

DATE: January 8, 2018

TO: Honorable Mayor and City Council

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

SUBJECT: Asset Management Program Update

## RECOMMENDED ACTION

Staff recommends the City Council approve a prioritization method for various assets in the development of the Asset Management Program.

## SUMMARY

Staff recommends that the City Council adopt a new prioritization method for the repair and replacement of the following assets in the development of the Asset Management Program: bridges, curbs and gutters, parks and plazas, roadway landscape areas, trails, and storm drains.

## DISCUSSION

At the direction of the City Council, staff is currently working with a consultant to develop a comprehensive Asset Management Program for the General Fund. This plan is based on the concept of asset risk which assigns a rating to each asset based on the Probability of Failure (PoF) and the Consequence of Failure (CoF). The PoF represents the timing to failure whereas the CoF represents the severity of the impact caused by the failure of a given asset. Together, the PoF and CoF form an asset risk score which helps prioritize the expenditure of limited funds. This Asset Management Program is focused on the assets that the City currently owns and does not include any potential assets the City may obtain in the future.

In developing a prioritization method based on asset risk, some systems will require a two-tiered CoF rating. In these cases, there will be a CoF rating given to the group of assets, e.g. a park, and another rating given to the individual assets within the group, e.g. a picnic table. These two numbers will range from 1-5 each and then will be weighted in

order to allow staff to quickly understand the relative importance of all the various assets by assigning a single score. In the parks example, a picnic table in a low-CoF park will have a lower overall CoF score than a picnic table in a high-CoF park, even though the tables may be identical.

*Bridges*

The City of Livermore currently owns 45 bridges having a combined replacement cost of \$129 million. The primary function of these bridges is to safely convey traffic across a waterway or other barrier. Staff has classified thirty-three of these bridges as roadway bridges and twelve as trail bridges which serve a mixture of pedestrians, bicyclists, and equestrians. Staff proposes to prioritize bridges using a two-tiered system where the first tier CoF rating is based on the usage (higher usage equals higher CoF) and the second tier CoF rating is based on the importance of each major component of the bridge. Staff recommends the following ratings:

Top Tier CoF	Bridge Usage
Very High	Roadway Bridges on Arterials
High	Roadway Bridges on Collectors, Trail Bridges with High Usage
Medium	Roadway Bridges on Residential Streets, Other Trail Bridges
Medium-Low	Trail Bridges with Adjacent Redundancy

Second Tier CoF	Components
Very High	Structural Components, Deck, Abutments, Culverts
High	Walls, Guardrails, Parapets, Railing
Medium	Approach, Lighting, Pavers
Medium-Low	Fencing, Gates

The California Department of Transportation (Caltrans) inspects vehicular bridges with a span of 20 feet or more every five years. The City’s asset management consultant has inspected and assessed vehicular bridges with a span under 20 feet and all pedestrian bridges.

Staff believes that policy options for bridges are extremely limited due to the importance of the bridges to traffic flow and potential safety concerns. Staff recommends that the City use a proactive “full service” approach in which the City rehabilitates and replaces bridges prior to failure. Utilizing this approach, the City would spend or set aside an average of \$1.2 million per year compared to the current practice of expending an average of \$10-20 thousand per year on maintenance only.

*Curb and Gutter*

The City of Livermore is currently home to an estimated 622 miles of curb and gutter with a total replacement cost of \$155 million. The primary purpose of curb and gutter is to

convey water away from the roadway into the storm drain system. Through a sampling approach, the City’s consultant identified an estimated 13,000 linear feet of failed curb and gutter. The majority of observed damage was not due to age, but rather due to tree roots, localized force, or water infiltration. The proposed prioritization method for curb and gutter is as follows:

Consequence of Failure	Asset Characteristics
Very High	Adjacent to High Pedestrian Areas, Areas Where Curb/Gutter Failure Will Lead to Property Damage
High	Adjacent to Arterial Streets
Medium	Adjacent to Collector Streets
Medium-Low	Adjacent to Residential Streets
Low	Any other Curb & Gutter

Potential policy options for curbs and gutter may include limiting City repairs to severe flood-causing defects only, generating additional revenue, or transferring responsibility to adjacent property owners in conjunction with sidewalks. The cost of repairing severe defects only is estimated at an average of \$58,000 per year. The cost of replacing all curb and gutter on a schedule as a “full service” option would cost an average of \$1.8 million per year. The City currently spends an average of about \$15,000 per year on replacing curb and gutter.

