11th National Conference on Transportation Asset Management

July 10–12, 2016
Minneapolis Marriott City Center
30 South 7th Street
Minneapolis, Minnesota 55402

Organized by
Transportation Research Board

Supported by
Federal Highway Administration
Federal Transit Administration

Hosted by
Minnesota Department of Transportation

www.trb.org/Conferences/AssetMgt2016.aspx

July 9–10: FHWA/AASHTO Peer Exchange
July 10: Advance Workshops
July 11–12: Asset Management Conference

#TRBTAM
Follow us on Twitter
## CONFERENCE AT A GLANCE

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<td>8:00 a.m.</td>
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<td><strong>TRB Asset Mgt Cm</strong></td>
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<td>Infrastructure Management Research and Education Workshop</td>
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<td>Linking TAM and Performance Management</td>
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<td>Turning Data into Information to Improve Decisions</td>
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<td>Spread the Word of Transportation Asset Management</td>
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<td>Linking Climate Change to Asset Management Plans and Systems</td>
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<td>GIS Capabilities for Improving Asset Management Data Visualization</td>
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<td>Tuesday</td>
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With everything that is happening in the world of asset management, the 11th National Conference on Transportation Asset Management is an event you do not want to miss! The program includes a variety of topics, from introductory material that will satisfy practitioners who are just getting started to complex investment strategies that will challenge those who are ready to move beyond the basics. The conference program is organized around the following tracks:

- Track 1: “How-To:” Technical Sessions to Advance the State of Practice
- Track 2: Connecting Risk and Asset Management
- Track 3: Data, Performance Measurement, and Target Setting
- Track 4: Moving Beyond MAP-21
- Track 5: Transportation Asset Management Implementation

The program also includes dedicated sessions that address transit asset management, and improving resilience to climate change and extreme weather events, as well as integrated sessions that blend these topics with other presentations in the other tracks. Be sure to note all the other events-in addition to the conference program-that take place immediately before the conference itself. You won’t want to miss the workshops, technical meetings, and other events that will be held during the week.

Whether you are a member of the pooled fund established by the Iowa Department of Transportation, or a practitioner from a federal, state, or local transportation agency; regional planning organization; transit agency; academia; or private industry, the conference provides a great opportunity to enhance your skills, learn what is being done in other organizations, and exchange ideas with your peers.

I hope to see you in Minneapolis this summer!

—Katie Zimmerman, Planning Committee Chair
Applied Pavement Technology, Inc.

Planning Committee
Katie Zimmerman, Applied Pavement Technology, Inc., Chair
Brad Allen, Applied Pavement Technology, Inc.
Adjo Amekudzi-Kennedy, Georgia Institute of Technology
Kirby Becker, Minnesota Department of Transportation
Deanna Belden, Minnesota Department of Transportation
Jennifer Brandenburg, Volkert, Inc.
Michael Bridges, Consultant
E. Dean Carlson, Carlson Associates
Matthew Haubrich, Iowa Department of Transportation
Timothy Henkel, Minnesota Department of Transportation
John McCormick, Bay Area Rapid Transit
Scott Richrath, Spy Pond Partners, LLC
David Schrank, Texas A&M Transportation Institute
Gregory Slater, Maryland State Highway Administration
David Springstead, Metropolitan Atlanta Rapid Transit Authority
Jennifer Weeks, Formerly Washington Metropolitan Area Transit Authority
Laura Zale, Southeastern Pennsylvania Transportation Authority

Liaisons
Stephen Gaj, Federal Highway Administration
Matthew Hardy, American Association of State Highway and Transportation Officials
Heather Holsinger, Federal Highway Administration
Robert Kafalenos, Federal Highway Administration
Mshadoni Smith, Federal Transit Administration

TRB Staff
Thomas Palmerlee, Assistant Division Director
Michael Miller, Associate Program Officer
The following symbols are used to highlight sessions that address transit and resilience to climate change and extreme weather events: 🚃 ➡️

“How To:” Technical Sessions to Advance the State of Practice

Track Sessions
• How to Manage Your Assets (Monday 10:30 a.m.–noon)
• How to Manage Your Transit Assets 🚃 (Monday 1:30 p.m.–3:00 p.m.)
• Rapid Fire and Round Table Demonstrations of Innovation (Monday 3:30 p.m.–5:00 p.m.)
• Planning and Programming (Tuesday 8:00 a.m.–9:30 a.m.)
• Tools and Technology (Tuesday 10:00 a.m.–11:30 a.m.)
• Spread the Word of Transportation Asset Management (TAM) 🚃 (Tuesday 1:00 p.m.–2:30 p.m.)

Connecting Risk and Asset Management

Track Sessions
• Vulnerability, Future, and Risk, Oh My! (Monday 10:30 a.m.–noon)
• Playing Risk: Practical Applications Integrating Risk and Asset Management (Monday 1:30 p.m.–3:00 p.m.)
• Theory to Practice in Connecting TAM and Risk Analysis 🚃 (Monday 3:30 p.m.–5:00 p.m.)
• Brisk Risk: Real-World Risk Assessment and Analysis in Asset Management, Real Quick (Tuesday 8:00 a.m.–9:30 a.m.)
• Addressing Climate Change and Extreme Weather Risks in Asset Management ➡️ (Tuesday 10:00 a.m.–11:30 a.m.)
• Linking Climate Change to Asset Management Plans and Systems ➡️ (Tuesday 1:00 p.m.–2:30 p.m.)

Data, Performance Measurement, and Target Setting

Track Sessions
• Data Collection Practices and Experiences for Improving TAM 🚃 (Monday 10:30 a.m.–noon)
• Climate Change Impacts on Asset Deterioration and Life Cycle Cost Analysis ➡️ (Monday 1:30 p.m.–3:00 p.m.)
• How Can Existing Federal Data Resources be Used in TAM? (Monday 3:30 p.m.–5:00 p.m.)
• Quality Data Results in Better Asset Management Decisions (Tuesday 8:00 a.m.–9:30 a.m.)
• Linking TAM and Performance Management (Tuesday 10:00 a.m.–11:30 a.m.)
• GIS Capabilities for Improving Asset Management Data Visualization (Tuesday 1:00 p.m.–2:30 p.m.)

