

Urban Lighting Master Plan

John Jacks, Director, CCDO
B Session
March 6, 2019



ULMP Development

1

CPS STREETLIGHT REPLACEMENT

The City and CPS were implementing a bond project to replace older streetlights with new poles and LED lighting. Staff was directed to pause on downtown implementation until a lighting study & Master Plan could be completed.

2

COUNCIL APPROVAL OF CONSULTANT

On February 8, 2018, City Council approved a contract with Alderson & Associates for the development of an Urban Lighting Master Plan. Alderson's team includes lighting consultant Randy Burkett. CPS and the City split the project costs.

3

LIGHTING STUDY & MOCKUPS

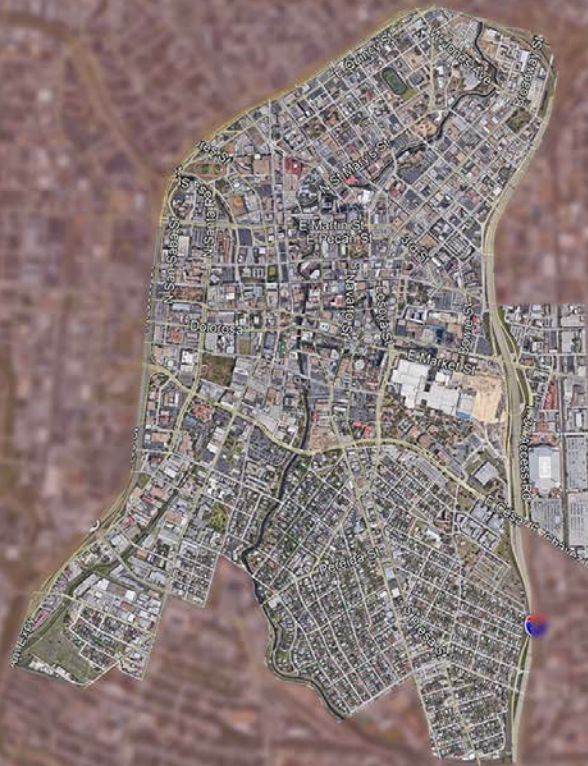
Consultant studied existing conditions for lighting in the study area - largely comprised of downtown, Lavaca, and King William. Consultant also implemented temporary lighting on three buildings to demonstrate the impact of quality lighting.

4

DEVELOPMENT OF LIGHTING GUIDELINES

The Master Plan effort has resulted in guidelines for lighting.

These guidelines will inform downtown street projects, lighting projects in parks, the lighting of art installations, and lighting for urban residential neighborhoods.



San Antonio Urban Lighting Master Plan (ULMP)

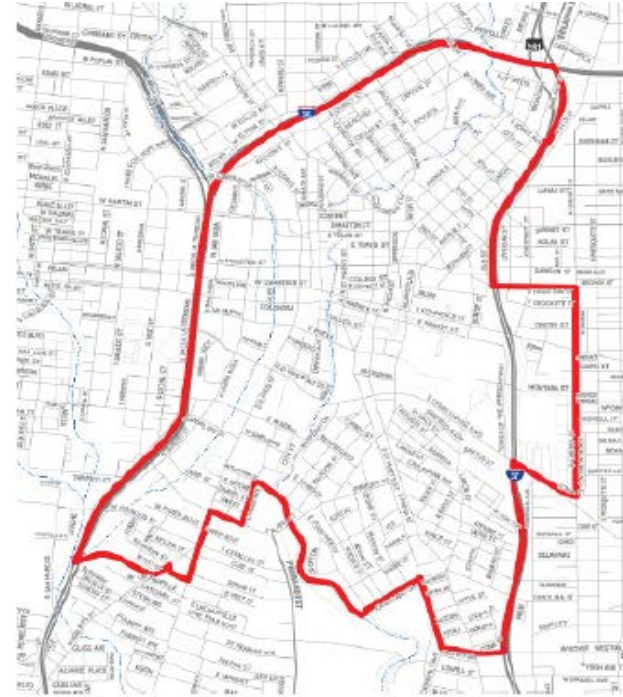
Urban Lighting Master Plan

“Define the role of illumination in supporting, sustaining and nurturing the nighttime urban environment”

- Lighting study and development of master lighting plan to improve experience in downtown and urban neighborhoods
- Unify lighting character through urban core, corridors and neighborhoods



Study area: Downtown within highway loop including area immediately adjacent to Alamodome, portions of Lavaca and King William neighborhoods within District 1.