*Parks and Plazas*

The City of Livermore owns and maintains 19 small parks and plazas with a combined asset replacement cost of \$4.3 million. The Livermore Area Parks and Recreation District maintains a variety of larger parks within the City limits which are not part of this discussion. The parks and plazas include a variety of landscape, hardscape, and related features. Staff proposes to use a two-tier CoF rating system. The first tier CoF ratings are based on the visibility and usage of the parks as follows:

Park-Level CoF	Parks and Plazas
High	Flagpole Plaza Lizzie Fountain Park Mills Square / Livermorium Plaza Shea Plaza (at Bankhead) Civic Center Park (Surrounding City Hall) Portola Park Carnegie Park Dolan Park Freisman Park (at Outlets) East Avenue Greens
Medium	Brickyard Park Centennial Park Hansen Rose Garden Crater Walkways

	Desiree Park
Low	Sister City Park Rotary Park Madeira Park

In the second tier of CoF ratings, the assets themselves are rated in order to prioritize items that are safety-related, or fulfill the primary purpose of the park.

Asset-Level CoF	Assets
Very High	Play Structures, Interactive Fountains, Handrails, Walkways, etc.
High	Irrigation Controllers, Signage, Stairs, etc.
Medium	Lighting, Benches, Tables, Gazebos, Drinking Fountains, Irrigation Valves, etc.
Medium-Low	Bike Racks, Trash Bins, Non-Interactive Fountains, Bollards, etc.
Low	Park Name Signs, Gates, Information Boards, etc.

Potential policy options for parks and plazas may include lowering service level expectations, modifying amenities to match current use such as eliminating some amenities upon failure, divestment or transfer of low-usage parks, and/or generating additional revenue.

The cost of replacing only high risk assets is estimated at an average of \$115,000 per year (this is above and beyond routine maintenance). The cost of replacing all assets on a schedule as a “full service” option would cost an average of \$204,000 per year.

### *Roadway Landscaped Areas*

The City of Livermore owns over 100 acres of landscaped areas which are related to the roads. These landscaped areas are either median landscaping (in the middle of the road) or backing lots (behind the sidewalk, typically near walls). These areas typically include shrubs, irrigation, hardscape, and related items. Trees will be accounted for separately. The replacement cost of these landscaped areas is estimated to be \$28.6 million.

Staff proposes to prioritize these assets based on a two-tier structure.

Location Level CoF	Roadway Classification / Area
High	Downtown, Arterial Streets
Medium	Collector Streets
Low	Residential Streets and Other Areas

Asset-Level CoF	Assets
High	Backflow Devices, Irrigation Controllers and Valves
Medium	Shrubs and Plant Material

Low	Hardscape and Misc. Assets
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Potential policy options for roadway landscape may include: lowering service level expectations, continuing to replace existing landscaping with lower-maintenance plant materials in lower density, shifting responsibility for backing lots to adjacent property owners in limited circumstances, or generating additional revenue.

The cost of replacing only high risk assets is estimated at an average of \$232,000 per year (this is above and beyond routine maintenance). The cost of replacing all assets on a schedule as a “full service” option would cost an average of \$2.2 million per year.

*Trail Amenities*

The City of Livermore currently maintains 22 miles of trails with the remainder of trails in the City Limits being maintained by other agencies. These trails include the pathway surface (typically asphalt) and various landscape assets and amenities (irrigation, benches, signage, etc.). The asphalt pathway surface is managed through the pavement program and therefore the costs associated with it are included in the pavement totals. The trail amenities and related assets have a combined replacement cost of approximately \$4.8 million.

Staff proposes to prioritize trail assets using a single-tier CoF rating as follows:

Asset-Level CoF	Assets
Very High	Railing, Backflow Devices
High	Irrigation Controllers and Valves, Safety Signage, Bollards, Gates
Medium	Shrubs and Plant Material, Benches, Tables, Fencing
Medium-Low	Bike Racks, Trash Bins,
Low	Information Boards, Non-Safety Signage and Misc. Assets

Potential policy options for trails may include lowering service level expectations such as reducing the number of amenities, divestment or transfer of ownership, or generating additional revenue.

The cost of replacing only high risk assets is estimated at an average of \$78,000 per year (this is above and beyond routine maintenance and does NOT include the pathway surface). The cost of replacing all assets on a schedule (also not including pathway surface) as a “full service” option would cost an average of \$189,000 per year.