Moving Beyond MAP-21

Track Sessions
• Asset Management and Sustainable Infrastructure (Monday 10:30 a.m.–noon)
• Funding Transportation Infrastructure (Monday 1:30 p.m.–3:00 p.m.)
• Next Generation Performance Management (Monday 3:30 p.m.–5:00 p.m.)
• You Down with ETG? Yeah, You Know Me! (Tuesday 8:00 a.m.–9:30 a.m.)
• Turning Data into Information to Improve Decisions (Tuesday 10:00 a.m.–11:30 a.m.)
• Conform, Reform, or Transform: Building a Forward-Looking TAM Organization 🚃 (Tuesday 1:00 p.m.–2:30 p.m.)

TAM Implementation

Track Sessions
• Oh, the Places We’ll Go: Creating an Implementation Roadmap (Monday 10:30 a.m.–noon)
• Building Blocks: Implementation at the Asset Class Level (Monday 1:30 p.m.–3:00 p.m.)
• All Together Now: Giving the Infrastructure a Voice at the Local, Regional, and State Level 🚃 (Monday 3:30 p.m.–5:00 p.m.)
• Take an “A” Train: Transit Asset Management Implementation 🚃 (Tuesday 8:00 a.m.–9:30 a.m.)
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• On the Road Again: Implementing a Sustainable Asset Management Program at Your Agency (Tuesday 1:00 p.m.–2:30 p.m.)
**PEER EXCHANGE**

**Saturday, July 9**

2:00 p.m.–5:00 p.m.

**Part 1**

FHWA/AASHTO Asset Management Peer Exchange (Public-Sector Agencies), *Minnesota*

Hyun-A Park, Spy Pond Partners, *presiding*

A peer exchange will share progress made with implementing transportation asset management—in particular, the changes in investments made and the results achieved. The group also will explore organizational dimensions of good asset management, organizational structures, leadership, recruiting and retention, and knowledge management and also will discuss agency preparedness for MAP-21 and current challenges facing transportation agencies. This peer exchange is for public sector agencies. Please contact Matt Hardy at AASHTO for an invitation or questions: mhardy@aashto.org or 202-624-3625.

**Sunday, July 10**

8:30 a.m.–noon

**Part 2**

FHWA/AASHTO Asset Management Peer Exchange (Public-Sector Agencies), *Minnesota*

Hyun-A Park, Spy Pond Partners, *presiding*

**ADVANCE WORKSHOPS**

Open to all registrants. Subject to capacity limits.

**Sunday, July 10**

1:30 p.m.–5:00 p.m.

**Return on Investment in Transportation Asset Management Systems and Practices Workshop (NCHRP 20-100), Ballroom 1**

Bill Robert, Spy Pond Partners, *presiding*

The objectives of Project 20-100, “Return on Investment in Transportation Asset Management Systems and Practices,” are to assess the experience of selected agencies that have adopted TAM systems and develop guidance for estimating the return on investment (ROI) for adopting or expanding TAM systems in an agency. This workshop will review the research, including illustrative examples of the ROI of investments in TAM. Also, the workshop will test and review the draft guidance prepared through the project.

**Improving the Resiliency of Transit Systems Threatened by Natural Disasters Workshop (TCRP A-41), Deer**

Deborah Matherly, Louis Berger, *presiding*

Project 1-41, “Improving the Resiliency of Transit Systems Threatened by Natural Disasters,” is a research study under the Transit Cooperative Research Program (TCRP). The outcome of the work will be a concise "how-to" guide for transit agencies working to improve resilience and get better outcomes in bouncing back from major events, and building on existing transit agency strengths in asset management and safety culture, among others. The purpose of the workshop is to review an interim draft of the proposed guidebook and provide substantive comments in a highly interactive format. The workshop will be very hands-on and will generate active discussion and debate on the meaning and implementation of resilience for transit systems, within the context of asset management and other transit system domains.
Transportation Asset Management Research Roadmap Workshop, Ballroom 3
Hyun-A Park, Spy Pond Partners, presiding

A transportation asset management research roadmap is being developed to better respond to the needs of transportation agencies’ asset management progress and to coordinate across entities that are generating research products. This workshop will focus on identifying research needs, determining candidate research projects, and prioritizing the most important needs and projects. Participants at this workshop will be encouraged to share their experiences and needs.

Monday, July 11

7:30 a.m.–8:30 a.m.
Infrastructure Management Research and Education Workshop, Pine
Gerardo Flintsch, Virginia Tech; Susan Tighe, University of Waterloo, presiding

The Infrastructure Management Research and Education (IMRE) workshop series will hold a breakfast mini-workshop during the conference. The objectives of the IMRE workshops are to strengthen infrastructure management education and to increase the visibility and awareness of the field in both academic and professional communities. The series has recently been associated with TRB Asset Management Committee and this will be the first meeting to be held under the Education Subcommittee.

COMMITTEE MEETINGS

Sunday, July 10

5:30 p.m.–7:00 p.m
Joint Meeting: TRB Asset Management Committee and AASHTO Asset Management Subcommittee, Minnesota
Timothy Henkel, Minnesota Department of Transportation, presiding

The City of Minneapolis

Incorporated in 1867, the City of Minneapolis derives its name from the Dakota word for water (mni) and the Greek word for city (polis). The area was first inhabited by the Dakota people, who were pressed to sell the land that now comprises Minneapolis after the construction of Fort Snelling in 1819, at the confluence of the Minnesota and Mississippi Rivers. The city developed around Saint Anthony Falls, which provided power for many thriving industries: sawmills for lumber, flour mills for grain grown on the surrounding plains, and hydroelectric power. For a time, Minneapolis was the world’s leading flour miller, earning it the nickname “Mill City.”

Today, Minneapolis is part of the 14th largest metropolitan area in the United States and is home to many industry-leading businesses—particularly those in the technology and healthcare sectors. Additionally, the city is home to many cultural institutions with deep roots in the community, including strong traditions in music as well as visual and theater arts.
Monday, July 11

8:30 a.m.–10:00 a.m., Ballrooms 2 and 4
Opening Session
Katie Zimmerman, Applied Pavement Technology, Inc., Conference Chair, presiding

The interactive panel will address the following themes:

• The role of the federal government to provide stewardship to transportation agencies,
• The demand for increased government accountability,
• The evolution of agency investment priorities to better meet economic and societal demands,
• The need for stronger collaboration across modes and jurisdictions, and
• The growing importance of climate change and extreme weather events in agency decisions.

