Chapter 4. Funding Analyses

4.1 Pavement Revenue Sources

The online survey also asked agencies to provide both their revenue sources and pavement expenditures for FY 2008-09, FY 2009-10, as well as estimating an annual average for future years. A total of 300 agencies responded with financial data in 2010, compared to only 137 in 2008. This huge improvement was attributable to the fact that the contact letters (see Appendix A) were also mailed to the Directors of Finance or Controllers for all the agencies in this update.

As before, cities and counties identified a myriad of sources of funds for their pavement expenditures, broadly categorized into federal, state, or local. For local funds alone, more than a hundred different sources were identified. They included the following examples (this is by no means an exhaustive list):

Federal

- Regional Surface Transportation Program (RSTP)
- Congestion Mitigation & Air Quality Improvement (CMAQ)
- Emergency Relief
- High Risk Rural Roads (HR3)
- Safe Routes to School (SRTS)
- Transportation Enhancement Activities (TE)
- Community Development Block Grants (CDBG)
- ARRA Stimulus Funds
- Public Lands

State

- Gas taxes (Highway User Tax Account or HUTA)
- Proposition 1B
- Proposition 42/AB 2928
- State Transportation Improvement Program (STIP)
- AB 2766 (vehicle surcharge)
- Bicycle Transportation Account (BTA)
- Safe Routes to School (SR2S)
- Transportation Development Act (TDA)
- AB 1546 Vehicle License Fees (VLF)
- Integrated Waste Management Board grants
- State Local Partnership Program (SLPP)
- State Water Resource Control Board
- Traffic Safety Fund
- Transportation Uniform Mitigation Fee (TUMF)

Local

- General funds
- Local sales taxes
- Developers fees
- Various assessment districts – lighting

- Redevelopment
- Traffic impact fees
- Traffic safety/circulation fees
- Utilities
- Transportation mitigation fees
- Parking and various permit fees
- Flood Control Districts
- Enterprise Funds (solid waste and water)
- Investment earnings
- Parcel taxes

Table 4.1 summarizes the percentage of funding sources from the different categories for FY 2008-09 to FY 2009-10, as well as the estimated sources for future years. The breakdown is similar to the results from the 2008 study.

Table 4.1 Funding Sources for Pavements

Revenue Sources	Annual Funding ($ million) FY 2008/09	FY 2009/10	Estimated for FY 10/11 Onwards	% of total
Federal	$ 167*	$ 390*	$ 68	6%
State	$ 1,032	$ 819	$ 698	61%
Local	$ 458	$ 453	$ 374	33%
Total	**$ 1,658**	**$ 1,663**	**$ 1,140**	**100%**

Data based on 300 survey responses.

*ARRA accounted for $50 million in FY 08/09 and $293 million in FY 09/10

Cities and counties rely on the state for almost two-thirds of their funding.

Note that most of the American Recovery and Reinvestment Act (ARRA) is reflected in FY 2009-10, although there were some shown for FY 2010-11 for the second wave of projects. The more important item to note is that cities and counties do not rely heavily on federal funds, with the exception of ARRA. Rather, state and local funds typically make up almost 90 percent of pavement funding, with state funds as the predominant source with 61 percent. Finally, there is a disturbing trend in Table 4.1, showing that total funding sources are declining. The survey responses indicate that they expect a drop in funding of almost $500 million in future years.

Funding from the Highway User Tax Account (HUTA), more commonly known as the gas tax, is by far the single largest funding source for cities and counties. For this survey, new HUTA, which replaced the sales tax on gasoline (Proposition 42) under the March 2010 transportation tax swap, and old HUTA have been combined in Table 4.2, which shows the gas tax trends. Although the status of new HUTA funding is uncertain due to recent passage of Propositions 22 and 26 in the November 2010 General Election, the total amount of gas tax shows a declining trend (See Appendix D for more information on the status of state transportation funding as of January 2011).

Traditionally, cities and some counties have been able to rely on the General Fund for pavement funding. However, as Table 4.3 illustrates, the number of agencies who receive General Funds is markedly declining. Given the economic climate and predictions that California will lag behind the economic recovery in the rest of the nation, it is expected that this trend will continue in the near future.

