

STAFF REPORT

DATE: April 9, 2013

TO: City Council

FROM: Robert A. Clarke, Interim Public Works Director
Michael Mitchell, Principal Civil Engineer

SUBJECT: Pavement Management Report

Recommendation

Staff recommends Council approve the following strategies for implementation;

1. Approve the guiding principles shown in the staff report.
2. Approve the use of the current fiscal year's contract pavement maintenance budget to provide necessary local funds for our existing grant funded road projects.
3. Prioritize any remaining FY 12/13 contract pavement maintenance funds for a Path Maintenance project this calendar year.
4. Direct staff to return to Council no later than October with the list of "higher priority" streets and Paths after public discussion with appropriate Commissions.
5. Direct staff to return to Council with specific proposals to increase the pavement maintenance budget with identified revenue sources before the end of the calendar year.

Fiscal Impact

The fiscal impact of transportation infrastructure operations and maintenance activities is significant and is one component to be considered in the City's overall budget. The long-term sustainability of a safe and effective transportation system involves the coordination of many different City services and will be addressed as part of the ongoing City budget discussions this Spring.

Council Goal(s)

Preparation of this Report addresses the following City Council goals;

- (FS-3) Review pavement management index criteria for selection of projects.
- (I-3) Prioritize maintenance of sidewalks, bike paths and streets.
- (I-2) Examine projects and services in order to update and prioritize unmet needs. Identify funding mechanisms.

Background

At the February 5th meeting, City staff presented the Pavement Management Report prepared for the City by Nichols Consulting Engineers (NCE). This report identified a funding gap for the maintenance of streets and bike paths and provided the basis for discussion of possible policy

issues that will help refine the City's pavement maintenance strategy. The discussion involved issues falling into two broad categories; fiscal issues, and maintenance strategy issues.

Fiscal Issues:

The Council discussion about the funding gap between the current baseline budget for pavement maintenance and the budget it would take to halt the steady deterioration of our average pavement conditions and reach a sustainable level acceptable to the community covered many issues. The list below is a general summary of the main issues raised;

1. Desire to review current sources of funding that could be used for maintenance and how best to prioritize it.
2. Desire to look at alternative local funding possibilities, including; sales tax, parcel tax, and other options.
3. Consider whether a possible bike licensing fee could be implemented with a portion allocated to repair bike paths.
4. Ensure staff is maximizing the efficient use of available State and Federal funds and pursuing appropriate available grant programs.
5. Suggestion to engage with partners to find realistic options for grants or matching programs.
6. Encourage our State and Federal legislators to work on changing the funding mechanisms for pavement maintenance, including allowing for changes to the Gas Tax.

The topic of what our existing available revenue sources are and how they can be prioritized will be addressed with the ongoing FY 2013-14 budget discussions that began earlier tonight. Many of the remaining fiscal items will likely be considered and addressed on a longer term basis and will be the subject of future Council discussion.

To provide some information on available grant programs that staff tracks, Attachment 1 has been provided and shows programs that are followed and evaluated to consider submitting funding applications to. It should be noted that while the list of available grant programs is significant, only a few provide funds explicitly for maintenance, many others support specific improvements that Davis does not always have a competitive project to submit, and still others provide very small awards that may not justify the expense of the effort to submit an application.

While the Council discussion began with a focus on the fiscal needs of pavement maintenance, it expanded to the broader context of a sustainable maintenance program for all transportation infrastructure. In an effort to put the cost of pavement maintenance into perspective fiscally, Attachment 2 provides a rough idea of the other components of the transportation infrastructure and the relative current budget for each.

The current budget for all Transportation operations and maintenance functions, excluding funds provided to the three Transit service providers, totals approximately \$7.8 million with 50% of

that (\$3.9million) allocated to pavement maintenance. Of the total currently budgeted for pavement maintenance, approximately \$3 million is for contract services. The \$3 million contractual services budget assumed revenue and expenditure changes that have not been realized this fiscal year. As a result, staff believes only \$2 million of this is actually available for use this year. Most of these funds will be used to support the local matching funds for grant and developer funded projects with a pavement maintenance component suchas; First Street from B to G Streets, Fifth Street from A to L Streets, Eighth Street from F to J Streets, Drexel Boulevard from J to L Streets and the Drummond/Chiles/Cowell Traffic Circle.

