

IES | **SF** Education

2015 SPRING
SEMINARS

 Urban Land
Institute



Lighting & Urban Placemaking

Part 1- How Light Drives Urban Vitality



IES SF

Lighting & Urban Placemaking



Lighting California Cities

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A nighttime photograph of a city skyline, featuring a prominent, illuminated skyscraper with a sharp, pointed top. The city lights are visible in the foreground and background, creating a hazy, atmospheric scene. A large blue rectangular box is overlaid on the image, with the text "ENERGY CONSIDERATIONS" written in yellow, bold, sans-serif font at the bottom of the box.

ENERGY CONSIDERATIONS

Lighting Energy in California

Street Lighting

- No statewide energy standards
- Standards city-by-city, utility by utility sometimes exist

Building Lighting

- Title 24 Part 6 § 132,147
- Affects
 - Area lighting
 - Façade lighting
 - Entrance lighting
 - Special needs

Trends

- Community choice aggregation
- Community buy-back of street light assets from utilities
- CEC LED upgrade 1% interest for 15 years, up to \$3 million
- Street light incentives from IOU's and big muni's

A nighttime aerial view of a city, likely San Francisco, with the Transamerica Pyramid as the central focus. The city lights are visible, and the sky is dark with some light clouds. A large blue rectangular box is overlaid on the image, and a dark grey rectangular box is positioned at the bottom of the blue box, containing the text "HISTORIC CONSIDERATIONS" in yellow.

HISTORIC CONSIDERATIONS

Lighting pole history

Historic Poles and Luminaires

- Rare
- Not valid unless truly authentic
- Often supplemented with overhead lighting

Quasi-historic districts

- May have been started relatively recently
- Adds to the charm
- Suggests authenticity
- Beggars for continuation despite problems

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ENVIRONMENTAL CONSIDERATIONS

Lighting Zones

- LZ0 • Wilderness
- LZ1 • Rural + Parks
- LZ2 • Suburban + Neighborhoods
- LZ3 • Urban
- LZ4 • Limited areas of high light levels

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ECONOMIC INCENTIVES

Examples

- Los Angeles LED program (250,000 heads) saves \$7m per year in electricity and \$2.5m per year in maintenance
- Davis LED program (2,600 heads) saves \$1.5m over 15 years
- Both programs paid off in ~7 years

PG&E Examples

- Change to LS-2 Schedule (lower rates, based on actual energy)
- Rebate typically \$60 per head replaced

What Can Go Wrong

- Poor lighting quality
- Rush to a solution
- Uniformity, no differentiation, no sense of place
- No improvements, just replacements

A nighttime aerial view of a city, likely San Francisco, with the Transamerica Pyramid as the central focus. The city lights are visible against a dark sky. A large blue rectangular area is overlaid on the middle of the image, and a dark grey rectangular area is overlaid at the bottom, containing the text.

SMART CITIES?

Cost Effective, Useful or ?

- Ron Gibbons, FIES Director of the Center for Infrastructure Based Safety Systems at the Virginia Tech Transportation Institute (VTTI) says that at 200 per point, not enough energy will be saved to make adaptive lighting cost effective
- No IES practices or protocols for adaptive lighting
- Security of the IOT is poor and likely to stay that way (US DOD)

Good Uses of Adaptive Lighting

- Bright hours and dim hours, vary by day and season
- Change of spectrum
- Response to authority need

