MEMORANDUM

TO: **Barry Sedlik, Acting Secretary**
Business, Transportation and Housing

FROM: **Dan Dunmoyer, Cabinet Secretary**

C/O: **David Knudsen**
Cabinet Affairs

DATE: **February 8, 2007**

SUBJ: **California Department of Transportation Five-Year Maintenance**

The attached Governor's Office Action Request is being returned to you approved by Cabinet Secretary Dan Dunmoyer. Please see memo from the Department of Finance.

Please call the Cabinet Office at (916) 445-6131 if you have any questions or concerns. Thank you.

Ref: BTH565 California Department of Transportation Five-Year Maintenance
Approved by:

Scott Reid — 12/18/06
Scott Reid — Date
Chief Deputy Cabinet Secretary

Doug Hoffner — 1/30/07
~~Doug Hoffner~~ — Date
~~Deputy Cabinet Secretary~~

Vince Brown — 1/26/07
Vince Brown — Date
Chief Deputy Director
Department of Finance

~~Cynthia Bryant~~ Chris Kahn — 12-26-06
~~Cynthia Bryant~~ — Date
~~Chief Deputy~~ Legislative Secretary

DAN DUNMOYER — 2/4/07
DAN DUNMOYER — DATE
CABINET SECRETARY

DEPARTMENT OF **FINANCE**

INTERNAL MEMORANDUM

Date: January 25, 2007

To: Vince Brown, Chief Deputy Director

From: Mark Hill, Program Budget Manager

Subject: **Request for Approval of Department of Transportation Five-Year Maintenance Plan - GOAR BTH 865**

We have reviewed the Governor's Office Approval Request submitted by the Acting Secretary of the Business, Transportation & Housing Agency that recommends approving the Department of Transportation (Caltrans) 2007 Five-Year Maintenance Plan.

Section 164.6 of the California Streets and Highways Code requires Caltrans to prepare a five-year maintenance plan that addresses the maintenance needs of the state highway system. The plan must be updated every two years and must be submitted to the Governor, the Legislature, and the California Transportation Commission for review and comment by January 31 of each odd-numbered year.

Caltrans indicates that baseline funding in the 2005 Five-Year Maintenance Plan was $91 million for roadway maintenance, $41 million for bridge maintenance, and $16 million for culvert maintenance. Bridges also received an increase of $10 million in the 2005-06 Budget Act. The funding was increased in the 2006-07 Budget Act by $53 million and 50 positions for roadway, $47 million and 147 positions for bridges, and $5 million and 20 positions for culverts. Funding for contract delivery was also increased for roadway by $5 million, bridges by $16 million, and culverts by $2 million. Caltrans is recommending further increases of $147.1 million, with an additional $85 million for roadway to reduce the backlog of pavement maintenance projects, $41.1 million to reduce the backlog of bridges with major maintenance needs, and $21 million to address the culvert maintenance backlog.

The plan also notes that material costs have increased from $53 a ton for Asphalt Concrete (AC) pavement and $210 per cubic yard for Portland Concrete Cement (PCC) pavement in 2004 to $89 per ton for AC pavement and $244 per cubic yard for PCC pavement in 2006.

The $85 million in funding for roadway maintenance was provided in the 2007-08 Governor's Budget. The remaining funding increase needed for bridges and culvert maintenance would be funded in the future if additional funding becomes available.

The report conforms to the statutory requirement, so we recommend that it be released to the Legislature.

GOVERNOR'S OFFICE ACTION REQUEST

PROCESSED BY CABINET

TO: Fred Aguiar, Cabinet Secretary

FROM: Barry R. Sedlik, Acting Secretary
Business, Transportation and Housing Agency

Will Kempton, Director
California Department of Transportation

PREPARED BY: Michael Miles, Deputy Director
Maintenance and Operations
Phone: (916) 654-6823 / Fax: (916) 654-6608
E-mail: Michael_Miles@dot.ca.gov

DATE: December 1, 2006

SUBJECT: California Department of Transportation Five-Year Maintenance Plan

_X_ Request for Approval ____ Request for Action

____ Request for Cabinet Discussion

TIME FACTOR:

The 2007 Five-Year Maintenance Plan shall be transmitted to the Governor of California, the California State Legislation, and the California Transportation Commission on January 31, 2007.

SUMMARY:

In 2005, the Governor and the Legislature approved the inaugural $286 million Five-Year Maintenance Plan as a means of ensuring the reliability of California's 50,000 lane miles of State highway by stopping the backlog growth in preventive maintenance work for pavement and bridges, while providing funding to start a culvert inspection program. The 2005 Five-Year Maintenance Plan included baseline funding of $148 million and an increase of $138 million of which $128 million was redirected from the State Highway Operation and Protection Program (SHOPP), and $10 million from a Budget Change Proposal beginning in July 2006.

The 2007 Five-Year Maintenance Plan recommends sustaining the additional investment for pavement maintenance included in the 2005 Plan and the 2006-07 budget. Currently, baseline funding for pavement maintenance is $149 million dollars per year due to the restoration of $45.8 million in the 2005/06 fiscal year and the increased funding level of $58 million in 2006/07 as part of the 2005 Five-Year Maintenance Plan. By sustaining the increased funding level for pavement maintenance, the maintenance pavement backlog will be reduced.

The 2007 Five-Year Maintenance Plan also recommends an additional investment of $62.1 million per year. The increased investment in preventive maintenance, redirected from the SHOPP includes $41.1 million to reduce the backlog for bridges with major maintenance needs, and $21 million for drainage to start addressing the culvert backlog growth.

