

CLANTON & ASSOCIATES

Salt Lake City, Utah - Street Lighting Implementation

Clanton & Associates Project Team

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LIGHTING DESIGN AND ENGINEERING



Dane Sanders
Lead Principal
PE, LEED AP



Josi Kander
Project Manager
PE, LEED AP BD+C



Kate McBride
Lighting & Planning



Kaiti Phelan
Lighting Engineer
Technical Lead



Dave Pearson
Street Lighting Manager

Project Scope

Included in Scope:

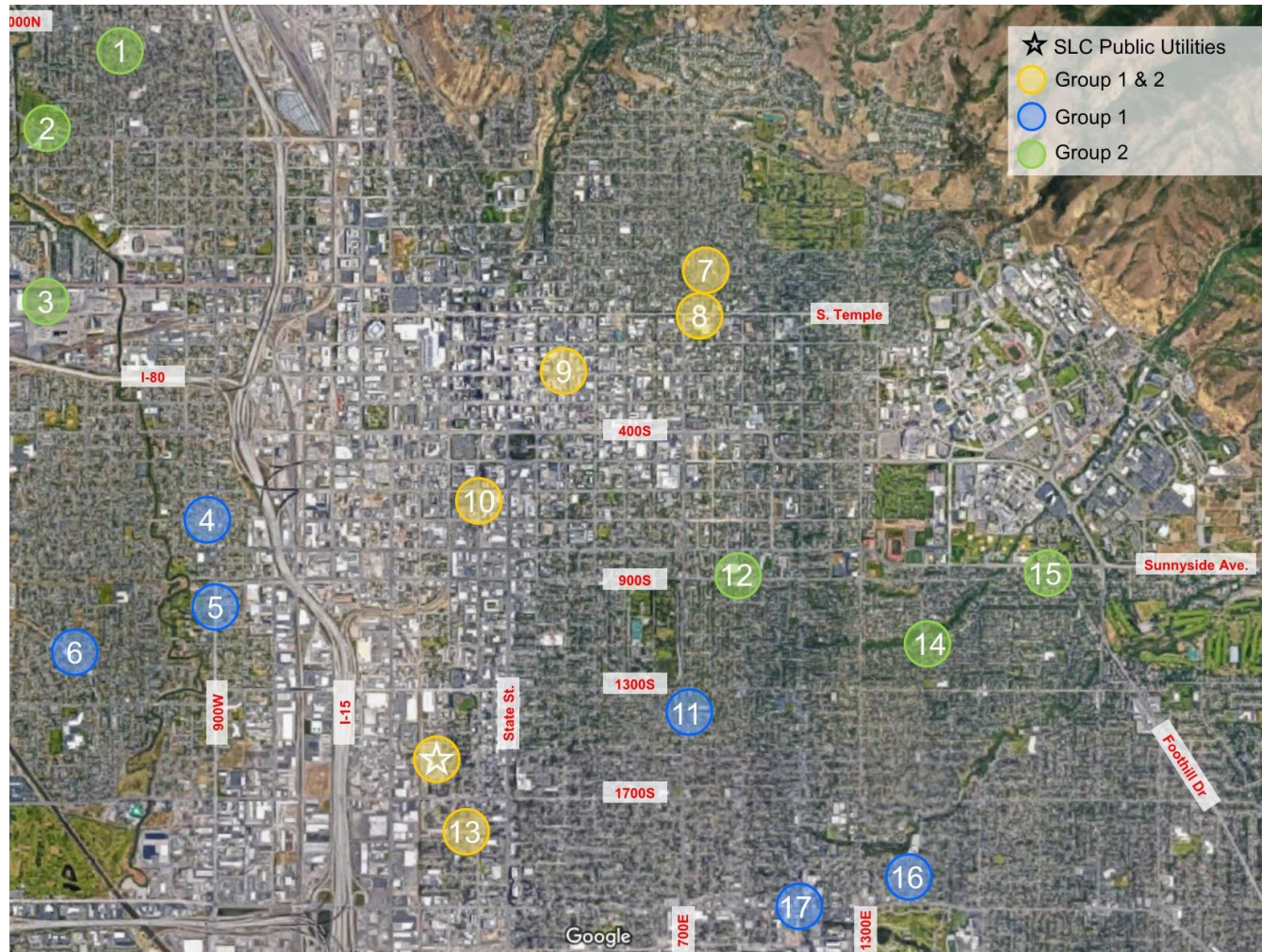
- Street Lighting & Pedestrian Lighting in the Public Right of Way
- Identification of Priority Street Lighting Projects Using Guideposts Established in the 2020 SLC Street Lighting Masterplan

Excluded from Scope:

- Privately Owned Lighting
- Lighting in Public Parks or Schools



Street Lighting Masterplan Tour & Surveys



Example Questions

- Would you feel safe walking here at night?
- Is the lighting comfortable?
- Is there enough light on the street?
- Is there enough light on the Sidewalk?



Street Lighting Masterplan Guideposts



Safety



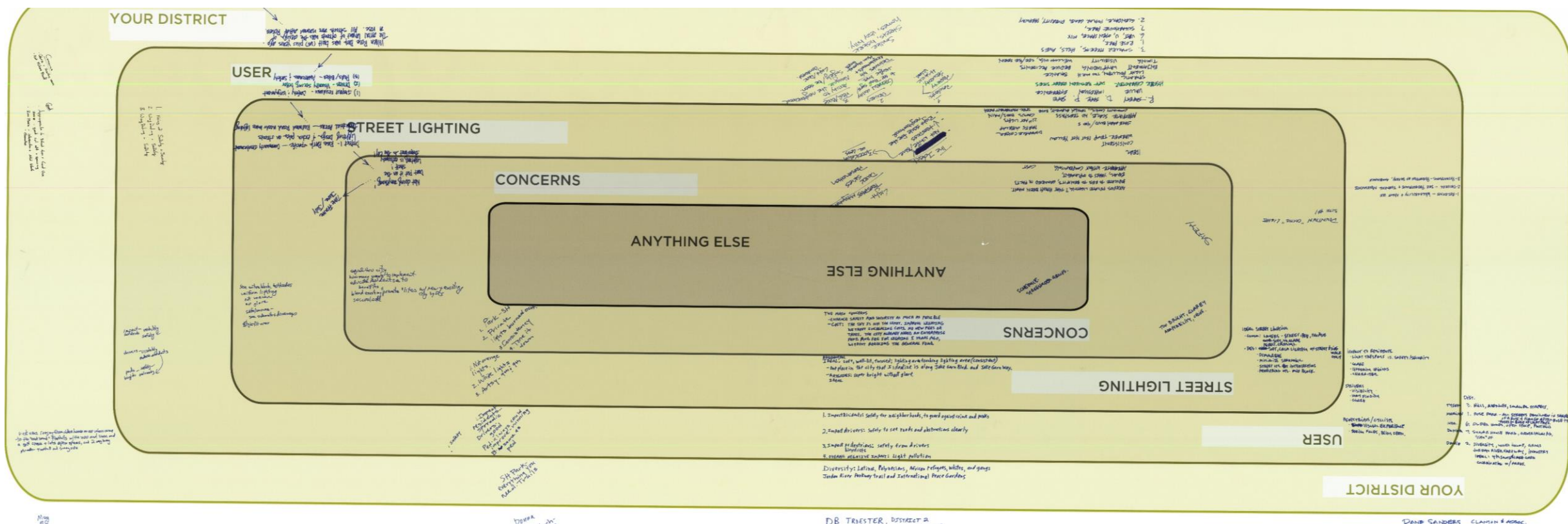
Character



Equity



Responsibility



Street Lighting Masterplan Guideposts

Safety



Visibility



Safety & Security

Character



Design
Aesthetics

Equity



Equitable
Distribution



Prioritize
Underserved
Areas

Responsibility



Energy



Light
Pollution



Light
Trespass

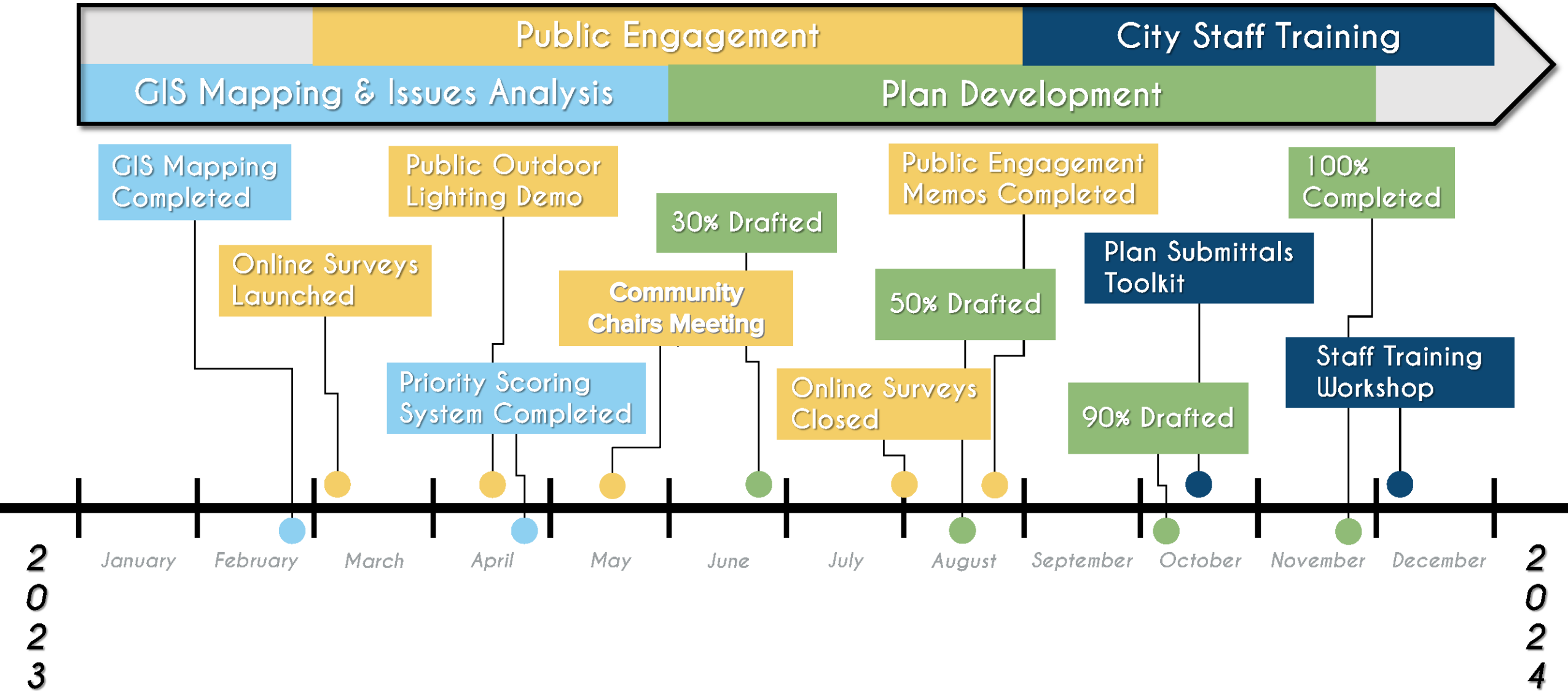


Health



Environment

Project Schedule



An aerial night view of a city, likely Denver, with the Colorado State Capitol building visible in the center. The city is illuminated with various lights, and the sky shows a sunset or sunrise gradient. A large, semi-transparent red diamond is centered over the image, containing the title text.

