

Priority, Market-Ready Technologies and Innovations

Intelligent Transportation System Deployment Analysis System (IDAS)

New

Problem: Limited methods exist to analyze the costs and benefits of intelligent transportation systems (ITS) and operations projects and strategies as part of the transportation planning process

Few methods exist for transportation planners and engineers to analyze the costs and benefits of ITS and operations projects and strategies as part of the transportation planning process. The quantification of these costs and benefits is especially difficult for planners and engineers that use travel demand forecasting models to evaluate investments because these models cannot capture the benefits derived from ITS and operations technologies.

Solution: IDAS provides information to facilitate the planning, programming, and integration of ITS and operations projects into State, regional, and local improvement programs

What is IDAS?

IDAS is a sketch-planning software analysis tool that transportation practitioners can use to estimate the benefits and costs of ITS investments. IDAS can predict relative costs and benefits for more than 60 types of ITS investments.

How does IDAS work?

IDAS operates as a post-processor to travel demand models, enabling the user to import data from a travel demand model into the IDAS software to recreate the transportation network under evaluation. IDAS provides the opportunity to build different network alternatives by enabling users to choose from a menu of ITS and operations components and then deploy the selected network components. As the user chooses various components, IDAS maintains a database of the impacts and costs of the

Putting It in Perspective

Transportation practitioners need analysis tools to:

- Compare ITS and operations improvements.
- Estimate benefits of ITS and operations for long-range plans.
- Estimate costs of deploying ITS and operations components.
- Prioritize ITS and operations investments.
- Identify the impacts of combining different types of ITS and operations components.

components, based on national data. After all of the components are selected, users can program IDAS to perform an internal network assignment and mode choice analysis to estimate the changes in modal, route, and temporal decisions of travelers resulting from the ITS and operations technologies. The software then generates reports that show the incremental change in performance measures and the annual benefit-cost ratios for the selected investments.

IDAS can estimate the following systemwide performance measures:

- Mobility or travel time (recurring delay).
- Travel time reliability (nonrecurring delay).
- Crashes (fatalities, injuries, property damage).
- Emissions (hydrocarbons, carbon monoxide, NO_x, PM₁₀).
- Fuel use.
- Agency efficiency and productivity.
- Capital, operating, and maintenance costs.
- Benefit-cost ratios.

IDAS can then segment these performance measures by market sector, facility type, or district/user defined area.

Benefits

- Helps planners, engineers, and operations staff plan for ITS and operations improvements.
- Compares ITS and operations deployments either in isolation or in combination at a regional level.
- Provides agencies with information and data to help sell or justify ITS and operations improvements.
- Complements the State, regional, and local planning analysis methodology for estimating the impacts of transportation improvements.
- Can be customized to local conditions or can use default values.
- Tracks capital, operations and maintenance, and life cycle costs.
- Contains comprehensive performance measures and benefit-cost information.
- Assists agencies in integrating ITS and operations into the planning process.

Successful applications: IDAS quantifies the impacts, benefits, and costs of ITS and operations investments

IDAS has been used successfully across the country and around the world. For example, practitioners have used IDAS to:

- Analyze ITS and operations alternatives for long-range plans.
- Evaluate existing and new ITS and operations systems.
- Perform major investment, corridor, and freight/goods movement studies.
- Analyze congestion management systems, work zones, and air quality impacts of projects.

To increase awareness about IDAS, FHWA sponsored the development of four case studies available on the IDAS Web site at <http://idas.camsys.com>.

Deployment Statement

Planners will be able to compare the costs and benefits of ITS and operational improvements. Decisionmakers will receive comprehensive cost/benefit information to help make investments in the planning and project development processes.

Deployment Goal

In 5 years, all State departments of transportation, metropolitan planning organizations, and local planning agencies in congested areas will use IDAS as a tool to do the following:

- Evaluate operations and ITS improvements in the planning process.
- Prioritize operations and ITS projects in transportation plans.
- Estimate the benefits of operations and ITS projects.

Deployment Status

FHWA has issued licenses to use IDAS to more than 120 non-Federal organizations.

Additional Resources

The IDAS software can be purchased through FHWA's Center for Microcomputers in Transportation's (*McTrans* Center) online catalog at <http://mctrans.ce.ufl.edu> or by phone at 800-226-1013.

In addition, FHWA offers a 2-day training course through the National Highway Institute (NHI). Training may be requested through your local FHWA Division Office or NHI at <http://www.nhi.fhwa.dot.gov>.

More information on IDAS is available at the IDAS Web site at <http://idas.camsys.com> or by contacting the IDAS team at idas@fhwa.dot.gov.

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