



Optimizing Urban Lighting: Integrating Streetlighting with City Planning



AARON GOSSELIN, PMP
PM/Project Coordinator

Aaron Gosselin is a member of IES and manages the Lighting Business Unit at LineWorks. As manager of the Lighting Business Unit, Aaron is responsible for the coordination and design of both overhead and underground fed area and street lighting projects for both commercial and residential applications. Aaron has a background in logistics and cost & material estimation in the construction and service industries. Aaron is responsible for 80 to 150 active lighting projects at any given time for multiple clients, and oversees the customer contact, contract generation, photometric design, GIS entry, and construction drawing package generation for each job.

EXAMPLES OF COMMERCIAL LIGHTING PROJECTS

- Amazon Phase 1 Lighting Relocation - Removal and relocation of 36 existing lights
- Amazon Phase 2 Parking/Delivery Lighting; Seffner - Addition of 50+ lights to distribution center
- Sembler Belmont Publix Shopping Center; Ruskin, FL - 65 Area light design for shopping center
- Hampton Inn; Ruskin, FL
- Seven One Seven Parking Enterprises; Downtown Tampa lots
- Falkenburg Commons-Texas Roadhouse/Bubba 33; Tampa, FL
- Bell Shoals Executive Center; Bloomingdale, FL
- Ace Hardware Warehouse; Plant City, FL - 54 Area Lights for Distribution Center
- Lowe's Distribution Center; Plant City, FL - 85 lights for distribution center

EXAMPLES OF RESIDENTIAL LIGHTING PROJECTS

- Waterset Subdivision; Apollo Beach, FL - Over 1300 lights for large subdivision community to include residential street lighting, collector road street lighting, and area lighting for Sports Complexes and Amenity Centers
- Toulon Subdivision; Thonotosassa, FL
- Balm Grove; Wimauma, FL
- Brandon Town Center Apartment project; Brandon, FL - 230+ Light design with photometrics for an apartment complex development
- Cordoba Ranch; Lutz, FL
- Berry Bay Subdivision; Wimauma, FL - Lighting design and photometrics of 300+ light subdivision
- Riversong; Parrish, FL
- Del Webb Bayview; Parrish, FL

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EXAMPLES OF LIGHTING ROADWAY PROJECTS

- Citrus Park Drive Lighting Extension; Citrus Park, FL – 2.73 miles / 142 lights; new road through empty land and swamp to connect neighboring communities. All new lighting installed on aluminum breakaway poles, including drill piling installation of lighting bases.
- Racetrack Road Safety Lighting; Keystone, FL – 1.48 miles / 66 lights; new lighting placed in the median on aluminum breakaway poles with double fixtures to light both sides of the road.
- Bell Shoals Road Widening; Bloomingdale, FL – 2.76 miles / 151 lights; new lighting to support widening of road through a developing portion of Bloomingdale/Brandon, FL. Installed new lighting on a variety of new pole types and utilized existing Utility Distribution and Transmission poles for installation.

EXAMPLES OF OTHER LIGHTING PROJECTS

- “Purple” light inspections as a direct sub for large Lighting manufacturer - included night ride inspections and documentation, daily meetings with progress updates and tracking, coordinating routes with Utility in which the inspection took place, assisting light replacement team with questions / concerns
- Out of Service (OOS) light inspections – project to convert as many out of service utility lights from non-billing to billing as possible or engineer the asset for permanent removal, while cleaning up surrounding utility light mapping.
- Utility Staff Augmentation for proactive LED Conversion Upgrade of over 210,000 lights – duties have included Project Management and support, field team audits, customer contact and contracts, design support, GIS entry and construction print production, construction contractor support, project closeout and backend audit support
- Support for Hurricane’s Irma (2017), Ian (2022), Helene (2024), and Milton (2024) – duties performed include: utility distribution storm assessment to the meter, wire down sitting, utility lighting system patrols, lighting system



 **LineWorks**
Engineering



A TRUSTED CONNECTION



Founded in 2011, LineWorks is a WBENC certified engineering and consulting firm specializing in Power Delivery. We pride ourselves on the highest level of Client and Customer service, and we achieve this by offering Quality Engineering that maintains our commitment to on-time and on-budget project completion.

LineWorks has an engineering and design staff of over 50 employees.

- 19 Degreed Engineers
- 7 Licensed Professional Engineers
- 46 Total Production Staff

We strive everyday to be A Trusted Connection for our clients.

A TRUSTED CONNECTION



LineWorks supports clients in the power delivery field in the following business sectors:

- Municipalities
- Electric Cooperatives
- Generation & Transmission Companies
- Investor-Owned Utilities
- Commercial Enterprises
- Consultants
- Developers

Supporting our clients with services in

- Transmission
- Substation
- Distribution
- Civil/Structural
- Street and Area Lighting

Introduction



Nick Mesler, PE, TE, CFLC

Director of Business Solutions

Evary Consulting, Inc.

- A “plangineer”
- Background in Traffic/Transportation Engineering/Planning
- Comprehensive Plans in Southern California
- San Diego Vision Zero Plan
- Urban Planning Projects throughout West Coast

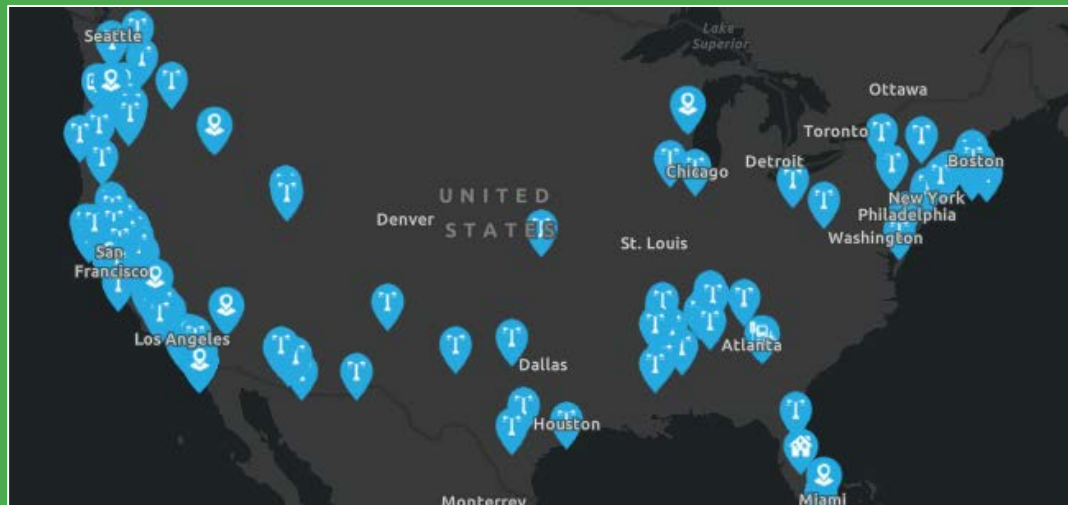
- Street Lighting Data Collection and Design
- Primarily LED Conversion Projects & SLMPs
- Projects spanning CA, FL, HI, MA, MS, OR, PA, RI, TN, TX, UT, WA, WI

- <https://www.ledsmagazine.com/architectural-lighting/article/14303211/industry-insights-cities-can-help-reverse-redlining-effects-by-deploying-quality-streetlighting>

SECTION AGENDA

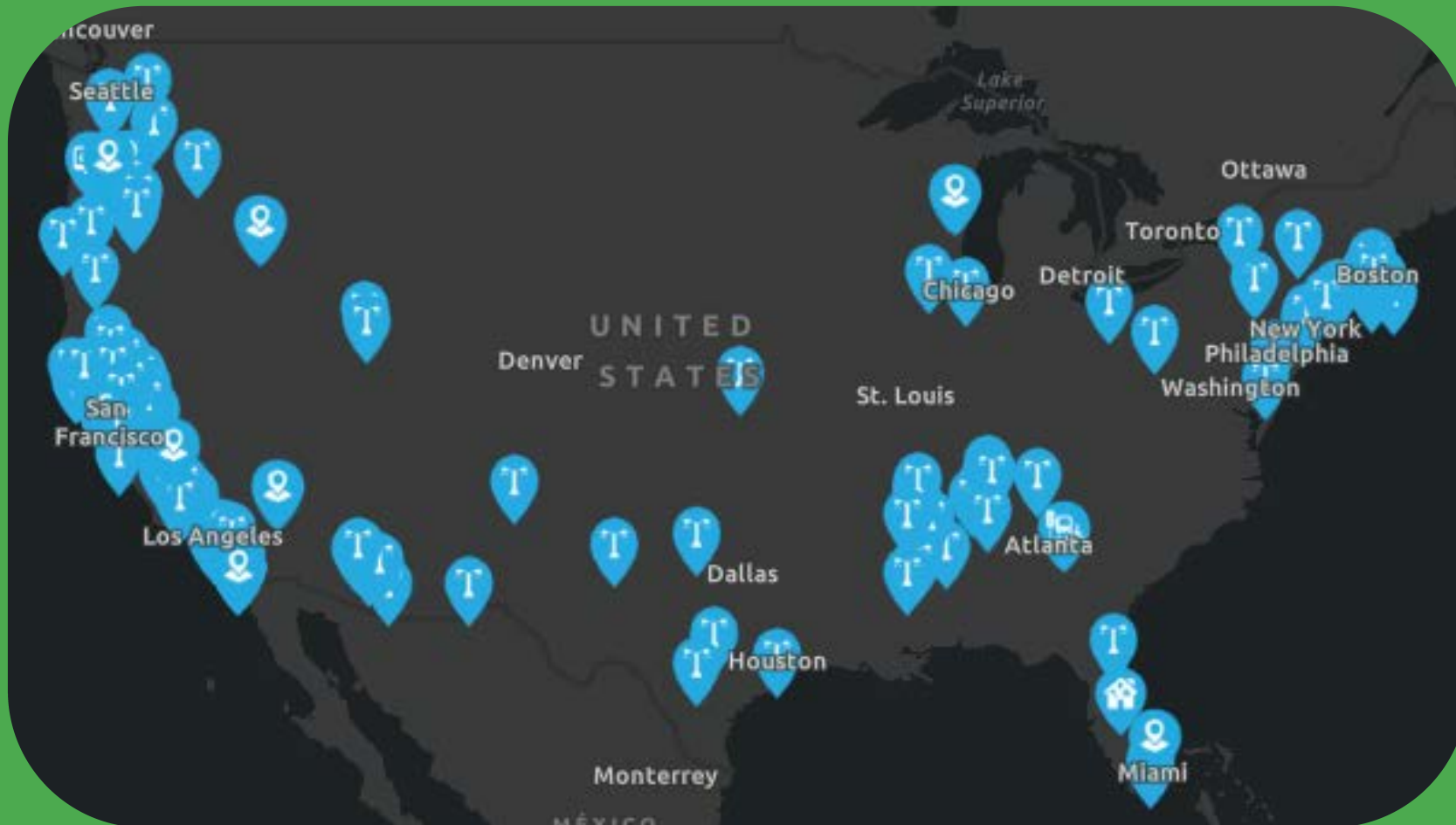
- **Big Data**
- **State of the Practice**
- **Digital Twin Applications**

