376 | 309 | 303 | 337 | 268 |
| Average Queue (ft) | 133 | 258 | 301 | 185 | 309 | 342 | 230 | 213 | 220 | 217 | 241 | 141 |
| 95th Queue (ft) | 221 | 391 | 399 | 229 | 471 | 555 | 554 | 431 | 353 | 322 | 354 | 265 |
| Link Distance (ft) |  | 324 | 324 |  |  |  | 768 | 768 |  | 749 | 749 | 749 |
| Upstream Blk Time (\%) |  | 5 | 18 |  |  |  | 2 | 0 |  |  |  |  |
| Queuing Penalty (veh) |  | 33 | 108 |  |  |  | 0 | 0 |  |  |  |  |
| Storage Bay Dist (ft) | 115 |  |  | 115 | 310 | 310 |  |  | 220 |  |  |  |
| Storage Blk Time (\%) | 28 | 34 | 37 | 49 | 28 | 31 | 0 |  | 20 | 5 |  |  |
| Queuing Penalty (veh) | 88 | 48 | 178 | 151 | 80 | 88 | 2 |  | 89 | 13 |  |  |

Intersection: 4: 2100 South \& 1300 East, Interval \#2

| Movement | SB | SB | SB |
| :--- | ---: | ---: | ---: |
| Directions Served | L | T | TR |
| Maximum Queue (ft) | 124 | 477 | 475 |
| Average Queue (ft) | 58 | 417 | 423 |
| 95th Queue (ft) | 129 | 545 | 540 |
| Link Distance (ft) |  | 474 | 474 |
| Upstream Blk Time (\%) |  | 20 | 23 |
| Queuing Penalty (veh) |  | 0 | 0 |
| Storage Bay Dist (ft) | 60 |  |  |
| Storage Blk Time (\%) | 9 | 64 |  |
| Queuing Penalty (veh) | 41 | 47 |  |

Intersection: 4: 2100 South \& 1300 East, Interval \#3

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| NB |  |  |  |  |  |  |  |  |  |  |  |
| irections Served | L | T | T | R | L | L | T | TR | L | T | T |
| Maximum Queue (ft) | 194 | 332 | 336 | 195 | 426 | 540 | 629 | 535 | 301 | 270 | 282 |
| R |  |  |  |  |  |  |  |  |  |  |  |
| Average Queue (ft) | 135 | 252 | 299 | 188 | 402 | 501 | 525 | 315 | 203 | 180 | 198 |
| 95th Queue (ft) | 233 | 363 | 397 | 216 | 539 | 717 | 959 | 649 | 332 | 275 | 287 |
| 202 |  |  |  |  |  |  |  |  |  |  |  |
| Link Distance (ft) |  | 324 | 324 |  |  |  | 768 | 768 |  | 749 | 749 |
| Upstream Blk Time (\%) |  | 2 | 16 |  |  |  | 10 | 0 |  |  |  |
| Queuing Penalty (veh) |  | 11 | 89 |  |  |  | 0 | 0 |  |  |  |
| Storage Bay Dist (ft) | 115 |  |  | 115 | 310 | 310 |  |  | 220 |  |  |
| Storage Blk Time (\%) | 31 | 26 | 31 | 44 | 63 | 68 | 0 |  | 16 | 3 |  |
| Queuing Penalty (veh) | 85 | 32 | 131 | 119 | 158 | 168 | 1 |  | 65 | 7 |  |

Intersection: 4: 2100 South \& 1300 East, Interval \#3

| Movement | SB | SB | SB |
| :--- | ---: | ---: | ---: |
| Directions Served | L | T | TR |
| Maximum Queue (ft) | 112 | 490 | 484 |
| Average Queue (ft) | 50 | 456 | 459 |
| 95th Queue (ft) | 116 | 566 | 562 |
| Link Distance (ft) |  | 474 | 474 |
| Upstream Blk Time (\%) |  | 38 | 44 |
| Queuing Penalty (veh) |  | 0 | 0 |
| Storage Bay Dist (ft) | 60 |  |  |
| Storage Blk Time (\%) | 7 | 69 |  |
| Queuing Penalty (veh) | 26 | 45 |  |

Intersection: 4: 2100 South \& 1300 East, Interval \#4

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| NB |  |  |  |  |  |  |  |  |  |  |  |
| irections Served | L | T | T | R | L | L | T | TR | L | T | T |
| Maximum Queue (ft) | 184 | 311 | 335 | 195 | 431 | 543 | 667 | 646 | 253 | 299 | 311 |
| R |  |  |  |  |  |  |  |  |  |  |  |
| Average Queue (ft) | 115 | 211 | 244 | 161 | 409 | 510 | 534 | 325 | 179 | 176 | 194 |
| 95th Queue (ft) | 202 | 337 | 378 | 241 | 519 | 698 | 1019 | 741 | 304 | 295 | 308 |
| Link Distance (ft) |  | 324 | 324 |  |  |  | 768 | 768 |  | 749 | 749 |
| Upstream Blk Time (\%) |  | 0 | 3 |  |  |  | 18 | 0 |  |  |  |
| Queuing Penalty (veh) |  | 3 | 18 |  |  |  | 0 | 0 |  |  |  |
| Storage Bay Dist (ft) | 115 |  |  | 115 | 310 | 310 |  |  | 220 |  |  |
| Storage Blk Time (\%) | 20 | 28 | 34 | 28 | 69 | 72 | 0 |  | 10 | 3 |  |
| Queuing Penalty (veh) | 55 | 34 | 141 | 75 | 172 | 179 | 0 |  | 38 | 7 |  |

Intersection: 4: 2100 South \& 1300 East, Interval \#4

| Movement | SB | SB | SB |
| :--- | ---: | ---: | ---: |
| Directions Served | L | T | TR |
| Maximum Queue (ft) | 122 | 493 | 499 |
| Average Queue (ft) | 57 | 466 | 472 |
| 95th Queue (ft) | 127 | 564 | 560 |
| Link Distance (ft) |  | 474 | 474 |
| Upstream Blk Time (\%) |  | 32 | 36 |
| Queuing Penalty (veh) |  | 0 | 0 |
| Storage Bay Dist (ft) | 60 |  |  |
| Storage Blk Time (\%) | 8 | 65 |  |
| Queuing Penalty (veh) | 31 | 42 |  |

Intersection: 4: 2100 South \& 1300 East, All Intervals

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| NB |  |  |  |  |  |  |  |  |  |  |  |
| Directions Served | L | T | T | R | L | L | T | TR | L | T | T |
| Maximum Queue (ft) | 194 | 354 | 348 | 195 | 432 | 543 | 676 | 660 | 332 | 338 | 352 |
| R |  |  |  |  |  |  |  |  |  |  |  |
| Average Queue (ft) | 120 | 232 | 277 | 179 | 326 | 388 | 361 | 258 | 187 | 190 | 210 |
| 109 |  |  |  |  |  |  |  |  |  |  |  |
| 95th Queue (ft) | 212 | 359 | 395 | 235 | 524 | 669 | 823 | 567 | 315 | 301 | 318 |
| ink Distance (ft) |  | 324 | 324 |  |  |  | 768 | 768 |  | 749 | 749 |
| Upstream Blk Time (\%) |  | 2 | 11 |  |  |  | 7 | 0 |  |  |  |
| Queuing Penalty (veh) |  | 12 | 61 |  |  |  | 0 | 0 |  |  |  |
| Storage Bay Dist (ft) | 115 |  |  | 115 | 310 | 310 |  |  | 220 |  |  |
| Storage Blk Time (\%) | 22 | 29 | 34 | 37 | 40 | 43 | 0 |  | 12 | 4 |  |
| Queuing Penalty (veh) | 61 | 37 | 147 | 106 | 103 | 109 | 1 |  | 50 | 9 |  |

Intersection: 4: 2100 South \& 1300 East, All Intervals

| Movement | SB | SB | SB |
| :--- | ---: | ---: | ---: |
| Directions Served | L | T | TR |
| Maximum Queue (ft) | 149 | 501 | 501 |
| Average Queue (ft) | 54 | 405 | 414 |
| 95th Queue (ft) | 121 | 580 | 575 |
| Link Distance (ft) |  | 474 | 474 |
| Upstream Blk Time (\%) |  | 23 | 26 |
| Queuing Penalty (veh) |  | 0 | 0 |
| Storage Bay Dist (ft) | 60 |  |  |
| Storage Blk Time (\%) | 7 | 63 |  |
| Queuing Penalty (veh) | 30 | 42 |  |

## Network Summary

Network wide Queuing Penalty, Interval \#1: 386
Network wide Queuing Penalty, Interval \#2: 1054
Network wide Queuing Penalty, Interval \#3: 1019
Network wide Queuing Penalty, Interval \#4: 797
Network wide Queuing Penalty, All Intervals: 814

## SimTraffic LOS Report

Project:
Analysis Period: Time Period:

SLC - Chick-fil-A TIS
Existing 2010 Plus Project
PM Peak Hour
Project \#: UT10-213

Intersection: 2100 South \& 1200 East
Type: Unsignalized

| Approach | Movement | Demand Volume | Volume Served |  | Delay/Veh (sec) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Avg | \% | Avg | LOS |
| SB | L | 48 | 47 | 98 | 49.7 | E |
|  | R | 52 | 51 | 99 | 27.2 | D |
|  | Subtotal | 100 | 98 | 98 | 38.0 | $E$ |
| EB | L | 44 | 46 | 104 | 11.6 | $B$ |
|  | T | 1,085 | 1,095 | 101 | 1.3 | A |
|  | Subtotal | 1,129 | 1,141 | 101 | 1.7 | A |
| WB | T | 805 | 790 | 98 | 0.5 | A |
|  | R | 39 | 39 | 99 | 0.3 | A |
|  | Subtotal | 844 | 829 | 98 | 0.5 | A |
|  |  |  |  |  |  |  |
| Total |  | 2,072 | 2,068 | 100 | 2.9 | A |


| Intersection: | 2100 South \& Project Access |
| :--- | :--- |
| Type: | Unsignalized |


| Approach | Movement | Demand Volume | Volume Served |  | Delay/Veh (sec) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Avg | \% | Avg | LOS |
| NB | L | 34 | 33 | 97 | 59.4 | $F$ |
|  | R | 68 | 67 | 98 | 44.2 | E |
|  | Subtotal | 102 | 100 | 98 | 49.2 | E |
| EB | T | 1,088 | 1,097 | 101 | 1.1 | A |
|  | R | 45 | 46 | 102 | 1.0 | A |
|  | Subtotal | 1,133 | 1,143 | 101 | 1.1 | A |
| WB | L | 58 | 54 | 93 | 11.6 | $B$ |
|  | T | 810 | 797 | 98 | 0.5 | A |
|  | Subtotal | 868 | 851 | 98 | 1.2 | A |
|  |  |  |  |  |  |  |
| Total |  | 2,104 | 2,094 | 100 | 3.4 | A |

