Memorandum

TO: HONORABLE MAYOR  
AND CITY COUNCIL  

FROM: Jim Ortbal  

DATE: March 21, 2017  

SUBJECT: ANNUAL PAVEMENT MAINTENANCE STATUS REPORT & FUNDING STRATEGY UPDATE  

RECOMMENDATION  

1. Accept this status report on San Jose’s current pavement conditions, maintenance funding needs, and annual updated funding strategy to improve Citywide pavement conditions.  

2. Recommend a cross-reference of this report to the April 25, 2017 City Council agenda.  

BACKGROUND  

The City’s most valuable transportation asset is the street network consisting of 2,434 miles of pavement, with an estimated value of about $4 billion. As a result of age and inadequate investment for maintenance, particularly in the past decade, the overall condition of the street network is steadily deteriorating. San Jose’s pavement is rated overall in “fair” condition with an average Pavement Condition Index (PCI) rating of 62 on a scale of 0-100, with 100 being a new street. Due to insufficient and inconsistent funding for maintenance, the backlog of deferred maintenance has grown from $250 million in 2010 to $584.4 million in 2017.  

In 2010, the City Council held a Study Session on the topic of pavement maintenance to discuss the status of pavement conditions and funding strategies to reduce or eliminate the growing liability of pavement maintenance. At that time, the City established a goal of improving pavement conditions to an overall “good” rating with a PCI rating of 70 by 2020. Accomplishing this would have required an average annual investment of $100 million. Funding for pavement maintenance has fallen well short of this amount each year since 2010.  

In 2012, in response to the reality of insufficient funding to maintain all City streets, the City Council provided direction to staff to target available pavement maintenance funds to the City’s most important and heavily travelled major streets. This resulted in the creation of two major street categories: (1) the Priority Street Network (PSN), and (2) the Other Major Streets (OMS) network. These major street categories represent only about 40 percent of the entire City street...
system, yet they carry approximately 87 percent of traffic in and through the City. Since 2012, and due to the allocation of available funding to these major street categories, DOT has been able to stabilize the PSN in “good” condition (currently PCI 76) and bring the condition of the OMS to the upper end of the “fair” category (currently PCI 68).

However, in 2015, DOT reported to the City Council that while conditions on the major streets were improving, persistent funding shortfalls, particularly for the maintenance of the City’s local and neighborhood streets, had caused further decline in the overall pavement network conditions and the backlog of deferred maintenance had reached $504 million.

Also in 2015, the City Auditor conducted an audit titled Street Pavement Maintenance: Road Condition is Deteriorating Due to Insufficient Funding. The audit identified insufficient and inconsistent funding levels as the root cause of the continued decline of the network, and projected that the Citywide drop in pavement conditions would continue and the rate of decline would increase until much more significant and ongoing investments were made. The audit also concluded that DOT strategically, effectively, and efficiently utilizes the limited funds available for pavement maintenance by appropriately identifying and prioritizing maintenance needs, specifying, contracting, and inspecting proven pavement construction processes, and implementing innovative paving technologies, such as Cold In-Place Recycling (CIR).

Currently, as stated above, the overall condition of the pavement network continues to decline and the backlog of one-time deferred maintenance continues to grow at an alarming rate. While recent one-time investments have slowed the rate of system-wide deterioration, the short and long-term outlook for the street system is bleak, especially for the local and neighborhood streets where most residents live. Unless new additional funding for pavement maintenance is obtained, overall pavement conditions will continue to decline and the backlog of deferred maintenance will grow to approximately $1.1 billion in 2022 and $1.8 billion in 2027.

On a positive note, the community has responded positively in recent months to ballot measures that have improved the funding outlook for pavement maintenance, and there are other funding opportunities that if largely realized, would significantly improve pavement conditions.

**ANALYSIS**

**Rating Pavement Conditions**

DOT utilizes a standard set of pavement condition rating criteria established by the Metropolitan Transportation Commission (MTC) to regularly assess the conditions of the City’s streets. Data from these assessments are then entered into the City’s Pavement Maintenance Management System where pavement conditions and funding needs are formulated and can be analyzed.

The condition of a street, or network of streets, falls into one of four categories following the MTC Pavement Condition Index (PCI) rating system. PCI ratings range from “excellent” (PCI
100) to “failed” (PCI 0). Figure 1 below provides a general description of the PCI rating scale and the associated condition ratings.