Events Leading To Today



Feb
2018

Contract Alderson & Associates for San Antonio Urban Lighting Master Plan (ULMP) approved by City Council



Feb -
Oct
2018

Data and opinion gathering from City Departments and stakeholders (i.e. formal presentations, interviews and meetings)



Apr -
Oct
2018

Three (3) publicly advertised engagement and outreach sessions held in downtown



Oct
2018

Third session included a nighttime walk about the City and demonstration of building lighting effects



June-
July
2018

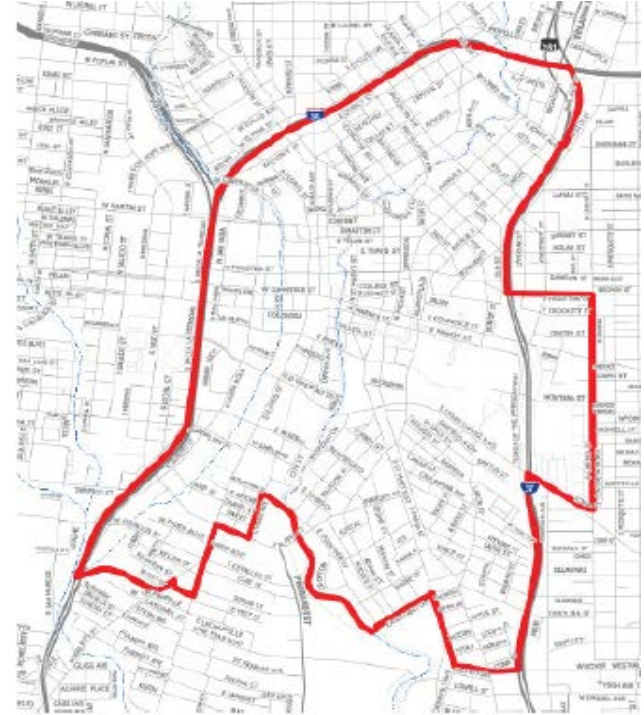
Online opinion questionnaire about lighting in downtown received over 400 responses from public



Urban Lighting Master Plan

Scope of Work

- Inventory and assessment of condition and performance of existing lighting assets
- Gathering of downtown stakeholder and public input
- Identifying unique lighting needs around historical and culturally significant areas
- Survey of lighting for parks and plazas within study area
- Creation of detailed lighting master plan with cost estimates based on vetted vision



Urban Lighting Master Plan

Major Components

- Survey of existing lighting conditions
- Identification of lighting performance criteria, with generic equipment styles & arrangements, technologies and features
- Establishment of lighting application categories for vehicular, bicycle and pedestrian traffic. Guidance on implementing, mapped to locations



Intended to provide menu of options owch will be implemented and prioritized where funds are available.

