

Energy Services Contract

CIP 201311

The City currently owns 7,382 street lights. This project will replace all of the cobra head style (non-decorative) street lights, 7,101 lights which use High Pressure Sodium (HPS) bulbs, with Light Emitting Diode (LED) bulbs. Bridgelux Inc., located in Livermore, will supply the retrofit kits that enable conversion of the existing HPS lights to LED. The replacements will provide the same lighting level as the existing HPS lighting that they will replace, but use considerably less electricity. The following table shows the difference in power consumption of the two fixtures.

Existing High Pressure Sodium Wattage

Proposed LED replacement Wattage

95	31.5
130	53.9
190	87.9
240	135
295	159
365	229
465	271

More than 62% of the street lights in Livermore are 95w HPS lighting that are used on residential streets. The replacement LED fixtures use about 60% less power than the HPS fixtures they replace. The table below shows the number of lights of varying wattages in Livermore, and the cost savings associated with the conversion to LED.

Existing fixtures	Replacement LED	Count	Monthly Savings Per Lamp	Total Monthly Savings	Total Annual Savings
95 w HPS	31.5 w LED	4,539	\$ 2.28	\$ 10,348.92	\$ 124,187.04
130 w HPS	53.9 w LED	1,979	\$ 2.94	\$ 5,818.26	\$ 69,819.12
190 w HPS	87.9 w LED	221	\$ 3.83	\$ 846.43	\$ 10,157.16
240 w HPS	135 w LED	256	\$ 4.41	\$ 1,128.96	\$ 13,547.52
295 w HPS	159 w LED	85	\$ 5.87	\$ 498.95	\$ 5,987.40
365 w HPS	229 w LED	6	\$ 5.25	\$ 31.50	\$ 378.00
465 w HPS	271 w LED	15	\$ 7.75	\$ 116.25	\$ 1,395.00
Total		7,101			\$ 225,471.24