Street Lighting 101

4 Principles for Responsible Outdoor Lighting



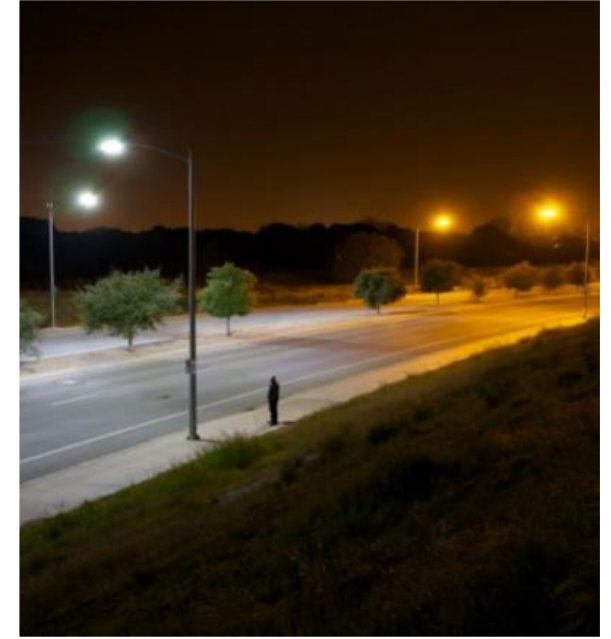
1) Light With Purpose



2) Use Targeted Light



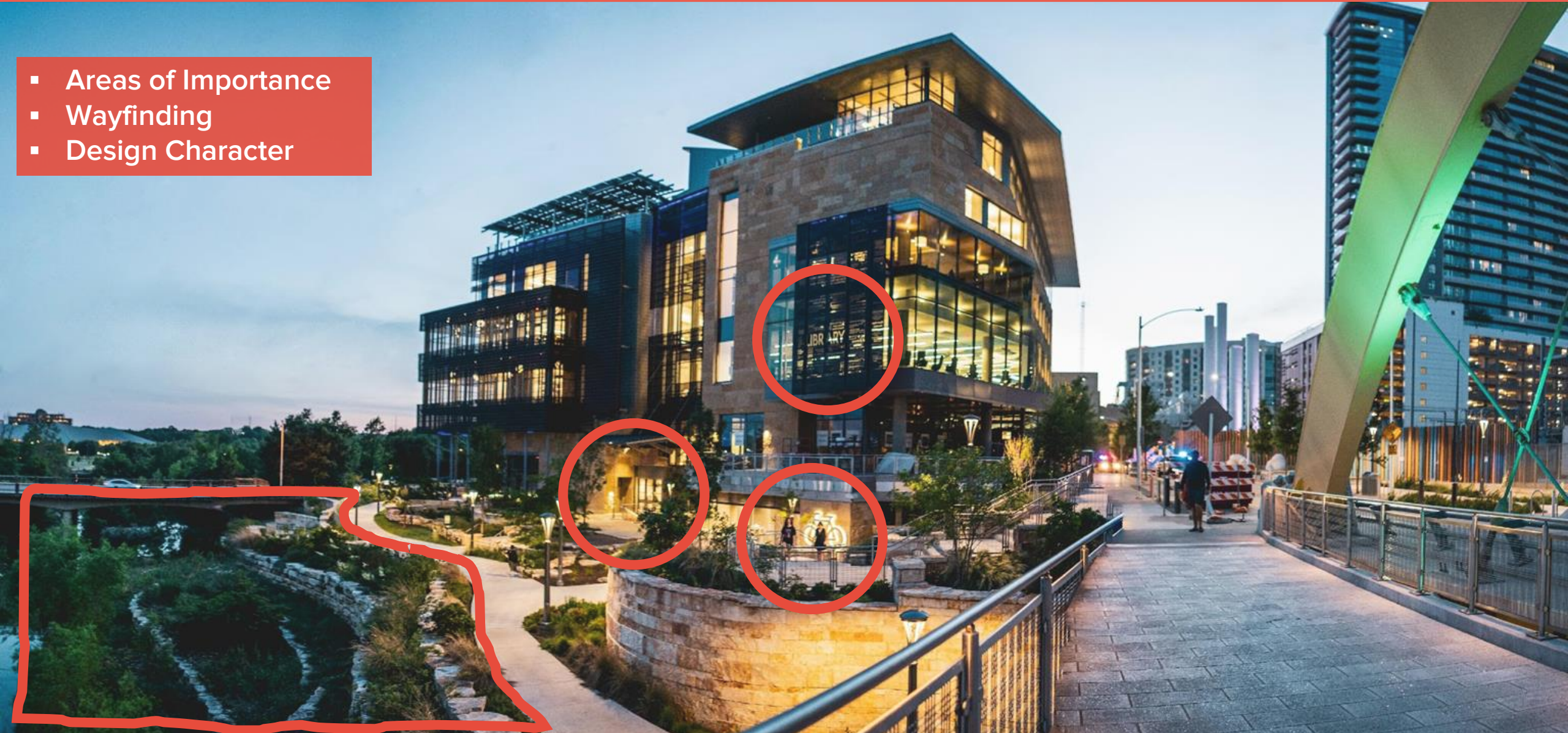
3) Appropriate Brightness



4) Colors of Light

1) Light With Purpose – Visual Understanding

- Areas of Importance
- Wayfinding
- Design Character

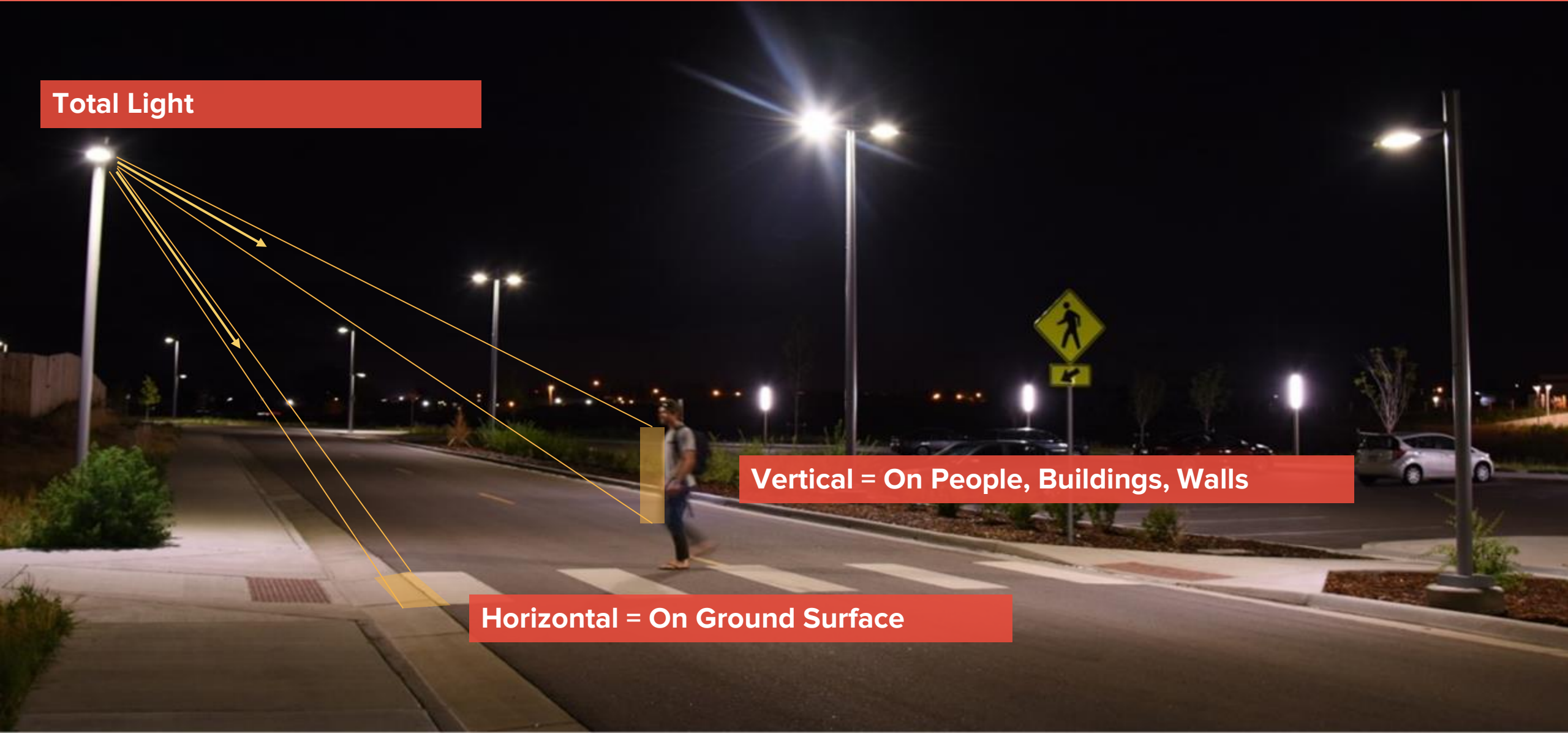


1) Light With Purpose – Public Safety

Total Light

Vertical = On People, Buildings, Walls

Horizontal = On Ground Surface

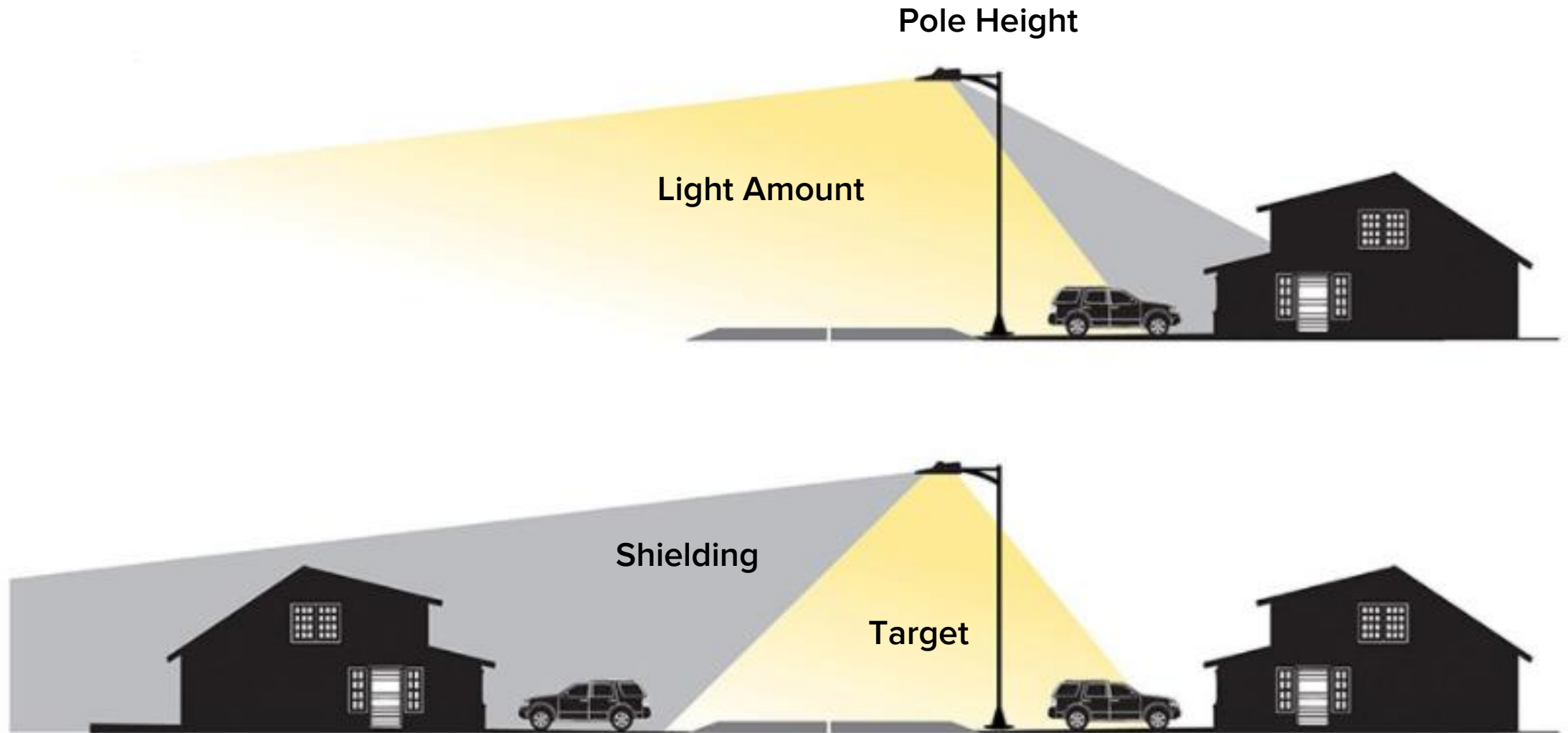


2) Targeted Light – Light Trespass

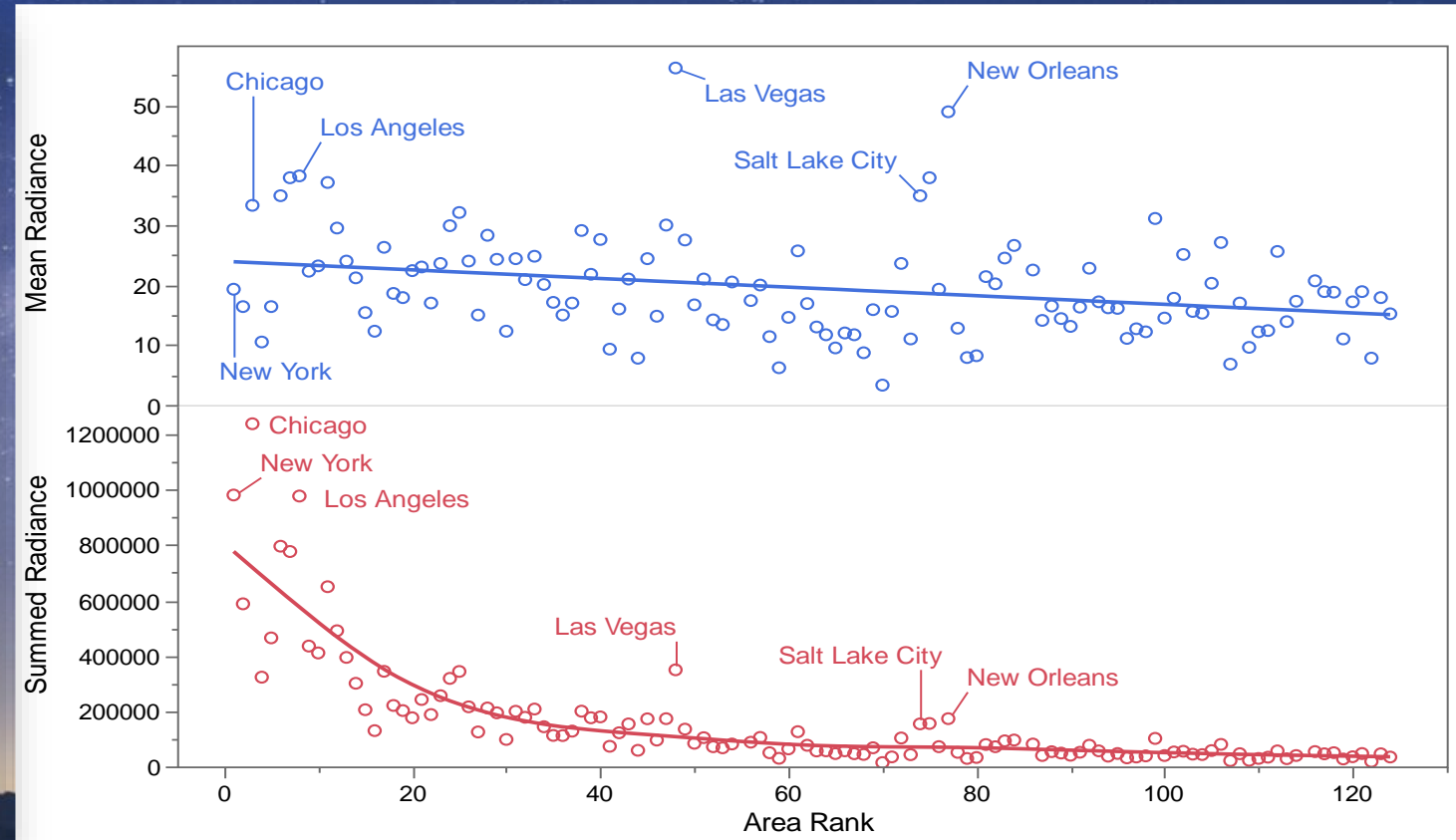
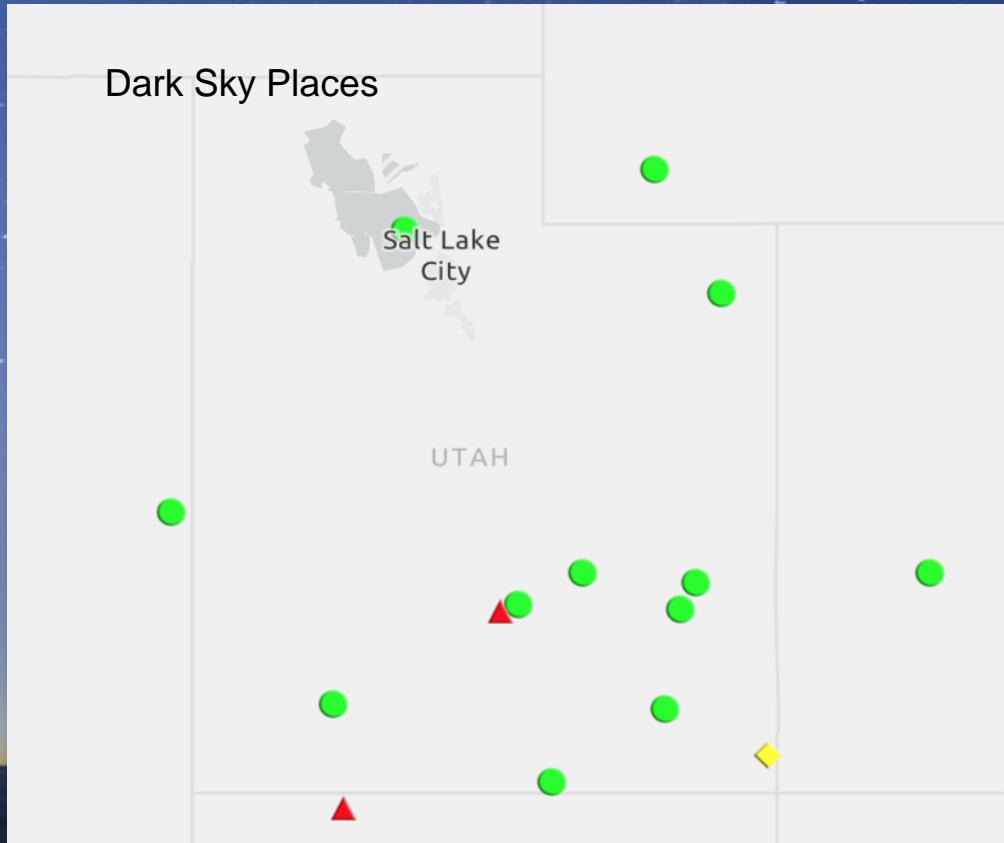


Target light to shine only where it is needed.

2) Targeted Light – Light Trespass



2) Targeted Light – Uplight



Courtesy of Dr. Travis Longcore

Wasted Energy is Increasing 10% Per Year

3) Brightness – Visual Adaptation

