



Finding the Economic Benefits from Your Transportation Projects

**A Case Study of the SHRP2 Economic Benefit
Tool for Operational Improvement Projects**

Catherine C. McGhee, P.E.

Associate Director

Virginia Center for Transportation Innovation and Research

Presentation Agenda

- SHRP2 Tools for **Assessing Benefits of Transportation**
- Determining “**How This Investment Pays Off**”
- Implications for Virginia ITS projects
- Challenges and Next Steps

VCTIR

'Bringing Innovation to Transportation'

The **Virginia Center for Transportation Innovation and Research** is one of the nation's leading transportation research centers.

VCTIR specializes in basic and applied research to support VDOT.

Why Benefit Assessment?

- **Whenever needs outweigh available resources, some means of prioritization is necessary.**
 - Traditional performance metrics provide one piece of the puzzle.
 - Large transportation projects can have benefits that go well beyond reducing delay in a corridor.
 - Capturing and quantifying these wide-ranging impacts requires new methods and tools.
- **USDOT resources provide limited infrastructure-based ITS benefits information.**
- **With new tools, we can assess wider economic benefits beyond the users of the facility (accessibility, market connectivity).**

SHRP2 Tools for Performance Measurement and Monitoring

- Capacity Performance Measures (C02)
- Transportation Project Impact Case Studies (C03)
- **Tools for Accessing Wider Economic Benefits of Transportation (C11)**
- Guidelines for Incorporating Reliability Performance Measures into Travel Modeling (L04)
- Handbook for Incorporating Reliability Performance Measures into Transportation Planning and Programming Processes (L05)

Economic Benefits (C11) – Virginia Case Study

- **Goal of establishing a method for assessing economic benefits for ITS projects**
 - Performance measures and monitoring provide traditional benefit information.
 - Quantitative assessment of non-traditional ITS benefits.
- **Focus on operational improvements rather than capacity enhancements**
 - New or enhanced ITS deployments.
 - Infrastructure device-based traveler information systems projects.
- **Chosen projects**
 - VA-164 ITS Technology Deployment
 - I-77 Fancy Gap ATSMS, I-64 Afton Mountain ATSMS
 - I-64/I-664 Reach the Beach

Economic Benefits Tools

- **Reliability**

- Provides quick & simple assessment of the impact of transportation projects on travel time and travel time reliability.
- The tool incorporates the beneficial effects in the incident management strategies inputs.

- **Connectivity**

- Estimates the benefits of transportation projects on the degree and value of connectivity of the facility where the projects are implemented.
- Only applicable when a highway facility is linked to a terminal that provides access to at least one other mode of transportation (air, rail, or marine).

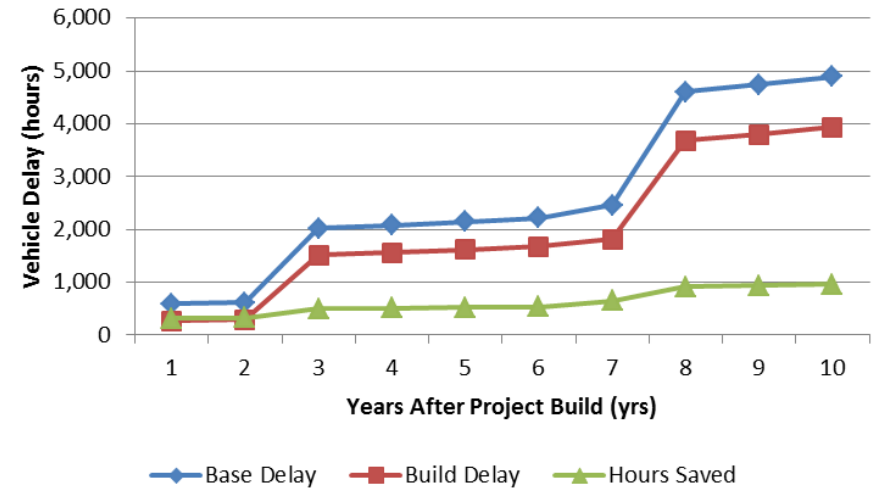
- **Accessibility**

- Provides sketch plan analysis of the economic value of market access.

