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DEPARTMENT OF PUBLIC WORKS

November 15, 2011

Failing Streets: Time to Change Direction to Achieve Sustainability

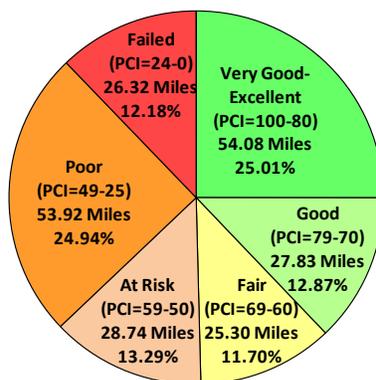
http://www.cityofberkeley.info/uploadedFiles/Auditor/Level_3_-_General/Streets%20Audit%20Report_Final.pdf

Purpose of the Audit

Berkeley's streets are in a serious state of disrepair, with the average street at risk of failing. We conducted this audit to determine what it would take financially to raise the average condition of Berkeley's streets to 75, the mid-range of "good." This is the regional goal for the San Francisco Bay Area, and the point at which the unfunded need would stop increasing.

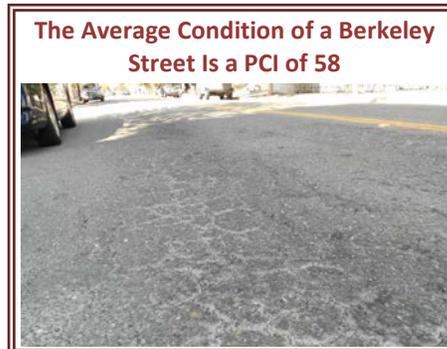
Highlights

Our failing streets are a growing unfunded need. More than 134 (62 percent) of the 216 linear miles of streets must be resurfaced or reconstructed because preventive maintenance work, such as crack and slurry sealing, would not be effective. **Reconstructing a failed street in Berkeley costs about 32 times as much as timely maintenance!**



Berkeley's current annual \$3.66 million street rehabilitation budget is not enough to allow Public Works to repair the City's failing streets. At this level of funding, the unfunded need will be \$41.7 million by the end of 2011 and \$70.8 million in just five years. The estimated cost to resurface or reconstruct all of Berkeley's deteriorated streets is \$54 million. However, if the City spent \$46 million in a single year, more than 85 percent of the streets would be in very good-excellent condition at the end of that year. Since it is not feasible to do that much work in one year, we identified funding levels, shown in the table below, that would achieve an average street condition of good to very good-excellent (70+) within five years. Spending \$17.5 million annually would result in all failed streets being repaired at the end of five years; the other scenarios would take longer to achieve that goal.

Berkeley lacks the funding to stop the rapid growth in the unfunded need and reverse the trend. Without action now, we have to ask, "If we can't afford to fix our streets now, how are we going to be able to afford to fix them in the future when the cost will be millions more?"



Recommendations

The audit report recommends that the:

- City Manager present to Council:
 - options to achieve a desired average citywide street condition over a specified timeframe.
 - potential funding strategies to meet the established goals.
 - an annual report on progress made toward achieving the established goals.
- Department of Public Works:
 - use StreetSaver® to develop funding strategies that will achieve the street condition goal.
 - include the strategies in the City's Five-Year Street Plan.
 - include preventive maintenance and soft costs (e.g., administrative costs) in the strategies.
 - update the cost data used at least annually.

Annual Expenditures Required to Bring Berkeley Streets into an Average Condition of Very Good-Excellent or Good

	\$12.5 Million			\$15 Million			\$17.5 Million		
	Amount Spent (in millions)	Unfunded Need	Average PCI	Amount Spent (in millions)	Unfunded Need	Average PCI	Amount Spent (in millions)	Unfunded Need	Average PCI
Year 1	\$12.50	\$32.86	64	\$15.00	\$30.36	65	\$17.50	\$27.86	66
Year 2	\$12.88	\$30.61	65	\$15.45	\$25.46	67	\$18.03	\$20.32	70
Year 3	\$12.88	\$28.97	68	\$15.45	\$21.34	71	\$18.02	\$13.65	74
Year 4	\$12.88	\$24.07	71	\$15.45	\$14.08	75	\$17.81	\$4.22	79
Year 5	\$12.88	\$19.41	73	\$15.45	\$7.07	79	\$12.80	\$0	82
Total	\$64.00			\$76.80			\$84.16		

Note: The cells highlighted in yellow represent average pavement condition indices (PCI) of good (79-70) or very good (89-80). The PCI is a numerical indicator of the ride quality of paved streets on a scale of 100 (excellent) to 0 (failed).