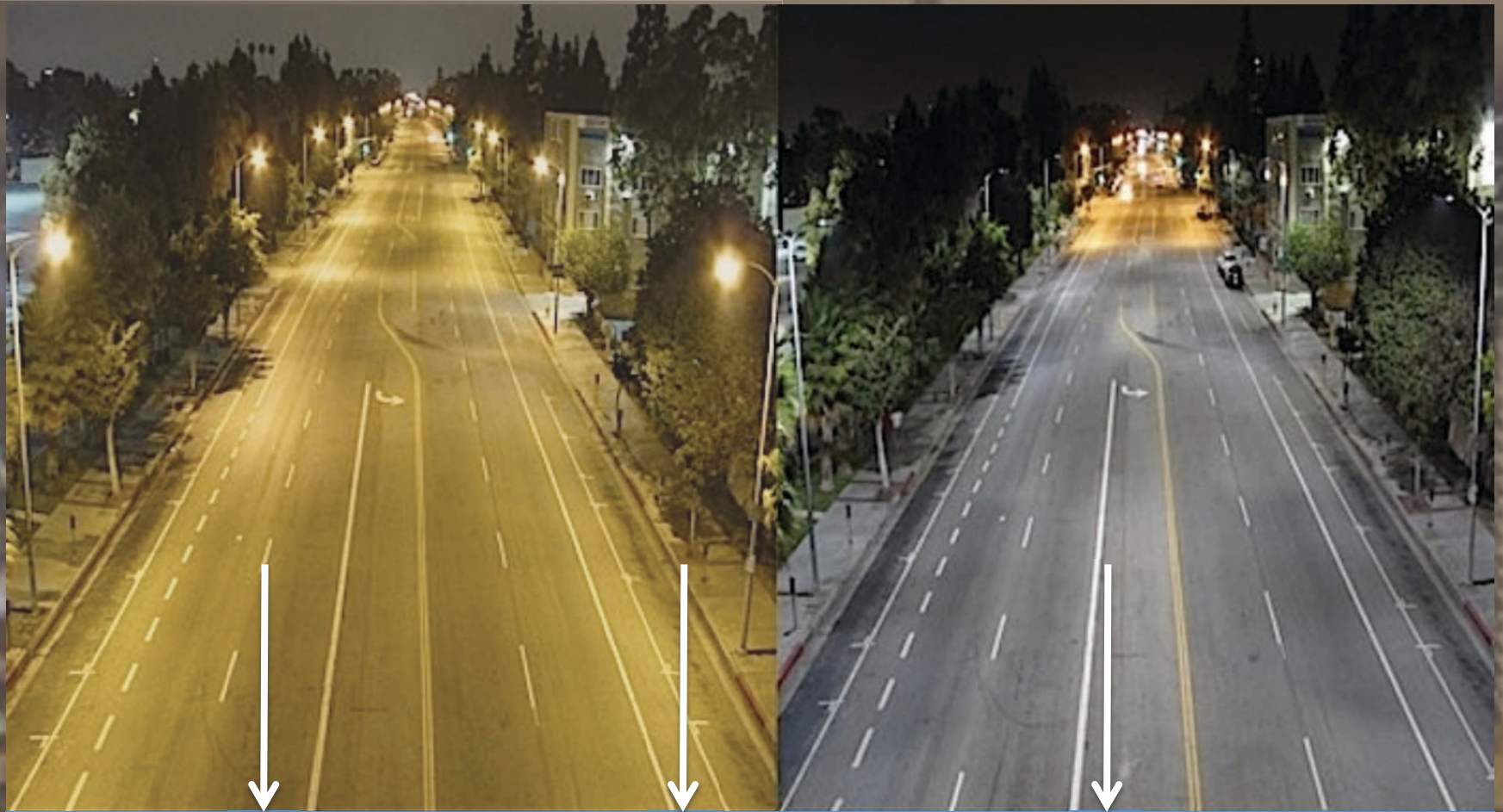
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THE MAKING OF PLACE

Basic Lighting Quality Outdoors

- Minimize glare
- Eliminate light trespass
- Get the color right
- Uniformity is boring and not completely necessary
- Buildings are part of the streetscape
 - Street level lighting and signs
 - Facades