Figure 1 – Pavement Condition Index (PCI) Rating System

<table>
<thead>
<tr>
<th>PCI Categories</th>
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<tbody>
<tr>
<td>100</td>
</tr>
<tr>
<td>70-100</td>
</tr>
<tr>
<td>Good to Excellent</td>
</tr>
<tr>
<td>70</td>
</tr>
<tr>
<td>50-69</td>
</tr>
<tr>
<td>At Risk to Fair</td>
</tr>
<tr>
<td>50</td>
</tr>
<tr>
<td>26-49</td>
</tr>
<tr>
<td>Very Poor to Poor</td>
</tr>
<tr>
<td>25</td>
</tr>
<tr>
<td>0-25</td>
</tr>
<tr>
<td>Failed</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

The MTC recommends that agencies maintain pavement networks at an average PCI rating of 80. Studies supporting this goal have shown that investing in frequent (e.g. every four to six years) and relatively low-cost preventative maintenance treatments on a street in good condition will greatly lengthen the time before costly resurfacing, rehabilitation or reconstruction is required. The common term used to describe this concept is that $1 spent today saves $5 later. San Jose’s goal is to obtain and sustain an average PCI rating of 70. A goal of PCI 70 generally reduces the frequency of prescribed preventative maintenance to every eight to ten years, but also results in a more frequent need for resurfacing at a higher overall cost.

The pictures in Figure 2 on the next page provide visual examples of pavement in various states of condition that correlate to the PCI scale shown above. However, it’s important to understand that the condition rating of a street goes beyond its visual characteristics. Different types of failures (e.g. cracking, raveling, shoving, sinking, etc.) and the degree of failure can have varying effects on a condition rating.
Figure 2 – Pavement Condition Index (PCI) Rating Examples

Good (PCI 100 to 70)  Fair (PCI 69 to 50)

Poor (PCI 49 to 25)  Failed (Below PCI 25)
**Current Pavement Conditions**

As illustrated in Figure 3 below, the City’s pavement maintenance program can be categorized into three main groups. In sequential priority order, they include Pothole Repairs and Program Management, All Major Streets, and Local and Neighborhood Streets.

*Figure 3 – San Jose Pavement Maintenance Pyramid*

- **Overall Network**
  - 2,434 Miles
  - PCI 62
  - $108.8M Annual Need
  - $584.4M Backlog

- **All Major Streets**
  - 944 Miles
  - Carries 87% of Traffic
  - PCI 73
  - $23.9M Annual Need
  - $111.68M Backlog

- **Local Streets**
  - 1,490 Miles
  - PCI 54
  - $78.7M Annual Need
  - $472.73M Backlog

- **Local & Neighborhood Streets**
  - Good to Fair Condition (963 Miles, 63 PCI) Backlog $73.77M
  - Poor to Failed Condition (523 Miles, 31 PCI) Backlog $398.96M

Figure 3 also describes the conditions of the street network as follows:

- The overall condition of the City's entire 2,434-mile street network is rated in "fair" condition at a PCI rating of 62. There is currently a backlog of one-time maintenance needs totaling $584.4 million and an annual overall funding need of $108.8 million.

- The City's 944-mile major street system is rated as "good" with a PCI rating of 73. There is a one-time backlog on the major street system of $111.68 million. The major street system is about 40 percent of the overall street network, yet carries approximately 87% of all traffic.
There are two street categories within the major street system: (1) the Priority Street Network (PSN), and (2) the Other Major Streets (OMS) network. The PSN is 544 miles of the City's most important and heavily traveled streets. The OMS network comprises the remaining 400 miles of heavily traveled major streets. The current condition of the PSN is rated as "good" with a PCI rating of 76, and the condition of the OMS network is rated as "fair" with a PCI rating of 68. Both the PSN and the OMS are now fully funded at approximately $23.9 million annually.

The City's 1,490 miles of local and neighborhood streets have a PCI rating of 54, a rating in the lower range of the "fair" category, with many streets at risk of rapidly falling into "poor" condition where the cost to rehabilitate a street can be about five times higher than if they were preventively maintained on a prescribed schedule. This represents a decrease of pavement condition by four points from 58 in 2012, and is directly the result of the City not performing any maintenance on local and neighborhood streets since 2012 and even longer. In fact, 1,175 miles, or 80% of local and neighborhood streets, have not received maintenance in the last 10 years. Nearly 70% of the citywide deferred maintenance backlog is associated with the 523 miles of local and residential streets in poor condition and needing rehabilitation. Looking forward, the City is expecting over $50 million in one-time funding over the next two years. Restarting a local and neighborhood street maintenance program will be a priority for this funding, as well any new one-time or ongoing funding secured by the City.

