

Lighting Principles and CPTED: Can Lighting Deter Crime?

Presented By
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Mesa Police Department

Functions of Lighting

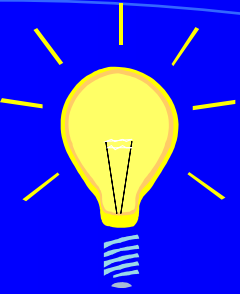
- Safety
- Identification
- Beautification
- Attraction
- Recreation



Successful Outdoor Lighting Design Should...

- Enhance the safety of people and security of property
- Maintain suitable aesthetics
- Fit within a budget for equipment, installation, and maintenance





Security Lighting Considerations

- Enable People to Take Action at a Distance
- Protect Property
- Combating Glare
- Light Sources and Levels of Illumination

Can You See Danger Ahead?



Can You See Danger Ahead?



Is Your Property Safe?



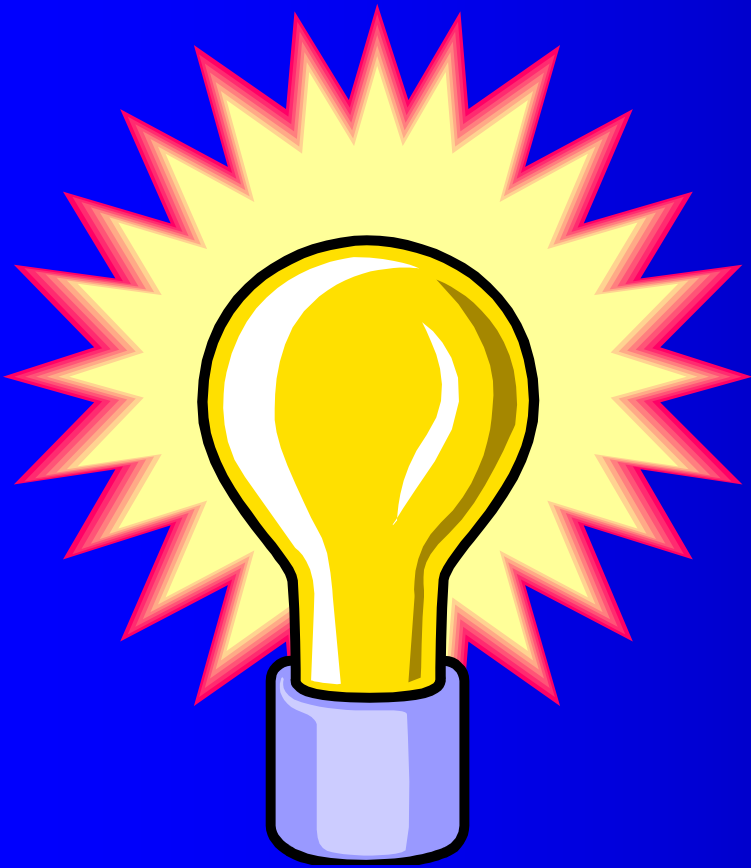
Is Your Property Safe?



Is Your Property Safe?



Key Factors for Quality Lighting



- **Light Source**
- **Color Rendition**
- **Uniformity**
- **Glare**
- **Light Trespass**

Lighting Sources

- Incandescent
- Fluorescent
- Mercury Vapor
- Low Pressure Sodium
- High Pressure Sodium
- Metal Halide



Lighting Fixtures

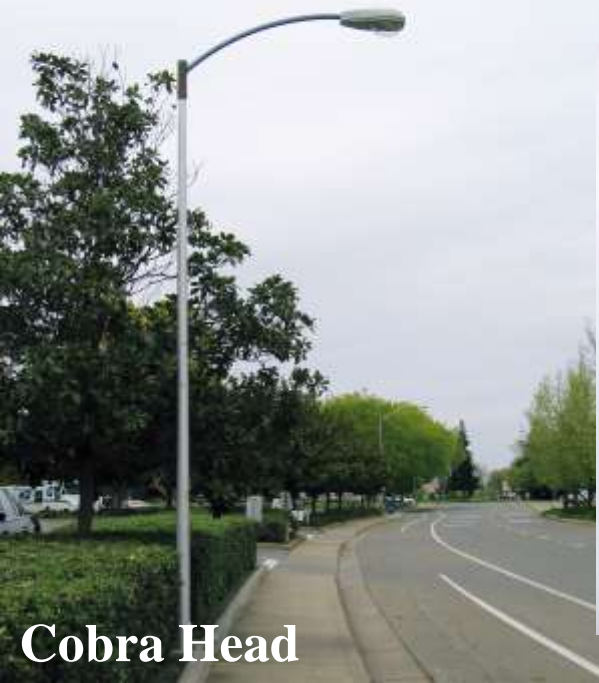
Flood Light



Wall Pack



Decorative Post Top



Cobra Head



Mast Mount Cutoff

Color Rendition and Identification

Lighting Sources Affect the Way Color Appears

Incandescent	Good color rendition but inefficient
Fluorescent	Excellent color rendition and efficient, but temperature sensitive
Mercury Vapor	Poor color rendition and slow starting
Low Pressure Sodium	NO color rendition but most efficient, least polluting to night sky
High Pressure Sodium	Poor color rendition in red and blue but efficient
Metal Halide	Good color rendition and efficient

Incandescent



Fluorescent



Mercury Vapor



Low Pressure Sodium



San Jose, CA

High Pressure Sodium



Sacramento, CA

Metal Halide



Auto Dealership

Color Rendition



Low Pressure Sodium



High Pressure Sodium



Metal Halide

Uniformity: Is the Lighting Even?

Poor



Good



Very Good

Excellent

Glare: Defeating the Purpose of Light



Controlling Light Trespass



Cutoffs



Shield

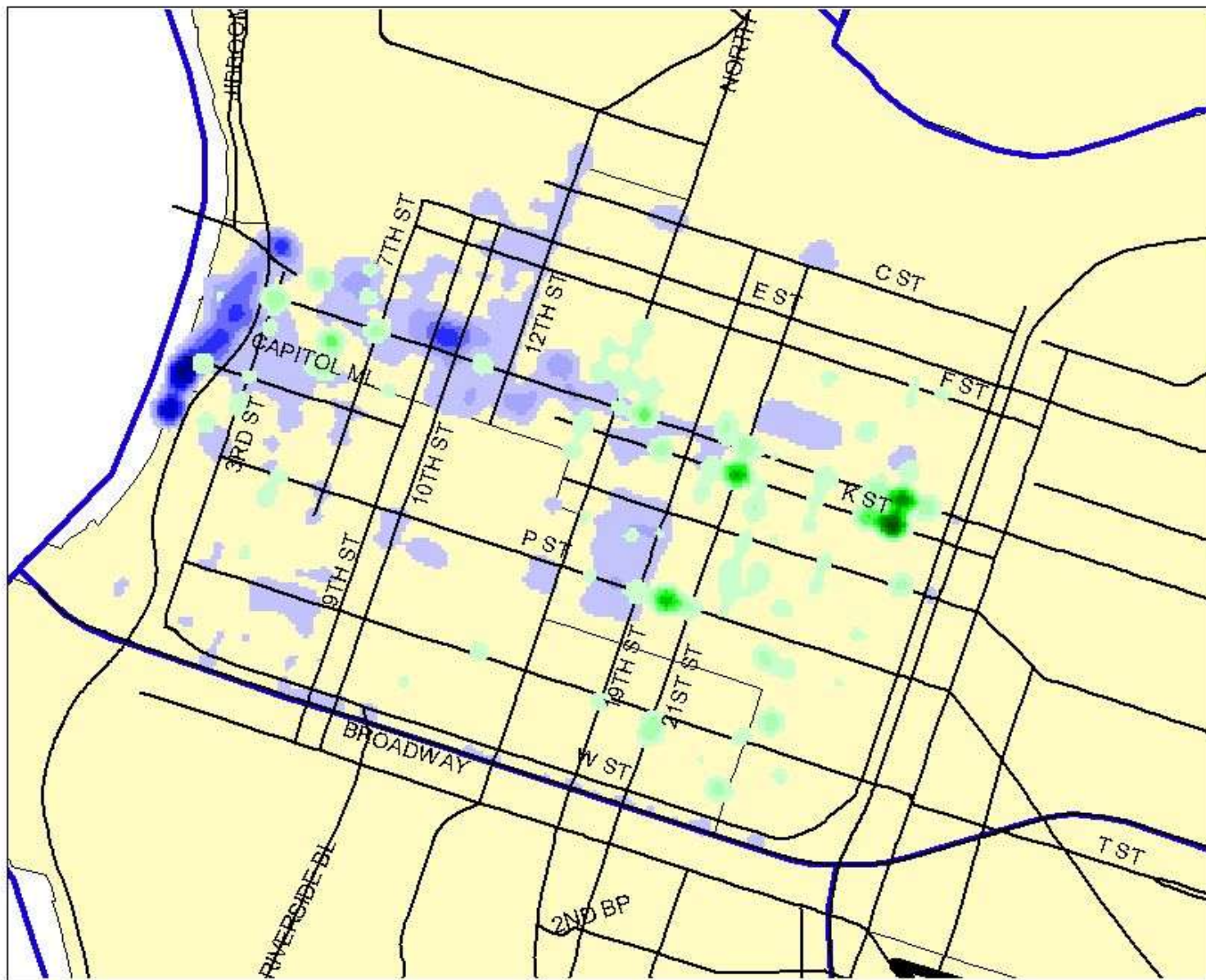
Can Lighting Deter Crime?