# HALES $($ ENGINEERING <br> innovative transportation solutions 

## SimTraffic LOS Report

Project:
SLC - Chick-fil-A TIS
Existing 2010 Plus Project
Analysis Period:
Time Period:
PM Peak Hour
Project \#: UT10-213

Intersection: 2100 South \& Douglas Street
Type: Unsignalized

| Approach | Movement | Demand Volume | Volume Served |  | Delay/Veh (sec) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Avg | \% | Avg | LOS |
| SB | L | 12 | 11 | 90 | 63.0 | $F$ |
|  | R | 24 | 24 | 101 | 22.0 | C |
|  | Subtotal | 36 | 35 | 97 | 34.9 | D |
| EB | L | 20 | 19 | 96 | 6.5 | A |
|  | T | 1,136 | 1,144 | 101 | 2.9 | A |
|  | Subtotal | 1,156 | 1,163 | 101 | 3.0 | A |
| WB | T | 845 | 828 | 98 | 1.7 | A |
|  | R | 20 | 20 | 101 | 1.7 | A |
|  | Subtotal | 865 | 848 | 98 | 1.7 | A |
|  |  |  |  |  |  |  |
| Total |  | 2,057 | 2,046 | 99 | 3.0 | A |

Intersection: 2100 South \& 1300 East
Type:
Signalized

| Approach | Movement | Demand Volume | Volume Served |  | Delay/Veh (sec) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Avg | \% | Avg | LOS |
| NB | L | 248 | 244 | 98 | 109.4 | $F$ |
|  | T | 828 | 830 | 100 | 28.1 | C |
|  | R | 727 | 731 | 101 | 12.4 | $B$ |
|  | Subtotal | 1,803 | 1,805 | 100 | 32.7 | C |
| SB | L | 67 | 63 | 94 | 118.2 | $F$ |
|  | T | 806 | 800 | 99 | 105.1 | $F$ |
|  | R | 87 | 88 | 101 | 107.3 | $F$ |
|  | Subtotal | 960 | 951 | 99 | 106.2 | $F$ |
| EB | L | 132 | 135 | 102 | 84.5 | $F$ |
|  | T | 578 | 584 | 101 | 44.6 | D |
|  | R | 439 | 435 | 99 | 36.0 | D |
|  | Subtotal | 1,149 | 1,154 | 100 | 46.0 | D |
| WB | L | 486 | 445 | 92 | 245.8 | F |
|  | T | 529 | 515 | 97 | 75.5 | $E$ |
|  | R | 63 | 63 | 100 | 72.9 | $E$ |
|  | Subtotal | 1,078 | 1,023 | 95 | 149.4 | $F$ |
| Total |  | 4,991 | 4,933 | 99 | 74.7 | E |

1:2100 South \& 1200 East Performance by movement Interval \#1 5:00

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.3 |
| Delay / Veh (s) | 11.7 | 1.1 | 0.5 | 0.3 | 37.9 | 20.6 | 2.3 |
| Vehicles Entered | 11 | 269 | 196 | 10 | 12 | 12 | 510 |
| Vehicles Exited | 11 | 269 | 196 | 10 | 11 | 11 | 508 |
| Hourly Exit Rate | 44 | 1076 | 784 | 40 | 44 | 44 | 2032 |
| Input Volume | 43 | 1049 | 778 | 38 | 46 | 50 | 2004 |
| \% of Volume | 102 | 103 | 101 | 105 | 96 | 88 | 101 |

## 1: 2100 South \& 1200 East Performance by movement Interval \#2 5:15

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.2 | 0.0 | 0.0 | 0.2 | 0.1 | 0.6 |
| Delay / Veh (s) | 13.5 | 1.9 | 0.5 | 0.3 | 67.9 | 32.8 | 4.0 |
| Vehicles Entered | 13 | 299 | 207 | 10 | 13 | 15 | 557 |
| Vehicles Exited | 13 | 298 | 207 | 10 | 13 | 14 | 555 |
| Hourly Exit Rate | 52 | 1192 | 828 | 40 | 52 | 56 | 2220 |
| Input Volume | 48 | 1192 | 885 | 43 | 53 | 57 | 2278 |
| \% of Volume | 108 | 100 | 94 | 93 | 98 | 98 | 97 |

## 1: 2100 South \& 1200 East Performance by movement Interval \#3 5:30

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.1 | 0.0 | 0.0 | 0.2 | 0.1 | 0.4 |
| Delay / Veh (s) | 10.6 | 1.2 | 0.5 | 0.3 | 49.0 | 35.0 | 3.1 |
| Vehicles Entered | 10 | 261 | 196 | 9 | 11 | 12 | 499 |
| Vehicles Exited | 10 | 262 | 196 | 9 | 12 | 13 | 502 |
| Hourly Exit Rate | 40 | 1048 | 784 | 36 | 48 | 52 | 2008 |
| Input Volume | 43 | 1049 | 778 | 38 | 46 | 50 | 2004 |
| \% of Volume | 93 | 100 | 101 | 95 | 104 | 104 | 100 |

## 1: 2100 South \& 1200 East Performance by movement Interval \#4 5:45

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.3 |
| Delay / Veh (s) | 11.3 | 1.0 | 0.5 | 0.3 | 40.7 | 17.7 | 2.3 |
| Vehicles Entered | 11 | 266 | 191 | 10 | 11 | 12 | 501 |
| Vehicles Exited | 11 | 266 | 192 | 10 | 11 | 12 | 502 |
| Hourly Exit Rate | 44 | 1064 | 768 | 40 | 44 | 48 | 2008 |
| Input Volume | 43 | 1049 | 778 | 38 | 46 | 50 | 2004 |
| \% of Volume | 102 | 101 | 99 | 105 | 96 | 96 | 100 |

1:2100 South \& 1200 East Performance by movement Entire Run

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.1 | 0.4 | 0.1 | 0.0 | 0.6 | 0.4 | 1.7 |
| Delay / Veh (s) | 11.6 | 1.3 | 0.5 | 0.3 | 49.7 | 27.2 | 2.9 |
| Vehicles Entered | 46 | 1095 | 791 | 39 | 47 | 51 | 2069 |
| Vehicles Exited | 46 | 1095 | 790 | 39 | 47 | 51 | 2068 |
| Hourly Exit Rate | 46 | 1095 | 790 | 39 | 47 | 51 | 2068 |
| Input Volume | 44 | 1085 | 805 | 39 | 48 | 52 | 2072 |
| \% of Volume | 104 | 101 | 98 | 99 | 98 | 99 | 100 |

## 2: 2100 South \& Project Access Performance by movement Interval \#1 5:00

| Movement | EBT | EBR | WBL | WBT | NBL | NBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.3 |
| Delay / Veh (s) | 0.7 | 0.4 | 10.0 | 0.5 | 44.8 | 25.2 | 2.3 |
| Vehicles Entered | 269 | 12 | 13 | 199 | 8 | 16 | 517 |
| Vehicles Exited | 269 | 12 | 13 | 197 | 9 | 16 | 516 |
| Hourly Exit Rate | 1076 | 48 | 52 | 788 | 36 | 64 | 2064 |
| Input Volume | 1052 | 44 | 56 | 783 | 33 | 66 | 2034 |
| \% of Volume | 102 | 109 | 93 | 101 | 109 | 97 | 101 |

2: 2100 South \& Project Access Performance by movement Interval \#2 5:15

| Movement | EBT | EBR | WBL | WBT | NBL | NBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.1 | 0.0 | 0.1 | 0.0 | 0.2 | 0.4 | 0.8 |
| Delay / Veh (s) | 1.8 | 2.1 | 15.0 | 0.6 | 87.1 | 74.7 | 5.3 |
| Vehicles Entered | 300 | 11 | 15 | 208 | 9 | 19 | 562 |
| Vehicles Exited | 299 | 11 | 15 | 209 | 8 | 17 | 559 |
| Hourly Exit Rate | 1196 | 44 | 60 | 836 | 32 | 68 | 2236 |
| Input Volume | 1196 | 49 | 64 | 891 | 37 | 75 | 2312 |
| \% of Volume | 100 | 90 | 94 | 94 | 86 | 91 | 97 |

## 2: 2100 South \& Project Access Performance by movement Interval \#3 5:30

| Movement | EBT | EBR | WBL | WBT | NBL | NBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.6 |
| Delay / Veh (s) | 1.1 | 1.2 | 11.8 | 0.5 | 71.9 | 49.6 | 4.0 |
| Vehicles Entered | 263 | 11 | 13 | 199 | 8 | 17 | 511 |
| Vehicles Exited | 264 | 11 | 13 | 197 | 8 | 18 | 511 |
| Hourly Exit Rate | 1056 | 44 | 52 | 788 | 32 | 72 | 2044 |
| Input Volume | 1052 | 44 | 56 | 783 | 33 | 66 | 2034 |
| \% of Volume | 100 | 100 | 93 | 101 | 97 | 109 | 100 |

## 2: 2100 South \& Project Access Performance by movement Interval \#4 5:45

| Movement | EBT | EBR | WBL | WBT | NBL | NBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.3 |
| Delay / Veh (s) | 0.6 | 0.4 | 8.9 | 0.5 | 41.4 | 20.0 | 2.0 |
| Vehicles Entered | 266 | 12 | 13 | 192 | 8 | 16 | 507 |
| Vehicles Exited | 266 | 12 | 13 | 193 | 8 | 16 | 508 |
| Hourly Exit Rate | 1064 | 48 | 52 | 772 | 32 | 64 | 2032 |
| Input Volume | 1052 | 44 | 56 | 783 | 33 | 66 | 2034 |
| \% of Volume | 101 | 109 | 93 | 99 | 97 | 97 | 100 |