Things look darker here because it's brighter there.



3) Brightness – Glare

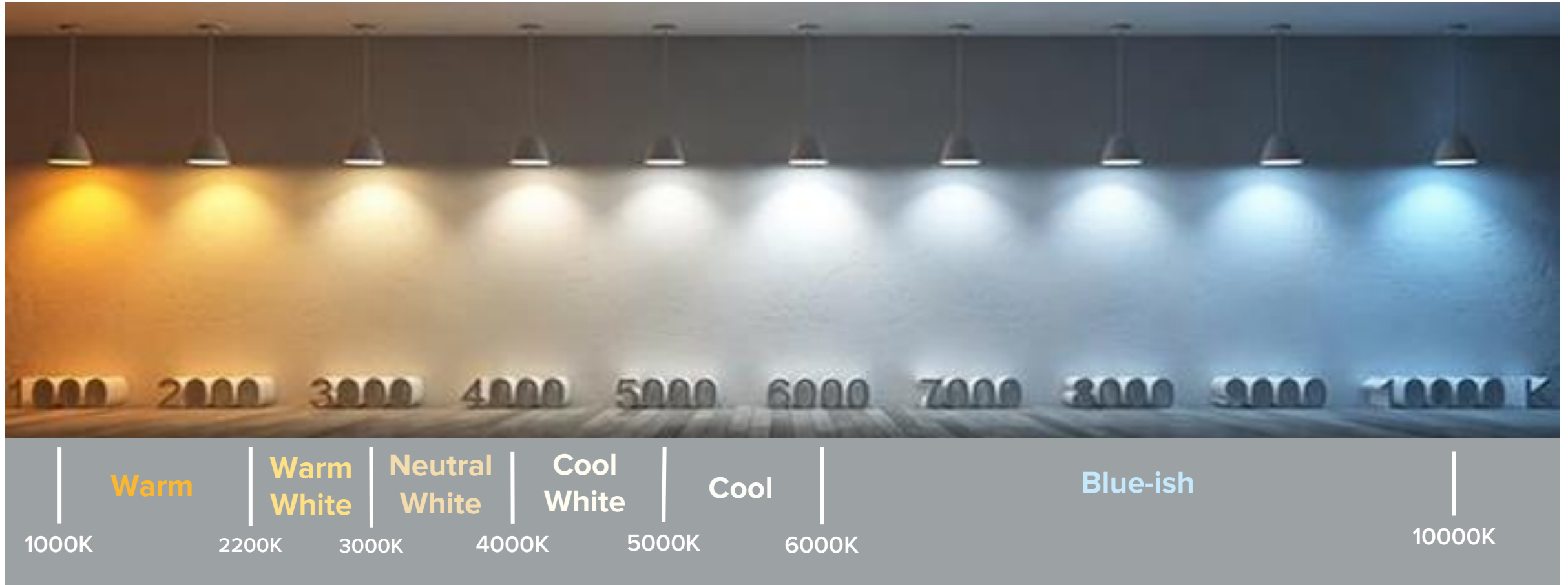


Glare reduces our ability to see at night



No glare improves our vision at night

4) Colors of Light – Color Temperature



These temperatures are measured in degrees Kelvin (K)

4) Colors of Light – Color Temperature



CCT = 2200K



CCT = 2700K



CCT = 3000K



CCT = 4000K

4) Colors of Light – Human Health



Too Much Blue Light

- Sleep Disruption
- Eyestrain
- Blood Pressure
- Depression

4) Colors of Light – Ecological Health



Too Much Light

- Migration
- Reproduction
- Disorientation
- Less Pollination

A nighttime aerial view of Salt Lake City, Utah, showing the city's lights and the surrounding mountains under a twilight sky. A large, semi-transparent red diamond is centered over the image, containing the title text in white.