Panelists:
1. Frank Hornstein, Co-DFL Lead of the House Transportation Policy and Finance Committee, Minnesota House of Representatives
2. Paul Trombino, Director, Iowa Department of Transportation
3. David Springstead, Interim Assistant General Manager of Capital Programs and Development, Metropolitan Atlanta Rapid Transit Authority
4. Tom Everett, Acting Associate Administrator for Infrastructure, Federal Highway Administration

10:00 a.m.–10:30 a.m., Atrium
Break

10:30 a.m.–noon, Ballroom 1
How to Manage Your Assets (“How To:” Technical Sessions to Advance the State of Practice),
Scott Richrath, Spy Pond Partners, presiding
Mark Nelson, Minnesota Department of Transportation, recording

This session opens the “How To…” track, providing insight to the daily activities involved in forwarding an asset management program. The session will explain how the track fits within the conference, showcasing three asset management operational experiences, and highlighting the track’s upcoming sessions, including American Association of State Highway and Transportation Officials (AASHTO) and TRB research.

Convergence of Long-Range and Asset Management Plannings at the Pennsylvania Turnpike
Wayne Francisco, Zach Rubin, GHD
Making Data Serve Many Masters: Experiences of Data Sharing with Wyoming DOT
Martin Kidner, Wyoming Department of Transportation
A Guide to Collecting, Processing, and Managing Roadway Asset Inventory Data
Katie Zimmerman and Kartik Manda, Applied Pavement Technology Inc.

10:30 a.m.–noon, Ballroom 3
Vulnerability, Future, and Risk, Oh My! (Connecting Risk and Asset Management),
Matthew Hardy, American Association of State Highway and Transportation Officials, presiding
Lori Richter, Wisconsin Department of Transportation, recording

The opening session of the connecting TAM and risk track will provide context setting such as defining risk, domestic and international examples of connecting TAM and risk, and how performance and resilience relate to TAM and risk.

The Practicalities of Incorporating Risk into Optimized Maintenance and Renewal Strategies for Infrastructure Asset Portfolios
Martin Gordon, Opus International Consultants
Resilience, Performance Measurement, and Asset Management: Connecting the Concepts
Sue McNeil, University of Delaware; Gordana Herning, Rutgers University
Data Collection Practices and Experiences for Improving TAM (Data, Performance Measurement, and Target Setting)

Michael Bridges, Louisiana Department of Transportation, presiding
Mark Suarez, Louisiana Department of Transportation, recording

This session will explore the ways that data have been collected, managed, and visualized by four transportation agencies: Massachusetts Department of Transportation; the City of Manchester, New Hampshire; West Virginia Department of Transportation; and the Massachusetts Bay Transportation Authority.

Data Knowledge and Knowing What to Do Next
Rob Zilay, Dye Management Group

Utilizing Geospatial Tools to Collect and Analyze Asset Data in the City of Manchester, New Hampshire
Katherine Keegan, Jonathan Gould, AECOM

A Case Study from Huntington, WV: Collecting, Extracting, and Visualizing Assets Using a Mobile Mapping Foundation
Hussein Elkhansa, West Virginia Department of Transportation; Connie Gurchiek, Transcend Spatial Solutions

Use of Sensors and Scanning Technology for Asset Inventory, Condition, and Service Reliability
Satyen Patel, Massachusetts Bay Transportation Authority

Asset Management and Sustainable Infrastructure (Moving Beyond MAP-21)
Adjo Amekudzi-Kennedy, Georgia Tech, presiding
Brad Allen, Applied Pavement Technology, Inc., recording

Twenty-first century data collection and analysis is allowing connections to be made between infrastructure investments and societal benefits in ways never before possible. Incorporating these data and techniques into asset management will provide agencies with new opportunities to deliver programs that will provide the maximum benefit to society and allow agencies to better demonstrate that benefit to policy makers and the public.

Sustainable Transportation for Economic Prosperity in the 21st Century
Connie Bernardy, Minnesota House of Representatives; John Siekmeier, Minnesota DOT

Moving to Sociotechnical Asset Management of an Interconnected Network of Bridges
Martin Gordon, Opus International

Methods for Including Sustainability as Part of the Transportation Asset Management Toolbox
James Bryce, Amec Foster Wheeler

It's All About the Customer: Quantifying and Communicating the User Benefits from Preserving Transportation Infrastructure
David Vautin, Metropolitan Transportation Commission

Oh the Places We’ll Go: Creating an Implementation Roadmap (TAM Implementation)
Stephen Gaj, Federal Highway Administration, presiding
Nastaran Saadatmand, Federal Highway Administration, recording

This session features four organizations that have aligned their business processes to support asset management implementation. The presentations will highlight implementation steps and lessons learned.

TAM Implementation Journey at Yukon Highways and Public Works
Craig Milligan, Fireseeds North Infrastructure

How Internal Governance Arrangements can Influence Transportation Asset Management Implementation
Wayne Francisco and Zach Rubin, GHD

Fulfilling Mandates, Empowering Organizations: The Lessons Learned from Implementation and Operation of the Managing Assets for Transportation Systems (MATS)
James Birdsell, Parsons Corporation

Connecting Your Organization’s Asset Management Governance Structure to Institutional Success
1:30 p.m.–3:00 p.m., **Ballroom 1**
**How to Manage Your Transit Assets**
(“How To:” Technical Sessions to Advance the State of Practice)
Jennifer Weeks, Formerly Washington Metropolitan Area Transit Authority, presiding
Prashant Ram, Applied Pavement Technology, Inc., recording

With the FHWA MAP-21 rule-making approaching completion, many transit agencies are quickly adapting innovative asset management practices. This session is dedicated to the unique challenges of managing rolling stock, rail, and transit facilities.

- **Asset Management Challenges: Moving from Construction to Revenue Operations**
  Jerauld Oxsen, CH2M Hill

- **Transit Asset Management Gap Assessment for the State of Connecticut**
  Sharon Okoye, Connecticut Department of Transportation; William Robert, Spy Pond Partners, LLC

- **The MTC TERM Lite Scenario Manager: Making Multiple Scenario Runs Easy**
  Nicholas Richter, Formerly Metropolitan Transportation Commission

1:30 p.m.–3:00 p.m., **Ballroom 3**
**Playing Risk: Practical Applications Integrating Risk and Asset Management**
(Connecting Risk and Asset Management)
Matt Haubrich, Iowa Department of Transportation, presiding
Dave Solsrud, Minnesota Department of Transportation, recording

Practical examples of how transportation agencies have implemented a TAM program and integrated risk management with it.