## 2: 2100 South \& Project Access Performance by movement Entire Run

| Movement | EBT | EBR | WBL | WBT | NBL | NBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.3 | 0.0 | 0.2 | 0.1 | 0.5 | 0.8 | 2.0 |
| Delay / Veh (s) | 1.1 | 1.0 | 11.6 | 0.5 | 59.4 | 44.2 | 3.4 |
| Vehicles Entered | 1097 | 46 | 55 | 797 | 32 | 67 | 2094 |
| Vehicles Exited | 1097 | 46 | 54 | 797 | 33 | 67 | 2094 |
| Hourly Exit Rate | 1097 | 46 | 54 | 797 | 33 | 67 | 2094 |
| Input Volume | 1088 | 45 | 58 | 810 | 34 | 68 | 2104 |
| \% of Volume | 101 | 102 | 93 | 98 | 97 | 98 | 100 |

3: 2100 South \& Douglas Street Performance by movement Interval \#1 5:00

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 |
| Delay / Veh (s) | 6.3 | 1.6 | 1.6 | 1.6 | 48.8 | 17.4 | 2.1 |
| Vehicles Entered | 5 | 280 | 206 | 5 | 3 | 6 | 505 |
| Vehicles Exited | 5 | 280 | 206 | 5 | 3 | 6 | 505 |
| Hourly Exit Rate | 20 | 1120 | 824 | 20 | 12 | 24 | 2020 |
| Input Volume | 19 | 1099 | 817 | 19 | 12 | 23 | 1989 |
| \% Volume | 105 | 102 | 101 | 105 | 100 | 104 | 102 |

3: 2100 South \& Douglas Street Performance by movement Interval \#2 5:15

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.4 | 0.1 | 0.0 | 0.1 | 0.0 | 0.6 |
| Delay / Veh (s) | 7.6 | 5.1 | 1.8 | 1.9 | 62.4 | 21.5 | 4.3 |
| Vehicles Entered | 5 | 311 | 216 | 5 | 3 | 6 | 546 |
| Vehicles Exited | 5 | 307 | 217 | 5 | 3 | 6 | 543 |
| Hourly Exit Rate | 20 | 1228 | 868 | 20 | 12 | 24 | 2172 |
| Input Volume | 22 | 1249 | 928 | 22 | 13 | 26 | 2260 |
| \% of Volume | 91 | 98 | 94 | 91 | 92 | 92 | 96 |

3: 2100 South \& Douglas Street Performance by movement Interval \#3 5:30

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.3 | 0.1 | 0.0 | 0.1 | 0.1 | 0.5 |
| Delay / Veh (s) | 5.3 | 3.4 | 1.7 | 1.7 | 85.7 | 30.7 | 3.6 |
| Vehicles Entered | 5 | 277 | 207 | 5 | 3 | 6 | 503 |
| Vehicles Exited | 5 | 282 | 206 | 5 | 3 | 7 | 508 |
| Hourly Exit Rate | 20 | 1128 | 824 | 20 | 12 | 28 | 2032 |
| Input Volume | 19 | 1099 | 817 | 19 | 12 | 23 | 1989 |
| \% of Volume | 105 | 103 | 101 | 105 | 100 | 122 | 102 |

## 3: 2100 South \& Douglas Street Performance by movement Interval \#4 5:45

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 |
| Delay / Veh (s) | 6.6 | 1.4 | 1.6 | 2.0 | 34.1 | 13.3 | 1.9 |
| Vehicles Entered | 4 | 277 | 199 | 4 | 3 | 6 | 493 |
| Vehicles Exited | 4 | 275 | 199 | 4 | 3 | 6 | 491 |
| Hourly Exit Rate | 16 | 1100 | 796 | 16 | 12 | 24 | 1964 |
| Input Volume | 19 | 1099 | 817 | 19 | 12 | 23 | 1989 |
| \% of Volume | 84 | 100 | 97 | 84 | 100 | 104 | 99 |

3: 2100 South \& Douglas Street Performance by movement Entire Run

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.0 | 0.9 | 0.4 | 0.0 | 0.2 | 0.1 | 1.7 |
| Delay / Veh (s) | 6.5 | 2.9 | 1.7 | 1.7 | 63.0 | 22.0 | 3.0 |
| Vehicles Entered | 19 | 1145 | 828 | 19 | 12 | 24 | 2047 |
| Vehicles Exited | 19 | 1144 | 828 | 20 | 11 | 24 | 2046 |
| Hourly Exit Rate | 19 | 1144 | 828 | 20 | 11 | 24 | 2046 |
| Input Volume | 20 | 1136 | 845 | 20 | 12 | 24 | 2057 |
| \% of Volume | 96 | 101 | 98 | 101 | 90 | 101 | 99 |

## 4: 2100 South \& 1300 East Performance by movement Interval \#1 5:00

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.6 | 1.7 | 0.9 | 3.2 | 1.3 | 0.2 | 1.1 | 1.5 | 0.5 | 0.3 | 2.8 |
| Delay / Veh (s) | 71.3 | 39.9 | 29.6 | 103.6 | 36.6 | 36.4 | 67.5 | 27.1 | 11.0 | 68.9 | 53.1 |
| Vehicles Entered | 33 | 144 | 106 | 116 | 127 | 14 | 58 | 199 | 177 | 16 | 193 |
| Vehicles Exited | 31 | 154 | 110 | 105 | 132 | 15 | 59 | 201 | 176 | 15 | 182 |
| Hourly Exit Rate | 124 | 616 | 440 | 420 | 528 | 60 | 236 | 804 | 704 | 60 | 728 |
| Input Volume | 128 | 559 | 425 | 470 | 512 | 61 | 240 | 801 | 703 | 65 | 779 |
| \% of Volume | 97 | 110 | 104 | 89 | 103 | 98 | 98 | 100 | 100 | 92 | 93 |

## 4: 2100 South \& 1300 East Performance by movement Interval \#1 5:00

| Movement | All |
| :--- | ---: |
| Total Delay (hr) | 14.3 |
| Delay / Veh (s) | 42.9 |
| Vehicles Entered | 1204 |
| Vehicles Exited | 1200 |
| Hourly Exit Rate | 4800 |
| Input Volume | 4827 |
| $\%$ of Volume | 99 |

4: 2100 South \& 1300 East Performance by movement Interval \#2 5:15

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 1.0 | 2.1 | 1.4 | 6.7 | 2.2 | 0.2 | 2.2 | 1.8 | 0.8 | 0.5 | 5.9 |
| Delay / Veh (s) | 93.3 | 50.9 | 43.0 | 196.1 | 55.9 | 50.6 | 117.4 | 28.2 | 14.4 | 117.5 | 98.8 |
| Vehicles Entered | 37 | 156 | 117 | 129 | 144 | 16 | 71 | 227 | 199 | 16 | 219 |
| Vehicles Exited | 38 | 143 | 111 | 117 | 137 | 15 | 62 | 223 | 198 | 15 | 211 |
| Hourly Exit Rate | 152 | 572 | 444 | 468 | 548 | 60 | 248 | 892 | 792 | 60 | 844 |
| Input Volume | 145 | 634 | 482 | 534 | 581 | 69 | 273 | 910 | 799 | 74 | 886 |
| \% of Volume | 105 | 90 | 92 | 88 | 94 | 87 | 91 | 98 | 99 | 81 | 95 |

## 4: 2100 South \& 1300 East Performance by movement Interval \#2 5:15

| Movement | All |
| :--- | ---: |
| Total Delay (hr) | 25.3 |
| Delay / Veh (s) | 69.0 |
| Vehicles Entered | 1355 |
| Vehicles Exited | 1293 |
| Hourly Exit Rate | 5172 |
| Input Volume | 5483 |
| $\%$ of Volume | 94 |

## 4: 2100 South \& 1300 East Performance by movement Interval \#3 5:30

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.8 | 1.8 | 1.1 | 10.2 | 3.1 | 0.4 | 2.3 | 1.7 | 0.6 | 0.7 | 8.2 |
| Delay / Veh (s) | 91.6 | 42.3 | 36.8 | 340.9 | 91.2 | 91.0 | 136.5 | 29.5 | 11.7 | 161.6 | 154.4 |
| Vehicles Entered | 33 | 144 | 108 | 112 | 120 | 16 | 58 | 200 | 176 | 16 | 192 |
| Vehicles Exited | 32 | 156 | 114 | 104 | 127 | 17 | 64 | 206 | 176 | 16 | 192 |
| Hourly Exit Rate | 128 | 624 | 456 | 416 | 508 | 68 | 256 | 824 | 704 | 64 | 768 |
| Input Volume | 128 | 559 | 425 | 470 | 512 | 61 | 240 | 801 | 703 | 65 | 779 |
| \% of Volume | 100 | 112 | 107 | 89 | 99 | 111 | 107 | 103 | 100 | 98 | 99 |

## 4: 2100 South \& 1300 East Performance by movement Interval \#3 5:30

| Movement | All |
| :--- | ---: |
| Total Delay (hr) | 31.9 |
| Delay / Veh (s) | 94.9 |
| Vehicles Entered | 1196 |
| Vehicles Exited | 1225 |
| Hourly Exit Rate | 4900 |
| Input Volume | 4827 |
| $\%$ of Volume | 102 |