Of final interest is the trend in local sales tax measures that have passed. Table 4.4 shows an increasing reliance on the revenues from this source. Although it was only 10 percent of total pavement revenues in the previous two years, that is expected to jump to 16 percent beginning in FY 2010-11.

Table 4.2 Gas Tax Trends

	Annual Funding ($ million)		
Gas Tax*	**FY 2008/09**	**FY 2009/10**	**Estimated for FY 10/11 Onwards**
New HUTA (Section 2103)	$ 223	$ 144	$ 83
Old HUTA (Section 2104-2107)	$ 457	$ 421	$ 472
Total	**$ 680**	**$ 564**	**$ 555**
% of state revenues	66%	69%	79%
% of total revenues	41%	34%	49%

*Data from 300 responses

Table 4.3 General Fund Trends

	FY 2008/09	FY 2009/10	Estimated for FY 10/11 Onwards
# agencies	132	62	55
General Fund ($M)	$ 123	$ 74	$ 101

Table 4.4 Local Sales Tax Trends

	FY 2008/09	FY 2009/10	Estimated for FY 10/11 Onwards
Sales Tax ($M)	$ 174	$ 160	$ 185
% of local funds	38%	35%	49%
% of total funds	10%	10%	16%

4.2 Pavement Expenditures

The survey also asked for a breakdown of pavement expenditures in four categories:

- Preventive maintenance, such as slurry seals
- Rehabilitation and reconstruction, such as overlays
- Other pavement related activities such as curbs and gutters
- Operations and maintenance

Table 4.5 shows the breakdown in pavement expenditures for cities, counties and cities/counties combined. These were consistent for all the years reported. Encouragingly, approximately 14-16 percent of pavement expenditures are for preventive maintenance, which indicates that many agencies are cognizant of the need to preserve pavements. This is similar to the trend reported in the 2008 study.

Table 4.5 Breakdown of Pavement Expenditures ($M)

Type of Expenditures	FY 2008/09	FY 2009/10*	Estimated for FY 10/11 Onwards
Prev.Maint	$ 239	$ 236	$ 203
Rehab & Recon.	$ 744	$ 884	$ 762
Other	$ 122	$ 108	$ 82
Opns & Maint.	$ 348	$ 343	$ 366
Total	**$ 1,453**	**$ 1,571**	**$ 1,414**

Data from 300 responses

* Includes ARRA (approximately $290 million)

Cities and counties are estimated to spend $1.42 billion annually on pavements.

On average, anticipated pavement expenditures for the next ten years are expected to be **$5,089/lane-mile for counties** and **$3,734/lane-mile for cities.** This analysis is slightly different than that used in the 2008 study, which was based on a centerline-mile basis. Since lane-mile is a better indicator of expenditures, it was used in this study.

The resulting total pavement expenditures for all 537 cities and counties were therefore estimated to be $1.42 billion annually. This is less than the $1.59 billion that was reported in the 2008 study. However, the $1.42 billion is consistent with the expenditures from the previous two years (see Table 4.5) if ARRA funds are not included. This indicates that cities and counties are actually spending less than what they projected in 2008.

To put this funding level in perspective, $1.42 billion/year is only 0.5 percent of the total investment in the pavement network, which is estimated to be $271 billion.

4.3 Essential Components' Revenue Sources

Similarly to the analysis in Section 4.1, the revenue sources for the essential components is shown in Table 4.6 below. Again, federal funds have a small contribution to the cities and counties, in the order of 10 percent. However, unlike pavements, local sources now account for almost 60 percent of total revenues, with state revenues only accounting for 31 percent. Again, the general declining trend is similar to that for pavements.

Table 4.6 Funding Sources for Essential Components ($M)

Revenues Sources	FY 2008/09	FY 2009/10	Estimated for FY 10/11 Onwards	% of total
Federal*	$ 47	$ 65	$ 35	10%
State	$ 125	$ 119	$ 105	31%
Local	$ 268	$ 219	$ 201	59%
Totals	**$ 440**	**$ 403**	**$ 341**	**100%**

Based on 300 responses.

* ARRA accounted for $20 million in FY 2009/10.

