

INFRASTRUCTURE REHABILITATION ASSESSMENT

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Introduction

Proper maintenance of infrastructure preserves the City’s asset value which is evaluated by financial institutions for City bond issuance and interest rates attached to the City’s debt structure. Therefore, maintenance expenditure levels could have significant impacts on City finances. Poorly maintained infrastructure could result in higher bond interest rates or reduced bonding capacity.

The City of Livermore is responsible for the upkeep and maintenance of infrastructure consisting of enterprise funded (self-funded through user fees) and non-enterprise funded (infrastructure funded through City discretionary and non-discretionary revenues) components. This report discusses:

- the current condition of the non-enterprise funded infrastructure,
- current maintenance funding,
- rehabilitative maintenance needs (resulting from insufficient maintenance budgeting and unfunded state and federal mandates),
- funding needed to implement the estimated optimal maintenance programs (which attempts to balance maintenance expenditures with infrastructure preservation), and
- potential methods for funding revenue generation to provide for optimal maintenance.

Currently the non-enterprise funded infrastructure has a replacement value¹ of approximately \$833 million as shown on Table 1.

Table 1 – Infrastructure Replacement Values

Infrastructure	Quantity	Replacement Value
Buildings ²	25 buildings	\$94,900,000
Sidewalks	325 miles	\$135,000,000
Curb & Gutter	656 miles	\$87,000,000
Storm Drains	171 miles	\$277,000,000
Streambeds ³	26 miles	\$0
Street Lights & Traffic Control Systems	6500 street lights 90 intersections	\$32,200,000
Trees, Landscaping, Parks & Trails ⁴	132 acres	\$37,500,000
Pavement	282 miles	\$169,000,000
TOTAL		\$832,600,000

Because the enterprise funded infrastructure (airport, water treatment and collection system, potable and recycled water systems, golf courses, etc.) is expected to be self sufficient, this

¹ All costs presented in this report are in 2005 dollars.

² Excluding City owned enterprise funded buildings with an estimated replacement value of \$33,800,000

³ Streambeds are natural features; therefore no replacement value is assigned.

⁴ Does not include replacement cost for land.

report does not include it in the discussions. Shortfalls in maintenance funding for these items are anticipated to be discussed separately when user fees are adjusted.

Infrastructure Condition and Needs

Overall, the City’s infrastructure is currently in a functioning state of repair with no significant operating problems. However, due to prior budget limitations, routine maintenance has not been performed to keep the infrastructure in an optimal condition. As a result, a portion of the infrastructure has degraded significantly, such as landscaping, soundwalls and sidewalks. Whether lack of maintenance results in a direct impact to welfare and safety, or simply an aesthetic impact, the degradation of the infrastructure results in a loss in the quality of life for City residents. Furthermore, under-funded maintenance generally results in greater future expenditures due to the need for more extensive repairs and ultimately early replacement of infrastructure than would be needed if routine maintenance was completed. In general, when substandard maintenance is performed, deterioration is accelerated. Using an automobile as an analogy, if tires on the automobile are not rotated on the recommended maintenance service schedule, they wear out faster, requiring replacement sooner than normal. Over the life of the automobile, this accelerated wear could result in the need to provide for additional tire replacement beyond the expected number.

Prior limited maintenance funding has resulted in a total unfunded maintenance backlog of approximately \$136 million, as shown in Table 2. It should be noted that due to the interrelated nature of the infrastructure, cost to eliminate a single backlog component may be greater than the backlog noted for each item in Table 2 (e.g. maintenance repair of sidewalk often includes curb & gutter, and tree related expenses, repair of pavement often includes curb & gutter, tree, and traffic control system related expenses).

Table 2 – Rehabilitative Maintenance Backlog

Infrastructure	Total Maintenance Backlog
Buildings ⁵	\$600,000
Sidewalks ⁶	\$32,400,000
Curb & Gutter	\$4,300,000
Storm Drains	\$59,000,000
Streambeds	\$21,000,000
Street Lights & Traffic Control Systems	\$3,900,000
Trees, Landscaping, Parks & Trails	\$4,000,000
Pavement	\$10,500,000
TOTAL	\$135,700,000

⁵ Does not include enterprise funded buildings.

⁶ Includes an estimated \$5.4 million to install sidewalk related Americans with Disabilities Act improvements.

The current annual maintenance funding and condition of the individual infrastructure components is discussed in the following sections. The sections also discuss recommended annual maintenance expenditures, which;

- attempt to balance funding and maintaining the infrastructure in an optimal state using routine preventative maintenance,
- address costs to eliminate existing deferred rehabilitative maintenance backlog, and,
- funding needed to replace infrastructure components incrementally over their design lives (as determined by dividing the current replacement value by the anticipated infrastructure facility life expectancy).

The City currently funds infrastructure maintenance at approximately \$6.5 million⁷ per year. Based on the following, it is estimated that the routine maintenance funding should be increased by \$11.4 million, to a total of \$17.9 million per year. Due to previous maintenance expenditure levels, an additional \$14.6 million should be included in the annual budget to eliminate the maintenance backlog need which has accrued. This yields a total annual maintenance need of approximately \$32.5 million, or approximately \$26.0 million more than current expenditures.

The maintenance funding noted in the following sections does not include costs related to potential liability exposure associated with maintenance program deficiencies, such as risk estimates of possible damage or injury or funding set asides to settle claims associated with inadequate maintenance.

In addition, the maintenance funding discussion does not address debt service for bonds or other debt instruments, or replacement accruals for infrastructure that is typically replaced in whole (generally structures such as buildings) as these expenditures are not related to upkeep and preservation but are accrued due to the need for total replacement.

Funding derivation totals for the following items are summarized in Appendix A.

Buildings

Building maintenance discussed in this report does not include maintenance of buildings associated with enterprise funding such as the Water Treatment Plant, Airport and Golf Courses buildings. The buildings discussed include the Civic Center complex buildings, Fire Stations, Maintenance Service Center complex, and other outlying buildings such as the LVC Parking Structure, and the Doolan Radio Facility. In general, City buildings are in new or good condition with a few buildings (Fire Station No. 9, Council Chambers, Springtown Library) scheduled for replacement in the near future.