4: 2100 South \& 1300 East Performance by movement Interval \#4 5:45

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 0.7 | 1.7 | 1.0 | 11.2 | 4.2 | 0.5 | 1.9 | 1.5 | 0.6 | 0.6 | 6.6 |
| Delay / Veh (s) | 75.1 | 45.6 | 34.2 | 344.1 | 124.4 | 111.2 | 114.4 | 27.4 | 12.3 | 121.5 | 112.8 |
| Vehicles Entered | 32 | 141 | 105 | 114 | 125 | 16 | 60 | 205 | 180 | 16 | 205 |
| Vehicles Exited | 34 | 132 | 100 | 119 | 120 | 16 | 59 | 201 | 180 | 17 | 215 |
| Hourly Exit Rate | 136 | 528 | 400 | 476 | 480 | 64 | 236 | 804 | 720 | 68 | 860 |
| Input Volume | 128 | 559 | 425 | 470 | 512 | 61 | 240 | 801 | 703 | 65 | 779 |
| \% of Volume | 106 | 94 | 94 | 101 | 94 | 105 | 98 | 100 | 102 | 105 | 110 |

## 4: 2100 South \& 1300 East Performance by movement Interval \#4 5:45

| Movement | All |
| :--- | ---: |
| Total Delay (hr) | 31.2 |
| Delay / Veh (s) | 92.1 |
| Vehicles Entered | 1222 |
| Vehicles Exited | 1217 |
| Hourly Exit Rate | 4868 |
| Input Volume | 4827 |
| $\%$ of Volume | 101 |

## 4: 2100 South \& 1300 East Performance by movement Entire Run

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Total Delay (hr) | 3.2 | 7.2 | 4.4 | 31.3 | 10.8 | 1.3 | 7.4 | 6.5 | 2.5 | 2.1 | 23.5 | 2.7 |
| Delay / Veh (s) | 84.5 | 44.6 | 36.0 | 245.8 | 75.5 | 72.9 | 109.4 | 28.1 | 12.4 | 118.2 | 105.1 | 107.3 |
| Vehicles Entered | 135 | 585 | 437 | 471 | 516 | 63 | 247 | 830 | 731 | 64 | 809 | 89 |
| Vehicles Exited | 135 | 584 | 435 | 445 | 515 | 63 | 244 | 830 | 731 | 63 | 800 | 88 |
| Hourly Exit Rate | 135 | 584 | 435 | 445 | 515 | 63 | 244 | 830 | 731 | 63 | 800 | 88 |
| Input Volume | 132 | 578 | 439 | 486 | 529 | 63 | 248 | 828 | 727 | 67 | 806 | 87 |
| \% of Volume | 102 | 101 | 99 | 92 | 97 | 100 | 98 | 100 | 101 | 94 | 99 | 101 |

## 4: 2100 South \& 1300 East Performance by movement Entire Run

| Movement | All |
| :--- | ---: |
| Total Delay (hr) | 102.8 |
| Delay / Veh (s) | 74.7 |
| Vehicles Entered | 4977 |
| Vehicles Exited | 4933 |
| Hourly Exit Rate | 4933 |
| Input Volume | 4991 |
| $\%$ of Volume | 99 |

Total Network Performance By Interval

| Interval Start | $5: 00$ | $5: 15$ | $5: 30$ | $5: 45$ | All |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Total Delay (hr) | 15.8 | 28.0 | 34.0 | 32.6 | 110.4 |
| Delay / Veh (s) | 45.3 | 72.9 | 97.2 | 92.1 | 76.8 |
| Vehicles Entered | 1258 | 1422 | 1239 | 1277 | 5195 |
| Vehicles Exited | 1249 | 1353 | 1275 | 1273 | 5151 |
| Hourly Exit Rate | 4996 | 5412 | 5100 | 5092 | 5151 |
| Input Volume | 15891 | 18056 | 15891 | 15891 | 16432 |
| \% of Volume | 31 | 30 | 32 | 32 | 31 |

Intersection: 1:2100 South \& 1200 East, Interval \#1

| Movement | EB | EB | EB | WB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | TR | LR |
| Maximum Queue (ft) | 40 | 3 | 10 | 5 | 103 |
| Average Queue (ft) | 20 | 0 | 2 | 1 | 53 |
| 95th Queue (ft) | 50 | 12 | 24 | 7 | 107 |
| Link Distance (ft) |  | 422 | 422 | 127 | 465 |
| Upstream Blk Time (\%) |  |  |  |  |  |
| Queuing Penalty (veh) |  |  |  |  |  |
| Storage Bay Dist (ft) | 50 |  |  |  |  |
| Storage Blk Time (\%) | 1 |  |  |  |  |
| Queuing Penalty (veh) | 4 |  |  |  |  |

Intersection: 1:2100 South \& 1200 East, Interval \#2

| Movement | EB | EB | EB | WB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | TR | LR |
| Maximum Queue (ft) | 49 | 27 | 67 | 6 | 147 |
| Average Queue (ft) | 25 | 5 | 16 | 1 | 79 |
| 95th Queue (ft) | 55 | 58 | 100 | 10 | 169 |
| Link Distance (ft) |  | 422 | 422 | 127 | 465 |
| Upstream Blk Time (\%) |  |  |  |  |  |
| Queuing Penalty (veh) |  |  |  |  |  |
| Storage Bay Dist (ft) | 50 |  |  |  |  |
| Storage Blk Time (\%) | 2 | 0 |  |  |  |
| Queuing Penalty (veh) | 9 | 0 |  |  |  |

Intersection: 1:2100 South \& 1200 East, Interval \#3

| Movement | EB | EB | EB | WB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | TR | LR |
| Maximum Queue (ft) | 39 | 15 | 30 | 4 | 125 |
| Average Queue (ft) | 18 | 2 | 7 | 1 | 67 |
| 95th Queue (ft) | 46 | 33 | 58 | 8 | 162 |
| Link Distance (ft) |  | 422 | 422 | 127 | 465 |
| Upstream Blk Time (\%) |  |  |  |  |  |
| Queuing Penalty (veh) |  |  |  |  |  |
| Storage Bay Dist (ft) | 50 |  |  |  |  |
| Storage Blk Time (\%) | 0 | 0 |  |  |  |
| Queuing Penalty (veh) | 2 | 0 |  |  |  |

Intersection: 1:2100 South \& 1200 East, Interval \#4

| Movement | EB | EB | WB | WB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | TR | LR |
| Maximum Queue (ft) | 42 | 6 | 2 | 4 | 102 |
| Average Queue (tt) | 19 | 1 | 0 | 1 | 56 |
| 95th Queue (tt) | 49 | 15 | 6 | 9 | 111 |
| Link Distance (tt) |  | 422 | 127 | 127 | 465 |
| Upstream Blk Time (\%) |  |  |  |  |  |
| Queuing Penalty (veh) |  |  |  |  |  |
| Storage Bay Dist (tt) | 50 |  |  |  |  |
| Storage Blk Time (\%) | 1 |  |  |  |  |

Intersection: 1:2100 South \& 1200 East, All Intervals

| Movement | EB | EB | EB | WB | WB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | T | TR | LR |
| Maximum Queue (ft) | 58 | 46 | 86 | 2 | 16 | 179 |
| Average Queue (ft) | 20 | 2 | 6 | 0 | 1 | 64 |
| 95th Queue (ft) | 50 | 33 | 58 | 3 | 8 | 142 |
| Link Distance (ft) |  | 422 | 422 | 127 | 127 | 465 |
| Upstream Blk Time (\%) |  |  |  |  |  |  |
| Queuing Penalty (veh) |  |  |  |  |  |  |
| Storage Bay Dist (ft) | 50 |  |  |  |  |  |
| Storage Blk Time (\%) | 1 | 0 |  |  |  |  |
| Queuing Penalty (veh) | 5 | 0 |  |  |  |  |

Intersection: 2: 2100 South \& Project Access, Interval \#1

| Movement | EB | EB | WB | WB | WB | NB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Directions Served | T | TR | L | T | T | LR |
| Maximum Queue (ft) | 11 | 28 | 50 | 8 | 5 | 100 |
| Average Queue (ft) | 2 | 6 | 26 | 1 | 1 | 59 |
| 95th Queue (ft) | 28 | 44 | 57 | 16 | 18 | 120 |
| Link Distance (ft) | 127 | 127 |  | 173 | 173 | 143 |
| Upstream Blk Time (\%) | 0 | 0 |  |  |  | 3 |
| Queuing Penalty (veh) | 0 | 2 |  |  |  | 0 |
| Storage Bay Dist (ft) |  |  | 50 |  |  |  |
| Storage Blk Time (\%) |  |  | 2 |  |  |  |

Intersection: 2: 2100 South \& Project Access, Interval \#2

| Movement | EB | EB | WB | WB | WB | NB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Directions Served | T | TR | L | T | T | LR |
| Maximum Queue (ft) | 60 | 84 | 58 | 9 | 5 | 136 |
| Average Queue (ft) | 16 | 32 | 33 | 3 | 1 | 83 |
| 95th Queue (ft) | 83 | 118 | 64 | 35 | 19 | 158 |
| Link Distance (ft) | 127 | 127 |  | 173 | 173 | 143 |
| Upstream Blk Time (\%) | 1 | 2 |  | 0 |  | 15 |
| Queuing Penalty (veh) | 3 | 15 |  | 0 |  | 0 |
| Storage Bay Dist (ft) |  |  | 50 |  |  |  |
| Storage Blk Time (\%) |  |  | 4 |  |  |  |
| Queuing Penalty (veh) |  |  | 19 |  |  |  |

Intersection: 2: 2100 South \& Project Access, Interval \#3

| Movement | EB | EB | WB | WB | WB | NB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Directions Served | T | TR | L | T | T | LR |
| Maximum Queue (ft) | 30 | 54 | 53 | 9 | 1 | 124 |
| Average Queue (ft) | 7 | 17 | 30 | 2 | 0 | 70 |
| 95th Queue (ft) | 47 | 82 | 60 | 22 | 3 | 145 |
| Link Distance (ft) | 127 | 127 |  | 173 | 173 | 143 |
| Upstream Blk Time (\%) | 0 | 1 |  |  |  | 9 |
| Queuing Penalty (veh) | 0 | 7 |  |  |  | 0 |
| Storage Bay Dist (ft) |  |  | 50 |  |  |  |
| Storage Blk Time (\%) |  |  | 3 | 0 |  |  |
| Queuing Penalty (veh) |  |  | 11 | 0 |  |  |