ABOUT EVARI



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WHERE WE'VE BEEN



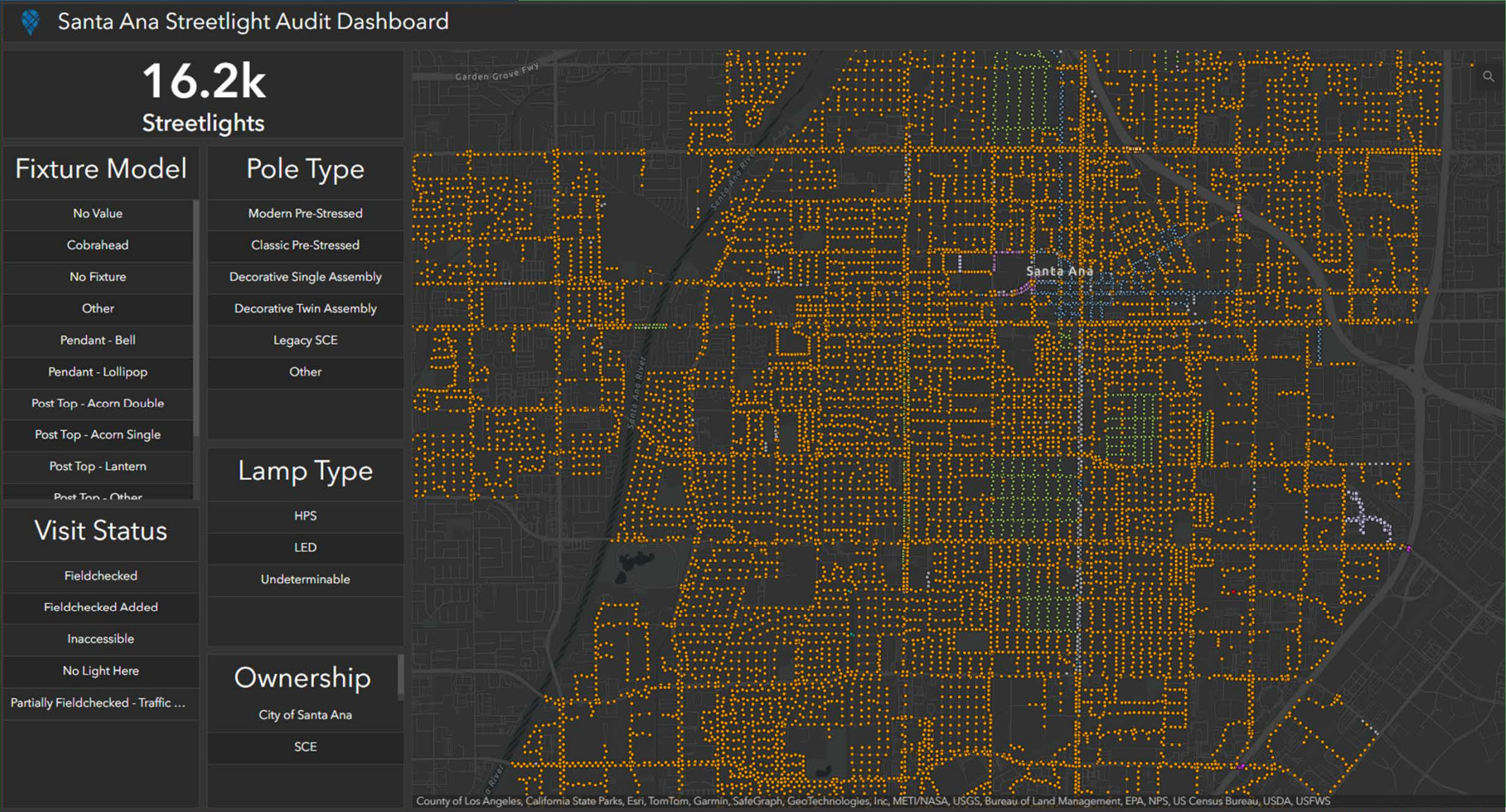
SLMPs

- ❖ Santa Ana, CA
- ❖ Albany, CA
- ❖ Pittsburgh, PA
- ❖ Salt Lake City, UT
- ❖ Providence, RI
- ❖ Austin, TX
- ❖ South Salt Lake, UT
- ❖ Vacaville, CA

LED Conversions

- ❖ Philadelphia, PA
- ❖ Boston, MA
- ❖ Oregon DOT
- ❖ WS DOT
- ❖ Chicago, IL
- ❖ Phoenix, AZ
- ❖ SF Bay Area
- ❖ San Diego, CA
- ❖ Anchorage, AK
- ❖ Honolulu, HI
- ❖ Miami, FL

Real Time Data Collection



Real Time Data Collection

Santa Ana Streetlight Audit Dashboard

16.2k
Streetlights

Fixture Model

- No Value
- Cobrahead
- No Fixture
- Other
- Pendant - Bell
- Pendant - Lollipop
- Post Top - Acorn Double
- Post Top - Acorn Single
- Post Top - Lantern
- Post Top - Other

Visit Status

- Fieldchecked
- Fieldchecked Added
- Inaccessible
- No Light Here
- Partially Fieldchecked - Traffic ...

Pole Type

- Modern Pre-Stressed
- Classic Pre-Stressed
- Decorative Single Assembly
- Decorative Twin Assembly
- Legacy SCE
- Other

Lamp Type

- HPS
- LED
- Undeterminable

Ownership

- City of Santa Ana
- SCE

Streetlights Visited Per Day - Caleb

Date	Count
Sep 26	14
Sep 29	98
Sep 30	74
Sep 31	44
Oct 1	64
Oct 2	50
Oct 3	51
Oct 4	69
Oct 5	64
Oct 6	68
Oct 7	66
Oct 8	77
Oct 9	92
Oct 10	91
Oct 11	87
Oct 12	97
Oct 13	92
Oct 14	70
Oct 15	40
Oct 16	76
Oct 17	79
Oct 18	31
Oct 19	76
Oct 20	80
Oct 21	75
Oct 22	77
Oct 23	83
Oct 24	69
Oct 25	11
Oct 26	72

Map | Caleb | Mac | Katherine | Joseph | Mina | Tobé | Progress Indicator

County of Los Angeles, California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS

We've been in the news...



Baltimore Sun

<https://www.baltimoresun.com> › maryland › bs-md-ci-pu... ⋮

Have you noticed the purple streetlights ... - Baltimore Sun

Nov 9, 2021 — Those **purple streetlights** you've seen around the Baltimore area aren't a nod to the Ravens but rather the result of a manufacturing defect ...



NBC 7 San Diego

San Diego City Council approves return of Smart Streetlights, license plate readers

The San Diego City Council Tuesday authorized the use of much-debated "Smart Streetlights" and Automatic License Plate Reader technology to...



WPLN News

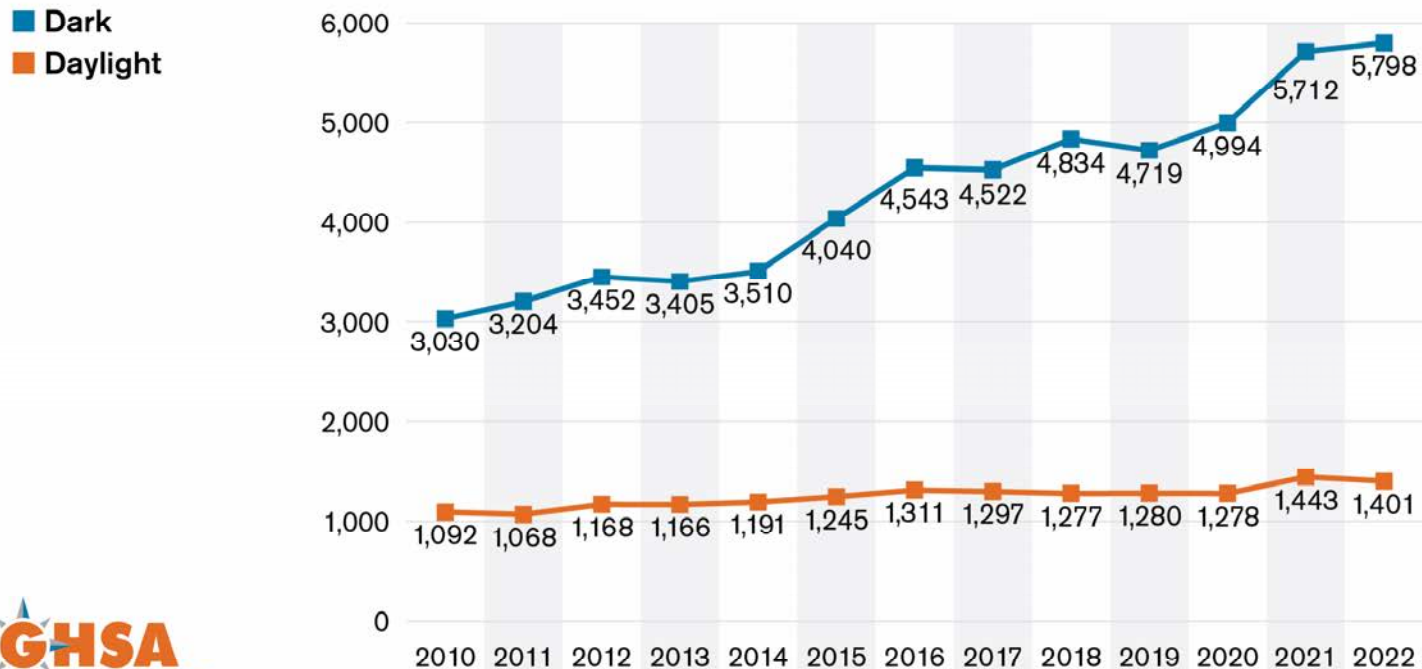
Nashville streetlights are getting a makeover, and that's (possibly) good news for stargazers

Nashville is never truly dark. When the sun sets, an artificial glow rises, blocking out most of the celestial wonders above and disrupting...



State of the Practice

U.S. Pedestrian Fatalities by Light Condition, 2010-2022



FHWA listed street lighting as a proven safety countermeasure (PSC), with a collision reduction potential of up to **42%**

Chart showing pedestrian fatalities in daylight and in darkness from 2010 to 2020.

Credit: Pedestrian Traffic Fatalities by State - Governor's Highway Safety Association, 2021

Street Lighting: Social Benefits (Comfort and Placemaking)



San Diego Gaslamp



Bourbon Street, NOLA



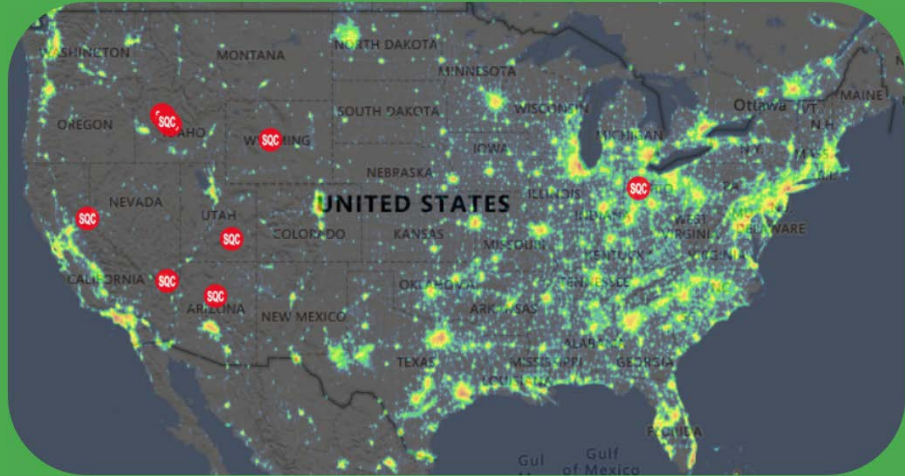
Anamosa, Iowa



Waikiki Beach, HNL

- Improved Visibility
- Feeling of Security
- Ambiance
- Accentuates architecture
- Encourages social gatherings
- Supports nighttime economy
- Reflects local character

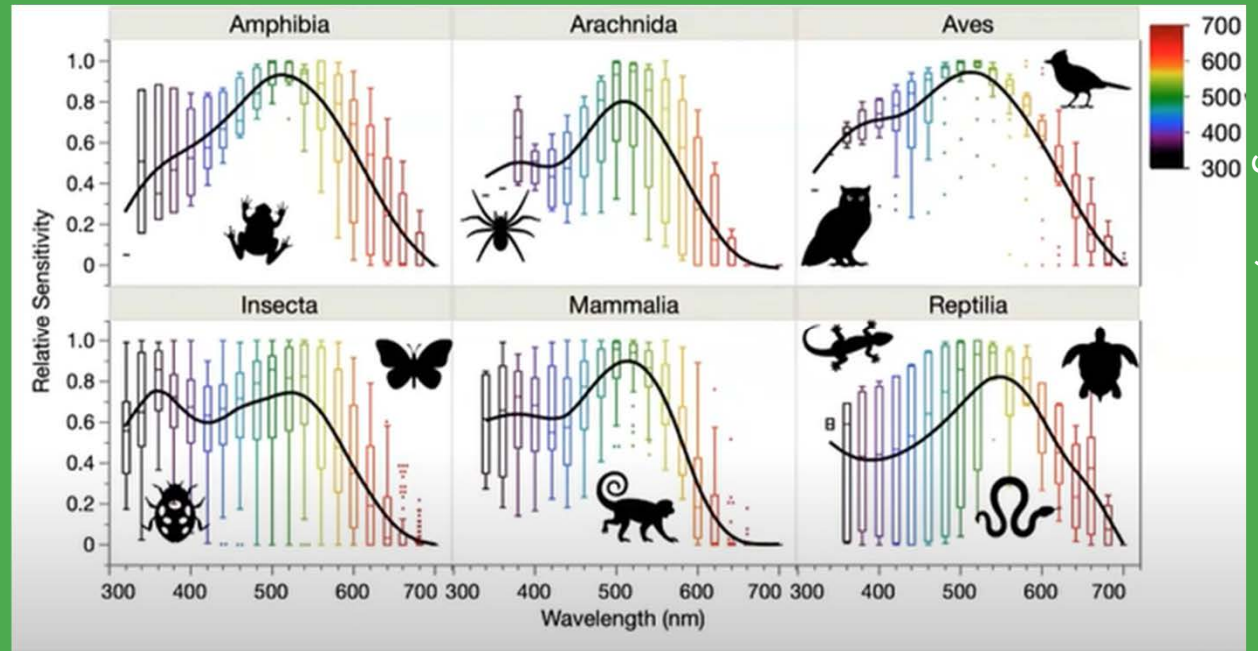
Street Lighting: Social Hazards (Environmental Impact)