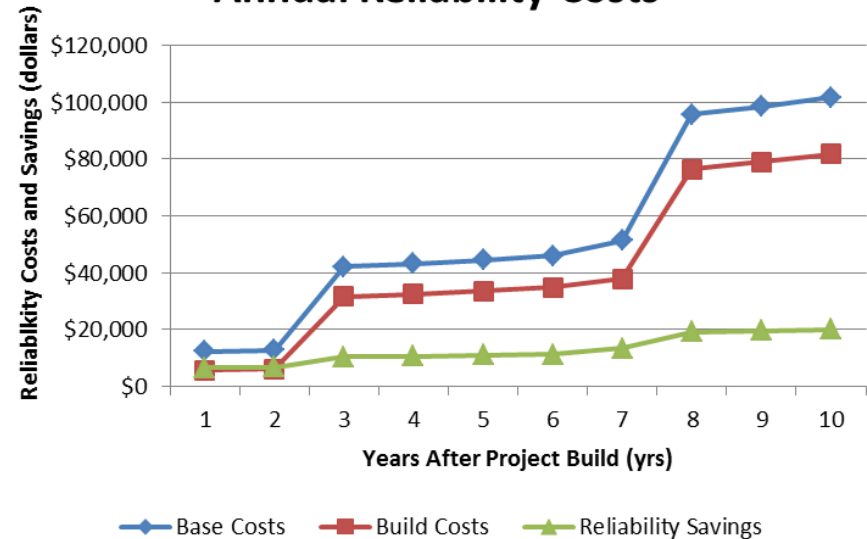
VA-164 Case Study



Annual Vehicle Hours of Delay

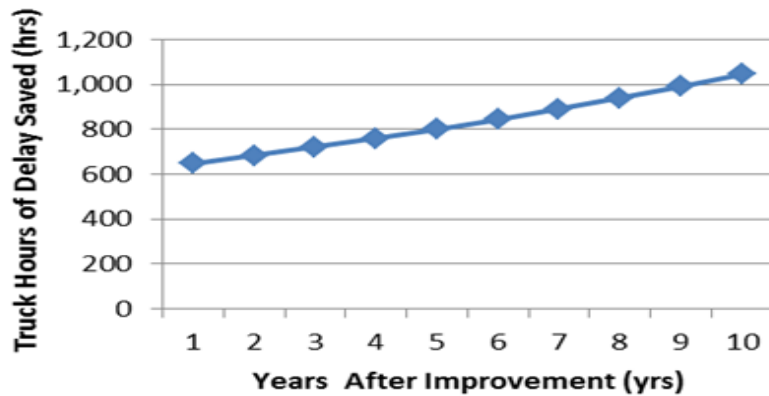


Annual Reliability Costs

