State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

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To: DISTRICT DIRECTORS
DEPUTY DISTRICT DIRECTORS
PROJECT MANAGERS
MAINTENANCE ENGINEERS
OVERSIGHT ENGINEERS

Date: June 28, 2004

From: **J. MIKE LEONARDO**
Acting Chief Engineer

for **LAWRENCE H. ORCUTT**
Acting Deputy Director
Maintenance and Operations

Subject: Longer-Life Pavements

The use of longer-life pavement strategies has been proven to be a cost-effective tool in minimizing maintenance costs and reducing user delays to the motoring public. The California Department of Transportation (Department) recently completed a review of current policies regarding longer-life pavement design and concluded that existing standards, which were originally approved in 1998, should be retained except as specified below.

New Construction

The current standards for new construction require designing new construction projects (including widening) for a 40-year service life using longer-life pavements. These strategies are appropriate when the 20-year projected average annual daily traffic on the corridor equals or exceeds 150,000 vehicles or average annual daily truck traffic equals or exceeds 15,000 trucks. When the corridor meets the criteria for a 40-year service life, the 40-year life shall apply to all pavement elements of the corridor including mixed-use lanes, high occupancy vehicle lanes, and shoulders. Beginning with the 2000 State Transportation Improvement Program, projects on the State highway system, regardless of sponsorship or funding source, were expected to meet this standard.

Studies of projects completed to date have shown that the initial added costs to build longer-life pavements as new construction amount to only 3 to 5 percent (about $15,000 to $30,000 per lane-kilometer) but the savings in future maintenance and rehabilitation costs range from $15,000 to $200,000 per lane-kilometer, with the additional construction costs taken into account. Building longer-life pavements reduces the Department's future obligations for maintaining pavement and thus frees up money for additional projects. More importantly, the use of longer-life strategies reduces exposure to maintenance and construction workers, thereby

reducing the risk of accidents to personnel. The traveling public benefits through a reduction in the amount of construction and maintenance activity, thereby reducing motorists' delay.

Districts should review projects that are being designed or planned to ensure their scope includes 40-year pavement service life where warranted. Should you have any questions or need more information, please contact your Design Coordinator or William K. Farnbach, Chief of the Office of Pavement Design in the Division of Design, at (916) 227-7324.

Rehabilitation

In response to the need to maximize the efficiency of transportation funds, in 1998 the Department initiated a longer-life pavement rehabilitation (LLPR) program to construct pavements that would last 30 to 40 years for high volume (greater than 150,000 average daily traffic and 15,000 average annual daily truck traffic) corridors. The criteria for this program were based on life-cycle cost analysis based on an initial construction cost of $750,000 per lane mile. Since then, those projects that have been built have cost more than $750,000 per lane mile and have raised a number of questions concerning issues such as:

1. The performance of pavement strategies built to date.
2. What work should be included in longer-life rehabilitation projects.
3. The criteria used to select projects.
4. The quality of workmanship and materials, and their impact on pavement performance.
5. Defining performance measures for service life.
6. Rehabilitation versus reconstruction strategies.
7. Improving life-cycle cost analysis to better capture impacts to the traveling public, user cost, maintenance cost, and overall cost effectiveness.

Because of these issues identified to date and the current funding situation in the State, the Division of Maintenance with concurrence from the Pavement Standards Team and Pavement Program Steering Committee has decided not to program any new projects under the LLPR program (201.125) in the 2004 State Highway Operations and Protection Programs (SHOPP) and to only proceed with some of the projects programmed in earlier SHOPPs.

To assure longer-life rehabilitation projects are cost effective, the Department will review the projects built and policies developed to date. It is expected that these reviews will provide the analysis necessary to develop improved design guidance, construction plans, and specifications for longer-life rehabilitation projects. Until the guidance is updated, should you wish to pursue a longer-life rehabilitation project for the 2006 SHOPP, please coordinate with your Design Coordinator and Maintenance SHOPP Program Advisor for LLPR. Should you have any other questions, please contact Susan Massey, Chief of the Office of Roadway Rehabilitation in the Division of Maintenance, at (916) 654-4792, or William K. Farnbach, Chief of the Office of Pavement Design in the Division of Design, at (916) 227-7324.

c: Pavement Program Steering Committee
Michael P. Evans, Division of Maintenance
Tim Craggs, Division of Design
Tom Hoover, Division of Research and Innovation
Gene Mallette, Division of Construction
John C. McMillan, Division of Engineering Services
Pavement Standards Team