



DATE: September 11, 2017

TO: Honorable Mayor and City Council

FROM: Darren Greenwood, Public Works Director  
Paul Spence, Community Development Director

SUBJECT: Asset Management Program Update for Traffic Signals, Street Lights, and Traffic Signs

RECOMMENDED ACTION

Staff recommends the City Council approve a prioritization method for traffic signals, traffic signs and street lights in the development of the Asset Management Program.

SUMMARY

There are currently 106 signalized intersections, 12,500 traffic signs, and approximately 8,000 street lights within the City of Livermore. Staff recommends that the City Council adopt a new prioritization method for the repair and replacement of these assets in the development of the Asset Management Program.

DISCUSSION

*Traffic Signals*

The City of Livermore currently owns, operates, and maintains 106 signalized intersections, commonly referred to as traffic signals, comprised of 6,700 components with a combined replacement cost of \$42 million. These assets are vital to the safe and efficient flow of traffic through the City. Currently, Maintenance Division staff inspect and maintain these signals on a regular basis. Replacement is scheduled periodically through the City's Capital Improvement Program (CIP). Components of these signals are replaced on an as-needed basis.

While all traffic signals are important, staff recommends that the traffic signals be prioritized by the amount of traffic which passes through the intersection as evidenced by the classification of the roads that intersect. Roads are classified into three categories:

arterials provide cross-town mobility and serve moderate-length trips; collectors serve as gateways between residential streets and arterials and some land access; and residential or local streets tend to serve primarily as land access routes (e.g., access to a home or business). The proposed prioritization method is as follows:

Consequence of Failure	Roadway Classifications
Very High	Arterial / Arterial
High	Arterial / Collector
Medium	Arterial / Residential
Medium-Low	Collector / Collector
Low	Collector / Residential

Staff will further prioritize the individual components of the traffic signals based on their importance to the overall function of the signal. This two-tiered prioritization method will echo the method approved for the City’s buildings.

*Street Lights*

The City of Livermore currently owns, operates, and maintains approximately 8,000 street lights with a combined replacement cost of \$46 million. These lights improve the visibility of and for pedestrians and assist the driving public in navigating at night. In 2013, the City replaced over 6,000 street light fixtures (a fixture is the component of the entire asset which actually emits the light and is located on the end of the mast arm) with LED retrofit kits. The unfortunate side effect of replacing so many fixtures at one time is that when they reach the end of their lifespan (in this case, estimated between 10 and 15 years), many will need replacement in a short span of time.

City staff currently addresses street light outages on a reactive basis. Street lights are prioritized in a very similar manner to the proposal below. Street light repairs can take up to 45 days to complete due to the high demand on the limited staff hours available for street light and traffic signal repairs and maintenance. Currently, the City has approximately 300 street light fixtures which need repair or replacement with an estimated cost between \$150,000 and \$200,000.

Staff recommends that the street lights be prioritized by the function that the light serves, as well as the functional classification of the adjacent roadway. The proposed prioritization method is as follows:

Consequence of Failure	Light Function
Very High	Intersection Safety Lighting for Arterial Streets Intersection Safety Lighting for Collector Streets Enhanced Pedestrian Crosswalks on Arterials
High	Intersection Safety Lighting for Residential Streets Non-Intersection Lights on Arterial Streets Enhanced Pedestrian Crosswalks on Collectors

Consequence of Failure	Light Function
Medium	Non-Intersection Lights on Collector Streets Enhanced Pedestrian Crosswalks on Residential Streets
Low	Non-Intersection Lights on Residential Streets

### *Traffic Signs*

The City of Livermore currently owns, operates, and maintains approximately 12,500 traffic signs with a combined replacement cost of \$3.6 million. These signs serve a variety of informational and enforcement functions aimed at improving the safety of the public. Common examples of these signs are stop signs, “no parking” signs, street name signs, etc.

Maintenance staff have divided the City’s signs into 12 sign maintenance zones for the sake of managing these assets. The signs within each zone are replaced on a rotating 12-year schedule in order to meet certain Federal regulations regarding retroreflectivity standards. In addition to an ongoing blanket replacement program, maintenance staff also replaces approximately 150 signs per year that are damaged by drivers.

Currently, staff manufacture the finalized signs using recycled aluminum blanks and vinyl decals which are cut out to specification in-house. This creates a high-quality sign which lasts much longer than the previous type which used a process very similar to silk-screening to apply ink on top of the backing. These vinyl-based signs have a much longer life and a lower lifecycle cost. Staff expects a lifespan for these signs between 12 and 15 years as compared to 5 years for the ink-based signs.

The blanket replacement program described above has proven effective both in meeting the Federal mandate, and meeting the practical replacement needs of the assets. Staff recommends that this practice continue as-is.

### FISCAL AND ADMINISTRATIVE IMPACTS

Both replacement costs and annualized costs are displayed below:

Asset Class	Replacement Cost	Annualized Costs “Keep Up Costs”	Current Annual Spending
Traffic Signals	\$42 million	\$1.7 million	\$1.1 million
Street Lights	\$46 million	\$1.3 million	\$165,000
Traffic Signs	\$3.6 million	\$230,000	\$230,000

The City currently spends the recommended \$230,000 per year on traffic sign repair and replacement (R&R) and staff recommends continuing this practice. Currently, the City spends about \$165,000 per year on the repair and replacement of street lights. As a

large portion of the street light fixtures were replaced in 2013, staff expects the need to replace a large portion of these in the period between 2023 and 2028. The City will need to set aside money in order to address this large periodic expenditure. This need will be addressed later in the development of the program.

The City also spends \$1.1 million per year on traffic signals. While staff believes that they are keeping up with the day-to-day operations of the signals with this amount, the larger-cost, longer-lived assets will need eventual replacement. The \$600,000 per year difference between current expenditures and anticipated expenditures would need to be set aside for future replacement needs. This, too, will be addressed later in the development of the program.

The cost of replacing or repairing assets due to damage caused by vehicular collisions or vandalism, is not included above.

Should Council approve the prioritization methods presented in this report, there will not be any administrative or fiscal impacts at this point. Fiscal changes would not occur until the Council prioritizes across the various asset classes later in the development of the Asset Management Program.

#### ATTACHMENTS

None


Prepared by:

Anthony Smith  
Management Analyst

Approved by:

  
Tamera LeBeau  
Acting City Manager

Fiscal Review by:

  
Douglas Alessio  
Administrative Services Director