VIIRS

Negative consequences of lighting to be mitigated:

- Light pollution
- Light trespass
- Flora/Fauna disruption



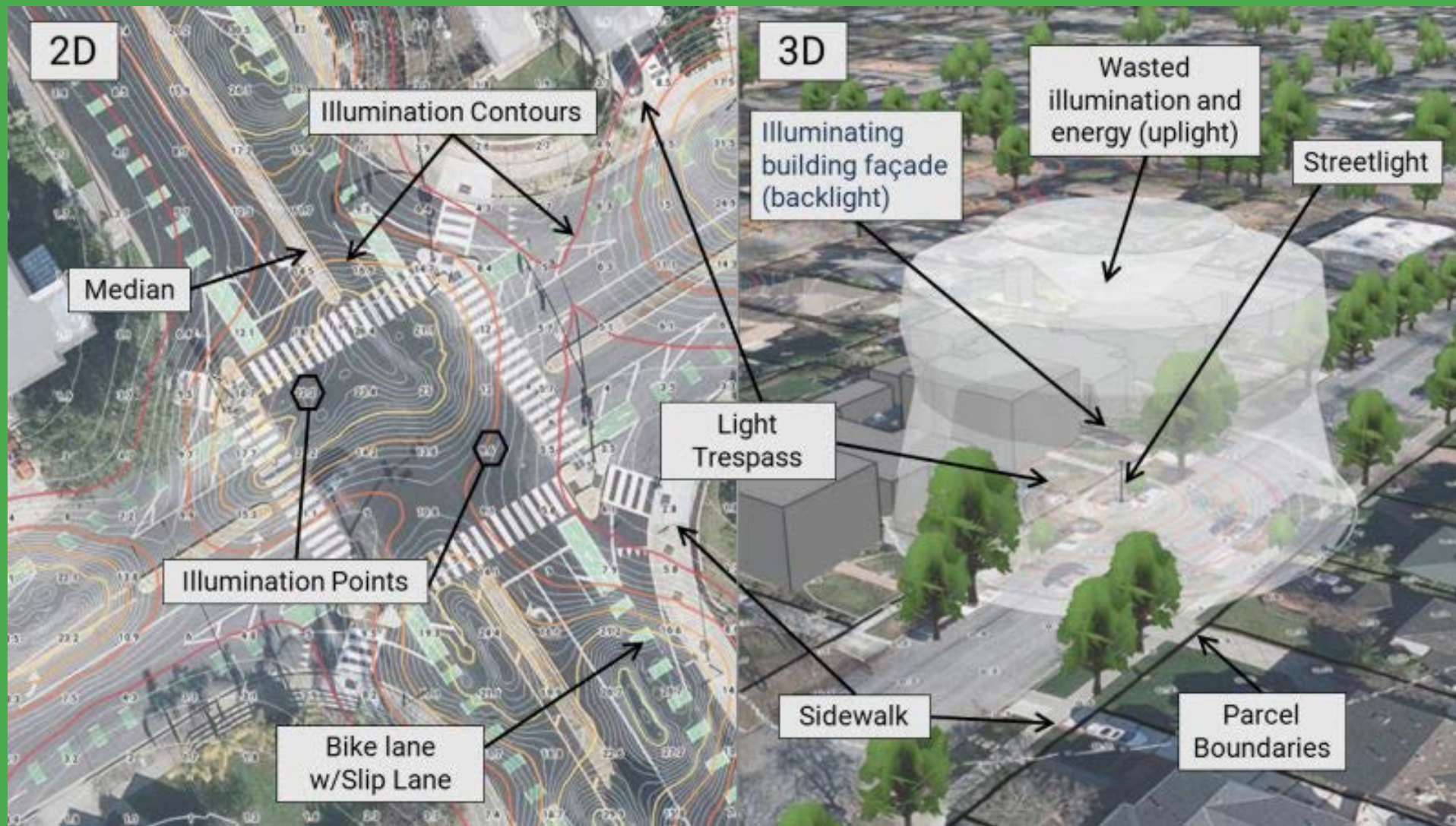
Longcore, et al

Balancing Competing Needs

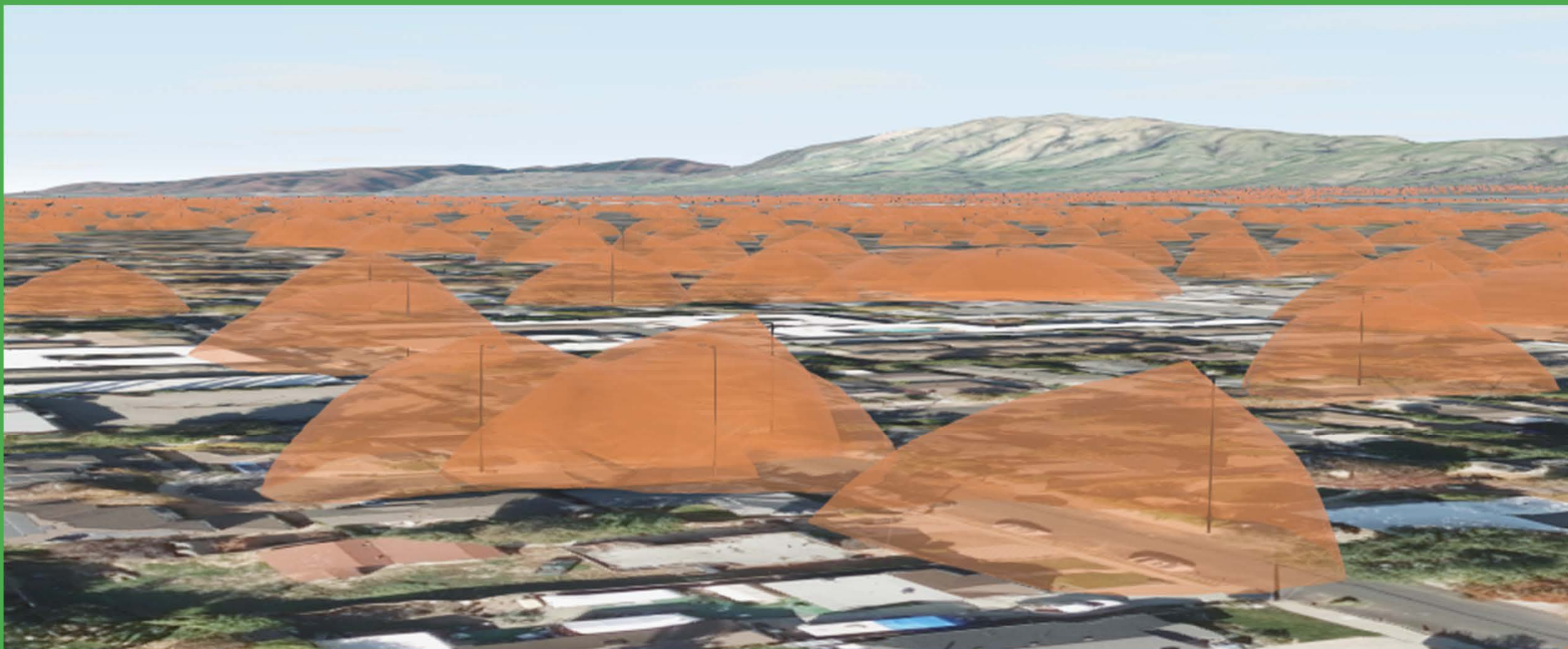
Sustainability



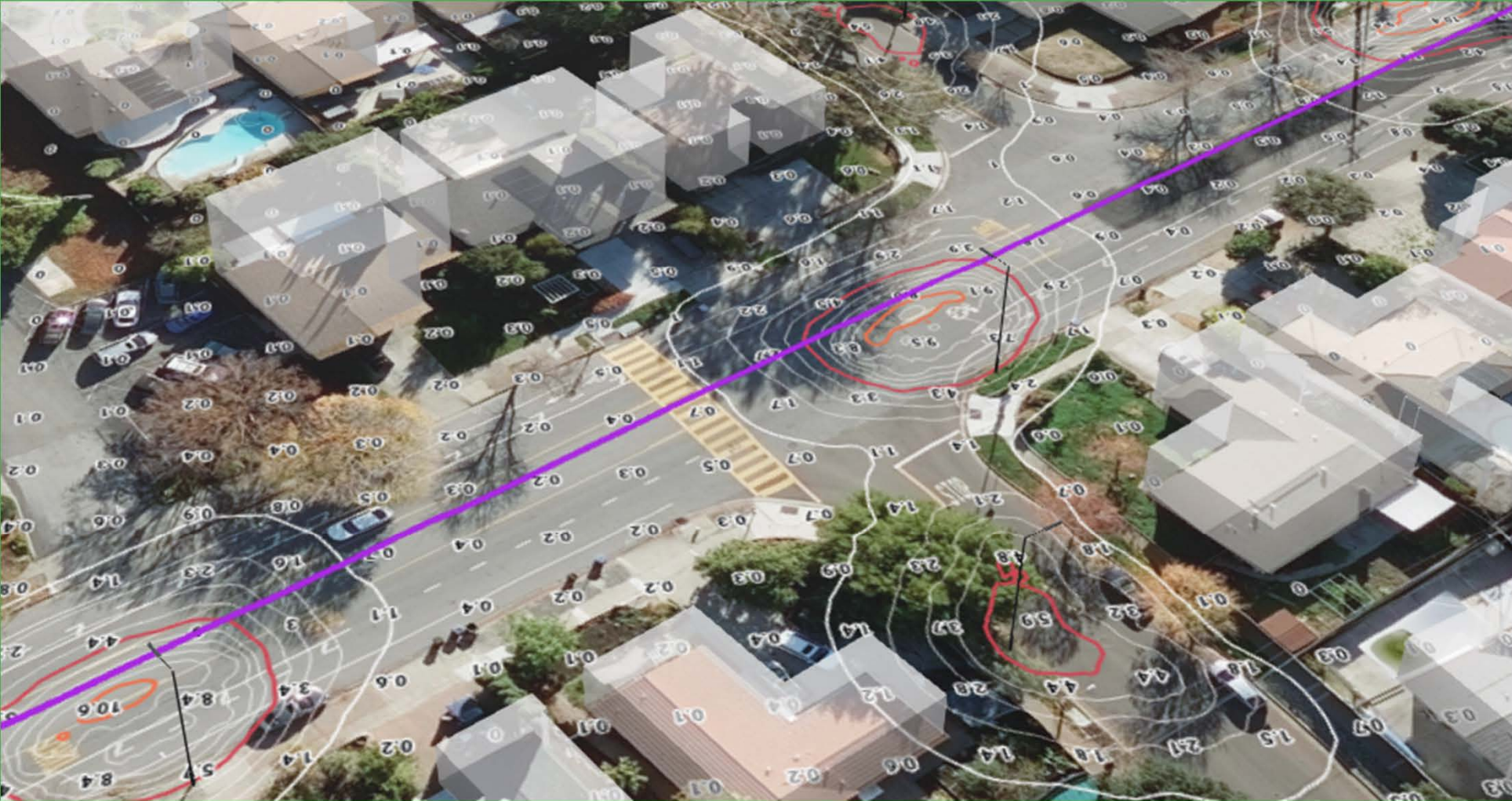
Comprehensive Planning and Design



Regional Illumination Photometrics



Regional Illumination Photometrics



Regional Illumination Photometrics



Regional Illumination Photometrics

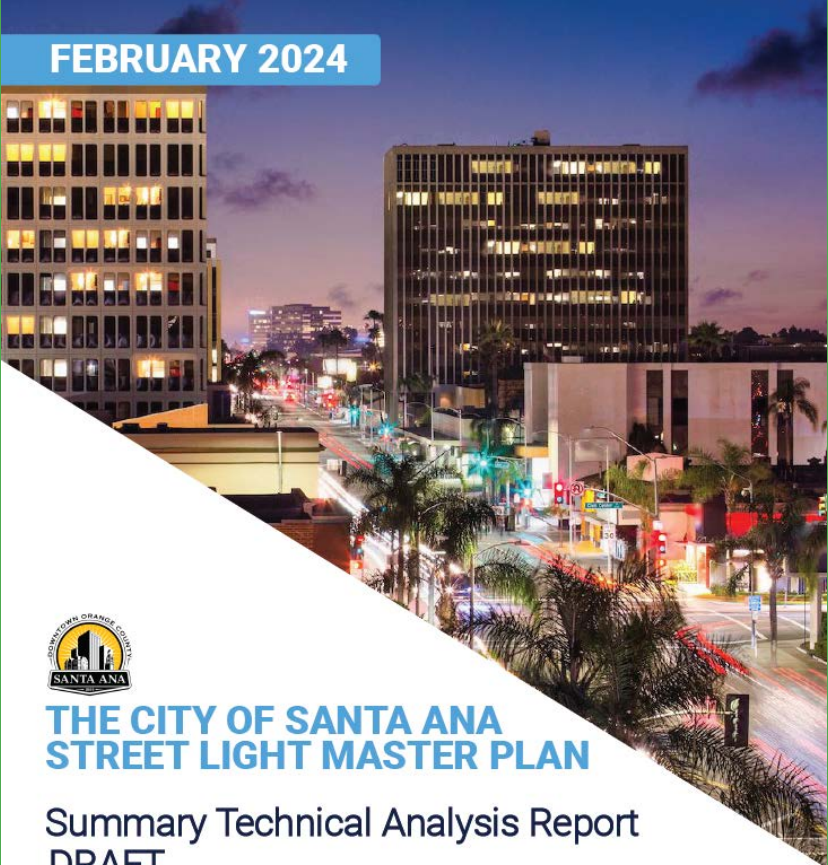


In Practice...



