



City of Riverside

Street Lighting Program and Policy Update

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PURPOSE

The Street Lighting Program and Policy Update is an overall presentation of roadway lighting principles and practices for the City of Riverside. The purpose of this report is to:

1. Provide updated information on the status of the City's streetlight system, policies, and procedures;
2. Revise existing guidelines for the design, installation and maintenance of roadway lighting and outdoor lighting programs by Riverside Public Utilities (RPU);
3. Provide engineers, designers, and responsible public officials with the necessary information for fixed lighting of public streets consistent with the American National Standard Institute (ANSI) / Illuminating Engineering Society (IES) practice for roadway lighting;, and
4. Serve as a training aide for new engineers, designers, responsible public officials, and maintenance personnel as a reference guide to street lighting practices.

A background of street lighting is presented along with past and present street lighting practices, ANSI/IES recommended design guidelines, and updates to existing street lighting policies in the City of Riverside.

BACKGROUND

Streetlights were one of the first functions and benefits that resulted from the formation the city-owned electric department. Since the beginning, streetlights have added value to the quality of life of Riverside's residents and visitors.



Figure 1 - 1912 Riverside Ornamental Stone Co. produced the City's first concrete streetlight standards

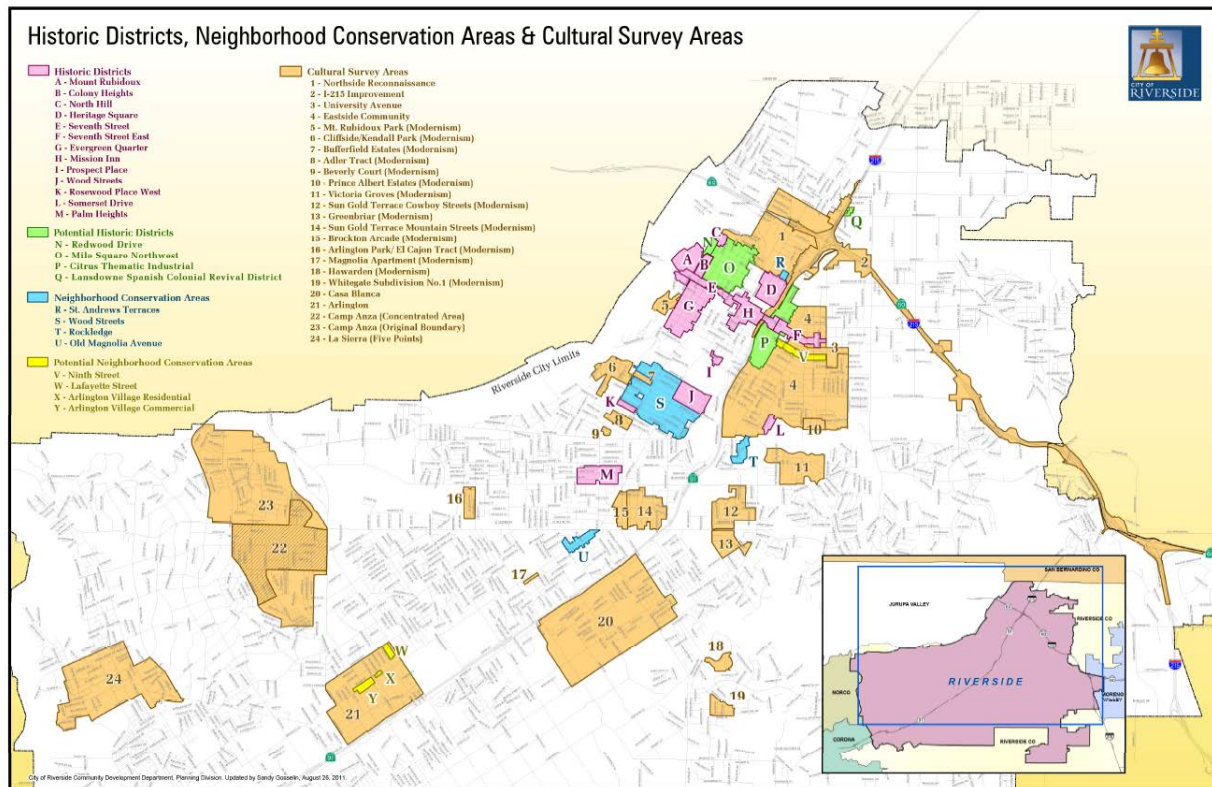


Figure 2 - Streetlights installed along Larchwood in 1915

The first large scale city financed project to provide for the mass installation and upgrading of the streetlight system began in 1968 with a \$6.5 million project to light the entire city with both incandescent and mercury vapor (MV) lamps.

In 1969, The City of Riverside created a Cultural Heritage Board (CHB) and adopted a preservation ordinance (Title 20 of the Municipal Code) in order to maintain the preservation of the historic communities within the City.

There are currently thirteen designated Historical Districts in the City of Riverside. In these areas, there are streetlights that have been in place for more than 100 years. They are deemed as a cultural resource and any replacement or upgrade needs to be reviewed and approved by the Cultural Heritage Board (CHB). When necessary, additional compliance may also be required with the following: City's Historical District, Secretary of the Interior Standards, Title 20, General Plan, California Energy Quality Act (CEQA), City policies, and other applicable regulations. For example, in March 2012, the Cultural Heritage Board approved the replacement of existing deteriorating concrete streetlight standards with a replica of the original concrete standard.