- **Risk-Based Asset Investment Decisions**
  Gordon Proctor, Gordon Proctor & Associates

- **Breakthroughs in Risk Management: Supporting TAM Decisions with Innovative Tools and Processes**
  Larry Redd, Redd Engineering; William Johnson, Colorado Department of Transportation

- **Investment Level Impacts: How MnDOT is Using Risk to Inform Resource Allocation Decisions on the Operating Side of Its Budget**
  Deanna Belden, Minnesota Department of Transportation

- **Risks from the Point of View of Different Levels within North Carolina Department of Transportation**
  Judith Corley-Lay, North Carolina Department of Transportation

1:30 p.m.–3:00 p.m., **Deer**
**Climate Change Impacts on Asset Deterioration and Life Cycle Cost Analysis**
(Data, Performance Measurement, and Target Setting)
Rob Kafalenos, Federal Highway Administration, presiding

Tools and methods for analyzing climate change impacts on deterioration rates and BCA analyses.

- **Investigation of Climate Change Effects on Transportation Asset Management**
  Behrouz Shafei and Dena Khatami, Iowa State University

- **Impact of Climate Change on the Performance, Maintenance, and Life Cycle Costs of Flexible Pavements**
  Gerardo Flintsch, Virginia Tech; Yaning Qiao, University of Nottingham

- **Opportunities for Risk-Based Asset Management in Flood Resilience: A Retrospective on the October 2015 South Carolina Flooding**
  Anne Choate, ICF International
Governments at all levels are struggling to establish a stable funding model for transportation. Asset management is playing a critical role in communicating both the need for funding and the benefits to investments in infrastructure.

**Evaluating Options for Funding Asset Management Programs**
Joe Guerre, Cambridge Systematics

**Leading Management Practices in Determining Funding Levels for Maintenance and Preservation**
Mark McConnell, Mississippi Department of Transportation; Katie Zimmerman, Applied Pavement Technology, Inc.

**NexTen: Making the Case for Increased Investment in Existing Assets**
Mark Nelson, Minnesota Department of Transportation

This session will highlight best practices of asset management at the asset class level.

**Traffic Signal Asset Management System**
Daniel Farley, Pennsylvania Department of Transportation; Jeff Bergsten, Michael Baker International

**Optimal Pavement Funding Prioritization: Benefit-to-Cost Model**
Timothy Skeel, Seattle Department of Transportation

**Wall Asset Management Implementation at Colorado Department of Transportation**
Mark Vessely, Shannon & Wilson; Bryant Walters, Collins Engineers, Inc.

**Ensuring Roadway and Utility Financial Sustainability Through Right-of-Way Capital Planning and Optimization**
Gary Ruck, Deighton Associates Ltd.

Effective management of pavement, bridges, transit, and other assets requires much more than careful planning. Many agencies are leveraging technology to innovate more practical methods to effectively maintain the public’s investment in infrastructure. Several innovators will demonstrate their technologies and ideas in a “rapid-fire” session and will offer you the opportunity to further explore their innovations at the ensuing poster session.

**MAP-21 Toolbox: How to Use Enterprise Asset Management Systems to Track the State of Good Repair of your Assets**
Brett Koenig, Trapeze

**Minnesota Department of Transportation’s Approach to Developing Maintenance Cost Models for Its Pavement Infrastructure Based on Asset Condition Data**
Dave Solsrud and Shelly Pedersen, Minnesota Department of Transportation

**Minnesota Department of Transportation’s Approach to Developing Maintenance Cost Models for Its Bridge Infrastructure Based on Asset Condition Data**
Sarah Sondag and Trisha Stefanski, Minnesota Department of Transportation

**Investment Planning for ITS Assets**
Prashant Ram and Katie Zimmerman, Applied Pavement Technology Inc.
Life Cycle Strategy Analysis for Concrete Bridge Decks in Pennsylvania
Shervin Jahangirnejad, Dennis Morian, Quality Engineering Solutions, Inc.

TAM Knowledge Sharing: AASHTO’s Portals
Hyun-A Park and Perry Lubin, Spy Pond Partners, LLC

3:30 p.m.–5:00 p.m., Ballroom 3
Theory to Practice in Connecting TAM and Risk Analysis (Connecting Risk and Asset Management)
Judith Corley-Lay, North Carolina Department of Transportation, presiding
Kartik Manda, Applied Pavement Technology, Inc., recording

A broad discussion on various aspects of TAM and risk, ranging from risk and transit to making the business case for risk analysis to flexibility in asset risk management.

An Outcome-Based Scenario Approach for Analyzing Risk in Infrastructure Asset Management
Amir Hessami, Roger Smith, Texas A&M University

Risk-Informed Transit Asset Management: Best Practices and Approach
John Holak, Urban Engineers, Inc.

Making the Business Case for Risk-Based Asset Management
Brenda Dix, ICF International

Flexibility as a Decision Support Strategy for Asset Risk Management
Vivek Sakhrani, CPCS Transcom Inc.

3:30 p.m.–5:00 p.m., Wayzata Bay
How Can Existing Federal Data Resources be Used in TAM? (Data, Performance Measurement, and Target Setting)
Nastaran Saadatmand, Federal Highway Administration, presiding
Kirby Becker, Minnesota Department of Transportation, recording

This session will review the state of the art in valuing transportation assets as well as the FHWA's proposed use of the Highway Performance Monitoring System (HPMS) as the source of pavement data for monitoring performance.

Valuing Impacts of Transportation System
Patricia Hu, U.S. Department of Transportation

Improving HPMS Pavement Data to Support Performance Management
Max Grogg, Federal Highway Administration

The Yellow Brick Road: What Economics Has to Do with Pavements and How HERS-ST Paves the Way
Nathaniel Coley, Federal Highway Administration

Pavement Condition Reporting and Target Setting in the TAMP: Where Are We and Where Do We Need to Go?
Jonathan Groeger and Gonzalo Rada, Amec Foster Wheeler

3:30 p.m.–5:00 p.m., Excelsior
Next-Generation Performance Management (Moving Beyond MAP-21)
Mshadoni Smith, Federal Transit Administration, presiding
E. Dean Carlson, Carlson Associates, recording

If what gets measured gets done, how can an agency ensure they are measuring the right things? This session focuses in on tools and approaches for moving beyond dashboards and building robust performance management systems.