Salt Lake City Street Lighting Master Plan & Implementation Plan

Street Lighting Implementation Plan Goals



Enhance Safety

Minimize Obtrusive Effects

- Light Trespass
- Light Pollution
- Glare

Encourage Dimming

- Pedestrian Activity
- Wildlife Protection
- Dark Skies

Provide Pedestrian Lighting

- In accordance with Neighborhood Plans & Character

Minimize Impacts to Sensitive Wildlife

Provide Dark Skies Protection

Street Lighting Masterplan Guideposts

Safety



Visibility



Safety & Security

Character



Design
Aesthetics

Equity



Equitable
Distribution



Prioritize
Underserved
Areas

Responsibility



Energy



Light
Pollution



Light
Trespass

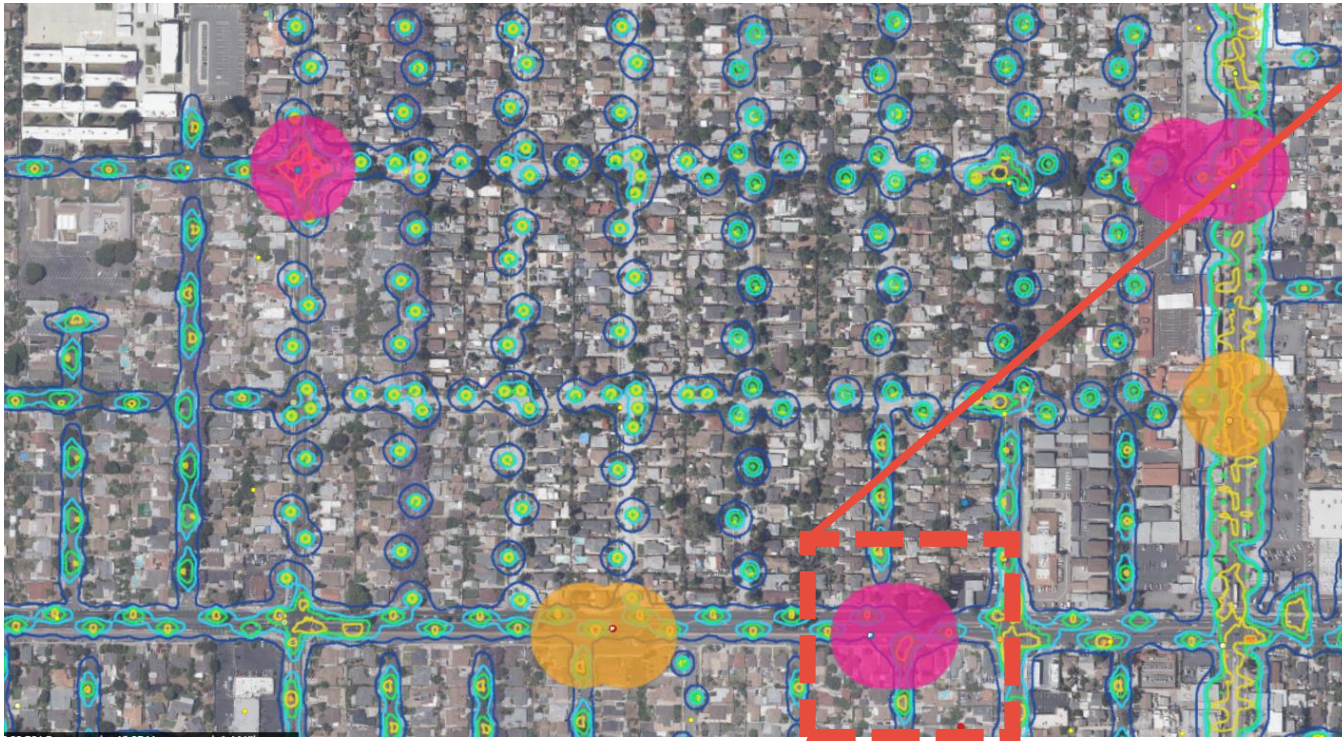


Health



Environment

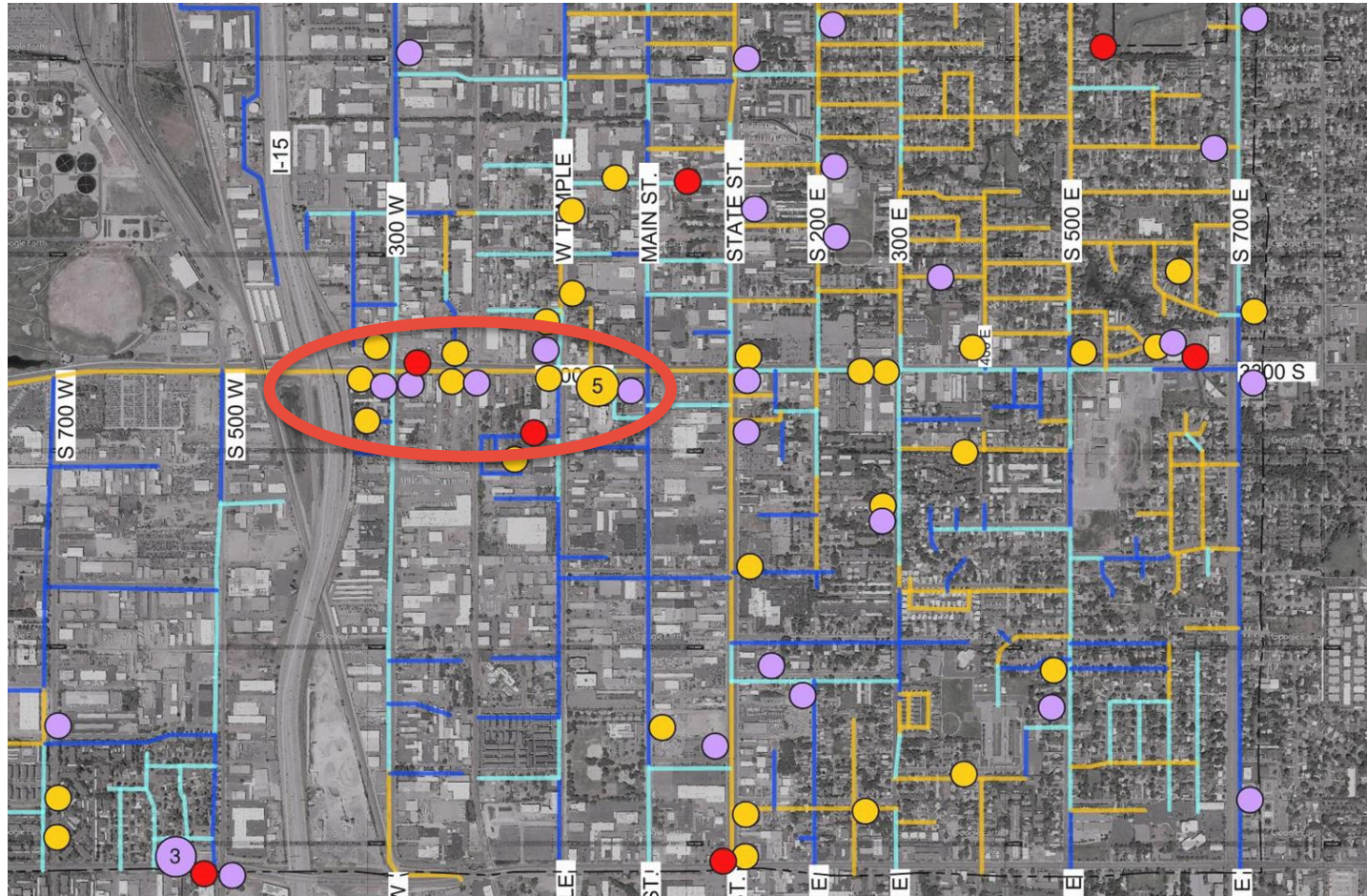
Public Safety



Collision Data & Illumination



Public Safety



City of South Salt Lake, Utah

- Study done by C&A in 2017
- Areas of higher crime were not linked to the areas with poorer lighting

