MDOT Research Spotlight

Michigan Department of Transportation | Office of Research & Best Practices

Making the Economic Case for IntelliDrive

A central message in Michigan DOT's long-range (2005 - 2030) transportation plan is that investing in transportation results in economic benefits for the state and the nation. Given the state's traditional leadership in automotive innovation, the agency saw the importance of Michigan playing a lead role in advancing smart technologies to connect vehicles and roadway infrastructure. Research provided the hard numbers to make the case for investing in this technology.

Problem

IntelliDrive, formerly known as Vehicle Infrastructure Integration (VII), is a national effort focused on advancing connectivity between vehicles and roadway infrastructure to improve transportation safety and mobility. Coordinated by U.S. DOT, IntelliDrive is working toward a vision where vehicles and infrastructure are connected, enabling crashless vehicles and allowing management systems to collect and use real-time data to dramatically enhance transportation performance.

To allow for interoperability and communication between vehicles and infrastructure systems, IntelliDrive requires commitments from both public and private sectors. Yet Michigan DOT saw some local automakers focusing their research and development (R&D) efforts elsewhere in the nation. Michigan, a longtime leader in the automotive field, was at risk of being left behind. Moreover, during a time of economic uncertainty, the state stood to miss out on the creation of new jobs and economic growth that would accompany IntelliDrive technology development.

Approach

Michigan DOT needed to establish a business case for making IntelliDrive a state priority, and the agency turned to forecast models to estimate the economic and employment contribution to Michigan from a fully deployed IntelliDrive system in the state.

Michigan DOT Director Kirk Steudle participates in the demonstration of a prototype intelligent vehicle.

Economic forecasting comes with inherent uncertainties, and this uncertainty is compounded when the variable of rapidly changing technology is included. In addition, the value of forecasts can rapidly diminish as projections go further into the future. It was necessary to develop a range of outcomes, from the most conservative to the most optimistic, for economic impact modeling.

Research

The Center for Automotive Research and Michigan State University conducted a two-part study on deploying IntelliDrive in Michigan. In the first phase of the study, researchers developed a sketch of what a fully deployed IntelliDrive program might look like in the state. A review of existing components related

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Project Information

Report Name: *Evaluation of Economic Impacts of Michigan VII Program (Vehicle Infrastructure Integration)*

Start Date: January 2007
Report Date: September 2007
Research Report Number: RC-1513

Total Cost: $190,000
Cost Sharing: 20% MDOT, 80% FHWA through the SPR, Part II, Program

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to IntelliDrive and their associated costs helped to define input data for an economic impact model.

During the second part of the study, researchers created several possible scenarios on the economic and employment contribution to the state's economy from the jobs, corresponding wages and other compensation that could be created from a fully functioning IntelliDrive system in the state.

Using a sophisticated economic estimating model, researchers also assessed the contribution of indirect employment and the effects on tax revenues. Further, the study provided insight into the industrial sectors of Michigan's economy that could benefit from the IntelliDrive system.

> *"Michigan can be a leader or a follower on IntelliDrive. The research paints a clear picture why Michigan should lead."*
>
> *Greg Krueger, P.E.*
> *Project Manager*

Results

Research showed that if Michigan DOT is aggressive, the agency can help create 16,000 jobs in the state. This is a conservative number, based on short-term projections and R&D rather than IntelliDrive infrastructure and system support. An aggressive strategy involves a range of activities to support IntelliDrive in Michigan:

- Seeking federal money for development and deployment
- Developing a climate for IntelliDrive innovation in Michigan
- Developing and monitoring IntelliDrive test beds in the state (U.S. DOT already operates its Michigan test bed outside Detroit.)
- Actively leveraging other resources in Michigan, such as working with the automotive aftermarket communities and organizations

The research report also establishes longer-term economic impact values through 2016. These include jobs and revenue associated with IntelliDrive integrated into highway infrastructure, public and private commerce, and roadway communications management.

Value

The research has already been a vital information tool for lawmakers in Lansing and in Washington, D.C. It has helped communicate to policymakers on all levels the importance of pushing for IntelliDrive in Michigan and finding new funding sources for this technology. As a complement to these external benefits, the results of this study have also been disseminated within Michigan DOT, where the safety and mobility impacts of IntelliDrive were generally better known than the economic impacts. By making a strong, fact-based case for IntelliDrive, the agency has helped set the stage for Michigan to participate as a leader in this promising technology. ■

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