Density of Downtown Core Streetlights

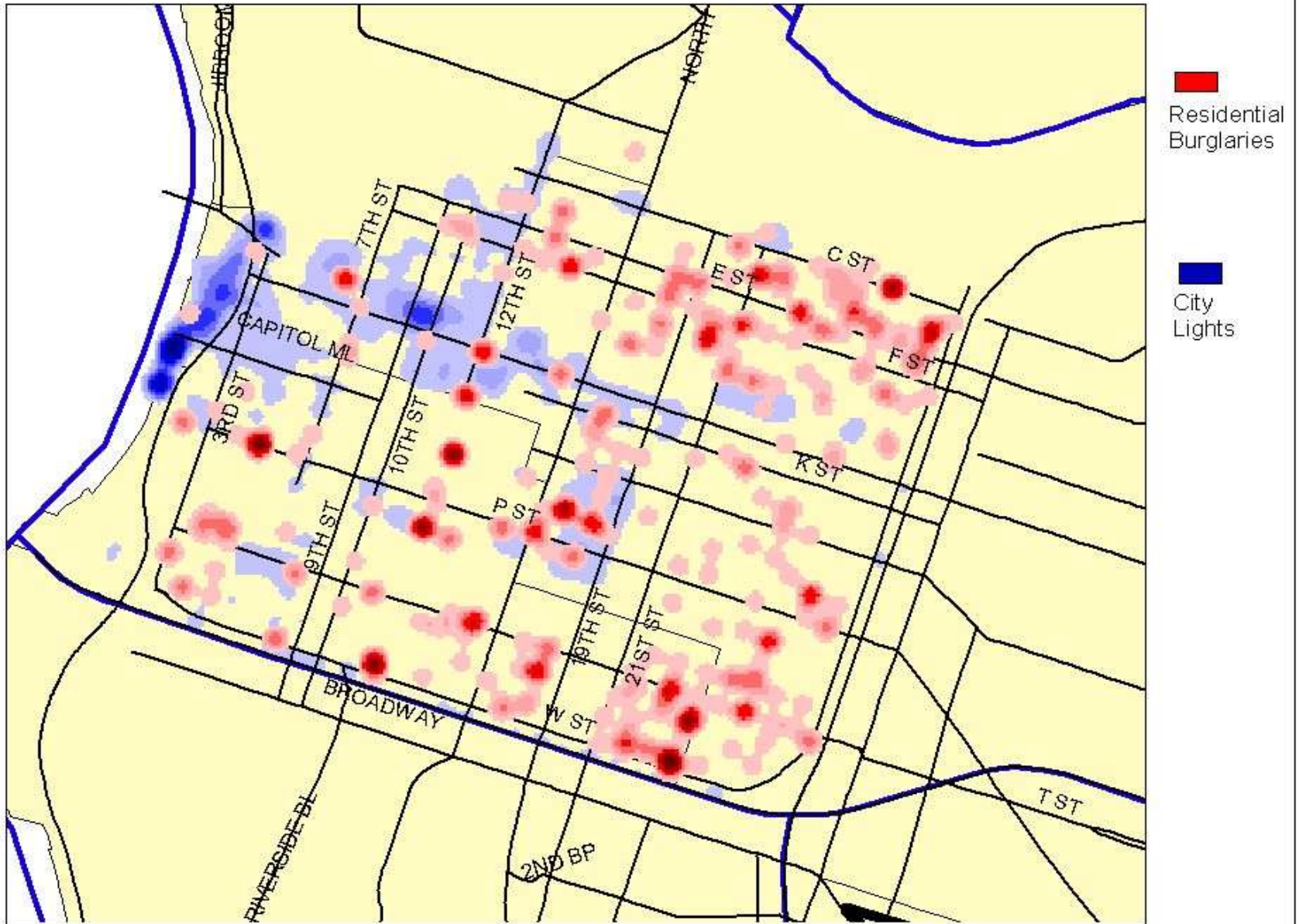


Density Map of Streetlights and Vehicle Burglaries

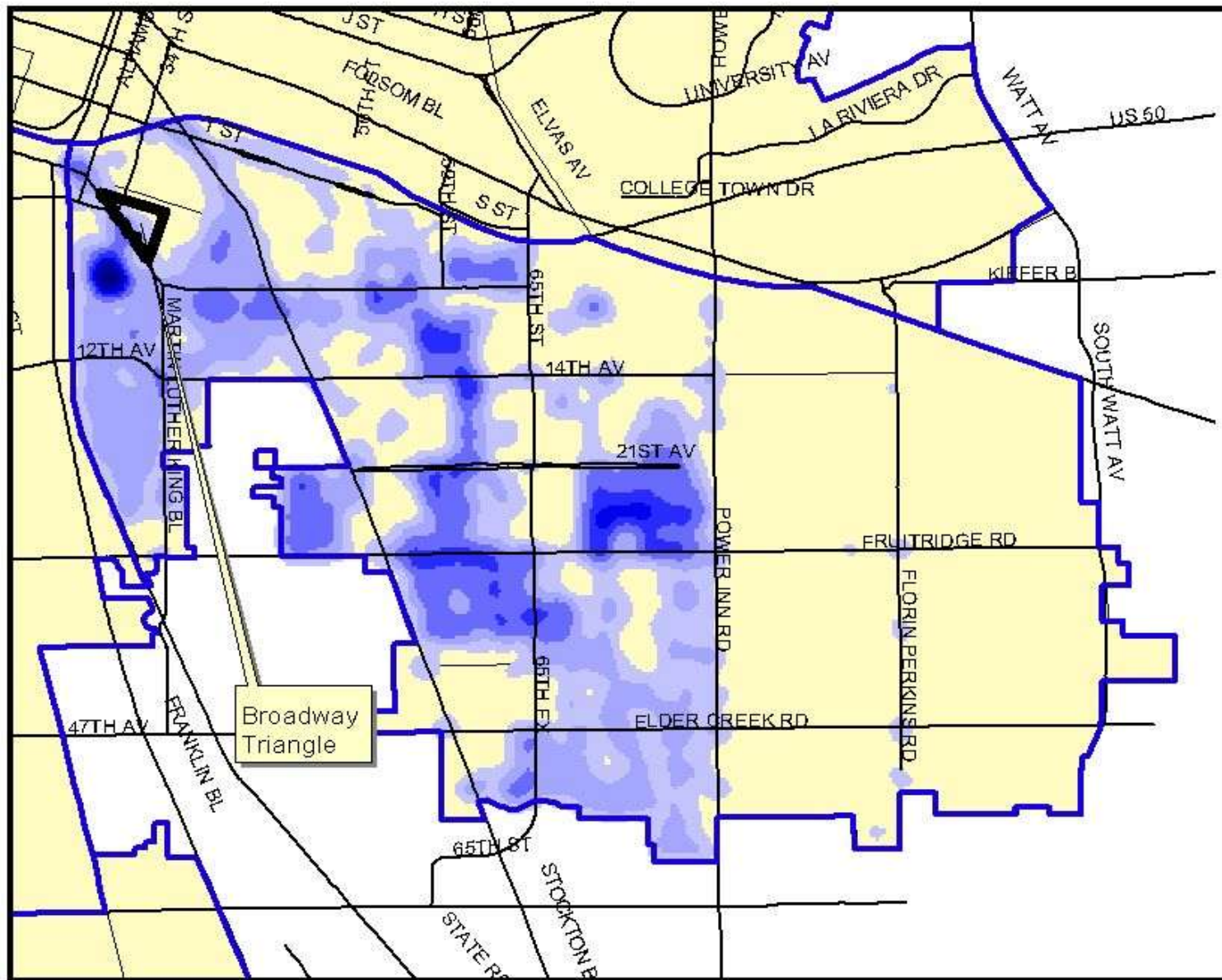


- Vehicle Burglaries
- City Lights

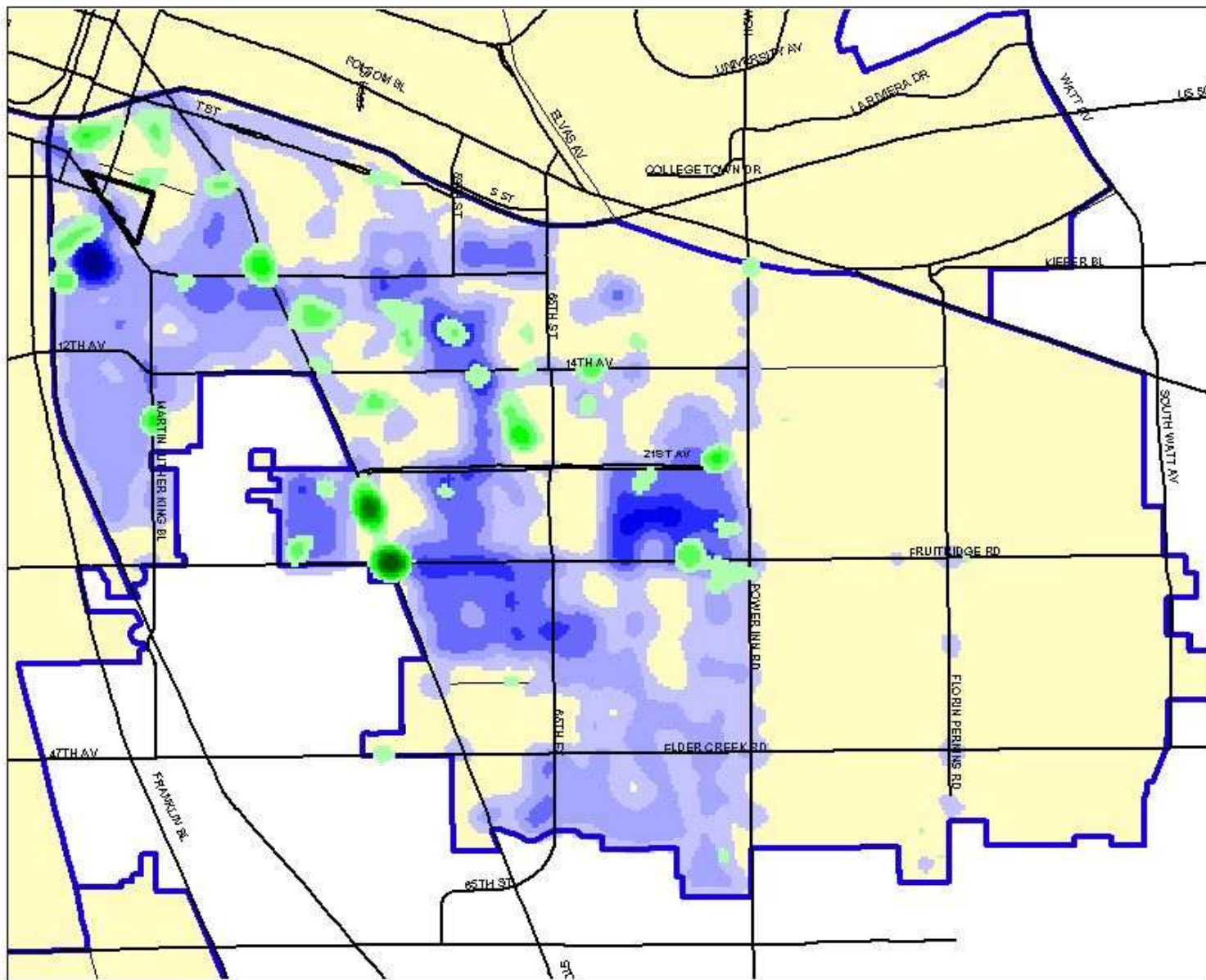
Density Map of Streetlights and Residential Burglaries