2006Im0442

The 2007 Five-Year Maintenance Plan is being submitted pursuant to the reporting requirements contained in Section 164.6 of the California Streets and Highways Code.

DISCUSSION/PRO-CON ARGUMENTS:

PRO: California's transportation infrastructure backlog of needed preventive maintenance continues to increase. By maintaining the current funding level for pavement work and investing an additional $41.1 million for bridge and $21 million for identified drainage system preventive maintenance annually over the next five years, these following benefits will accrue:

- Project costs for future full rehabilitation or replacement projects will be deferred by extending the service life of existing roadways, structures, and drainage facilities.
- Deterioration of the existing transportation infrastructure will be slowed.
- Additional preventive maintenance will be a good investment of taxpayer dollars. Preventive maintenance work greatly reduces the need, cost, and frequency of more expensive and disruptive rehabilitation work.

CON: This Five-Year Maintenance Plan requires a commitment to redirect State Highway Account funds to preventive maintenance projects. These expenditures will:

- Reduce funding available for other transportation priorities.

EFFECT ON EXISTING LAW:

Permitted by California State Budget.

ESTIMATED COST:

$348.1 million annually for the Five-Year Plan.

RECOMMENDATION:

Approve.

APPROVED:

Will Kempton 12/1/06

WILL KEMPTON, Director — Date
California Department of Transportation

Barry R. Sedlik 12-11-06

BARRY R. SEDLIK, Acting Secretary — Date
Business, Transportation and Housing Agency

Attachments:
(1) 2007 Five-Year Maintenance Plan

California Department of Transportation

2007 Five-Year Maintenance Plan

January 2007

REQUIREMENTS OF SENATE BILL 1098

Senate Bill (SB) 1098, Chapter 212, Statutes of 2004, requires the California Department of Transportation (Department) to prepare a Five-Year Maintenance Plan (Plan) that addresses the maintenance needs of the state highway system. The bill also requires the Department to attempt to balance the resources between the rehabilitation plan and the maintenance plan (A copy of SB 1098 is contained in Appendix 1.).

SB 1098 requires that the Plan include:

- Only maintenance activities that, if the activities were not performed, could result in increased State Highway Operation and Protection Program (SHOPP) costs in the future.
- Strategies, specific activities, and funding to reduce or prevent backlog over the five years of the Plan.
- Specific goals and quantifiable accomplishments.
- Cost control and efficiency strategies.
- Cost estimate for the five years of the Plan.
- SHOPP cost avoidance from implementation of the Plan.
- A budget model in line with the requirements of this legislation.

EXECUTIVE SUMMARY

In 2005, the Governor and the Legislature approved the inaugural Five-Year Maintenance Plan as a means of ensuring the reliability of California's state highway system by completing critically needed preventive maintenance work.

The 2005 Five-Year Maintenance Plan included baseline funding of $148 million beginning in July 2006 for preventive maintenance work associated with pavement, bridges and drainage systems on the more than 50,000 state highway lane miles. Initially, additional funding within the State Highway Operation and Protection Program (SHOPP) was committed to needs identified by the Five-Year Maintenance Plan. The Administration and Legislature subsequently augmented the Maintenance Program by $223 million, of which $128 million was redirected from the SHOPP in FY 2006/07, and $10 million from the approval of a Budget Change Proposal (BCP), bringing the total investment to $286 million.

Increasing costs for energy and construction materials, such as concrete and steel, have seriously eroded the purchasing power of currently identified resources needed to accomplish the 2005 Five-Year Maintenance Plan. For example, the cost of raw materials (steel and concrete) has increased significantly since July 2005. Since that time, the California Construction Cost Index of seven major bid items rose 17%. While material costs have increased, the average number of bidders competing for the Department's construction projects has declined. The decline in bidders is due in part to the state's improving economic climate which provides increased opportunities for contractors and reduces the amount of contractors available to bid and work on the Department's projects. That situation, in turn, has contributed to higher construction awards. Historically, the Department has averaged 5.5 bidders per project. During the 2005/2006 fiscal year (FY) the number of bidders has averaged 3.5 per project. Bids have been running about 11.5% above the Department engineer's estimate. Historically, bids had been running between 5% and 10% below the estimate.

This reduced purchasing power has significantly increased the amount of money needed to keep the projected backlog of recommended maintenance work from increasing.

This Five-Year Maintenance Plan recommends an additional investment of $147.1 million per year. This includes $85 million for roadway to eliminate the backlog over a 10 year investment period. This also includes $62.1 million for structures maintenance to reduce the number of bridges with major maintenance needs from 20% of bridges to approximately 10% of the inventory over a 10 year investment period and for drainage to start addressing the projected backlog growth.

FIVE-YEAR MAINTENANCE PLAN

The Department is responsible for the approximately 50,000 lane miles of the State Highway System. This includes maintaining the roadway, structures (bridges), drainage systems, landscaping, signs, and other highway features. In addition, the Department spends considerable resources on non-inventory roadside activities such as litter and graffiti removal.

Streets and Highways Code 167 (a) (see following excerpt) establishes the priority for State Transportation Funds from the State Highway Account.