City of Riverside map showing Historic Districts

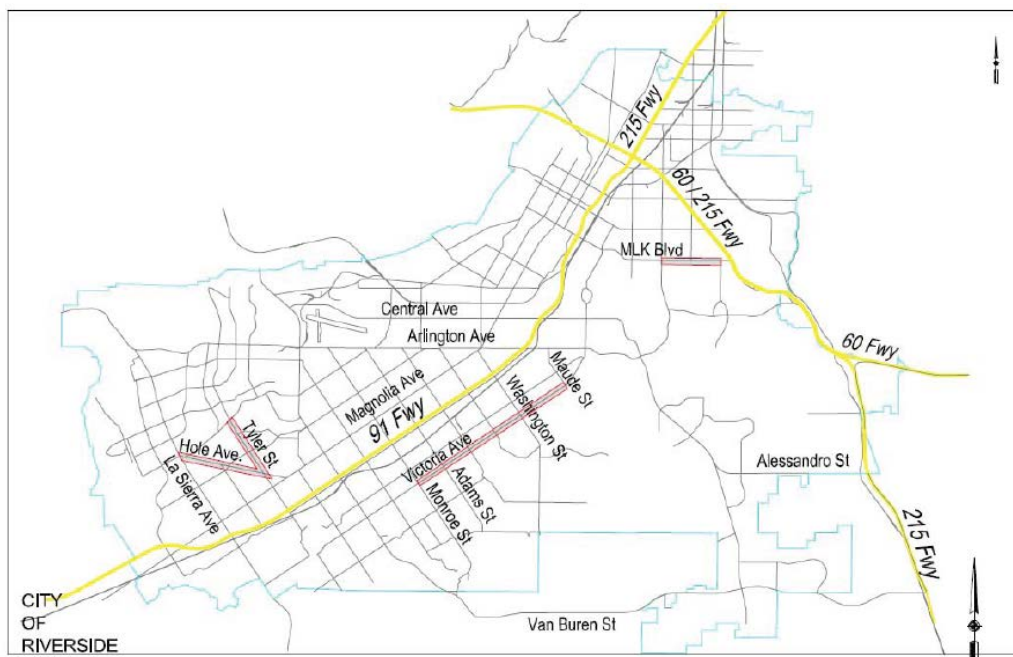
In 1975, due to the energy crisis, strong concerns about over lighting streets and energy conservation developed and by 1978, the city removed approximately 2,100 streetlights. By 1982, high-pressure sodium (HPS) lamps were developed and the city began to re-energize lights but converted them to HPS. HPS quickly became the street light lamp of choice across the nation.

Although streetlight functionality had traditionally been the responsibility of the Public Works Department, RPU agreed to perform much of the street light maintenance and operations. In March 1992, the Riverside City Council adopted Resolution No. 17953, formally establishing the City of Riverside Public Utilities (RPU) Department's responsibility for the installation, maintenance, and operation of the City's streetlight system. The City Council continues to retain overall responsibility for street lighting since it is considered a general city government responsibility. Like streets, traffic signals, and parks, the taxpayers pay for street lighting services. The Electric Fund recovers the cost for street lighting by charging the City a monthly fee based on established

street lighting rates. Currently, the City recovers approximately 85% of the cost associated with streetlights through the Streetlight Assessment District, with the remaining 15% paid by the General Fund.

On January 9, 1996, the City Council approved a comprehensive streetlight study. The purpose of the study was to establish street light policies and address lighting inadequacies throughout the city. As a result of that study, 9,600 Mercury Vapor lamps were converted to High Pressure Sodium (HPS), unlit portions of Lincoln Avenue received streetlights, and, obsolete lighting on the Wood Streets and Downtown area have been replaced with replica street light standards with new conduit and cable.

On January 19, 2010, the City Council received notification that the Energy Efficiency and Conservation Block Grant (EECBG) allocated \$2,850,600 for pre-approved City Council projects that follow the City's Green Action Plan to continue to commit to becoming a clean, green and sustainable community. As part of this plan, RPU received \$254,050 of the federal grant funds to retrofit approximately 200 streetlight luminaires with energy saving LED lights. The lights are located along Orange Street between State Route 60 and Reid Park; along Martin Luther King Boulevard between Chicago Avenue and Canyon Crest Drive; along Tyler Street between Wells Avenue and Hole Avenue; and along Hole Avenue between La Sierra Avenue and Tyler Street.



Streets converted to LED's with Grant

On June 8, 2010, the Board of Public Utilities approved the first fourteen new concrete streetlight standards with LED luminaires on Overlook Parkway. RPU installed 157 watt LED luminaires to replace the existing 200 watt high-pressure sodium luminaires. The LED luminaires provide a whiter, more true to color illumination on the roadway and surrounding parkways. Not only does the LED luminaire have an estimated 35% energy savings per lamp, but the LED fixture also has three times the life expectancy of a high-pressure sodium fixture.



Overlook Parkway HPS to LED conversion

On June 20, 2014, the Board approved an LED Street Light Pilot Project to support the City's sustainability efforts and to improve light quality in major shopping districts which included installation of 574 streetlights and 208 intersection safety lights. This project reduced energy consumption by replacing High Pressure Sodium (HPS) luminaires that have a yellow hue with LED luminaires that have whiter light quality which resulted in increased visibility.

On September 6, 2016, The City Council approved the development of a Citywide Streetlight Light Emitting Diode (LED) Conversion Program to convert approximately 30,000 streetlights operating within the City from HPS to LED. This multi-phase implementation of a citywide streetlight conversion program will provide better light quality and safety, improved energy efficiency, reduction of greenhouse gas emissions, and the project lay the infrastructure groundwork for future potential Smart City applications. Innovative use of project funding will capitalize on Riverside's progress for creating a sustainable community and will use a combination of Green House Gas (GHG) allowance proceeds and Public Benefit monies designated to support energy efficiency projects.

