

# Citywide Street-Lighting Master Plan

by

NATHANIEL S. BEHURA, MS, MBA



*Transportation & Energy Solutions, Inc.*



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# What is the Master Plan?

## ► **What is the Street-Lighting the Master Plan?**

A comprehensive review and analysis of the City's roadway street lighting system to develop strategic short-term and long-term plans for upgrading and improving the system over time

## ► **What are the Goals of the Master Plan?**

To ensure that all roadway lighting **meets current standards** while also enhancing the **overall aesthetics** and **safety** of the City's lighting infrastructure.



# How was the Plan completed?

- ▶ Create a lighting inventory and management software to track and maintain these assets.
- ▶ Create a digital map within the software to locate these assets.
- ▶ Conduct detailed inventory of all the street lighting along city streets and alleys
- ▶ Create a database of lighting infrastructure by identifying and mapping assets in the field and recording their condition
- ▶ Perform engineering analysis of existing conditions against established City standards and identify areas that do not meet them.



# Plan completion (continued)

- ▶ Determine the infrastructure or fixture upgrades necessary to bring the non-conforming areas or sections up to City standards.
- ▶ Prepare a cost estimate associated with these upgrades and seek SCE input.
- ▶ Prepare a list of short-term (approximately within one year) and long-term (within approximately five years) improvements and an associated budget.
- ▶ Prepare final report with recommendations on future of lighting.

# What is there in the City?

- ▶ The City has a total of 77.7 miles of centerline roadway and a total of 3,094 street lights
- ▶ 2,407 lights owned by SCE (78%), 549 owned by the City, and 138 by adjoining agencies
- ▶ A mix of various types of poles (e.g. wood, concrete, steel, etc.) and lighting technology (e.g. LED, high pressure sodium vapor, etc.)
- ▶ Adjoining agencies – Caltrans, LA County, Cities of Montebello, Bell, and Bell Gardens



# What is there (continued)?

## Fixture Type

Ownership	LED Count	HPS Count	Total
SCE	2336	71	2407
City	373	176	549
Adjoining Agencies	121	17	138
<b>Totals</b>	<b>2830</b>	<b>264</b>	<b>3094</b>



## Pole Type

Ownership	Pole Type	Count
CITY	Aluminum	14
CITY	Concrete	54
CITY	Decorative	189
CITY	Safety Light	228
CITY	Steel	57
CITY	Wood	7
Adjoining Agencies	Aluminum	2
Adjoining Agencies	Concrete	2
Adjoining Agencies	Decorative	3
Adjoining Agencies	Safety Light	127
Adjoining Agencies	Steel	4
SCE	Aluminum	10
SCE	Concrete	549
SCE	Decorative	17
SCE	Steel	19
SCE	Wood	1812
<b>Totals</b>		<b>3094</b>

# What do they look like?



WOOD POLE (SCE)

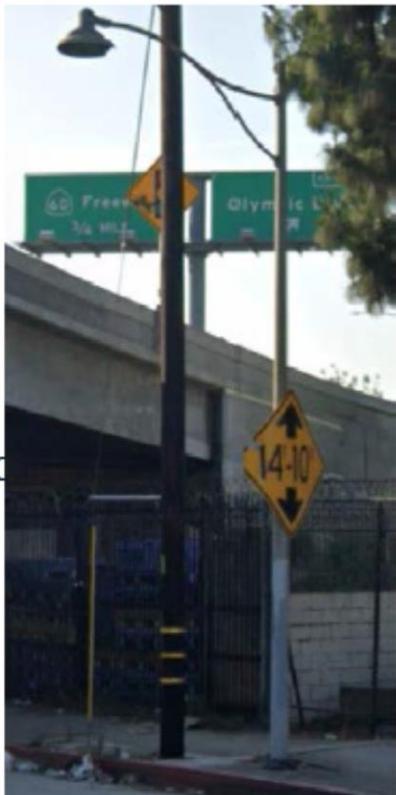


CONCRETE POLE (SCE)



DECORATIVE POLE (CITY)

# What do they look like (continued - 1)?



STEEL POLE (VARIOUS)



OTHER TYPE (VARIOUS)



HID FIXTURE



LED FIXTURE

What do they look like  
(continued - 2)?