⁷ Funds spent on actual maintenance related construction activities, does not include overhead expenditures for maintenance related vehicles, buildings, non-project related staff time, etc.

Annual maintenance expenditure specifically related to general serviceability (minor repairs, general upkeep, etc.) for all of the City buildings (excluding enterprise funded buildings and buildings maintained by others such as the Barn, Carnegie Building and Heritage Museum buildings) is approximately \$750,000.

The current level of building maintenance is funded at approximately \$850,000 consisting of \$400,000 for four and a half full time employees dedicated to building maintenance (augmented by contractor services) and \$450,000 in maintenance related materials.

Based on analysis of staffing needs, an additional two full-time employees should be added at a cost of \$175,000, to the current staffing level (or equivalent contractor services) to keep the routine maintenance at an acceptable level. An additional \$375,000 in maintenance and replacement materials such as flooring, paint, mechanical systems, etc., is also required. Based on the above, an increase of approximately \$550,000 per year is needed for proper building maintenance.

Because of the relatively new condition of the majority of the City's non-enterprise funded buildings, the deferred maintenance backlog primarily consists of Americans with Disabilities Act access improvements in the amount of \$600,000. To comply with federal mandates, it is recommended that the Americans with Disabilities Act access improvements be corrected within a single two-year capital improvement budget cycle in lieu of spreading the cost over several years of maintenance expenditure.

Sidewalks

Sidewalk maintenance is generally performed to remove and prevent any hazards and to improve accessibility in compliance with the Americans with Disabilities Act. The sidewalk conditions that generally qualify as a hazard are uplifted breaks in the concrete surface with a significant height and/or lateral separation differential. Small cracks or defects are generally not repaired. A recent survey of sidewalk conditions based on a representative sampling of sidewalk locations throughout the City indicates that approximately 24 percent of the total City sidewalks require replacement maintenance.

There are approximately 325 miles of sidewalk in the City. The annual expenditure for sidewalk maintenance has been approximately \$250,000, which includes property owner reimbursement to the City for sidewalk repair equal to one-half of the repair cost, not to exceed \$1,000. This program results in a net cost recovery of approximately 25 percent of expenditures (that is for every dollar the City spends in repair, the property owner reimburses the City an average of 25 cents). Maintenance needs have typically been identified by resident calls, with only two-thirds of the locations being repaired annually due to funding constraints.

The cost to repair the current maintenance backlog consisting of 24 percent of the sidewalk which is in need of replacement would be \$32.4 million. A routine maintenance program that replaces the entire \$135 million sidewalk system over an average estimated 50-year

service life⁸ would cost approximately \$2.7 million per year. Therefore, a program that provides routine maintenance and eliminates the current rehabilitative maintenance backlog amount of \$32.4 million in 10 years would require an annual maintenance funding level of approximately \$5.9 million dollars per year. Due to the current cost sharing program limitations where property owner contributions typically pay for only about 25 percent of the total required sidewalk repairs, the City's annual maintenance expenditure would need to fund the remaining 75 percent, or approximately \$4.4 million per year to maintain the sidewalk system.

Curb & Gutter

There are approximately 656 miles of curb and gutter in the City, consisting of both curb with integrated gutter pan and freestanding curb without a gutter pan (constructed in the older City core residential areas). Based on a recent survey by the Public Works Department, approximately 10 percent of the standard curb and gutter and all of the freestanding curb are in need of replacement.

Generally, curb and gutter repair has been made in conjunction with the annual street resurfacing program and sidewalk repair program (if the curb is constructed as part of the sidewalk). Because neither of these programs specifically include curb and gutter repair, the repairs completed have been made on an opportunity basis. Recently, to provide response to residents that report curb and gutter problems that are not in areas scheduled for resurfacing or sidewalk repair, a \$35,000 annual curb and gutter repair program has been initiated. Based on the \$35,000 program and repairs completed in conjunction with the resurfacing and sidewalk programs, the City annually budgets approximately \$50,000 for curb and gutter repair.

Rehabilitative maintenance for curb and gutter is based on the recent Public Works Department survey of representative sections of the City curb and gutter system which determine that approximately \$4.3 million is needed in rehabilitative maintenance to replace the current substandard and failing curb and gutter. Funding needed for routine maintenance, based on replacing the entire curb and gutter system over an estimated useful life of 50 years, is approximately \$1.7 million annually. Based on the foregoing, the total annual maintenance expenditure for curb and gutter (to provide for routine maintenance and elimination of the rehabilitative maintenance need over a ten year period) is approximately \$2.1 million.

Storm Drains

The storm drain system covers an area of approximately 26 square miles and contains over 171 miles of storm drain pipe and three storm drain pump stations. The average age of the storm drain pipelines is around 40 years compared to an estimated service life of 100 years.

⁸ Average service life includes sidewalk segments with shorter service life due to damage caused by street tree root uplift and longer service life associated with sidewalks that are constructed in areas without street trees.

Overall the storm drain system is in good physical condition; however, based on the hydraulic analysis in the 2004 Storm Drain Master Plan, the existing storm drain system at various locations within the City is undersized to handle a 10-year storm event. Approximately \$400,000 is budgeted each year for storm drain maintenance.

In 1992, the City established a Stormwater Enterprise Fund to provide funding for the stormwater management and discharge control program. This Fund derives revenue from an annual service charge assessed on properties located within the City. These funds are applied to activities and expenses associated with maintenance and operation of the stormwater collection system as well as other stormwater permit programs. Maintenance activities include inspecting, cleaning, and repairing storm drains. Although considered a maintenance activity, replacement of failed pipe segments or pipes with inadequate flow capacity were not covered by this enterprise fund. Therefore, additional City funds are required for maintenance replacement.

