

## **Life Cycle Cost Analysis Procedures Manual Updates August 2010**

The Life-Cycle Cost Analysis (LCCA) Procedures Manual (November 2007) has been modified. Those completing a LCCA should use the most recent version to ensure proper reference to the LCCA data, procedures, and guidance.

A summary of the modifications to the manual are as follows:

- Incorporated Pavement Policy Bulletin 10-3 regarding new standards when estimating initial costs for LCCA into manual (Index 2.7.1).
- Incorporated Pavement Policy Bulletin 10-4 into Manual:

**With the exception of rehabilitation (code 120, 122, and 125) and CAPM (code 121) projects, the life-cycle cost analysis can be deferred from the scoping phase to the PA&ED phase at the discretion of the district if the required conditions are met.** (Index 2.2.1).

**Life-cycle cost analysis performed as part of a Value Analysis study can only be used to meet the requirements for LCCA in HDM 619 and Project Development Procedures, Chapter 8 if the analysis is done in accordance with the requirements found in the Life-Cycle Cost Analysis Procedures Manual for pavements.** (Index 1.3).

- Added Procedures for Estimating LCCA costs for ramps (Appendix 8)
- Copied & grouped together the tables in the manual for users' convenience (Appendix 9)
- Changed the Value of User Time:  
The dollar value per hour for passenger cars is updated to \$11.51 per Caltrans' Division of Traffic Operations Memorandum to District Deputy Directors dated March 3rd, 2006. (Index 3.3.4)
- Deleted the 10-year Rehabilitation & 10-year Crack, Seal & Overlay as the option for pavement alternative. All Maintenance and Rehabilitation Tables are updated as well.

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- Clarified process for exemptions from LCCA policy:  
**exemptions from LCCA requirements shall be submitted to the Chief Office of Pavement Engineering for approval, and documented in the project documents.**  
(Index 1.3).
- *Choosing an Alternative, the following is deleted:*  
Delete: Due to the assumptions and variability inherent in the LCCA process, alternatives are considered equivalent if the total LCCA costs for each alternative are within 5% of each other (2% if initial costs exceed \$100 million) (Index 4.4.3).
- *The quick check for work zone closure is deleted:*  
Delete: The four steps included equations 5 & 6 (Index 3.3.8).

Other format and technical corrections include:

- Changed Rubberized Asphalt Concrete (RAC) to Rubberized Hot Mix Asphalt (RHMA) to match terminology in Highway Design Manual and Standard Specifications.
- *Correction to Index 2.3.1 Provisions for Selecting Design Alternatives:*  
Caltrans currently investigates the following alternate pavement design lives:
  - ◆ 20-year
  - ◆ 40-year
  - ◆ CAPM projects: no specific design life, 5 to 10-year anticipated service life
  - ◆ Widening projects: match remaining service life of adjacent roadway
- Figure 2-2 Pavement M&R Schedule Determination Flow Chart is updated.
- *Index 3.1 Methodology bullet #3, the following is bold:*  
**When comparing three or more alternatives, determine the analysis period using the longest design life.**

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- *Appendix 1, A. Glossary, the following terms are updated per Highway Design manual:*  
Hot Mix Asphalt with Open Graded Friction Course (HMA w/ OGFC)  
Hot Mix Asphalt with Rubberized Hot Mix Asphalt (HMA w/ RHMA)  
Pavement Design Life  
Rapid Strength Concrete (RSC)
- Updated Appendix 1, B. List of Acronyms
- A web-link is added under Figure A4-1 Map of Caltrans Climate Regions
- Updated and added topic and subtopic names and numbers.