Intersection: 2: 2100 South \& Project Access, Interval \#4

| Movement | EB | EB | WB | WB | NB |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Directions Served | T | TR | L | T | LR |
| Maximum Queue (ft) | 5 | 20 | 48 | 4 | 97 |
| Average Queue (ft) | 1 | 3 | 26 | 1 | 56 |
| 95th Queue (ft) | 15 | 30 | 57 | 12 | 110 |
| Link Distance (ft) | 127 | 127 |  | 173 | 143 |
| Upstream Blk Time (\%) | 0 | 0 |  |  | 2 |
| Queuing Penalty (veh) | 0 | 1 |  |  | 0 |
| Storage Bay Dist (ft) |  |  | 50 |  |  |
| Storage Blk Time (\%) |  |  | 2 |  |  |
| Queuing Penalty (veh) |  |  | 6 |  |  |

Intersection: 2: 2100 South \& Project Access, All Intervals

| Movement | EB | EB | WB | WB | WB | NB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Directions Served | T | TR | L | T | T | LR |
| Maximum Queue (ft) | 79 | 108 | 67 | 27 | 11 | 154 |
| Average Queue (ft) | 6 | 15 | 29 | 1 | 0 | 67 |
| 95th Queue (ft) | 49 | 76 | 60 | 23 | 13 | 136 |
| Link Distance (ft) | 127 | 127 |  | 173 | 173 | 143 |
| Upstream Blk Time (\%) | 0 | 1 |  | 0 |  | 7 |
| Queuing Penalty (veh) | 1 | 6 |  | 0 |  | 0 |
| Storage Bay Dist (ft) |  |  | 50 |  |  |  |
| Storage Blk Time (\%) |  |  | 3 | 0 |  |  |
| Queuing Penalty (veh) |  |  | 11 | 0 |  |  |

## Intersection: 3: 2100 South \& Douglas Street, Interval \#1

| Movement | EB | EB | EB | SB |
| :--- | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | LR |
| Maximum Queue (ft) | 32 | 58 | 103 | 55 |
| Average Queue (ft) | 9 | 13 | 31 | 28 |
| 95th Queue (ft) | 33 | 76 | 121 | 74 |
| Link Distance (ft) |  | 173 | 173 | 432 |
| Upstream Blk Time (\%) |  | 0 | 1 |  |
| Queuing Penalty (veh) |  | 1 | 4 |  |
| Storage Bay Dist (ft) | 50 |  |  |  |
| Storage Blk Time (\%) | 0 | 1 |  |  |
| Queuing Penalty (veh) | 1 | 0 |  |  |

Intersection: 3: 2100 South \& Douglas Street, Interval \#2

| Movement | EB | EB | EB | WB | WB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | T | TR | LR |
| Maximum Queue (ft) | 31 | 138 | 166 | 3 | 3 | 61 |
| Average Queue (ft) | 11 | 53 | 90 | 0 | 0 | 29 |
| 95th Queue (ft) | 36 | 165 | 221 | 12 | 10 | 68 |
| Link Distance (ft) |  | 173 | 173 | 324 | 324 | 432 |
| Upstream Blk Time (\%) |  | 2 | 6 |  |  |  |
| Queuing Penalty (veh) |  | 10 | 40 |  |  |  |
| Storage Bay Dist (ft) | 50 |  |  |  |  |  |
| Storage Blk Time (\%) | 0 | 6 |  |  |  |  |
| Queuing Penalty (veh) | 2 | 1 |  |  |  |  |

Intersection: 3: 2100 South \& Douglas Street, Interval \#3

| Movement | EB | EB | EB | WB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | TR | LR |
| Maximum Queue (ft) | 30 | 106 | 143 | 1 | 62 |
| Average Queue (tt) | 9 | 36 | 61 | 0 | 35 |
| 95th Queue (tt) | 34 | 136 | 181 | 4 | 102 |
| Link Distance (tt) |  | 173 | 173 | 324 | 432 |
| Upstream Blk Time (\%) |  | 1 | 3 |  |  |
| Queuing Penalty (veh) |  | 3 | 16 |  |  |
| Storage Bay Dist (tt) | 50 |  |  |  |  |
| Storage Blk Time (\%) | 0 | 3 |  |  |  |
| Queuing Penalty (veh) | 1 | 1 |  |  |  |

## Intersection: 3: 2100 South \& Douglas Street, Interval \#4

| Movement | EB | EB | EB | SB |
| :--- | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | LR |
| Maximum Queue (ft) | 32 | 56 | 107 | 48 |
| Average Queue (ft) | 8 | 10 | 27 | 25 |
| 95th Queue (ft) | 33 | 64 | 108 | 59 |
| Link Distance (ft) |  | 173 | 173 | 432 |
| Upstream Blk Time (\%) |  | 0 | 0 |  |
| Queuing Penalty (veh) |  | 0 | 2 |  |
| Storage Bay Dist (ft) | 50 |  |  |  |
| Storage Blk Time (\%) | 0 | 0 |  |  |
| Queuing Penalty (veh) | 1 | 0 |  |  |

Intersection: 3: 2100 South \& Douglas Street, All Intervals

| Movement | EB | EB | EB | WB | WB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | T | TR | LR |
| Maximum Queue (ft) | 43 | 164 | 182 | 3 | 4 | 89 |
| Average Queue (ft) | 9 | 28 | 52 | 0 | 0 | 29 |
| 95th Queue (ft) | 34 | 119 | 168 | 6 | 5 | 78 |
| Link Distance (ft) |  | 173 | 173 | 324 | 324 | 432 |
| Upstream Blk Time (\%) |  | 1 | 3 |  |  |  |
| Queuing Penalty (veh) |  | 4 | 16 |  |  |  |
| Storage Bay Dist (ft) | 50 |  |  |  |  |  |
| Storage Blk Time (\%) | 0 | 3 |  |  |  |  |
| Queuing Penalty (veh) | 1 | 1 |  |  |  |  |

Intersection: 4: 2100 South \& 1300 East, Interval \#1

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| NB |  |  |  |  |  |  |  |  |  |  |  |
| Directions Served | L | T | T | R | L | L | T | TR | L | T | T |
| Maximum Queue (ft) | 179 | 314 | 331 | 195 | 289 | 306 | 233 | 255 | 257 | 257 | 289 |
| R |  |  |  |  |  |  |  |  |  |  |  |
| Average Queue (ft) | 113 | 236 | 278 | 179 | 217 | 231 | 163 | 182 | 172 | 170 | 191 |
| 95th Queue (ft) | 207 | 342 | 373 | 229 | 342 | 367 | 297 | 291 | 283 | 263 | 299 |
| 212 |  |  |  |  |  |  |  |  |  |  |  |
| Link Distance (ft) |  | 324 | 324 |  |  |  | 768 | 768 |  | 749 | 749 |
| Upstream Blk Time (\%) |  | 1 | 5 |  |  |  | 0 | 0 |  | 749 |  |
| Queuing Penalty (veh) |  | 8 | 30 |  |  |  | 0 | 0 |  | 0 |  |
| Storage Bay Dist (ft) | 115 |  |  | 115 | 310 | 310 |  |  | 220 |  | 0 |
| Storage Blk Time (\%) | 19 | 28 | 34 | 29 | 4 | 5 | 0 |  | 7 | 3 |  |
| Queuing Penalty (veh) | 52 | 35 | 144 | 80 | 10 | 13 | 0 |  | 29 | 6 |  |

Intersection: 4: 2100 South \& 1300 East, Interval \#1

| Movement | SB | SB | SB |
| :--- | ---: | ---: | ---: |
| Directions Served | L | T | TR |
| Maximum Queue (ft) | 121 | 399 | 414 |
| Average Queue (ft) | 56 | 305 | 319 |
| 95th Queue (ft) | 123 | 458 | 466 |
| Link Distance (ft) |  | 474 | 474 |
| Upstream Blk Time (\%) |  | 1 | 2 |
| Queuing Penalty (veh) |  | 0 | 0 |
| Storage Bay Dist (ft) | 60 |  |  |
| Storage Blk Time (\%) | 7 | 57 |  |
| Queuing Penalty (veh) | 27 | 37 |  |

Intersection: 4: 2100 South \& 1300 East, Interval \#2

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB | NB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | T | R | L | L | T | TR | L | T | T | R |
| Maximum Queue (ft) | 186 | 330 | 341 | 195 | 409 | 495 | 559 | 434 | 378 | 341 | 356 | 283 |
| Average Queue (ft) | 147 | 266 | 306 | 184 | 329 | 378 | 316 | 237 | 275 | 232 | 240 | 142 |
| 95th Queue (ft) | 223 | 385 | 393 | 232 | 507 | 620 | 729 | 486 | 458 | 426 | 404 | 279 |
| Link Distance (ft) |  | 324 | 324 |  |  |  | 768 | 768 |  | 749 | 749 | 749 |
| Upstream Blk Time (\%) |  | 8 | 17 |  |  |  | 6 | 0 | 0 | 0 |  |  |
| Queuing Penalty (veh) |  | 49 | 109 |  |  |  | 0 | 0 |  | 0 | 0 |  |
| Storage Bay Dist (ft) | 115 |  |  | 115 | 310 | 310 |  |  | 220 |  |  |  |
| Storage Blk Time (\%) | 34 | 35 | 42 | 44 | 38 | 41 | 0 |  | 37 | 5 |  |  |
| Queuing Penalty (veh) | 108 | 51 | 201 | 141 | 109 | 120 | 1 |  | 169 | 13 |  |  |

## Intersection: 4: 2100 South \& 1300 East, Interval \#2

| Movement | SB | SB | SB |
| :--- | ---: | ---: | ---: |
| Directions Served | L | T | TR |
| Maximum Queue (ft) | 115 | 490 | 490 |
| Average Queue (ft) | 55 | 434 | 440 |
| 95th Queue (ft) | 122 | 560 | 558 |
| Link Distance (ft) |  | 474 | 474 |
| Upstream Blk Time (\%) |  | 22 | 24 |
| Queuing Penalty (veh) |  | 0 | 0 |
| Storage Bay Dist (ft) | 60 |  |  |
| Storage Blk Time (\%) | 8 | 64 |  |
| Queuing Penalty (veh) | 33 | 47 |  |