> *167. (a) Funds in the State Highway Account in the State Transportation Fund shall be programmed, budgeted subject to Section 163, and expended to maximize the use of federal funds and shall be based on the following sequence of priorities:*
> *(1) Operation, maintenance, and rehabilitation of the state highway system.*
> *(2) Safety improvements where physical changes, other than adding additional lanes, would reduce fatalities and the number and severity of injuries.*
> *(3) Transportation capital improvements that expand capacity or reduce congestion, or do both.*
> *(4) Environmental enhancement and mitigation programs.*

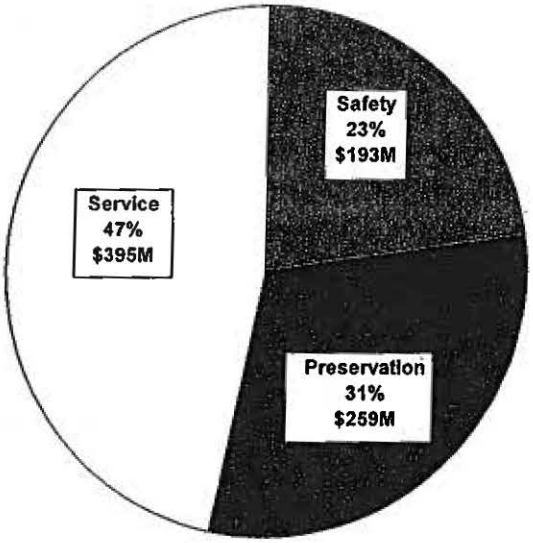
The Department prioritizes the efforts for its programs and offices through its mission ("*Caltrans Improves Mobility Across California*") and goals. The Department's Division of Maintenance classifies the Maintenance Program's activities into three categories: Safety, Preservation, and Service (defined below).

- ***Safety*** of the traveling public, the Department's maintenance workers, and private contractors working on the state highway system is a high priority. The focus of this effort is to ensure timely response to accidents and weather-related situations and ensure that highway features designed to enhance safety are maintained in proper working order.

- ***Preservation*** focuses maintenance efforts on protecting California's multi-billion dollar investment in its State Highway System. This effort is intended to ensure system reliability and extend the useful life of the pavement, bridges, drainage system and other highway infrastructure elements, such as landscaping and rest areas.

- *Service* involves maintaining highway assets in such a way that they enhance the state's environment and quality of life. This effort includes maintaining thousands of acres of roadside vegetation, picking up litter, and removing graffiti.

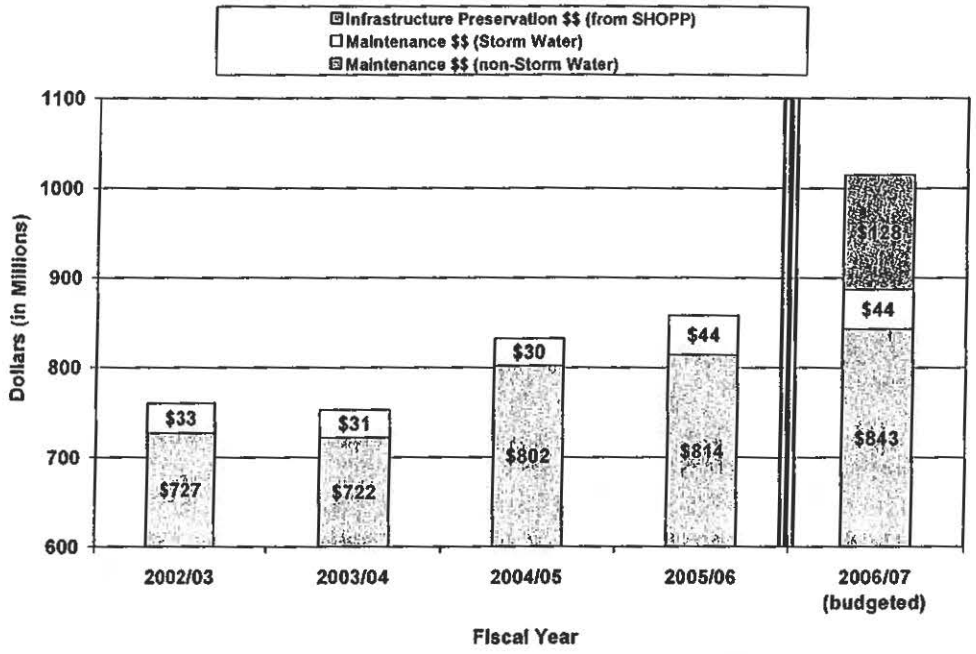
Maintenance Program Expenditures
Percent of Safety-Preservation-Service
Five Year Average FY 2002-03 to FY 2006-07
(FY 2006-07 budgeted)