Master Planning

FEBRUARY 2024



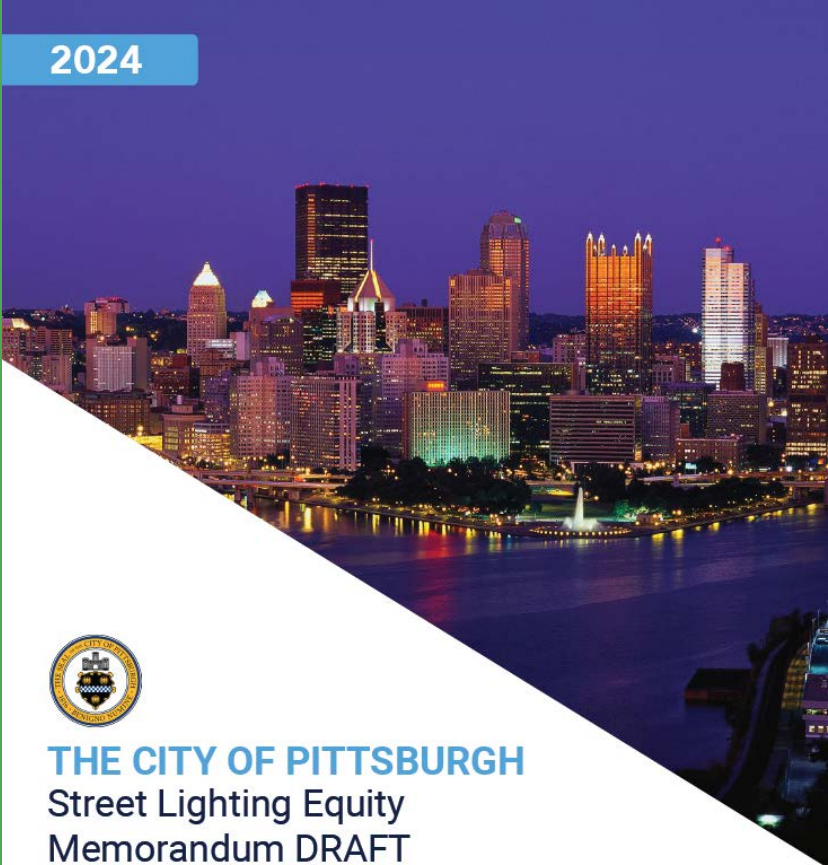
THE CITY OF SANTA ANA STREET LIGHT MASTER PLAN

Summary Technical Analysis Report
DRAFT

Prepared for the
City of Santa Ana by
EVARI
Consulting

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EvariLUX

2024



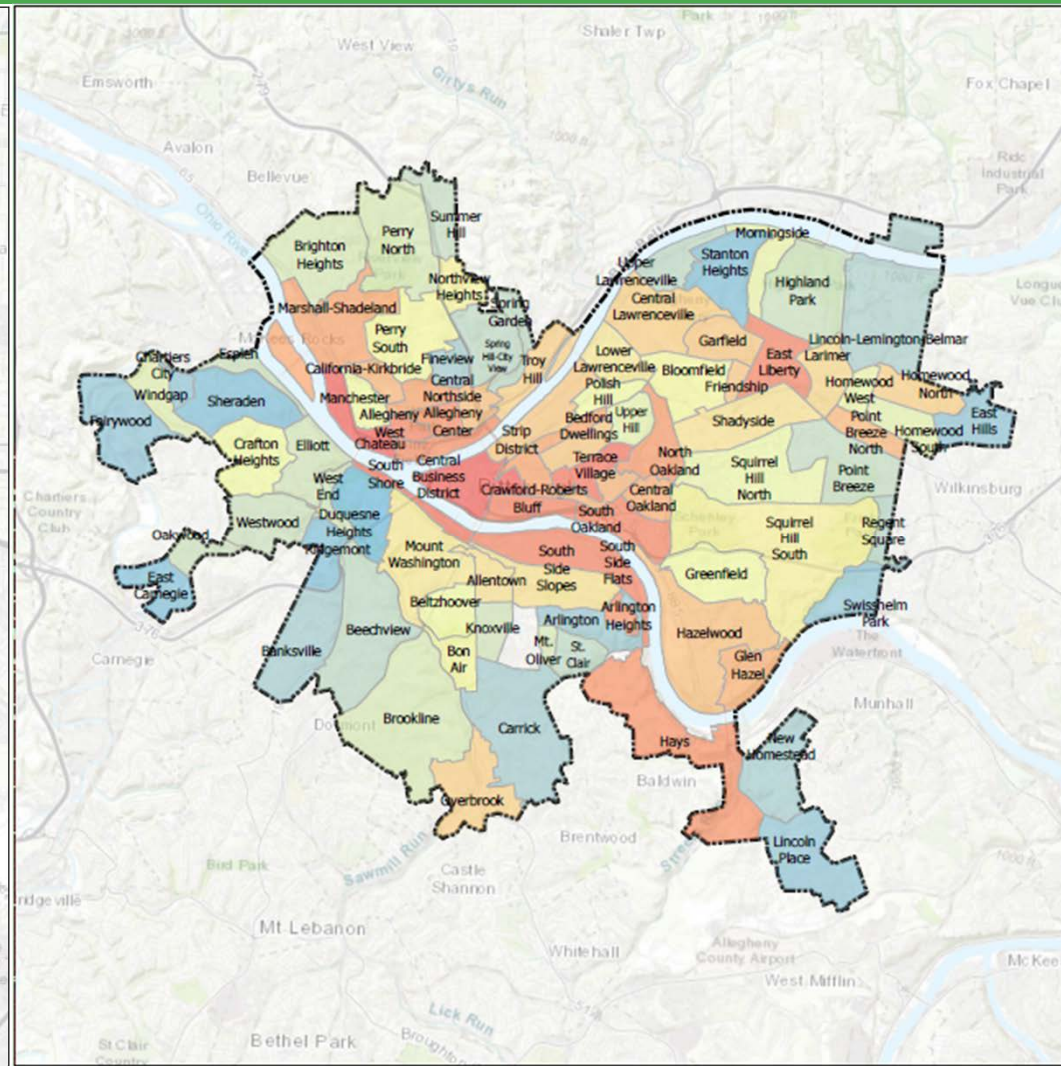
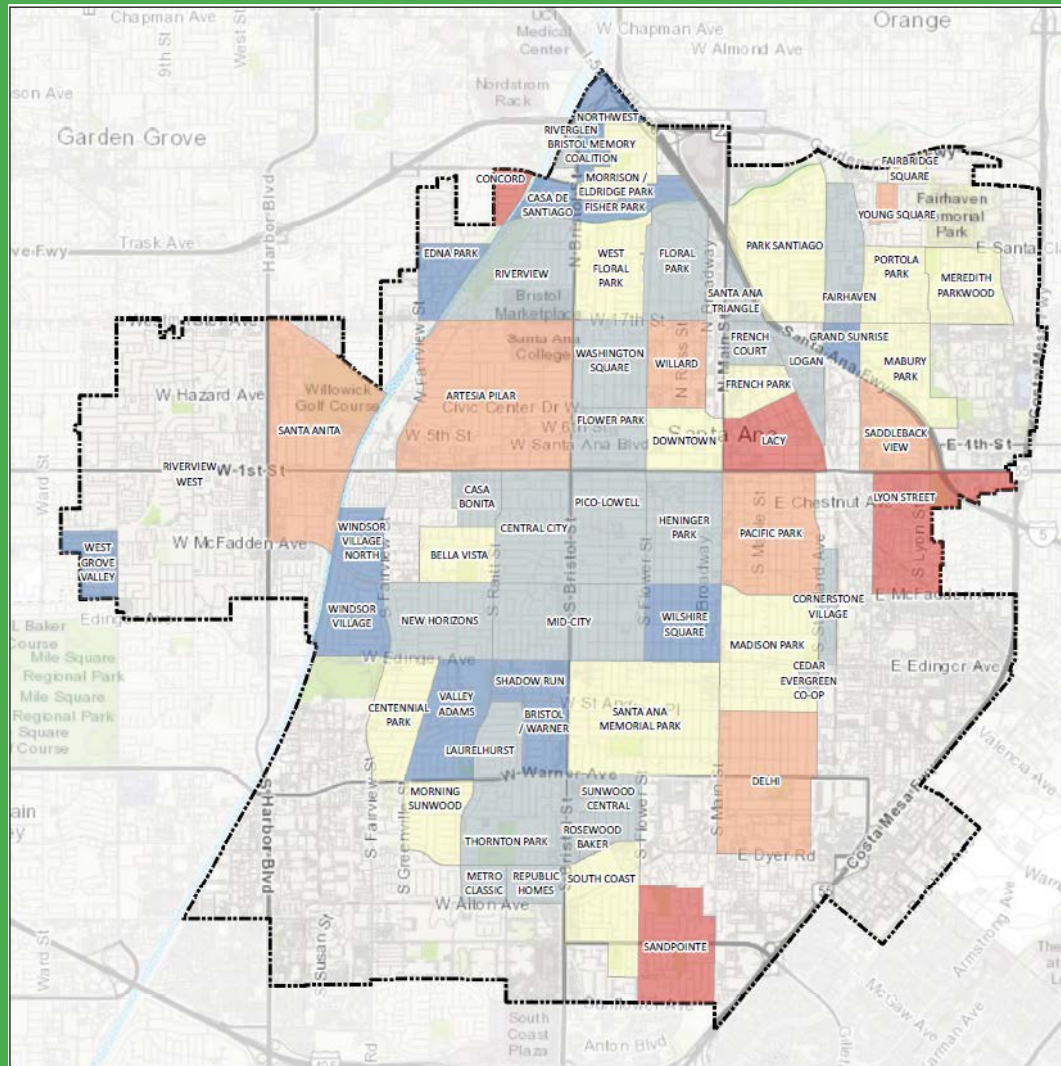
THE CITY OF PITTSBURGH Street Lighting Equity Memorandum DRAFT