Intersection: 4: 2100 South \& 1300 East, Interval \#3

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| NB |  |  |  |  |  |  |  |  |  |  |  |
| Directions Served | L | T | T | R | L | L | T | TR | L | T | T |
| Maximum Queue (ft) | 186 | 325 | 336 | 195 | 432 | 536 | 627 | 584 | 372 | 364 | 370 |
| R |  |  |  |  |  |  |  |  |  |  |  |
| Average Queue (ft) | 133 | 252 | 287 | 185 | 409 | 504 | 529 | 358 | 281 | 231 | 233 |
| 95th Queue (ft) | 226 | 366 | 391 | 219 | 508 | 680 | 1007 | 768 | 494 | 493 | 447 |
| Link Distance (ft) |  | 324 | 324 |  |  |  | 768 | 768 |  | 749 | 749 |
| Upstream Blk Time (\%) |  | 4 | 11 |  |  |  | 18 | 0 |  | 1 | 0 |
| Queuing Penalty (veh) |  | 24 | 61 |  |  |  | 0 | 0 |  | 0 | 0 |
| Storage Bay Dist (ft) | 115 |  |  | 115 | 310 | 310 |  |  | 220 |  |  |
| Storage Blk Time (\%) | 29 | 29 | 35 | 38 | 63 | 67 | 0 |  | 41 | 4 |  |
| Queuing Penalty (veh) | 80 | 38 | 151 | 107 | 161 | 171 | 1 |  | 164 | 9 |  |

## Intersection: 4: 2100 South \& 1300 East, Interval \#3

| Movement | SB | SB | SB |
| :--- | ---: | ---: | ---: |
| Directions Served | L | T | TR |
| Maximum Queue (ft) | 124 | 489 | 496 |
| Average Queue (ft) | 61 | 442 | 447 |
| 95th Queue (ft) | 136 | 581 | 581 |
| Link Distance (ft) |  | 474 | 474 |
| Upstream Blk Time (\%) |  | 36 | 39 |
| Queuing Penalty (veh) |  | 0 | 0 |
| Storage Bay Dist (ft) | 60 |  |  |
| Storage Blk Time (\%) | 11 | 68 |  |
| Queuing Penalty (veh) | 42 | 44 |  |

Intersection: 4: 2100 South \& 1300 East, Interval \#4

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| NB |  |  |  |  |  |  |  |  |  |  |  |
| Directions Served | L | T | T | R | L | L | T | TR | L | T | T |
| Maximum Queue (ft) | 189 | 317 | 331 | 195 | 432 | 545 | 666 | 608 | 334 | 307 | 307 |
| R |  |  |  |  |  |  |  |  |  |  |  |
| Average Queue (ft) | 127 | 217 | 261 | 174 | 401 | 500 | 556 | 321 | 236 | 221 | 224 |
| 95th Queue (ft) | 213 | 338 | 383 | 238 | 527 | 709 | 1044 | 722 | 443 | 460 | 420 |
| (ft) |  | 324 | 324 |  |  |  | 768 | 768 |  | 749 | 749 |
| ink Distance | 749 |  |  |  |  |  |  |  |  |  |  |
| Upstream Blk Time (\%) |  | 1 | 5 |  |  |  | 21 | 0 |  | 1 | 0 |
| Queuing Penalty (veh) |  | 5 | 27 |  |  |  | 0 | 0 |  | 0 | 0 |
| Storage Bay Dist (ft) | 115 |  |  | 115 | 310 | 310 |  |  | 220 |  |  |
| Storage Blk Time (\%) | 24 | 29 | 36 | 32 | 65 | 68 | 0 |  | 27 | 3 |  |
| Queuing Penalty (veh) | 67 | 37 | 152 | 89 | 166 | 174 | 2 |  | 107 | 8 |  |

Intersection: 4: 2100 South \& 1300 East, Interval \#4

| Movement | SB | SB | SB |
| :--- | ---: | ---: | ---: |
| Directions Served | L | T | TR |
| Maximum Queue (ft) | 129 | 472 | 475 |
| Average Queue (ft) | 57 | 423 | 429 |
| 95th Queue (ft) | 127 | 560 | 556 |
| Link Distance (ft) |  | 474 | 474 |
| Upstream Blk Time (\%) |  | 22 | 24 |
| Queuing Penalty (veh) |  | 0 | 0 |
| Storage Bay Dist (ft) | 60 |  |  |
| Storage Blk Time (\%) | 9 | 62 |  |
| Queuing Penalty (veh) | 33 | 40 |  |

Intersection: 4: 2100 South \& 1300 East, All Intervals

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB | NB |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Directions Served | L | T | T | R | L | L | T | TR | L | T | T | R |
| Maximum Queue (ft) | 194 | 342 | 345 | 195 | 437 | 558 | 707 | 661 | 421 | 424 | 437 | 333 |
| Average Queue (ft) | 130 | 243 | 283 | 181 | 339 | 403 | 391 | 274 | 241 | 214 | 222 | 121 |
| 95th Queue (ft) | 220 | 362 | 389 | 231 | 524 | 671 | 875 | 612 | 438 | 425 | 400 | 239 |
| Link Distance (ft) |  | 324 | 324 |  |  |  | 768 | 768 |  | 749 | 749 | 749 |
| Upstream Blk Time (\%) |  | 4 | 10 |  |  |  | 11 | 0 |  | 1 | 0 |  |
| Queuing Penalty (veh) |  | 22 | 57 |  |  |  | 0 | 0 |  | 0 | 0 |  |
| Storage Bay Dist (ft) | 115 |  |  | 115 | 310 | 310 |  |  | 220 |  |  |  |
| Storage Blk Time (\%) | 26 | 30 | 37 | 36 | 42 | 45 | 0 |  | 28 | 4 |  |  |
| Queuing Penalty (veh) | 77 | 40 | 162 | 104 | 111 | 119 | 1 |  | 117 | 9 |  |  |

Intersection: 4: 2100 South \& 1300 East, All Intervals

| Movement | SB | SB | SB |
| :--- | ---: | ---: | ---: |
| Directions Served | L | T | TR |
| Maximum Queue (ft) | 149 | 499 | 502 |
| Average Queue (ft) | 57 | 401 | 409 |
| 95th Queue (ft) | 127 | 568 | 566 |
| Link Distance (ft) |  | 474 | 474 |
| Upstream Blk Time (\%) |  | 20 | 22 |
| Queuing Penalty (veh) |  | 0 | 0 |
| Storage Bay Dist (ft) | 60 |  |  |
| Storage Blk Time (\%) | 8 | 63 |  |
| Queuing Penalty (veh) | 34 | 42 |  |

## Network Summary

Network wide Queuing Penalty, Interval \#1: 489
Network wide Queuing Penalty, Interval \#2: 1249
Network wide Queuing Penalty, Interval \#3: 1093
Network wide Queuing Penalty, Interval \#4: 920
Network wide Queuing Penalty, All Intervals: 938

## HALES(h)ENGINEERING innovative transportation solutions

## APPENDIX C Site Plan



## HALES(h)ENGINEERING innovative transportation solutions

## APPENDIX D

Figures

Figure 1




Figure 2



$\square$


Figure 3




# HALES (h)ENGINEERING innovative transportation solutions 

## APPENDIX E $95^{\text {th }}$ Percentile Queue Lengths

SimTraffic Queueing Report
Project: SLC - Chick-fil-A TIS
Time Period: PM Peak Hour
$95^{\text {th }}$ Percentile Queue Length (feet)

## HALES (1)ENGINEERING

 innovalive transportation solutiensProject \#: UT10-213

| Intersection | Time Period | EB |  |  |  | NB |  |  |  | SB |  |  |  | WB |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | L | R | T | TR | L | LR | R | T | L | LR | T | TR | L | T | TR |
| 2100 South \& 1200 East | Existing 2010 Background | 49 | -- | 68 | -- | -- | -- | -- | -- | -- | 276 | -- | -- | -- | -- | 10 |
| 2100 South \& 1300 East | Existing 2010 Background | 212 | 235 | 377 | -- | 315 | -- | 213 | 310 | 121 | -- | 580 | 575 | 597 | 823 | 567 |
| 2100 South \& Douglas Street | Existing 2010 Background | 31 | -- | 136 | -- | -- | -- | -- | -- | -- | 77 | -- | -- | -- | -- | 4 |
| 2100 South \& Project Access | Existing 2010 Backgrounc | -- | -- | 41 | 92 | -- | 62 | -- | -- | -- | -- | -- | -- | 37 | -- | -- |

SimTraffic Queueing Report
Project: SLC - Chick-fil-A TIS
Time Period: PM Peak Hour
$95^{\text {th }}$ Percentile Queue Length (feet)

## HALES (1)ENGINEERING

 innowative transportation solutionsProject \#: UT10-213

| Intersection | Time Period | EB |  |  |  | NB |  |  |  | SB |  |  |  | WB |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | L | R | T | TR | L | LR | R | T | L | LR | T | TR | L | T | TR |
| 2100 South \& 1200 East | Existing 2010 Plus Project | 50 | -- | 46 | -- | -- | -- | -- | -- | -- | 142 | -- | -- | -- | 3 | 8 |
| 2100 South \& 1300 East | Existing 2010 Plus Project | 220 | 231 | 376 | -- | 438 | -- | 239 | 413 | 127 | -- | 568 | 566 | 598 | 875 | 612 |
| 2100 South \& Douglas Street | Existing 2010 Plus Project | 34 | -- | 144 | -- | -- | -- | -- | -- | -- | 78 | -- | -- | -- | 6 | 5 |
| 2100 South \& Project Access | Existing 2010 Plus Projec | -- | -- | 49 | 76 | -- | 136 | -- | -- | -- | -- | -- | -- | 60 | 18 | -- |

## APPENDIX: BUSINESS DISTRICT DESIGN GUIDELINE HANDBOOK

## PURPOSE AND INTENT

These Design Guidelines apply to the Sugar House Business District Zoning District. Their purpose is to assure high quality development. The high quality of the district should be reflected in all of its aspects, including design, construction and tenant mix.