Because the of the significant number of grant funded projects for roadways this year and the need for local funds to deliver them, staff does not believe we will have sufficient remaining funds to perform a cost effective road maintenance project this year. If, after bids have been awarded for the above noted projects later this Spring, there are funds remaining, staff believes it would be possible to pursue a cost effective path maintenance project with a smaller budget. Staff would evaluate this once we have better knowledge of the remaining budget and would return to Council with a recommendation before the end of this fiscal year.

Maintenance Strategies:

The Streetsaver Program and how the City uses it as a tool in our pavement maintenance activities was broadly presented at the February 5, 2013 City Council meeting. Staff discussed the discretionary variables that are the basis of the program logic (budget, paving asphalt inflation rate, PCI goals and maintenance treatments) and provided examples to demonstrate what the trade-offs would be for different choices for these variables. These initial examples suggested a large unfunded liability under all scenarios. Council discussion resulted in the following comments;

- Let's aim to fix it as best as possible.
- Desire to avoid letting unfunded liability grow.
- Requested the scenario where the backlog is held to "equivalent to what it is today" based on interest/inflation rate assumptions (Staff example: 12% of asset value).
- Requested staff consider safety as a key issue in prioritizing maintenance with a particular focus on bicyclist safety issues.
- Suggested that street trees providing shade along streets can prolong the life of the pavement.
- Suggested that the City encourage experimenting with different treatments where possible and to continue consulting with University experts for best practices.
- Suggested different pavement treatments could be possible, with rougher pavement for cars in the main road and smoother pavements in the bike lanes for cyclists.

- Construction standards for new roads, sidewalks and bike paths need to provide the quality that the community desires.

While all of the key variables used in the Streetsaver Program can be adjusted, the Council comment to address the challenge “as best we can” is the direction staff is pursuing. Relative interplay between pavement treatment, pavement conditions (PCI) and budget leads to an assessment of which variables are more under the control of the City than others. Clearly the City can decide what PCI goal to pursue and what treatments to utilize, but these must be balanced with the fiscal factors that the City has either no influence on (future paving asphalt costs), or only limited ability to determine (future revenue allocations).

As was discussed in February, the current model assumes an average inflation rate of 8% for paving asphalt. This rate is much higher than revenue is forecast to grow over the same period. This leads to the ever widening gap between the costs and our ability to pay for them. The Initial model runs use a weighted average based on the most recent 20 year history of costs. The City could decide that this is overly conservative and that future costs will not continue at this average rate over the next two decades. But like all forecasts, the consequences of underestimation will only lead to more challenges in the future. While staff will continue to monitor the cost of paving asphalt and adjust the model assumptions in an ongoing manner, assuming a lower rate now only results in a slightly lower future cost to maintain our pavement and does not solve the funding gap by itself.

Council was presented with three scenarios with the NCE Report and we are including two more here for comparison;

Scenario 1 - Maintain current funding levels of \$1M for roads and \$200,000 for paths.

Scenario 2 - Increase funding levels to obtain an average PCI of 70 for roads.

Scenario 3 - Increase funding levels to maintain the backlog at current levels.

Scenario 4 - Provide an infusion of \$25M over the first two years and increase funding to maintain an average PCI of 68 for roads and paths.

Scenario 5 - Provide an infusion of \$25M over the first two years and maintain a steady funding level of \$3M a year thereafter.

With Scenarios 4 and 5, in recognition of the potentially unobtainable fiscal needs of the earlier Scenarios and following discussion with UCD and other pavement experts, staff also revised the decision tree logic for pavement maintenance by assuming a higher threshold before complete pavement reconstruction and major overlays were utilized and increased the use of preventative treatments including, crack sealing and seal treatments. The comparison table is shown as Attachment 3. These two scenarios consider how an up-front infusion of \$25M may significantly help address current pavement conditions and improve the overall average PCI more quickly than slowly adding a little more to our ongoing annual maintenance budget,

While the City will be discussing ways to increase the funds budgeted for pavement maintenance over the rest of this year, all scenarios make assumptions about increasing existing revenues, reducing expenses and generating new revenues, which are not certain to occur in any near-term time frame. The hope is that the City will be able to increase the funding level over time, but it may not be possible to quickly achieve this.