**SAFETY LIGHT AT INTERSECTION**



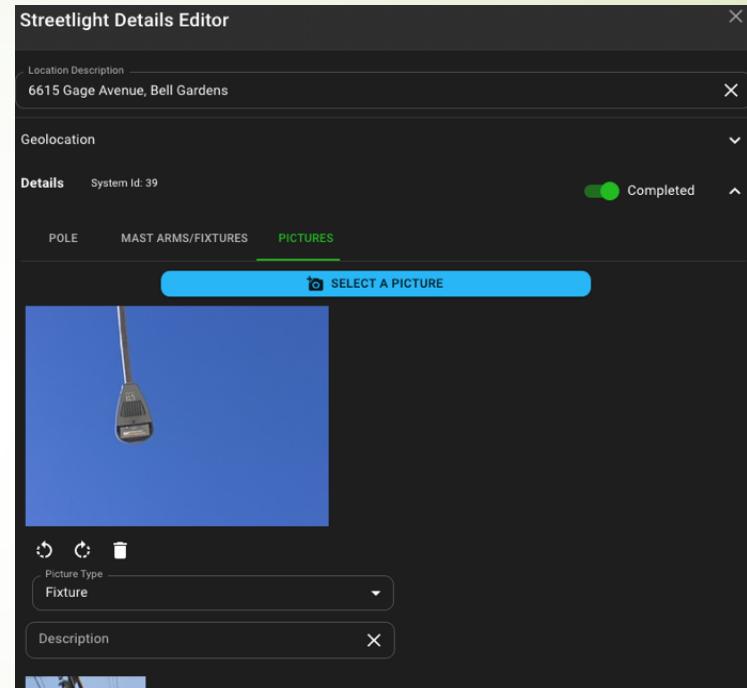
## How was the database built?

- ▶ Phone app developed to collect, collate, sort, and store street-light data from the field
- ▶ Data like pole height, type, fixture type, mast arm length, Lat./Long. etc. collected in the field
- ▶ The data was made available in a web-browser-based application
- ▶ The app provided editable information in both spreadsheet/list and map-based format
- ▶ The data is stored in an AWS Cloud Server
- ▶ City personnel will have different access levels

# What does the app look like?



STREET LIGHT MANAGER  
SHOWING MAP



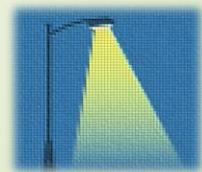
STREET LIGHT MANAGER  
SHOWING DETAILS EDITOR

