

2011 OCT 27 PM 3: 22

TO: Office of the City Administrator  
ATTN: Deanna J. Santana  
FROM: Public Works Agency  
DATE: November 8, 2011

RE: **A Report And Possible Action Presented By The Public Works Agency In Coordination With The Oakland Police Department Evaluating The Lighting Levels In East And West Oakland Crime Hot Spots And Authorization To Increase Lighting In Those Areas Where Lighting Is Found To Be Lower Than The City's Lighting Standards And/Or Where The Police Department Deems Additional Lighting Is Warranted**

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## SUMMARY

This report evaluates 11 preliminary locations identified by the Oakland Police Department and community where increased lighting could benefit the community and help reduce crime. The report also presents Street Lighting Warrants currently used by the City and explains the City Administrator's authority to adjust these street lighting warrants where appropriate.

## FISCAL IMPACT

Implementation cost of the proposed lighting upgrades is estimated to be \$278,000. There are no resources identified in the current City budget to fund this project.

## BACKGROUND

At the Rules and Legislation Committee meeting of September 22, 2011, staff was requested to develop an informational report evaluating lighting levels in those locations identified by the Oakland Police Department as "Crime Hot Spots" and providing authorization, if necessary, to increase lighting levels at those locations.

## KEY ISSUES AND IMPACTS

Does Increasing Lighting Help Reduce Crime? "Lighting Up for Crime Prevention", an article prepared by the National Crime Prevention Council, suggests that lighting ought to play one or more crime prevention roles:

1. Surveillance – providing more lighting encourages additional foot traffic which increases surveillance;

2. Deterrence – more surveillance makes it riskier to prey on victims;
3. Detection – the possibility of being seen discourages crime;
4. Liability Reduction – providing more light provides a defense for City's from claims by crime victims; and
5. Fear reduction – more light overcomes human's natural fear of the dark.

The article also suggests that additional lighting is only part of a comprehensive approach to crime reduction.

Standards for Street Lighting. In 2002, the City of Oakland adopted "1999 Amended City of Oakland Street Lighting Warrants" designed to promote a level and quality of lighting that:

1. Supports safe operation of vehicles at night;
2. Enables pedestrians to identify persons and activities at a safe distance;
3. Deters unlawful activities;
4. Is consistent with practice throughout the country;
5. Is efficient and economical in operation; and
6. Is responsive to the diverse needs of the community.

The warrants provide different standards of illuminance for different roadway and area classifications. A separate warrant is provided for the brightness and uniformity of lighting to be provided to deter crime. A copy of the Street Lighting Warrants may be found in *Attachment A*.

These warrants were adopted by Council Resolution No. 77571, adopted on December 17, 2002, which authorizes "...the City Manager or his representative to enforce and implement the Outdoor Lighting Standards consistent with the Street Lighting Warrants;" see *Attachment B*.

Authority to Increase Lighting Levels. Council Resolution 77571 further provides that:

*"...the Public Works Agency-Electrical Services Division Manager shall be responsible for approving all outdoor lighting installations, consistent with the Outdoor Lighting Standards and the Street Lighting Warrants;"* and

*"...the City Manager or his representative may modify from time to time and as deemed necessary, the Outdoor Lighting Standards, consistent with the Street Lighting warrants;"*

This authority has been used by PWA in the past to increase lighting levels where requested by the Police Department.

Identifying Areas Where More Light Could Help Reduce Crime. Staff has evaluated ten locations submitted by OPD and one location identified by the community as potential candidates for lighting upgrades. Increasing lighting levels at these locations will result in the enhancement of 278 individual lights. The eleven locations indicated by OPD and the community as “crime hot spots” can be found listed in *Attachment C*.

Although these locations meet or exceed the current minimum lighting standards for residential areas, staff will establish new lighting levels based on the “crime” area classification of the 1999 Oakland Street Lighting Warrants. The new levels chosen will effectively quadruple available light output.

Furthermore, although eleven locations were chosen for this report, staff expect additional locations will be identified as part of a continuing crime reduction process.

Minimizing “Light Pollution”. In the recent past, people have expressed concern about “light pollution” – the concern that additional lighting around cities could create a permanent twilight, rather than dark nights. This is of particular concern in areas such as observatories, which depend on a dark sky for better views of the stars. Current City design practices acknowledge this problem by installing shields above street lights and other design practices. Brightening 278 of the City’s 36,000 lights is expected to have a negligible impact on light pollution.