Prepared for the
City of Pittsburgh by

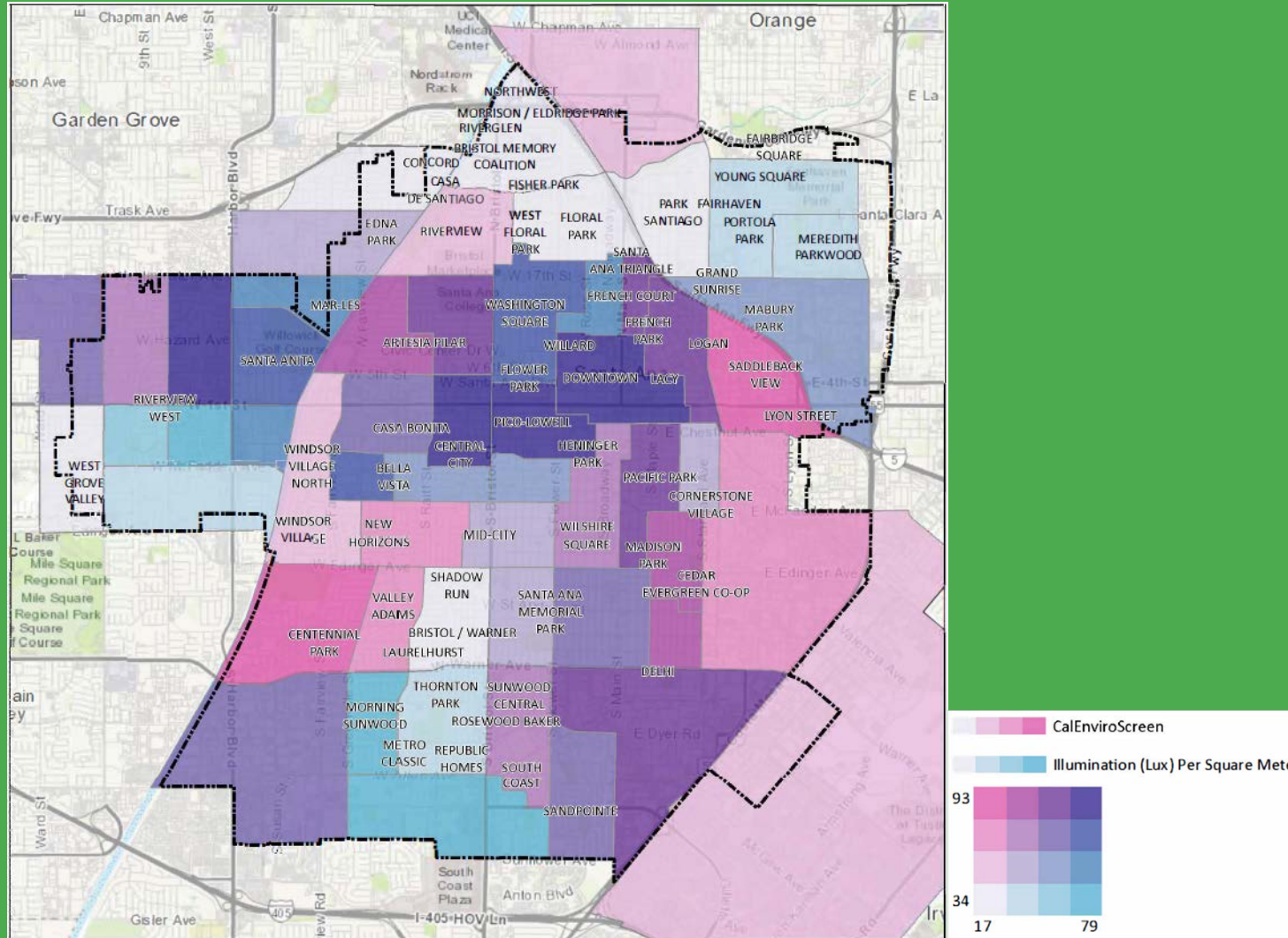
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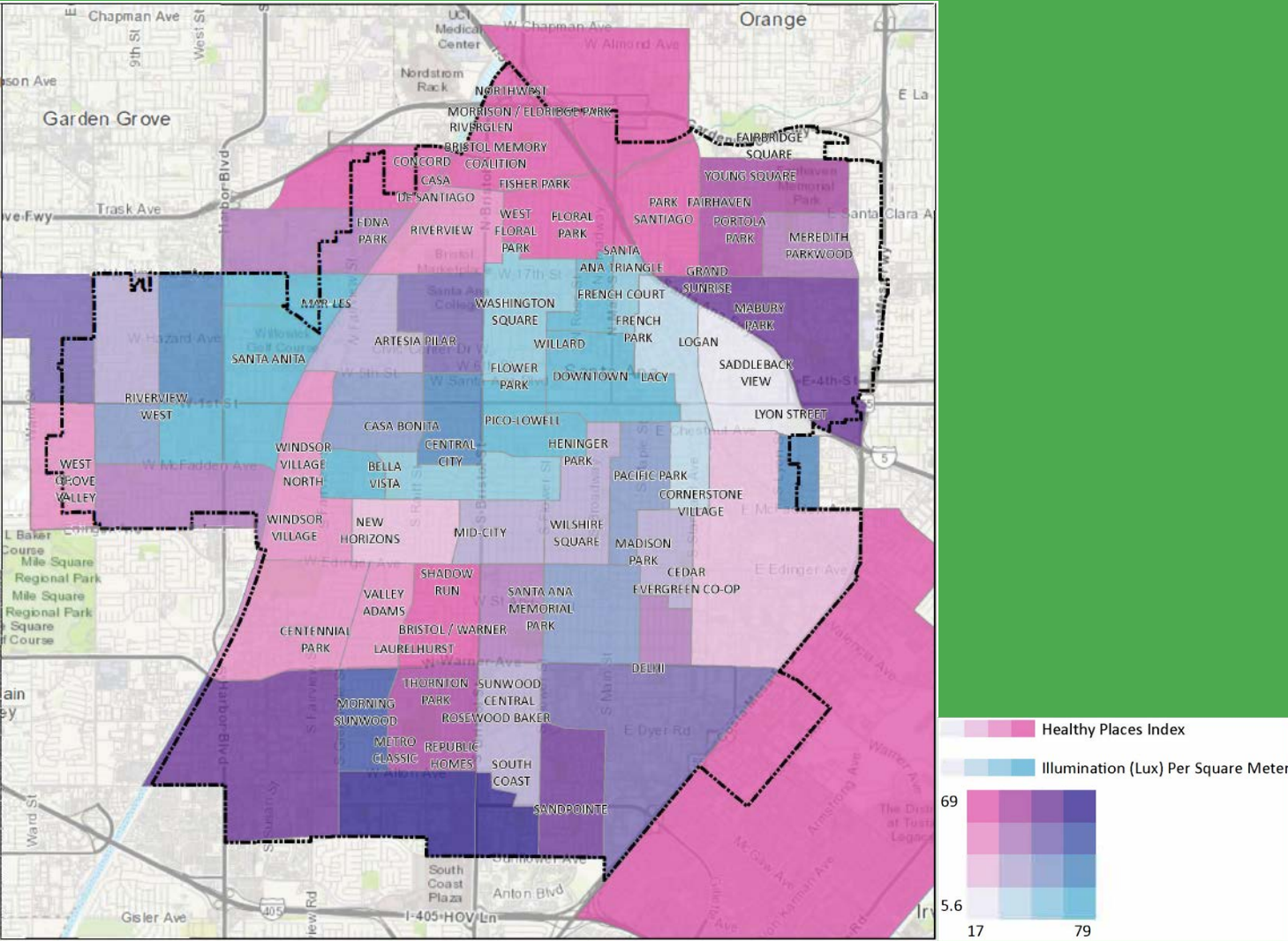
Illumination by Neighborhood



