



TRANSPORTATION RESEARCH BOARD

Hydraulics and Hydrology Overview

TRB at a Glance

The mission of the Transportation Research Board (TRB) is to provide leadership in transportation innovation and progress through research and information exchange, conducted within a setting that is objective, interdisciplinary, and multimodal.

A resource to the nation and to the transportation community worldwide, TRB provides an extensive portfolio of services:

- Opportunities for information exchange on current transportation research and practice,
- Management of cooperative research and other research programs,
- Analyses of national transportation policy issues and guidance on federal and other research programs
- Publications and access to research information from around the world.

More info at www.trb.org

TRB's Transportation Research Information Services (TRIS)

TRIS includes the TRB Library and the TRIS Databases (listed below) which are available for free on TRB's website.

The TRB Library provides information services to TRB staff, sponsors, TRB Committee members and panels and researchers. Access to the TRB Library is a benefit to TRB sponsors and TRB committee members.

In cooperation with your State DOT Library or Information Service, the TRB Library provides:

- Reference and research assistance
- Literature searches
- Articles for TRB Committee work

The TRB Library provides training on effective and efficient use of the following TRIS resources:

TRID – The world's largest and most comprehensive bibliographic source on all modes and disciplines of transportation
trid.trb.org

Practice Ready Papers (PRP) Database - Papers with information that is ready for immediate implementation or requires minimal additional research or implementation effort.
prp.trb.org

Publications Index (PubsIndex) Database – The papers, articles and reports published by the Transportation Research Board, Highway Research Board, Strategic Highway Research Programs or the Marine Board
pubsindex.trb.org

Research in Progress (RiP) Database – Current or recently completed transportation research projects
rip.trb.org

Research Needs Statements (RNS) – Research needs as identified by TRB Technical Activities standing committees
rns.trb.org

More information about TRIS is available online at: <http://www.trb.org/InformationServices/InformationServices.aspx>
Contact the Library at TRBLibrary@nas.edu or l (202) 334-2989

Upcoming Events

- Conferences (co-sponsored by TRB):
 - August 14, 2016 Portland, Oregon **Use of Scenario Planning in Transportation Planning**



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- Webinars:

View TRB webinars here: <http://www.trb.org/ElectronicSessions/ConferenceRecordings.aspx>

Technical Committees

- Standing Committees:
 - Hydrology, Hydraulics and Water Quality (AFB60)
 - Culverts and Hydraulic Structures (AFF70)
 - Subsurface Drainage (AFS60)
- Council:
 - Young Member Council (A0040T)

To become Friend of any committee visit MyTRB.org

Cooperative Research Program (CRP)

- NCHRP Reports
 - NCHRP Report, Issue 802 - Volume Reduction of Highway Runoff in Urban Areas: Guidance Manual.
 - NCHRP Report, Issue 801 - Proposed Practice for Alternative Bidding of Highway Drainage Systems.
 - NCHRP Report, Issue 795 - Design Methods for In-Stream Flow Control Structures.
 - NCHRP Report, Issue 778 - Bridge Stormwater Runoff Analysis and Treatment Options.
 - NCHRP Report, Issue 767 - Measuring and Removing Dissolved Metals from Stormwater in Highly Urbanized Areas.
 - NCHRP Report, Issue 761 - Reference Guide for Applying Risk and Reliability-Based Approaches for Bridge Scour Prediction.
 - NCHRP Report, Issue 734 - Hydraulic Loss Coefficients for Culverts.
 - NCHRP Report, Issue 728 - Guidelines for Evaluating and Selecting Modifications to Existing Roadway Drainage Infrastructure to Improve Water Quality in Ultra-Urban Areas.
 - NCHRP Report, Issue 717 - Scour at Bridge Foundations on Rock.
- NCHRP Web Documents
 - NCHRP Web Document, Issue 209 - Volume Reduction of Highway Runoff in Urban Areas: Final Report and NCHRP Report 802 Appendices C through F.
 - NCHRP Web Document, Issue 199 - Estimating Joint Probabilities of Design Coincident Flows at Stream Confluences.
 - NCHRP Web Document, Issue 181 - Evaluation of Bridge-Scour Research: Abutment and Contraction Scour Processes and Prediction.
 - NCHRP Web Document, Issue 177 - Evaluation of Bridge Scour Research: Geomorphic Processes and Predictions.
 - NCHRP Web Document, Issue 175 - Evaluation of Bridge Scour Research: Pier Scour Processes and Predictions.
- Other Reports
 - ACRP Report, Issue 115 - Understanding Microbial Biofilms in Receiving Waters Impacted by Airport Deicing Activities.
 - ACRP Report, Issue 99 - Guidance for Treatment of Airport Stormwater Containing Deicers.
 - ACRP Impacts on Practice - Identifying Practices for Controlling Aircraft and Airfield Deicing Runoff.
 - NCHRP Synthesis of Highway Practice, Issue 444 - Pollutant Load Reductions for Total Maximum Daily Loads for Highways.
 - NCHRP Research Results Digest, Issue 378 - Evaluation of Bridge Scour Research.