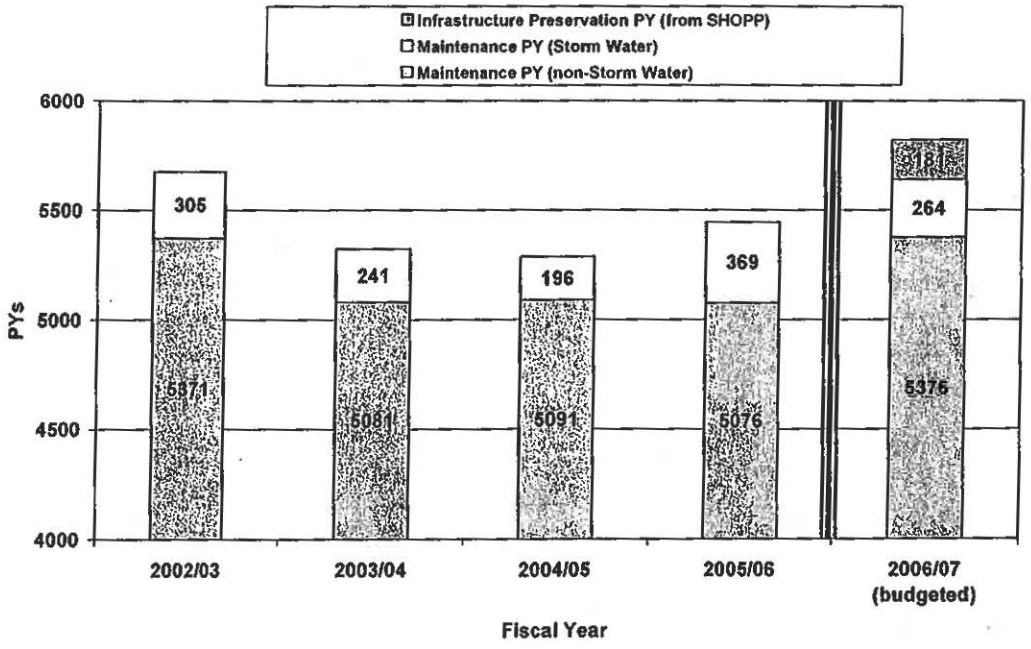
On average, the Department spent $847 million each year on maintenance activities over the past five years. This level of expenditure has not kept pace with the growth of the maintenance needs that result from the increasing inventory and the aging of the State's roadway system.

This Five-Year Maintenance Plan identifies specific strategies that avoid increases in the SHOPP by delaying the need for rehabilitation, reconstruction, or replacement. These maintenance activities include thin pavement overlays, surface seals and slab replacements, fixing bridge joints and bearings, repairing damaged concrete, sealing bridge decks, completing full inspection of the drainage system, and repairing culverts, inlets and outlets to allow water to flow unimpeded. These services would be provided by a combination of contract and. State resources. This Five-Year Maintenance Plan does not include landscape preservation.

Maintenance Program Dollar Expenditures
FY 2002/03 to FY 2006/07
(FY 2006/07 budgeted)



Maintenance Program PY Expenditures
FY 2002/03 to FY 2006/07
(FY 2006/07 budgeted)



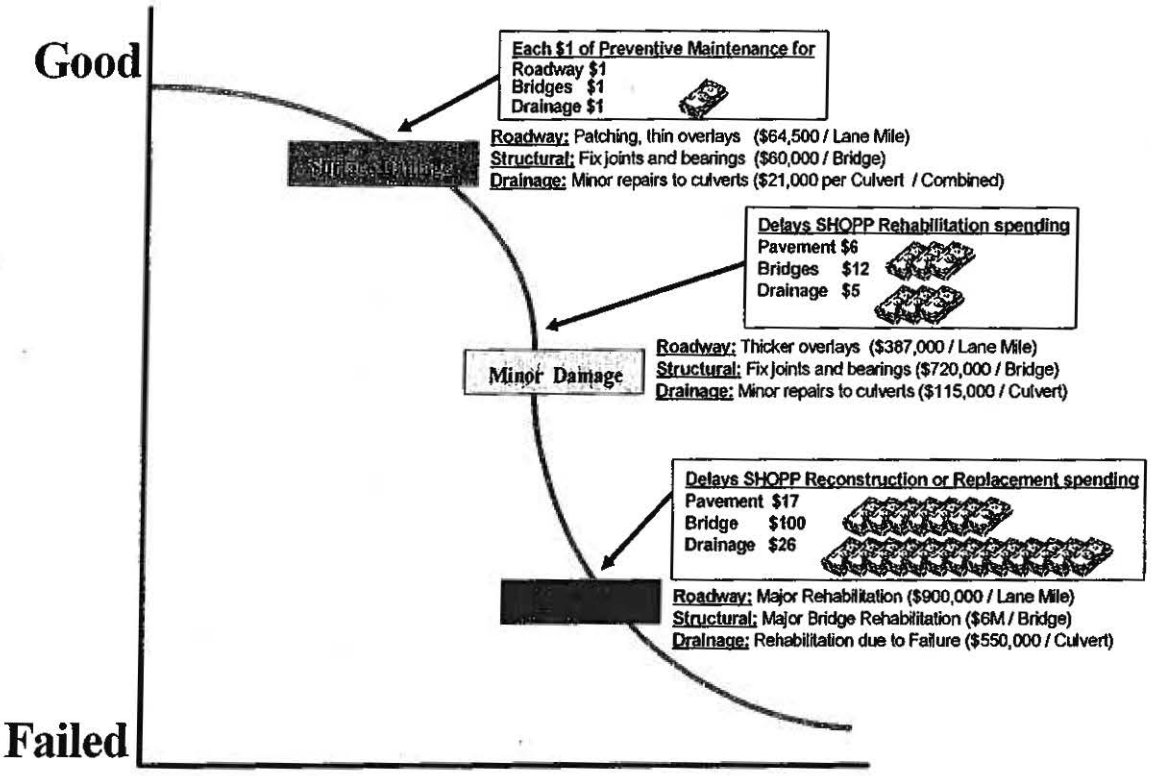
The SHOPP, on the other hand, funds major rehabilitation, replacement, and reconstruction of pavement, bridges, culverts and landscaping. The SHOPP projects identified in the 2006 SHOPP are needed now to prevent further deterioration of the infrastructure. Changes in maintenance strategies as identified in this Plan will not reduce current SHOPP needs. The maintenance strategies will slow the growth in future SHOPP costs above and beyond the 2006 SHOPP.