EXISTING STREET LIGHT FUNCTION

(Adopted by the Riverside City Council Resolution No.17953, March 17, 1992)

Engineering

The engineering function is the responsibility of RPU. This includes determining the proper lighting levels, installation locations, power source, cost estimates, work order preparation, maintenance and operation of the City's streetlight system. Engineering must adhere to the guidelines set by the Illuminating Engineering Society (IES), adopted by the City Council on January 26, 1982.

Traffic Engineering is responsible for supplying RPU with current information regarding the reflectivity of the street surface material and the appropriate street classification. This information is necessary for determining accurate lighting levels.

Public Works must supply RPU with all major street construction plans that involve the design of a new streetlight layout. This must be done in a timely manner in order to allow for fund allocation and Board of Public Utilities approval. Any project over \$50,000 must go through the Board of Public Utilities' approval prior to proceeding to City Council.

Operations

RPU is responsible for the installation, maintenance, repair, replacement, and relocation of streetlight poles, fixtures, bulbs, photocells, and related equipment. The work is done by RPU, however there are several exceptions to this:

- Developers are required to install the streetlights in the areas they are developing.
- Streetlight relocations for Public Works street widening/ improvement projects are typically part of the Public Works project.
- New installations on street improvements are funded by RPU. Public Works contractor are responsible to install any new fixtures required to light the street.

When tree trimming is required around street light luminaires, it is the general responsibility of the Public Works Department to maintain the tree lined streets.

RPU has two full-time employees that are responsible for routine streetlight maintenance. Utility line crews, on a work order basis, complete installations, major repairs, and relocations.

Rates

The installation of concrete streetlights is normally the responsibility of the developer or general government. Projects that require streetlights to be installed on already developed streets with existing curb and gutter such

as annexed areas or in areas of reverse frontage may not have any street lights and are much more expensive than projects where streetlights are installed as part of the initial construction. As a result, the City's General Fund reimburses RPU for the actual costs of new streetlight installations where existing development exists.

In cases where the City is improving a street, RPU will fund the cost for the street lighting system and reimbursed through the rate. The rates are designed to recover all costs for street lighting including materials, labor, maintenance, replacements, and energy. The rates were designed by RPU, recommended to the Board of Public Utilities, and approved by the City Council. RPU bills the General Fund through rates and the General Fund recovers a portion of those costs through the Streetlight Assessment District. The following schedules make up the current rates:

LS-1 rate - Applicable to street and highway lighting service where the Department installs and maintains the lighting equipment. (Appendix A)

LS-2 rate - Applicable to service for the lighting of streets, highways, and other public thoroughfares (including publicly owned and publicly operated parks and parking lots which are open to the general public) where the Customer installs the street lighting equipment.

- Energy and Maintenance - where customer installs City Standard lighting, which are maintained by RPU
- Energy Only - where the customer install and maintains the streetlights, RPU provides unmetered electric service based on estimated demand and energy use. (Appendix B)

Outdoor Lighting Program (OL) – the OL program allows residents to request a light to be installed and maintained by RPU on existing utility poles for a monthly fee. (Appendix C)

EXISTING STREET LIGHT PROGRAMS AND PROCEDURES REVIEW

(Approved by the Riverside City Council "Street Light Study" January 09, 1996)

REPLACE OBSOLETE ARTERIAL AND NON-ARTERIAL STREET LIGHTS

The existing streetlight system in the Downtown, Wood Streets, and the East Side has become obsolete and a constant maintenance concern. There are approximately 1,315 historical concrete streetlights that need to be replaced. The Cultural Heritage Board along with community participation approved a concrete replica replacement pole (see below). They areas were divided into five (5) phases. The first two (2) phases which included the Wood Streets, both sides of Magnolia Avenue, to Olivewood Avenue between Ramona Drive and Jurupa Avenue are complete. The third phase is scheduled to begin in 2019 and entire project is expected to be complete by 2024.



Approved replica standard and luminaire for the Downtown and Wood Streets replacement

Residents Request Additional Lighting

On occasion, City Council or members of the Board of Public Utilities will receive a streetlight installation request from residents who would like additional lighting in their area. Normally these requests would go through the City's 311 Call Center, which is then forwarded to RPU for review. Requests that come from City Council or Board of Public Utilities should go through the same process as the City's 311 Call Center. After RPU receives the request, it will then be reviewed to determine if the request is considered a major or minor upgrade. If it is a minor upgrade, it will go through the City's petition process. The petition process began in 1996 as a program that gives residents the ability to petition for minor lighting upgrades in their neighborhood. Requested lighting is limited to minor upgrades such as a mast arm on an existing utility pole. If RPU funds

are available, the City will take on the expense of the request. Major upgrades, which would include anything beyond a mast arm installation, would be at the homeowner's expense.

Alley Lighting

There are approximately 138 alleys within the city. These alleys represent 65 miles of unlit access ways. Residents and businesses interested in lighting a portion of their alleyway can participate in RPU's Outdoor Lighting Program. The Outdoor Lighting Program is set in place to allow residents to request a light on an existing utility pole, and maintained by RPU for a monthly fee. Many residents have taken advantage of this to light their alleyway or back yard. A common complaint from residents is light trespassing (or "spilling") onto their property when lights are installed in alleyways. These alleyways were not designed like normal streets and roadways. Many of the homes have bedrooms, patios, spas and other private use facilities that have not previously been lit. The narrow width of the alleyways makes it very difficult to install lights that do not invade the privacy of the nearby residents. Additionally, the narrow alleyways create a challenge for ingress and egress for operation and maintenance of these added facilities.