The intent of these Design Guidelines is to give general design guidance with flexibility to the development of the area. They are not intended to restrict creativity or to dictate design solutions. Guidelines are intended to support and expand on the guidelines established in the Urban Design Element. They are also intended to be compatible with Salt Lake City zoning ordinances. In the development of design proposals, developers are encouraged to explore solutions and to present alternatives to these guidelines if they can be shown to achieve the same goals for high quality development.

## Pedestrian/Bicycle System Design Guidelines

Pedestrian and bicycle access through the development and to surrounding areas and uses are critical to integrating the Sugar House community. It is important to develop a full range of pedestrian options with connections to adjacent uses, amenities and developments. Clearly defined, safe and pleasant pedestrian access through and between all of the use areas on the project should be provided. High traffic areas such as those between parking lots and building entrances, between buildings within the project, and other areas where the majority of pedestrians will be walking, should be a priority.

- Design the town center with pedestrian-oriented corridors providing pedestrian comfort and amenities.
- Provide proper separation of pedestrian and vehicular movement at a scale that encourages activity and pedestrian comfort.
- Form pedestrian/commercial promenades with planting and paving treatments in pedestrian corridors, coupled with active uses in adjacent buildings.
- Incorporate special pavement treatment using materials and patterns coordinated for the district into pedestrian-activity areas.
- Provide pedestrian circulation from buildings adjacent to pedestrian corridors.
- Develop pedestrian corridors to connect activity centers and connect blocks.
- Provide clear, visible signage for pedestrian accessways.
- Orient public entrances to the street. Functional entrances every 30 linear feet is desirable.
- Require continuous street frontages except for driveways, plazas and walkways that allow the pedestrian to get to parking located behind buildings.
- Provide a refuge for pedestrians with overhead protection at doorways on new buildings along 2100 South and Highland Drive/1100 South.
- Articulate pedestrian/bicycle corridors and linkages with pedestrian scale furnishings, lighting, paving materials, public art, trees, and other plantings where appropriate.
- Accommodate the needs of disabled and elderly people by meeting requirements of the American's With Disabilities Act (ADA) along pedestrian areas.
- Provide adequate width along walkways to facilitate pedestrian movement: major pedestrian walkways in high traffic areas should be a minimum of 8 feet' in width; secondary walkways in low traffic areas should be a minimum of 6 feet in width; and walkways adjacent to parking lots where automobile bumpers may overhang the walk should be designed to allow a minimum of 6 feet clearance for walking.
- Delineate space with paving materials and design to help define pedestrian areas from other circulation systems.
- Use easily maintained, durable, slip resistant paving materials suitable for this climate, such as concrete, concrete pavers, brick pavers, tile, etc.
- Avoid the use of rough or uneven paving materials which can be hazardous, particularly for elderly persons and persons in wheelchairs.
- Design drainage grates to allow safe passage by bicycles and pedestrians, particularly in pedestrian/bicycle circulation areas.


## Vehicular Circulation and Parking Design Guidelines

- Encourage on-street parking in front of buildings as a traffic calming method and as a buffer for pedestrians.
- Incorporate structured parking in new structures or adaptive reuse of existing structures and coordinate the parking with building and landscaping designs. Parking structures should not occupy the street frontage of 1100 East/Highland Drive and 2100 South. Parking structures on other streets should have retail/office use on the ground level.
- Designate parking lots and structures with uniform identification signs.
- Encourage through-block parking lots along the north side of 2100 South behind the building frontages and adequately buffered from adjoining residential areas. Encourage shared/coordinated parking with all businesses.
- Avoid access to parking through residential areas.
- Provide islands throughout parking areas to break up hard-surfaced areas. Berms and other changes of grade are recommended where possible.
- Encourage shared parking and structured parking, either below grade or above grade.
- Design primary access points to avoid traffic conflicts. Wherever possible, they should be located directly across from existing access drives and streets. Interior circulation drives should be articulated and reinforced with other site design features such as lighting standards, trees and other plantings, special paving and walkways, etc. An interior circulation system which includes a clearly defined route to parking areas is necessary. Immediate entry to large parking areas is not desirable.
- Design access points to adequately meet traffic needs with consideration for consolidation to minimize the number of curb cuts along the block face.
- Design interior drives and parking lots so that pedestrian, service, and vehicular conflicts are minimized.
- Design the vehicular circulation system to reduce traffic impacts to neighboring residential uses.
- Locate parking lots back from buildings to allow for pedestrian space and landscaping.
- Landscape parking lots. Interior islands, at least 6 ' in width between parking rows or bays can be used to minimize the visual impact of large expanses of asphalt and to control cross traffic through parking lots.
- Screen service, storage and trash areas. These areas should be screened and buffered from pedestrian corridors, surrounding streets, residential units, Parleys Creek open space and other public use areas using materials compatible with the architecture and adjacent site features.


## Town Center Scale Mixed Use - Parking

- Allow surface and structured parking; however, structured parking is highly recommended.
- Prohibit parking lots to front onto Highland Drive or 2100 South in the area of the Town Center Overlay.
- Require parking structures that face onto the street to have retail spaces at the lower level.


## Neighborhood Scale Mixed Use - Parking

- Allow surface and structured parking. Structured parking facing onto the street must have retail space at the lower level.
- Setback parking lots a minimum of 15 feet.
- Locate parking lots to the rear of buildings.


## Residential - Parking

- Allow surface and structured parking; however, structured parking is preferred.
- Prohibit parking lots to front onto 2100 South.
- Setback parking lots a minimum of 15 feet.


## Open Space - Parking

- Avoid parking lots in Open Space areas.


## Building Architecture and Siting

- Require the general pattern of buildings to include and emphasize the importance of public gathering spaces and pedestrian connections.
- Consider the relationship of building forms to one another and to other elements of the Sugar House area so the effects will be complimentary and harmonious.
- Relate the mass and height of new buildings to the historical scale of Sugar House development to avoid an overwhelming or dominating appearance in new construction.
- Treat building height, scale, and character as significant features of the Business District's image.
- Ensure that features of building design such as color, detail, materials, and scale are responsive to district character, neighboring buildings, and the pedestrian.
- Require buildings situated in visually dominant positions to have interestingly detailed exteriors. Prohibit blank-walled facades.
- Allow buildings within the core of the town center to stand out prominently only in exceptional circumstances. This would be when they signify the presence of activity centers and occupy focal points.
- Design new construction to complement and enhance the character of adjacent older buildings having architectural merit through appropriate scale, massing, rhythm, and materials.
- Require where applicable, that the base of the building emphasize horizontal divisions texture, and other architectural details to relate to pedestrian activity.
- Require the first floors of buildings to have clear, untinted glass that permits pedestrian contact with interior spaces along streets and pedestrian corridors. Prohibit dark-tinted or reflective glass windows, creating a blank, impersonal street front, uninviting to the pedestrian.
- Preserve historic structures and their facades in order to preserve the historical fabric of the area, wherever feasible.
- Complement the historic architecture of Sugar House with appropriate exterior building materials. Appropriate materials may include the following:
o Brick;
o Architectural concrete (precast or poured-in-place);
o Stone; and
o Glass.
- Choose exterior building materials to be consistent with appropriate standards for structures of the kind proposed; and address durability and life-cycle cost issue.
- Coordinate and compliment exterior materials throughout the area in order to develop a unified expression.
- Avoid placing mechanical equipment at grade level. Meters, pipes, stacks, heating and cooling equipment, control boxes, and antennas are examples of mechanical equipment requiring careful location and screening treatment.
- Roof top mechanical equipment should be screened with architecturally integrated elements of the building.
- Orient large buildings to minimize shadows falling on public open spaces. The height and mass of tall, closely packed buildings should be shaped to permit sunlight to reach open spaces.
- Require large buildings and groups of buildings to maximize public views of the city's mountain backdrop. In larger projects, view corridors are needed to maintain a sense of living adjacent to the Wasatch Mountains.
- Use sculpture, fountains, and monuments to enhance the three-dimensional quality of pedestrian gathering spaces.
- Require loading docks on the "backside" of buildings to be carefully designed and screened.
- Require the massing and scale of structures to be compatible with surrounding uses.
- Orient buildings that are adjacent to the street, towards the street and promote a high quality image for each project.
- Orient interior buildings towards each other and arrange them in clusters or in adjoining structures whenever possible.
- Contain outdoor garden centers and other seasonal materials in permanently designated areas that are designed as part of the overall structure.
- Include a variety of building heights in the mixed-use area and take advantage of topographic changes, "stepping" the buildings down the profile.
- Avoid construction of a "wall of buildings" along 1300 East blocking views to the west from Sugar House Park.
- Avoid facade architecture: all faces of the building should be designed with similar detail and materials.


## Landscape Design Guidelines

- Coordinate landscape design, incorporating landscaped treatment for open space, roads, paths, buildings and parking areas into a continuous and integrated design.
- Include primary landscape treatment that consists of shrubs, ground covers and shade trees appropriate to the character of the project, the site and climatic conditions.
- Provide a variety of plantings that include changes in color, texture, height, density, light, ground plane, etc. A mixture of shrubs, trees, ground covers, perennials, turf and annuals is suggested.
- Provide landscaped separations between parking, drives, and service areas, and public use areas including walkways, plazas, eating areas, view corridors, prime vehicular access points, etc. Architectural materials may be used, but plant materials should also be incorporated in the screening/buffering treatments.
- Provide raised planters in high use areas when appropriate. Raised planters offer a good solution that protects plant materials from damage, and they offer opportunities for seating as well.
- Provide trees planted on grade with a minimum opening of 5 ' square or round. Openings may be covered with tree grates or other material that allows air to reach the soil within the 5' area.
- Group plantings in larger planting areas rather than individual trees in grates, wherever possible. Plants are more successful in groupings and in larger planting areas.
- Minimum plant sizes for all landscaped areas are as follows

| Deciduous trees | 2 1/2" caliper |
| :--- | :--- |
| Evergreen trees | 6 ' in height |
| Deciduous shrubs | 5 gallon container |
| Evergreen shrubs | $24^{\prime \prime}-36^{\prime \prime}$ in height or spread |
| Perennials | 1 gallon container <br> Ground covers |

## On-site Lighting Design Guidelines

- Design lighting as a system that is integrated throughout the development, and that is compatible with the other lighting in the area.
- Use pedestrian lighting along walkways, plazas, and other pedestrian areas to indicate routes and to provide safety. Fixture design should be appropriate and coordinated through the entire development.
- Use lighting to highlight building facades. Generally, all building facades should be lighted at the street level. Above the first floor, light should be selectively positioned or defined. A more limited lighting pattern in the higher areas of the building is intended to produce greater contrast of light and shadow, accenting unique features without lighting the entire structure.
- Use lighting to accent and highlight planting. Appropriate light levels and pleasant accent effects can be achieved with accent lighting, directed upwards into trees, provides low intensity, but offers dramatic illumination of nearby pedestrian areas.
- Reserve architectural lighting for individual plaza areas to emphasize focal points.
- Require parking lot lighting to meet Salt Lake City standards, at a minimum.
- Design appropriate lighting levels to provide a safe atmosphere while deterring undesirable activities and avoiding night-sky pollution.