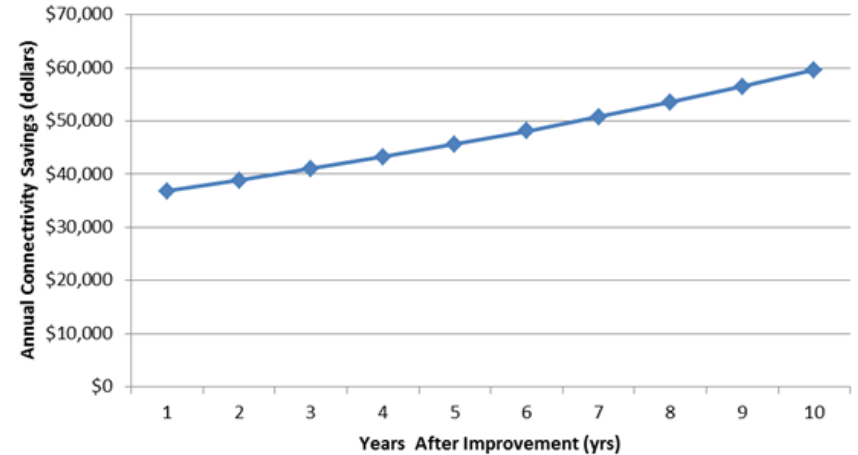


VA-164 Case Study

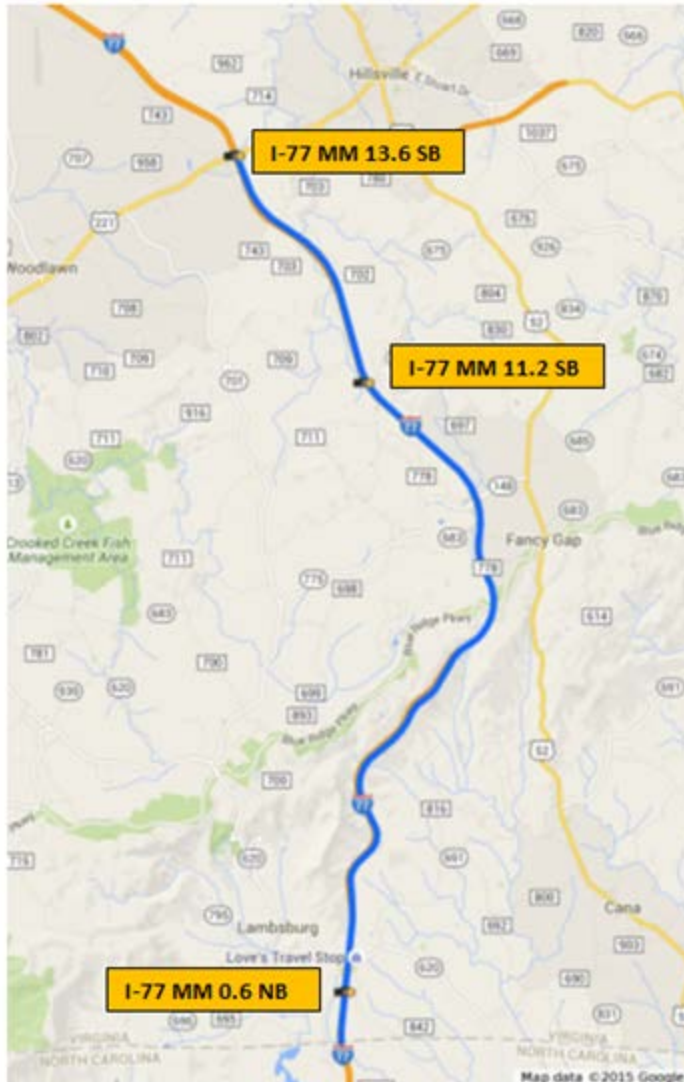
Truck Hours of Delay Saved



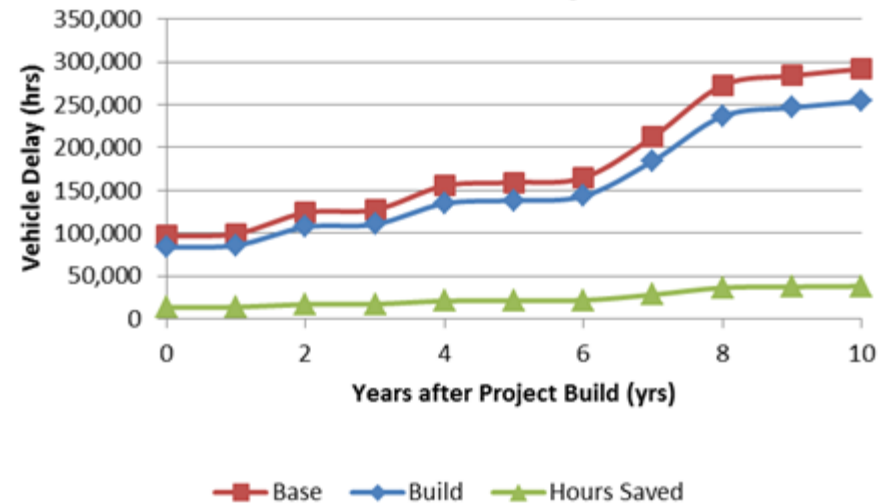