Light installed on existing wood pole through the Outdoor Lighting Program In alleys and backyard

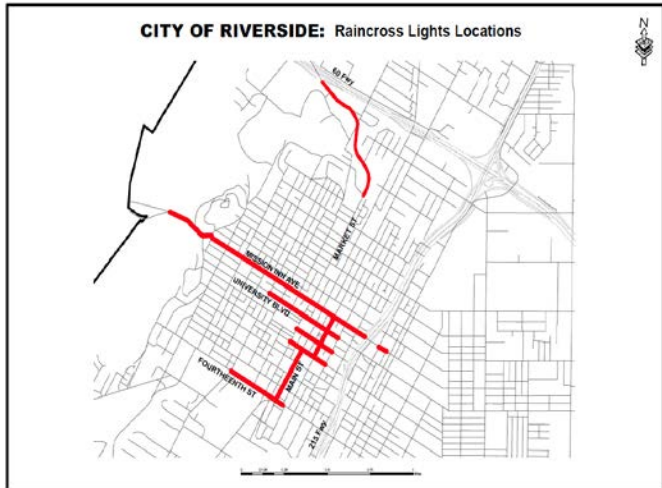
Police Requested Alley Lighting

If the Riverside Police Department (RPD) deems it necessary that there be a light installed in a high crime activity alleyway then they will need to contact RPU with a written request to install a light. The light will be on a six-foot mast arm designating it as a police requested light and billed to the general fund.

Raincross Streetlight Standards

As part of the Riverside Renaissance Program, in 2008, City Council approved 85 additional Raincross pedestrian lights to be added along University Avenue between Brockton Avenue and the Riverside Freeway; along 10th Street between Market and Orange; and along Orange Street between Mission Inn and 10th. These new installations provided additional lighting for pedestrian walkways along streets. The Raincross Streetlight installations are complete with no other installations planned. The installation of new Raincross standards that

are not replacing existing units must be part of a revised overall Raincross streetlight plan approved by the City Council.



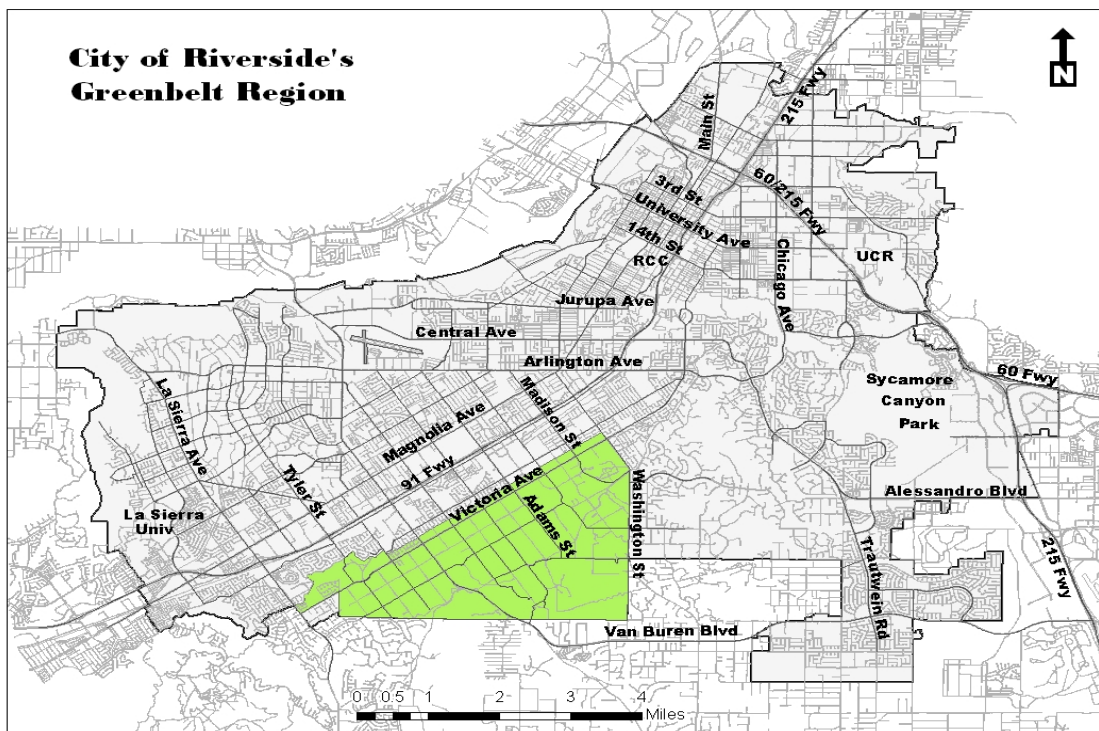
Completed Streets with Raincross Lights



Raincross lights along Mission Inn Blvd.

Greenbelt Area

The Greenbelt is a rural area that is mostly unlit, with lighting typically only at intersections. In 1996, the Council approved the decision to allow residents living in the Greenbelt to petition for minor additional lighting at their expense.



Landscape Lighting

There has been some interest in having RPU install facilities for future landscape lighting in medians to facilitate Holiday Lighting and Special Events. RPU recommends that this be a metered service to allow City Council to determine whether the General Fund, Special Event, or requesting party pays for electrical service.

No determination has been made as to the Department that installs and maintains the lighting infrastructure to provide this service.

Developer Streetlight Relocations and New Installations

Developer driven requests for streetlight relocations go through RPU's Customer Engineering Department. The Developer is required to fund the relocation and/or installation of all new lights. If there are less than five streetlights that need to be installed, the developer can opt to pay an in lieu fee (Electric Rule 15). The City will install lights after the surrounding area develops enough to make a street light installation practicable.