Density of Sector 6 Streetlights in 2002

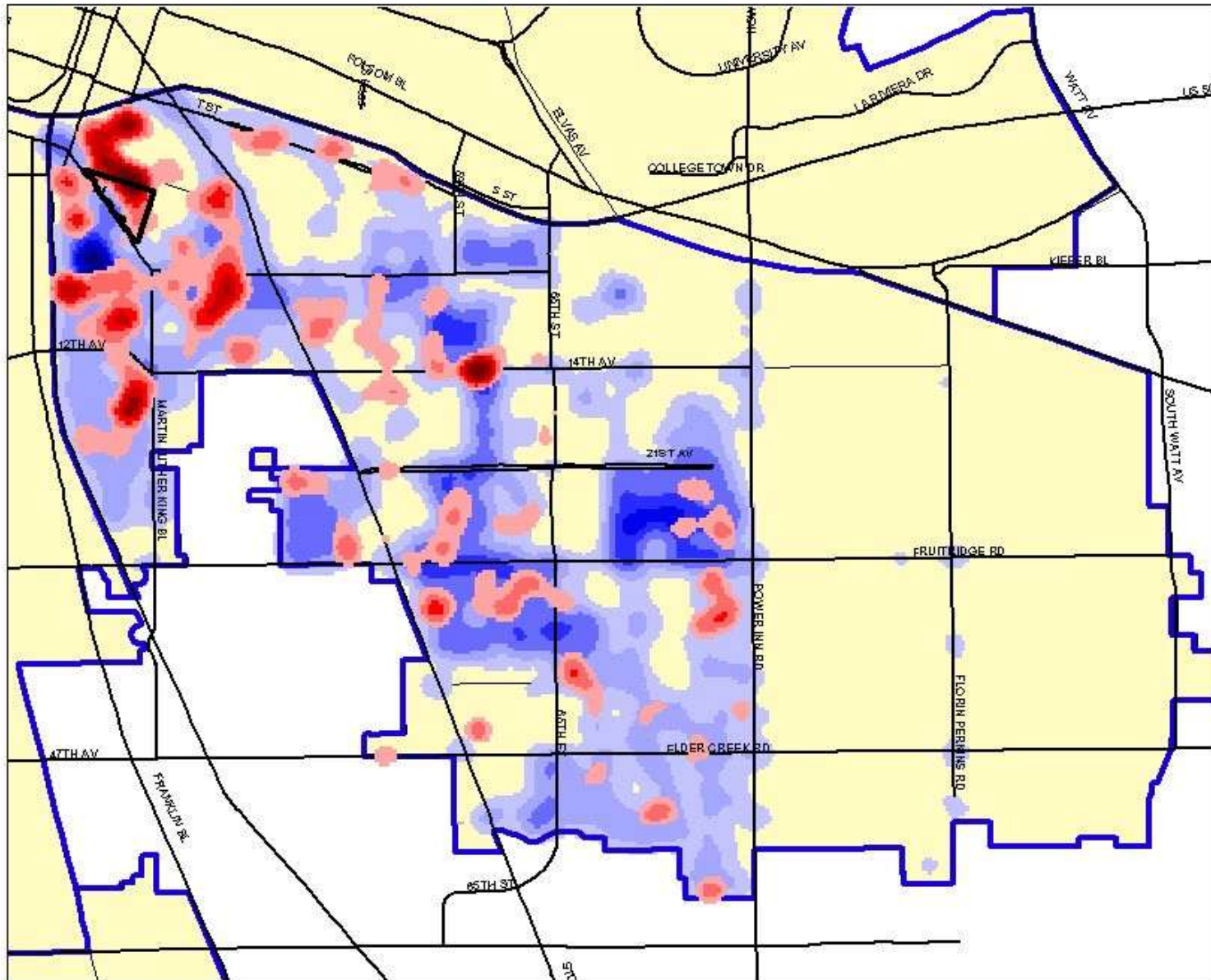


Density Map of Streetlights and Vehicle Burglaries



- Vehicle Burglaries
- City Lights

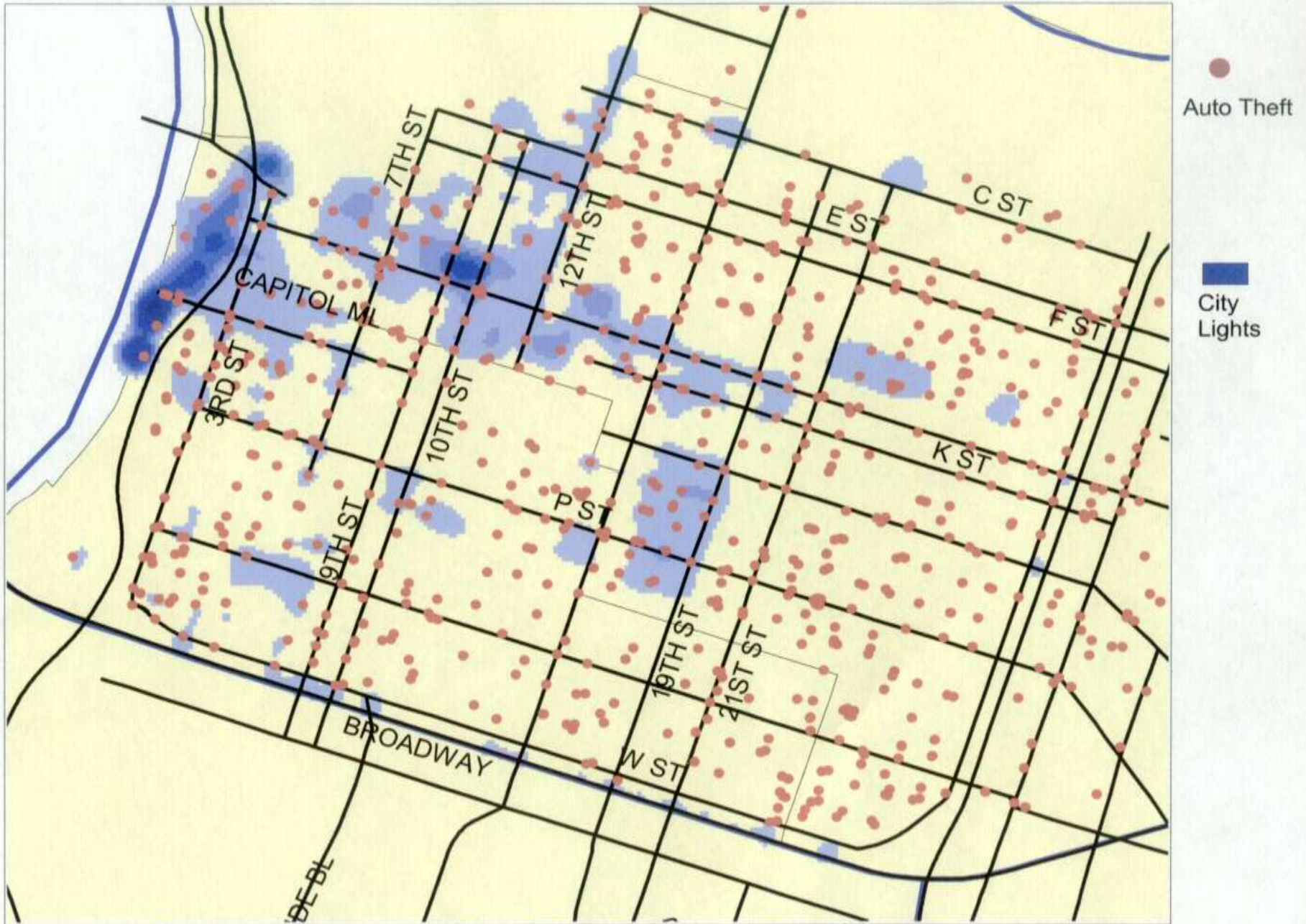
Density Map of Streetlights and Residential Burglaries



 Residential Burglaries

 City Lights

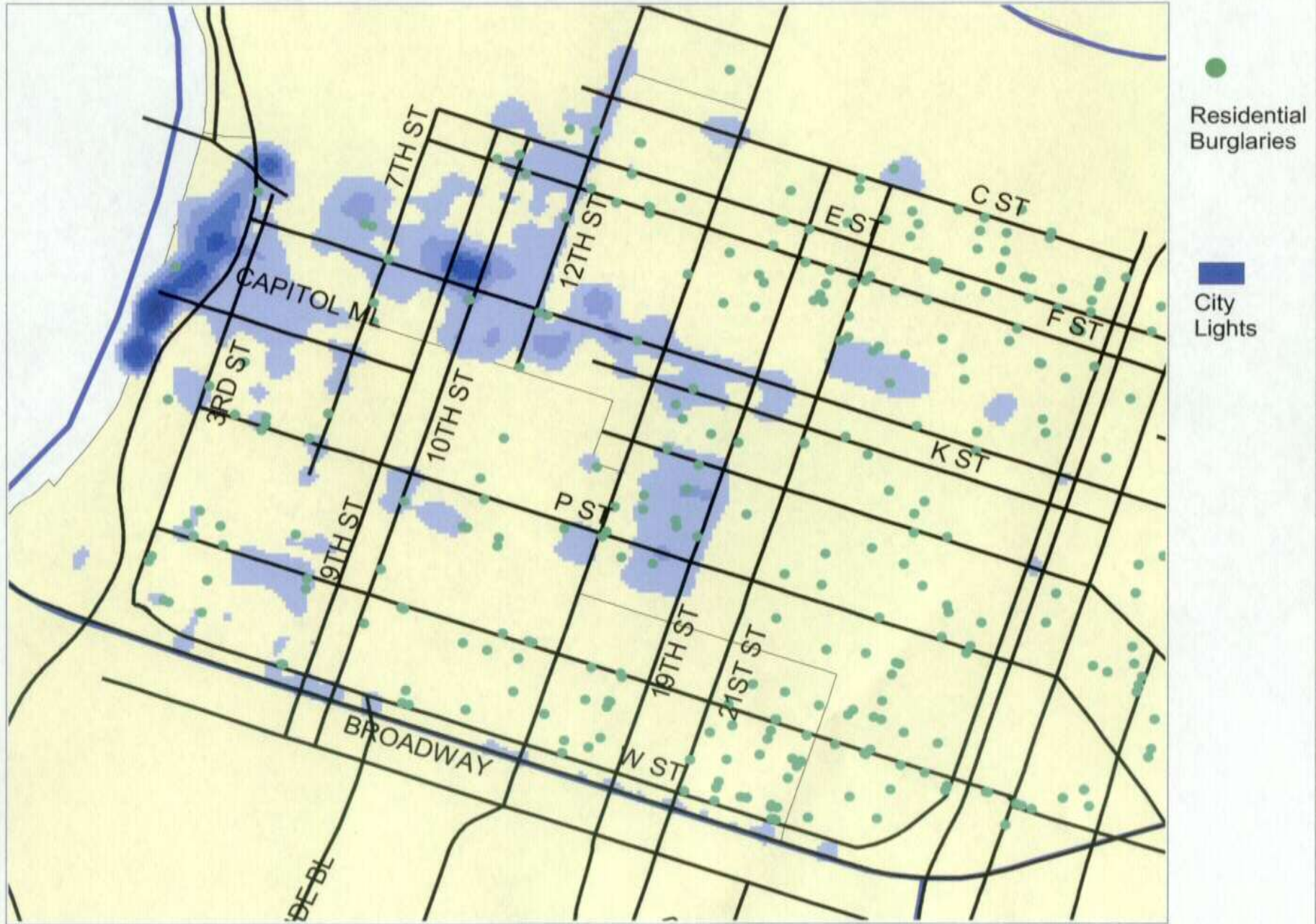
Density Map of Streetlights and Auto Thefts



Density Map of Streetlights and Vehicle Burglaries



Density Map of Streetlights and Residential Burglaries



Case Studies of Deterrent Effects

Broadway Triangle

**Pre-Lighting
Calls for Service**

1/1/03 – 7/21/03 = 1323

**Post-Lighting
Calls for Service**

1/1/04-7/21/04 = 1110

16% Reduction

Stockton Blvd Shopping Center

**Pre-Lighting
Calls for Service**

5/1/03 – 11/1/03 = 191

**Post-Lighting
Calls for Service**

5/1/04-11/1/04 = 121

37% Reduction

MLK Library

**Pre-Lighting
Calls for Service**

10/1/03 – 2/28/04 = 7

**Post-Lighting
Calls for Service**

10/1/04-2/28/05 = 3

57% Reduction

Kahn Hing Market

6400 Stockton Boulevard

- **SMUD Lighting Survey with Police**
- **Owner puts SMUD/PD suggestions into action**
- **CFS Reduced 37%**

Decreased Activities:

Prostitution

Loitering

Abandoned Vehicles

Lighting

Pre-Existing

- **8 mast mounted 400 watt high pressure sodium flood lights on 4 poles**

Added Lighting

- **12 mast mounted 750 watt metal halide flood lights on 3 poles**
- **Poles relocated to provide uniform lighting throughout property**

CONNECTIONS

Customer Services: 1-888-742-SMUD (7683) ■ Hours: M-F 7 a.m. - 7 p.m. ■ Best times to call: 7-8 a.m. and 6-7 p.m.