Urban Lighting Master Plan

Visual Landscape

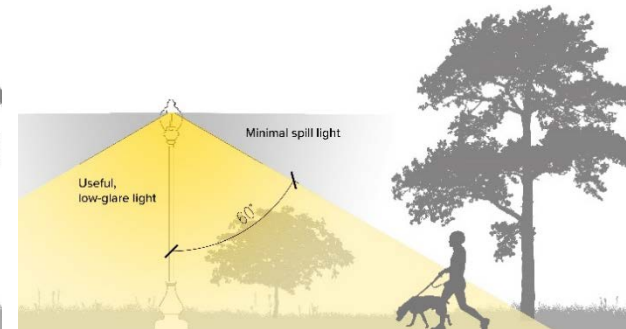
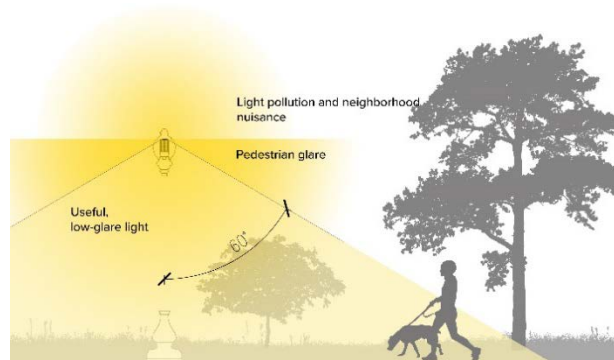
Understanding the urban environment?



Urban Lighting Master Plan

Light Quality

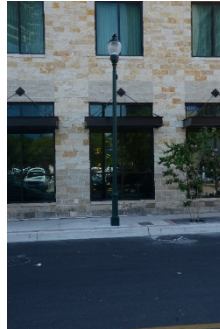
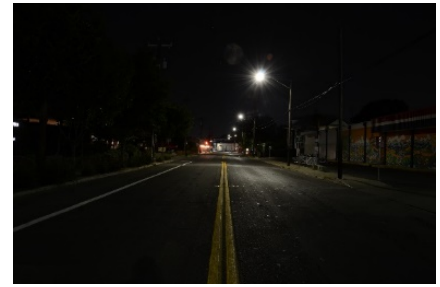
- Implement industry best-practices and standards
- Well-shielded light sources
- LED is efficient but can be too bright
- Focus on environment is appropriate
- Pedestrian and roadway lighting
- Improving visual conditions
- Low energy usage



Streetscapes

Survey of Existing Conditions

- Identified (30) street blocks representative of conditions
- Day & night observation, measurements and equipment
- Objective Analysis (light levels, light source features, etc.)
- Subjective Review (overall quality, glare impacts, visual reinforcement, aesthetics, etc.)
- Noted Deficiencies:
 - Extreme pole spacings increase glare impact
 - Excessively cool white LED's installed on some streets
 - Unsuitably scaled 25' poles used in residential neighborhoods
 - Non-uniformity of lighting levels in residential zones
 - Poor color High Pressure Sodium sources still in use



Streetscapes

Criteria




- Street type
- Street characteristics (width, speed limits, etc)
- Land use and density
- Vehicular needs
- Pedestrian needs
- Multi-modal support

Recommendations - Light pole typography

- 30' high **roadway assembly** with LED cutoff optic luminaire
- 16' to 18' **mid-height dual-purpose** LED cutoff optic luminaire
- 12' to 14' **pedestrian scaled pole** with LED cutoff or soft optic luminaire



Pole typography

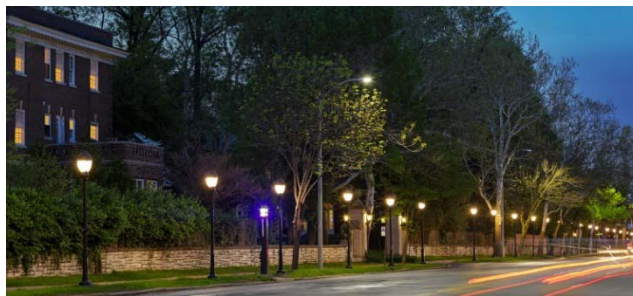
1.  Purple - pedestrian scaled
2.  Green - mid-height scaled
3.  Cyan - roadway scaled

Streetscapes

Recommendations - Light source color



3000K/3500K



2700K



Light Source Color

1. ● Orange - single source; 2700K
2. ● Yellow - two sources; 2700K + 3000K
3. ● Green - single source; 3000K
4. ● Cyan - two sources; 3000K + 3000K
5. ● Purple - two sources; 3000K + 3500K


