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Our nation's infrastructure is the backbone of our global economic competitiveness. As an industry, we've demonstrated a commitment to making concrete and cement products as cost-effective and environmentally responsible as possible.

We've demonstrated a desire to find the real costs of concrete and similar materials – the impact that producing, using, and replacing these materials has on the environment and on the nation's pocketbook.

And this week, our industry took another step forward towards making our goals a reality. The Massachusetts Institute of Technology (MIT) has released new research that assesses the full life-cycle environmental impact of building and paving materials.

The staff working on this initiative at the MIT Concrete Sustainability Hub spent the past year producing life-cycle assessments (LCA) analyzing the environmental costs of the materials used to build our nation's highways and buildings. These LCAs consider the complete life-cycle costs – from extracting and producing the materials, to the structure's operational life performance, through disposal.

The studies from Cambridge have already produced some exciting results. We've learned that it's possible to conduct a rigorous analysis using a time window – 50 years for pavements and 75 for buildings – that reflects real world conditions. Their research also determined that the vast majority of life-cycle carbon emissions are produced during the operational, or "use phase," of projects – 90 percent for residential buildings and up to 85 percent for high-volume roads.

In 2011, MIT is scheduled to release economic data which will look at the "dollars and cents" life-cycle costs of paving and building materials. The economic research will result in a life-cycle cost analysis (LCCA) model that could have significant implications for policymakers concerned with growing deficits and budget shortfalls. In this economic climate, elected officials and industry must work together to save tax dollars without sacrificing the environment or quality of necessary public investments.

The work of science, engineering, and economic researchers at MIT will go a long way towards helping all parties – state Departments of Transportation, industry leaders, and decision makers at the federal level – develop a standard for projecting the true life-cycle environmental and economic costs associated with infrastructure and building projects.

I encourage everyone to read the MIT reports. In particular, I encourage our elected officials to review the findings and incorporate life-cycle modeling – environmental and economic – in real-life decisions.

With MIT's data in hand, the folks who plan our nation's infrastructure and core building projects will be fully prepared to make these investments in a sustainable and cost-effective way.