Paying for Enhanced Lighting. There is no funding in the current City budget to upgrade 278 lights. Using existing staff to upgrade lights would reduce ability to respond to reports of burned out lights in other areas. Staff is currently faced with a new wave of people stealing wiring out of street lights, vandalizing lights, or destroying lights by gun fire.

Staff investigated potential funding from PG&E financed installations. Unfortunately, PG&E requires that annual energy savings from lighting improvements generate a payback within ten years. Since the proposal is to increase lighting, not decrease, a ten year payback is not achievable.

Staff also investigated a similar program from the California Energy Commission (CEC), which charges 3% interest. The payback option stipulates that energy savings must be greater than the amount financed and must also be paid over a specified period of time. Discussions with CEC are continuing.

In a recent action, the City Council specified that \$600,000 per year would be allocated to street lighting if Measure I passes in November. These funds, if they become available, could be used to fund these enhancements.

## **SUSTAINABLE OPPORTUNITIES**

**Economic:** It is generally perceived that lighting enhancement projects can revitalize commercial business districts, increase pedestrian traffic and potentially mitigate criminal activity.

**Environmental:** Lighting enhancements using low energy use technology would help reduce the carbon footprint of the City.

**Social Equity:** Lighting devices which provide a uniform and usable output will benefit all community members who patronize locations enhanced in this manner.

## **DISABILITY AND SENIOR CITIZEN ACCESS**

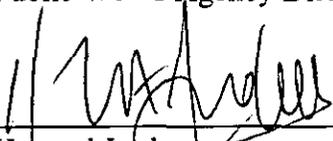
Enhanced lighting systems will provide better visual referencing and sight definition, allowing seniors and people with disabilities to move with increased confidence along walkways.

**RECOMMENDATIONS AND RATIONALE**

Staff recommends acceptance of this report and upon determination of funding, the implementation of the evaluated lighting enhancements.

Respectfully submitted,

  
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Vitaly B. Troyan, P.E.  
Public Works Agency Director

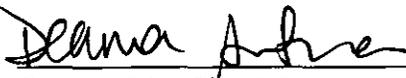
  
\_\_\_\_\_  
Howard Jordan  
Chief of Police

Reviewed by:  
David Ferguson, Assistant Director – Public Works Agency  
Daniel Clanton, Manager, Electrical Services Division –  
Public Works Agency  
Cynthia Perkins, Assistant to the Director, Oakland Police  
Department

Prepared by:  
Paul Chan, Engineer, Electrical Services Division – Public  
Works Agency

Attachment A: SLW-99  
Attachment B: Council Resolution #77571  
Attachment C: Crime Lighting Accounts

**APPROVED AND FORWARDED TO  
THE PUBLIC SAFETY COMMITTEE:**

  
\_\_\_\_\_  
Office of the City Administrator

Item: \_\_\_\_\_  
Public Safety Committee  
November 8, 2011

**1999 AMENDED**  
**CITY OF OAKLAND**  
**STREET LIGHTING WARRANTS**

**INTRODUCTIONS**

The primary purpose of urban street lighting is to produce safe and comfortable vision during the night on public streets and sidewalks.

The benefits of such lighting include reduction of accidents, facilitation of traffic flow, promotion of nighttime operation of businesses and industries, enhanced neighborhoods and/or increased personal safety and security of the public.

**OBJECTIVES**

The design objective for night illumination of Oakland's streets is to provide a level and quality of street lighting that:

- Promotes and supports safe operation of vehicles at night.
- Enables pedestrians to identify persons and activities at a safe distance.
- **Deters** unlawful activity.
- Is consistent with practice throughout the country.
- Is efficient and economical in operation.
- Is responsive to the diverse needs of the community.

**ILLUMINATION CRITERIA**

The illumination criteria for the City's street lighting system is expressed in accordance with the American National Standard Practice for Roadway Lighting, ANSI/IES RP-8, 1983. Using this acceptable methodology, general illumination and uniformity guidelines have been developed to meet the street lighting needs of the City of Oakland.

**CLASSIFICATIONS**

*ANSI/IES RP-8, 1983 Definitions*

Roadway Classifications

Major:

That part of the roadway system which services as the principal network for through-traffic flow. The routes connect areas of principal traffic generation and important highways entering the city.

Collector:

The distributor and collector roadways servicing traffic between major and local roadways. These are roadways used mainly for traffic movements within residential, commercial and industrial areas.