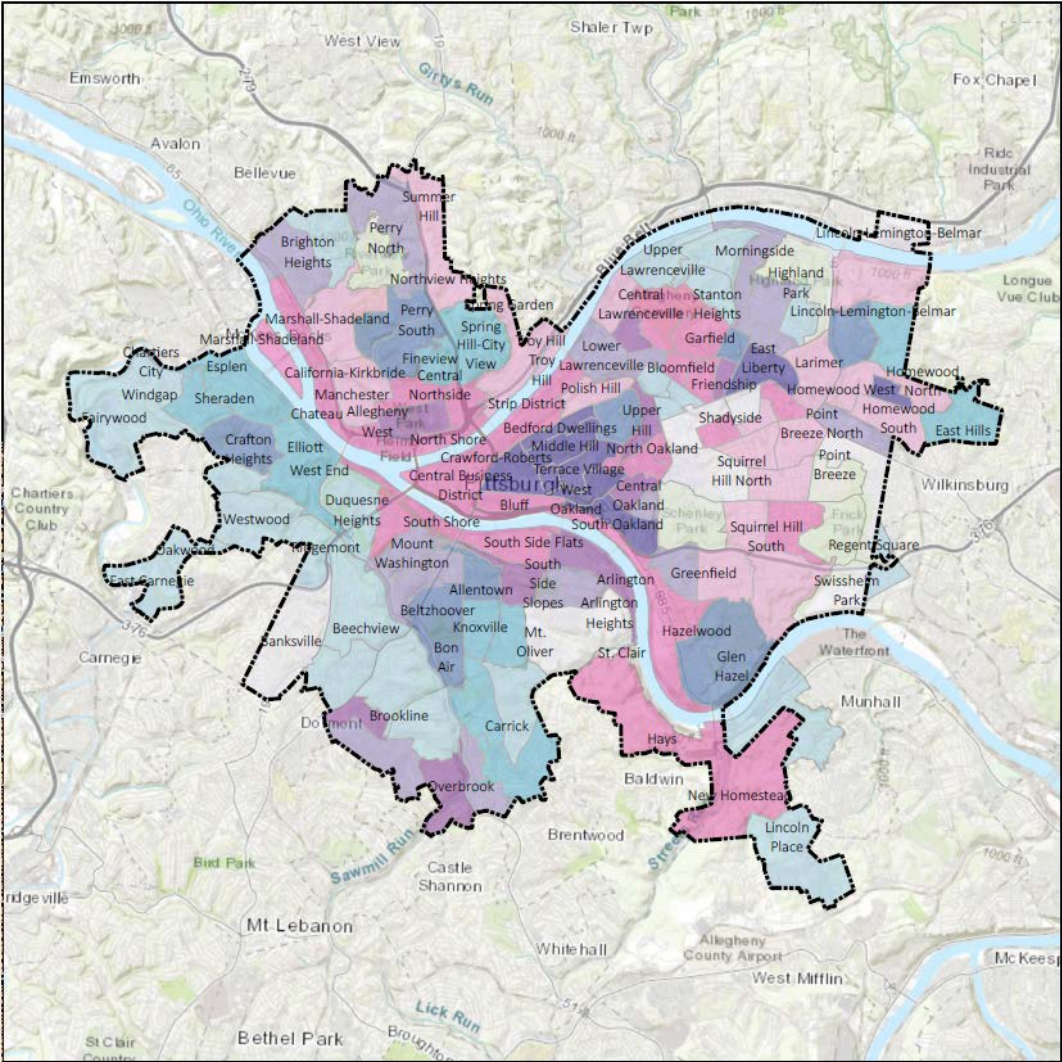
Environmental Quality



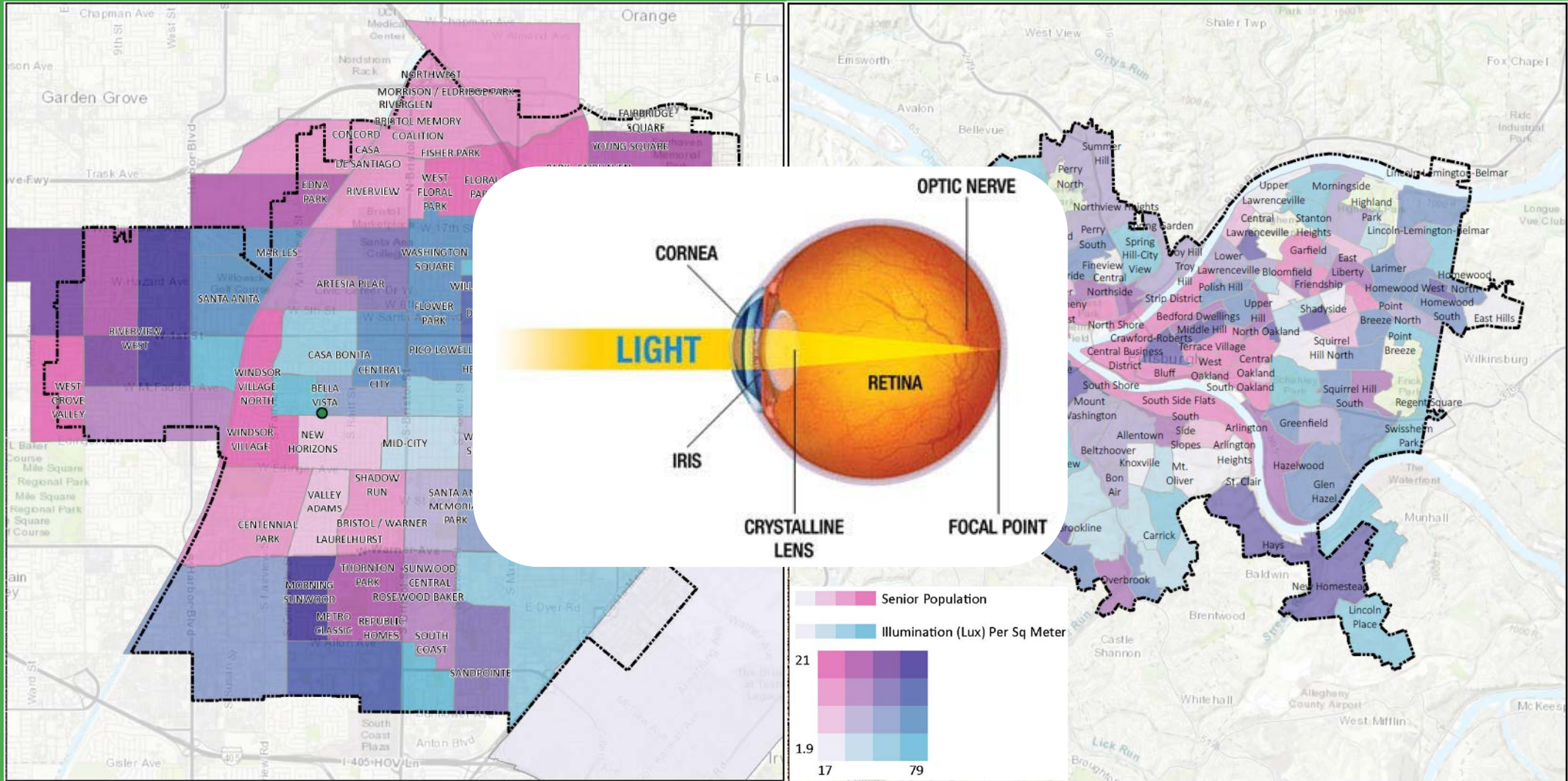
Health Indices



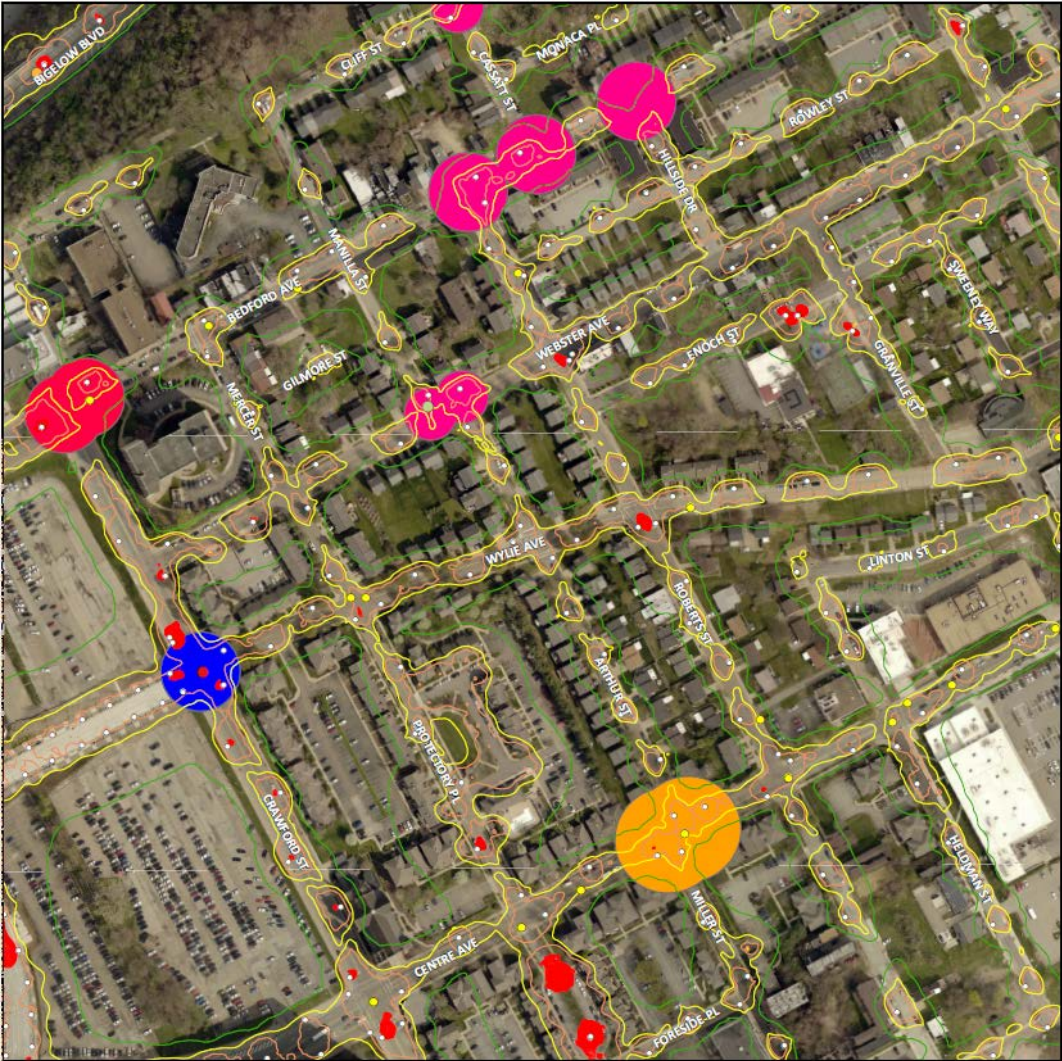
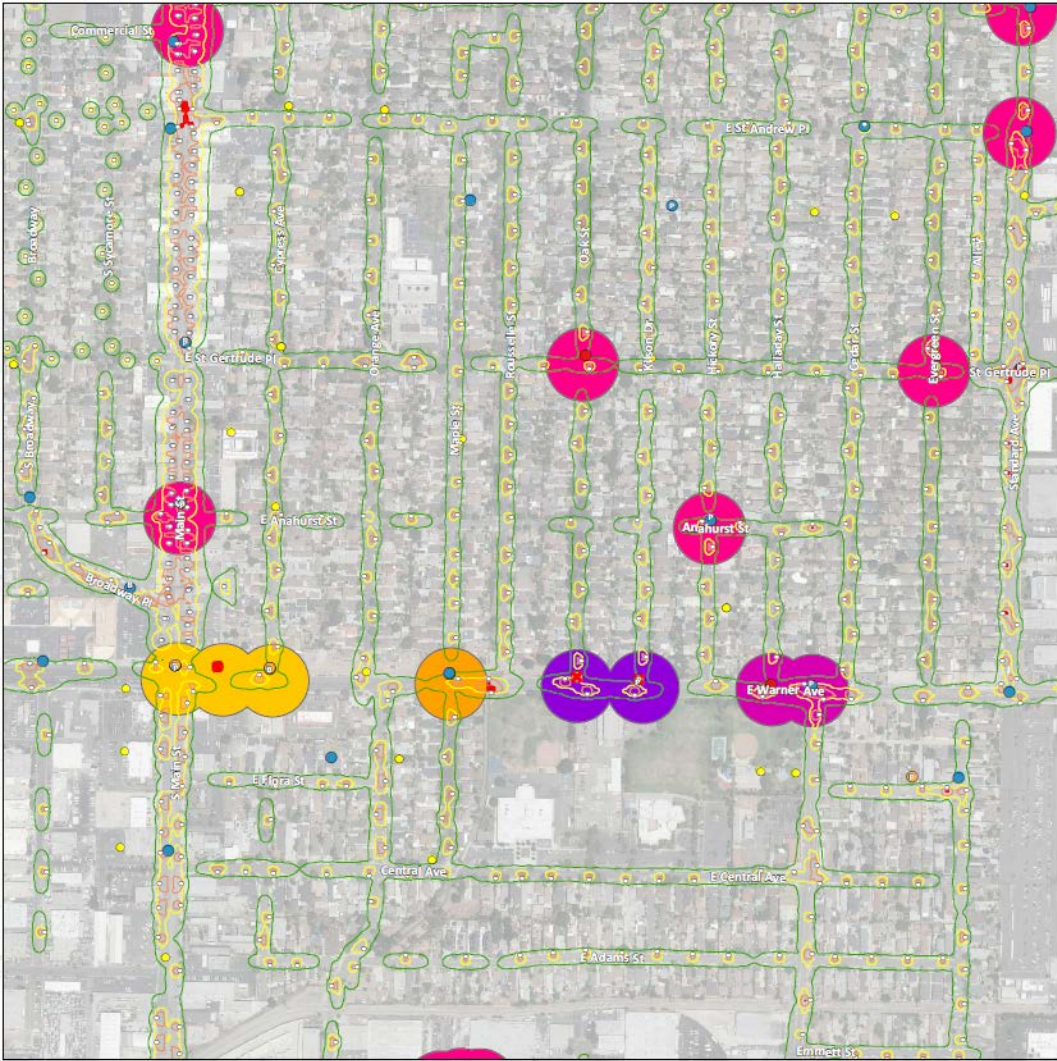
Local Community Needs



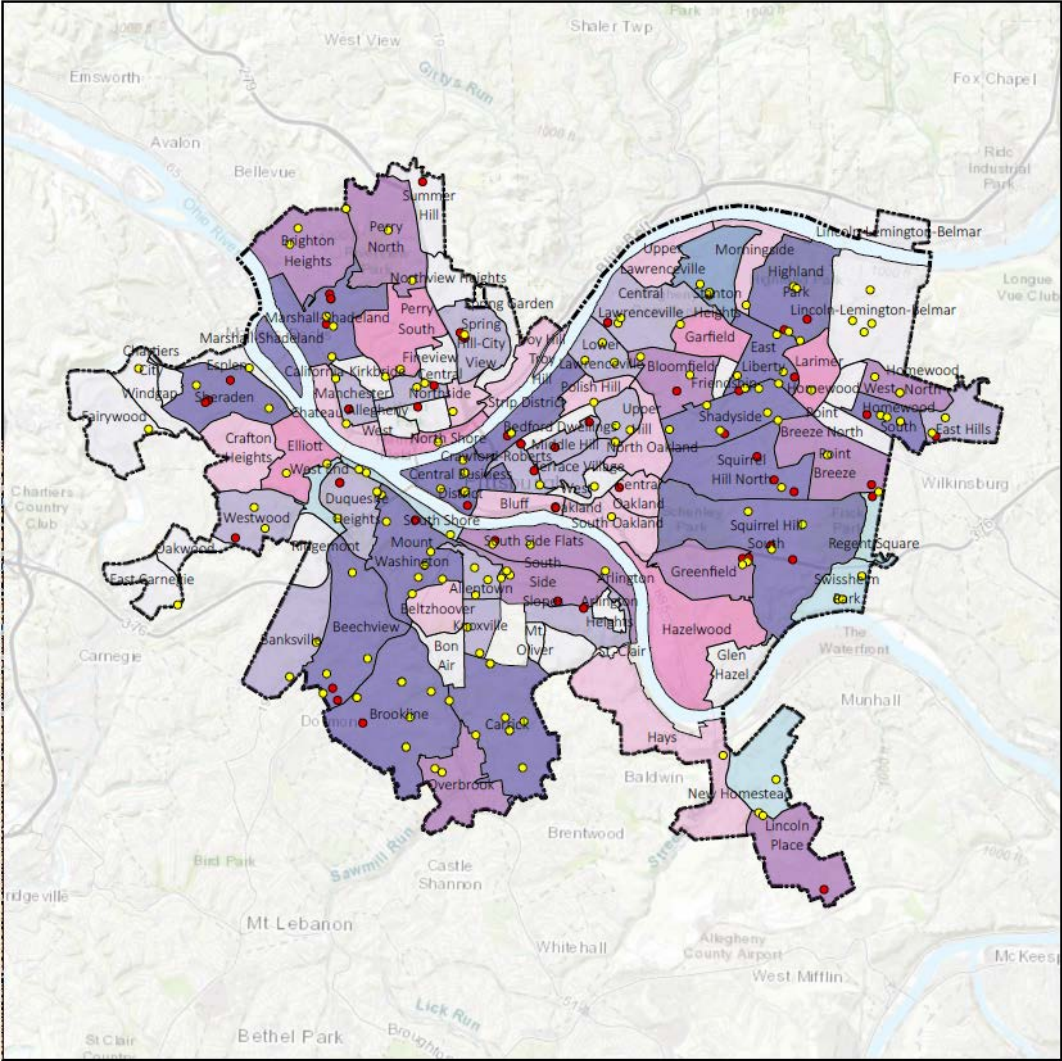
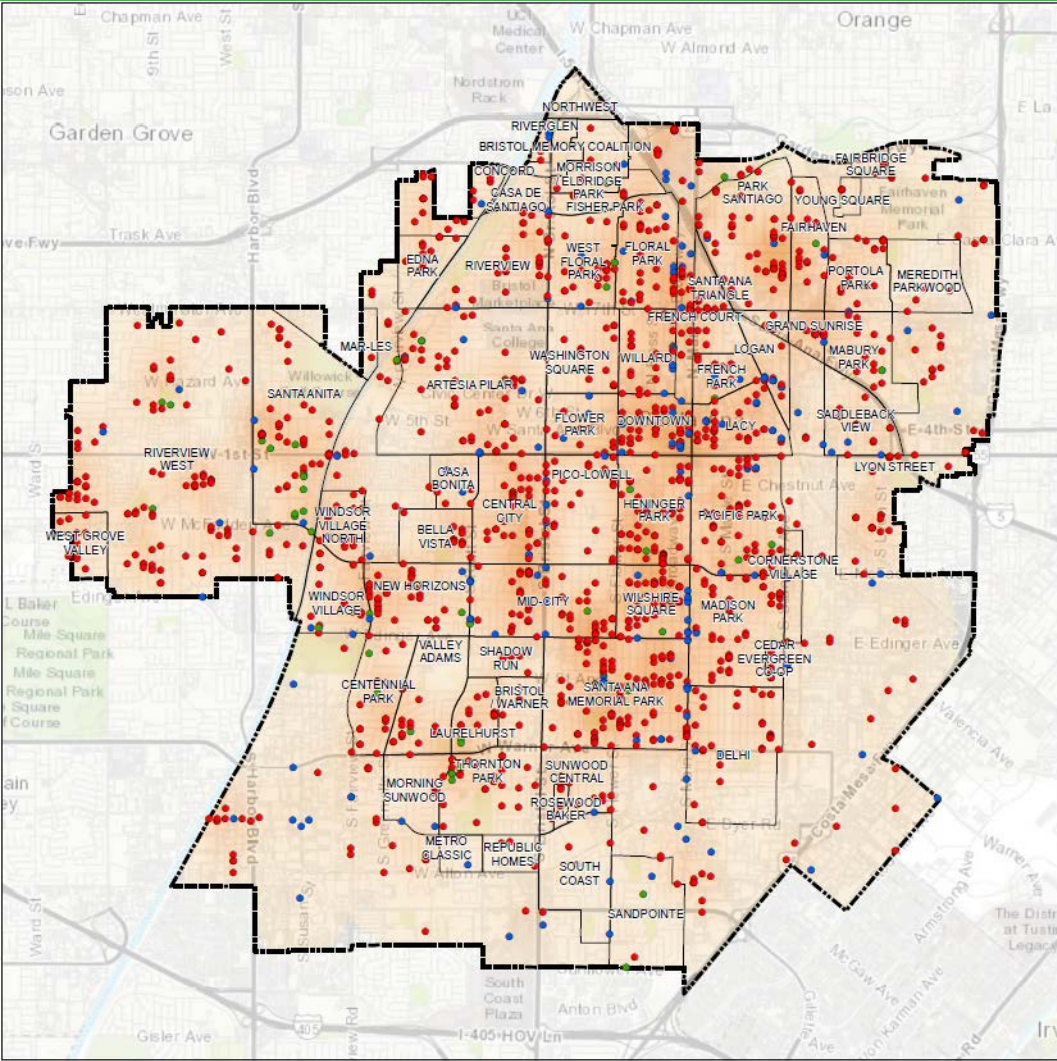
Senior Population