Color: HPS vs. 4K LED or Induction



2100K

2700K

4000K

Street Lighting Quality

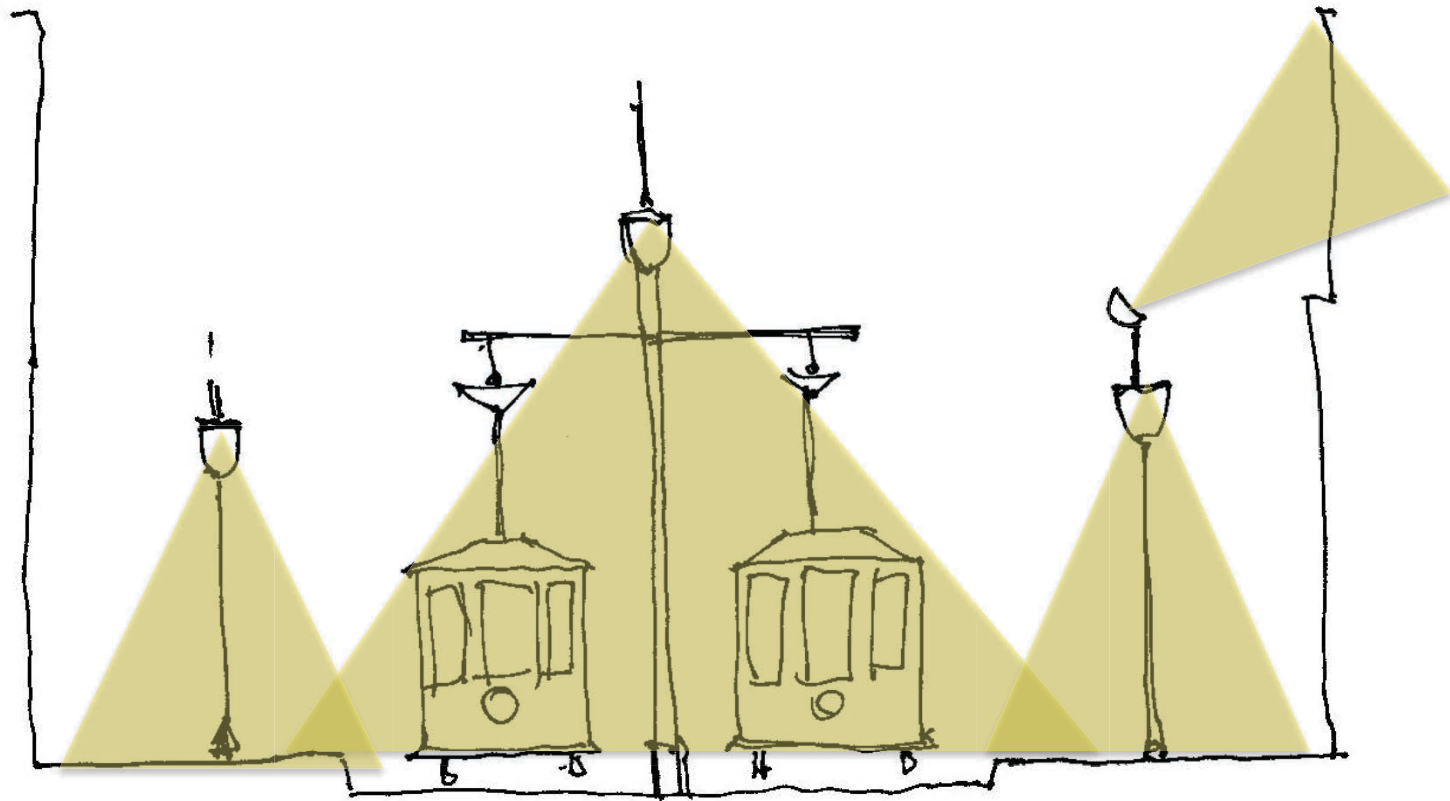
- Sidewalks are very important
- Intersections are important
- Middle of the street is not quite as important?



Creating Place Memphis Main St.



Section Through Main St.



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QUESTIONS?

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