Currently the Storm drain enterprise fund does not include fees for replacement and capacity upgrades to the storm drain system. The 2004 Stormwater Master Plan identifies a deferred maintenance backlog of \$59 million to upgrade undersized drainage components to prevent flooding resulting from a 10-year storm event (that is a storm with a 10 percent probability of occurring in any given year). This storm event is the minimum standard applied to new development in the City.

Assuming a ten year period for eliminating the \$59 million maintenance backlog and incremental replacement of the \$277 million system as part of maintenance over its 100-year service life, an additional \$8.3 million should be budgeted annually for storm drain maintenance including incremental replacement.

Streambeds

The major streambeds providing drainage to the City of Livermore are the Arroyo Las Positas and its tributaries, the Arroyo Mocho and its tributaries, to a lesser extent the Arroyo Del Valle. Over half of the approximately 48 miles of streams that pass through the City are owned and maintained by the City. Based on flood control studies, the streambeds provide insufficient capacity to pass flows required for the Alameda County Flood Control and Water Conservation District (Zone 7) to accept maintenance responsibility for the system.

Current maintenance expenditures to complete periodic removal of silt buildup at bridges for the streambed system are minimal. Minor repairs are made intermittently as capital improvement projects. The estimated maintenance expenditure for minor repair work, including annualized capital improvement, has been approximately \$100,000 per year.

An overall goal of the maintenance program is to bring the streambeds into a condition acceptable to Zone 7, for transfer to Zone 7. However, due to the prohibitive estimated cost of \$355 million to complete this goal, the proposed maintenance and rehabilitation is significantly less than that necessary to provide for complete transfer of the system to Zone 7.

The estimated required annual maintenance expenditure which includes silt removal at bridges, periodic City property restoration after flood events and vegetation control is \$450,000 which is an increase over the current budget of approximately \$350,000.

In addition, the cost for silt removal and modifications to increase flow capacity to Las Positas Creek in the vicinity of the Las Positas and Springtown golf courses to Zone 7 standards, is estimated to be approximately \$21 million. Silt removal at these locations is critical to preserving the golf courses. In the event of a catastrophic flood significant damaged to facilities and equipment could occur, requiring unanticipated expenditures for their replacement. Assuming a 20-year period to implement these improvements, an increase in the maintenance budget of approximately \$1,050,000 per year is required to address streambed maintenance.

Combining the routine annual maintenance cost of \$450,000 and correcting the Las Positas Creek flow capacity over a 20-year period at \$1,050,000 per year, the minimum annual maintenance budget for streambeds should be \$1.5 million.

Street Lights & Traffic Control Systems

The City owns and maintains approximately 6,500 street lights. Replacement of burnt-out or inoperative lamps or ballasts is considered an operating cost similar to electricity use and is not considered in the maintenance funding analysis. For the purposes of this report, maintenance is considered complete replacement of the street light (pole, mast arm, and luminaire) due to deteriorated conditions. Currently a replacement program with an annual budget of approximately \$50,000 per year is used for street light replacement.

There are approximately 260 street lights which have been identified as immediately needing replacement. These priority street lights create a deferred maintenance backlog of approximately \$600,000. Due to the deteriorated condition of these street lights, it is recommended that the replacements occur over a maximum five-year period. This results in a minimum maintenance budget need of \$125,000 per year to eliminate the deferred maintenance backlog. Based on a 40-year service life, it is estimated that 2.5 percent of the entire 6,500 streetlights will need to be replaced each year at a cost of \$250,000 per year. Therefore the annual street light replacement maintenance for the next five years would be under-funded by approximately \$350,000 per year. After that, the maintenance funding will still be under-funded by approximately \$200,000.

In addition to the street lights, the City maintains 90 signalized intersections, approximately 12,000 traffic signs, and street pavement markings throughout the City. Current expenditures for maintaining these systems are approximately \$450,000 per year. It is currently estimated that the maintenance of the traffic control signs and pavement marking system is under funded by approximately \$200,000 per year. Currently, an estimated \$200,000 is needed to eliminate the maintenance backlog for pavement markings and signs.

Non-Traffic Impact Fee eligible traffic signalization improvements are needed at six intersections with another nine intersections requiring signalization. This results in a backlog of approximately \$3.1 million. Due to traffic flow and safety considerations, it is recommended that this maintenance backlog be eliminated over five years at a cost of \$600,000 per year. Routine maintenance that would replace the traffic signals using a 30-year service life (approximately two traffic signals per year) would be approximately \$500,000 per year.

Based on the above, the maintenance budget for street lights and traffic control systems should be increased by \$1.2 million per year to \$1.6 million for an initial five-year period to correct the streetlight and traffic signal maintenance backlogs. After five years the \$1.6 million maintenance funding could be reduced by approximately \$700,000 to \$900,000 as shown in the following:

<u>Years</u>	<u>Routine Maintenance</u>	<u>Backlog Maintenance</u>	<u>Total Required Budget</u>
0-5	\$900,000	\$700,000	\$1,600,000
6 and out	\$900,000	\$0	\$900,000

Trees, Landscaping, Parks & Trails

Landscaping as discussed in this report pertains only to public landscaped features not funded through landscape maintenance districts. In general, landscape maintenance districts are sufficiently funded, however reserves for future replacement are not being set aside. Currently the landscape maintenance districts’ shortfalls and capital replacements are not funded.

The City maintains approximately 300 acres of landscaping consisting of median islands, backing lots and soundwalls, and municipal parks. The City also maintains approximately 60,000 trees of various sizes, species and ages. The maintenance budget for trees and landscape maintenance is approximately \$2.1 million. This current funding level allows for City staff to service the landscaping needs once every 24 months. This service consists of pruning and trimming trees and shrubbery, weeding, fertilizing, removing dead and substandard vegetation, and routine repairs to the irrigation system. Optimal maintenance should generally be implemented on a six month schedule.