Streetscapes

Recommendations - Light intensity

Relative Intensity & Uniformity

- Minor Streets (residential):

Intensity 

Uniformity 

- Minor Streets (commercial):

Intensity 

Uniformity 

- Secondary Streets:

Intensity 

Uniformity 

- Throughways:

Intensity 

Uniformity 

Light Intensity (Luminance)

1.  Blue - lighting intensity zone 01
2.  Green - lighting intensity zone 02
3.  Red - lighting intensity zone 03
4.  Orange - lighting intensity zone 04
5.  Cyan - lighting intensity zone 05
6.  Yellow - lighting intensity zone 06

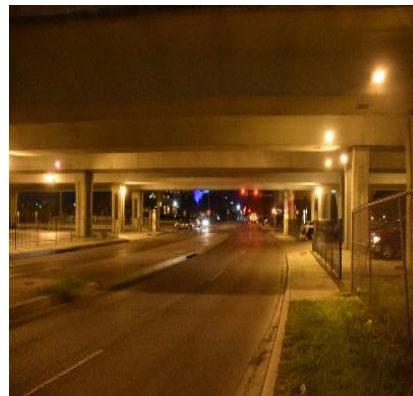


Streetscapes

Recommendations - Digital Controls and Smart City

- CPS Energy Digital Network grid to provide real time sensing, including:
 - Light intensity, curfew and special event setbacks
 - Energy savings in off-peak conditions
- **BESD** – Current deployment of LED dimming in Houston & Main/Soledad
- **Office of Innovation** - Deploying SMART CITY tests to innovation zones
 - Noise, air quality and temperature sensing
 - Small cell and Wi-Fi applications

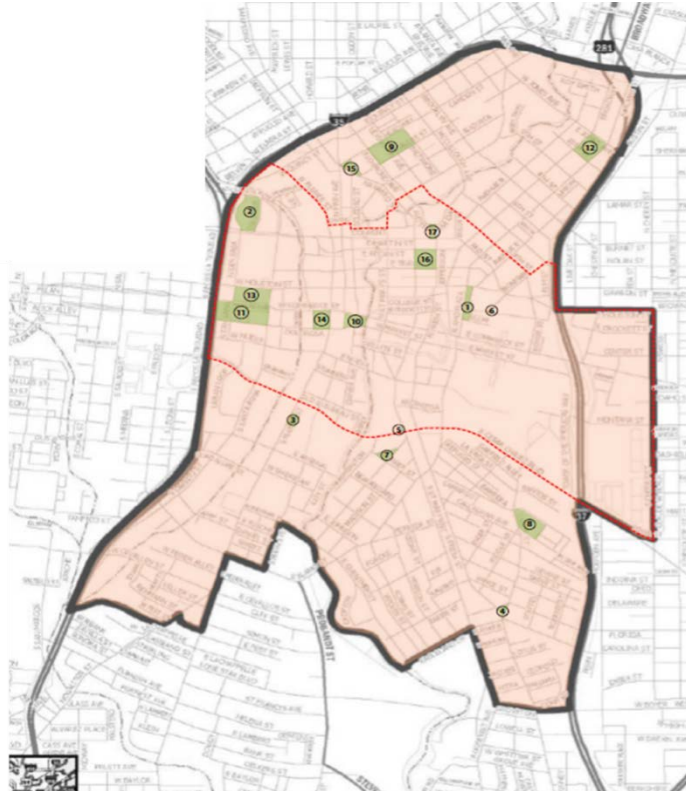
Alleyways & Underpasses



Alleyways & Underpasses



Parks



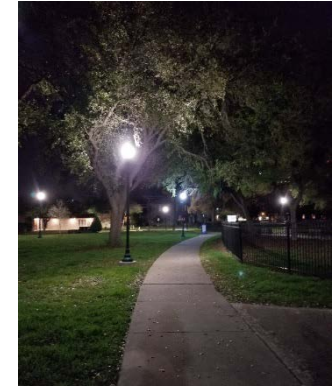
PARKS SURVYED

Alamo Plaza
Columbus Park
Commanders House Park
Florida Park
Huizar Park
Johnson Fountain
King William Park
Labor Park
Madison Square Park
Main Plaza
Market Square
Maverick Park
Milam Park
Military Park
Romana Park
Travis Park
Veteran Memorial