Since local revenues form the majority of the funding, Table 4.7 explores the four largest funding sources: general funds, development/redevelopment funds, local sales taxes and other. In the last

category are mostly stormwater, sanitary, NPDES related sources. Again, the overall trend shows declining revenues.

Table 4.7 Local Revenue Sources for Essential Components ($M)

	Annual Funding ($ million)		
Local Revenue Sources	FY 2008/09	FY 2009/10	Estimated for FY 10/11 Onwards
General Fund	$ 51	$ 46	$ 71
Development/Redev.	$ 69	$ 39	$ 22
Local Sales Tax	$ 41	$ 34	$ 32
Other	$ 107	$ 99	$ 76
Totals	**$ 268**	**$ 219**	**$ 201**

4.4 Essential Components' Expenditures

Table 4.8 details the expenditures by category. Traffic signals are the largest component, but five large agencies account for half of the expenditures in this category. Storm drains, curb and gutters, street lights and sidewalks round off the next largest categories. As was noted in previous tables, there is a declining trend in expenditures.

Table 4.8 Breakdown of Expenditures for Essential Components

	Annual Expenditures ($ million)			
Essential Components	FY 2008/09	FY 2009/10	Estimated for FY 10/11 Onwards	% of total
Traffic signals*	$ 124	$ 110	$ 106	28.8%
Storm Drains	$ 75	$ 121	$ 73	19.7%
Curb & gutter/ADA ramps	$ 43	$ 53	$ 45	12.3%
Street Lights	$ 47	$ 44	$ 43	11.7%
Sidewalk	$ 34	$ 38	$ 33	8.9%
Other elements	$ 45	$ 43	$ 32	8.6%
Traffic signs	$ 30	$ 28	$ 27	7.3%
Sounds Walls/Retaining walls	$ 9	$ 11	$ 10	2.6%
Totals	**$ 408**	**$ 449**	**$ 368**	**100%**

* 5 agencies account for 40-50% of expenditures

Cities and counties are estimated to spend almost $679 million annually on essential components.

On average, anticipated expenditures for essential components over the next ten years are expected to be $1,213/lane-mile for counties and $2,898/lane-mile for cities. The resulting total expenditures for all 537 cities and counties were therefore estimated to be $678.9 million annually. This is almost half of the $1.24 billion that was reported in the 2008 study! Again, it appears that cities and counties have significantly reduced budgets, even from two years ago.

4.5 Funding Shortfalls

One of the primary objectives of this study was to determine if a funding shortfall existed for the next ten years, and if so, what that shortfall was. Chapters 2 and 3 described the analysis to determine the funding needs for both the pavement and essential components, respectively. The preceding sections of this chapter analyzed the revenues and expenditures as well.

Table 4.9 summarizes the results of all the preceding analyses and determines the funding shortfall to be $78.6 billion. This does not include any NPDES costs, since it was not possible to determine what these statewide impacts were (see Section 3.4).

Table 4.9 Summary of 10 Year Needs & Shortfall (2010 $ Billion)

Transportation Asset	Needs	Funding Available	Shortfall
Pavements	$ 70.5	$ 14.2	$ (56.3)
Essential Components*	$ 29.1	$ 6.8	$ (22.3)
Totals	**$ 99.6**	**$ 21.0**	**$ (78.6)**

* Does not include NPDES

In the 2008 study, the funding shortfall identified was $71.4 billion, so this is an increase of $7.2 billion, or approximately 10 percent.

The shortfall for local streets and roads is estimated at $78.6 billion!

4.6 Pavement Funding Scenarios

The State of California is facing severe budget difficulties that will affect a wide range of services throughout the state including transportation. There is an expected deficit of over $25 billion for FY 2010/11 alone. Together with the potential implications on state transportation funding from the passage of Propositions 22 and 26 in the November 2010 General Election, the funding outlook for local streets and roads is grim. Over the past two years, the results of the 2008 study have helped educate policy makers and prevented severe cuts to road funding. To further assist policy makers on how potential cuts will affect pavement conditions, this update included the results of four different funding scenarios:

1. Existing funding ($1.42 billion per year).
2. Loss of old and new Highway User Tax Account (HUTA) funds for three years (resulting in $0.763 billion per year for the first three years, then reverting to $1.42 billion for the next seven years).
3. Permanent loss of new HUTA (i.e., resulting in a funding level of $1.25 billion per year).
4. Funding to maintain current pavement condition at PCI = 66
5. Existing Funding – (Fix worst streets first - $1.42 billion per year) - this is similar to Scenario 1, but the worst streets are repaired first. This is commonly known as a "worst first" scenario.