Of the 300 acres noted above, approximately 100 acres of landscaping on City property adjacent to major streets remains to be either installed in bare areas or replaced in full as part of citywide beautification. It is anticipated that the beautification of the 100 acres will cost approximately \$20 million. Because this beautification is proposed to be addressed in a separate Citywide Beautification District, the costs for the beautification work and its subsequent maintenance is not considered in the budget needs discussed in this report.

In addition to the 300 acres of landscaping, the City owns and maintains approximately 24 acres of parks and 18 miles of multi-use trails not maintained by the Livermore Area

Recreation and Park District⁹. Cost for maintenance of vegetation for City facilities is included in the Public Works Department landscape maintenance budget. In addition to the vegetation maintenance, approximately \$100,000 per year is budgeted for maintenance of hardscape features (trail surfacing, benches, barbeques, etc).

Routine maintenance for the vegetation and irrigation systems should be changed to a six month interval. In addition, a total of approximately \$200,000 is estimated for maintenance of the parks and trails hardscape features maintenance, which is an increase of \$100,000 over the current funding. Currently there is an estimated \$1 million in rehabilitative maintenance backlog for existing city maintained trees and landscaping. Another \$3 million is needed to eliminate the soundwall maintenance backlog. Based on the rehabilitative maintenance backlog, the new maintenance schedule, which will necessitate additional staff, and replacement of materials over an estimate 30-year life, it is estimated that annual landscaping maintenance need is approximately \$5.0 million which is an increase of \$2.7 million over the current budget.

Pavement

The pavement condition for the 282 miles of streets in the City of Livermore is determined using the Metropolitan Transportation Commission's Pavement Management Program. Procedure for this program requires field inspection of portions of the pavement for various defects (cracks, ruts, oxidation, etc.) with the collected data used by the program. The program statistically analyzes the input data along with historical maintenance data to determine a Pavement Condition Index for both individual street pavement and the entire street system pavement. The Pavement Condition Index is based on a system where the highest score is 100, which indicates new pavement without defects. Currently the Pavement Condition Index for the City's entire street system pavement is 81, with an average of 75 for the arterial and collector streets. These ratings indicate that the City's street pavement condition is generally in very good condition. However, this high rating is generally due to the City's recent addition of new pavement through developments over the past years and not through maintenance efforts. This creates a skewed evaluation of the City's pavement, not reflective of the actual pavement maintenance funding needs. The City budgets approximately \$2.2 million for annual pavement maintenance.

Based on historic expenditure records and pavement management program analysis, it is estimated that the City under-funds pavement maintenance by approximately \$2.5 million per year. Using the City's current expenditures for pavement maintenance to assess pavement conditions over the next twenty years, the pavement management program shows that the City's overall pavement condition is anticipated to deteriorate by 25 percent over the next 20 years. Further verifying the ongoing insufficient maintenance funding is the existence of a rehabilitative maintenance backlog which is projected to increase from \$10.5 million to approximately \$53 million dollars during the same time frame.

⁹ Livermore Area Recreation and Park District separately funds maintenance of their facilities.

The pavement management program shows that increasing the pavement maintenance budget by an average \$2.5 million annually results in the Pavement Condition Index remaining in the very good range at 80 with the rehabilitative maintenance need eliminated after 20 years. Although additional funding beyond the recommended \$2.5 million increase could result in a maximum Pavement Condition Index of 87 with no rehabilitative maintenance need, the additional expenditure is not considered cost effective.

The estimated annual maintenance requirements and annual maintenance funding shortfalls are summarized in the Tables 3 and 4.

Table 3 – Recommended Annual Maintenance Requirement

Infrastructure	Annualized Routine Maintenance Funding	Annualized Backlog Rehabilitative Funding	Total Annual Recommended Maintenance Funding
Buildings ¹⁰	\$1,400,000	\$0	\$1,400,000
Sidewalks ¹¹	\$2,700,000	\$3,200,000	\$5,900,000
Curb & Gutter	\$1,700,000	\$400,000	\$2,100,000
Storm Drains	\$3,200,000	\$5,900,000	\$9,100,000
Streambeds	\$450,000	\$1,050,000	\$1,500,000
Street Lights & Traffic Control Systems	\$1,300,000	\$1,200,000	\$2,500,000
Trees, Landscaping, Parks & Trails	\$3,700,000	\$1,300,000	\$5,000,000
Pavement	\$3,500,000	\$1,200,000	\$4,700,000
TOTAL	\$17,950,000	\$14,250,000	\$32,200,000

¹⁰ Does not include enterprise funded buildings. Assumes ADA related backlog will be a single expenditure.

¹¹ Does not include portion paid by adjoining property owner under current cost sharing program.

Table 4 – Annual Maintenance Funding Shortfall

Infrastructure	Total Annual Recommended Maintenance Funding	Current Annual Maintenance Funding	Annual Maintenance Funding Shortfall
Buildings ¹²	\$1,400,000	\$850,000	\$550,000
Sidewalks ¹³	\$5,900,000	\$250,000	\$5,650,000
Curb & Gutter	\$2,100,000	\$50,000	\$2,050,000
Storm Drains	\$9,100,000	\$400,000	\$8,700,000
Streambeds	\$1,500,000	\$100,000	\$1,400,000
Street Lights & Traffic Control Systems	\$2,500,000	\$500,000	\$2,000,000
Trees, Landscaping, Parks & Trails	\$5,000,000	\$2,200,000	\$2,800,000
Pavement	\$4,700,000	\$2,200,000	\$2,500,000
TOTAL	\$32,200,000	\$6,550,000	\$25,650,000

Current Funding

Funding for maintenance activities is derived from a variety of revenue sources, including both discretionary (sales tax, property tax, etc.) and non-discretionary (gasoline taxes, County Measure B sales taxes, state and federal grants, etc.) sources. In addition, sporadic federal and state grants are provided to the City. However, due to the infrequent grant timing, dedicated specific use requirements, limited amount of the grant funds, and lack of guarantee that future grants will be available, grants are not included in the expenditure evaluation. Table 5 shows the amount of funding available from the discretionary and non-discretionary funding sources.

