



Office of the City Manager

WORK SESSION  
November 15, 2011

To: Honorable Mayor and Members of the City Council

From: *PK* Phil Kamlarz, City Manager

Submitted by: Andrew Clough, Director, Public Works

Subject: Pavement Management System and Capital Needs

### SUMMARY

This Work Session is the third in a series of presentations regarding the City's capital needs, and it specifically addresses the condition of the City's streets. There are several reports on the subject of maintenance and improvement of the City's streets on the November 15, 2011 City Council Agenda, both for this Work Session and on the Regular Agenda. These reports also relate back to the Watershed Management Plan (WPM) that was presented to Council at a Work Session on October 25, 2011.

The reports on both the November 15, 2011 Work Session and Regular Agendas are:

- From the City Auditor entitled "Failing Streets: Time to Change Direction to Achieve Sustainability" which is the recently concluded Audit of City of Berkeley Streets. Both Public Works Engineering and Operations staff worked closely to provide the Auditor with the necessary information for her audit,
- From the Public Works Commission (PWC): entitled "Update of the 5-Year Street Plan for FY 2012–FY 2016." This report includes the Commission's recommendations regarding new approaches to street maintenance and capital improvements.
- From the City Manager, entitled "Pavement Management System and Capital Needs." This report includes a response to the PWC Street Plan Update, street paving concepts consistent with the principles of the WMP, and addresses other issues related to maintenance and capital improvements for Berkeley streets.

### CURRENT SITUATION AND ITS EFFECTS

#### **City Auditor's Report**

Public Works staff worked closely with the Auditor in the course of her audit process, and the City Manager concurs with the Auditor's recommendations (on pages 21-22 of that report) that Public Works develop technical and financial strategies to raise the average Citywide Pavement Condition Index (PCI<sup>1</sup>). Primary funding scenarios are

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<sup>1</sup> PCI is a numerical indicator of ride quality of sections of paved streets on a scale of 100 (excellent) to 0 (failed), and is based on smoothness of the pavement's surface, which also indicates its structural integrity.

contained in the body of the Audit Report, while several other scenarios were explored using *StreetSaver*<sup>®</sup> software (see page 5 of the Audit for background on *StreetSaver*<sup>®</sup>). Five-Year Expenditures and Resulting PCI are shown in Appendix C of the Audit.

The first scenario considered by the Auditor, as a “jump start” concept, would be an infusion of \$46M in one year for street paving. Although this would almost instantaneously raise the overall Citywide PCI to at least 80, it presents significant practical challenges, not only from a financing perspective, but also due to the level of disruption resulting from a large amount of construction occurring at the same time throughout the City. This level of disruption would likely be of concern to the public. Alternative annual funding scenarios are included in the table on page 22 of the Auditor’s Report ranging from \$12.5M to \$17.5M per year, resulting in an investment of \$62.5M to \$87.5M over five years. Each of these scenarios presents different opportunities for improving the City’s PCI.

For example, the mid-level alternative, \$15M/year, for a 5-year total of \$76.8M, would result in an overall PCI of 79 (top of the “Very Good” range) at the end of the first 5 year period. Assuming the current level of capital funding remains constant (approximately \$4.6M per year), about \$54M (or approximately \$10.8M per year for 5 years) in additional capital funding is needed to achieve this result.

Additionally, improved maintenance levels would be needed to keep the overall average at that level, once it is achieved. Public Works will continue to test and employ new techniques and technologies for street maintenance and thus, the exact funding for maintenance will depend on which technologies create the best results. The current funding for maintenance is approximately \$1.2M per year, or about \$6.M over the 5 year period.

As recommended by the Auditor, the City Council may wish to consider adopting an overall PCI goal based on a financing plan to achieve that goal. Staff would then also develop a Work Plan consistent with the goal. It would include the following elements, as recommended by the Auditor:

- Updating the *StreetSaver*<sup>®</sup> unit costs annually, including soft costs, such as administrative costs.
- Including annual costs for preventive maintenance in the 5-Year Street Plan and adjust them as needed to account for emerging techniques and technologies.
- If needed, adjusting the strategies of the 5-Year Street Plan to assure the achievement of the Council-adopted PCI goal.
- Providing the commissions and Council an annual progress report on the PCI as part of the 5-Year Street Plan.