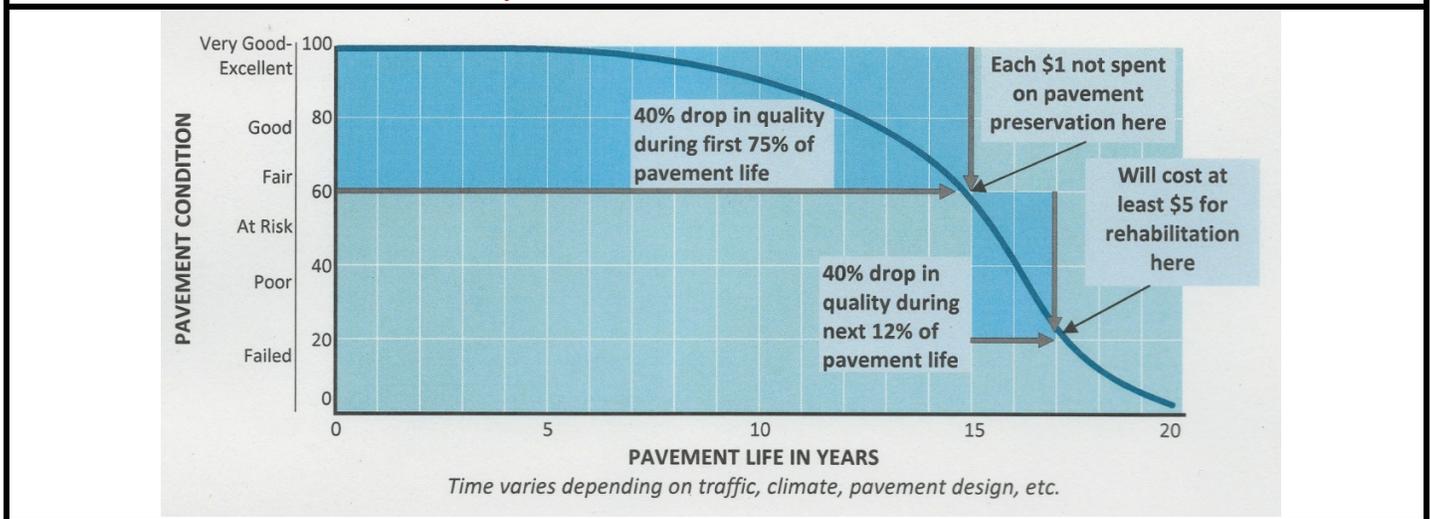
Source: Scenarios created in StreetSaver® by audit staff

Berkeley's Average Cost of Rehabilitation by Condition Category

Condition Category	Rating Category and PCI Range	Treatment	Average Cost Per Mile
I	EXCELLENT (100-90)	Crack Seal and Slurry Seal – Comprehensive maintenance used to repair distress and reinforce weakened pavement	\$36,065
I	GOOD (89-70)		
II/III	FAIR (69-50)	Thin Asphalt Concrete Overlay – Grind surface layer, repair base, and replace surface with a thin (1½”) overlay	\$125,657
IV	POOR (49-25)	Thick Asphalt Concrete Overlay – Grind surface layer, repair base, and replace surface with a thick (2½”) overlay	\$309,464
V	VERY POOR/FAILED (24-0)	Reconstruction – Excavate entire roadway and replace pavement structure (surface layer and base)	\$1,153,181

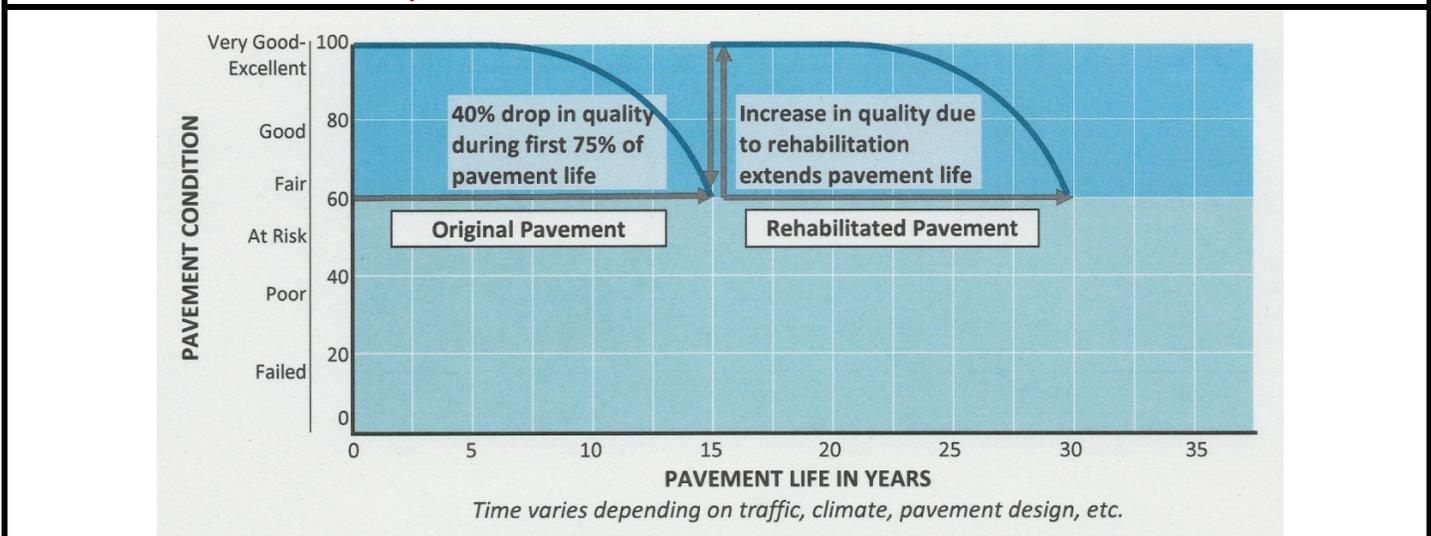
- Sources:
1. Metropolitan Transportation Commission, *Pavement Management Program Final Report for the City of Berkeley*, April 2011.
 2. Audit staff calculations based on the *StreetSaver*® PCI data, treatment types, and unit costs by condition category.

Pavement Life Cycle: Deterioration Timeline and Rehabilitation Costs



Source: Metropolitan Transportation Commission, *The Pothole Report: Can the Bay Area Have Better Roads?*, June 2011

Pavement Life Cycle: Deterioration Timeline Before and After Pavement Preservation



- Sources:
1. Metropolitan Transportation Commission, *The Pothole Report: Can the Bay Area Have Better Roads?*, June 2011
 2. American Concrete Pavement Association, *R&T Update: Concrete Pavement Research & Technology*, Number 3.02, February 2002