



*Arts & Innovation*

# City-wide LED Street Light Conversion Program

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Board of Public Utilities

July 25, 2016

# Project Description – Utility 2.0



Multi-phase implementation of city-wide street light conversion program to LED streetlights that will honor historic integrity of neighborhood street light aesthetics while enhancing quality of life in Riverside

# Old Vs. New



Old High Pressure Sodium  
Fixture  
(HPS)



New Light Emitting Diode  
Fixture  
(LED)

# Project Benefits – Light Quality

Replacing High Pressure Sodium Lighting (yellow) with LED lighting (white)



# Project Benefits – Efficiency/Savings

- 20 year life vs. 7 years with current lights
- 9.9 years average payback
- Annual energy savings of 10,251,000 kWh (equivalent to 1,398 homes)
- Annual savings
  - \$922,000 energy
  - \$360,000 maintenance



# Project Benefits – Greenhouse Gas Reduction

## Greenhouse Gas Reduction:

- Annual GHG reduction of 3,249 tons of CO<sub>2</sub> upon completion
- Equivalent to 691 cars off the road



# Project Benefits – “Smart Capable”

## Smart City Capabilities:

- LED luminaires are a Smart system “Network” allowing for low cost, high-tech applications to improve city services



**Air monitor.  
Sound detector.  
Heat tracker.  
Wind gauge.  
Light sensor.  
Energy saver.  
Crime fighter.**

**That also happens to be  
a streetlight.**

The Sensus VantagePoint™ Lighting Solution can be all of that and more. It leverages the Sensus FlexNet® communication network to enable a powerful platform that transforms a passive streetlight into a critical hub for a host of smart city applications. Sensus also provides the software to not only monitor and control lighting, but also give you better insight. That way you can optimize system performance and be more efficient with your operations. So, as you can see, the future is not only bright, it's limitless.

**Nothing's out of reach.**

To learn more, visit [sensus.com/VantagePoint](https://www.sensus.com/VantagePoint)

# Smart City

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- Smart City options will be researched and considered as part of Phase 1 – Project Design
- A conceptual urban development vision
- Integrates multiple technology solutions to better manage city assets and services
- New LED streetlights are an enabling infrastructure component



# Project Scope –Phase 1

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## Design Phase

- Develop Street Light Design Manual and Update Standards
- Develop Plans and Specifications for Street Light LED Conversion Contract(s)
- Recommend Street Light Rates and Financing Options
- Conduct Educational Workshops with Stakeholders on Available Smart City Lighting Features
- Develop an RFP, Budget, and Schedule for Selected Smart City System Options
- Refine project benefits based on system design

# Project Scope – Future Phases 2-5

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**Phase 2:** Conversion along arterial and collector streets

**Phase 3:** Conversion of remaining street lights and intersection lights **not** located in Historic Districts or Neighborhood Conservation Areas

**Phase 4:** Conversions in Historic Districts or Neighborhood Conservation Areas with public meeting components to receive Certificates of Appropriateness

**Phase 5:** Conversion in final Historic Districts or Neighborhood Conservation Areas

# Anticipated Project Timeline

Calendar Year	2016					2017												2018												2019											
	Month	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J					
Phase 1 - Design	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Phase 2 Conversion - Arterial Streets									■	■	■	■	■	■	■	■	■																								
Phase 3 Conversion - Neighborhoods																		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
Phase 4 Conversion - Historical Districts 1																																									
Phase 5 Conversion - Historical Districts 2																																									

