



Memorandum

TO: TRANSPORTATION AND
ENVIRONMENT COMMITTEE

FROM: James R. Helmer

SUBJECT: Public Streetlighting Policy

DATE: October 6, 2008

Approved

Date

9/30/08

COUNCIL DISTRICT: City-Wide
SNI AREA: n/a

RECOMMENDATION

1. Review and provide input on the draft public streetlighting policy.
2. Direct staff to continue to coordinate the draft public streetlighting policy and receive input from key stakeholders, including representatives from University of California's Lick Observatory ("Lick Observatory"), the development community, solar, lighting and utility companies, and others.
3. Direct staff to return to the Transportation and Environment Committee ("Committee") by December 2008 with a proposed final draft public streetlighting policy for the Committee's consideration and possible recommendation to Council that Council rescind the current Streetlight Conversion Policy (Council Policy Number 4-2) and adopt the proposed policy in its place.
4. Direct staff to develop a workplan for adoption of a new Private Property Outdoor Lighting Policy, to be considered as part of the Planning, Building and Code Enforcement Department's 2009-10 budget proposals.

OUTCOME

Refinement of the draft public streetlighting policy and ultimately a recommendation by the Committee to Council to rescind Council Policy Number 4-2 and adopt the proposed policy would allow the City of San Jose ("City") to substantially reduce its operating and maintenance costs for public streetlights and pedestrian lights, help address the City's energy and hazardous waste reduction goals, and provide the means by which the City can strive to meet its Green Vision Goal, as identified in "San Jose's Green Vision," to "replace 100 percent of our streetlights with smart, zero emission lighting" by 2022.

BACKGROUND

At \$3.5 million per year and growing, the Department of Transportation's ("Department") streetlighting electrical bill is the Department's single largest non-capital operating expense, after

salaries and benefits. To help balance the City's budget, since 2003 the Department has had to offset its streetlighting utility bill by making deeper cuts to other Department services. The cumulative impact of these cuts, totaling more than \$3.5 million, has exacerbated one-time infrastructure repair needs and ongoing maintenance backlogs, such as tree and landscaping maintenance. That situation is likely to worsen given a projected three-year cumulative General Fund deficit in excess of \$100 million.

This fiscal year the City Council approved staff's recommendation to shut off 900 of the City's 61,000 streetlights. Lights were turned off in areas where there were abundant alternative sources of light, little vehicle or pedestrian traffic, and no economic activity. But this was only a partial and temporary budgetary solution to a large and growing problem.

The Pacific Gas and Electric Company ("PG&E") recently announced its electrical rates will increase this fall due to sharply elevated natural gas prices and lower than expected hydroelectric power. PG&E projects that rates will likely increase again in early 2009. Maintenance costs for City streetlights are also high due to the fact that the lights in use are relatively short lived (one to four years) and their photocell sensors (small, light-sensing components designed to turn the light on in relation to available sunlight) are not always reliable. The City also pays a premium for its most widely deployed streetlight, low-pressure sodium, because it is one of only a handful of cities in the nation that purchases the light. And, every year the City adds new streetlights to its inventory through capital improvements and private developments.

In an effort to develop a more effective, structural solution to reduce the City's cost for operating and maintaining public streetlights, the Department convened a technical lighting committee that met over a six month period beginning in late 2007. The committee included the Lick Observatory, lighting manufacturers and distributors, PG&E, and staff from the Redevelopment Agency, Environmental Services Department, and Public Works Department. Those discussions laid the foundation for the new public streetlight policy.

The City's current policy, which was adopted in 1980, stipulates the light sources that can be used in the City for street and pedestrian lights and where those must be used. For many years, those lighting sources were the best options available to the City. But lighting and communications technology have advanced significantly in recent years, offering the possibility to substantially reduce the City's energy consumption and maintenance costs, improve the quality and uniformity of the light shining on streets and sidewalks, and protect astronomical research.

To realize that potential, the City must change its streetlighting policy from one that is technology specific to one that is outcome based. Instead of specifying light sources, the proposed policy details the functional criteria streetlights should or must meet: energy efficient, long-lasting, dimmable, programmable, and constructed with low or no hazardous materials. By making this shift, the proposed policy seeks to drive the development of and permit the City's to use, new, more efficient, "smart" (remotely programmable and dimmable) lights. It will also allow the City to more easily incorporate advancements in lighting technology as they become available.

1980 Streetlight Conversion Policy:

Energy conservation, lighting quality, and protecting the night sky are the three primary concerns the City Council has long sought to balance in its public streetlighting policy. The 1980 Streetlight Conversion Policy switched all of San José's mercury vapor and incandescent streetlights to sodium vapor to decrease the City's energy consumption. Later amendments to the 1980 policy specified where low- and high-pressure sodium vapor lights, and eventually metal halide pedestrian lights, could be used.

Low-pressure sodium (LPS) is more energy efficient than high-pressure sodium (HPS), but it casts a yellow light with poor color rendition: it is difficult to distinguish the true color of objects under LPS. Critics of LPS say it is difficult to identify a parked car lit by LPS, distinguish between yellow or red curbs, or easily recognize a business logo. The business community and safety personnel favored HPS, which they felt created a more appealing nighttime environment for pedestrians and motorists. HPS emits a warm white light that renders colors more accurately. However, Lick Observatory on Mount Hamilton preferred LPS because it could more easily filter out the narrow range of wavelengths LPS casts into the sky improving astronomical viewing.