¹² Does not include enterprise funded buildings. Assumes ADA related backlog will be a single expenditure.

¹³ Does not include portion paid by adjoining property owner under current cost sharing program.

Table 5 – Annual Infrastructure Maintenance Funding

Funding Source	Estimated FY 2005/2006 Revenue	Average Infrastructure Maintenance Expenditures ¹⁴
Discretionary Funds	\$84,000,000	\$2,900,000
(Sales Taxes, Property Taxes, Franchise Fees & Other Taxes, Vehicle License Taxes, etc.)		
Non-discretionary Funds	\$3,600,000	\$3,600,000
(Gasoline Sales Taxes, Measure B Sales Taxes)		
TOTAL	\$87,600,000	\$6,500,000

From the above, it can be seen that only about 3.3 percent of the City’s discretionary funding goes to infrastructure maintenance.

Funding Strategies

Increase in infrastructure maintenance funding can be met through implementation of various strategies, such as reprioritizing discretionary fund expenditures, increasing property owner participation in funding, and developing new maintenance funding revenue sources. Detailed strategies are discussed in the following sections.

Reprioritize Discretionary Fund Expenditure

The discretionary funds expenditures are made for various City improvements, community programs and reserve accounts. Reducing non-maintenance expenditures would release funds for maintenance use. However, reducing non-maintenance related spending could have quality of life impacts to the City residents which cannot be measured monetarily.

Increasing Maintenance Funding from General Fund Revenue Growth

As an alternative, the City could set a percentage goal to be spent on infrastructure that might increase over time, in particular as the City’s revenues grow with economic development. In this way an increasing percentage of discretionary funds could be set aside for maintenance. This would be similar to how the City established increasing financial reserves over time.

It is proposed that the general fund contribution for infrastructure maintenance be increased

¹⁴ Funds spent on actual maintenance related construction activities, does not include overhead expenditures for maintenance related vehicles, buildings, non-project related staff time, etc.

from its current level of 3.3 percent of general fund revenues¹⁵ to approximately 10 percent. This increase can be achieved by increasing the general fund contribution to infrastructure maintenance by one-half percent annually over each previous year’s contribution for a period of 13 years. The one-half percent annual increase would be derived from growth in general fund revenues currently estimated at three percent per year.

Increasing Percentage of Property Owner Participation

Sidewalks account for approximately 24 percent of the overall need for rehabilitative maintenance. The Streets and Highways Code places responsibility for sidewalk repair on the adjacent property owner. Although not required by State law, the City’s practice is to pay a minimum of 50 percent of the required repairs. By requiring property owners to provide a larger share of the repair cost, the current total estimated rehabilitative maintenance amount can be significantly reduced. Furthermore, by requiring property owners to pay for sidewalk repairs, the City would limit its obligation for future sidewalk repair to the estimated 10 percent of the sidewalk system not adjacent to privately owned properties and for the Americans with Disabilities Act improvements. In order to accomplish the shifting of responsibility to property owners, the City will need to adopt an ordinance addressing this issue.

Based on the average billings to property owners for sidewalk repairs over the last five years, the average estimated cost to the property owners and the City for increasing the percentage of maintenance responsibility to the property owners are as follows:

<u>Program</u>	<u>Owner share</u>	<u>City Share</u>
Current Program (50% capped at \$1,000)	\$525	\$605
50% with no cap	\$565	\$565
75% with no cap	\$850	\$280
100% with no cap	\$1,130	\$0

Based on the above, the City could reduce its annual maintenance expenditure to cover only the 10 percent of the sidewalks for which the City is already 100 percent responsible. This would reduce its current unfunded maintenance backlog to less than \$1 million dollars and its routine maintenance need to approximately \$200,000 per year. In order to obtain economy of scale, it would be advantageous for the City to retain administration of the program, therefore, in the initial year the City would need to provide an initial multi-million dollar capital outlay to repair the residential and public sidewalks, which would not be recovered until the completion of the sidewalk repairs until the residents reimburse the City. This initial outlay would be substantially more than the current annual maintenance outlay. For example, should the City fund the maintenance as discussed and adjust the resident participation to 50 percent with no cap, the City’s initial annual outlay would be approximately \$5.9 million consisting of \$2.6 million to cover the residential portion and

¹⁵ Based on estimated FY 2005/2006 general fund revenues of \$84 million.

\$3.3 million for the City portion. Assuming 100 percent recovery from the first year residents, the City's subsequent annual outlays would reduce to the \$3.3 million with the residential reimbursement amount covering the each subsequent year's resident's amount.

Vehicle Impact Fees

A recent study prepared for the Engineering Division indicates that the City could generate approximately \$2 million per year by assessing vehicle impact fees to refuse collection and construction related vehicles (\$900,000 refuse vehicles, \$1.1 million construction vehicles). The basis for the report is that the street network, in particular residential streets, are significantly damaged by the heavy vehicle loads associated with solid waste collection and construction trucks, which are generally not accounted for in residential street design. Methods of assessing these fees would be through the refuse collection franchise fee and through construction related permit issuance. Due to the terms of the refuse collection franchise agreement, the refuse collection vehicle impact fee increases would be passed through to the collection customers. The average individual customer refuse collection fee increase is estimated to be three dollars per month. Construction vehicle related damage fees could be assessed in conjunction with construction permit issuance.

Because the basis for collecting vehicle impact fees is centered on pavement damage resulting from these vehicles, it is anticipated that revenue generated from these fees would be used specifically to supplement the current pavement maintenance expenditures.

Local Maintenance Districts for New Developments

As new developments are incorporated into the City, they increase the amount of infrastructure requiring maintenance. By requiring these developments to be self supporting, the costs for infrastructure maintenances fall on those residents most directly deriving the benefit of the infrastructure. The primary benefit to the residents of these districts is that by self-financing the maintenance, the residents are assured that maintenance of the infrastructure will occur on an optimal basis, thereby maintaining their relative property values. The funds generated for maintenance will depend on the number of properties assessed, size of the development, and size and type of the infrastructure infrastructures to be maintained. The developer would have to agree to the formation of the district as a condition of development, and take into consideration the potential impact to home sales resulting from the district. Both the Streets and Highways Code and Government Code authorize maintenance districts for water, electric and gas services as well as lighting and other necessary public services.