SMUD helps bring light to Stockton Boulevard corridor

Stockton Boulevard has long been known as one of Sacramento's most crime-ridden corridors. Prostitution and drug dealing were widespread in the evening hours.

Through its work with the Stockton Boulevard Partnership, SMUD is helping bring light to this historic business district. SMUD works closely with law enforcement officers and business owners to identify poorly lit areas and provide security lighting solutions.

The Stockton Boulevard Partnership was formed in 2001 to help businesses along the South Sacramento thoroughfare. Increased lighting is making a difference in reviving business along Stockton Boulevard, according to the Sacramento Police Department.

By working with business owners to improve lighting along the boulevard, SMUD is improving the commercial climate. Richard Greene, executive director of the Stockton Boulevard Partnership, said the improved lighting has reduced crime and increased sales among local businesses.

A SMUD energy specialist accompanies law enforcement



SMUD works with law enforcement to bring light to poorly lit parts of the historic Stockton Boulevard business corridor.

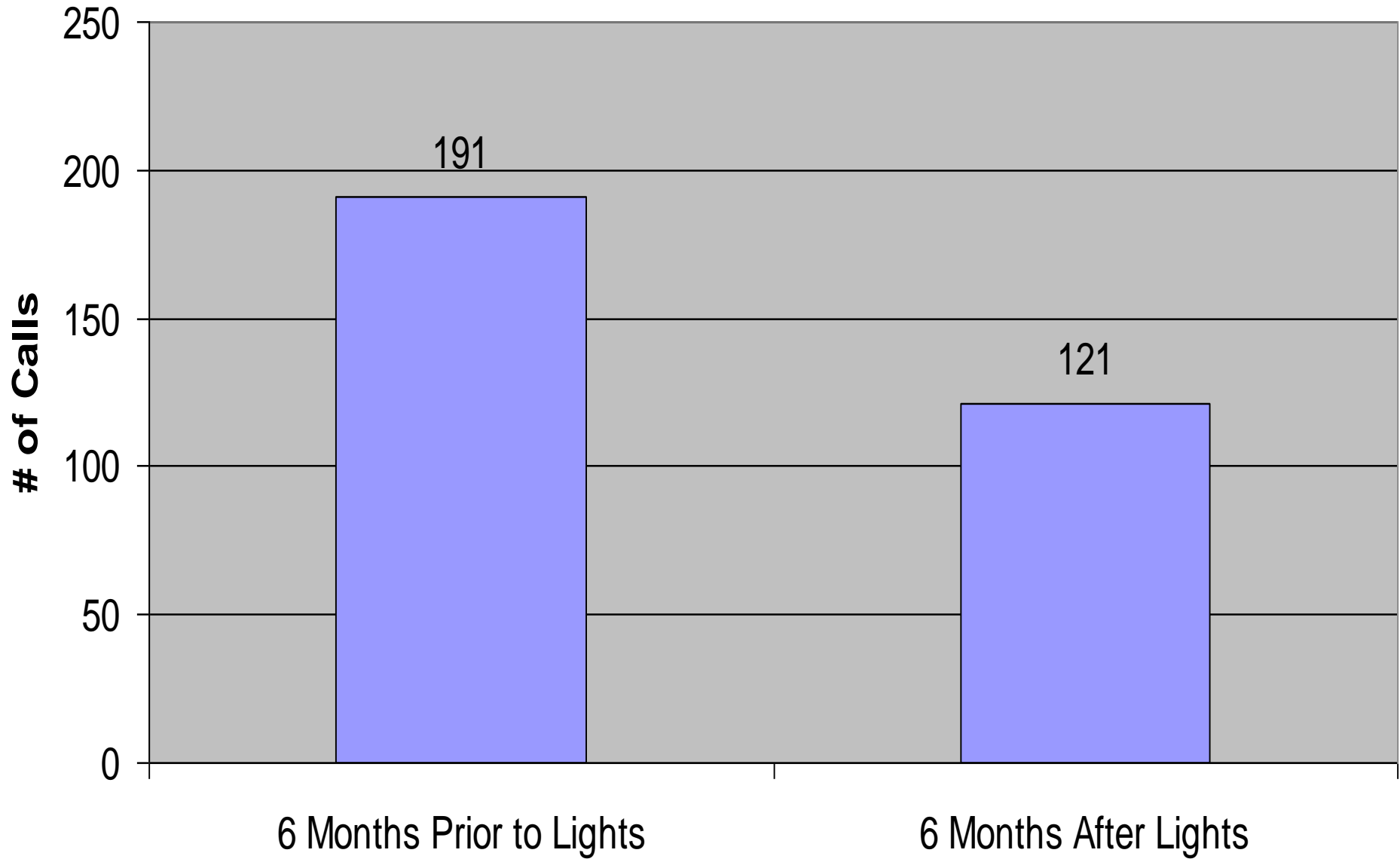
on night ride-alongs, recommending different types of lighting and pointing out SMUD utility poles that are well-positioned to help illuminate a dark area. For landlords and business owners, the increase on their electric bills is a small price to pay for a safer business climate.

SMUD also works closely with business partnerships on Florin Road and on Franklin Boulevard,

and assists the Sacramento Public Library in improving lighting and security at the library system's 28 branches.

Sometimes the simplest solutions are the best solutions. Since criminal activity thrives in the shadows, increased lighting reduces crime. SMUD's work with business partnerships and the Sacramento Public Library is making a positive difference in the community. ■

Stockton Blvd Shopping Center CFS





CALIFORNIA
LX38819















Broadway Triangle

- **City and SHRA install historic acorn lights**
- **Lights supplement existing Cobra head lights**
- **CFS reduced 16%**

Decreased Activities:

Loitering on corners

Prostitution activity

Vagrancy rate

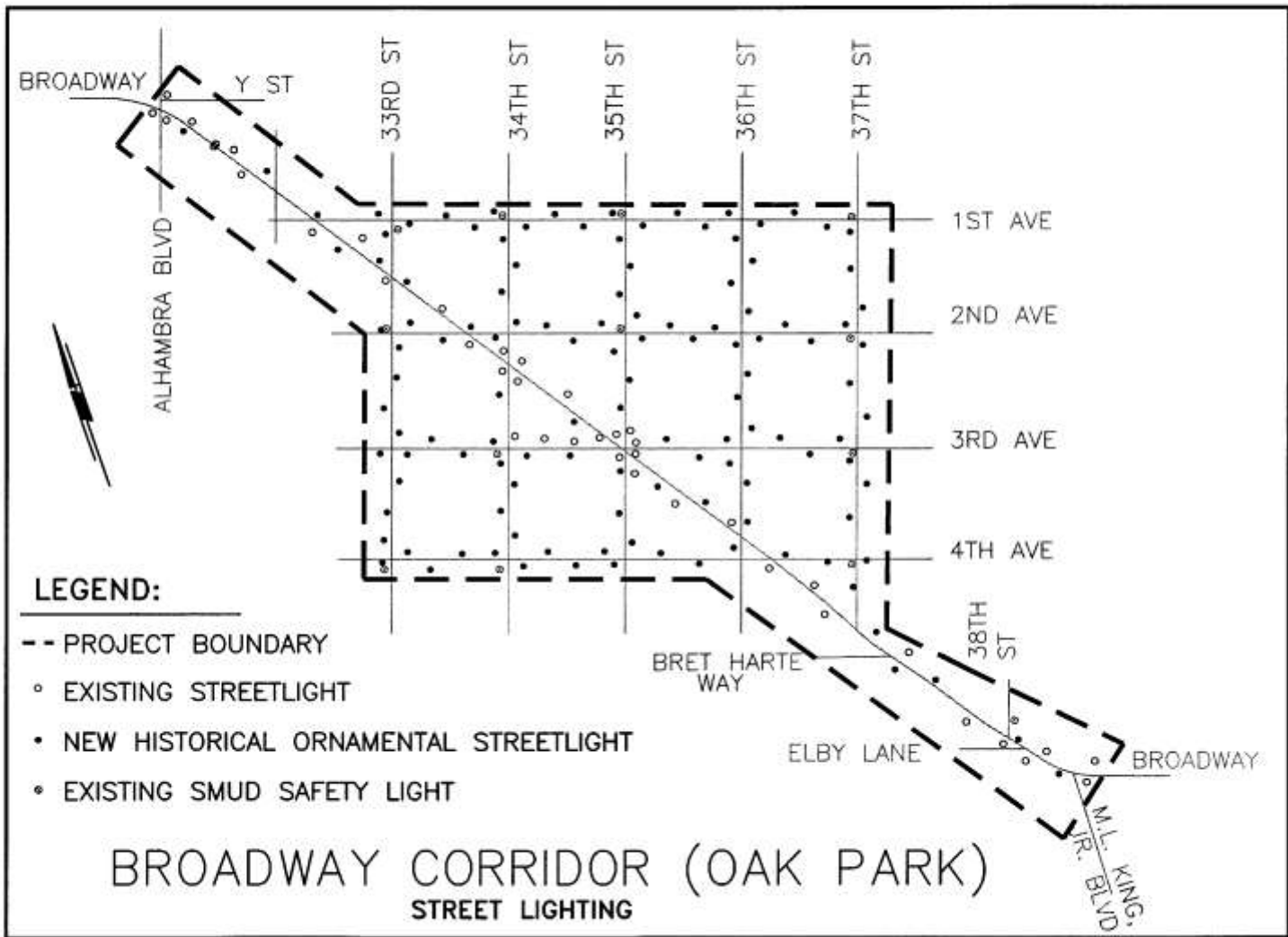
Lighting

Pre-Existing

- **40 Cobra Head street lights ALL located on Broadway**
- **13 SMUD safety lights around boundaries of triangle**

Added Lighting

- **120 Historical ornamental streetlights throughout the neighborhood side streets and Broadway**





OAK PARK "TURN ON THE LIGHTS" CELEBRATION!

DATE: July 21, 2003

7:00 p.m.

Neighborhood Get Together

(Enjoy friends, neighbors, and light refreshments)

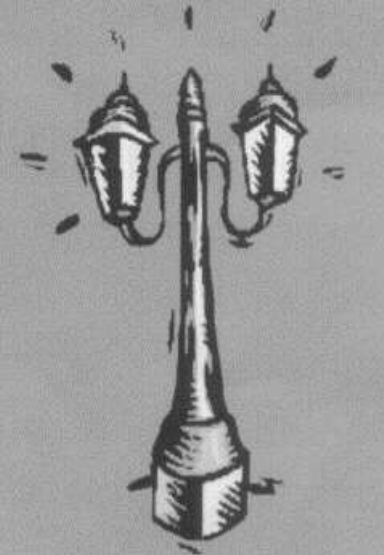
8:30 p.m.

"Turn on the Lights" Ceremony

The "Turn on the Lights" Ceremony will take place at 2708 37th Street (at the vacant lot between 2nd and 3rd Avenues on 37th Street).

Join your Councilmember and:

- ❖ Sacramento Housing & Redevelopment Agency
- ❖ City's Department of Public Works
- ❖ Oak Park Business Association

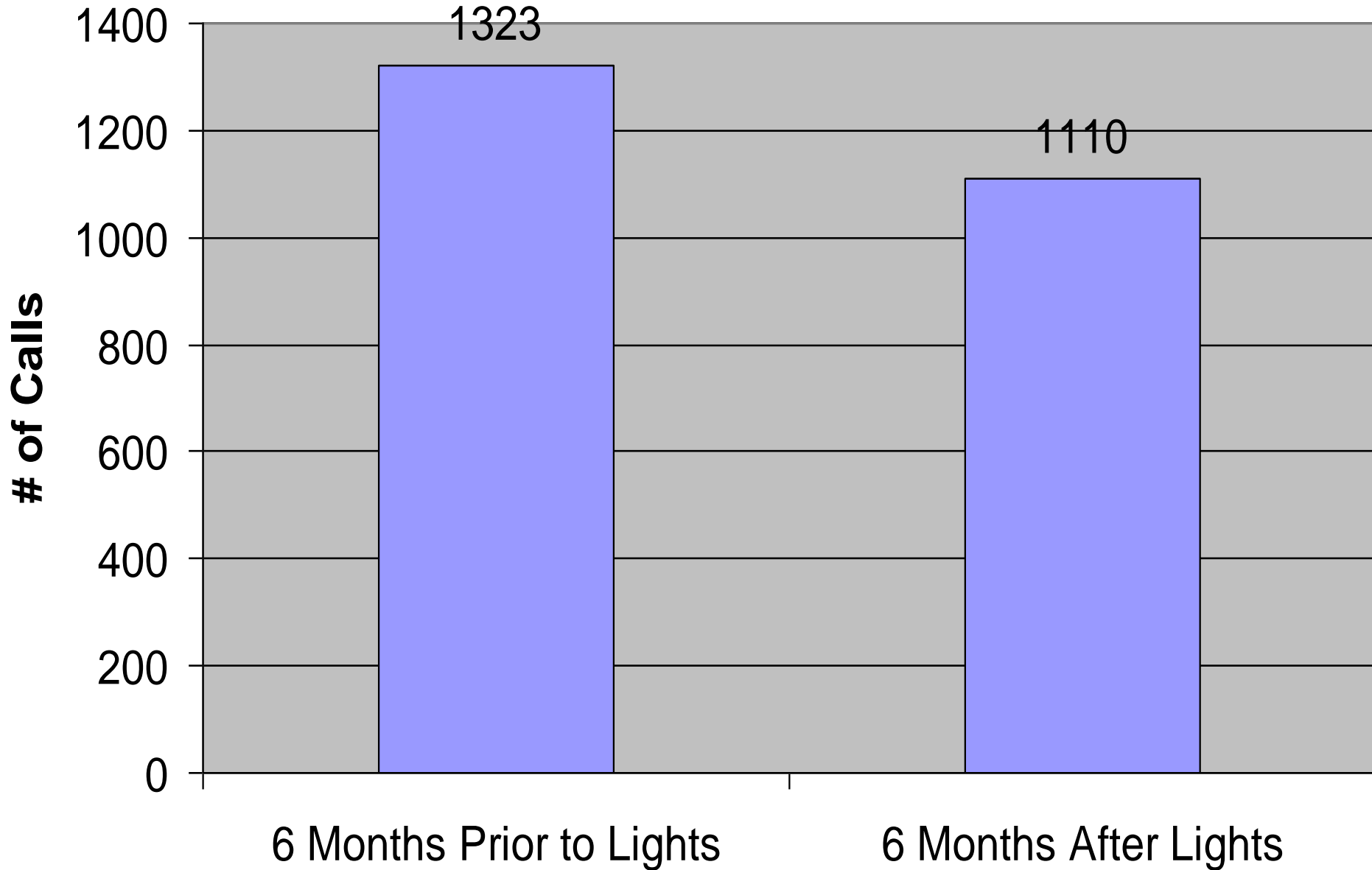


OAK PARK BUSINESS ASSOCIATION

Department of
PUBLICWORKS
CITY OF SACRAMENTO

Please RSVP to Chris Pahule with SHRA at 916/440-1399 extension 1442.