Annual Connectivity Savings



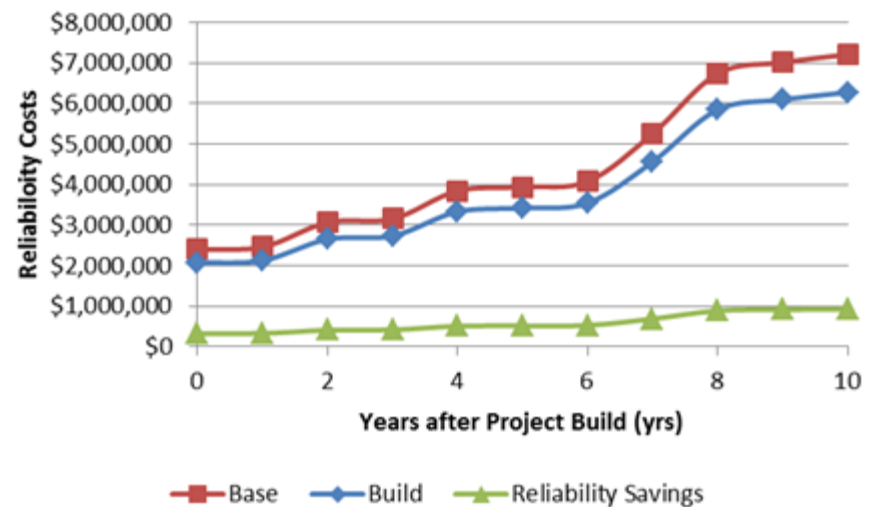
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Vehicle Hours of Delay vs. Year