The first scenario was the result of the funding analysis described previously in this chapter, and looks at the impacts of the existing funding available. Scenario 2 determines the impacts of losing both old HUTA and new HUTA (replacement to the sales tax or Prop. 42) funds for the first three years, and

then reverting to the existing level of $1.42 billion/year for the remaining seven years of the analysis period.

The third scenario was in anticipation of Proposition 26 passing in the November 2010 election. Based on preliminary legal opinions, the passage of Prop. 26 invalidates the tax swap that occurred in March 2010, which eliminated the sales tax on gasoline (Prop. 42), and replaced it with an increase in the excise tax (aka "new HUTA"). Therefore, one potential impact is that cities and counties would lose the new HUTA funding, thus reducing the annual funding to an estimated $1.25 billion for pavements.

Scenario 4 determines the funding required to maintain the average pavement condition at a PCI of 66. Finally, a fifth scenario was added to address a common question – why don't we fix the worst streets first?

Scenario 1: Existing Funding ($1.42 billion/year)

In this scenario, the most cost-effective treatments are placed first, which tend to be preventive maintenance or preservation strategies, such as seals. Therefore, at the existing funding level of $1.42 billion/year, the pavement condition is expected to deteriorate to 54 by 2020, and the unfunded backlog will almost double, from $39.1 billion to $63.6 billion. Again, these are in constant 2010 dollars. Figure 4.1 graphically illustrates these two trends. Note that the 2011 PCI for all the scenarios is the result ***after*** the first year's budget has been spent.

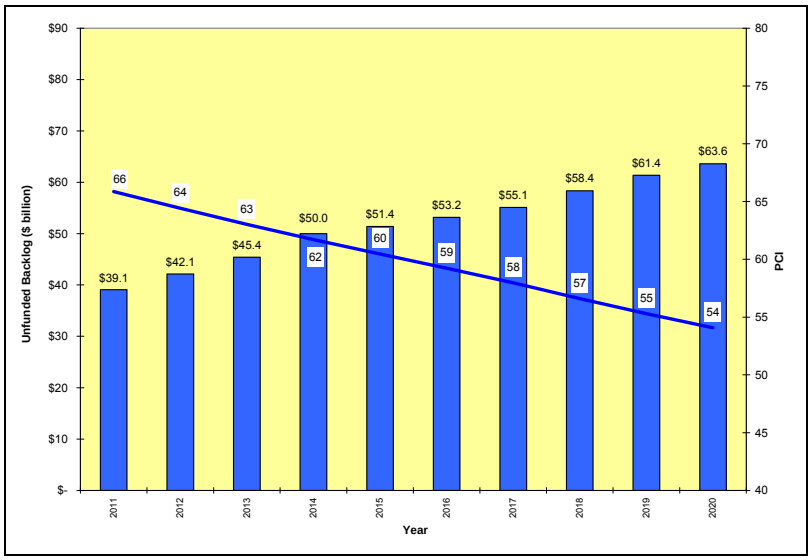

Figure 4.1 Results of Scenario 1: Existing Budget ($1.42 billion/year)

Scenario 2: Loss of HUTA for Three Years ($763 million/year then $1.42 billion/year)

In this scenario, both old and new HUTA funds are assumed to be lost for the first three years, resulting in a funding level of $763 million/year, before reverting back to $1.42 billion/year. The pavement condition is expected to deteriorate to 53 by 2020. The unfunded backlog will almost double, from $39.1 billion to $65.8 billion (see Figure 4.2). Again, note that the 2011 PCI for all the scenarios is the result ***after*** the first year's budget has been spent.