Types of Crime

- :DRUG AND DISORDER CRIME
- :PROPERTY CRIME
- :VIOLENT CRIME

Street Lighting

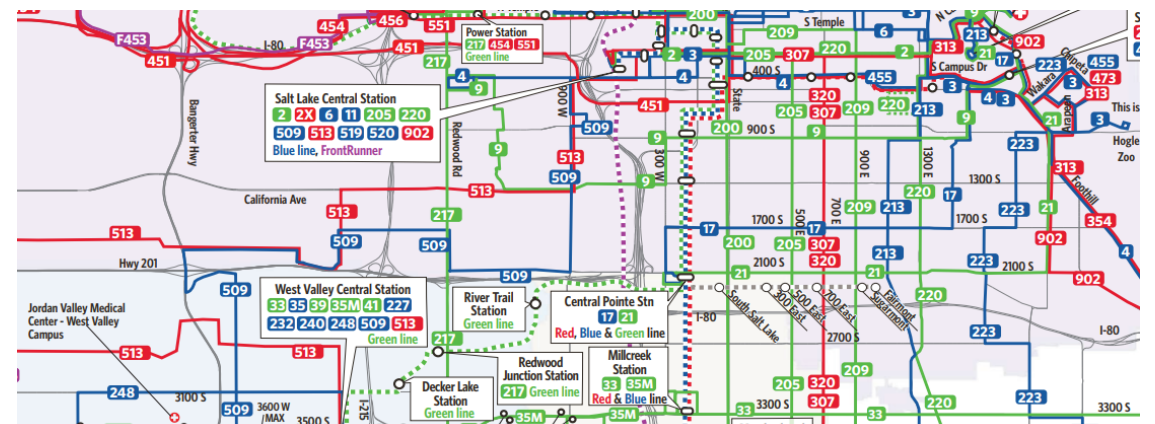
- :ACCEPTABLE CONDITIONS
- :MODERATELY ACCEPTABLE CONDITIONS
- :POOR CONDITIONS

Lighting's Relationship to Crime

Public Safety



Required Improvements:
School Zones



Required Improvements:
Bus Stops and TRAX Stations



Required Improvements:
Neighborhood Byways

Visual Character



Base Level Lighting



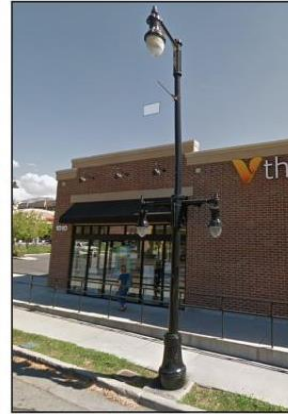
Rose Park Special Assessment Lighting



Downtown Special Assessment Lighting



S. Temple Trolley Pole



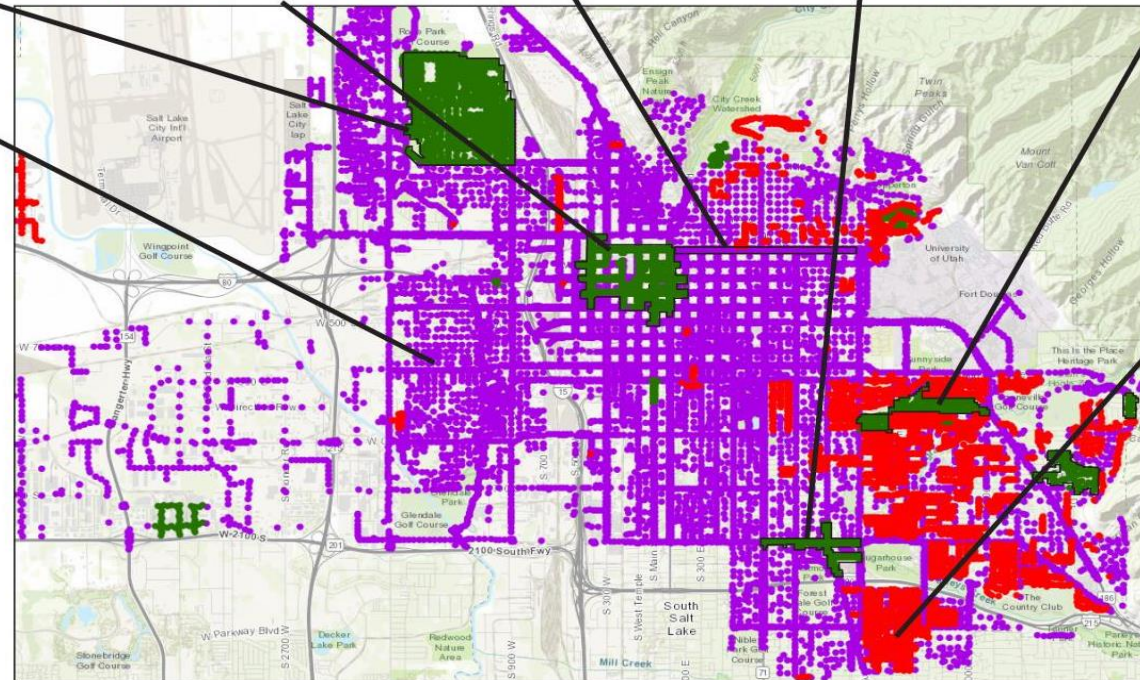
Sugar House Special Assessment Lighting



Residential Enhanced Lighting



Private Lighting



Visual Character

Upgraded
Cobrahead Lights



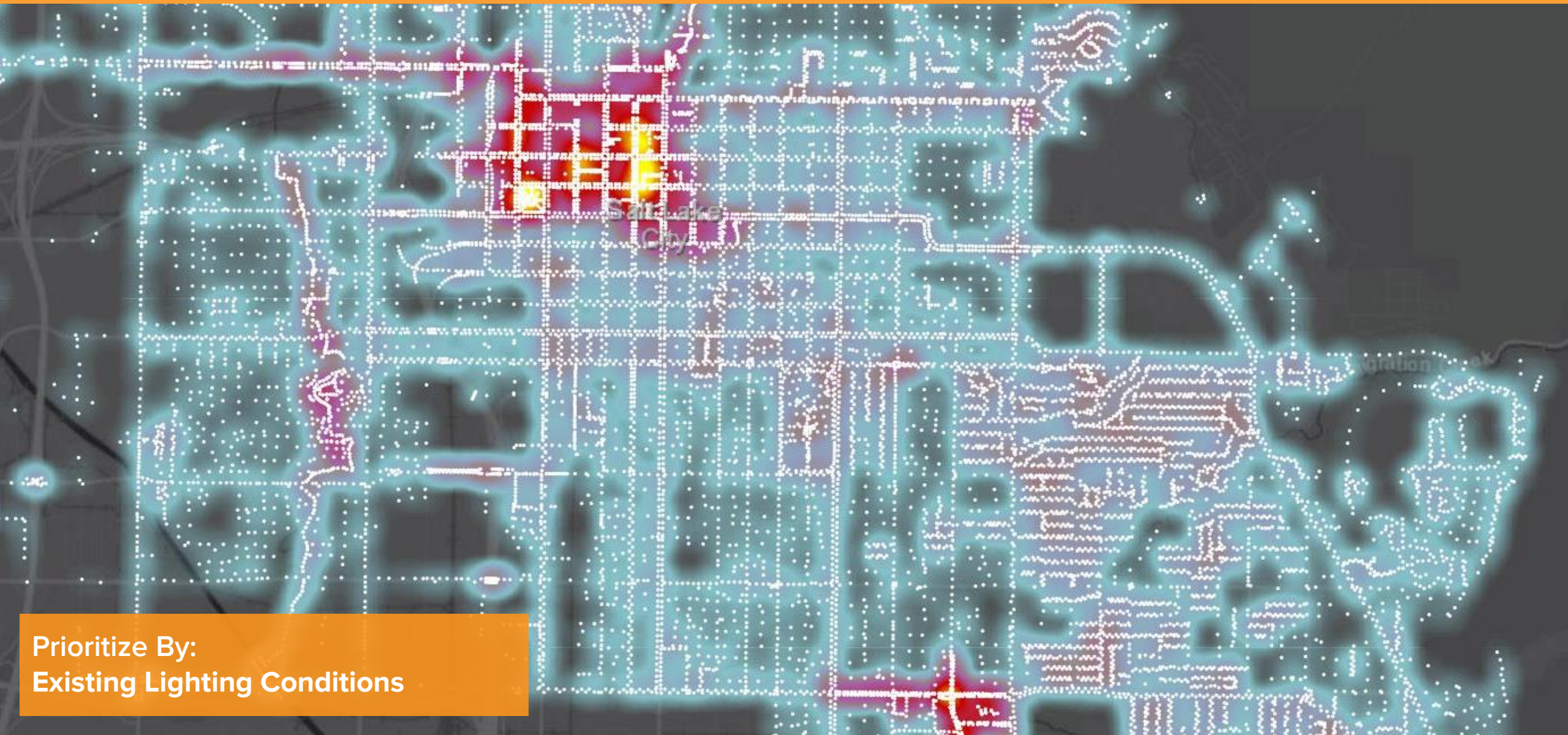
Upgraded
Teardrop Lights



Upgraded
Cactus Pole Lights



Equity



Prioritize By:
Existing Lighting Conditions

Equity



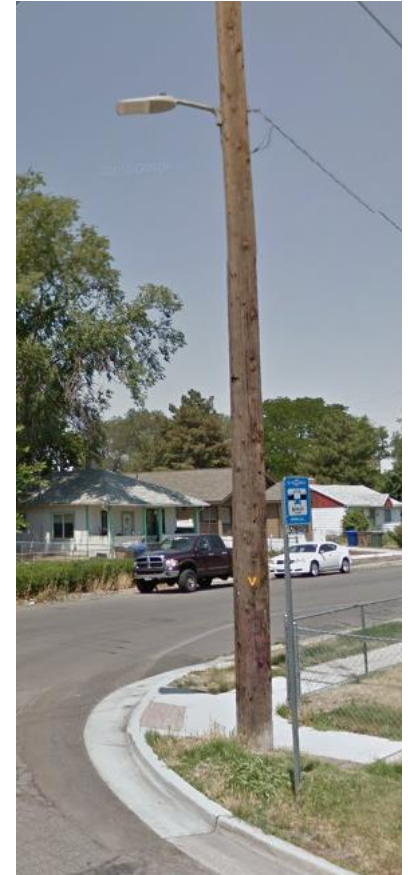
Abundance of Pedestrian Lighting



Neighborhood
Character Identity



Very Few Utility Street Lights