Local Maintenance Assessment Districts for Existing Neighborhoods

Similar to New Development Maintenance Districts, established neighborhoods can vote to form local districts. Although these districts would most likely need to fund a greater amount to pay for the deferred maintenance backlog, the City could consider funding the deferred maintenance backlog expenditures thereby limiting the districts obligations to covering only

future maintenance. The funds generated for maintenance will depend on the number of properties assessed, size of the development and size and type of the infrastructure infrastructures to be maintained. Formation of each local maintenance assessment district would require approval by the residents of the district.

Business License Tax Increase

In general, all businesses in the City generate impacts to infrastructure. Business employees and customers travel on City streets, use City facilities such as parks and trails, and rely on storm drainage and street lighting for safety and security. Based on recent business license revenues, it is estimated that approximately \$250,000 in revenue can be generated for every 10 percent increase in the business license fee. Because the Business License Tax is not used for specific purposes but is directed to the general fund, increasing this tax would only require a simple majority of the voters.

It should be noted that because the City's business license tax is pegged to business revenues, the amount of tax generated self-increases during periods of economic growth, thereby, automatically generating increased revenue.

Utility User Tax

A Utility User Tax based on consumption of utility services such as electricity, telephone, cable television, etc., may be imposed by the City. The City previously had a Utility User Tax in effect from September 1983 through June 1984 to generate a fixed amount of \$550,000 (Municipal Code Chapter 3.36). Currently approximately 160 cities in California levy a utility user tax, with rates ranging from 1 to 11 percent. If the tax is established for a specific purpose, the ballot would require a two-thirds voter approval. Otherwise, if established for general purposes, a simple majority is needed.

Statewide, in a typical city, the Utility User Tax generates approximately 15 percent of general purpose revenue. Cities in the San Francisco Bay Area that currently assess a Utility User Tax average approximately \$100 per capita in revenue, with an average tax rate of 6.75 percent (5% low, 7.5% high). Based on this Bay Area cities average per capita revenue, it is estimated that the City could generate approximately of \$8 million annually in tax revenue.

Citywide Parcel Tax

To affect a citywide solution to maintenance needs, a ballot initiative can be created calling for an increase in parcel taxes. In order to gain the necessary two-thirds voter approval, it may be necessary to dedicate these revenues to infrastructure maintenance with a commitment to keep the current maintenance expenditure levels. This would assure the voters that the current maintenance funds would be supplemented by the new taxes and are not diverted from the maintenance programs. It is estimated that on average, each \$100 increment increase in parcel tax per parcel, would generate \$2.5 million per year.

Transaction and Use Tax

The City can implement a Transaction and Use Tax, which is a local increase in the sales tax (similar to the Alameda County Measure B sales tax). Based on sales tax information, the City could generate approximately \$2.5 million annually per quarter-cent tax increment.

If the tax is established for a specific purpose, a two-thirds voter approval is required. Otherwise, if established for general purposes, a simple majority is needed. In the November 2005 election twelve cities throughout California placed transaction and use taxes on the ballot with nine of the twelve passing. Of these nine, seven were for general uses, requiring a majority vote and two were for specific purposes requiring a two-thirds majority.

The above strategies for funding infrastructure maintenance are summarized in Table 6.

Table 6 – New Revenue Summary

Revenue Strategy	Est. Annual Revenue	Estimated Implementation	Comments
Reprioritize Existing Expenditures	\$550,000 - \$2,250,000 ¹⁶	June 2006, with CIP	Impacts other City programs
Increase Property Owner Responsibilities	\$2,600,000-\$5,300,000 ¹⁷	June 2006	Shifts cost to property owners, Council action (ordinance)
Vehicle Impact Fees	\$2,000,000	June 2006	Council action (ordinance)
Maintenance Districts for New Developments	NA ¹⁸	June 2006	Shifts cost to future owners, developer approval required
Local Assessment Districts	NA	September 2006	Shifts cost to existing owners, owner approval required
Business License Tax Increase ¹⁹	\$250,000	March 2007	Voter approval required
Utility User Tax ²⁰	\$8,000,000	March 2007	Voter approval required
Citywide Parcel Tax ²¹	\$2,500,000	March 2007	Voter approval required
Transaction and Use Tax ²²	\$2,500,000	March 2007	Voter approval required

¹⁶ Based on increasing the current 3.3% share of discretionary funding to a range of 4% to 6%

¹⁷ Based on resident participation levels of 50% with no cap to 100% with no cap.

¹⁸ NA=Not Available - Funding impact cannot be evaluated due to dependence on multiple variables such as project prioritization, level of property owner participation, number of parcels in districts.

¹⁹ Based on average 10 percent increase in license fee.

²⁰ Based on the average per capita revenue generated by other San Francisco Bay Area cities.

²¹ Based on average \$100 per parcel tax increase.

²² Based on quarter cent sales tax increase (tax can be levied in quarter cent increments).

Maintenance Strategies

In addition to revenue enhancement strategies, changing maintenance strategies could provide some improvement to the infrastructure condition. These strategies include increasing maintenance funding to sustain the existing rehabilitative maintenance backlog at existing levels, slowly increasing maintenance funding over an extended period of time recognizing that infrastructure levels of service would decrease during the period, prioritizing maintenance so that funding is predominately directed to alleviate high risk infrastructure needs, and adopting reduced maintenance standards.