*Storm Drains*

The City owns, maintains, and operates a storm drain network which includes 226 miles of pipe, 22 miles of waterways (natural and concrete channels), and a variety of related appurtenances (manholes, trash capture devices, etc.) with a combined asset

replacement cost of \$668 million. Staff is recommending that the City prioritize storm drain assets based on the size of the pipe or the primary function of the asset.

Asset-Level CoF	Assets
Very High	Pipe 48" and above, Trash Capture Devices
High	Pipe 25" to 47"
Medium	Pipe 16" to 24", Outfalls, Diversion Structures, Energy Dissipaters
Medium-Low	Pipe 15" and under, Catch Basins, Manholes
Low	Cleanouts, Misc. Assets

Staff believes that there may be future impacts to the storm drain system due to the regulatory actions of the Regional Water Quality Control Board. However, any potential impacts are not included in the program at this stage, since the focus of the program is on the current assets and state. Staff will continue to refine the asset management program for the storm drain system as the process moves forward.

Potential policy options for storm drains may include generating additional revenue through a user fee program similar to water or sewer (which may be possible due to the passage of recent legislation), lowering service level expectations, or transferring the ownership of natural creeks to Zone 7. Where other means of drainage is available, small diameter storm drain lines may be abandoned in the future.

The cost of replacing only high risk assets is estimated at an average of \$4.5 million per year (this is above and beyond routine maintenance). The cost of replacing all assets on a schedule as a "full service" option would cost an average of \$12.3 million per year.

*Trees*

Currently, staff has estimated that the City is directly responsible for approximately 15,000 trees with a combined replacement cost of \$29.9 million. Staff will be undertaking a more detailed tree inventory project over the course of the upcoming year. This project will inventory and assess the trees that are on City property and in the City rights-of-way.

**FISCAL AND ADMINISTRATIVE IMPACTS**

The table below summarizes the financial findings of the program to date.

General Fund Assets	One-Time Replacement Cost	Existing Annual R&R Budget	R&R - High Risk Only Annual Needs	R&R - Full Service Annual Needs
Pavement	\$ 612,950,000	\$ 5,800,000	\$ 6,325,000	\$ 8,165,000
Buildings	\$ 115,000,000	\$ 2,650,000	\$ 1,955,000	\$ 3,680,000
Walls	\$ 129,950,000	\$ 175,000	\$ 3,220,000	\$ 3,795,000
Sidewalk / Ramps	\$ 278,300,000	\$ 440,000	\$ 1,955,000	\$ 3,220,000
Traffic Signals	\$ 41,400,000	\$ 468,000	\$ 1,230,500	\$ 1,840,000
Street Lights	\$ 45,701,000	\$ 169,000	\$ 1,380,000	\$ 1,380,000
Parks & Plazas	\$ 4,300,000	\$ 35,000	\$ 115,000	\$ 204,000
Landscaped Areas	\$ 28,550,000	\$ 322,000	\$ 232,000	\$ 2,200,000
Storm Drains	\$ 668,150,000	\$ 330,000	\$ 4,450,000	\$ 12,320,000
Bridges	\$ 129,000,000	\$ 10,000	\$ 1,200,000	\$ 1,200,000
Curb/Gutter	\$ 155,250,000	\$ 15,000	\$ 57,500	\$ 1,785,375
Trails	\$ 4,830,000	\$ 5,000	\$ 77,600	\$ 188,600
Trees	\$ 29,900,000	\$ 65,000	\$ 182,850	\$ 182,850
Traffic Signs	\$ 4,076,750	\$ 156,000	\$ 258,750	\$ 258,750
<b>Totals</b>	<b>\$ 2,247,357,750</b>	<b>\$ 10,640,000</b>	<b>\$ 22,639,200</b>	<b>\$ 40,419,575</b>
<i>Difference vs. Existing</i>			<i>\$ 11,999,200</i>	<i>\$ 29,779,575</i>

For reference, the City’s current annual General Fund budget is approximately \$100 million. Funding the High-Risk or Full-Service needs would require an increase of between about 12 percent and 30 percent in the City’s annual General Fund budget if no policy options are implemented to reduce the projected costs.

ATTACHMENTS

None

Prepared by:

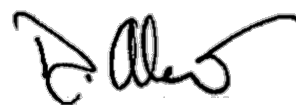
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