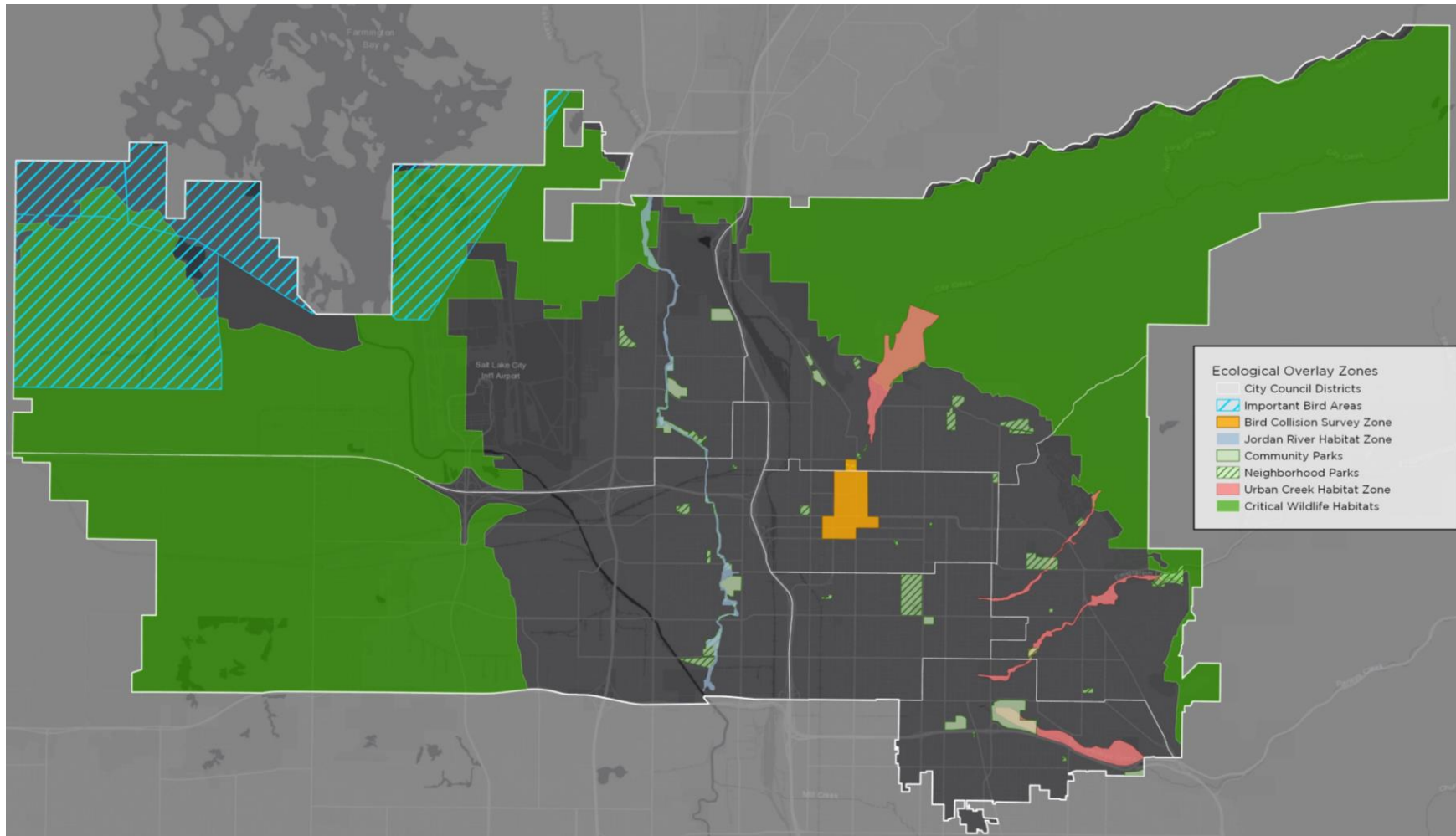


No Neighborhood
Identity

Low Priority

High Priority

Ecological Responsibility



Spectrum

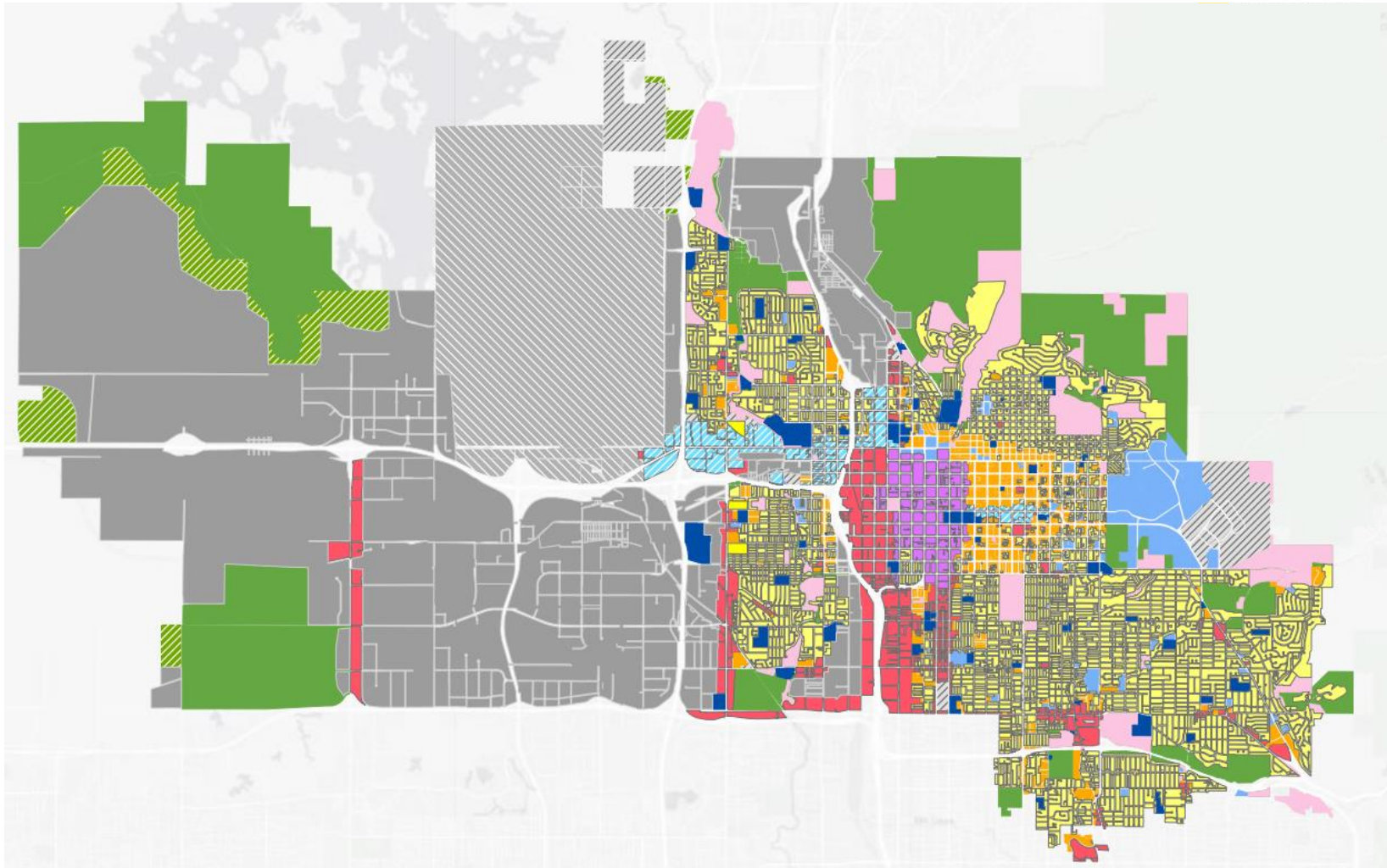


Controls



Shielding

Color Temperatures & Land Use



$CCT \leq 2200K$

Industrial

Open Space

$CCT \leq 2700K$

Single Family

$CCT \leq 3000K$

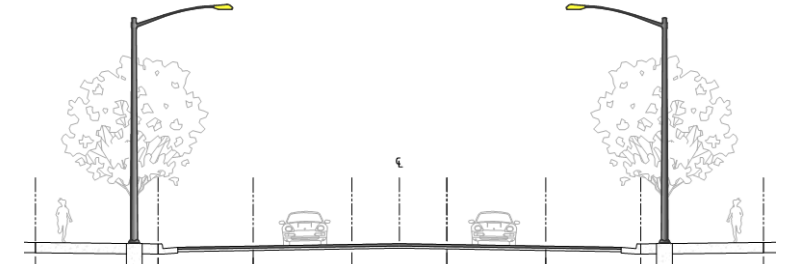
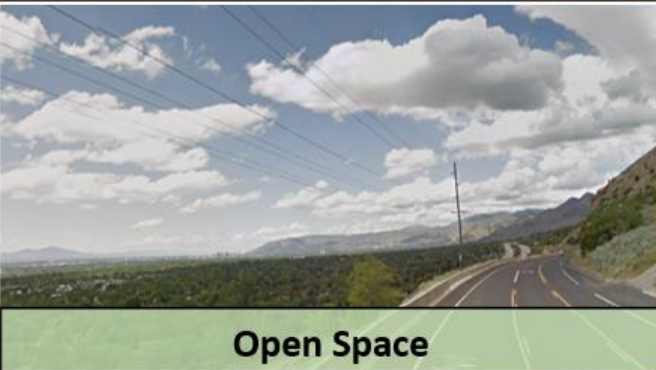
Commercial

Office Park

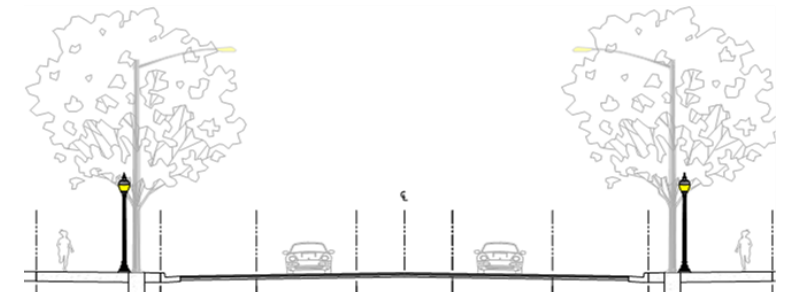
Downtown

Multi-Family

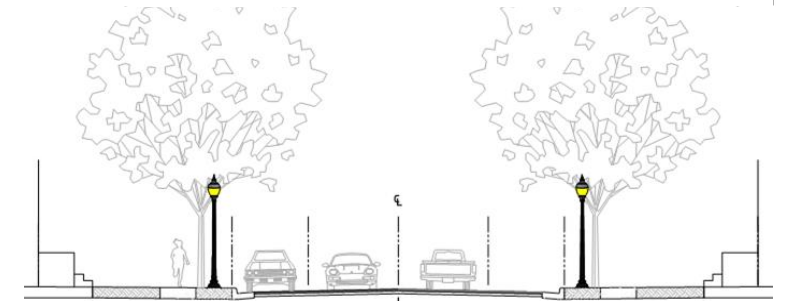
Street & Pedestrian Lighting Strategies



Street Lighting Only



Street & Pedestrian Lighting



Pedestrian Lighting Only

Street Lighting Implementation Plan Process

Priority One

Underserved Neighborhoods

High Conflict Areas

- School Zones
- Bus Stops
- Transit Stations
- Neighborhood Byways

Priority Two

Existing Non-Compliant Street Lighting

On-Going

Scheduled Replacement with Compliant Lighting

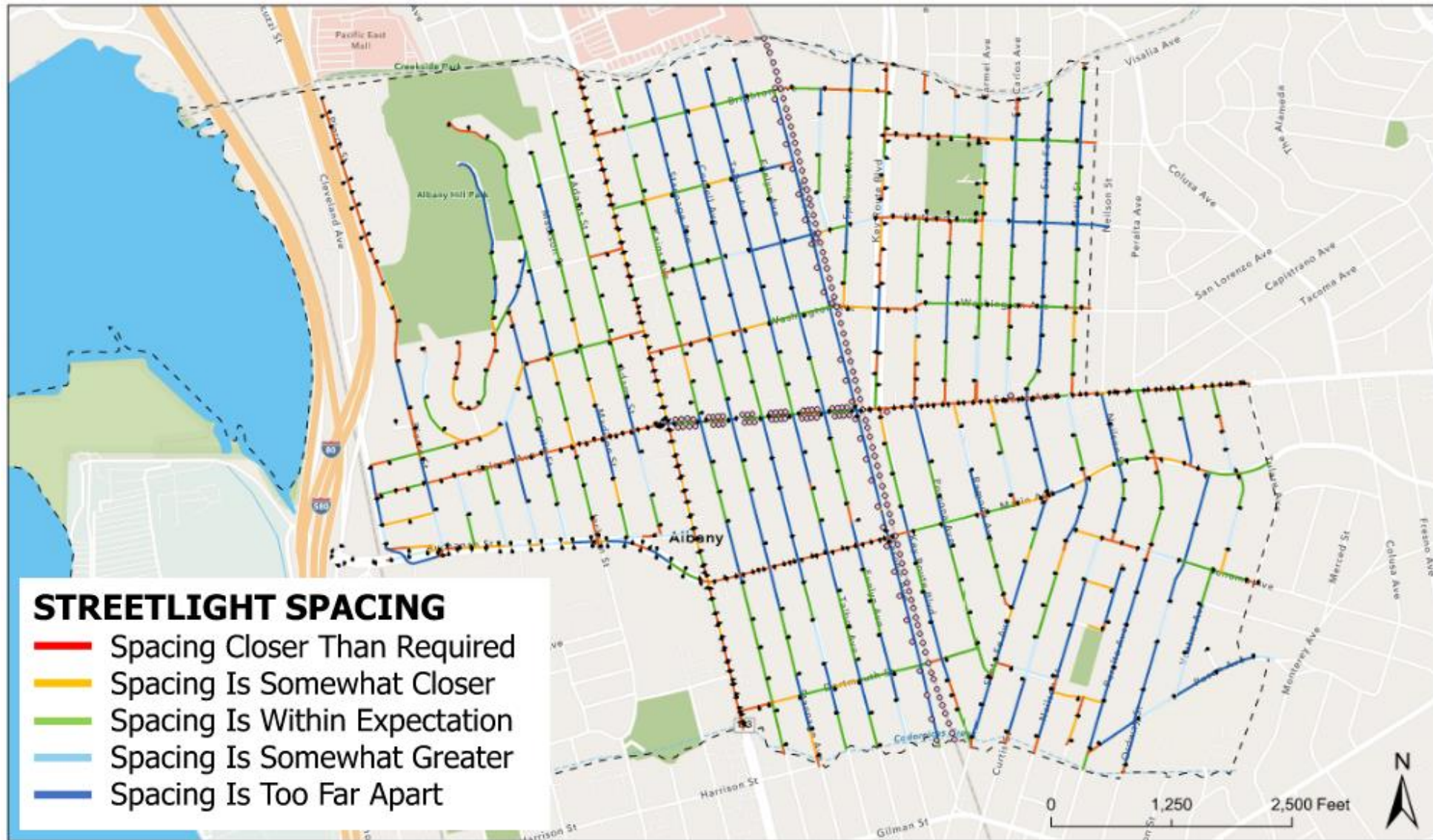
- LED Luminaires
- Ecologically Sensitive Areas
- Dimming Capacity at Neighborhood Request