Unfortunately, yet predictably, the overall condition of the pavement network continues to decline and the backlog of deferred maintenance continues to grow. In 2016, the overall condition of the pavement system was rated at PCI 64 with a deferred maintenance backlog of $521.5 million. The overall condition rating is now PCI 62 with a deferred maintenance backlog of $584.4 million. In 2010, the backlog of deferred maintenance was $250 million.

While San Jose is not alone when it comes to declining pavement conditions and growing backlogs of deferred maintenance, many other local jurisdictions have found ways to more fully fund pavement maintenance and keep their streets in better condition. San Jose continues to have the lowest rated streets in Santa Clara County and remains in the bottom one-third compared to over 100 MTC Bay Area cities. This report does not attempt to explain why that is the case, but it is useful to understand how San Jose's pavement conditions compare to other surrounding jurisdictions. See ATTACHMENT A for a list of pavement conditions for all Santa Clara County jurisdictions plus San Francisco and Oakland.

**Current Pavement Maintenance Funding Levels and Projections**

Over the next five years, annual ongoing funding is projected at $31.3 million. The sources of the ongoing pavement maintenance funding are listed in Figure 4 below.
Figure 4 – Ongoing Pavement Maintenance Funding

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Ongoing $ millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Construction Excise Tax</td>
<td>$4.0</td>
</tr>
<tr>
<td>State Gas Tax</td>
<td>$2.4</td>
</tr>
<tr>
<td>VTA Vehicle Registration Fees</td>
<td>$5.9</td>
</tr>
<tr>
<td>VTA 2016 Measure B Sales Tax</td>
<td>$19.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$31.3</strong></td>
</tr>
</tbody>
</table>

Ongoing funding levels ($31.3 million) are now sufficient to fully fund the maintenance of the major streets. A total of at least $30.2 million is needed annually to fund pothole repairs and necessary program management activities, sustain the PSN in “good” condition, and eventually improve the OMS to “good” condition.

Additionally, one-time funding over $50 million is expected in the next two years from various local, State and Federal sources. The sources of this funding include increased revenues from City construction taxes in excess of previous budget forecasts, 2016 Quarter 2 VTA Measure B funds, reallocated State route relinquishment funds, increased State Gas Tax revenues, and Federal grants. The graph in ATTACHMENT B shows the total annual amount of projected funding over the next ten years.

Pavement Maintenance Ongoing Funding Needs and Projected Conditions

While the additional one-time funding is certainly welcomed, it cannot be counted on to sufficiently address the City’s pavement maintenance needs. A significant level of new ongoing investment must be secured in order for the City’s streets to remain in their current “fair” condition (not drop below PCI 62) or to improve to a “good” condition (PCI 70). The total annual ongoing investment needed over ten years to remain at PCI 62 is $75 million, and a total of $108.8 million is needed over ten years to reach PCI 70. Based on the projected ongoing annual investment of $31.3 million, the City has a funding shortfall of $43.7 million per year to sustain the pavement system in its current condition of PCI 62 (get no worse), and a $77.5 million annual shortfall to reach an overall “good” condition rating of PCI 70 (improve to good).

The table in Figure 5 below describes the funding necessary to achieve these two scenarios.
Overall, the current funding projections paint a bleak picture for the Pavement Maintenance Program. At current and projected funding levels, the condition of the entire pavement network will decline to overall “poor” condition with a PCI rating of 49 in 2027, and the backlog of deferred maintenance will continue to grow, reaching $1.1 billion in 2022 and $1.8 billion in 2027. The chart in ATTACHMENT C further illustrates the current and projected backlog of deferred maintenance.

### Potential New Funding Sources

As previously directed by the City Council, staff is aggressively pursuing every available opportunity for increasing the allocation of funding for pavement maintenance. In this regard, 2017 is a critical year for the City's Pavement Maintenance Program with several opportunities that need to be seized. Discussions and developments related to increasing investments for transportation infrastructure are currently active at the local, regional, State and Federal levels. While none of these elements on their own will substantially address the pavement maintenance funding needs of the City, they have the potential to have a large impact on the City’s ongoing shortfall if collectively realized.

### Local (City)

In June of 2016, 61% of voters passed the City of San Jose Measure B, a quarter-cent general purpose sales tax measure. A key driver of the campaign was the poor condition of the City’s streets. Information from the 2015 audit of pavement maintenance was shared with the community and they understood and agreed with the need for more pavement maintenance funding. Additionally, funding for pavement maintenance was one of the priorities established for the use of the sales tax revenue. For Fiscal Year 2016-2017, the San Jose City Council made a one-time allocation of $17.7 million in projected revenue from the City Measure B for street pavement maintenance. However, none of the revenues from the measure are currently allocated to pavement maintenance beyond Fiscal Year 2016-2017. An ongoing allocation of these funds...