Local:

Roadways used primarily for direct access to residential, commercial, industrial or other abutting property. They do not include roadways carrying through-traffic. Long local roadways will generally be divided into short sections by collector roadway systems.

Industrial:

Serves to provide direct access and/or is adjacent to industrial property. Passes through areas zoned for commercial, manufacturing and transportation land use.

Transit Access:

Serves for pedestrian access to Bay Area Rapid Transit (BART) District stations/parking lots and Alameda County (AC) Transit stops.

Area Classifications

Downtown:

A central civic or business area that is densely developed and characterized by high volume of nighttime vehicular and pedestrian traffic and having high-rise buildings.

Commercial:

A business area of a municipality where ordinarily there are many pedestrians during night hours. This definition applies to densely developed business areas outside, as well as within the central part of a municipality. The area contains land use which attracts a relatively heavy volume of nighttime vehicular and/or pedestrian traffic on a frequent basis.

Intermediate:

Those areas of a municipality often characterized by moderately heavy nighttime pedestrian activity such as in blocks having libraries, community recreation centers, large apartment buildings or neighborhood retail stores.

Residential:

A residential development, or a mixture of residential and small commercial establishments, characterized by few pedestrians at night. This definition includes areas with single family homes, town houses, and/or small apartment buildings.

Residential Aesthetic:

Same as residential above but to further enhance the ambiance of a neighborhood.

Crime:

Designated by the Oakland Police Department to be areas where increased street lighting would have a significant impact on deterrence of street crime.

Ornamental:

Areas where decorative luminaries are chosen to enhance the ambiance and provide a more aesthetically pleasing appearance. This classification is a minimum level for the road class. If practical, the higher level set for the type of area (downtown, commercial, intermediate, and residential) is desired.

Note: City staff will determine the appropriate roadway classification for each street segment based on historical practice, area survey, and/or applicable zoning ordinances.

<b>CITY OF OAKLAND</b>					
<b>Street Lighting Guidelines</b>					
Roadway & Area Classification		MINIMUM STANDARDS		OPTIMUM STANDARDS	
		Illuminance (Footcandles)	Uniformity Ratio (Avg. to Min.)	Illuminance (Footcandles)	Uniformity Ratio (Avg. to Min.)
<b>Major</b>	Downtown	2.0	3:1	3.5	2:1
	Commercial	1.6	3:1	2.9	2:1
	Intermediate	1.2	3:1	2.0	3:1
	Residential Optimal (Cobra)	0.8	3:1	1.3	3:1
	Ornamental	0.44	4:1	0.44	4:1
	Ornamental glare reducing	.18	4:1	.18	4:1
	Residential Aesthetic (Cobra)	.35	23:1	.35	23:1
	Ornamental	.22	34:1	.22	34:1
	Ornamental glare reducing	.09	15:1	.09	15:1
<b>Collector</b>	Downtown	1.5	4:1	2.5	3:1
	Commercial	1.1	4:1	1.8	3:1
	Intermediate	0.8	4:1	1.3	3:1
	Residential Optimal (Cobra)	0.6	4:1	1.0	4:1
	Ornamental	.35	4:1	0.35	4:1
	Ornamental glare reducing	0.19	4:1	0.19	4:1
	Residential Aesthetic (Cobra)	0.30	50:1	0.30	50:1
	Ornamental	0.16	31:1	0.16	31:1
	Ornamental glare reducing	0.07	23:1	0.07	23:1
<b>Local</b>	Commercial	0.8	6:1	1.2	4:1
	Intermediate	0.7	6:1	1.1	4:1
	Residential Optimal (Cobra)	0.4	6:1	0.6	4:1
	Ornamental	.25	6:1	0.25	6:1
	Ornamental glare reducing	.15	6:1	0.15	6:1
	Residential Aesthetic (Cobra)	0.2	55:1	0.2	55:1
	Ornamental	.13	31:1	.13	31:1
	Ornamental glare reducing	0.08	23:1	0.08	23:1
<b>Crime</b>		1.5	4:1	1.5	4:1
<b>Industrial</b>		1.4	3:1	1.4	3:1
<b>Transit Access</b>		3.0	2:1	3.0	2:1

Note: All totally new street lighting systems should be designed to the optimum standard level. Where any street segment has a mixture of developments which would lead to a question of classification, the classification having the highest Illuminance Value and the lowest Uniformity Ratio shall prevail.