Preventive maintenance is the most cost effective means of protecting the State's infrastructure investment. As implemented, this Five-Year Maintenance Plan prevents the deterioration and extends the life of roadway, structural and drainage inventory that is in fair or good condition. The average cost for a SHOPP roadway rehabilitation project to treat one lane-mile of minor pavement damage is $387,000 while the average cost for preventive maintenance is $64,500 per lane-mile. Thus, preventive maintenance results in a cost benefit ratio of about 6:1. Similarly, the benefit ratio for structures is 12:1 ($720,000 for minor damage rehabilitation versus $60,000 for preventive maintenance) and 5:1 for drainage ($115,000 for minor damage versus $21,000 for preventive maintenance). Preventive costs are a combination of state forces and contract work. The benefits would accrue over a five-year cycle. The table below displays these benefit ratios:

Cost-Benefit of Preventive Maintenance

	Cost of Rehabilitation	Cost of Preventive Maintenance	Unit of Measure	Cost-Benefit Ratio
Roadway	$ 387,000	$ 64,500	Lane Mile	6:1
Structural	$ 720,000	$ 60,000	Bridge	12:1
Drainage	$ 115,000	$ 21,000	Culvert	5:1

Cost Effectiveness Chart



PROJECT DELIVERY STATUS AND STRATEGIES TO CONTROL COSTS/ IMPROVE EFFICIENCIES

Roadway

The Department's roadway system includes approximately 50,000 lane-miles of pavement consisting of Asphalt Concrete (AC) and Portland Cement Concrete (PCC) pavement. Approximately 13,845 lane miles (28%) of the State Highway System have surpassed their service life of 10 years and are in need of rehabilitation.

At the beginning of the 2004/2005 FY, the Department reported a backlog of 5,084 lane miles of desperately needed pavement maintenance. The initial Five-Year Maintenance Plan provided $91 million to repair 2,300 lane miles of state highway. Due to increased construction costs, the Department only treated 1,450 lane miles during the 2005/2006 FY and the backlog grew to 6,231. At the 2006/07 funding level of $149 million, it is estimated that approximately 2,000

lane miles of pavement will be treated in the 2006/2007 FY. The backlog is expected to grow to about 7,784 lane miles by the end of FY 2006/07.

Severe winters the past two years caused widespread pavement damage, especially in Southern California in 2005 and Northern California in 2006. Many pavement sections failed due to water saturation of the base and subbase. Concrete pavement failures included broken slabs, rocking slabs, and settlement. Asphalt pavement failures included potholes and rutting. Field examinations of each location found the damage to be a high priority for pavement repair, resulting in a redirection of SHOPP resources to ensure the safety and reliability of the highway system. In 2005, a total of 691 lane miles damaged by the storms were repaired at a cost of $80 million. An additional $60 million in emergency funding was provided to repair nearly 500 lane miles of storm-related pavement damage in 40 counties during 2006.

Material costs have increased significantly. In 2004, AC pavement costs averaged $53 a ton and PCC pavement cost averaged $210 cubic yard. In the first quarter of 2006, the average cost AC had risen to $89 per ton and PCC to $244 per cubic yard.

Pavement maintenance uses a variety of strategies based on site-specific conditions such as the type of pavement, age of the pavement, volume of traffic, pavement condition and location. Strategies include replacing damaged slabs, sealing cracks, grinding and resurfacing, etc. The Department policy requires that maintenance work plans submitted by district maintenance engineers use a mix of both lower and higher cost strategies ranging from $25,000 to $100,000 per lane-mile. Typically, all strategies offer four to seven years of added service life, depending on existing condition of the pavement and average daily traffic.

The Department has established a goal of keeping eighty percent of the roadway inventory in good or needing maintenance treatment. Current level of maintenance funding is adequate to prevent the growth of roadway inventory needing maintenance treatment. When rehabilitation projects are performed approximately 50% to 70% of the work is performed on good pavement and or needing maintenance treatment, hence rehabilitation projects also effectively achieve the goal of reducing both maintenance backlog and rehabilitation needs.

In order to address the backlog an additional $85 million for pavement preservation contracts is recommended to treat approximately 700 additional lane miles. At the recommended annual investment level of $234 million it is estimated that the pavement backlog will be eliminated over a ten year period.

In addition, the Department will continue to develop specifications for new products and applications that reduce costs and improve pavement performance.

A Pavement Preservation Center has opened at California State University, Chico to assist the Department in its pavement preservation efforts. Increased use of fog sealing of pavements will help preserve pavements at reduced costs. Research and testing of equipment will continue to be a priority to perform maintenance work efficiently. The Department plans to test a new pothole patching machine in the coming FY.

Structure Maintenance

The Department's structural assets include more than 12,500 state highway bridges. It is the Department's objective to manage its bridge inventory safely and economically to limit operational restrictions and prevent sudden closures or collapse. Major structural rehabilitation caused by lack of preventive maintenance is more costly and has the potential to cause significant long-term disruptions to mobility.

In January 2005, the Department reported a funding level for structure maintenance of $41 million. At this investment level, it was estimated that we would be able to complete bridge maintenance work on 260 bridges annually and that the growth of structural needs would be approximately 300 bridges per year.

The 2005 Five-Year Maintenance Plan authorized $47 million for structure maintenance contract funds and associated support resources to eliminate further growth in the backlog of bridge maintenance needs. The resources identified in the 2005 Plan became available on July 1, 2006 and thus the benefits from that funding have not been fully realized at this time.

Recognizing the rapidly growing need in the bridge maintenance area, the Department received a $10 million BCP for increased bridge preservation in the 2005/06 FY. The additional $10 million investment in bridges provided funding to partially offset the rapid increases in construction costs and provided some relief to the rate of backlog growth.