Therefore, staff believes it is important to pursue the two factors that we do have control over; pavement maintenance treatments and the PCI goal. With this in mind, staff recommends the following general guiding principles;

1. Set a general goal for the average PCI for pavement from 70 to the low 60's. This recognizes that an average PCI value does not fully address the best interests of the community and should not be the overriding factor driving maintenance decisions.
2. Use a goal of prioritizing key streets of community value at a higher level than local streets. These streets should generally be the higher volume streets and/or streets serving key areas such as; commercial zones, parks, schools and public facilities. These streets should also include all roads that serve bus routes, have bike lanes, or serve as key bicycle corridors.
3. Use a lower PCI goal for all local residential streets and focus the maintenance strategy on safety and low cost treatments rather than overlays and reconstruction.
4. Employ a maintenance strategy that prioritizes keeping as many of the streets currently in good condition from deteriorating to a poor condition and only invest significant funds to address existing streets in poor shape when overall public safety cannot longer be addressed with minor patch paving and other low cost treatments.
5. Do not allow new roads, or enhanced corridors to implement improvements that create future higher pavement costs for the City unless specific funds are identified for this purpose.
6. Maintain the condition of bike paths to a comparable, or higher, standard than that of streets.
7. Defer major investments in the maintenance of bike path pavement that is impacted by trees until long-term decisions are made about removing and replanting with alternative species the trees impacting the path, or use alternative surfaces that will result in lower future maintenance costs.
8. Where an investment in path will not result in a basic service life of 20 years with normal maintenance, consider limiting maintenance to safety improvements only rather than overlays and reconstruction. This goal acknowledges the value the City places on its urban forest and landscaped spaces and that in some areas it is not possible to have a paved path that will last for 20 years under typical maintenance. Where these corridors exist, it would not be a fiscally prudent investment to perform the more expensive treatments if the pavement is not expected to have an industry normal service life.
9. Employ similar strategies on the Path network as with the streets to maintain the higher use/value path segments to a higher level than lesser used segments. The selection of

these key community path segments would be determined as part of the work underway with the Bicycle Advisory Commission to classify the City's bike path network.

Conclusion

With the reduced level of contract pavement maintenance funds available this fiscal year and the need to provide matching funds for grant and developer funded projects scheduled for construction this Summer, staff recommends Council provide input on the guiding principles suggested, provide direction to the City Manager regarding overall budget priorities and the pursuit of options to increase available funds for future pavement maintenance as part of the ongoing City budget, and have staff return with a five year road and path maintenance plan identifying specific pavement segments prior to the end of the calendar year. This latter time table will allow for additional community input and provide staff with sufficient time to perform the detailed analysis necessary to prepare for maintenance projects for the next 3-5 years.

Attachment

1. Grant Funding Matrix
2. Transp. O&M Budget Table
3. Scenario Comparison Table

ATTACHMENT 2: Transportation Infrastructure Operations and Maintenance

Road Infrastructure	Quantity	FY 12/13 Maint. Budget
Pavement	163 centerline miles, 353 lane miles, or approx.. 30,000,000 square feet	\$3,152,000 with 2.5 FTE's and \$2.4M for construction services.
Signals	59 – 52 owned by City, 7 owned by Caltrans, City maintains 55 signals, including 3 of Caltrans'	\$274,000 with 0.6 FTE's \$65,000 of budget is for PG&E power
Safety Warning Devices	31 – 15 flashing beacons and 16 speed boards	Budget captured under Signals above
Lights	4,200 with 850 City owned and maint., 350 PG&E owned and maint., and 3000 City owned and jointly maint.	\$772,000 with 1.5 FTE's \$390,000 of the budget is for PG&E expenses and \$150,000 for contract services
Curb, Gutter and Sidewalk	Approx. 300 miles of curb and gutter and 260 miles of sidewalk.	\$268,000 with 1.0 FTE's and \$130,000 for construction services
Ramps	Approx. 4500 ramps exist, not all meeting current standards. Budget largely for adding new ramps where required.	\$200,000 for construction services.
Drainage	3,000 inlets, 100 miles of pipe, 16 miles of open channel, 6 detention basins and 8 pump stations	\$851,000 with 4.5 FTE's and \$30,000 for PG&E power.
Signing and Striping	Over 12,000 signs and 353 lane miles of paint and markings	\$618,000 with 5.5 FTE's, including 6 half-time seasonal staff.
Street Sweeping	Approx. 250 curb miles	\$767,000 with \$718,000 for the DVR contract
Bridges	8 Bridges – 3 City owned and maint. and 5 Caltrans owned and jointly maintained.	Surface improvement budget captured under categories above.