The Residential Aesthetic lighting level is a minimum level. This level generally allows a block to eliminate a maximum of every other light pole that would have been required in a street light design to meet the Residential Cobra or Ornamental area classifications. The block petitioners will need to determine exactly which light(s) they want not installed with the following exclusions:

1. Lights lighting intersections unless exempted by Public Works Agency Traffic Engineers, and
2. No two or more lights consecutively eliminated.
3. Bus stops.
4. Sharp curves.

#### APPLICATION OF CITY OF OAKLAND WARRANTS

The intent of the Street Lighting Warrants is to provide guidelines for levels of street lighting consistent with the national standards, while recognizing the unique needs of the City of Oakland and the diversity of its community.

The street lighting values expressed above are to be used as a general guideline in the design and maintenance of the City's street lighting system. The guidelines are intended to establish the level of street lighting for each roadway classification. The City may, however, exercise judgement and discretion with regard to specific street lighting applications to ensure that the needs of the community are met and to maximize the effectiveness of the street lighting system.

To request higher levels of lighting, the Oakland City Council authorizes City staff to accept petitions in accordance with the following process. On local residential streets citizens will be notified by mail that they will need to submit petitions requesting to increase existing street lighting level.

#### Individual Request

- A neighborhood representative must list all properties within the street block(s) by the street addresses and state specific lighting requested on the City petition form provided by the Electrical Division. The City of Oakland's Electrical Division will determine and provide the deadline date to return the petition. The petition can then be circulated by the neighborhood representative to residents for signatures.

- The City petition form must be signed by majority of the residents within a minimum of a block that abuts the street. A block is defined from street intersection to street intersection or a maximum of 800 feet in length. A petition has no maximum limit on the number of blocks or length. Petitions are only acceptable in areas where improvements are planned or the citizen(s) petitioning agree to pay for associated costs of lighting modification.
- The petitioners will then return the petition before the deadline to the Electrical Services Division for implementation. A petition will not be accepted after the deadline date if it impacts cost. Implementation will occur only if funding is available.

Area (Homeowner's Association) Request

- A homeowner's association may submit a request on behalf of its area rather than utilizing the individual petition process. Requests can be given directly to the Electrical Division.

EXCLUSION

When deemed appropriate, the City Council may exclude or modify by resolution certain streets, street segments or areas from the City's street lighting warrants.

DISCLAIMER

Nothing contained in these warrants is intended to establish or create a legal standard or duty toward the public. The warrants embody objectives toward which the City is committed to strive, and the City is not actionable for failures to provide street lighting to meet warrant levels or other objectives, whether by accident, power or equipment failure, act of God, or fiscal constraints.

FILED  
OFFICE OF THE CITY CLERK  
OAKLAND

OAKLAND CITY COUNCIL  
02 NOV 21 PM 3:00 RESOLUTION No. 77571 - C.M.S.



INTRODUCED BY COUNCILMEMBER \_\_\_\_\_

**RESOLUTION ESTABLISHING OUTDOOR LIGHTING STANDARDS FOR NEW LIGHTING FACILITIES AND ENERGY OR MAINTENANCE-RELATED RETROFIT WORK ON CITY PROPERTIES OR PUBLIC RIGHT OF WAYS, CONSISTENT WITH THE CITY'S STREET LIGHTING WARRANTS**

**WHEREAS**, the City continuously engages in work involving outdoor lighting and is regularly called upon to approve and accept outdoor lighting work conducted by private entities on City properties or public right of ways; and

**WHEREAS**, outdoor lighting consists of street lighting, pedestrian lighting, accent lights for trees, accent lighting of architectural features, pathway lighting, building exterior and security lighting, parking lot lighting and ornamental street lighting; and

**WHEREAS**, the City of Oakland Street Lighting Warrants, as amended in 1999, provide guidelines for the levels of street lighting for each roadway classification consistent with the national standards for safe and comfortable vision, while recognizing the unique needs of the City of Oakland and the diversity of its community; and

**WHEREAS**, the City of Oakland presently does not have guidelines for the appropriate levels of lighting for pedestrian lighting, accent lights for trees or architectural features, pathway lighting, building exterior and security lighting, parking lot lighting and ornamental street lighting; and

**WHEREAS**, the lack of outdoor lighting standards results in a significant amount of light from street lights to be reflected away from the street and causing glare; and

**WHEREAS**, the establishment of efficient and even lighting such as the use of luminaries will limit or reduce up-light and light pollution; the use of limited power Light Emitting Diode (LED) lights will limit or reduce contribution to glare; and