Public Works Street Improvement Projects (New Streetlights)

Public Works street improvement projects that include the placement of permanent curb and gutter where there are no existing streetlights will go through RPU for the engineering and funding of the new streetlights. RPU is reimbursed for the installation through the rates.

Public Works Street Improvement Projects (Existing Streetlights)

Public Works street improvement projects that involves widening an existing roadway where permanent concrete streetlight standards already exist goes through RPU for the design. The Public Works Department is responsible for paying to relocate existing concrete standards and facilities. In most cases where the street is widened there is not adequate existing lighting for the new width and new lights are required to be installed with the same kind of standards. Public Works Department has been responsible to pay all costs for relocations of existing concrete standards as well as any additional concrete standards that are required to maintain the correct lighting levels for the new roadway. These costs include, but are not limited to, the following items: concrete streetlight standards, conduit and cable, underpass lighting, pedestrian lighting, inspection, relocations of streetlight service boxes, the installation of new streetlight service boxes, risers, and transformer upgrades.

Energy Efficient Lighting: Light Emitting Diode (LED)

The concept of using LED lights has been a topic among utilities for years. LED lamps consume less energy and have a longer life span than most conventional streetlight lamps. Currently LEDs are required on new installations. The LED industry has successfully developed a suitable retrofit for our ornamental post top that the City will be using on the replacement concrete standards in the Historical Districts and Wood Streets. September 6, 2016 council approved the Citywide LED retrofit project to begin in 2018.



LED luminaires vary in style and wattage.

Macro Cell Site Antennas

Currently all macro cell site antenna's located in the public right-of-way are required to replace an existing streetlight with an antenna. It will be located in the same site as the streetlight being removed and shall include a mast arm for a City luminaire to be installed. The macro cell site is given a metered service but the feed for the street light is to remain separate and on the existing street light circuit. This is an acceptable installation but clearance must be provided from the cell site owner to meet all approved safety distances for RPU employees to provide maintenance to the street light luminaire.

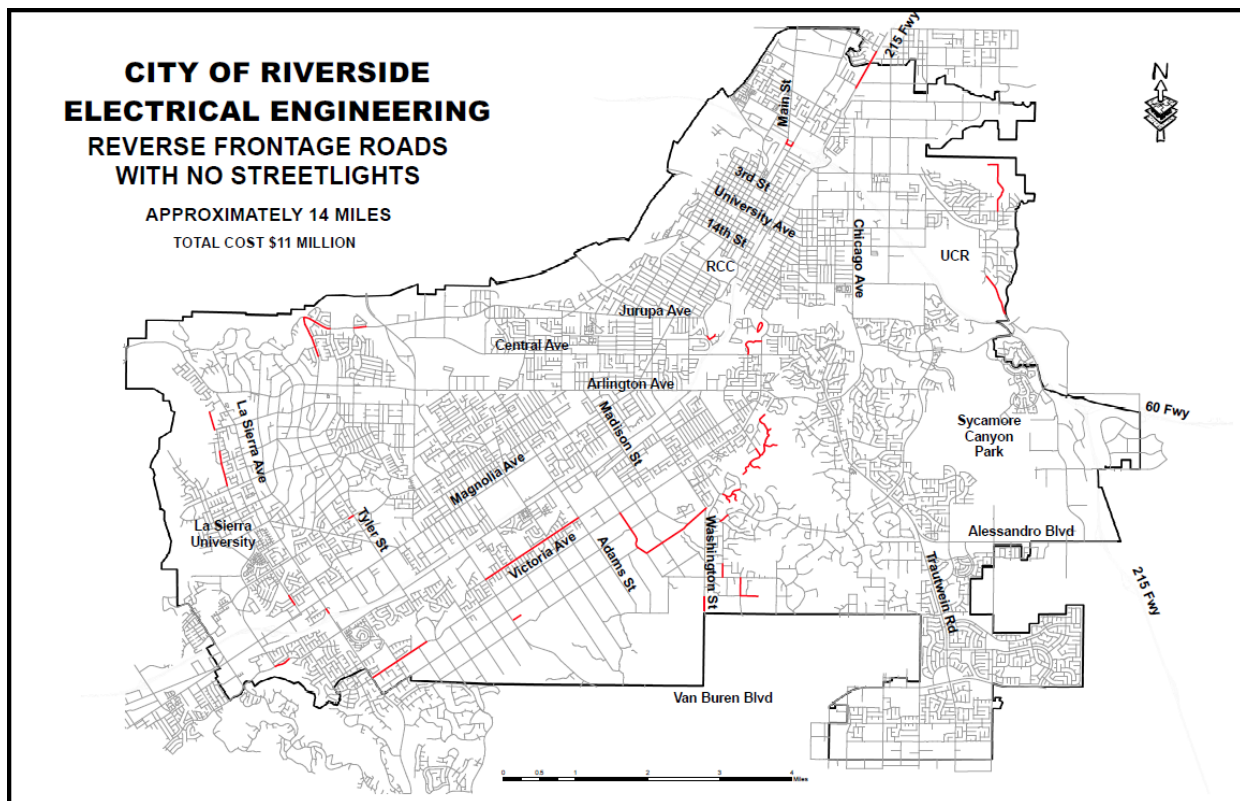


Monopole antenna with a streetlight attached

RECOMMENDATIONS TO THE EXISTING STREET LIGHTING PROGRAMS

Reverse Frontage

Before 1982, developers were not required to install streetlights on developments that included reverse frontage roads. A reverse frontage road is a residential development that backs up to an arterial roadway. Because the entrance to the tract is located on an interior street, streetlights were not installed on the arterial roadway. This left several arterial roadways within the City to have inadequate lighting which has caused safety concerns among the residents in these areas. One such area of concern is Lincoln Avenue between Adams Street and Van Buren Boulevard. On January 21, 2011, the Board of Public Utilities approved the capital expenditure of \$275,000 to install fourteen new concrete streetlight standards along the 1,260 feet of Lincoln Avenue where there was no streetlights. This project was completed September 2011. There are approximately 14 miles of arterial streets that do not have lights due to reverse frontage.