Increase Routine Maintenance Funding While Allowing Deferred and/or Rehabilitative Maintenance to Remain at Current Levels

Currently the City is still in an overall good state of repair even though the total current backlog funding need is approximately one-sixth of the total replacement cost. With proper routine maintenance funding, the City could maintain the current infrastructure condition, thereby maintaining the current infrastructure level of service. Forty-four percent of the required annual maintenance funding presented in Table 3 is related to eliminating the various rehabilitative maintenance backlog needs created by the previous insufficient maintenance funding. If the rehabilitative maintenance deficiencies were maintained at current levels, the proposed annual maintenance expenditure would be reduced by approximately \$14.6 million. However, this would allow deteriorated conditions to remain, since the maintenance backlog would not be addressed. Furthermore, even if the rehabilitative need was kept at the current level of \$14.6 million, an increase in the routine annual maintenance funding of approximately \$11.4 million would still be required to maintain the recommended annual routine maintenance funding of \$17.9 million.

Long Term Elimination or Deferred and/or Rehabilitative Maintenance

This strategy relies on increasing the routine maintenance funding as previously discussed so that the deferred and/or rehabilitative maintenance does not increase, and then relies on the existing non-discretionary funding sources to address the deferred and/or rehabilitative maintenance, without finding other funding sources. This would slowly address the deferred and/or rehabilitative maintenance need, ultimately improving the City's infrastructure.

Prioritize Maintenance Expenditures

Maintenance expenditures have typically been applied across the full spectrum of facilities to be maintained. Using a risk analysis, which considers the impact of maintenance to persons and property, it should be possible to determine risk levels associated with the various infrastructure facilities. Based on this analysis, maintenance expenditures could be focused on the highest risk categories. In addition, the analysis could be used to determine the level of rehabilitative maintenance backlog elimination needed and timing for required backlog elimination.

Adopt Reduced Maintenance Standards

Maintenance expenditures typically are made to restore the infrastructure to as near as originally constructed as possible. This often results in expenditures being made to restore little used portions of the infrastructure. For example, street resurfacing generally is completed by placing a new asphalt surface over the entire street width, when in actuality the most severe damage is limited to vehicle travel way in the center of the street. Based on the street width, this can result in expenditures of 30 to 60 percent more than necessary to restore the street to a useable, properly functioning condition.

Summary and Conclusion

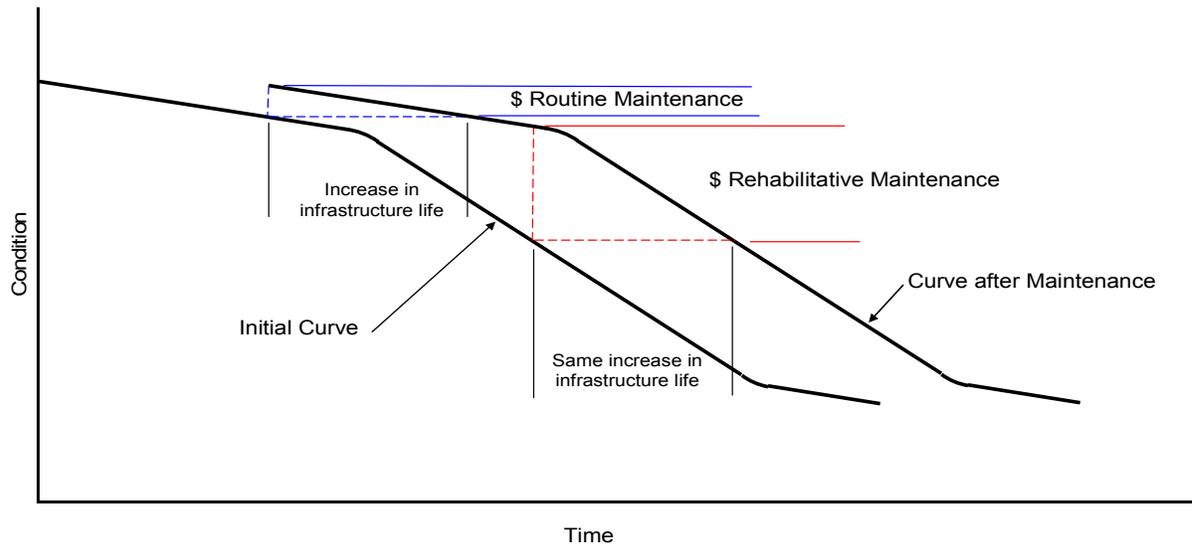
This report presented financial needs and considerations for maintaining the City's infrastructure, including ongoing and rehabilitative maintenance needs which have resulted due to previous insufficient maintenance funding. The City currently funds ongoing annual maintenance at a rate of approximately three-quarters of a percent of its replacement value. Due to this minimal annual maintenance funding rate the City's infrastructure is continuing to deteriorate, as demonstrated by a rehabilitative maintenance backlog funding need of approximately \$135.5 million, which is equivalent to 16.3 percent of the City's non-enterprise funded infrastructure replacement value.

The accelerated deterioration of the City's infrastructure will continue unless maintenance expenditures are increased by either increasing the general fund contribution to infrastructure maintenance, adding new revenue sources, adopting maintenance strategies that refocus maintenance efforts to the highest risk areas, or a combination of these practices. New revenue sources include: implementation of fees to offset user impacts, formation assessment districts; increases in property taxes; and establishment of local transaction and use, and utility user taxes²³.

Although by themselves none of these methods would generate the required funding to eliminating the rehabilitative maintenance backlog and provide for ongoing routine maintenance of the City's infrastructure in a generally accepted state of repair, combinations of these sources can provide for the total maintenance needs and eliminate future backlog. It must be noted that the tax proposals would require citywide voter approval and the formation of assessment districts would require the approval of the property owners within the districts. Although taxes and assessments may be generally unpopular it should be noted that proper maintenance of infrastructure benefits the property owners and residents by maintaining property value levels, and by providing an overall higher quality of life due to improved neighborhood appearances, increased recreational opportunity and by living in a community with reliable, functioning infrastructure facilities.

²³ An advantage of tax generated revenue is that the tax revenue can be used to leverage bond sales at a ten to one rate. This leveraged funding could then be immediately applied to reducing the existing deficit backlog thereby reducing the estimated annual maintenance expenditures presented in Table 3. Because the future tax collections would be applied to bond payments, the City would still need to fund routine maintenance through existing and other sources.