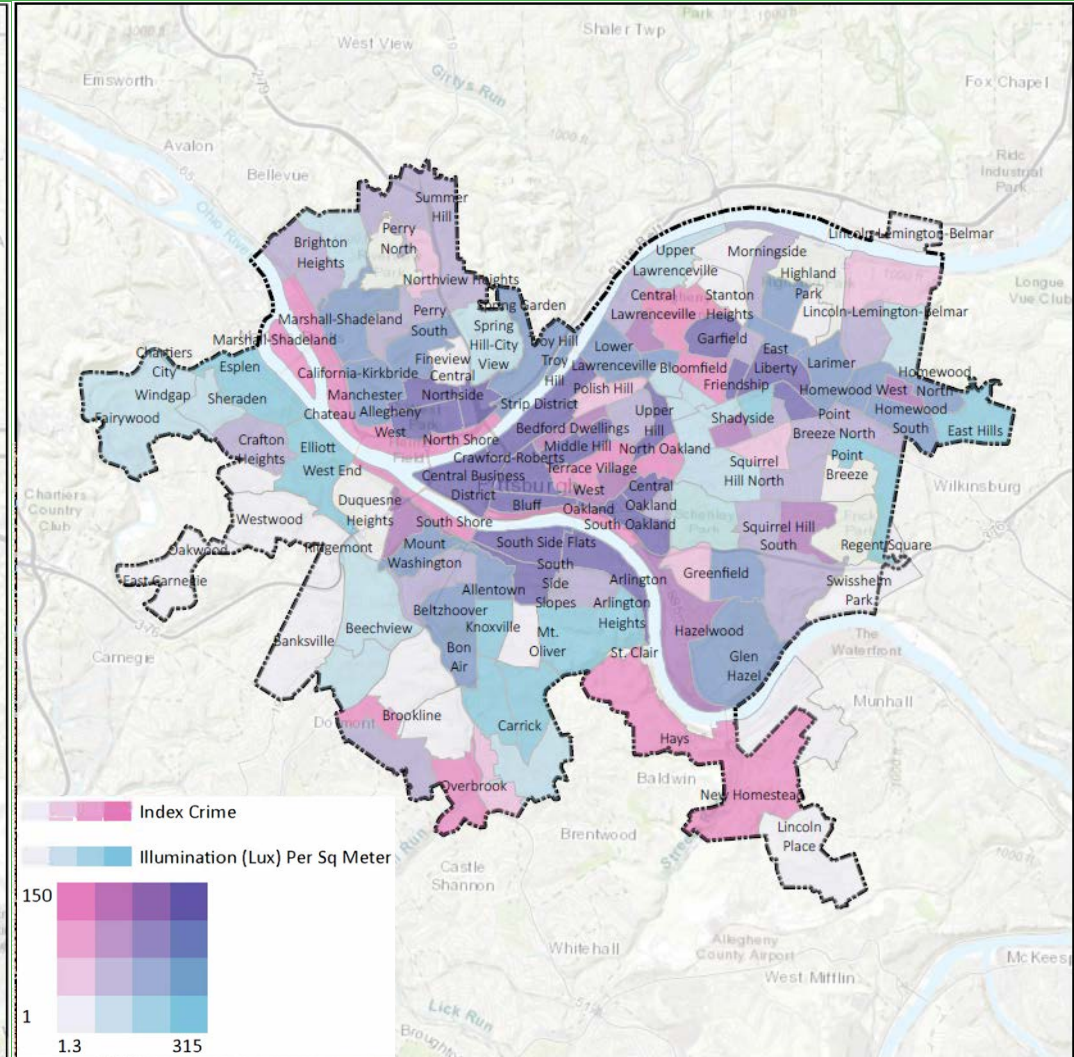
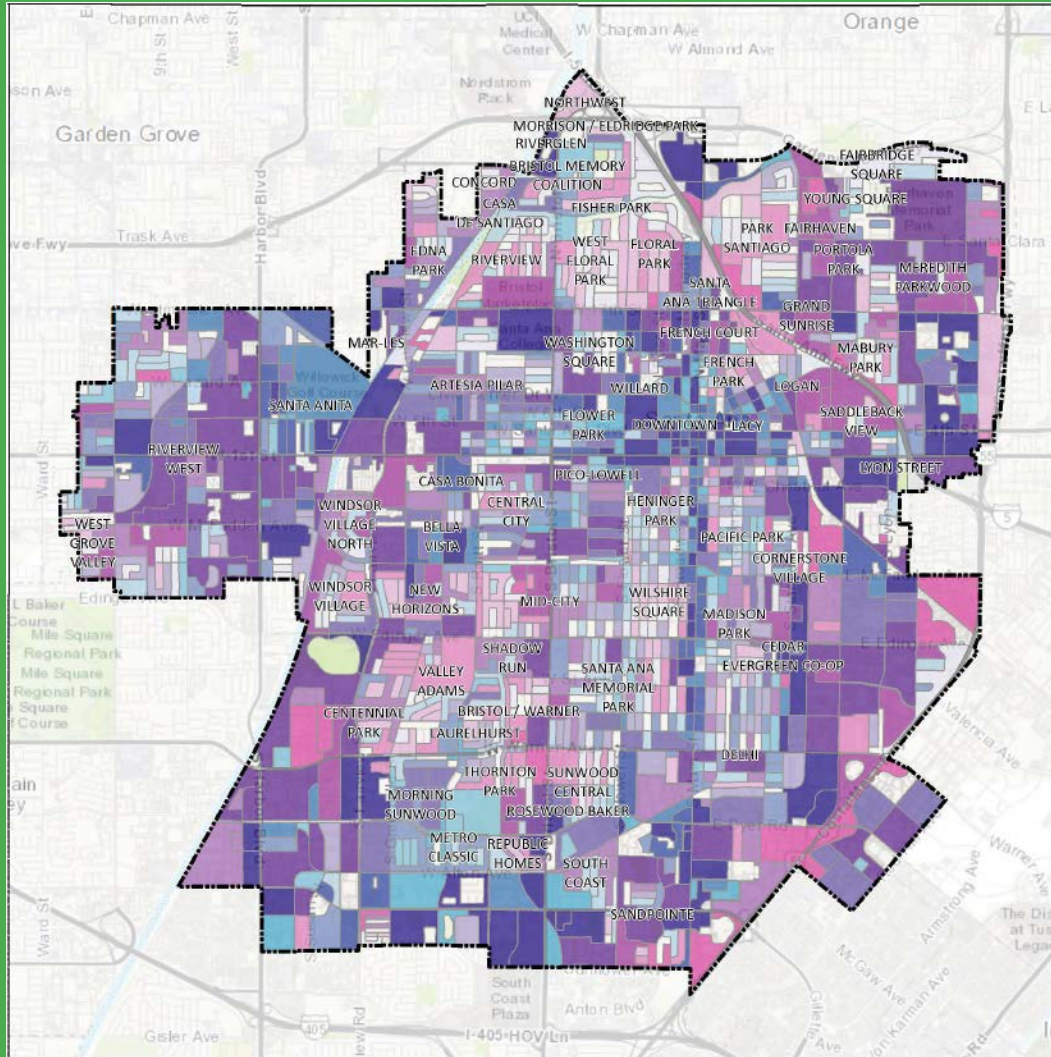
Nighttime Collisions