Streets (in red) without streetlights due to reverse frontage.

Expenditures for these types of streetlight installations are not funded through RPU. As a result, the City's General Fund reimburses RPU for the actual costs of new streetlight installations in reverse frontage areas or areas that do not have streetlights that meet City standards.



Lincoln Ave reverse frontage before and after street light installation.

City Council Policy Recommendation: *It is recommended that a defined program be put in place to pay for the installation of lights in areas that have insufficient or no lighting. A refunding mechanism should be a part of that program.*

Banners and Signs

There are designated approved areas in the city where banners can be attached to the streetlights. There are two types of banners allowed on City streetlight poles: Community or District Banners, and special event banners. The agreements specify size, hardware, location and procedures that are to be followed in order to have banner installed on streetlights.

Signs in general are not allowed to be installed on the streetlights without RPU approval. However, Public Works Traffic Department occasionally uses streetlights to band traffic related signs such as stop signs and no parking signs in lieu of installing additional poles.



Typical street light with banner attached.

City Council Policy Recommendation: *It is recommended That RPU reviews all proposed banners and signs as an addition to the Banner Procedure. All Traffic signs are limited to no more than one sign on a concrete pole. In the event of a street light removal or replacement, the responsible department shall relocate their facilities at their expense.*

Holiday Lighting

In the past, RPU received very few requests from districts within the City to install holiday lighting on the existing streetlights system. However, throughout the years, the amount of holiday decorations has steadily increased. Every year decorations are installed at the intersections of Van Buren Boulevard and Arlington Avenue, Van Buren Boulevard and Magnolia Avenue, and downtown on Mission Inn Avenue from Highway 91 to Fairmont Boulevard. There are plans to extend the holiday decorations on University Avenue as well. These decorations are installed by private contractors at the request of the Chamber of Commerce and several business partnerships within the city. The contractor is responsible for obtaining an encroachment permit through the City in order to hang decorations on the streetlights. Unfortunately, there are limited weight load allowances on the concrete standards. The requests would require some modifications to the existing street light standards resulting in additional costs to the requestor. RPU has funded several upgrades in order to keep up with the additional load demand from the holiday decorations. In 2005, RPU spent \$24,000 to install seventy-four receptacles, specifically for the holiday lighting along Van Buren Boulevard and Magnolia Avenue. In addition to the upgrades, RPU also had to supply numerous man-hours in order to fix the increased streetlight outages caused by the installation of these decorations. On several occasions, the streetlight crew has been asked to reinstall decorative lighting that have been blown down by wind in the downtown area during seasonal festivals. This results in normal system work to be on hold.



Street Light with Christmas decorations attached

City Council Policy Recommendation: *It is recommended that all contractors or community groups that wish to install holiday lighting follow the same procedure for the installation of banners and pay for all system upgrades needed to properly serve the installation. The assigned contractor shall be required to be available to maintain*

the installation during the term. If RPU is called to maintain the decorations, the contractor will be billed accordingly.

Special Requests from Departments

Other City Departments approached RPU throughout the year to attach festive lighting and/or other decorations on the streetlight luminaries for the duration of a particular event. The request was also to have RPU's streetlight crew assist in the installation of these decorations. Although these decorations are beneficial to the overall ambiance of the occasion, these decorations also pose a safety issue for the public walking or driving around the temporary installations. There have been several occasions where these decorations have been blown down into the street and the responsible party does not come back to reinstall; making it unsafe. Therefore, the liability and cost falls on RPU to be responsible to take on the costs to fix these decorations.

City Council Policy Recommendation: It is recommended that all requests for special event decorations initiated by other City Departments be installed and maintained by the requesting Department's contractor and follow the same procedure for the installation of banners and signs. If the request is to have RPU install and maintain the decorations, the requesting department will fund all the cost.

Speed Feed Back Signs (Unmetered)

Recently, RPU has received requests from other City Departments to attach "Speed Feedback Signs" to concrete streetlight standards. The signs are mounted at the motorist's line of sight and require an electric service. Because the "Speed Feedback Signs" do not generate enough electrical load to offset the cost of metering, unmetered billing service is required. The energy is drawn from the existing streetlight system by means of running a wire from the top of the standard to the sign. This would require the installation of a conduit on the standard. The standards are pre-stressed and drilling into them could damage the pre-stress cable. This would ruin the integrity of the pole. Typically the installation and maintenance of Dynamic Speed Feedback Signs strapped to street lights are conducted by the Public Works Department

City Council Policy Recommendation: It is recommended that the City encourage requesting departments to use solar installations mounted on their own poles.

Cameras (Unmetered)

RPU receives many requests each year from City departments such as Public Works Department, Riverside Police Department, and IT Department, to attach cameras to the concrete streetlight standards that monitor traffic at intersections or railroad crossings within the city limits. Because the cameras do not generate enough electrical load to offset the cost of metering, unmetered billing service is required. There has also been some interest from outside agencies wishing to attach to street light poles for other similar purposes



Street Lights with cameras attached

City Council Policy Recommendation: *It is recommended that unmetered camera installations shall be limited to City Departmental needs.*

Underpass Lighting

The City has undertaken many grade separation projects that require underpass lighting. The primary function of RPU is to provide and maintain adequate lighting on public roadways. In many instances, requests have come to RPU to provide additional lighting outside of the normal scope (such as wall murals and utility access roads).