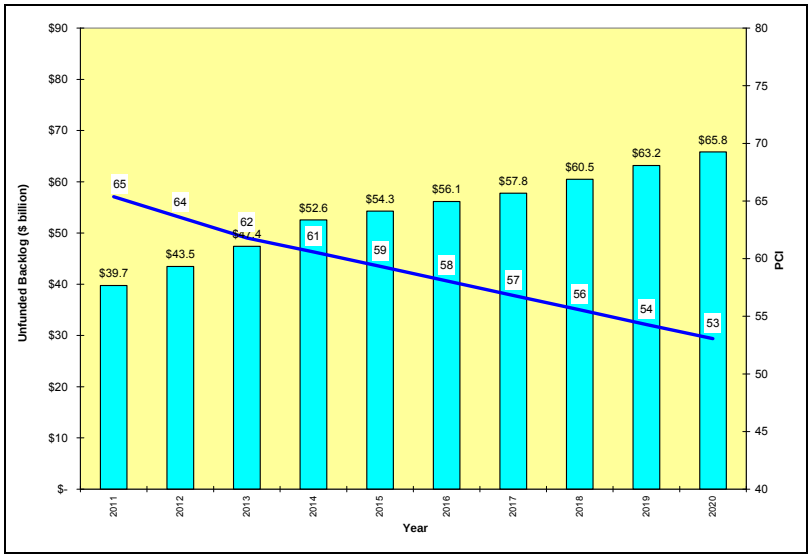

Figure 4.2 Results of Scenario 2: Loss of HUTA for Three Years

Scenario 3: Loss of New HUTA ($1.25 billion/year)

Assuming the permanent loss of new HUTA funds (i.e., potential consequence of Proposition 26), Scenario 3 would mean a funding level of $1.25 billion/year. Therefore, the pavement condition will also deteriorate to 53. However, the more significant impact is the unfunded backlog that will grow to $67.6 billion by 2020 (see Figure 4.3). Again, note that the 2011 PCI for all the scenarios is the result ***after*** the first year's budget has been spent.

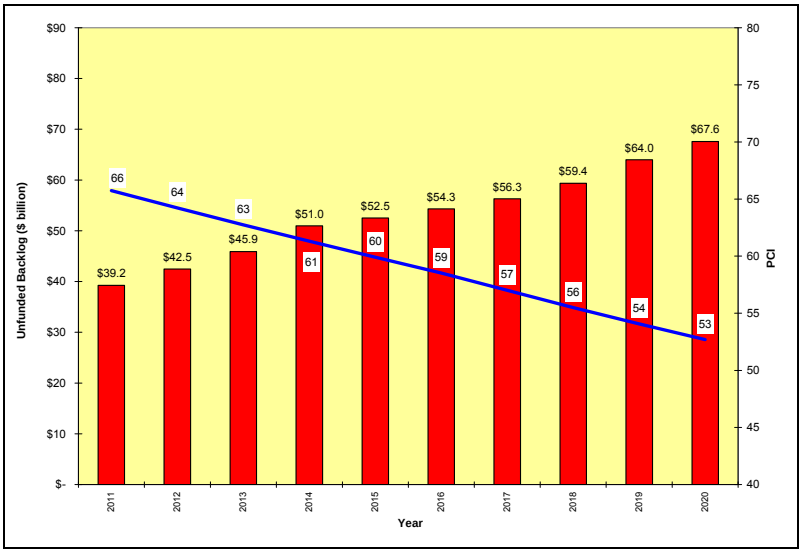

Figure 4.3 Results of Scenario 3: Permanent Loss of new HUTA ($1.25 billion/year)

Scenario 4: Maintain PCI at 66 ($3.1 billion/year)

Finally, in order to maintain the pavement condition and unfunded backlog at existing conditions (i.e., PCI = 66 and unfunded backlog at $37 billion), an annual funding level of $3.1 billion is required (see Figure 4.4). This funding level is more than twice the current level of $1.42 billion/year. Again, note that the 2011 PCI for all the scenarios is the result ***after*** the first year's budget has been spent.

