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# Pavement Policy Bulletin

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**PPB 09-01 Rigid Pavement Base Design**

References: Highway Design Manual Topic 623

Approved:

  
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## Background

California has traditionally used treated bases under its concrete pavement. The original purpose for using these treated bases was to provide a firm support for the concrete pavement to minimize faulting. These treated bases add cost and time to projects. In the late 1990's Caltrans began using dowel bars in its pavements and in 2006 introduced continuously reinforced concrete pavement as an option as well. Because both dowel bars and reinforcement's purpose includes minimizing faulting, there is a need to reevaluate base designs.

## Existing Standard

Existing design tables require 0.35 to 0.50 feet of lean concrete base or hot mixed asphalt underneath the concrete pavement depending on the proposed traffic index. For concrete pavements with a low Traffic Index (less than 11.5) a Class 2 aggregate base is permissible.

## New Standard

For designs in the Caltrans concrete design tables requiring lean concrete base, the thickness of the lean concrete base shall be 0.35 ft for all cases. For design in the Caltrans concrete design tables requiring hot mixed asphalt, the thickness of the hot mixed asphalt shall be 0.25 ft for all cases. These thicknesses are based on what can be placed in one lift and still function as a stable platform for the rigid pavement surface layer and construction equipment.

## Application

This bulletin is effective immediately and supercedes what is currently found in Topic 623 of the Highway Design Manual 6<sup>th</sup> edition dated July 1, 2008 (also 5<sup>th</sup> edition dated July 1, 2008.) Depending on the project status the above change should be applied as follows:

### Pre-Programming

Estimates for projects that have not been programmed (funded) for construction shall be developed or updated to reflect the new base thicknesses before submitting the project for programming.

### Programmed but Prior to PS&E

Projects that have been programmed but have not yet completed PS&E shall be updated and estimated to reflect the new thicknesses. Resulting cost savings should be documented and discussed with the appropriate Headquarters Program Advisor or agency funding the project to determine best application of the savings. As an option, the concrete pavement layer may be increased provided that the resulting concrete thickness is no more than 1.15 feet. Increasing the thickness of the concrete pavement layer can increase the life of the pavement by 25 to 100%.

### Post PS&E/ Construction

Changes to the pavement structure during construction should only be pursued:

1. If requested by the Contractor.
2. Does not increase the cost of the project (i.e. is a no cost or reduced cost contract change order.)
3. The change is agreed to by the project engineer and the District Materials Engineer. Both should verify that there are no other design issues that require the thicker treated base such as expansive soils.

The cost reductions in the change order should be proportionate to the changes in bid item quantities. To maintain the same grading plane and overall pavement thickness, the concrete pavement layer and/or aggregate base thickness may be increased to offset the reduced treated base thickness. Note that increasing the thickness of the concrete pavement will improve its service life. Resulting thickness of the concrete pavement should not exceed 1.15 feet.

Because this change has been initiated by the State, the change cannot be considered as part of any Cost Reduction Incentive Proposal (CRIP) or Value Engineering Cost Proposal (VECP).

For further implementation details, see Construction Policy Bulletin.