READY RESULTS
Next Steps to Put NCHRP Research into Practice

NCHRP NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

FOCUS ON: NCHRP Projects 03-115 and 07-22

August 2017

Better Travel Time Reliability, Improved Capacity Analysis

Image courtesy of Oregon DOT (CC BY 2.0)

The sixth edition of the HCM incorporates new methods for analyzing travel time reliability developed through SHRP 2 research.

REAL-WORLD NEED

As methods for evaluating highway performance evolve, TRB regularly updates the *Highway Capacity Manual* (HCM) to provide transportation practitioners with the latest techniques for analyzing the capacity and level of service of highways and streets. Not long after the 2010 edition of the HCM was published, new research led to significant advances in these techniques, including new methods for analyzing travel time reliability and determining the capacity of managed lanes, work zones, and other facilities. Travel time reliability has emerged nationally as a valuable measure of highway performance, and federal regulations now require state transportation agencies to use it.

RESEARCH SOLUTION

Because of the need to incorporate recent advances in analyzing travel time reliability and other newly developed methods for evaluating the performance of highways and streets, TRB developed revisions to the HCM, and the sixth edition was published in 2016. TRB also developed a supplement to the updated HCM, *NCHRP Report 825*, to facilitate use of the HCM not just in design and operations, but also in planning and preliminary engineering applications such as corridor studies, roadway widening projects, and traffic impact analyses.

NEXT STEPS
Put It into Practice

LEARN MORE

Take advantage of webinars (co-sponsored by TRB and the Institute of Transportation Engineers) that help states implement the sixth edition of the HCM.

ANALYZE

Choose from the numerous software packages available for conducting HCM analyses. Most vendors have incorporated the changes in the sixth edition.

APPLY

Consult hcmvolume4.org as your state implements the HCM and *NCHRP Report 825*. The site includes case studies, a technical reference library, spreadsheet tools to facilitate implementation, and a discussion forum.

PARTNER

Apply for NCHRP implementation funding. See trb.org/nchrp.

About the Research

RESEARCH STRATEGY

The sixth edition of the HCM was significantly informed by research results from the second Strategic Highway Research Program (SHRP 2). SHRP 2 Project L08, Incorporation of Travel Time Reliability into the Highway Capacity Manual, made important progress in improving the analysis of travel time reliability, which requires taking into account unexpected events such as weather and traffic incidents. The updated HCM is also informed by the results of several NCHRP and FHWA research projects on work zones, intersections, truck analysis, and advanced traffic demand and management strategies. In addition, researchers conducted a chapter-by-chapter analysis of the HCM to identify material related to planning and preliminary engineering applications. They used that material to produce a supplement to the updated HCM, published as *NCHRP Report 825: Planning and Preliminary Engineering Applications Guide to the Highway Capacity Manual*.

WHAT WE LEARNED

The sixth edition of the HCM incorporates the latest research on analyzing the capacity of highways and streets, ensuring that the manual will continue to be a go-to resource for transportation agencies nationwide. Its companion, *NCHRP Report 825*, addresses applications that require less detailed and complex analyses, providing easy-to-use tools for planning and preliminary engineering. The report includes three case studies illustrating the use of these techniques.

WHY IT MATTERS

It was important for the HCM to incorporate the nationally recognized standard of highway performance, travel time reliability. Travel time reliability is an important measure of a traveler's experience, since unexpected delays are often more frustrating than expected congestion. As a companion to the HCM, *NCHRP Report 825* is a major step forward in facilitating the implementation of the HCM among planners and other users at all stages in the life cycle of a transportation project.

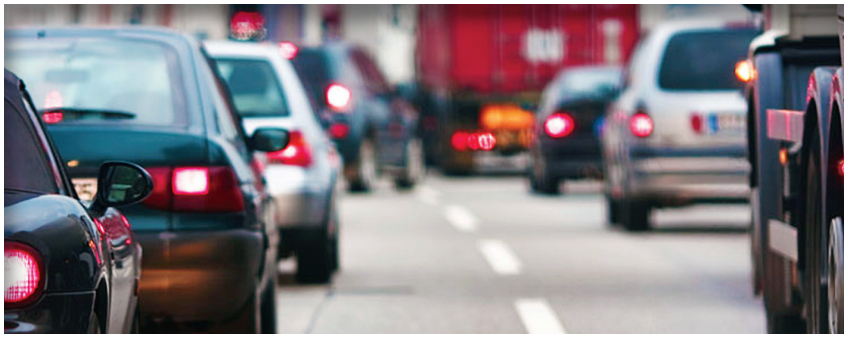

Image courtesy of FHWA

Travel time reliability is an important measure of a traveler's experience, since unexpected delays are often more frustrating than expected congestion.

RESOURCES

Image from NCHRP Report 825

NCHRP PROJECTS 03-115 AND 07-22

FINAL PRODUCTS

Highway Capacity Manual, Sixth Edition: A Guide for Multimodal Mobility Analysis
trb.org/Main/Blurbs/175169.aspx

NCHRP Report 825: Planning and Preliminary Engineering Applications Guide to the Highway Capacity Manual
trb.org/PlanningForecasting/Blurbs/174958.aspx

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ADDITIONAL RESOURCES

TRB webinars
trb.org/ElectronicSessions/Blurbs/175918.aspx

HCM Volume 4: Applications Guide
hcmvolume4.org

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