At the beginning of 2004/2005 FY, the Department reported a backlog of 2,250 bridges. The backlog at the beginning of the 2006/07 FY was 2,544 bridges and is anticipated to increase to 2,844 at the end of 2006-07 FY. At the current funding level of $114 million per year, it is anticipated that the backlog will grow at the rate of 39 bridges per year due to construction cost increases that have occurred since the 2005 plan was approved. A $10.5 million investment in bridge maintenance is required to prevent the backlog from growing beyond current levels. Greater bridge maintenance investment levels would provide the funding necessary to improve the overall condition of the bridges and reduce the backlog of needs below current levels.

The Department is recommending a contract funding increase of $41.1 million to provide funding necessary to reduce the number of bridges with major maintenance contract needs from 20% of bridges to approximately 10 % of the inventory over a 10 year investment period. The 10-year investment period is being recommended to minimize the severity of the investment shift within the department and to establish a sustainable steady state funding level for bridge maintenance.

Numerous activities are being pursued to maximize efficiencies and control the costs of bridge preservation. Among these are new materials that last longer and are easier to apply (epoxy paints, polyester concretes, corrosion resistant rebar and design details). Policies are being implemented that ensure new projects are constructed with cost effective and easily maintainable elements. Activities of other state Departments of Transportation are reviewed on an ongoing basis to make sure that best business practices are employed in California.

California is recognized as a worldwide leader in the management of bridge infrastructure. The Department utilizes highly trained licensed civil engineers to perform regularly scheduled inspections and identify site specific maintenance and rehabilitation needs. These needs are prioritized using a variety of methods that include techniques to optimize preservation expenditures and minimize life cycle costs, while maintaining safe and reliable bridges.

Drainage

The Department's drainage system includes 205,000 culverts on the State Highway System. The culverts drain the State's highways and act as conduits for streams, brooks, and other waterways to cross under the highways. Culvert damage or failure can seriously damage the roadway, threaten the safety of the traveling public, and create extensive repair costs.

The 2005 Five-Year Maintenance Plan provided for a proactive inspection program to identify damaged or failed culverts. Currently, a total of 14,636 culverts have been inspected. Sixteen percent need preventive maintenance, nine percent need rehabilitation or replacement, and two percent were considered critical enough to need immediate emergency work. Using these percentages and the expected inspections per year, an additional 2,010 culverts will be identified as needing preventive work each year. In order to maintain a no backlog growth – this additional workload would have to be addressed each year to keep pace. The estimated cost for dealing with 2,010 culverts per year requires an additional investment of $149 million annually. This much of an increase may be difficult to fund and if redirected from the SHOPP could drastically decrease funds for needed rehabilitation projects. In order to start addressing the backlog an increase of $21

million is proposed which would help accomplish an additional 355 culverts each year reducing the rate of backlog increase, but not eliminating it.

The Culvert Inspection Program will improve the understanding of the mechanisms leading to culvert failure and will potentially lead to changes in design specifications, construction methods, and/or materials for improved culvert performance. Management procedures have been developed to measure the health of the drainage systems, prioritize potential culvert projects based on condition, cost and traveler delay (measured both by traffic volume and detour length), and track accomplishments and delivery schedule of maintenance work. In addition, the use of Geographic Information Systems (GIS) will assist in re-evaluating watersheds to ensure that culverts are meeting current design standards and will improve workforce expertise and the ability for quick response to emergency situations involving culverts.

Preventive maintenance for culverts is performed by a combination of state forces and contract work. The 2005 Five-Year Maintenance Plan identified repair of 80 culverts and estimated inspection rate of 19,000 culverts annually. Based on actual production, a new target of 14,000 inspections per year has been established.

MAINTENANCE PROGRAM BUDGET MODEL

The Maintenance Program Budget Model uses a combination of expenditure, performance and inventory data to project future maintenance resource needs and performance expectations for each of the Department's 12 districts.

The Maintenance Level of Service (LOS) evaluation system is the performance measurement tool for roadside, drainage, traffic guidance, and electrical maintenance activities. A comparison of three-year average expenditures and LOS data for each district provides the basis of resource needs in these maintenance activities. The Department develops a relationship between the average effort (derived from expenditure data) invested per inventory item (for each activity in each district) and the resulting average LOS achieved. Using a linear formula, the Budget Model assumes that an increase or decrease in resources will produce a corresponding increase or decrease in LOS.

To establish a multi-district perspective, the state's 12 districts are grouped into sets of "comparable" districts (using geographic, population, and traffic volume characteristics). This allows the Department to compare the results of similar districts to highlight activities where districts may be under-performing relative to other districts.

For pavement and bridge maintenance, the Department uses extensive historical Pavement Management System and Bridge Management System data to develop the average annual workload. The annual workload establishes the benchmark above which expenditures can reduce existing workload backlog, and below which backlog will increase.

The Budget Model uses historical data recorded by Maintenance supervisors in the field to determine the percentage of time work in any activity was performed for Safety, Preservation, or Service reasons. Each activity receives a Target LOS based on its percentage of Safety-Preservation-Service and the emphasis given to each Safety, Preservation, or Service priority by the Division of Maintenance.

The Budget Model is used to allocate existing budget resources to the districts each year. As the Department budget conditions allow, the Budget Model will be used to develop Program-wide budget increase proposals and alternatives.