Going Beyond Performance Targets in Map-21 for Local Agencies
Sui Tan, Metropolitan Transportation Commission

Performance: What Should be Measured?
Omar Smadi, CTRE–Iowa State University

Everything in Its Place: Tools and Rules for Setting Robust Performance Targets
Royce Greaves, Opus International

Transportation Asset Status and Condition Reporting at the Seattle Department of Transportation
Emily Burns, Seattle Department of Transportation
3:30 p.m.–5:00 p.m., Deer
**All Together Now: Giving the Infrastructure a Voice at the Local, Regional, and State Level** *(TAM Implementation)*
David Springstead, Metropolitan Rapid Transit Authority, *presiding*
John McCormick, Bay Area Rapid Transit, *recording*

An asset management program can provide the data that are necessary to align your organization’s goals to those of the department of transportation. This session highlights presenters sharing the DOT, MPO, and transit agency perspective. The agencies will describe the creation of asset management programs that support their organization as well as regional stakeholders.

**Turning Data into Action: Mobilizing Transit Asset Management at a Regional Scale**
Theresa Romell, Metropolitan Transportation Commission

**Development of a Transit Asset Management Plan at Metra**
Robert Peskin, AECOM; Michael Rowe, Metra

**Collaboration to Support Regional and Statewide TAM: Lessons Learned in Greater Cleveland, Ohio**
Sam Van Hecke, Cambridge Systematics; Kathy Sarli, Northeast Ohio Areawide Coordinating Agency

**California’s Update on Its Transportation Asset Management Pilot Program**
Michael Johnson, Hamid Sadraie, California Department of Transportation

5:00 p.m.–6:30 p.m., Ballrooms 2 and 4
**Poster and Reception**

**“How To:” Technical Sessions to Advance the State of Practice**

1. **Who’s Your Audience: Structuring Your TAMP to Meet the Needs of the Reader**
   Wayne Francisco, Zach Rubin, GHD

2. **How to Use Asset Type Variants to Model Complex Rehabilitation Policies using TERM Lite**
   Nicholas Richter, Formerly Metropolitan Transportation Commission

**Connecting Risk and Asset Management**

3. **Active Asset Management Risk**
   Milos Posavljak and Susan Tighe, University of Waterloo

4. **Key Issues in Life Cycle Planning of Chinese Transportation Asset Management**
   Ronghua Wang and Jiangbi Hu, Beijing University of Technology

5. **Communicating Multiobjective Risk: A New Geotechnical Need for Transportation**
   Scott Anderson, Federal Highway Administration; Mohammad Dehghani, GHD

   Greg Yarbrough and Allen Ibaugh, Data Transfer Solutions, LLC

7. **Improving Bridge Risk and Deterioration Modeling: A How-To Guide for All States to Improve Their Bridge Performance Modeling**
   Zach Rubin and Mohammad Dehghani, GHD

8. **The Silver Bullet: How to Use the National Bridge Investment Analysis System for Developing Bridge Targets and Bridge Asset Management Plans**
   Nathaniel Coley, Federal Highway Administration

9. **Analysis of National Bridge Inventory (NBI) Data for California Bridges**
   Rosa Vasconez, California State Polytechnic University, Pomona

10. **Development of a Risk-Based Management Approach for Ancillary Highway Structures**
    Elizabeth Burkhart and Michael Garlich, Collins Engineers, Inc.

**Data, Performance Measurement, and Target Setting**

11. **Skid Assessment Using a 3-D Laser Profiler**
    Humaira Zahir, Kansas State University

12. **Improving Automated Sign Retrorreflectivity Data Collection And Database Management Using Unique Identifiers**
    Chris Vaughan and Sarah Searcy, Institute for Transportation Research and Education
13. Performance-Based Maintenance Contract: Woodrow Wilson Bridge Case Study
Adrian Burde, Leidos; Ken McEntire, Asset Management Associates

Chris Cunningham and Daniel Findley, Institute for Transportation Education Research

15. Setting Customer-Focused Performance Measures and Condition Indicators
Royce Greaves, Opus International

Ahmed Abdelaty and H. David Jeong, Iowa State University

Moving Beyond MAP-21

17. Operational Systems Informing Enterprise Asset Management Success
Henry Eibel, New Jersey Turnpike; Jeff Siegel HNTB Corporation

18. A Smart Framework in Bridge Management System to Move Beyond MAP-21
Mohammad Sayyar and Schaflil Azam AgileAssets Inc.

19. Integrated Planning and Change Management at Pennsylvania Department of Transportation
Seth Yoskowitz and Wayne Francisco, GHD

20. Moving Beyond MAP-21: A Comprehensive Asset Management Approach
Stephen Schorn and Benoît Kroely, Advitam Inc.

Nancy Lefler, VHB; William Robert, Spy Pond Partners, LLC

22. ADA Curb Ramp Asset Management and Improvements in Virginia
Ning Li and William Duke, Virginia Department of Transportation

TAM Implementation

23. Road Asset Management Gap Analysis in Costa Rica: Challenges and Good Opportunities for a Middle-Income Developing Country
José David Rodríguez, LanammeUCR, University of Costa Rica; Jorge Arturo Carmona, Independent Consultant

24. The Next Generation of Bridge Management with AASHTO Ware BrM
Jeremy Shaffer, Bentley Systems, and Judy Skeen, AASHTO

25. Ready for Takeoff: Aviation Asset Management
Andrew Ardrey and John Fortin, CH2M

26. Implementing Tunnel Assets into Colorado DOT's Strategic Asset Management System
Jeffrey Zavitski, Deighton Associates Limited; Tyler Weldon, Colorado Department of Transportation

27. Sidewalk Scout, Sidewalk Sentry, and Sidewalk Quality Index: Tools for Assessing and Managing Community Sidewalk Assets
Jack Cebe and Randall Guensler, Georgia Institute of Technology

28. Minnesota DOT's Experience Implementing and Enterprise Transportation Asset Management System
Ray Starr and Dave Solsrud, Minnesota Department of Transportation
Planning and Programming  (“How To:” Technical Sessions to Advance the State of Practice)
Scott Zainhofsky, North Dakota Department of Transportation, presiding
Scott Richrath, Spy Pond Partners, recording

Where do asset management and asset management plans fit in a planning world that has traditionally focused on new capital expansion projects? Bringing preservation activities into the planning discipline and coordinating agencywide programming processes requires big picture thinking. This session will help close the gap between asset management planning and investment decisions.