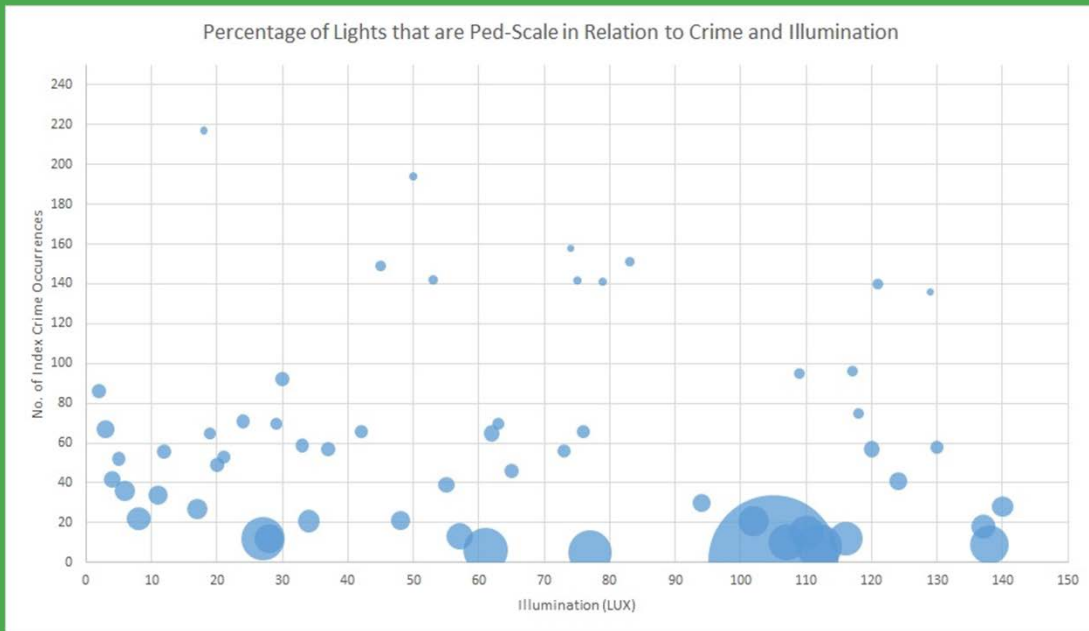
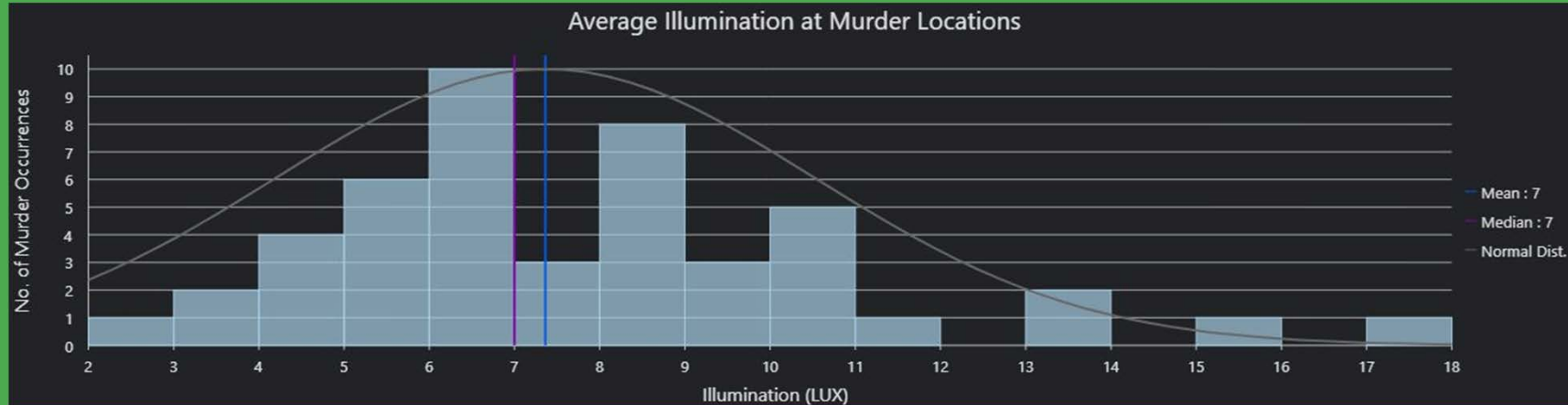
Streetlight 311 Calls



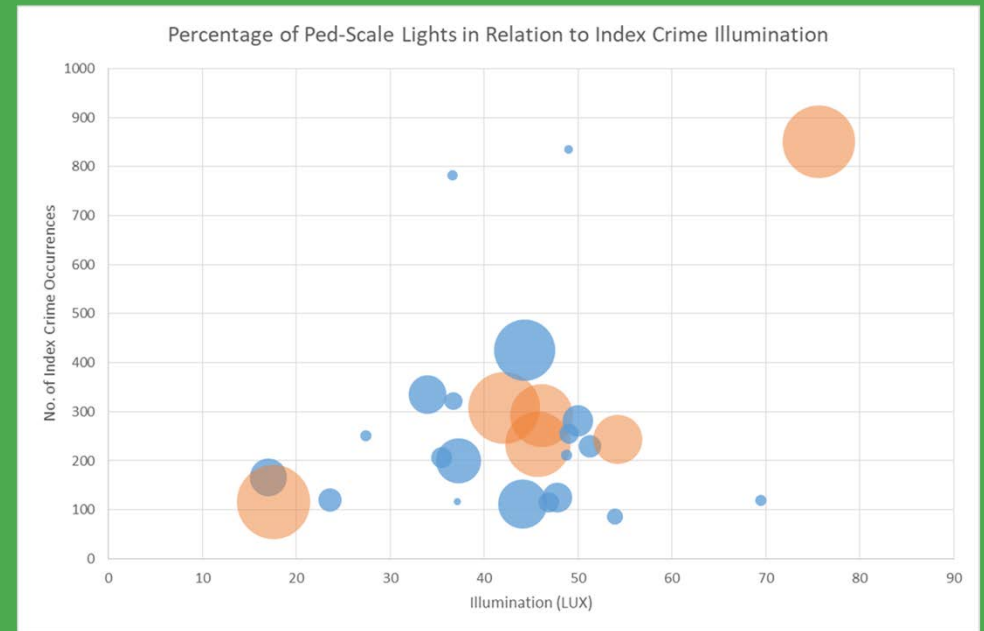
Index Crime at Night



Index Crime at Night



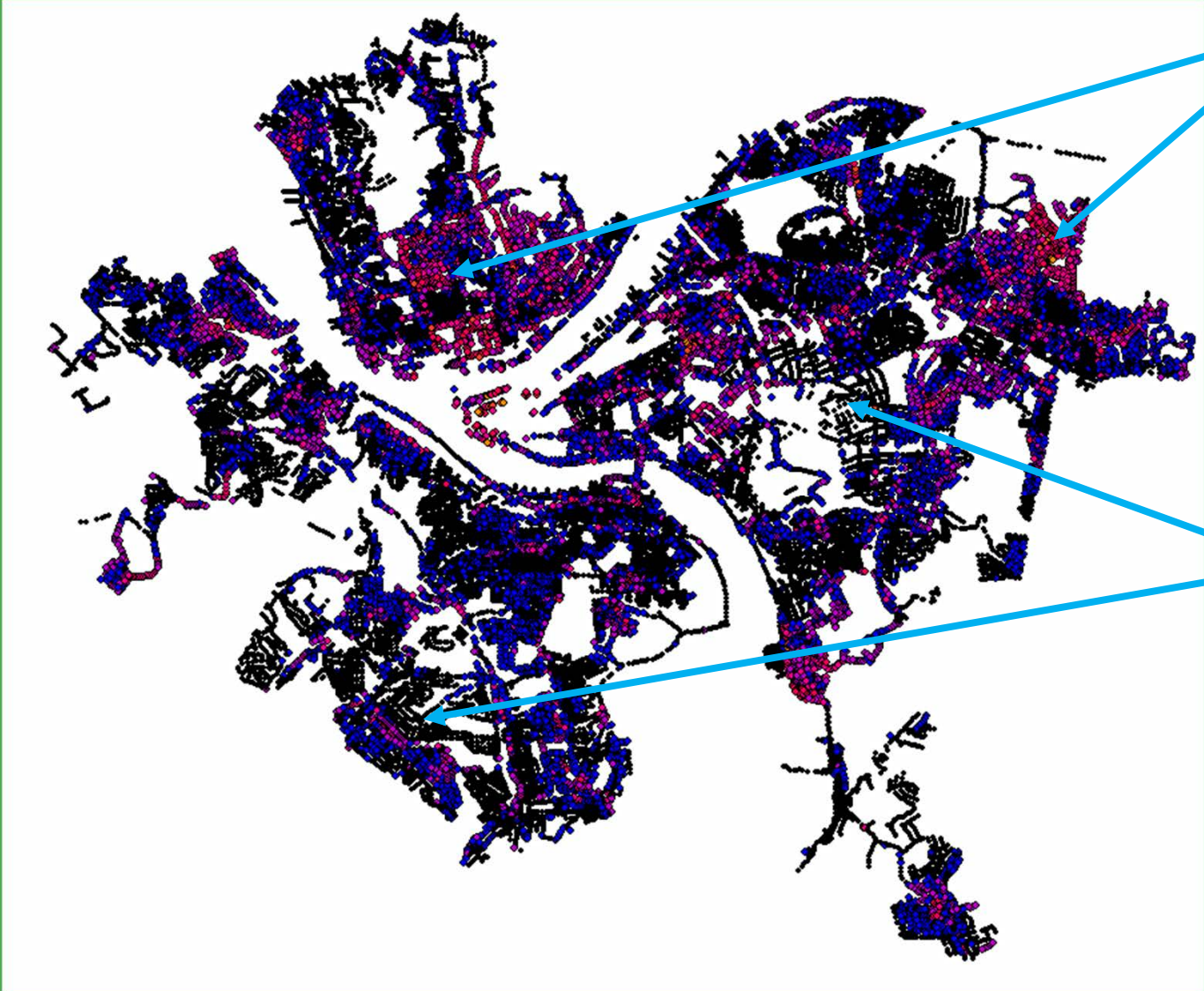
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Pedestrian-Scale Lighting Decreasing



Stakeholder Engagement



Equitable Implementation



Increase Lighting

Decrease Lighting

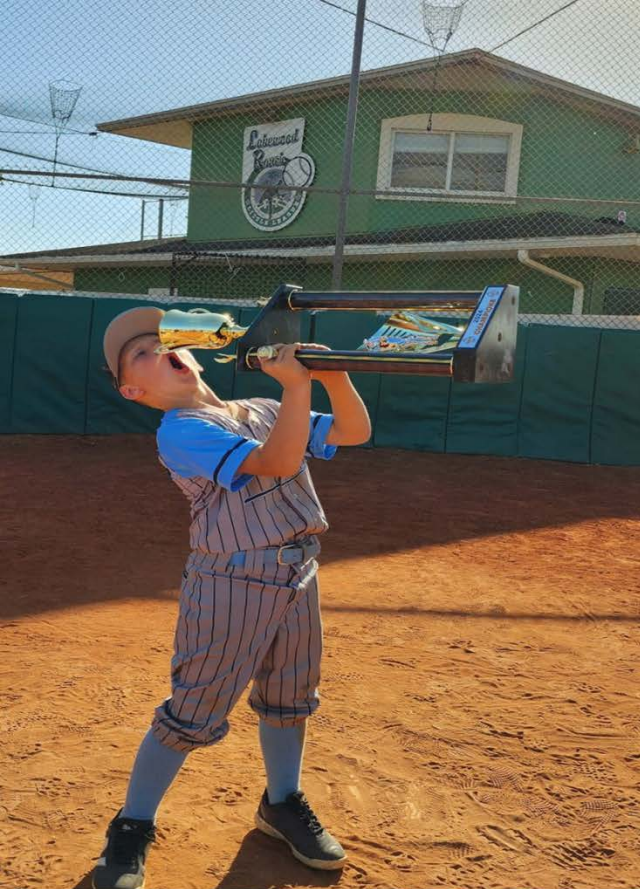


DOES YOUR BORING,
“DUMB,” LIGHT AND
POLE.....

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HAVE YOU SINGING THE
JAILHOUSE BLUES?



LINWORKS ENGINEERING
CAN HELP USE YOUR LIGHTING
TO MAKE YOU FEEL LIKE A
CHAMPION!!!

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Smart Lighting Control Modules

What does it take to make a light controllable?

- Networked Lighting Control (NLC) – An adaptation that connects by port to a light or is built into a light that can control and monitor the light.

What are some of the benefits of making a light controllable?

- Remotely on / off and dim lights (\$)
- Track asset health and reliability (\$)
- Produce trackable metrics (\$)
- Reduce / control energy costs (\$)
- **ELIMINATE TRUCK ROLLS!! (\$\$)**



Environmental Sensors

- Air quality sensor, humidity sensors, temperature monitors, wind speed monitors
- Gunshot detection
- Motion Sensors, Ambient Light Sensors, Weather Sensors (\$)

Emergency Alert Systems

- Pedestrian Safety Alarm
- Sirens, Speakers, Flashing Lights
- Messaging Boards

Surveillance Cameras

- Criminal activity
- Car / People Counting

All of these applications help Cities, Counties, Municipalities and other with Urban Planning and produce advanced AI analytics for proactive City Management!

This image was generated by OpenAI's DALL-E 3 model, based on a description provided here. It was created specifically for your request and does not originate from any external source or pre-existing dataset.



Public Information Displays

EV Charging Stations

Phone Charging Stations

5G / Wi-Fi Hotspots

Internet of Things (IoT)

Self driving vehicle integration



Street and Area Lighting

- Project Management
- Full staff augmentation
- Photometric Design to customer specifications;
i.e.: IES Standards, FDOT Design Manual
- Field coordination
- Direct Customer Contact and Management
- Contract Management
- Material Coordination and Management
- Load calculations
- Full GIS Design with Construction Print
- Construction Coordination
- Project Closeout and Audit

LineWorks has the personnel and ability to complete any of these tasks in coordination with local government or other state agencies; directly for Utilities or on behalf of Utilities; and direct to consumer.



From our entire team at LineWorks Engineering:

THANK YOU TO THE FMEA STAFF AND ALL OF THE MEMBER UTILITIES!



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Nick Mesler, PE, TE, CFLC



Any questions?

You can find me at:

☉ nick@sdgis.com

☉ LinkedIn

GO TO:

EvariLUXSolutions.com

Scan this QR code to get your copy of our presentation and more information:



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Thanks!

Q & A