City of Livermore

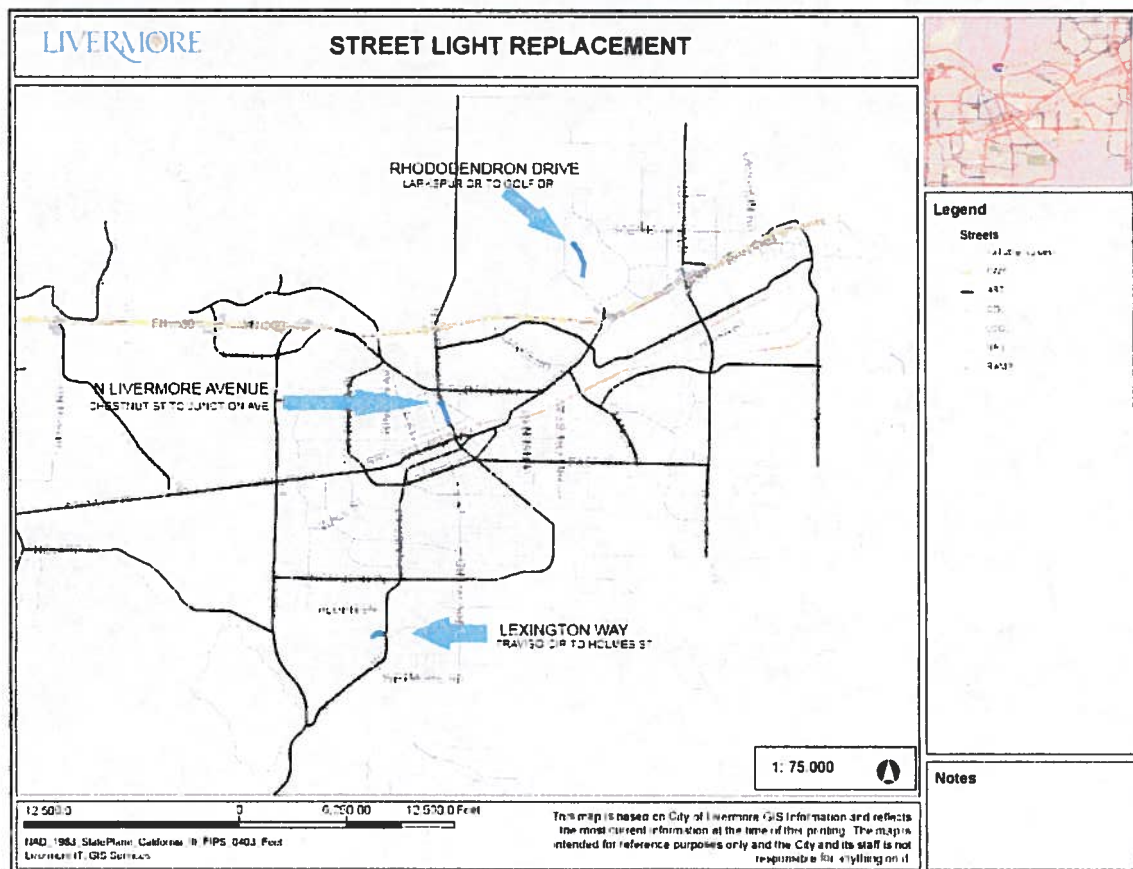
Street Light Demonstration

Energy Conservation Measures Project

In its continued commitment to sustainability, City of Livermore has worked with Chevron Energy Solutions to develop a fully comprehensive project that will reduce its energy usages and improve its buildings and working environment. The project will help reduce operational costs, reach climate action plan goals, increase health and safety, help residents and businesses save money, and provide workforce development options. It will surely put the City in an environmental leadership. Through the energy conservation program, the City is expecting to reduce electricity usage by more than 40% and greenhouse gas emissions by approximately 5.3 million pounds per year, which is similar to taking 472 cars off the road each year. The complete scope of the energy conservation program includes installing solar photovoltaic (PV) power generation to the civic center, airport and maintenance center; upgrading interior and exterior lighting at various City facilities; adding variable frequency drives to the chilled and hot water pumps in the Police Station to reduce energy use, installing plug-in electric vehicle charging stations at the Civic Center and Maintenance Center; and converting existing high pressure sodium street lights to LED lighting.

Livermore Street Lighting Demonstration and Conversion

Existing Street lights will be converted to LED lights along three streets in Livermore to allow residents to experience the new lighting, and provide comment and feedback to the City before full implementation across Livermore. This lighting demonstration was installed along N. Livermore Avenue, Rhododendron Drive, and Lexington Way in late January (see map below). Please contact the Livermore Engineering Division at (925) 960 – 4500 with any questions or comments.



Please find additional information about the streetlight conversion project below:

- The 7,100 existing high pressure sodium (HPS) cobra head street lights will be replaced with high-efficiency LED fixtures that use less electricity and emit better quality light than the existing street lights.
- The fixtures were designed and manufactured by Bridgelux, a leading developer of LED lighting technologies and solutions based locally in Livermore.
- The new fixtures will use 46% less energy than traditional HPS.
- The improved efficiency of LEDs over existing lighting allows the City to capture greater energy savings and make progress towards achieving its climate action plan.
- LED street lights emit better quality light compared to the yellow light emitted from HPS fixtures, which improves visibility. The fixtures also create a more uniform light pattern. The pictures below demonstrate the lighting comparison between HPS and LED along Las Positas Road.



Figure 1: HPS lighting on Las Positas Road in Livermore



Figure 2: BridgeLux LEDs installed on Las Positas Road

- The cobra head light fixtures will be retrofitted rather than completely replaced, enabling the City to reduce waste and implement a more sustainable solution. Furthermore, the existing look and intensity of the street lights will remain the same.
- The city-wide installation will begin in March and continue through the summer.
- Information about the project, including timeline and the areas impacted, will be posted on the City's website. Please contact the Livermore Engineering Division at (925) 960 – 4500 with any questions or comments.