ENHANCING INVESTMENT DECISIONS WITH LIFE CYCLE COST ANALYSIS

BACKGROUND

As Congress contemplates revitalizing America's infrastructure, there need to be guardrails put in place to ensure taxpayers receive the best possible return on investment. To do that, decision makers, designers and engineers need tools to help them understand the full cost of projects over their lifetime. Life Cycle Cost Analysis (LCCA). According to research from the MIT Concrete Sustainability Hub, future costs of a project can comprise more than 50 percent of its total cost.

The Federal Highway Administration (FHWA) and American Association of State Highway Officials (AASHO) promoted the concept of life-cycle cost analysis (LCCA) as long as 50 years ago, during the early years of interstate highway construction. Today, LCCA has been adopted in some form by many states, and FHWA promotes, but does not mandate LCCA as an engineering economic analysis tool.

Now is the time for Congress to enact this cost-saving and resource-sensitive methodology. The Preserving America's Infrastructure Dollars (PAID) Act of 2018 would finally implement this cost-saving procedure for all highway projects using federal taxpayer dollars. The PAID Act is a straight forward and impactful bill that will enable better and more cost-efficient use of federal-aid investments in transportation infrastructure.

WHAT IS LCCA AND WHY DOES IT MATTER?

Simply put, LCCA is a process for determining the most cost effective way to build a project. For pavements, these costs include initial construction, maintenance, reconstruction, rehabilitation, restoration and resurfacing. LCCA examines the costs of competing alternative materials and provides a means for agencies to make the most cost-effective pavement decision. Not only does LCCA save money by considering long-term costs, it often reduces adverse environmental impacts and resource losses associated with frequent interventions and/or replacement.

When performed correctly, LCCA is a sophisticated economic and engineering analysis tool used by project sponsors to determine what design will provide the most cost-effective, long-term solution. When comparing construction alternatives, LCCA provides a level playing field among various and different building materials.

Too often, government agencies place a high premium on initial costs, overlooking the total cost over the life of the pavement. But pavement is a long-term investment, and its success or failure must be measured in terms of decades of reliable performance. LCCA is a common sense, businesslike approach to building, maintaining, and modernizing roads. Given the systematic

CONTACT INFORMATION

RACHEL DERBY, Vice President, Government Relations, Portland Cement Association
PHONE: 202.679.8223 EMAIL: **rderby@cement.org**

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underinvestment in our roads and bridges and the staggering needs, LCCA can assist in achieving the return on investment and save taxpayers countless dollars by choosing the most cost-effective long-term pavement solution.

Analysis conducted using FHWA's RealCost LCCA software, with roadway inventory data from USDOT, and historical cost information, suggests that **agencies can save as much as $91 million for every $1 billion spent, or roughly 9% by fully utilizing LCCA rather than relying on first-cost decision making.**[1] Using RealCost for four types of federal-aid roadways, it costs approximately $1.45 million dollars to pave one lane mile over a 40-year lifespan. By applying LCCA analysis, concrete paved roads yield an average savings of $132,000 per lane mile[2].

ACTION REQUESTED

As America's infrastructure needs continue to grow, increased investment must be a primary objective of any infrastructure package. Incorporating LCCA into the proposed new infrastructure legislation that the President and Congress have been discussing can save taxpayers and state departments of transportation billions of dollars. Considering the broad support of LCCA from agencies, Congress, and industry, incorporating this tool into broader use will "ensure the taxpayers of this country that they are receiving full value of every highway dollar spent".[3]

Congressman Jason Lewis (R-MN) has introduced, H.R. XXXX, the Preserving America's Infrastructure Dollars (PAID) Act of 2018. Under this legislation, an LCCA would be performed on all federally funded projects larger than $30 million. **We encourage you to co-sponsor the PAID Act.**

[1] RealCost allows for different discount rates. For illustrative purposes of the baseline scenario, the Portland Cement Association uses a default discount rate of 5% for calculating present values. This may significantly underestimate the true total cost advantage, as the asphalt cost index has historically shown a faster rate of increase than that of concrete.

[2] LCCA savings per lane mile assumptions were derived using RealCost software via the FHWA, representing one mile of a typical highway, with the input costs for typical HMA and PCC pavements taken from historical Oman data and average traffic volumes from FHWA.

[3] "An informational Guide on Project Procedures," American Association of State Highway Officials (AASHO), November 26, 1960.

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