### **Public Works Commission Report**

The Public Works Commission (PWC) report and Update of the 5-Year Street Plan for FY 2012–FY 2016 takes a different approach than previous Plans. The PWC

recommends that Council adopt this update, in which the 5<sup>th</sup> year (FY 2016) would consist of a sealing program to preserve and extend the life of recently paved streets, rather than paving additional streets by traditional overlay or reconstruction. As noted in the PWC report, staff supports this recommendation.

Staff also concurs with the PWC's recommendation that the City should continue to consider the use of alternative design and construction methods in its ongoing street rehabilitation activities, especially as technology evolves in the foreseeable future. In particular, the PWC advocates using up to 15% of the annual street budget for discretionary trial projects of new technologies, with a first priority toward Permeable Interlocking Concrete Pavers (PICP). Although staff supports an initial trial on a 1-time basis, and further experimental investigations as identified in the future, staff recommends that such future trials be included for Council adoption in each annual 5-year plan update.

The PWC also endorses the notion of "Complete Streets," which is a concept presently attracting increased national attention. It provides that the design of new or improved urban streets should accommodate all modes of transportation, including conventional gas-powered vehicles, electric and alternatively-powered vehicles, bicycles, transit, pedestrian, etc. However, the PWC recommends the incorporation of environmental and aesthetic elements, which are consistent with the "green" concepts of the WMP as discussed below.

Lastly, the PWC makes a "preliminary" recommendation to establish a Capital Budget that covers reconstruction activities, and that is separate from an Operating Budget that covers overlaying, sealing and filling potholes. The PWC makes reference to Transfer Tax revenues as a possible means of funding the Capital program. This implies that current funding sources would not be used for these capital activities. Staff has concerns about the Commission's suggestion regarding the allocation of Transfer Tax for two primary reasons: 1) this revenue source has declined significantly over the past several years and is subject to economic volatility; and 2) the current Transfer Tax revenue is already allocated to existing programs and services and reallocation would affect those items. However, the City Council may wish to consider establishing a threshold of Transfer Tax receipts, the portion above which could be allocated solely to one-time expenditures such as affordable housing projects, or major capital improvements.

### **Watershed Management Plan**

The WMP (available at: [www.cityofberkeley.info/WatershedPlan](http://www.cityofberkeley.info/WatershedPlan)) recommends that future capital improvements to streets shall incorporate, when economically and technically feasible, "green infrastructure" or Low Impact Development (LID) features. Such features would yield primary functional and ecological benefits such as:

- Improving water quality through the removal of pollutants, thereby preventing them from discharging into waters governed by the Clean Water Act.

- Providing storm water retention/detention to reduce flooding and overflows into prohibited environments, such as sanitary sewer and industrial facilities.

In accordance with the WMP, examples of features to be considered are:

- Bio-retention cells.
- Permeable/pervious paving techniques/materials primarily in parking strips adjacent to gutters and storm drainage facilities.
- Bio-swales.

### **Pavement Management Program: Maintenance and CIP**

Public Works is developing a strategic approach involving an integrated maintenance program that will combine its current practices with advanced operational techniques that are presently in research and development. An advanced maintenance program, possibly at a lower cost, would keep Berkeley's streets in a "good" or better condition by prolonging the life of the pavement.

This integrated program will combine the latest methods and materials for capital improvements and for maintenance, with our current maintenance activities such as filling and repairing depressions and voids (including potholes and base failures that may occur). Current practices also emphasize crack sealing where needed, especially in areas where sewer and utility trench cuts have damaged street pavements causing water seepage into the base layer.

### **BACKGROUND**

Historically, based on reliable industry sources such as MTC's *StreetSaver*<sup>®</sup> system, Berkeley's street pavement maintenance activities, both Capital and Operations & Maintenance (O&M), have been underfunded. From 1978, after the passage of Proposition 13, through the early 1990's, the City did not allocate General Fund to the street program and relied on other outside sources of funding for this work. However, this resulted in deferred maintenance which the City is still attempting to overcome. Over the last five years, the annual O&M budget has averaged \$1.2M per year, with capital expenditures at \$4.6M per year. In recent years, the latter figure has been enhanced by 1-time federal stimulus funding which has allowed the City to undertake major repaving projects such as University Avenue. Meanwhile over the same 5-year period, the overall Citywide average Pavement Condition Index (PCI) has dropped from 65 to 58 (into the MTC "At-Risk" category). It is apparent that an increase in funding is needed to keep the City's PCI from dropping further.