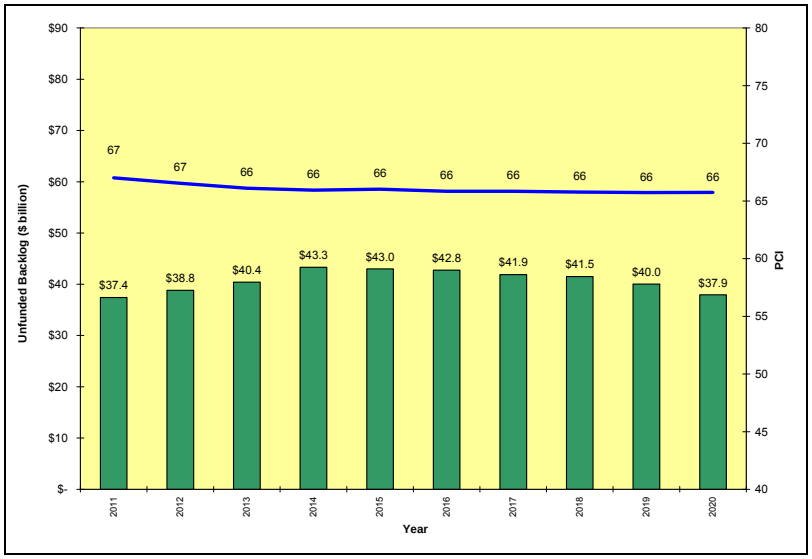

Figure 4.4 Results of Scenario 4: Maintain PCI = 66 ($3.1 billion/year)

Scenario 5: Existing Funding ($1.42 billion/year) – "Worst First" Strategy

A common question often asked is "Why don't we repair the worst streets first?" The results of this strategy is illustrated below in Figure 4.5. The only difference between this scenario and Scenario 1 is how repairs are prioritized. In Scenario 1, the most cost-effective treatments are selected first. In Scenario 5, the worst streets are repaired first. However, because the worst streets all require reconstruction, and reconstruction costs are so high, the $1.42 billion/year has little impact on the total number of streets in this condition. In addition, the "good" streets that needed relatively inexpensive seals are allowed to deteriorate, and eventually will require more expensive treatments.

Therefore, the resulting PCI is 52, and the unfunded backlog is significantly higher than in Scenario 1: $68.4 billion instead of $63.6 billion. The conclusion is that a "worst first" strategy would result in a lower pavement condition overall, and a higher unfunded backlog.

Again, note that the 2011 PCI for all the scenarios is the result ***after*** the first year's budget has been spent.

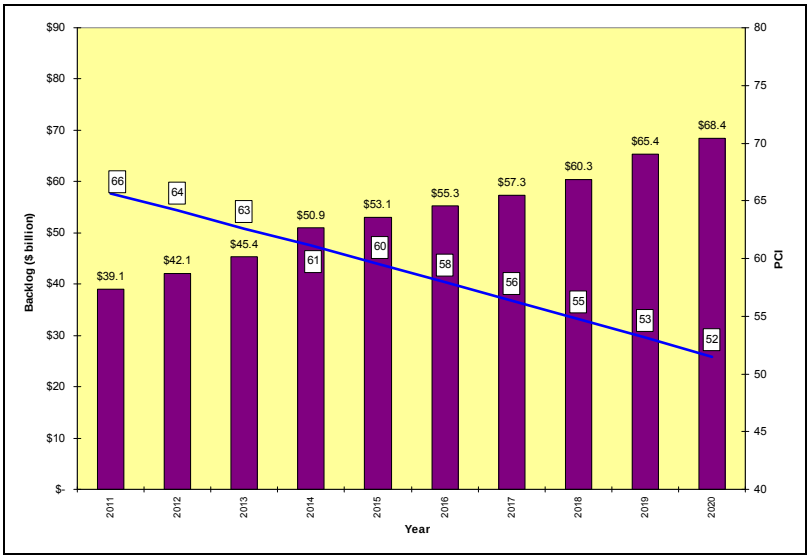

Figure 4.5 Results of Scenario 5: Existing Funding ($1.42 billion/year) – Worst First Strategy

Other Perfomance Measures

Although both PCI and the unfunded backlog are common performance measure for cities and counties, there are others that may be used. One such measure is the percentage of pavement area in different condition categories. Table 4.10 below illustrates the breakdown in pavement area for each funding scenario.