Using MAP-21 TAMP to Strengthen New Mexico DOT’s TAM Program
Tamara Haas, New Mexico Department of Transportation; Hyun-A Park, Spy Pond Partners

Data-Rich but Information-Poor: Taking Those First Steps Toward Quantitative 10-Year Target Setting
Paul Thompson, Consultant; Prashant Ram, Applied Pavement Technology Inc.

Evaluation of a Multiyear Multiconstraint Strategy to Optimization Linear Assets Based on Life Cycle Costs
Keivan Neshvadian, AgileAssets Inc.

Small Details, Big Plans: How Asset Management is Driving the Minnesota Statewide Multimodal Transportation Plan and the 20-Year State Highway Investment Plan
Josh Pearson, Minnesota Department of Transportation

Brisk Risk: Real-World Risk Assessment and Analysis in Asset Management, Real Quick
(Connecting Risk and Asset Management)
Deanna Belden, Minnesota Department of Transportation, presiding
Anita Bush, Nevada Department of Transportation, recording

This session will feature a variety of technical topics presented in a quick, rapid-fire style getting at the “how-to” of risk assessment and analysis. Presentations will include risk in transportation asset management overall as well as risk topics related to specific assets. The presentations act as a lead-in to the same topics being featured in the poster session.

Active Asset Management Risk
Milos Posavljak and Susan Tighe, University of Waterloo

Key Issues in Life Cycle Planning of Chinese Transportation Asset Management
Ronghua Wang and Jiangbi Hu, Beijing University of Technology

Communicating Multiobjective Risk: A New Geotechnical Need for Transportation
Scott Anderson, Federal Highway Administration

Risk Management and Project Prioritization in an Integrated GIS Environment
Greg Yarbrough and Allen Ibaugh, Data Transfer Solutions, LLC

Improving Bridge Risk and Deterioration Modeling: A How to Guide for All States to Improve their Bridge Performance Modeling
Zach Rubin, Mohammad Dehghani, GHD

The Silver Bullet: How to Use the National Bridge Investment Analysis System for Developing Bridge Targets and Bridge Asset Management Plans
Nathaniel Coley, Federal Highway Administration

Analysis of National Bridge Inventory (NBI) Data for California Bridges
Rosa Vasconez and Emily Yu, California State Polytechnic University, Pomona

Development of a Risk-Based Management Approach for Ancillary Highway Structures
Elizabeth Burkhart and Michael Garlich, Collins Engineers, Inc.
8:00 a.m.–9:30 a.m., Wayzata Bay
Quality Data Results in Better Asset Management Decisions (Data, Performance Measurement, and Target Setting)
Max Grogg, Federal Highway Administration, presiding
Peggi Knight, Iowa Department of Transportation, recording

This session will provide insight on the processes that can be used to insure that the data being used for transportation asset management are accurate, timely, and usable.

- **Improving Data Quality for Pavement Management System**
  Sui Tan, Metropolitan Transportation Commission; Dingxin Cheng, California State University at Chico

- **Quantitative Target Setting for Pavement Management Data Quality**
  Siamak Saliminejad, AgileAssets

- **First Steps to Integrated Asset Management Information Technology to Leverage Your Data Sets**
  Steve Mitchel, Wayne Francisco, GHD.

- **Data Management for Asset Management at Connecticut DOT: An Integrated Life Cycle Approach**
  Frances Harrison, Spy Pond Partners; William Pratt, Connecticut Department of Transportation

8:00 a.m.–9:30 a.m., Deer
You Down with ETG? Yeah, You Know Me! (Moving Beyond MAP-21)
Stephen Gaj, Federal Highway Administration, presiding
Brad Allen, Applied Pavement Technology, Inc., recording

In 2011, FHWA, AASHTO, and TRB formed the TAMETG to assist the three agencies in aligning their efforts to further asset management implementation. Recently the ETG—or expert task group—has issued four white papers to bring clarity to issues foundational to TAM implementation and that, until now, have not been well defined. In this interactive session, members of the TAM ETG will present these papers and participate in a conversation on the topics.

- **Incorporating TAM into the Agencies’ Practices**
  Randy Park, Utah Department of Transportation

- **Developing Human Capital to Support Asset Management**
  Timothy Henkel, Minnesota Department of Transportation

- **Incorporating TAM into the Planning Process**
  Laura Mester, Michigan Department of Transportation

- **Defining Cross-Asset Decision Making**
  Omar Smadi, Iowa State University

- **Transportation Asset Management Implementation from the MPO perspective**
  Chris Evilia, Waco MPO

8:00 a.m.–9:30 a.m., Excelsior
Take an "A" Train: Transit Asset Management Implementation (TAM Implementation)
Mshadoni Smith, John Giorgis, Federal Transit Administration, presiding
Jennifer Weeks, Formerly Washington Metropolitan Area Transit Authority, recording

This session provides an overview of the implementation of asset management programs at transit agencies. Presenters will highlight modifications to business processes, the establishment of performance targets, and lessons learned through implementation.

- **CTA’s Linear Asset Management Implementation**
  Leah Mooney and Robin Roever, Chicago Transit Authority

- **Target Setting in Transit: Using Data to Involve Staff Across an Agency**
  Yvonne Carney, Washington Metropolitan Area Transit Authority

- **Implementing an Asset Management Program at a Legacy Transit System**
  Laura Zale, Southeastern Pennsylvania Transportation Authority

- **TAM Implementation: Lessons Learned**
  Rick Laver, CH2M Hill

9:30 a.m.–10:00 a.m., Atrium
**Break**
Several public- and private-sector organizations are creating new systems and tools for tracking inventory, monitoring condition and performance, and streamlining business processes. Come learn how to apply creative real-world solutions to your asset management practice.

**A Study of Varied Prioritization Approaches for Roadway Repairs**
Theresa Romell and Sui Tan, Metropolitan Transportation Commission

**Collecting Infrastructure Asset Data Using Advanced Mobile Technology at Minnesota Department of Transportation**
Trisha Stefanski, Minnesota Department of Transportation

**Challenging the Paradigm in Bridge Asset Management: More Problems Require More Funding**
Royce Greaves, Opus International Consultants

**Addressing Climate Change and Extreme Weather Risks in Asset Management**
Rob Kafalenos, Federal Highway Administration, presiding
John Thomas, Utah Department of Transportation, recording

Examples of areas that are applying climate change and extreme weather event information into asset management and plan development.