## Streetscape

The pattern and design of streetscapes should convey a significant message
complimenting the type and intensity of land development. A streetscape design should unify a district or neighborhood and portray an identity through the design. The following streetscape guidelines are recommended for the Town Center:

- Design buildings to shape the street; the general pattern of buildings should help to define street areas and other public open spaces.
- Allow for informal events such as displays and outdoor dining to encourage pedestrian activity.
- Incorporate a consistent theme for streetscape design to strengthen the association of unrelated buildings.
- Select and design street landscaping according to a special theme for a given area to provide a sense of place in addition to its other amenities.
- Maintain and incorporate a regular-interval street lighting pattern into streetscape improvements.
- Choose light poles, arms, and fixture designs to preserve the historic character of the streetscape.
- Select lighting to be in scale with the pedestrian experience.


## Signage

Since adoption of the 1985 Sugar House Master Plan, the quality of signs in the Business District has improved. The City's beautification project improved the area, along with the City Redevelopment Agency’s façade improvement program. Nevertheless, strict adherence to the City's sign ordinance is necessary to ensure that new signs do not dominate the streetscape of the urban area. This ordinance does not allow new billboards and assumes a long-term decrease in their number over time. As part of all planned developments, the policies of the City's Urban Design Element relating to signage should be followed. In addition, planned developments must adhere to the following guidelines:

- Install signage that emphasizes design elements of a building's façade.
- Select sign materials made of high quality, durable materials that will continue to look good after several years in Salt Lake’s climatic conditions.
- Discourage pole signs and encourage wall and blade signs, as well as monument signs consistent with a pedestrian scale.
- Provide street signs and other informational signage that are uniform and that provide neighborhood and community identity.
- Integrate signs or awnings into the architectural design of any building rather than a feature independent and in conflict with the building's architecture.
- Design signs and graphics to present their message with clarity; graphics should be clear and easily understood, so that people can orient themselves within the development and locate businesses and facilities easily.
- Locate and size signs so that views to and from adjoining land parcels will not be blocked.
- Design directional signing to be low, visible, integrated with the rest of the graphic systems, and functional. If directional signing is needed on the street directing people and vehicles, and on the interior of any development project, it should be consistently located in order to maximize its directional function.
- Design informational signing that helps orient people on the development. It may take the form of a directory or other project wide identification in which people can orient themselves and be directed to those activities and areas they wish to visit.


## Off-Site Development Design Guidelines

Off-site development includes work that occurs in the public way and on properties otherwise considered public such as the Parleys Creek property owned by Salt Lake City and any others that may be designated or assigned.

- Provide public sidewalks and pedestrian/bike corridors that enhance the existing pedestrian circulation systems in the following locations:
o To the east along 2100 South and along Wilmington Avenue to Sugar House Park;
o Between the Sugar House Plaza Monument area and surrounding uses and areas;
o Between the pubic open space at Parleys Creek and surrounding uses and areas;
o Along the rail/trail designated in the Salt Lake City Open Space Plan; and o To south and west to Fairmont Park.
- Accommodate public transportation at the street edges. Coordinate with the Utah Transit Authority on location and design of turnouts, bus stops and other transit facilities.
- Provide standard paving materials currently used in the area on sidewalks. Modifications to the patterns may be permitted and will require approval by Salt Lake City.
- Landscape park strips and public open space with street trees, shrubs, ground covers and lawn. Maintenance of park strips is the responsibility of the adjacent property owner.
- Select trees with guidance from the Salt Lake City Urban Forester.
- Preserve and maintain existing vegetation along Parleys Creek.
- Design street and circulation system drainage grates to allow safe passage by bicycles.
- Require light fixtures to meet Salt Lake City standards and specifications and be of a design that is compatible with the design theme of the business district.
- Include elements of visual interest and complexity into publicly owned open space. These elements can include landscaping, seating areas, furnishings, fountains, changes in grade, public art, etc. to add interest and excitement to the public spaces between buildings and along major circulation corridors.
- Incorporate into the design and provide in designated locations of outdoor open space and public space elements such as site furnishings such as drinking fountains, benches, trash receptacles and ash receptacles, telephones, newspaper stands, bicycle storage.

They should be coordinated and compatible to other site furnishings and design elements.

- Design a mixture of seating opportunities if seating is provided. Materials that are comfortable and vandal resistant are preferred.
- Consider seatwalls, steps, fountain edges, grassy mounds, etc. for an attractive variety of seating options that can accommodate many different needs. If seatwalls are used they should be a minimum of 12 " wide and 16 " to 24 " high for comfortable, flexible seating.


# Chick-fil-A/Homestead Village Summary of Sugar House Design Guideline Compliance "Exhibit B" 

The subject building is not listed on the Historic Structure-Significant, Notable, or Structure-Associated buildings list. The existing Lone Star Steak House was constructed after 1962.

The intent of the Design Guidelines is to give general design guidance with flexibility to the development of the Sugar House Business District. They are not intended to restrict creativity or to dictate design solutions. Guidelines are intended to be compatible with the Salt Lake City zoning ordinances.

Developers are encouraged to explore solutions and to present alternatives to the guidelines if they can be shown to achieve the same goals for high quality development.

## Pedestrian/Bicycle System Design Guidelines

"Pedestrian and bicycle access through the development and to surrounding areas and uses are critical to integrating the Sugar House community.

- A large porte cochere has been added to create a strong street presence as well as screen the drive-thru fronting the street.
- Careful attention has been paid to create obvious pedestrian paths from the public sidewalk to the building entrance.
- Special decorative pavement treatment of the pedestrian pathway from the street to the restaurant entry is proposed.
- An existing 9 ft easement/pedestrian corridor on the west side of the building remains as a vital access from the street to the open space area to the South as well as the Homestead Village hotel.
- Clear signage will be installed to identify the pedestrian pathway, with additional signage proposed to warn drivers of pedestrian activity.
- The patios front the street to create an inviting area for pedestrians.
- The parking lot will remain in its current location, on the east side of the building. No parking is proposed between the building and the street.
- Awnings at the windows and entry provide overhead protection
- The project is ADA accessible
- All pedestrian walkways are a minimum 8 feet wide, with secondary walkways 6 feet clear (including any 2 foot overhangs)
- The pedestrian path is delineated by decorative paving, consisting of durable, easily maintained paving materials.
- No rough or uneven paving is proposed
- There are no ground mounted drainage grates


## Vehicular Circulation and Parking Design Guidelines

The Circulation and Parking layout has been designed to meet the goals of the Design Guidelines in the following manner:

- Parking is proposed in its existing location. No on-street parking is allowed in front of the property
- Proper directional signage is provided.
- Shared parking with the hotel is provided
- There is no adjacent residential property impacted by the parking, access, or circulation of the project.
- The existing project access will not be modified.
- Pedestrian pathways are provided around the building connecting the street, the patio areas and the main entry.
- Landscape planters are provided to soften the parking area.
- The project will utilize the existing access point on the east side of the parcel.
- Service and trash areas have been screened with landscaping and oriented for minimal visual impact. Neither is visible from the street.


## Building Architecture and Siting

Building design and site layout have been carefully considered to meet the goals of the Design Guidelines and have incorporated the following features:

- The building has been oriented towards the street with minimal setback to create a strong street presence and a high quality image.
- Two pedestrian crosswalks have been provided to connect to the public sidewalk and building entry.
- The building design includes appropriate massing, varying colors and materials, and articulation in keeping with the historic nature of the neighborhood. The use of stacked stone and glass dominate the street front elevation and main entry.
- Patio seating and landscaping have been provided along the building frontage to create a welcoming atmosphere for pedestrians.
- Ground level equipment has been placed to minimize visual impact and screened with landscaping. Roof mounted equipment will be screened by parapets.


## Landscape Design Guidelines

A high quality landscaping design is proposed that exceeds the minimum requirements.

- $12 \%$ of the parking area is landscaped ( $5 \%$ is required).
- Existing trees will be protected in place while 14 new trees will be provided. 13 trees are required, 38 will be provided.
- 46 shrubs are required, 104 are provided.
- Particular consideration was given to the landscaping along the street frontage to create a welcoming, pedestrian friendly street statement.
- A raised flower bed is proposed at the NEC of the building to accent the patio area.


## On-Site Lighting Design Guidelines

- Existing lot lighting meets Salt Lake City standards.
- New building and site lighting will be designed to highlight pedestrian pathways, and building focal points without creating a glare on adjacent properties.


## Streetscape

- The building design, site layout and landscaping have been designed to create a strong, pedestrian friendly street presence along the frontage.
- The building has a prominent façade fronting 2100 South.
- Outdoor patio dining is provided to encourage pedestrian activity.
- Existing mature street landscaping will remain


## Signaqe

The proposed signage is in conformance with the Zoning Code and Design Guidelines.

- Wall signs complement the building façade, with clear identification of the restaurant.
- Durable materials are used.
- A pedestrian scaled monument sign is proposed. The sign incorporates a quality stacked stone base to integrate into the building and site design.
- Appropriate directional signage is included in the sign program.


## Off-Site Development Guidelines

There are no off-site improvements associated with the project.