Path Infrastructure	Quantity	FY 12/13 Maint. Budget
Pavement	53 path miles, or approximately 3,000,000 square feet	\$788,000 with 0.7 FTE's and \$608,000 for construction services.
Lights	1,250 City owned and maintained	\$103,000 with 0.5 FTE's PG&E expenses are captured under Parks and greenbelt billing.
Drainage	Inlets and miles of pipe captured above under roads. There are an additional 10 pump stations serving path tunnels	Costs captured under road drainage.
Signing and Striping	Over 300 signs and 53 path miles of limited paint and markings	Costs captured under road drainage.
Bridges/Tunnels	18 City owned and maint. Tunnels, plus 8 Bridges – 5 City owned and maint. and 3 Caltrans owned and jointly maintained.	Surface improvement budget captured under categories above.

ATTACHMENT 3: Pavement Maintenance Strategy Scenarios

Scenario 5	FY13/14	FY14/15	FY15/16	FY16/17 – FY21/22
Road Paving	\$1,275,000	\$9,600,000	\$6,400,000	\$32,640,000
Bike Path Paving	\$190,000	\$1,440,000	\$960,000	\$4,930,000
Curb, gutter, sidewalk	\$65,000	\$480,000	\$320,000	\$1,615,000
ADA-compliant ramps	\$125,000	\$960,000	\$640,000	\$3,264,000
Contingency	\$165,000	\$1,250,000	\$833,000	\$4,250,000
Planning / Study	\$10,000	\$10,000	\$10,000	\$170,000
Engineering & Design ¹	\$83,000	\$625,000	\$416,000	\$2,125,000
Municipal Arts Fund ²	\$0	\$0	\$0	\$0
Construction Admin & Inspection ¹	\$83,000	\$625,000	\$416,000	\$2,125,000
TOTAL FUNDING	\$1,996,000	\$14,990,000	\$9,995,000	\$51,119,000

1. Assumes City would require outside consultant to perform
2. Municipal Arts component not required for maintenance portion of projects
3. This scenario assumes an initial infusion of \$18.44M over the first two years and an annual pavement rehabilitation budget of \$2.2M a year for the next 17 years

Scenario 4	FY13/14	FY14/15	FY15/16	FY16/17 – FY31/32
Road Paving	\$1,275,000	\$9,600,000	\$6,400,000	140,000,000
Bike Path Paving	\$190,000	\$1,440,000	\$960,000	9,810,000
Curb, gutter, sidewalk	\$65,000	\$480,000	\$320,000	7,137,000
ADA-compliant ramps	\$125,000	\$960,000	\$640,000	13,725,000
Contingency	\$165,000	\$1,250,000	\$833,000	17,067,000
Planning / Study	\$10,000	\$10,000	\$10,000	170,000
Engineering & Design ¹	\$83,000	\$625,000	\$416,000	8,533,000
Municipal Arts Fund ²	\$0	\$0	\$0	
Construction Admin & Inspection ¹	\$83,000	\$625,000	\$416,000	8,533,000
TOTAL FUNDING	\$1,996,000	\$14,990,000	\$9,995,000	\$8,533,000

1. Assumes City would require outside consultant to perform
2. Municipal Arts component not required for maintenance portion of projects
3. This scenario addresses an initial infusion of \$18.44M for pavement over the first two years and from \$4.6M to \$18.4M each year for the next 17 years to achieve and maintain an average PCI of 68 for roads and paths.

ATTACHMENT 3: Pavement Maintenance Strategy Scenarios (Continued)

SCENARIO	BACKLOG in 2032		FUNDING (Average/year)			PCI in 2032	
	Streets	Paths	Streets	Paths	Total	Streets	Paths
1. Current Funding Level	\$439.4M	\$27.7M	\$1M	\$200,000	\$1.2M	27	46
2. Bring PCI to an 70 average	\$119.8M	NA	\$8M	NA	---	70	NA
3. Maintain Current Backlog	\$21M	\$1.3M	\$7M	\$655,000	\$7.7M	70	69
4. \$25M and a PCI of 68	\$11.2m	\$2.0m	\$7.8M	\$0.6M	\$8.4M	68	68
5. \$25M to \$3M Scenario	\$188M	\$17M	\$3.4M	\$0.5M	\$3.9M	42	55