Broadway Triangle CFS

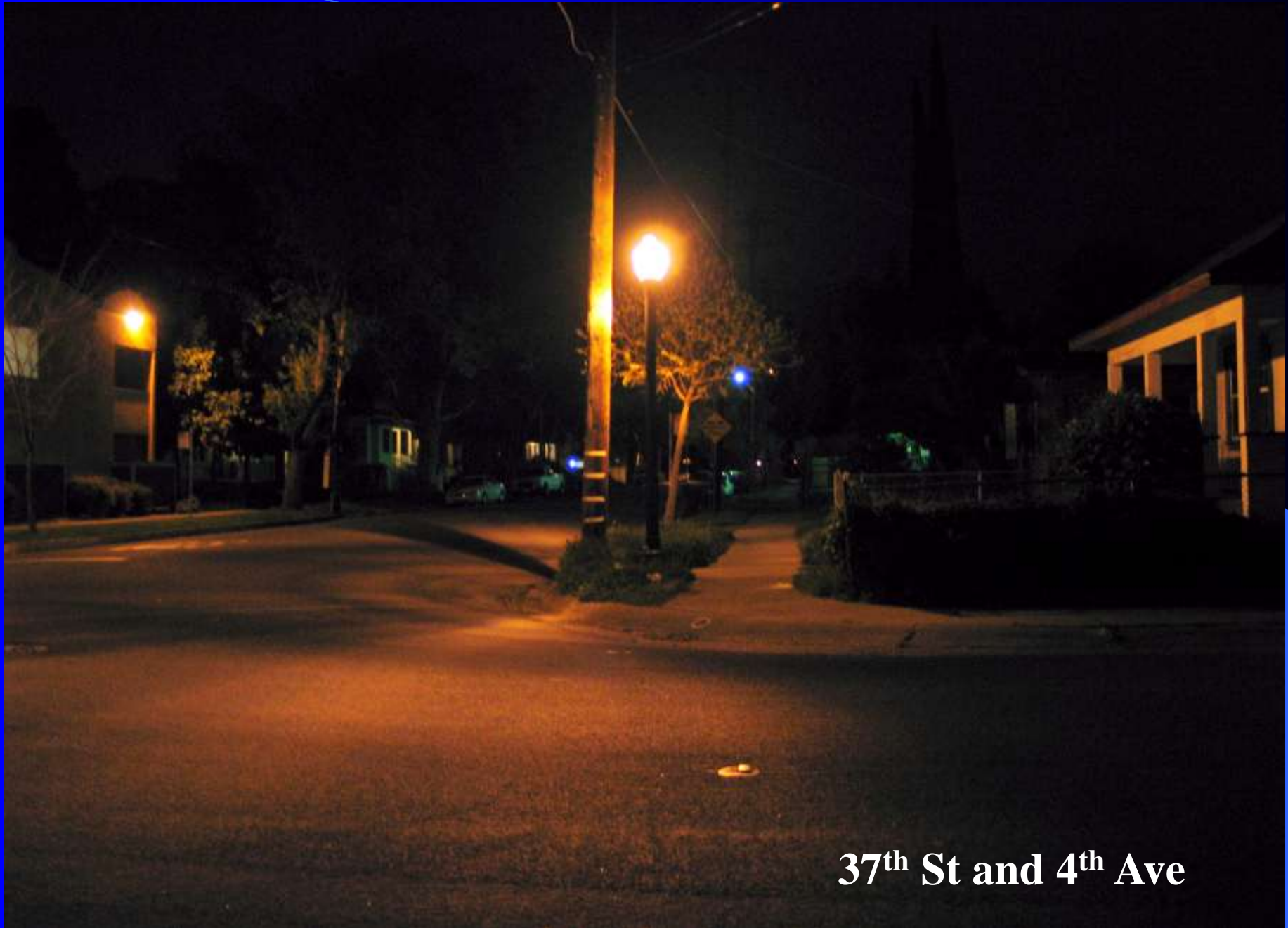








Broadway Corridor



37th St and 4th Ave

Martin Luther King Jr. Library

7340 24th Street

- **P.D. CPTEDs on all libraries**
- **SMUD lighting surveys on all libraries**
- **Libraries implement P.D. and SMUD suggestions**
- **CFS reduced 57%**

Decreased Activities:

Loitering

Vandalism

Vagrancy

Lighting

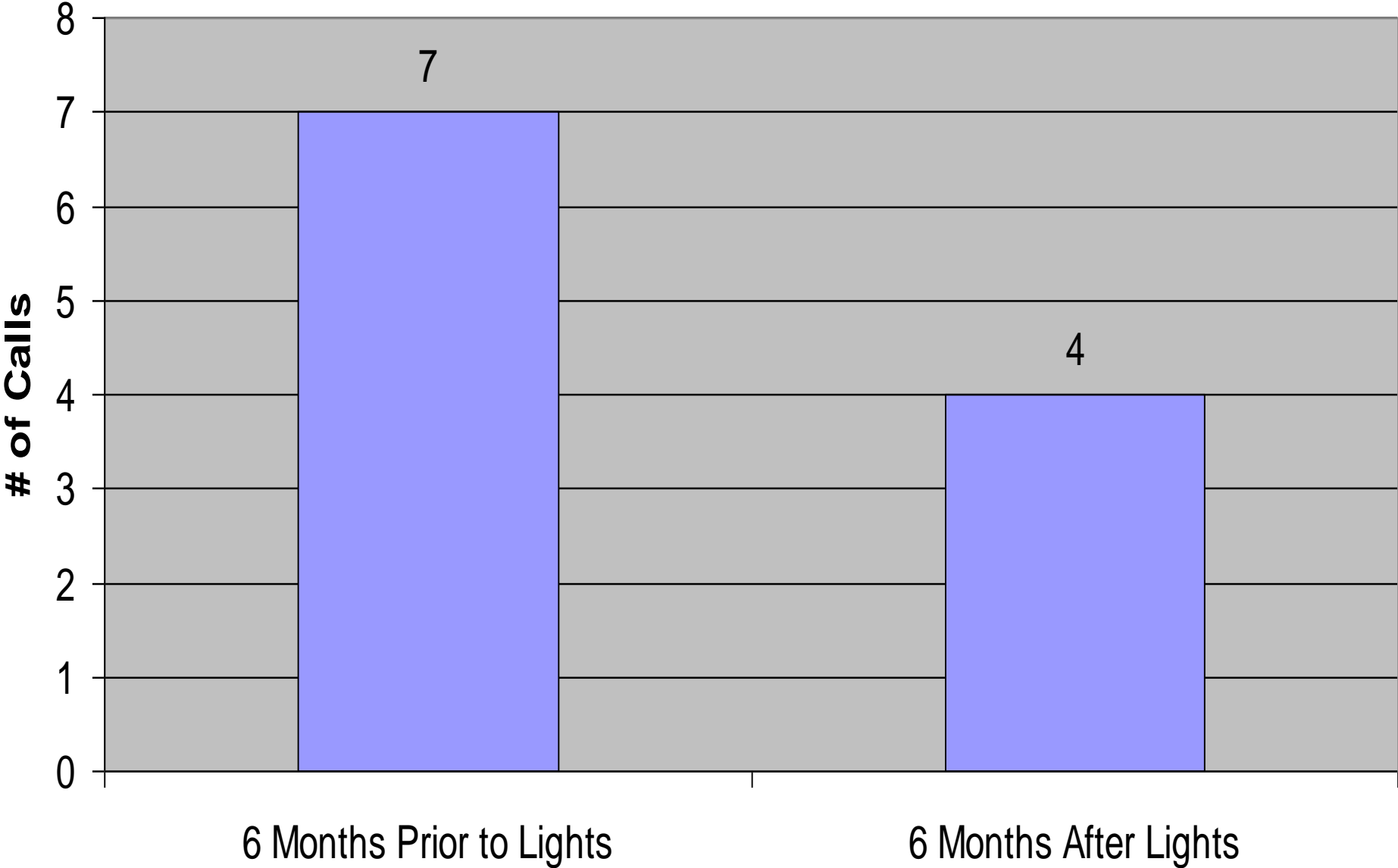
Pre-Existing

- Mast flood lights in parking lot
- Mast cutoff lights along north pathway
- Sign lighting

Added Lighting

- Increased wattage in pre-existing mast flood lights
- 10 canopy packs
- 3 wall packs

MLK Library CFS























Martin Luther King, Jr.