The City is approaching a point in time where application of routine preventative maintenance treatments will no longer keep the infrastructure in a sound operating state. The following figure presents a generalized life cycle curve for infrastructure modeled after the Metropolitan Transportation Agency’s pavement life cycle curve.



As shown on the figure, when maintenance is applied the infrastructure’s life is extended, as indicated by the curve’s shift to the right. It can also be seen that it will cost several times more for the same increase in infrastructure life, if maintenance is applied after the infrastructure condition has been allowed to decline significantly, than if the maintenance is applied earlier on in the infrastructure’s life. Furthermore, this greater expenditure would not restore the infrastructure to the same condition level as the routine preventative maintenance does. This is the cost penalty for not adequately funding routine preventative maintenance.

The current rehabilitative maintenance backlog indicates that the City is approaching the point in the life cycle curve where spending at a routine preventative maintenance level will no longer significantly impact the infrastructure condition. Therefore, solutions to funding adequate maintenance need to be implemented in the near future, before the infrastructure deteriorates to a point where only major repair or complete reconstruction will restore the infrastructure’s integrity, at a significantly greater cost.

In conclusion, it should be emphasized that the City of Livermore is not unique when it comes to infrastructure maintenance. Throughout the entire San Francisco Bay Area, local governments are grappling with the complex issue of infrastructure deterioration and funding. Recent study by the Metropolitan Transportation Commission shows that for the nine San Francisco Bay Area counties, over the next 20 years pavement and non-pavement (sidewalks, storm drains, curb & gutter) rehabilitative maintenance just for roadway related infrastructure systems will grow to over \$9 billion. In order to provide funding, local governments are assessing a variety of methods, either through countywide measures such as

implementation of vehicle licensing fees and sales tax increases, or through specific local measures, such as those discussed in this report. The City still has time to implement an effective infrastructure maintenance program, however this will require substantial change to the current infrastructure maintenance program funding.

Appendix A – Funding Computations

Buildings

Annualized Rehabilitative Backlog Elimination ¹	\$ 0
<u>Increased Annual Maintenance</u>	<u>\$ 550,000</u>
Total Maintenance Increase	\$ 550,000
<u>Current Maintenance Expenditures</u>	<u>\$ 850,000</u>
TOTAL REQUIRED FUNDING	\$1,400,000

Sidewalks

Annualized Rehabilitative Backlog Elimination ²	\$3,200,000
<u>Increase in Routine Annual Maintenance³</u>	<u>\$2,450,000</u>
Total Maintenance Increase	\$5,650,000
<u>Current Maintenance Expenditures</u>	<u>\$ 250,000</u>
TOTAL REQUIRED FUNDING	\$5,900,000

Curb & Gutter

Annualized Rehabilitative Backlog Elimination ⁴	\$ 400,000
<u>Increase in Routine Annual Maintenance⁵</u>	<u>\$1,650,000</u>
Total Maintenance Increase	\$2,050,000
<u>Current Maintenance Expenditures</u>	<u>\$ 50,000</u>
TOTAL REQUIRED FUNDING	\$2,100,000

Storm Drains

Annualized Rehabilitative Backlog Elimination ⁶	\$5,900,000
<u>Increase in Routine Annual Maintenance⁷</u>	<u>\$2,800,000</u>
Total Maintenance Increase	\$8,700,000
<u>Current Maintenance Expenditures</u>	<u>\$ 400,000</u>
TOTAL REQUIRED FUNDING	\$9,100,000

¹ Non-enterprise funded buildings. Assumes that the \$400,000 backlog of Americans with Disabilities Act improvements will be completed in a single year.

² Assumes maintenance backlog eliminated in 10 years.

³ Assumes routine maintenance provides for system replacement over service life of 50 years at 2% of replacement value per year.

⁴ Assumes maintenance backlog eliminated in 10 years.

⁵ Assumes routine maintenance provides for system replacement over service life of 50 years at 2% of replacement value per year.

⁶ Assumes maintenance backlog eliminated in 20 years.

⁷ Assumes routine maintenance provides for system replacement over service life of 100 years at 1% of replacement value per year.

Streambeds

Annualized Rehabilitative Backlog Elimination ⁸	\$1,050,000
<u>Increase in Routine Annual Maintenance⁹</u>	<u>\$ 350,000</u>
Total Maintenance Increase	\$1,400,000
<u>Current Maintenance Expenditures</u>	<u>\$ 100,000</u>
TOTAL REQUIRED FUNDING	\$1,500,000

Street Lights & Traffic Control Systems

Annualized Rehabilitative Backlog Elimination ¹⁰	\$1,200,000
<u>Increase in Routine Annual Maintenance¹¹</u>	<u>\$ 800,000</u>
Total Maintenance Increase	\$2,000,000
<u>Current Maintenance Expenditures</u>	<u>\$ 500,000</u>
TOTAL REQUIRED FUNDING	\$2,500,000

Trees, Landscaping, Parks & Trails

Annualized Rehabilitative Backlog Elimination ¹²	\$1,300,000
<u>Increase in Routine Annual Maintenance¹³</u>	<u>\$1,500,000</u>
Total Maintenance Increase	\$2,500,000
<u>Current Maintenance Expenditures</u>	<u>\$2,200,000</u>
TOTAL REQUIRED FUNDING	\$5,000,000

Pavement

Pavement maintenance funding determined using the Metropolitan Transportation Commission Pavement Management Program.

⁸ Assumes maintenance backlog eliminated in 20 years.

⁹ Estimated cost for routine silt removal and vegetation control.

¹⁰ Assumes maintenance backlog eliminated in 5 years.

¹¹ Estimated cost for routine striping and traffic signage maintenance, traffic signal replacement over service life of 30 years and street light replacement over service life of 40 years.

¹² Assumes maintenance backlog eliminated in 10 years.

¹³ Assume maintenance schedule change from once every 2 years to twice a year with vegetation replacement over service life of 30 years.