

Next Generation Transportation Modeling for Better Decisions and Targeted Investments

New modeling procedure allows transportation agencies to estimate travel demand by integrating travel activities and behaviors, transportation network conditions, and mode options—all in a single package that can more effectively test alternatives

For the first time, transportation agencies will be able to estimate travel demand in a way that **integrates activities, networks, and the environment, offering more precise data to forecast mode split and trip generation.** Developed through the second Strategic Highway Research Program (SHRP2), this **new approach dynamically evaluates the interplay of traveler behavior and transportation network conditions,** including more mode options. The models support more informed decisions for adding highway and transit capacity, improving traffic operations, introducing priced roads, and improving traveler information.

Integrated Advanced Travel Demand Model with Mode Choice Capacity and Finely-Grained, Time-Sensitive Networks

The Solution

The *Dynamic Integrated Travel Demand Model and Time Sensitive Network* links travel behavior choices, such as departure time or route, with congested network conditions to better reflect real-world dynamics in the model. Planners can then more directly test the effects for various alternatives on congestion.

The software is available via an open source license and includes manuals and application documentation.

This SHRP2 Solution advances existing modeling applications to include sensitivities for traffic shifts by time of day or route in response to capacity increases, operation actions, or management actions. It can also dynamically integrate travel-time reliability, greenhouse gas emissions, road pricing, mode shifts, and nontravel choices such as work/shop at home or flex-time policies.

More precise modeling supports planning decisions and targeted investments

FOCUS AREA:
Capacity (C10 A & B)

Dynamic new model and software package allow for integration of activities, networks, and the environment resulting in more precise data to support informed decision making.

Save Money

- With improved modeling accuracy, agencies can better target transportation investments that will provide the greatest benefit.



Save Time

- By linking travel behaviors, planners can directly test the effects of congestion.



The Benefits

The immediate benefit of the models is that they address the essential question of how travel behavior responds to network conditions and network conditions respond to behavior. The result is a dynamic model that better analyzes transportation alternatives and provides more precision to support transportation planning decisions. Ultimately, the benefit of more effective and precise modeling is more informed transportation planning.

Who is using these tools?

Pilot tests to validate the results and refine the usability of these tools will be completed late in 2013. Model sets are available for Jacksonville, FL, Sacramento, CA, and Burlington, VT.

How can you learn more?

Implementation for this product is expected in 2014. For more information, contact Brian Gardner, at FHWA, brian.gardner@dot.gov; Matt Hardy at AASHTO, mhardy@aaashto.org; or Steve Andrie at TRB, sandrie@nas.edu.



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About SHRP2 Implementation

The second Strategic Highway Research Program is a national partnership of key transportation organizations: the Federal Highway Administration, the American Association of State Highway and Transportation Officials, and the Transportation Research Board. Together, these partners conduct research and deploy products that will help the transportation community enhance the productivity, boost the efficiency, increase the safety, and improve the reliability of the Nation's highway system.

Strategic Highway Research Program

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