LIBRARY

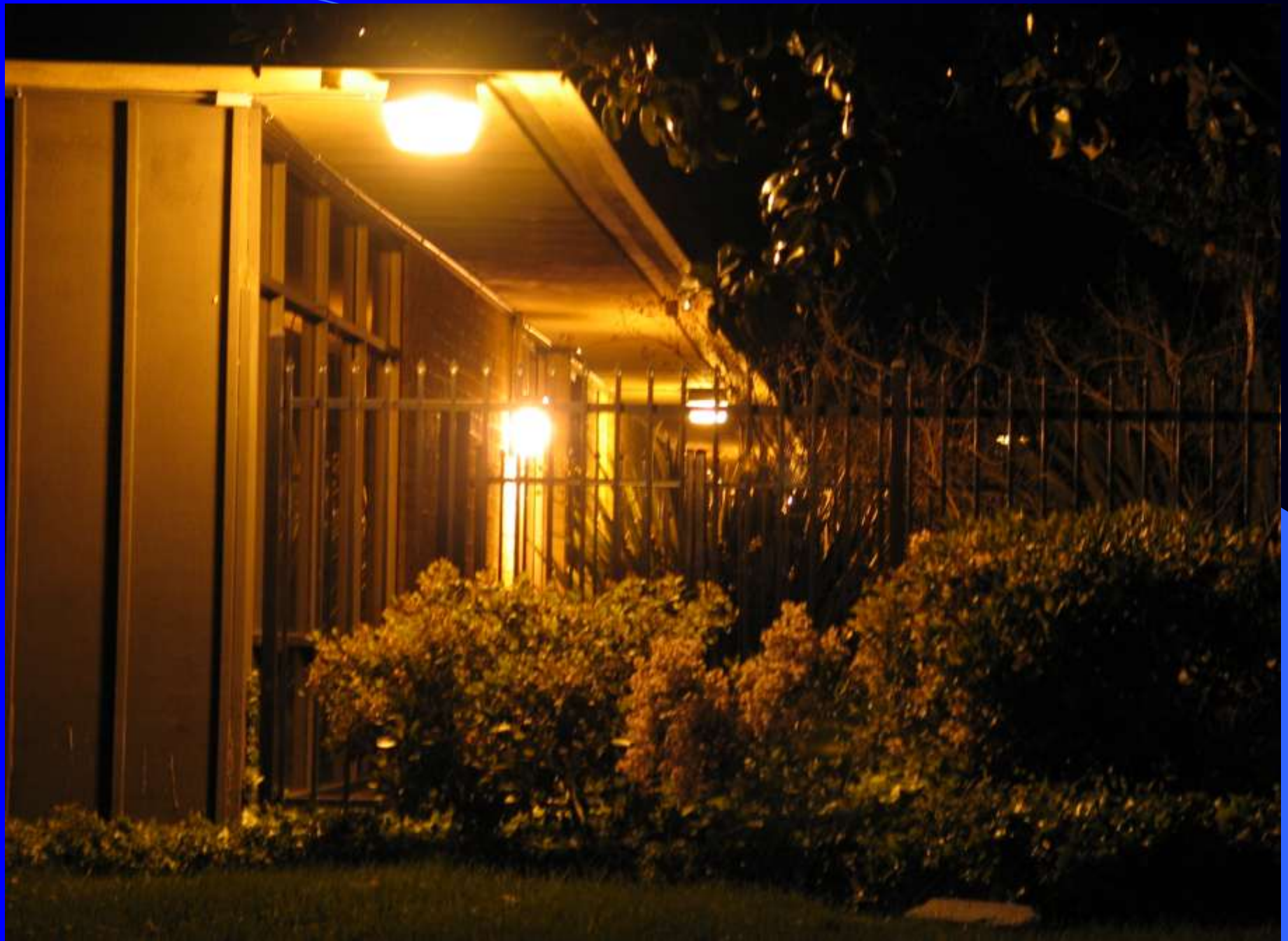
OPEN





HOURS	
MONDAY	12-8
TUESDAY	12-8
WEDNESDAY	10-8
THURSDAY	12-8
FRIDAY	1-5
SATURDAY	11-5







City of Sacramento
Neighborhood
Lights

Cobra Head



Retrofitted Cobra Head



Shielded Cobra Head



Fluorescent



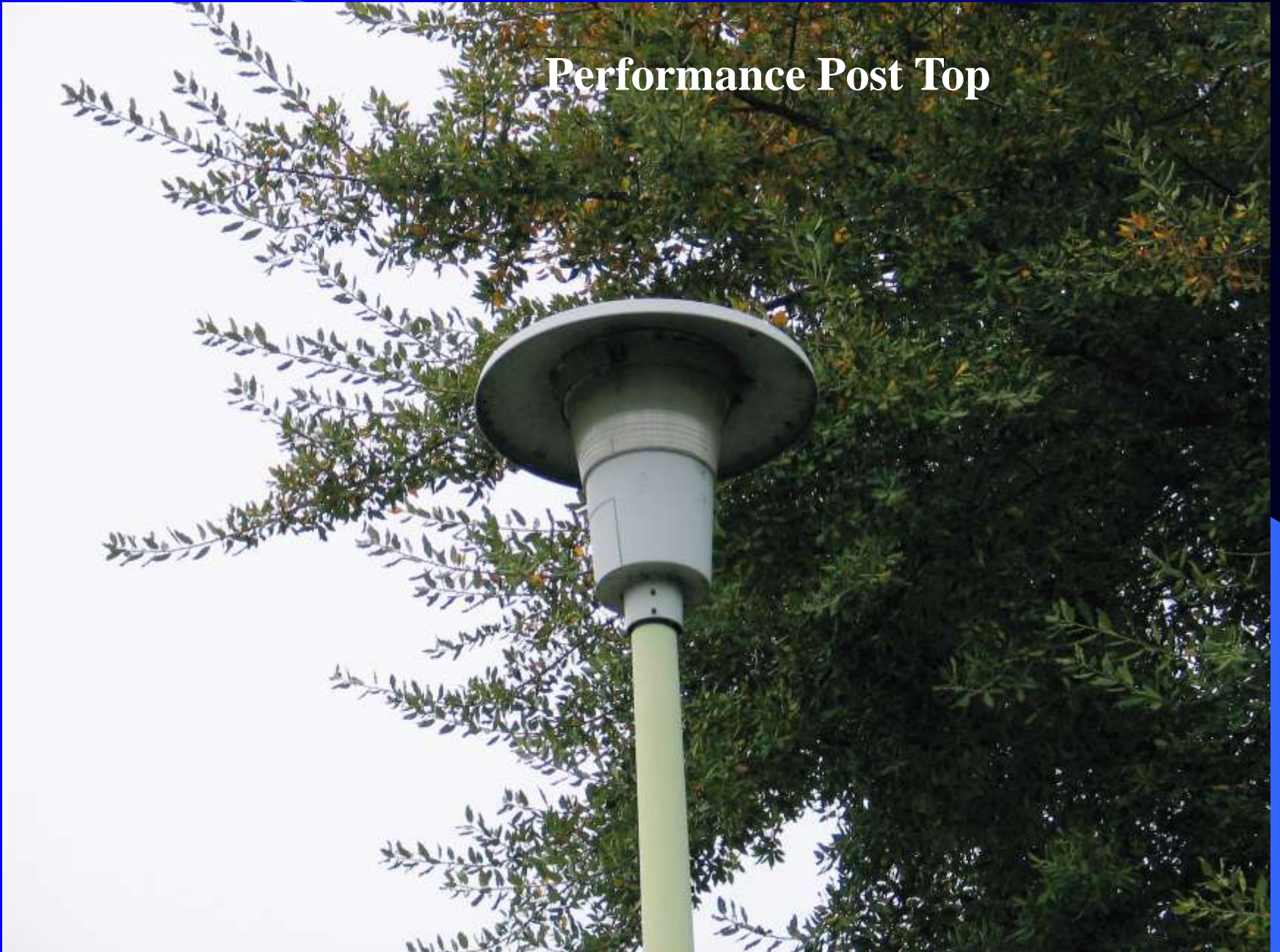
Yard Lamp in Oak Park



Performance Post Top



Performance Post Top



Performance Post Top



Refractor Basket



Refractor Basket



Decorative Post Top





Decorative Post Top



Metal Halide



High Pressure Sodium



Shielded Decorative Post Tops



Shielded Decorative Post Top





Double Cobra Heads - High Pressure Sodium



Double Cobra Heads – Mercury Vapor

Stockton Boulevard Lighting



Stockton Blvd and Lemon Hill



Stockton Blvd and Lemon Hill - Day



Stockton Blvd and Lemon Hill - Night



Wall Pack – Metal Halide



Wall Pack – Metal Halide



Roof Mounted Flood Light





Low Wattage High Pressure Sodium

GOLDSTAR
SUPERMARKET

金盛超級市場

冠 廷 餅 家
KOON KAT BAKERY

KIM NGOC

金 豐 雜 貨
KIM HONG











Bull Horn Mast Mount



Yard Lamp with Two Halogen Spot Lights





Yard Lamp – Mercury Vapor



Yard Lamp – Mercury Vapor





Miscellaneous Lighting





















PARKING
BY
E

WATERPARK
YOUTH
TELEPHONE
RESTROOMS