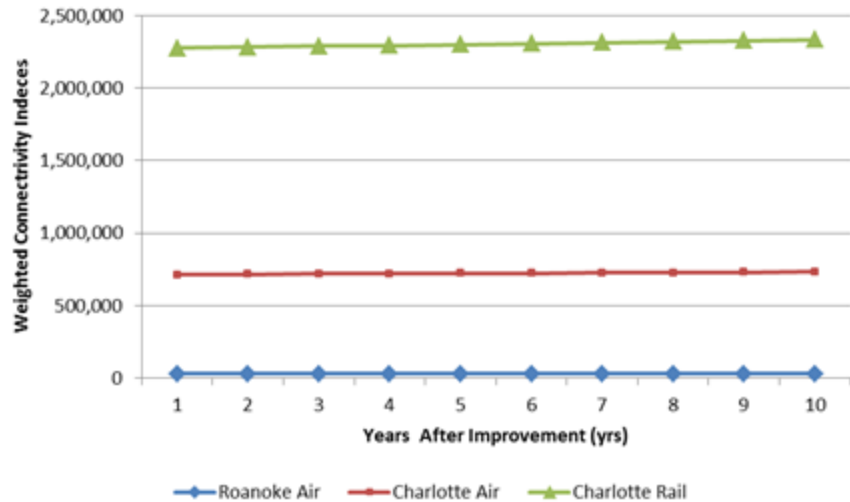
Reliability Costs vs. Year



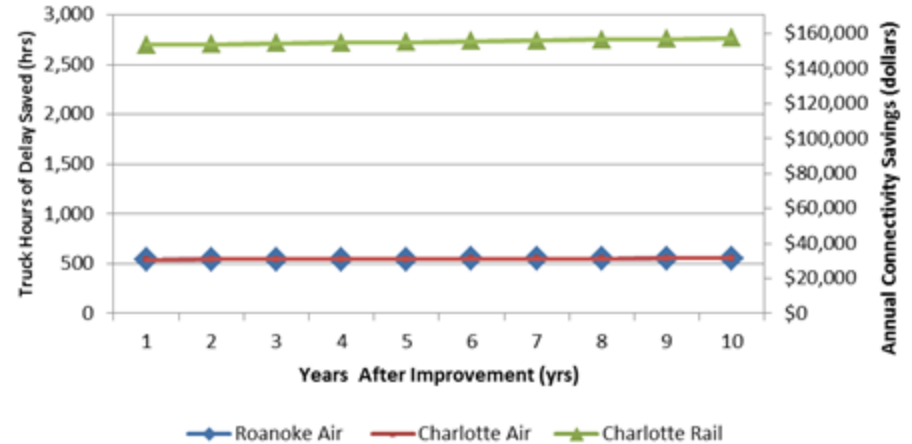
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Case Study

Weighted Connectivities



Truck Hours of Delay and Annual Connectivity Savings



Challenges

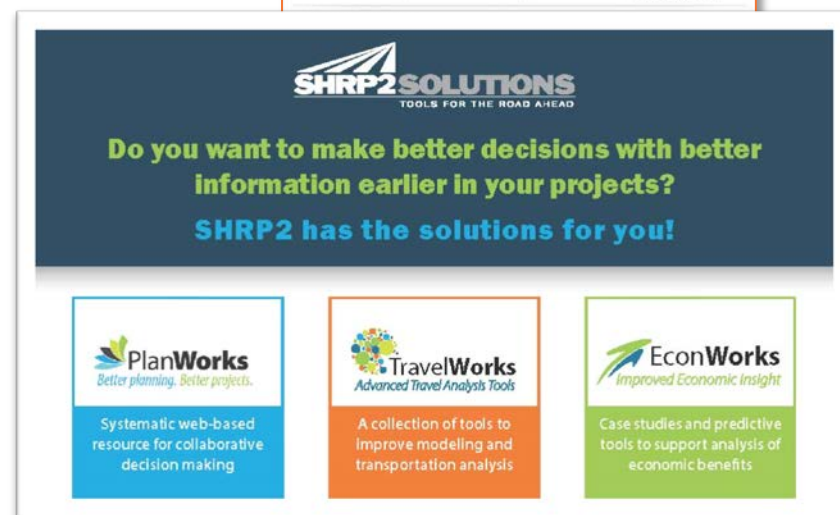
- **This is the first application of WEB tools to operations/ITS projects, and not larger construction projects.**
 - The two projects tested here did illustrate positive wider economic benefits, although smaller than what would be seen on a more traditional construction project.
- **Relatively simple input tools & guidance provided by the tool developers aid implementation of the C11 tools. Some challenges still exist:**
 - Because this is a new type of analysis, not all input data is readily available.
 - In some cases, agency data must be manipulated prior to model input.
 - In the case of connectivity and accessibility, inputs are not currently part of the agency databases.

Where do we go from here?

- **Continue to evaluate additional project scenarios.**
Consider a wider range of ITS/Operations projects as well as geometric enhancements.
- **Work with others in VDOT to determine where these analyses best fit in the project development life cycle.**
- **Consider inclusion of economic benefit tools for WEB in future iterations of the HB2 process.**

For More Information

- **EconWorks/TravelWorks**
www.planningtools.transportation.org
- **GoSHRP2 website**
www.fhwa.dot.gov/goSHRP2
 - Product details
 - Information about SHRP2 implementation phases
- **SHRP2 @AASHTO**
<http://SHRP2.transportation.org>
 - Implementation Information for AASHTO members





Questions?