### **POSSIBLE FUTURE ACTION**

The City Auditor's report identifies five different funding options to support a program that would improve the City's PCI. These options would require voter approval and should be considered in the overall context of the City's other unfunded capital needs.

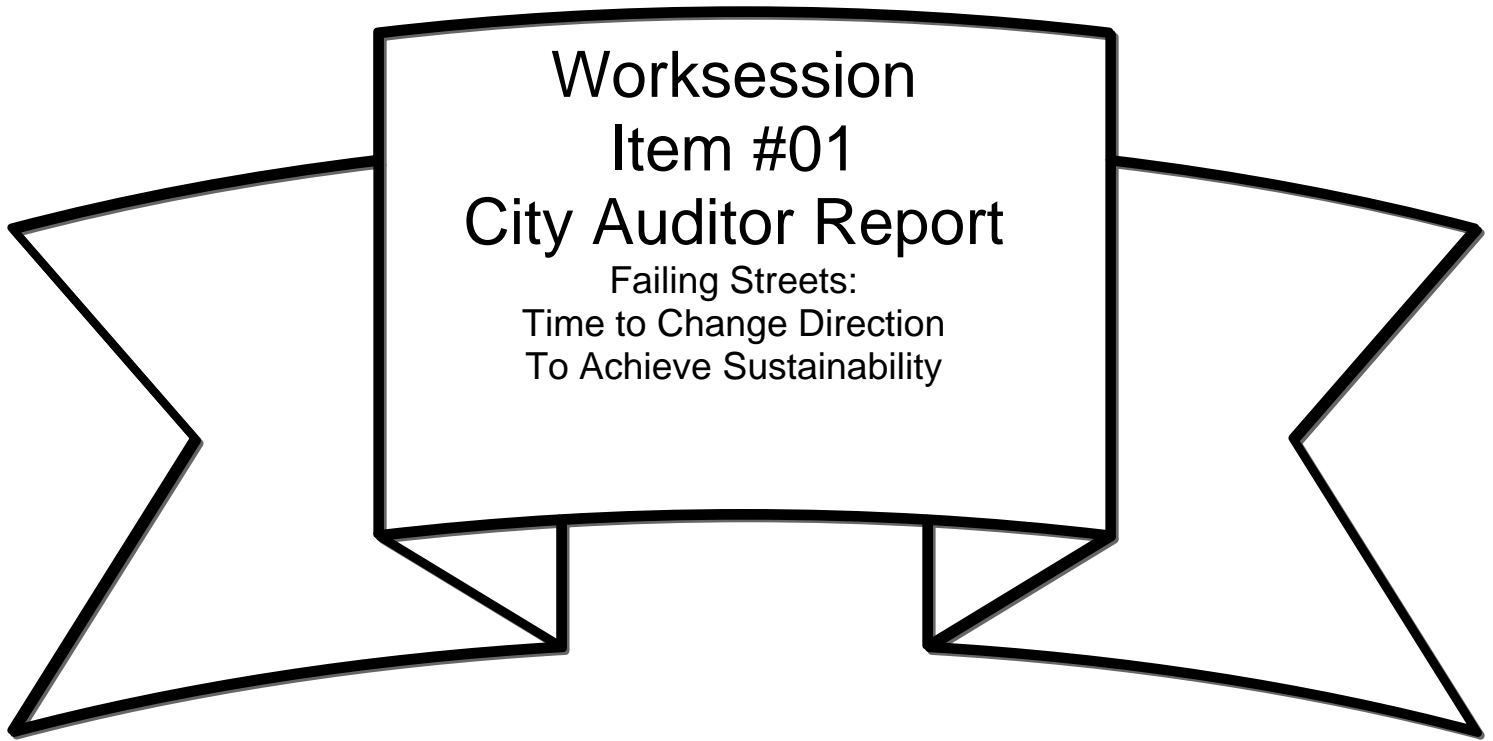
FISCAL IMPACTS OF POSSIBLE FUTURE ACTION

See discussion above.

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Please refer to Item #09 in this Agenda Packet for report materials. This report is also on file and available for review at the City Clerk Department, or can be accessed from the City Council Website.

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or from:

**The City of Berkeley, City Council's Web site**  
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