Lighted Murels on University Ave. freeway underpass

City Council Policy Recommendation: *Any additional requests beyond RPU's primary function to light the roadways will be the responsibility of the requesting department to fund.*

Pedestrian Lighting

There are several areas of the City where there are higher volumes of pedestrian traffic. These areas include sections of Van Buren Boulevard, from Andrew Street to Garfield Street and University Avenue, from Ottawa Avenue to the 215 Freeway. Over the last few years these areas have undergone extensive street improvements. As part of the improvements, decorative concrete (Corsican style) standards with an acorn post top luminaire was added to provide additional lighting for pedestrians. These lights are installed by the Public Works Department but are maintained by the RPU.



Streetlights with Pedestrian Lighting along University Ave

City Council Policy Recommendation: *Future additions to the City's pedestrian lighting should be included in the City's General Plan and approved by the City Council. Funding for these installations will continue to come from developers or other City departments, with RPU continuing to maintain them.*

Light Pollution/Trespass (DARK SKY)

Light pollution and light trespass has become more of a concern for Riverside residents over the last few years. There are two types of light pollution: Light that intrudes on an otherwise natural or low-light setting and excessive light. The main concern from Riverside residents is unwanted excessive lighting that spills into their backyards and the glare of the light reflecting into the windows of their home. Currently RPU is working with a consultant to develop a Dark Sky Ordinance for the City.

City Council Policy Recommendation: *Review and Approve the upcoming RMC 19.556 Lighting. (This will be on the Council agenda on November 13, 2018).*

Wi-Fi Antennas

On October 17, 2006, the City Council approved a partnership with AT&T to provide free internet access to the City of Riverside residents. 1,348 Wi-Fi units were installed on the streetlight luminaires in various locations in

the City. The City Council approved a 5-year agreement with AT&T. Although these are no longer in existence, it started the Wi-Fi antennas installation on street light opportunity. Recently, several other utility companies wishing to install Wi-Fi antennas on poles in the city right-of-way have approached the City. To avoid a proliferation of poles in the right of way, colocation on existing utility poles and streetlights is encouraged. RPU along with other City Departments are in the process of completing a set of guidelines along with a Master License Agreement for other utilities to enter into with the City.



Figure 3- Wi-Fi antennas attached to street light



Figure 4- Streetlight with Wi-Fi antenna attached to top of pole

[City Council Policy Recommendation:](#) *The Guidelines and Master License Agreement under review and will be on the agenda for Council approval at a later date.*

EXISTING STREETLIGHT POLICY including PROPOSED ADDITIONS

(Adopted by the Riverside City Council Resolution No.17953, March 17, 1992)

The policies approved and adopted are as follows:

1. The City Council has overall responsibility for street lighting.
2. The lighting level design criteria for new street lighting systems will be the regulated level set by the Illuminating Engineering Society (IES). Any change in this guideline will require City Council approval.
3. RPU has functional responsibility for overall design of the lighting system including selection of lighting units, size, location, power source, and material standards.
4. Some areas of the City, such as the Greenbelt area, were designated to receive a lower level of lighting or were not included in the 1968 overall street lighting program intended to light nearly all the developed areas of the City. These areas, as well as other areas annexed into the City, shall remain at their present lighting levels, unless changes are approved through the following process:
 - a. New development will be required to upgrade to the accepted lighting standards at the developer's expense.
 - b. Area residents petition to upgrade the lighting level. Minor upgrades may be implemented if capital funds are available. System additions that involve installing new poles require City Council approval.
 - c. City Council approves street lighting projects associated with street improvements or other City needs or requirements. These projects will be funded by RPU and reimbursed through rates charged to the General Fund.
 - d. Area residents can petition for major upgrades at their expense. The petition leader would be responsible for gathering the funds and making payment for the cost. Contributions would be voluntary so those participating would also have to cover the share of the cost of those who do not participate.
5. The Public Works Department shall coordinate streetlight requirements for street improvement projects. Public Works Department shall also provide RPU with information regarding reflectivity of surface material and pertinent street classification information.
6. The Public Works Department shall have general responsibility for tree trimming around lights.

7. RPU shall be responsible for the operation and maintenance of the street lighting system.
8. Developers will fund new installations associated with development. In private street developments, developers shall have lighting levels approved by RPU. RPU's Capital Improvement Program will identify annual city street light capital expenditures.
9. Cost recovery for street lighting expenditures will be reimbursed to RPU from the General Fund or Streetlight Assessment District through rates.
10. Raincross lights in the downtown area will be handled as follows:
 - a. If it is desired to keep "original" Raincross lights in operation for historical purposes, RPU shall be responsible for operation and minor maintenance. The City's general fund will be responsible for the costs of major maintenance and repair.
 - b. The installation of the Raincross lights shall be limited to Mission Inn Avenue; on the south side between Market Street and Redwood Drive, University Avenue and Main Street. RPU will continue to operate and maintain all such units. The council approved this decision in December, 2007.
 - c. The installation of new Raincross standards that are not replacing existing units must be part of a revised overall Raincross streetlight plan approved by the City Council.
11. To avoid a proliferation of streetlight types and ensure functionality, new streetlight installations are restricted to the follow approved standards: Raincross, wood pole with mast arm, Marbelite, Post Top (aluminum steel and fiberglass), Corsican and steel standards with arms. RPU will determine the most suitable standard for any given application. The Corsican standard is available at an additional cost.
12. Decorative lighting and other systems that do not have the lighting of public streets as their primary function will not be part of the streetlight system and must be installed, owned, operated and maintained by the property owners or other responsible parties.