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### Figure 5 – Annual Investment Needs (in $ millions)

<table>
<thead>
<tr>
<th>Funding Scenario</th>
<th>Ongoing Funding Allocation/Need</th>
<th>Shortfall to Achieve Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pothole Repair &amp; Program Management</td>
<td>Major Streets</td>
</tr>
<tr>
<td>Current Funding</td>
<td>$6.3</td>
<td>$25</td>
</tr>
<tr>
<td>Get No Worse (PCI 62)</td>
<td>$6.3</td>
<td>$27.1</td>
</tr>
<tr>
<td>Improve to Good (PCI 70)</td>
<td>$6.3</td>
<td>$23.9</td>
</tr>
</tbody>
</table>
would allow the City to establish a proactive annual approach to maintaining the City’s local and neighborhood streets.

**Regional/County**

In November of 2016, nearly 72% of voters passed Santa Clara County Measure B. The 30-year, half-cent countywide sales tax measure will raise an estimated $6.3 billion. The measure will allocate $1.2 billion for local streets and roads maintenance over 30 years. Each city in Santa Clara County will receive local streets and roads maintenance funding according to a formula that is based on population and road miles and it is estimated that San Jose will receive approximately $19 million annually. VTA is expected to program funding from Measure B in two-year increments to align with its bi-annual budget process. These funds are already accounted for in the annual funding projections for the next ten years.

**State**

Senator Beall introduced SB 1 and Assemblymember Frazier introduced AB 1 to raise approximately $6 billion annually statewide to improve State and local roads and other transportation infrastructure. The bills raise funding from various sources including State gas and diesel fuel tax increases, vehicle registration fees, electric vehicle fees, and other sources. Road and bridge maintenance and repair revenues would be split approximately 50/50 between State and local agencies. If AB 1 (Frazier) or SB 1 (Beall) were to become law, the City of San Jose would receive an estimated $34.9 million annually and $5.5 million in one-time funds for pavement maintenance. SB 1 (Beall) recently passed the Senate Policy and Appropriations Committee and is now up for consideration by the full State Senate. Governor Brown also included a more modest transportation funding package in his proposed budget that would raise roughly $4 billion annually. While the tax and revenue proposals require a difficult two-thirds approval by the legislature, it is an encouraging sign that the Governor and key members of the legislature remain engaged in considering new revenue for transportation improvements.

**Federal**

The City of San Jose will receive approximately $14.5 million to support the San Jose Pavement Maintenance Program from Cycle 2 of the One Bay Area Grant (OBAG). These funds originate from the Federal 2018-2022 Surface Transportation Block Grant Program (STBGP) and Congestion Mitigation and Air Quality (CMAQ) program. The Mayor’s March Budget Message for Fiscal Year 2017-2018 is recommending that the Administration explore accelerating these funds by one year into the FY 2018-2019 budget, which will push total annual funding to $50 million and allow for a second consecutive year of local and neighborhood street maintenance in 2019. Staff is monitoring any new developments related to transportation funding at the federal level.
Annual Pavement Maintenance Investment and Funding Targets

The latest developments at the State, regional and local levels provide a fairly optimistic, but potentially achievable target for pavement maintenance funding that could be between $70.3 million and $86.2 million annually. Figure 6 below breaks-down the funding sources used to estimate those amounts.

Figure 6 - Potential Pavement Maintenance Funding ($ in millions)

<table>
<thead>
<tr>
<th>Ongoing Funding Source</th>
<th>Range of Potential Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>Existing Ongoing Funding</td>
<td>$31.3</td>
</tr>
<tr>
<td>New State Legislation/Governor’s Budget</td>
<td>$19.0</td>
</tr>
<tr>
<td>Existing and Potential State Ongoing Funding</td>
<td>$50.3</td>
</tr>
<tr>
<td>Additional Local Funding (currently unidentified)</td>
<td>$20.0</td>
</tr>
<tr>
<td>Total Potential Ongoing Funding</td>
<td>$70.3</td>
</tr>
</tbody>
</table>

While the combination of existing ongoing funding sources and increased state funding would improve pavement maintenance activity, a further additional infusion of funding, most likely from the City, would be needed on an ongoing basis to help the City achieve the previously described "get no worse" scenario. A total of $75.0 million is needed to achieve this scenario.

For discussion purposes, since a source is not identified, the table above includes additional local funding of $20.0 million. With a total potential amount of ongoing revenue between $70.3 million and $86.2 million annually, the City would then be within the range of funding needed to maintain the pavement network at its current condition rating of PCI 62 ("get no worse"). The funding level for the "get no worse" scenario would fall somewhere between an annual shortfall of $4.7 million and a surplus of $11.2 million.