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- Current research
 - NCHRP 16-05 - Guidelines for Cost-Effective Safety Treatments of Roadside Ditches
 - ACRP 02-61 - Airport Stormwater Management: Compilation, Update, and Training Materials
 - ACRP 02-62 - Green Stormwater Infrastructure Strategies for Airports
 - ACRP 02-64 - Guidance for Usage of Pervious Pavement at Airports
 - NCHRP 25-51 - Limitations of the Infiltration Approach to Stormwater Management in the Highway Environment
 - NCHRP 20-59(53) - FloodCast: A Framework for Enhanced Flood Event Decision Making for Transportation Resilience
 - NCHRP 01-54 - Guidelines for Limiting Damage to Flexible and Composite Pavements Due to the Presence of Water
 - NCHRP 24-37 - Combining Individual Scour Components to Determine Total Scour
 - NCHRP 14-26 - Culvert and Storm Drain System Inspection Manual
 - NCHRP 24-40 - Design Hydrology for Stream Restoration and Channel Stability at Stream Crossings
 - NCHRP 25-37 - A Watershed Approach to Mitigating Stormwater Impacts
 - NCHRP 10-86A - Software for Bidding Alternative Drainage Pipe Systems
 - NCHRP IDEA 20-30/IDEA 182 - Reducing Stormwater Runoff and Pollutant Loading with Biochar Addition to Highway Greenways
 - ACRP 02-75 - Benefit-Cost Analyses for Airport Stormwater Infrastructure Improvements
 - ACRP 02-71 - Guidebook and Decision Tool for Managing Airport Stormwater Containing Deicers
 - ACRP 02-68 - Strategies for Reducing Local Stormwater Utility Fees for Airports
 - NCHRP 24-47 - Revised Clear-Water and Live-Bed Contraction Scour Analysis
- Upcoming projects
 - NCHRP 10-90 - Guidance for Complying with EPA Effluent Limitation Guidelines for Construction Runoff
 - NCHRP 25-54 - Field Testing of BMPs Using Granulated Ferric Oxide Media to Remove Dissolved Metals in Roadway Stormwater Runoff
 - NCHRP 25-53 - Approaches for Determining and Complying with TMDL Requirements Related to Roadway Stormwater Runoff
 - NCHRP 15-61 - Applying and Adapting Climate Models to Hydraulic Design Procedures

Panel Member nominations accepted (<http://www.trb.org/TCRP/CRPInfoPanelMembers.aspx>)

Second Strategic Highway Research Program (SHRP 2)

- Safety Research

The SHRP 2 Safety study collected an unprecedented amount of objective data on driver behavior. Its analysis will provide a clearer understanding of the causes of crashes and what can be done to avoid them. Analysis of the SHRP 2 Safety data will prevent injuries and save thousands of lives. More information about the data and about data access is available through the [InSight website](https://insight.shrp2nds.us/) (<https://insight.shrp2nds.us/>).
- Renewal Research

SHRP 2 Renewal research filled gaps in research and development to produce user-friendly tools so that innovative design and construction methods can be applied more broadly. It tested and objectively evaluated alternative methods to provide transportation agencies with information they need to deliver projects faster. Renewal research products simplified access to information on successful practices in performance specs, utilities, and interaction with railroads, which can speed project delivery and address causes of delay.
- Reliability Research

SHRP 2 Reliability research advanced the state of the practice of transportation system management and operations (TSM&O) and helped build a TSM&O profession. It provided the foundational tools for transportation agencies to address system reliability, both organizationally and analytically.
- Capacity Research

SHRP 2 Capacity research identified keys to success in planning and obtaining approvals for complex transportation

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projects. It demonstrated how to systematically apply that knowledge to increase the probability of success and the timely delivery of projects through the planning, NEPA, and permitting processes. Most products of the research are available in [PlanWorks](#) (http://www.fhwa.dot.gov/goshp2/Solutions/Capacity/C01/PlanWorks_Better_planning_Better_projects).

Other Relevant Reports

- 2013: Planning, Design, Operations, and Infrastructure (*Journal of the Transportation Research Board, No. 2387*)
- Livable Cities of the Future: Proceedings of a Symposium Honoring the Legacy of George Bugliarello (2014, *National Academy of Engineering*)