Parks

Survey of Existing Conditions

- Measured lighting levels & uniformity
- Compared results to published standards of practice
- Compared results to park needs and ambient conditions
- Value for wayfinding, glare control, safety & security
- Noted Deficiencies:
 - Substandard light levels
 - Excessive fixture glare & spill
 - Minimal controls
 - Lack of accent and event light



Parks

Recommendations

- Provide adequate illumination of pathways, gathering areas, and other pedestrian areas
- Control stray light and glare
- Incorporate accent and highlight to reveal landscape, hardscape and features
- Integrate special event lighting options
- Provide wireless controls
- Emphasizing long-term sustainability measures



Civic Art

Survey of Existing Conditions

- Visited current art day and night
 - Determined visual effectiveness
 - Reviewed current lighting strategies
 - Compared conditions to professional practice standards
- Noted Deficiencies:
 - Many pieces not lighted
 - Some glare & spill light
 - Minimal or no controls



Civic Art

Recommendations

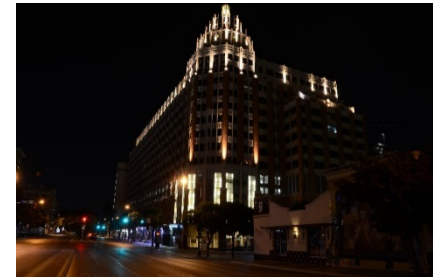
- Build lighting budget for public art into the project
- Advise on controlling stray light and glare
- Provide guidelines on how art should be illuminated under various conditions
- Encourage or require private entities to illuminate their publically viewable art
- Identify who will be responsible for designing effective lighting for artwork
- Expand and support light-as-art festival
- Emphasize long-term sustainability measures



Building Facades

Survey of Existing Conditions

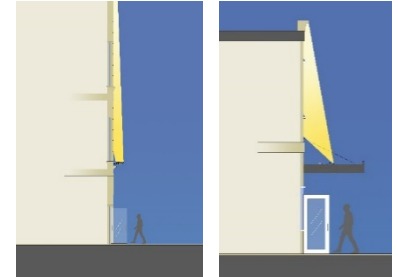
- Conducted day/night tour architectural building facades
- Assessed effectiveness of currently lighted structures
- Studied key street and skyline views
- Noted Deficiencies:
 - Most buildings not lighted
 - Glare & spill light into other areas
 - Some poor use of color
 - Some inappropriate techniques
 - Minimal or no controls



Building Facades

Recommendations

- Use proven application techniques for facade floodlighting and accenting
- Conduct nighttime mock-ups for approval
- Produce renderings to study design options
- Engage lighting professionals for design options, cost estimates & biddable documents



Building Facades

Revealing architecture – Full scale mock-ups and demonstrations



Building Facades

Revealing architecture – Design option renderings





San Antonio Urban Lighting Master Plan (ULMP)

March 2019

IMPLEMENTATION

Council Acceptance of ULMP

Council will be asked to accept the plan findings and recommendations at A Session on April 4th.

Bond Guidelines

The ULMP will be incorporated into the guidelines for Bond projects. It will inform future lighting design for capital projects, such as significant road projects, park improvements, and art installations.

Downtown Streetlight Improvement Project

CPS will complete the downtown streetlight upgrades consistent with the ULMP's recommendations.

Plan Incorporation

City staff will consider the study's findings and the importance of lighting during future planning efforts.

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