Initially the City converted lighting on signalized intersections and on minor arterials to HPS, except those within nine miles of Lick Observatory. In January 1982 the Council modified the City's policy and expanded the use of LPS throughout the City. The exception was in the downtown core. The City Council specified that HPS be used exclusively in the downtown core in deference to concerns expressed by the business community and public safety personnel.

As the City's downtown grew and the Arena was built, the demand for more HPS lights increased. The City's amendments to its 1980 Streetlight Conversion Policy over the following two decades (in 1982, 1989, 1996, 2003, and 2006) sought to balance the competing needs of Lick Observatory with those of the business community and neighborhoods. The City gradually expanded the areas where HPS were permitted but within tight confines. With the exception of the Greater Downtown, the majority of the City continues to be lit with LPS.

In 1991 the City adopted a resolution establishing lighting standards for all new public streetlights. Resolution No. 63396 referenced the "American Standard Practice for Roadway Lighting" issued by the Illuminating Engineering Society in 1964 that specifies design levels for the amount of light, or lumens per square foot, that streetlights should cast on different types of roadways. The design standard is used by City staff to determine the wattage and spacing of streetlights in new developments. The standard assumes the lights are lit at full power the entire evening. When the standard was drafted it was not technically possible to program streetlights to vary their lighting levels in response to motion or time of day. Global warming was also not a concern.

In 2007 the City made a more substantive change in course. It adopted the San José Green Vision, a comprehensive plan to reduce the carbon footprint of the City by more than half in 15 years. The "Green Mobility" portion of that plan includes the goal of replacing 100 percent of the City's streetlights with zero emission lighting (lights powered exclusively by renewable energy) in fifteen years. Adopting the new policy would be the City's first major step towards achieving its Green Vision goal.

To help realize the potential of the proposed policy, staff has been meeting with software and communications experts to facilitate the development of smart streetlights. The Department has also been testing these new smart lights as part of the City's Green Mobility Showcase demonstration project on Santa Clara Street. Those tests will expand next spring through a Community Development Block Grant streetlighting and enhancement project.

ANALYSIS

The proposed policy seeks to drive technology forward and allow the City to take advantage of those advances by specifying outcomes rather than technology. The policy also establishes a transition period for phasing out the City's current sodium-based and metal halide lighting; shifts the City from a un-metered PG&E rate (based on estimated usage) to a metered rate, enabling the City to accrue savings from its conservation efforts; establishes the principle that streetlights should cast only the amount of light necessary (dynamic lighting); and proposes an energy cap for new streetlights.

Dynamic Lighting

Greater flexibility is needed to allow the City to vary the amount of light cast by its street and pedestrian lights over the course of the evening to adequately but not over-light the city's streets and sidewalks. In establishing guidelines for determining how much light is adequate in a location, public safety will be a factor.

Energy Cap

To meet its budgetary and environmental goals, the City will not only need to significantly reduce the energy consumed by its existing lights but constrain increases posed by the installation of new streetlights. To accomplish these goals, staff is exploring with the Planning, Public Works and the City Attorney's Office the concept of imposing an energy cap on new streetlights as well as the feasibility of imposing this requirement on developers. Under the proposed policy, developers that install new street or pedestrian lights would need to select lights that conform to the new policy as well as offset the energy consumption of those new lights. That could be accomplished by a variety of means, including but not limited to:

- Requiring the developer to install a solar array on the public or adjoining private property that would generate an equal or greater amount of energy that the power consumed by the new lights; or
- Requiring the developer to pay an in lieu fee that would allow the City to replace existing street or pedestrian lights or to install a solar array elsewhere in the city to offset the power consumed by the new lights.

EVALUATION AND FOLLOW-UP

After obtaining input from the Transportation & Environment Committee and additional input from stakeholders, staff proposes to return to the Transportation & Environment Committee by December 2008 with a proposed final draft public streetlighting policy. Staff will recommend

that the Committee recommend to Council that the current policy (4-2) be rescinded and the proposed policy be adopted.

PUBLIC OUTREACH/INTEREST

Staff seeks direction to continue to seek input from key stakeholders, including members of the development community, Lick Observatory, PG&E, and solar and lighting companies before taking this issue to the full Council for consideration.

- Criterion 1:** Requires Council action on the use of public funds equal to \$1 million or greater. **(Required: Website Posting)**
- Criterion 2:** Adoption of a new or revised policy that may have implications for public health, safety, quality of life, or financial/economic vitality of the City. **(Required: E-mail and Website Posting)**
- Criterion 3:** Consideration of proposed changes to service delivery, programs, staffing that may have impacts to community services and have been identified by staff, Council or a Community group that requires special outreach. **(Required: E-mail, Website Posting, Community Meetings, Notice in appropriate newspapers)**

COORDINATION

Staff consulted with Public Works, Planning, Building and Code Enforcement, City Attorney's Office, Redevelopment Agency and the Community and Economic Development CSA in drafting the new streetlighting policy and this memorandum.

FISCAL/POLICY ALIGNMENT

The proposed policy is consistent with the City of San Jose's Structural Deficit Reduction efforts and San Jose's Green Vision and General Plan policies regarding sustainability. The policy would also reduce greenhouse gas emissions in California, consistent with the goals of AB 32, The California Global Warming Act of 2006.

CEQA

The adoption of the proposed policy is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) per Section 15308 of the CEQA guidelines.

CEQA: Exempt, File No. PP08-222


James R. Helmer
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