New Development / Redevelopment

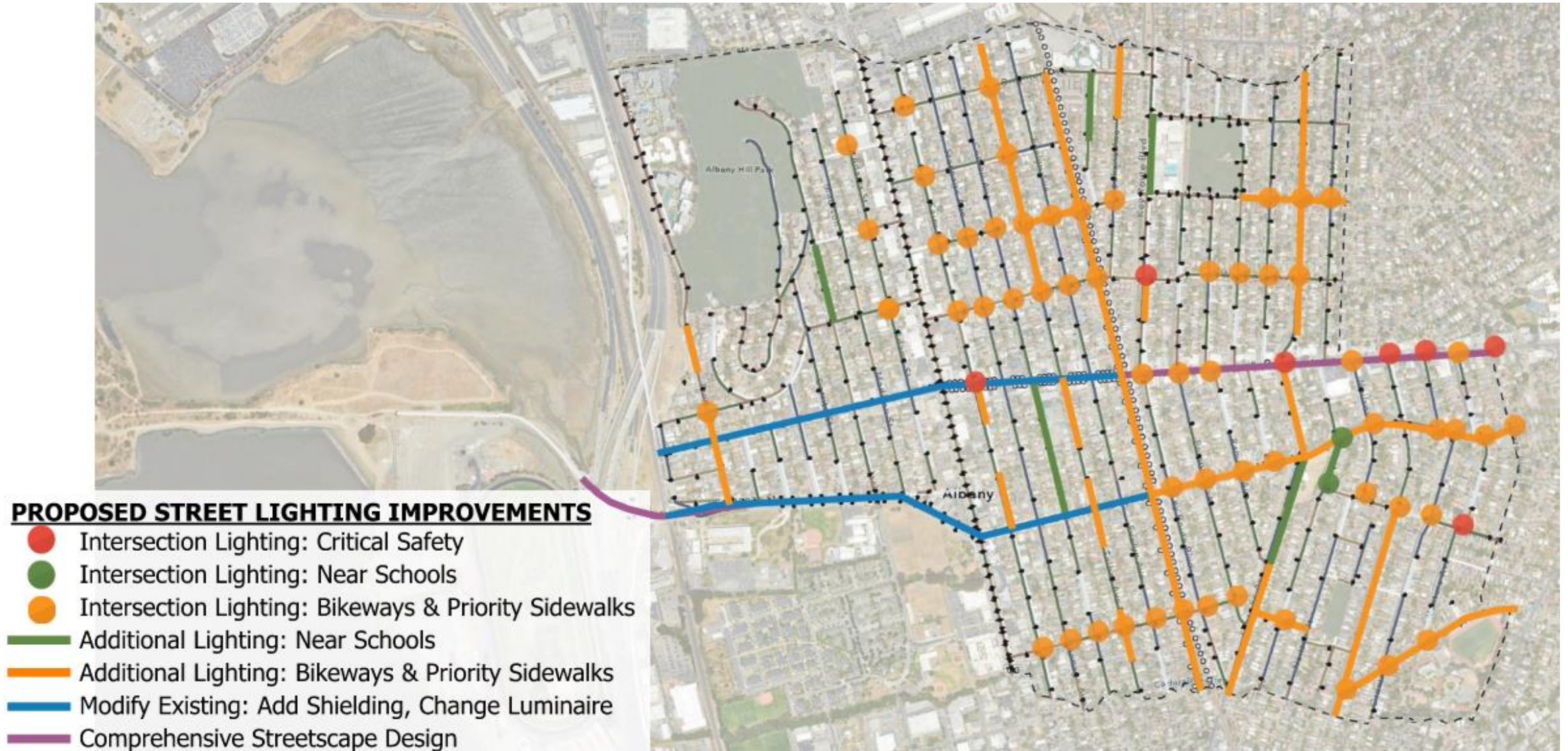
- Installation of Compliant Lighting



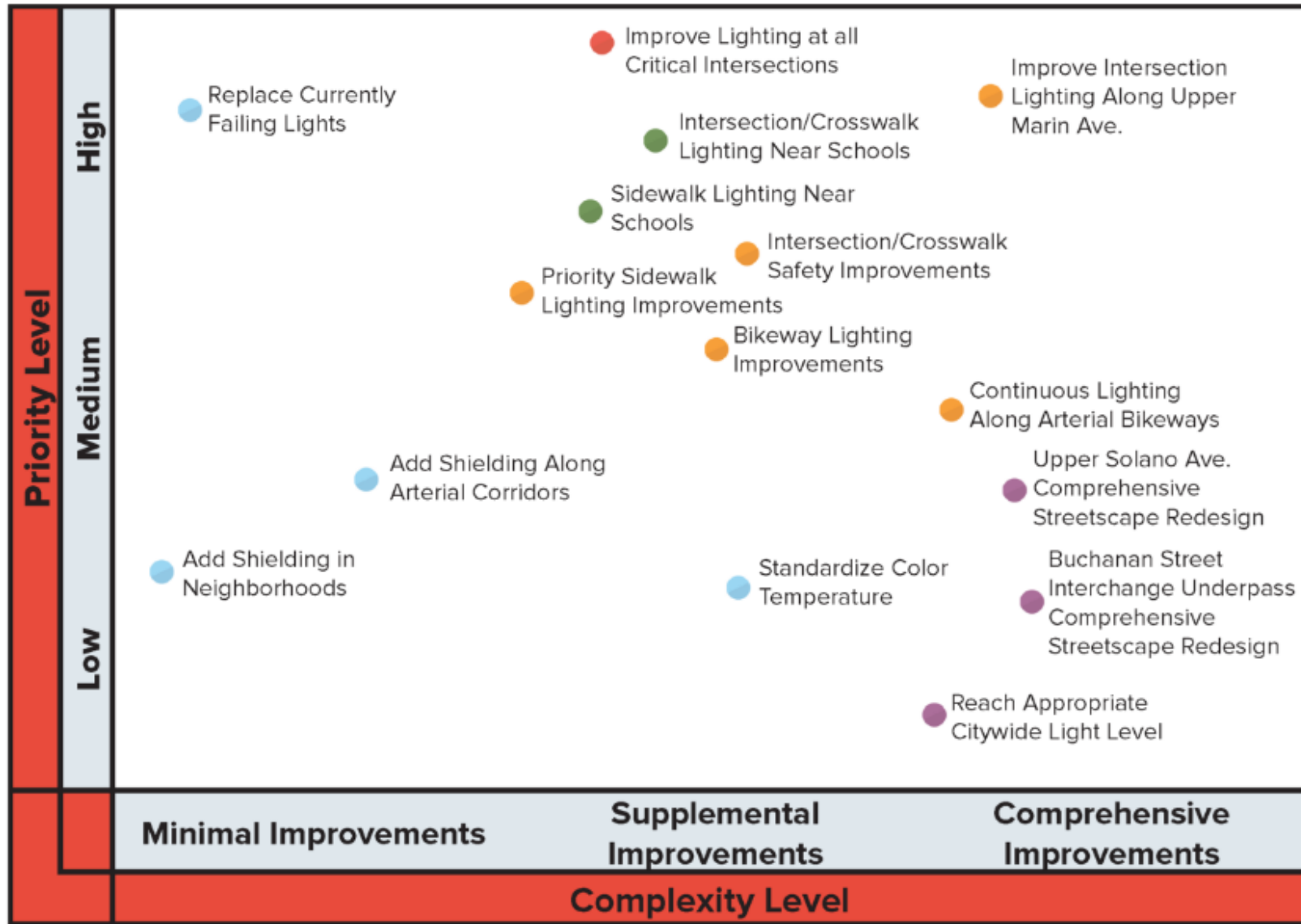
Process: Identify Areas With Lighting Needs



Process: Identify Potential Projects



Process: Prioritize Lighting Projects



An aerial night view of a city, likely Denver, with the Colorado State Capitol building visible in the center. The city lights are illuminated against a dark sky, with mountains visible in the background. A large red diamond shape is overlaid on the center of the image, containing the text.

Demonstration Survey Instructions

Street Lighting Demonstration Survey

Site 1

Using values of 1-5, how would you rate the color (CCT) of this street lighting?

1

2

3

4

5

Too Warm (Orange)

☐

☐

☐

☐

☐

Too Cool (Blue)

Using values of 1-5, how would you rate the amount of light currently on the street?

1

2

3

4

5

Not Enough (Too Dark)

☐

☐

☐

☐

☐

Too Much (Too Bright)

Using values of 1-5, how would you rate the amount of light currently on the sidewalk?

1

2

3

4

5

Not Enough (Too Dark)

☐

☐

☐

☐

☐

Too Much (Too Bright)

Looking down the street (but not directly at the lights), how would you rate the glare of the street lighting?

☐ 3; Appropriate

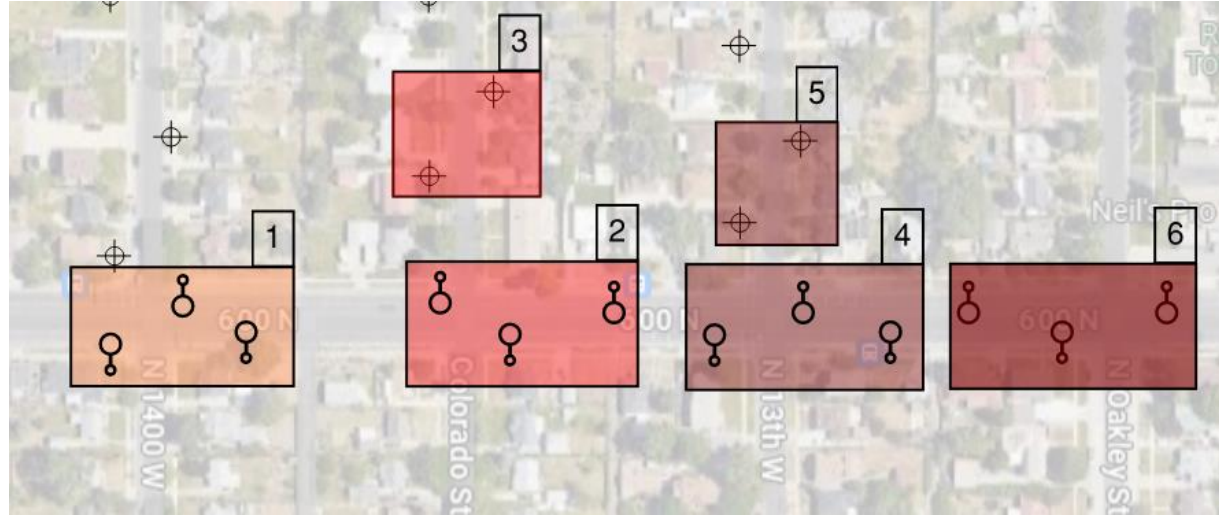
☐ 4; Some Glare

☐ 5; Too Much Glare



Street Lighting Demonstration Locations

Site 1: 600 N



Site 2: Indiana Ave



Questions?