**Integrating Climate Risk into Transportation Asset Management: The Michigan DOT Climate Resilience Pilot**
Niles Annelin, Michigan Department of Transportation

**Accommodating Extreme Weather Adaptation to Collectively Enhance Infrastructure Planning, Regional Vitality, and Sustainability in North Central Texas**
Jory Dille, North Central Texas Council of Governments

**Alaska's Geotechnical Asset Management Program**
Darren Beckstrand and Aine Mines, Landslide Technology; Paul Thompson, Consultant

This session will discuss how asset management decisions directly correlate to asset level of service and performance.

**Development of Two Unique and Publicly Accessible Performance Dashboards at the Seattle Department of Transportation**
Terry Martin, Seattle Department of Transportation

**Minnesota Department of Transportation's Approach to Developing Maintenance Cost Models for Its Infrastructure Based on Asset Condition Data**
Dave Solsrud, Trisha Stefanski, Minnesota Department of Transportation

**The Role of MAP-21 in MPO Performance Metric Development**
Alice Grossman, Georgia Institute of Technology

**Performance-Based Communication Tools for Maintenance Budgets**
David Hurst and Rob Zilay, Dye Management Group

What technologies are on the horizon to help turn mountains of data into actionable information? How can the area of knowledge management help improve asset management? This forward-looking session explores
how asset managers can make sound investments in data and systems to find the sweet spot between being in the dark and paralysis by analysis.

**Asset Management Data in a Knowledge Management World: Methods forTreating Data**
Frances Harrison, Spy Pond Partners

**Multiobjective Optimization Approach for Sustainable Pavement Maintenance and Rehabilitation Programming**
Gerardo Flintsch, Virginia Tech; Joao Santos, University of Coimbra

**Improving the Resilience of Transit Systems Threatened by Natural Disasters**
Deborah Matherly, Louis Berger; Jon Carnegie, Rutgers

10:00 a.m.–11:30 a.m., *Wayzata Bay*
**Moving the Dial (TAM Implementation)**
David Rose, Gannett Fleming, *presiding*
Laura Zale, Southeastern Pennsylvania Transportation Authority, *recording*

This panel provides specific examples of asset management that is moving the dial, resulting in improved reliability, reduce life-cycle cost, reduced safety risk, and improved customer experience.

**Panelists**
- Collete Erricson, New York Metropolitan Transportation Authority Bus Operations
- John McCormick, Bay Area Rapid Transit
- Mike Hubbell, Dallas Area Rapid Transit
- Lou Cripps, RTD Denver
- Paul Edwards, Utah Transit Authority
- Satyen Patel, Massachusetts Bay Transportation Authority

11:30 a.m.–1:00 p.m., *Ballrooms 2 and 4*
**Lunch**

1:00 p.m.–2:00 p.m., *Ballroom 1*
**Spread the Word of Transportation Asset Management ("How To:" Technical Sessions to Advance the State of Practice)**
Scott Richrath, Spy Pond Partners, *presiding*
Prashant Ram, Applied Pavement Technology, Inc., *recording*

The session will close the "How To" discussion at the 11th Transportation Asset Management Conference, sharing what we’ve learned about how to manage our assets with those unable to attend. Presenters in this closing session will help you communicate the methods and benefits of asset management.

**Wanted: Asset Managers Who Can Tell a Good Story**
Melaina Voss, Opus International Consultants

**A Practical Option for Managing Transit Facility and Infrastructure Assets**
Jim Sutton, Chuck Austin, RTD Denver

**How Transportation Asset ManagementTransforms the Business Process at the Ohio Department of Transportation**
Eddie Chou, University of Toledo; Andrew Williams, Ohio Department of Transportation

1:00 p.m.–2:30 p.m., *Ballroom 3*
**Linking Climate Change to Asset Management Plans and Systems (Connecting Risk and Asset Management)**
Heather Holsinger, Federal Highway Administration, *presiding*
Mark Suarez, Louisiana Department of Transportation, *recording*

This session focuses on how to develop plans and implement asset management systems that account for climate change and extreme weather event risks.

**Incorporating Climate and Extreme Weather Risk in Transportation Asset Management**
Michael Meyer and Michael Flood, WSP- Parsons Brinkerhoff

**Data and Analytical Needs for Incorporating Extreme Weather Risks in Asset Management**
Anne Choate, ICF International
1:00 p.m.–2:30 p.m., Deer
**GIS Capabilities for Improving Asset Management Data Visualization (Data, Performance Measurement, and Target Setting)**
David Schrank, Texas A&M Transportation Institute, *presiding*
David Hurst, Dye Management Group, *recording*

This session will provide an overview of best practices of GIS applications in asset management. GIS applications have become almost a “must-have” for the management of transportation assets.

**Best Practices of GIS Applications in Asset Management at North Carolina Department of Transportation**
Lonnie Watkins, North Carolina Department of Transportation; Jonathan Arnold, Sepi Engineering & Construction

**Best Practices of GIS Applications in Asset Management**
Mike Fallon, Kelley Ernsdorff, AssetWorks

**New Insights from Historical Information for Utah Department of Transportation**
Shourya Shukla, Rolta Americas, Inc.; Cory Pope, Utah Department of Transportation

**North Jersey Transportation Planning Authority Asset Management Model**
Tom Tiner, Michael Baker International

1:00 p.m.–2:30 p.m., Excelsior
**Conform, Reform, or Transform: Building a Forward-Looking TAM Organization** *(Moving Beyond MAP-21)*
Butch Wlaschin, Formerly Federal Highway Administration, *presiding*
Mshadoni Smith, Federal Transit Administration, *recording*

There are as many different approaches to implementing asset management as there are transportation agencies. Although every agency is different and faces different challenges, there are lessons to be learned in the successes and struggles of every asset management implementation effort. This session explores some of these lessons while looking forward at common challenges all agencies will face.