Finally, the Department is working to transform the Budget Model from a district level tool to a more precise county-route level tool to make the results more meaningful to smaller organizational units (such as Maintenance Regions and Crews). These revisions will:

- Categorize highways based on relevant characteristics using data available in the Department's GIS databases (for example: traffic volumes, climate, land use, etc);
- Replace current district comparisons with comparisons of county-routes with similar characteristics (i.e., routes with low traffic volumes in the desert);
- Develop more detailed comparisons to provide for greater precision in determining relationships between performance and resources;
- Use on-going development of Snow and Ice LOS to provide opportunities to use a budget model element for related Snow and Ice activities;
- Implement on-going analysis of support activities and training to provide a tool for including a budgeting tool for program support and training in an upcoming revision of the Budget Model.

ANALYSIS OF ALTERNATIVE LEVELS OF MAINTENANCE INVESTMENT

Level of Investment 1 - Baseline Funding

The 2005 Five-Year Maintenance Plan baseline annual funding level was $148 million. The 2004/05 FY backlog was reported as 5,084 lane miles for Roadway,

2,250 bridges for Structural, and 1,666 culverts for Drainage. It was estimated that the backlog would grow to 7,784 lane miles, 2,850 bridges and 4,536 culverts by 2006/07 FY. The extent of the Drainage backlog is unknown until a fully-funded statewide inspection program is implemented.

Level of Investment 1 - Baseline Funding (2005 Five-Year Maintenance Plan)

	Annual Personnel Years	Annual Cost in Millions	Annual Accomplishments	Annual Increase in Backlog	Future SHOPP Cost Avoidance in Millions
Roadway [1]	165	$91	2,300 Lane Miles	1,350 Lane Miles	$546
Structural [2]	117	$41	260 Bridges	300 Bridges	$492
Drainage [3]	168	$16	80 Culverts 19,000 Inspections	Unknown	$75
Total	**450**	**$148**		**Total**	**$1,113**

1) Costs include personnel services, maintenance contracts, and equipment rental. The 2005 and 2007 Five-Year Maintenance Plans do not include state force pavement work of approximately 350 PY's and $50 million per year since the work is generally corrective. The work is limited to spot locations of damage, such as pothole repair.
2) Includes state repair crews, materials, equipment rental, contract dollars and support.
3) Includes state forces for maintenance and associated equipment and materials, inspection, contract dollars and support.

Level of Investment 1 - Additional Funding since 2005 Five-Year Maintenance Plan

	Annual PY Equivalents [4]	Annual Cost in Millions
Roadway [1]	50	$58
Structural [2]	147	$73
Drainage [3]	20	$7
Total	**217**	**$138**

1) Roadway increases include a transfer from the SHOPP of $53 million in Major Maintenance contracts, and 50 PY and $5 million for contract delivery.
2) Structural increases include a FY 2005-06 $10 million BCP increase in Major Maintenance contracts, and a transfer from the SHOPP of $47 million in Major Maintenance contracts, and 147 PY and $16 million for contract delivery.

3) Drainage increases include a transfer from the SHOPP of $5 million in Major Maintenance contracts and 20 PY and $2 million for contract delivery.
4) Includes 181 Regular PYs, 24 Consultant Contract PYEs and 12 Overtime PYEs

Level of Investment 1 - New Baseline Funding (2007 Five-Year Maintenance Plan)

The baseline funding for the 2007 Five-Year Maintenance Plan is $286 million. The current backlog is 6,231 lane-miles, 2,544 bridges and 2,296 culverts. Because of additional storm damage funding, the pavement backlog is not expected to increase above 7,784 lane miles even though construction costs are increasing.

	Annual Personnel Years	Annual Cost in Millions	Annual Accomplishments	Annual Increase in Backlog	Future SHOPP Cost Avoidance in Millions
Roadway [1]	215	$149	2,000 Lane Miles	0 Lane Miles	$894
Structural [2]	264	$114	521 Bridges	39 Bridges	$1,368
Drainage [3]	188	$23	230 Culverts, 14,000 Inspections	2010 Culverts	$115
Total	**667**	**$286**		**Total**	**$2,377**

1) Roadway numbers include Major Maintenance Contracts ($129 million), and PY/$$ to deliver contracts (215 PY & $20 million).
2) Structural resources include Major Maintenance Contracts ($60 million), PY/$$ to deliver contracts (147 PY & $16 million), and state forces for maintenance.
3) Drainage resources include Major Maintenance Contracts ($5 million), PY/$$ to deliver contracts (20 PY & $2 million) and state forces for maintenance.

Level of Investment 2 – Reduce Backlog

With an increased annual funding level of $147.1 million beginning in FY 2008/09, the backlog of maintenance needs will be reduced for roadway, bridges, while reducing the rate of increase for known drainage backlog. This strategy will provide an additional $85 million for roadway to reduce the backlog by 700 lane miles, $41.1 million for structures to reduce the backlog by 172 bridges, and $21 million for drainage to reduce the backlog by 355 culverts.

	Annual Personnel Years	Annual Cost in Millions	Annual Accomplishments	Annual change in Backlog	Future SHOPP Cost Avoidance in Millions
Roadway [1]	292	$234.0	2,700 Lane Miles	700 decrease	$1,404
Structural [2]	361	$155.1	732 Bridges	172 decrease	$1,861
Drainage [3]	248	$44	585 Culverts, 14,000 Inspections	1655 increase	$220
Total	**901**	**$433.1**		**Total**	**$3,485**

1) Roadway increase of $85 million includes major maintenance contracts and support costs. The 2005 and 2007 Five-Year Maintenance Plans do not include state force pavement work of approximately 350 PY's and $50 million per year since the work is generally corrective. The work is limited to spot locations of damage, such as pothole repair.
2) Structural increases of $41.1 million include $31.2 million in Major Maintenance contracts, and 97 PY and $9.9 million for contract delivery. Includes state repair crews, materials, equipment rental, contract dollars and support.
3) Drainage increases of $21 million include $15 million in Major Maintenance contracts and 60 PY and $6 million for contract delivery. Includes state forces for maintenance and associated equipment and materials, inspection, contract dollars and support.

