Perspectives
ACPA Positions and Perspectives on Key Issues

Life Cycle Cost Analysis: Enhancing our Investment Decisions

The American Concrete Pavement Association supports the view that "*all possible and proper measures be taken to ensure the tax payers of this country that they are receiving full value of every highway dollar spent*".[1] This view was expressed clearly by the American Association of State Highway Officials (AASHO) in the context of the early years of Interstate highway construction and full-value return on the investment remains a fundamental principle advocated by the concrete pavement industry to this day.

In the challenging economic climate, life cycle cost analysis (LCCA) can be a supportive measure to achieve this full-value return on investment, enhancing the prospect of increased investment levels in transportation infrastructure moving forward, through increasing fuel user fees or other highway-focused revenue streams.

What is LCCA?
When performed thoroughly and correctly, LCCA will identify a best value solution with the desired performance at the lowest cost over an economic analysis period, usually long-term:[2]

- LCCA is a proven economic analysis technique, based on well-founded economic principles that are taught in Economics and Civil Engineering programs at the University level in the U.S.
- LCCA is a tool for evaluating the long-term economic efficiency between competing alternate options, each providing equivalent or near-equivalent engineering designs. In the highway context, LCCA is typically used as a means to evaluate and then compare the cost to an owner/agency of any number of alternates, including options for pavements, bridges or other major infrastructure investments.

What LCCA is <u>Not</u>…
Equally important to knowing the history and fundamental importance of LCCA, is to understand that LCCA is not:

- About advantaging one industry over another.
- Another term for pavement type selection.
- A material specific technology – it is solely an economic evaluation technique that supports informed investment decisions.
- About selecting pavements or bridges at the Federal level.
- The same as life-cycle assessment (LCA); LCA is a cradle-to-grave accounting of a material's environmental impact.

[1] "An Informational Guide on Project Procedures," American Association of State Highway Officials (AASHO), Nov. 26, 1960.
[2] "Life Cycle Cost Analysis: Investment Tool for Better Pavement Investment and Engineering Decisions," EB011, American Concrete Pavement Association, 2012.

LCCA History Including Industry Support

LCCA has been applied in the context of highway decision-making for over half a century:

- AASHO, as early as 1960, supported the concept of life cycle cost analysis as a means of enhanced decision making to realize savings.[1]
- Federal Highway Administration affirmed the importance of LCCA in its 1981 policy statement on pavements,[3] and again in its 1996 Final Policy on LCCA.[4]
- Congress required the use on LCCA for projects on the National Highway System in the National Highway Designation Act of 1995. This requirement was rescinded in 1998 (section 1305 of TEA-21), as States pointed to a lack of guidance on how to conduct LCCA properly.
- In response, FHWA issued detailed guidance to the states in the 1998 Interim Technical Bulletin titled "*Life Cycle Cost Analysis in Pavement Design: In Search of Better Investment Decisions*". FHWA has continued to develop guidance, and has developed and refined an LCCA software tool called RealCost that comprises the most recent and up-to-date FHWA guidance on LCCA.
- The Transportation Research Board through its National Cooperative Highway Research Program recommends the use of LCCA as an integral part of an agency's pavement type selection process in its 2011 Guide for Pavement-Type Selection.[5]
- The concrete and asphalt paving industries in the U.S. have supported use of LCCA for many years and have published volumes on the benefits of LCCA as well as LCCA best practices. Both the concrete and asphalt paving industries have developed LCCA software (StreetPave 12 and LCCAExpress, respectively) to accelerate and ease implementation. These guides strongly support the idea that determination of life-cycle costs of alternative pavement types is an important part of a rational means for decision making.[6]
- Currently, 38 states use LCCA in some form for guiding their pavement investments.
- Congress continues to recognize the value of LCCA, as the current transportation authorization, MAP-21, in the National Highway Performance Program (section 1106) requires a State asset management plan to include life-cycle cost analysis for pavement and bridge assets on the National Highway System.

Summary of ACPA's Position and Perspective

ACPA's number one priority for the next surface transportation authorization is increased federal investment. To this end, LCCA can be an important adjunct to discussions on better governance, enhanced fiscal accountability, and greater return on the taxpayer's investment.

ACPA supports implementation of LCCA at the state level for all federal-aid projects, as a means to enhance the credibility of the federal highway program.

LCCA is a sound economic analysis tool when applied properly and objectively, and guidance on how to properly conduct and interpret an LCCA has matured to the degree that broad implementation is easily accomplished.

The goal remains to: "*Ensure the tax payers of this country that they are receiving full value of every highway dollar spent.*" [1]

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[3] FHWA Pavement Type Selection Policy Statement, Federal Register Vol.46, No.195, October 8, 1981.
[4] FHWA Life Cycle Cost Analysis Policy, Federal Register Vol. 61, No. 182, September 18, 1996.
[5] "Guide for Pavement Type Selection", Report 703, Transportation Research Board, Washington DC, 2011
[6] *Life Cycle Cost Analysis: A Position Paper*, IM-53, Asphalt pavement Alliance, September 2011