Phase 1: August 2016 – April 2017

Phase 2: April 2017 – December 2017

Phase 3: October 2017 – June 2018

Phase 4: April 2018 – December 2018

Phase 5: October 2018 – March 2019

# History

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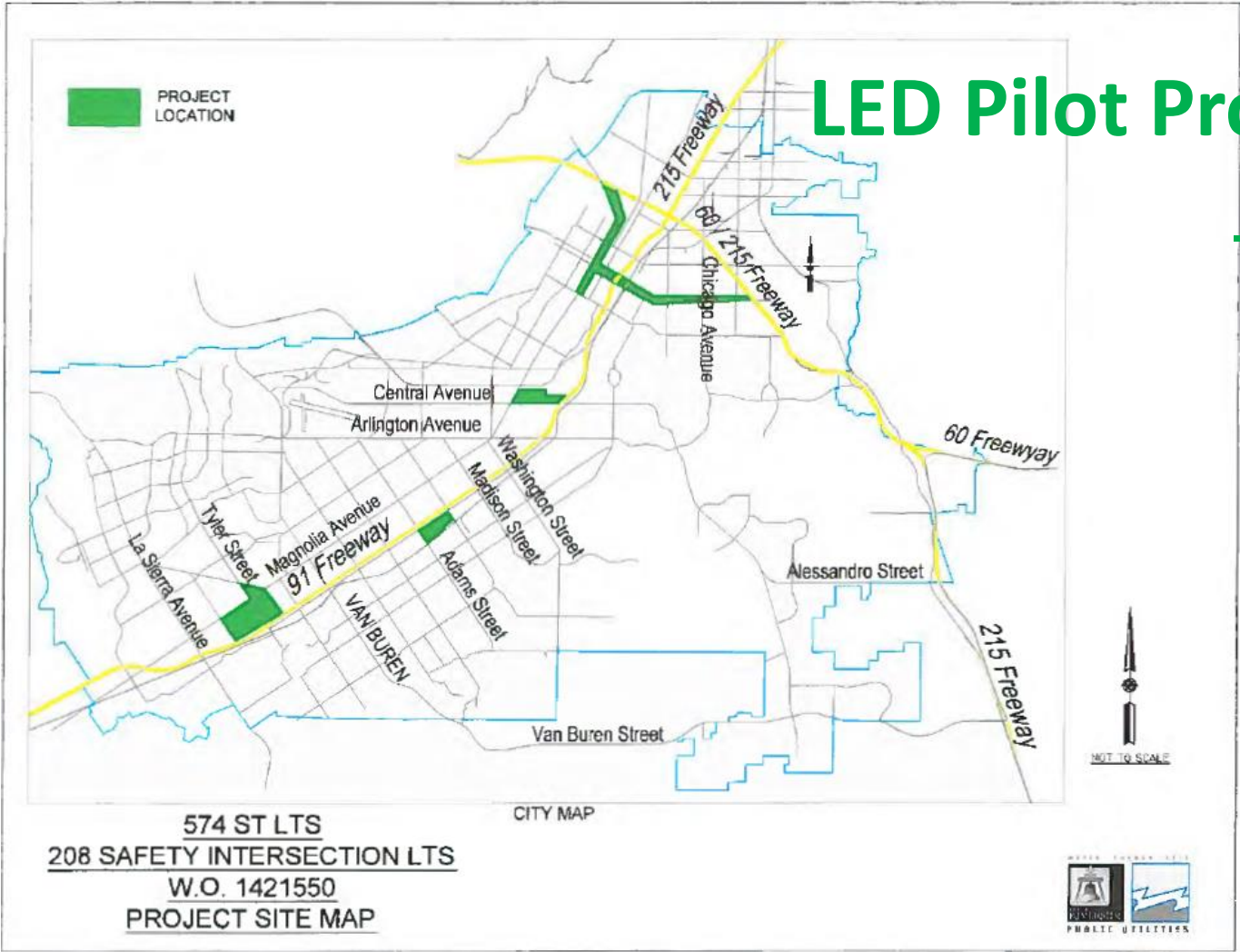
- RPU designs, constructs, operates and maintains the street lighting system for the City of Riverside
- The system includes:
  - 6,500+ mast arm lights
  - 24,000+ ornamental street lights
- 2014 LED Pilot program at major shopping centers
  - tested efficiency and light quality
  - saved energy of 51 homes, and greenhouse gas avoidance equivalent to 27 cars in one year
- LED Street lighting task force was formed to determine next steps

# LED Projects Completed

- LED Grant Project (2012-2013)
  - Replaced 200 lights
- Wood Streets Area 1 (2014)
  - Replaced 211 lights
- LED Pilot Project (2014)
  - Replaced 782 lights (including intersection safety lights)



# LED Pilot Project Map



**LED Pilot Project(2014)**

**–782 lights**

**–\$335,000**

# Request For Proposals RFP #1569

## Phase 1 - Design Services

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- Proposals evaluated by an eight member multi-departmental panel
- Design Services Inc. dba Benya Burnett Consultancy
  - selected based on superior pricing, excellent technical qualifications, solid references, and experience
  - Agreement not to exceed value of \$855,290

# Work Order Cost Breakdown

Description	Amount	Percent of Total
RPU Engineering Coordination and Contract Administration	\$210,000	18%
Consultant Contract and Contingency	\$940,000	82%
<b>Total</b>	<b>\$1,150,000</b>	<b>100%</b>

Sufficient funds are available in the Major Streetlight Projects Account



# Green House Gas (GHG) Allowances Explained

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- Goal of Assembly Bill 32 (AB32), enacted in 2006, is for California to reduce its GHG emissions to 1990 levels by 2020
- Cap-and-Trade Program for GHG allowances, requires that Riverside Public Utilities, have sufficient allowances to offset GHG emissions associated with generating electricity
- RPU expects to have sufficient allowances through 2020, and received \$11,130,120 in proceeds from the sale of past excess allowances
- Proceeds shall be used for the benefit of retail rate payers to meet the goals of AB32 for GHG reduction

# City of Riverside Permissible Use of Greenhouse Gas Allowance Value and Proceeds Policy

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- Recommend adding to list of GHG allowance proceeds permissible uses:
  - “Energy efficiency projects at City facilities or infrastructure that will result in greenhouse gas emission reductions”
- Recommend City Council adoption

# Fiscal Impact

- Entire LED conversion program is estimated at \$15,000,000
- The direct cost of the consultant Professional Services Agreement, estimated to be \$855,290, is planned to be funded from existing Greenhouse Gas Allowance Proceeds, once policy is revised and adopted
- Future planned funding from Greenhouse Gas Allowance Proceeds and Public Benefits energy incentives will be reviewed after system design

# Recommendations

That the Board of Public Utilities recommend the City Council:

1. Approve Work Order No. 1611216 in the amount of \$1,150,000 for the development of a City-wide Streetlight LED Conversion Program;
2. Approve the Professional Services Agreement with Design Services Inc. dba Benya Burnett Consultancy of Davis California, for the development of a City-wide Streetlight LED Conversion Program in the amount of \$855,290;
3. Approve the Permissible Use of Greenhouse Gas Allowance Value and Proceeds Policy (“Policy”) as reflected in this report;
4. Authorize the City Manager, or his designee, to make changes to the Policy in accordance with the goals of Assembly Bill 32, as enacted in 2006, for the benefit of Riverside’s retail electric ratepayers; and
5. Authorize the City Manager, or his designee, to attest and file the annual Electric Distribution Utility Use of Allocated Allowance Form with the California Air Resources Board.