Level of Investment 3 - Eliminate Backlog

With increased annual maintenance funding of more than $589 million, all existing backlog of maintenance work would be eliminated over a five-year period. Future SHOPP needs would be significantly less than under either of the previously identified levels of investment. When funds are available starting in FY 2008/09, the backlog of roadway, bridge and culvert projects will be reduced to zero after five years. At that point, annual maintenance funding could be decreased.

	Annual Personnel Years	Annual Cost in Millions	Annual Accomplishments	Annual Decrease in Backlog	Future SHOPP Cost Avoidance in Millions
Roadway [1]	382	$310	3,557 Lane Miles	1,557	$1,860
Structural [2]	585	$259	1,144 Bridges	584	$3,108
Drainage [3]	1,042	$306	4,043 Culverts, 39,600 Inspections	1,803	$1,530
Total	**2,009**	**$875**		**Total**	**$6,498**

1) Costs include personnel services, maintenance contracts, and equipment rental. The 2005 and 2007 Five-Year Maintenance Plans do not include state force pavement work of approximately 350 PY's and $50 million per year since the work is generally corrective. The work is limited to spot locations of damage, such as pothole repair.
2) Includes state repair crews, materials, equipment rental, contract dollars and support.
3) Includes state forces for maintenance and associated equipment and materials, inspection, contract dollars and support.

RECOMMENDATION

In approving the 2005 Five-Year Maintenance Plan, the Governor and Legislature recognized the importance of completing critically needed maintenance work to California's infrastructure thus protecting the state's unique quality of life and ensuring its economic competitiveness in the global marketplace.

Increasing material and energy costs and an improving California economy that has reduced the number of bidders for the Department's work have eroded the purchasing power of currently identified resources needed to deliver the 2005 Five-Year Maintenance Plan. The result has been an increasing backlog of recommended maintenance to the state's pavement, bridges and drainage system.

Therefore, the Department recommends Level of Investment 2.

The total recommended annual investment increase is $147.1 million. The recommended roadway funding increase is $85 million to reduce the current backlog over a ten year period along with the accomplishment of rehabilitation projects funded by the SHOPP. This strategy will also provide an additional $62.1 million to reduce the maintenance backlog for structures, and will reduce the growth rate of backlog for drainage. The Governor's 2007/08 Proposed Budget includes $85 million of funding. The additional $62 million of need may be funded in some future year if additional resources become available.

The best use of transportation resources demands a balanced mix of the Five-Year Maintenance Plan and the SHOPP. This balance is consistent and supports the principles of Go California to ensure the wise investment of existing funding with a vision of improving mobility and safety.

Appendix 1

Senate Bill 1098, Chapter 212, Statutes of 2004, amended Section 164.6 of the Streets and Highways Code to read:

164.6. (a) The department shall prepare a 10-year state rehabilitation plan for the rehabilitation and reconstruction, or the combination thereof, by the State Highway Operation and Protection Program, of all state highways and bridges owned by the state. The plan shall identify all rehabilitation needs for the 10-year period beginning on July 1, 1998, and ending on June 30, 2008, and shall include a schedule of improvements to complete all needed rehabilitation during the life of the plan not later than June 30, 2008. The plan shall be updated every two years beginning in 2000. The plan shall include specific milestones and quantifiable accomplishments, such as miles of highways to be repaved and number of bridges to be retrofitted. The plan shall contain strategies to control cost and improve the efficiency of the program, and include a cost estimate for at least the first five years of the program.

(b) The department shall prepare a five-year maintenance plan that addresses the maintenance needs of the state highway system. The plan shall be updated every two years, concurrent with the rehabilitation plan described in subdivision (a). The maintenance plan shall include only maintenance activities that, if the activities were not performed, could result in increased State Highway Operation and Protection Program costs in the future. These activities may include roadway, structural, and drainage maintenance. The maintenance plan shall identify any existing backlog in these maintenance activities and shall recommend a strategy, specific activities, and an associated funding level to reduce or prevent any backlog during the plan's five-year period. The maintenance plan shall include specific goals and quantifiable accomplishments, such as lane-miles of highway to be repaved and the number of bridge decks to be sealed. The maintenance plan shall contain strategies to control cost and improve the efficiency of these maintenance activities, and include a cost estimate for the five years of the plan.

(c) The rehabilitation plan and the maintenance plan shall attempt to balance resources between State Highway Operation and Protection Program activities and maintenance activities in order to achieve identified milestones and goals at the lowest possible long-term total cost. If the maintenance plan recommends increases in maintenance spending, it shall identify projected future State Highway Operation and Protection Program costs that would be

avoided by increasing maintenance spending. The department's maintenance division shall develop a budget model that allows it to achieve the requirements of this subdivision.

(d) The rehabilitation plan shall be submitted to the commission for review and comments not later than January 31 of each odd-numbered year, and shall be transmitted to the Governor and the Legislature not later than May 1 of each odd-numbered year. The maintenance plan shall be transmitted to the Governor, the Legislature, and the commission not later than January 31 of each odd-numbered year.

(e) The rehabilitation plan and the maintenance plan shall be the basis for the department's budget request and for the adoption of fund estimates pursuant to Section 163.