Proposed Additions

13. **RPU reviews all proposed banners and signs as an addition to the Banner Procedure. All Traffic signs are limited to no more than one sign on a concrete pole. In the event of a street**

light removal or replacement, the responsible department shall relocate their facilities at their expense.

14. All contractors or community groups that wish to install holiday lighting on Concrete Street lights follow the same procedure for the installation of banners and pay for all system upgrades needed to properly serve the installation. The assigned contractor shall be required to be available to maintain the installation during the term. If RPU is called to maintain the decorations, the contractor will be billed accordingly
15. Requests for special event decorations initiated by other City Departments be installed and maintained by the requesting Department's contractor and follow the same procedure for the installation of banners and signs. If the request is to have RPU install and maintain the decorations, the requesting department will fund all the cost.
16. Any additional requests beyond RPU's primary function to light the roadways will be the responsibility of the requesting department to fund.
17. Additions to the City's pedestrian lighting should be included in the City's General Plan and approved by the City Council. Funding for these installations will continue to come from developers or other City departments, with RPU continuing to maintain them.

APPENDIX

Appendix A

City of Riverside
Public Utilities Department

SCHEDULE LS-1

STREET LIGHTING SERVICE DEPARTMENT FINANCED

Applicability:

Applicable to street and highway lighting service where the Department installs and maintains the lighting equipment.

Territory:

City of Riverside

Rates:

<u>Incandescent Lamps</u>	<u>Per Lamp/Per Month</u>
1,000 Lumens.....	\$ 6.82
2,500 Lumens.....	\$10.12
4,000 Lumens.....	\$13.44
<u>Mercury Vapor Lamps</u>	
3,500 Lumens.....	\$10.77
7,000 Lumens.....	\$12.76
10,000 Lumens.....	\$15.68
<u>Sodium Vapor Lamps</u>	
5,800 Lumens.....	\$10.51
9,500 Lumens.....	\$11.85
16,000 Lumens.....	\$13.88
22,000 Lumens.....	\$15.75
25,000 Lumens.....	\$17.39
40,000 Lumens.....	\$21.84

Special Conditions:

1. Maintenance shall include periodic inspection, renewal of lamps, cleaning of glassware, replacement of damaged glassware and lamps, and minor repairs to wiring and electrical appurtenances.
2. Hours of Service: Under the Department's standard all night operating schedule, approximately 4,148 hours of service will be furnished.

Adopted by Board of Public Utilities: February 15, 2013
Approved by City Council: March 26, 2013
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Board Resolution No. 2013-1
Council Resolution No. 22513

Appendix B
LS-2 rate

City of Riverside
Public Utilities Department

SCHEDULE LS-2
STREET LIGHTING SERVICE
CUSTOMER FINANCED

Applicability:

Applicable to service for the lighting of streets, highways, and other public thoroughfares (including publicly owned and publicly operated parks and parking lots which are open to the general public) where the customer installs the street lighting equipment.

Territory:

City of Riverside

Rates:

	<u>Annual Charge Per Lamp</u>	
	<u>Energy and Maintenance</u>	<u>Energy Only</u>
<u>Incandescent Lamps</u>		
1,000 Lumens.....	\$ 54.19	\$ 42.52
2,500 Lumens.....	\$103.43	\$ 88.83
4,000 Lumens.....	\$156.13	\$135.72
6,000 Lumens.....	\$196.96	\$156.13
<u>Mercury Vapor Lamps</u>		
7,000 Lumens.....	\$115.88	\$ 95.46
10,000 Lumens.....	\$155.00	\$131.66
20,000 Lumens.....	\$237.29	\$209.59
35,000 Lumens.....	\$399.38	\$361.49
55,000 Lumens.....	\$559.21	\$508.17
<u>Sodium Vapor Lamps</u>		
5,800 Lumens.....	\$ 53.50	\$ 40.37
9,500 Lumens.....	\$ 78.32	\$ 63.74
16,000 Lumens.....	\$108.61	\$ 92.56
22,000 Lumens.....	\$135.28	\$119.23
25,000 Lumens.....	\$161.30	\$143.81
40,000 Lumens.....	\$244.36	\$219.57

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Appendix C
SCHEDULE OL

City of Riverside
Public Utilities Department

SCHEDULE OL

OUTDOOR LIGHTING

Applicability:

Applicable to outdoor lighting where the Department installs, owns and maintains the lighting equipment.

Territory:

City of Riverside

Rates:

	<u>Each Per Month</u>
7,000 Lumen Mercury Vapor Regular Luminaire	\$10.33
20,000 Lumen Mercury Vapor Regular Luminaire	\$18.25
9,500 Lumen Sodium Vapor Regular Luminaire	\$10.39
16,000 Lumen Sodium Vapor Regular Luminaire	\$14.55

Special Conditions:

1. Equipment Furnished:

The Department will, at its own cost, install, operate and maintain its standard overhead outdoor lighting equipment. Facilities will consist of a luminaire with a photoelectric switch control and a support, mounted on a existing Department pole at which 120-volt service is available. All facilities will be owned and maintained by the Department.

2. Energy:

The Department will supply the energy which is included in the monthly rate above.

3. Maintenance:

The Department will replace burned-out lamps and otherwise maintain the luminaire during regular daytime working hours as soon as practicable following notification by customer.

4. Hours of Service:

Burning hours will be from dusk until dawn aggregating approximately 4,148 hours per year. Credit will not be allowed for lamp outages.

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