<https://streetlightscommerce.com/>

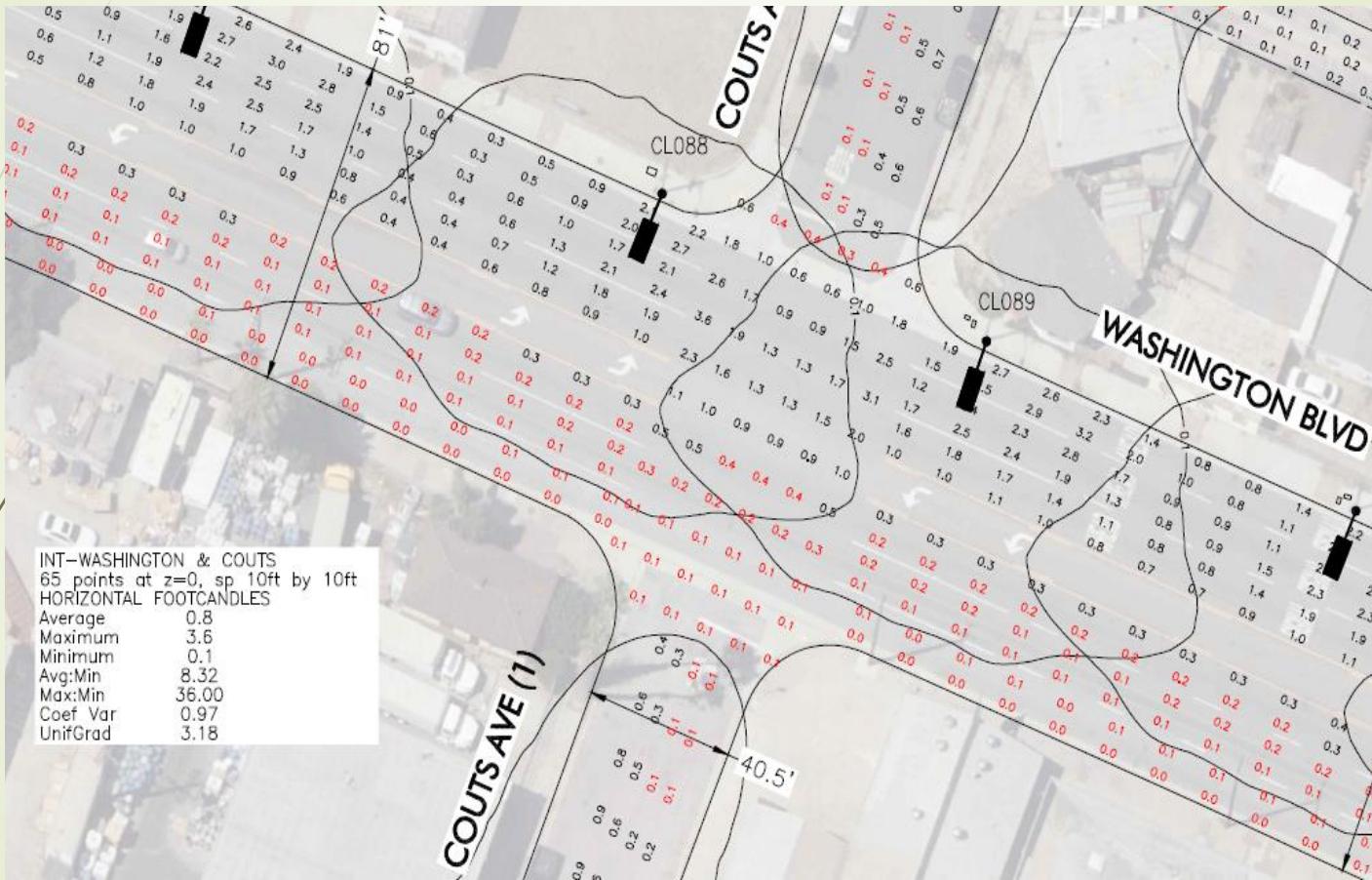
# How was the analysis done?

- ▶ Photometric analysis was conducted using a method patterned after IES RP8-22\*
- ▶ Illuminance method used to for intersections (amount of light falling on the surface)
- ▶ Luminance method used to for street sections (reflected light from street)
- ▶ Software used to model light patterns of existing inventory and review deficits (existing condition)
- ▶ Based on deficiencies, lights/poles were added and new analysis done (recommended condition)

\*IES – Illuminating Engineering Society



# The analysis (Continued)



SAMPLE EXISTING CONDITION ILLUMINANCE  
ANALYSIS AT INTERSECTION

# What are the recommendations?

- ▶ To keep costs reasonable, improvements were mostly recommended for SCE existing light/poles instead of adding many City poles/lights
- ▶ Recommendations were for short term (within 1 year) and long term (within 5 years)
- ▶ Short term recommendations included:
  - Fixture replacements
  - New mast arm/fixture on existing poles
- ▶ Long term recommendations included:
  - New poles, conduits and power source



# What are the recommendations (continued - 1)?

- ▶ 742 locations total were identified for improvements
- ▶ 60 locations City owned and 682 are SCE
- ▶ Included a number of alleyways currently unlit
- ▶ Short term Improvement Estimate : \$660K
  - City: \$244K and SCE \$398K
- ▶ Long term Improvement Estimate : \$3.32 mill
  - City: \$991K and SCE \$2.33 mill
- ▶ Total Estimate: \$3.98 mill (based on 2025 costs)



# What are the recommendations (continued - 2)?

- ▶ Maintain, monitor and update the City's street lighting database via the Street Light Manager
- ▶ Implement annual software maintenance contract with app developers (LenioLabs)
- ▶ Use City's current lighting standards for all future upgrades
- ▶ Review City lighting and fixture standards periodically as technology improves





# Questions and Answers