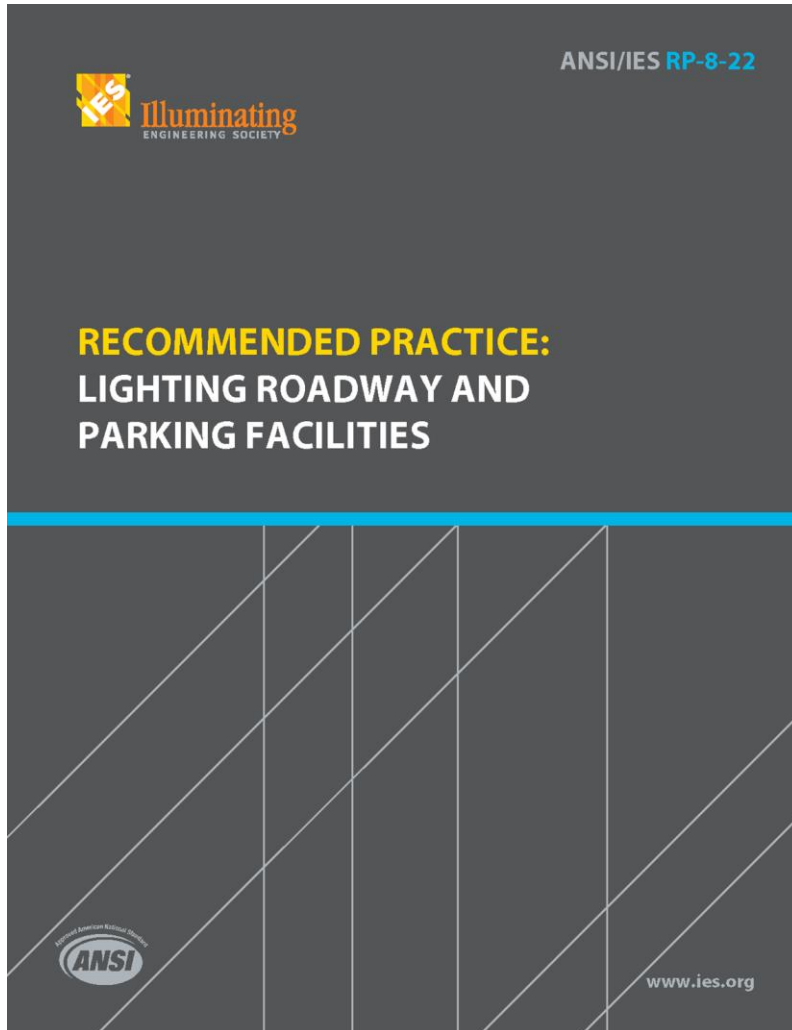


Thank You!

CLANTON & ASSOCIATES

LIGHTING DESIGN AND ENGINEERING

Street Lighting Standards: ANSI/IES RP-8-22



ANSI/IES RP-8-22 Illuminance Recommendations:

- Street Classifications,
- Intersections,
- Crosswalks,
- Round-a-bouts,
- Appropriate light levels by traffic and pedestrian activity levels

Street Lighting Implementation Plan

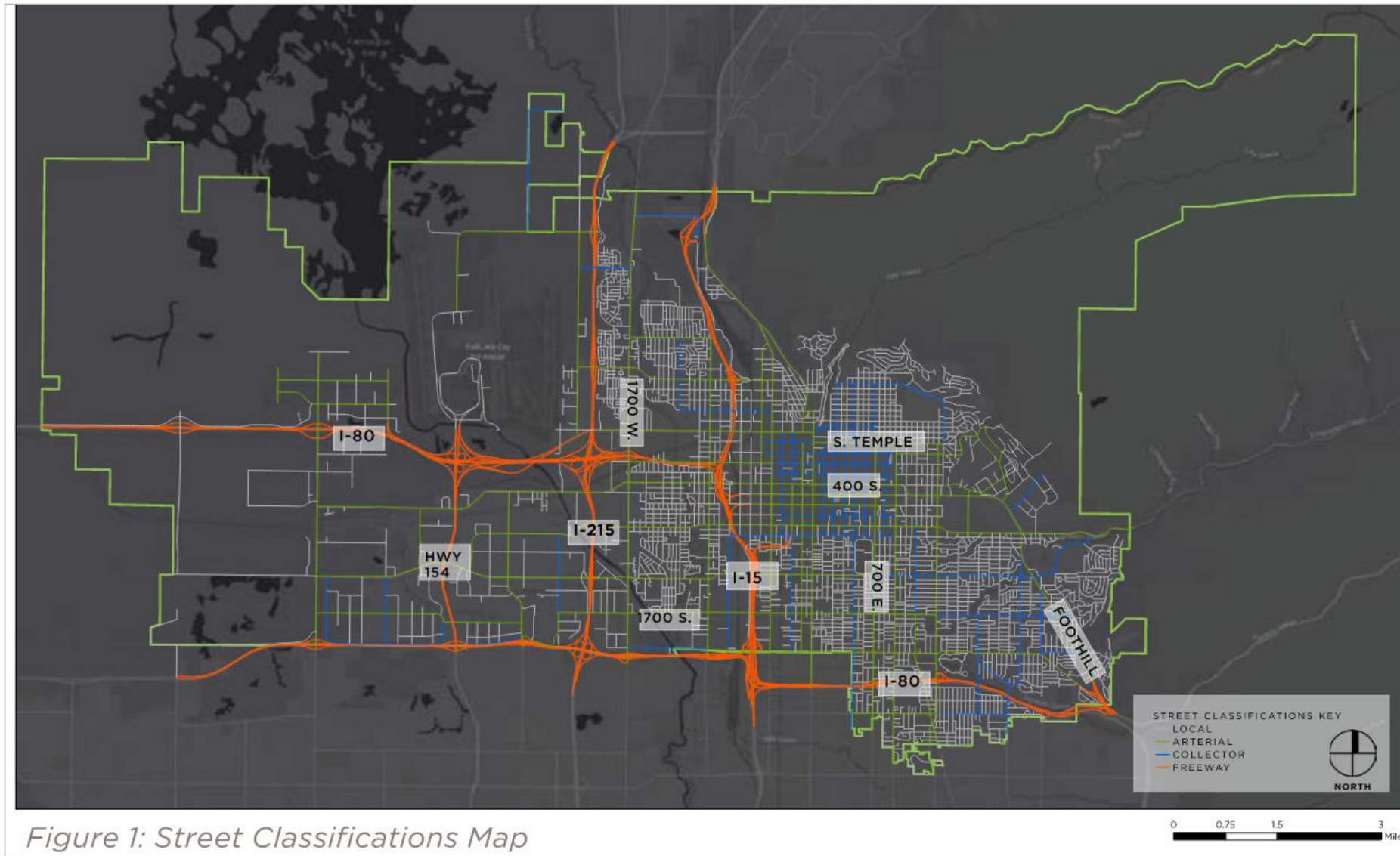


Figure 1: Street Classifications Map

Street Lighting Implementation Plan

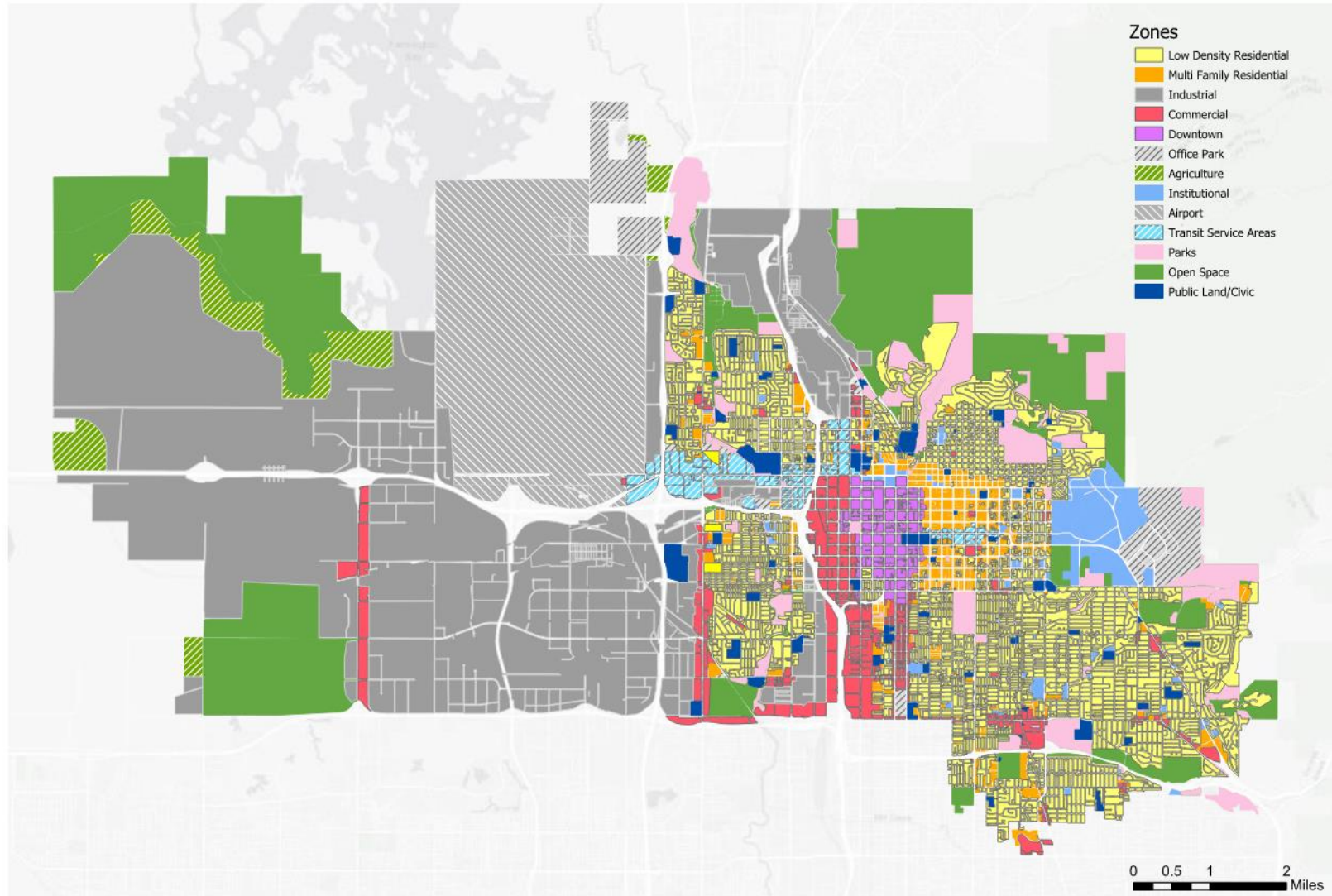


Figure 2: Adjacent Land Use Map