**The Seven Habits of Highly Effective Transit Asset Management Organizations**
Herbert Higginbotham, Accenture

**Applying International Standards Beyond MAP-21 and Toward Global Best Practice in Asset Management**
Christian Roberts, WSP–Parsons Brinkerhoff

**MBTA’s Advanced Asset Management Program**
Satyen Patel, Massachusetts Bay Transportation Authority

**Developing the Long Island Rail Road (LIRR) Roadmap to Advance Asset Management Capability**
John O’Har and Brenden Duffy, WSP–Parsons Brinkerhoff

1:00 p.m.–2:30 p.m., Wayzata Bay
**On the Road Again: Implementing a Sustainable Asset Management Program at Your Agency (TAM Implementation)**
Adjo Amekudzi-Kennedy, Georgia Institute of Technology, *presiding*
Shayne Gill, AASHTO, *recording*

This panel will provide examples of aligning the agency’s business practice to better create a sustainable asset management program.

**Creating a Sustained Implementation of MassDOT’s Asset Management Strategic Plan**
Patricia Leavenworth, Massachusetts Department of Transportation; Nathan Higgins, Cambridge Systematics

**Framework and Case Studies for Calculating the Return on Investment for Transportation Asset Management Systems and Process Improvements**
William Robert, Spy Pond Partners; Chris Williges, HDR, Inc

**Organizational Issues in Performance Management and Transportation Asset Management: Are You Prepared?**
Jonathan Groeger and Deepa Thandaveswara, Amec Foster Wheeler

**A Framework for Enhancing TAM Implementation for Sustained TAM Programs**
Margaret-Avis Akofio-Sowah, WSP–Parsons Brinckerhoff; Adjo Amekudzi-Kennedy, Georgia Institute of Technology
2:45 p.m.–4:00 p.m., Ballrooms 2 and 4
Closing Session
Katie Zimmerman, Applied Pavement Technology, Inc., Conference Chair, presiding

From Inception to Evolution

The conference presentations demonstrate the evolution that is taking place in asset management today. Just a few years ago, most agencies were identifying an asset management champion and focusing on building an asset management culture. Today, agencies are moving towards a more sustainable, cross-cutting, and evolved program.

In the closing session, each of the Track Chairs will share highlights from their sessions related to ways in which:

- The practice of asset management is evolving,
- Agencies are creating sustainable asset management programs that are embedded in the organization’s culture,
- Technology is influencing the way decisions are made, and
- Data are being used to speak to multiple audiences.

The session will conclude with a summary of gaps that would benefit from further research or technology transfer efforts.

Panelists:
Scott Richrath, Spy Pond Partners
Matthew Hardy, American Association of State Highway and Transportation Officials
David Schrank, Texas A&M Transportation Institute
Brad Allen, Applied Pavement Technology, Inc.
Laura Zale, Southeastern Pennsylvania Transportation Authority
Rob Kafalenos, Federal Highway Administration

4:00 p.m.–5:30 p.m., Pine
Planning Committee Debriefing (Members Only)
Katie Zimmerman, Applied Pavement Technology, Inc., presiding
SELECTED RECENT TRB REPORTS RELATING TO ASSET MANAGEMENT

Published

Transportation Asset Management for Ancillary Structures. NCHRP 08-36, Task 114
http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP08-36(114)_FR.pdf

Guidelines for Collecting, Processing, and Managing Roadway Asset Inventory Data. NCHRP 20-07/Task 357
http://apps.trb.org/cmsfeed/trbnetprojectdisplay.asp?projectid=3737

Use of Transportation Asset Management Principles in State Highway Agencies. NCHRP Report 439
http://www.trb.org/Main/Blurbs/168469.aspx

http://www.trb.org/Publications/Blurbs/174369.aspx

Successful Practices in GIS-Based Asset Management. NCHRP Report 800
http://www.trb.org/Main/Blurbs/172204.aspx

Cross-Asset Resource Allocation and the Impact on System Performance. NCHRP Report 806
http://www.trb.org/Main/Blurbs/172356.aspx


Transportation Asset Management Gap Analysis Tool. NCHRP Project 08-90 (publication pending)
http://apps.trb.org/cmsfeed/trbnetprojectdisplay.asp?projectid=397

Approach to Level-of-Service Target Setting for Highway Assets. Research Results Digest 396

Uses of Mobile Information Technology Devices in the Field for Design, Construction, and Asset Management. NCHRP Synthesis 419
http://www.trb.org/Publications/Blurbs/174038.aspx

Guidance for Developing a Transit Asset Management Plan. TCRP Report 172
http://www.trb.org/Publications/Blurbs/171285.aspx

Transportation Asset Management from Plans to Practice: A Workshop for State Practitioners. Transportation Research E-Circular, Issue E-C200
http://www.trb.org/Publications/Blurbs/173050.aspx

Active

Asset Management Guidance for Traffic Control Devices, Barriers, and Lighting. NCHRP 07-21

Managing Risk Across the Enterprise: A Guidebook for State Departments of Transportation. NCHRP 08-93

Test and Demonstrate the Implementation of NCHRP Project 08-91, Cross-Asset Allocation, NCHRP Project 08-103 (ongoing)
http://apps.trb.org/cmsfeed/trbnetprojectdisplay.asp?projectid=4031

Guide for Financial Planning and Management in Support of Transportation Asset Management. NCHRP19-12

Estimating the Return on Investment in TAM Systems and Practices. NCHRP 20-100
Development of an Implementation Manual for Geotechnical Asset Management for Transportation Agencies. NCHRP 24-46
http://apps.trb.org/cmsfeed/trbnetprojectdisplay.asp?projectid=4065

Transportation Asset Management Knowledge Portal . NCHRP 08-36/Task 125

Development of Transportation Asset Management Plan Templates . NCHRP 08-36/Task 116

Development of a Risk Register Spreadsheet Tool. NCHRP 08-36/TASK 126

Transportation Asset Management Research Roadmap. NCHRP 08-36/Task 134

Improving the Resiliency of Transit Systems Threatened by Natural Disasters. TCRP A-41

Relationship Between Transit Asset Condition and Service Quality, TCRP Project E-11 (ongoing)
http://apps.trb.org/cmsfeed/trbnetprojectdisplay.asp?projectid=3745

Guidance for Calculating the Return on Investment in Transit State of Good Repair. TCRP E-12

Domestic Scan 14-01
Join the TAM Pooled Fund!!!

The Iowa Department of Transportation is seeking additional partners for the pooled fund to help join existing partners in supporting future Transportation Asset Management Conference activities in 2018 and 2020.

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