Table 4.10 Percent of Area by Condition Category in 2020 for Each Funding Scenario

Condition Category	Current Breakdown (2010)	Scenario 1: Existing Budget	Scenario 2: Lose HUTA+Prop 42 for 3 years	Scenario 3: Lose Prop. 42	Scenario 4: Maintain PCI at 66	Scenario 5: Existing Budget, Worst First
PCI 70-100 (Good to Excellent)	57.0%	43.3%	41.1%	39.3%	77.6%	25.6%
PCI 50-69 (At Risk)	21.5%	22.3%	22.4%	23.9%	0.0%	36.4%
PCI 25-49 (Poor)	15.4%	12.0%	13.4%	13.2%	4.7%	21.8%
PCI 0-24 (Failed)	6.1%	22.4%	23.1%	23.6%	17.7%	16.2%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	100%

The biggest impact that jumps out is that the percentage of pavements in failed condition today is estimated to be approximately 6.1 percent; however, under Scenarios 1 to 3, this will grow from 22 percent to 24 percent by 2020. Or to be blunter, almost a quarter of local streets and roads will be considered "failed" by 2020. The photos below are examples of "failed" pavements.

Almost a quarter of California's streets will be in "failed condition" by 2020 with existing funding.

Another trend of note is that while Scenario 4 maintains the existing condition and unfunded backlog, there is still a significant growth in the percentage of pavements that are "failed" (from 6.1 percent to 17.7 percent). The good news is that the preservation strategies will also dramatically improve the percent of pavements in the "good to excellent" category from 57 percent to 77.6 percent.

Finally, note the differences in results between Scenarios 1 and 5. Although the same budget is used, the "worst first" strategy in Scenario 5 results in a much lower percentage of roads in good condition (25.6 percent vs. 57 percent in Scenario 1). Conversely, almost 75 percent of streets will be at risk or worse, compared to 43 percent.

Finally, a short note on the definitions of a "distressed highway." As was described in Chapter 1, Caltrans has a goal of reducing the percentage of distressed highways from the current level of 28 percent to 10 percent. Distressed highways in this definition are those highways that require capital preventive maintenance and rehabilitation. When applied to a local street or road, this includes all the streets in the "At Risk" category and below. Applying the Caltrans definition would mean that currently, 43 percent of local streets and roads are "distressed".

4.7 Funding to Maintain Network at BMP

Additional analyses were performed to determine the funding required to *maintain* the pavement network after the BMP goal was reached in 10 years. An iterative process was used to calculate the funding level required to maintain the pavement condition at this level .

This was determined to be $2.3 billion annually, an increase from the $1.8 billion that was reported in the 2008 study. The difference is almost entirely due to the increase in the cost of seals that preserve the pavements once they have reached the BMP.

4.8 Summary

From the results of the four funding scenarios, it is apparent that:

1. The first three funding scenarios show the negative impacts of inadequate funding on local streets and roads, in that the pavement condition is expected to deteriorate and the unfunded backlog will grow over the next ten years.
2. Although the resulting PCI in 2020 is not dramatically different for the three scenarios, it should be kept in mind that the PCI is a relatively insensitive indicator. Rather, the more significant impact is the unfunded backlog; Scenario 3 (permanent loss of new HUTA) has a worst impact, because the unfunded backlog will almost double to $67.6 billion by 2020.
3. Comparing Scenarios 1 and 5, the best strategy is the "best first" strategy, not the "worst first".
4. In order to maintain the existing pavement condition, it will require a funding level of $3.1 billion/year, more than twice the existing level. This would dramatically improve the percentage of pavements in the "good to excellent" category from 57 percent to 77.6 percent. Unfortunately, the percentage of pavements in the "failed" category also grows from 6.1 percent to 17.7 percent.
5. If the BMP goal is met in 10 years, then it will require approximately $2.3 billion/year to maintain the pavements at the level in subsequent years.
6. A $1 deferred today will result in a higher cost of $1.53 in 10 years, assuming that there is no increase in construction or labor costs.