**WHEREAS**, the City Council of the City of Oakland finds that the establishment of Outdoor Lighting Standards will provide efficient and even lighting throughout the City of Oakland consistent with the Street Lighting Warrants; and

**WHEREAS**, the City Council of the City of Oakland finds that the Outdoor Lighting Standards, which establish guidelines to reduce glare and provide the even distribution of lighting, do not constitute a project as defined under The California Environmental Quality Act (CEQA), and therefore are exempt from CEQA under its general rules; now, therefore, be it

**RESOLVED:** That the Outdoor Lighting Standards for City work and private work conducted on City properties or City public right of ways are hereby adopted by the City of Oakland; and be it

**FURTHER RESOLVED:** That the City Council of the City of Oakland authorizes the City Manager or his representative to enforce and implement the Outdoor Lighting Standards consistent with the Street Lighting Warrants; and be it

**FURTHER RESOLVED:** That the Public Works Agency-Electrical Services Division Manager shall be responsible for approving all outdoor lighting installations, consistent with the Outdoor Lighting Standards and the Street Lighting Warrants; and be it

**FURTHER RESOLVED:** That the City Manager or his representative may modify from time to time and as deemed necessary, the Outdoor Lighting Standards, consistent with the Street Lighting Warrants; and be it

**FURTHER RESOLVED:** That the City Attorney has approved this resolution, and a copy is on file in the City Clerk's Office.

IN COUNCIL, OAKLAND, CALIFORNIA, DEC 17 2002, 20    

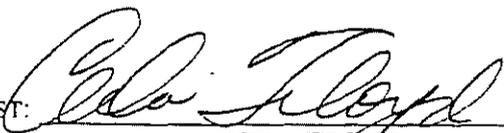
PASSED BY THE FOLLOWING VOTE:

AYES- BRUNNER, CHANG, MAYNE, NADEL, REID, SPEES, WAN AND  
PRESIDENT DE LA FUENTE -8

NOES- 0

ABSENT- 0

ABSTENTION- 0

ATTEST:   
CEDA FLOYD  
City Clerk and Clerk of the Council  
of the City of Oakland, California

Crime Street Lighting  
City of Oakland  
October 6, 2011

Attachment C

No.	Designated Area for the Implementation of Crime Street Lighting	Number of Residential Street Lights	Wattages of HPS Street Lights in the Designated Area	Cost for Replacing HPS Street Light with New LED Street Light	Total Cost
1	25th St to 26th St / Myrtle to MLK Jr Way	40	7, 10, 20	\$ 1,000	\$ 40,000
2	9th St to 11th St / Willow to Wood St	17	10, 15, 20	\$ 1,000	\$ 17,000
3	12th St to 14th St / Peralta to Campbell St	20	10, 15, 20	\$ 1,000	\$ 20,000
4	7th St to 10th St / Adeline St to Market St	38	20	\$ 1,000	\$ 38,000
5	31st St to 32nd St / Louise St to Union St	10	7, 10, 15	\$ 1,000	\$ 10,000
6	29th St to 30th St / West St to MLK	16	10, 15	\$ 1,000	\$ 16,000
7	8th St to 12th St / Chestnut St to Poplar St	78	7, 10, 15, 20, 31	\$ 1,000	\$ 78,000
8	51th St to 54th St / Dover Genoa	49	7, 10, 15, 20, 31	\$ 1,000	\$ 49,000
9	800-900 BLK of Isabella St / W. Grand to West St	10	10, 15, 25	\$ 1,000	\$ 10,000
10	59th St to 60th St on Marshall. 59th St to 60th St on Herzog (Tree Area)	0	7, 10, 15, 20	\$ 1,000	\$ -
11	E 31st St to E33rd St / Stuart to 14th Ave (Tree Area)	0	10, 15, 20, 25	\$ 1,000	\$ -
	<b>Total</b>	<b>278</b>			<b>\$ 278,000</b>
<b>Notes:</b>					
A. The above areas do not include arterial streets where the lighting exceeds the crime lighting level.					
B. The above areas do not include the two areas designated as TREE AREA where tree trims are necessary.					
C. Proposed lighting upgrade consists of replacing each existing HPS street light with a new GE LED street lighting on the same existing pole.					
D. All new GE LED street light will be of the same wattage so that TOGETHER they will meet the overall crime lighting level.					