To improve the overall condition of the network to a PCI rating of 70 ("improve to good"), the City needs $108.8 million per year. With $70.3 million and $86.2 million in potential funding available, the City would still need $22.6 million to $38.5 million annually to achieve the "improve to good" scenario. A local bond measure would likely be the best approach to reach full funding. Bond funds are limited to capital improvements, so they could be used to rehabilitate and reconstruct the 500 plus miles of local and residential streets in poor condition.
Maintaining Streets Where Most of Our Residents Live

As stated above, additional one-time money is projected for FY 2017-2018 and FY 2018-2019. While this funding will not significantly address the on-going maintenance needs of the street network, it will allow for maintenance to occur on the City's local and neighborhood streets in 2018 for the first time since 2012. Unfortunately, due to the one-time nature of the funding, work would end after 2019.

This is concerning for two reasons. First, one-time funding will not allow the City to implement a systematic long-term strategy for maintaining local and neighborhood streets. With nearly 1,500 miles of local and neighborhood streets, establishing a systematic, cyclical, and predictable approach to maintenance is the best way to consistently improve residential street conditions across the City, efficiently utilize our staffing and contractual resources, and avoiding confusion and frustration among our residents.

The second and probably more important reason is the fact that the vast majority of our residents live on our local and neighborhood streets, and the condition of those streets clearly affect how our residents feel about their neighborhoods and the quality of life in San Jose. We are often reminded of this by stories from residents about people improving their homes and taking more pride in the overall condition of their neighborhood following the maintenance of their street. It’s also true that most of the complaints we receive from our residents are about the poor condition and lack of maintenance on their residential street.

To address these concerns and establish a practical pavement maintenance program for the City’s local and neighborhood streets, additional ongoing funding must be secured. With over $50 million in one-time funding over the next two years and the major street networks being fully funded with ongoing money, it is expected that the one-time funds will be used to initiate pavement work on the local and neighborhood streets in the summer of 2018 and 2019. Should the City’s financial outlook improve from the most recent forecasts, or other funding sources be identified, an additional annual infusion of $20 million beginning in FY 2019-2020 could be applied toward maintenance on the local and neighborhood streets in the summer of 2020 and beyond.

A $20 million annual program would significantly slow down the overall deterioration of the local and neighborhood network and reduce the long-term costs to recover from the backlog. The table in Figure 7 below illustrates how a two-year, $20 million per year program would impact pavement conditions compared to a ten-year, $20 million per year program.
The difference in the investment over ten years is $160 million, but it is estimated that the City would save approximately $230 million in deferred maintenance costs at the end of the ten-year period. Additionally, with $20 million for only two years, the overall condition of the local and neighborhood street network would fall to "poor" (PCI 46) by 2022 and further decline to a PCI rating of 35 in 2027. Ongoing funding of $20 million would reduce the amount of decline in the condition of the network by 4 and 9 PCI points in 2022 and 2027, respectively.

More importantly, an ongoing increase of $20 million per year would enable DOT to maintain approximately 75 miles of streets each year in the neighborhoods where most residents live. A rough estimate based on typical lot sizes and street widths would indicate that a 75 mile local and neighborhood street maintenance program would benefit approximately 11,000 homes every year.

Additional ongoing funding beyond $20 million would still be needed to fully fund the proper maintenance of the local and neighborhood streets and improve them to "good" (PCI 70). The likely revenue sources include a State infrastructure bill and a local bond measure that would focus on rehabilitating streets that are in poor condition.

CONCLUSION

The City remains at a critical juncture in 2017 regarding pavement conditions and funding levels. While the City has significantly underinvested in pavement maintenance for many years, the funding situation improved in 2016 and there are several more opportunities on the horizon. Taking advantage of newly approved funding measures and continuing to advocate for and develop new funding sources are critical actions that need to occur now. It is necessary for the City to take bold action to make them a reality. Unless a large amount of new funding is obtained, the condition of the City's streets will continue to rapidly decline and the backlog will continue to grow at an alarming rate. With a current condition rating of "fair" (PCI 62) and backlog of one-time deferred maintenance at $584.4 million, projections indicate that by 2022, the street network will be close to an overall rating of "poor" (PCI 50) with a $1.1 billion deferred maintenance backlog. If this were to occur, it is unrealistic to expect that the City and the community will have the capacity for a recovery.
COORDINATION

The preparation of this report has been coordinated with the City Manager's Budget Office and the City Attorney's Office.

Jim Ortbal
Director, Department of Transportation

For questions, please contact Kevin O'Connor, Assistant Director, (408) 535-3563.

Attachments