I. Pavements

1. Completed

Project 1-48: Consideration of Preservation in Pavement Design and Analysis Procedures (published as NCHRP Report 810)

Project 9-41: Construction and Maintenance Practices for Permeable Friction Courses (published as NCHRP Report 640)

Project 9-50: Performance-Related Specifications for Emulsified Asphaltic Binders Used in Preservation Surface Treatments (published as NCHRP Report 837)

Project 10-82: Performance Related Specifications for Pavement Preservation Treatments (Phase I)

Project 10-82A: Performance Related Specifications for Pavement Preservation Treatments (published as NCHRP Report 857)

Project 14-14: Optimal Timing of Pavement Preventive Maintenance Treatment Applications (published as NCHRP Report 523)

Project 14-17: Manual for Emulsion-Based Chip Seals for Pavement Preservation (published as NCHRP Report 680 and AASHTO Code: MECB-1-UL)

Project 14-31: Developing a Pavement-Maintenance Database System (published as NCHRP Report 820)

Project 14-33: Quantifying the Effects of Preservation Treatments on Pavement Performance (will be published as NCHRP Research Report 858)

Project 20-50(2): LTPP Data Analysis: Relative Performance of Jointed Plain Concrete Pavements with Sealed and Unsealed Joints (available as NCHRP Web Document 32)

Project 20-50(03/04): LTPP Data Analysis: Effectiveness of Maintenance and Rehabilitation Options (available as NCHRP Web Document 47)


Project 20-7 (203): Chapter on Systems Operations and Management (incorporated into the “AASHTO Maintenance Manual for Roadways and Bridges,” 2007)

Project 20-7(251): Consideration of Pavement Preservation in the AASHTO Mechanistic-Empirical Pavement Design Guide

Project 20-07(380): Proposed AASHTO Manual for the Maintenance of Roadways and Bridges

### 2. Pavements - In Progress

| Project 14-37: | Guide Specifications for the Construction of Chip Seals, Microsurfacing, and Fog Seals |

### II. Bridges and Structures

#### 1. Completed

| Project 12-100: | Guidelines for Maintaining Small Movement Bridge Expansion Joints (publication decision pending – agency research report is available on NCHRP Web site) |
| Project 14-23: | Practical Bridge Preservation Actions and Investment Strategies (un-reviewed reports on Phases I & II are available on project Website) |
| Project 14-28: | Condition Assessment of Bridge Post-Tensioning and Stay Cable Systems Using NDE Methods (published as NCHRP Research Report 848) |
| Project 14-29: | Assessing, Coding, and Marking of Highway Structures in Emergency Situations (published as NCHRP Report 833) |
| Project 14-30: | Spot Painting to Extend Highway Bridge Coating Life (available as NCHRP Web-Only Document 251) |
| Project 14-36: | Proposed AASHTO Guide for Bridge Preservation Actions (agency report available on project Website) |
| Project 18-06A: | Service Life of Corrosion-Damaged Reinforced Concrete Bridge Superstructure Elements (published as NCHRP Report 558) |
| Project 20-7(234): | Guidelines for Selection of Bridge Deck Overlays, Sealers, and Treatments (submitted to AASHTO) |
| Project 20-07(387): | Maintenance Actions to Address Fatigue Cracking in Steel Bridge Structures (agency research report available on project Website) |
| Project 20-07(399): | Identifying Bridge Maintenance and Preservation Activities which Minimize Environmental Impact (agency research report available on project Website) |

#### 2. In Progress

| Project 10-97 | Detection and Remediation of Soluble Salt Contamination Prior to Coating Steel Highway Structures |

#### 3. Anticipated/Pending

| Project 12-115: | Guidelines for Risk-Based Inspection and Strength Evaluation of Suspension Bridge Main Cable Systems |
| Project 12-117: | Effective Use of Duplex Coating Systems to Improve Steel Bridge Structure Durability |
III. Snow and Ice Control

I. Completed

Project 6-12: Improved Visibility for Snow Plowing Operations (summarized in NCHRP Research Results Digest 250)
Project 6-13: Snow and Ice Control: Guidelines for Materials and Methods (published as NCHRP Report 526)
Project 6-14: Feasibility of Using Friction Indicators to Improve Winter Maintenance Operations and Mobility (available as NCHRP Web Document 53)
Project 6-15: Testing and Calibration Methods for RWIS Sensors (available as NCHRP Web Document 87)
Project 6-16: Guidelines for the Selection of Snow and Ice Control Materials to Mitigate Environmental Impacts (published as NCHRP Report 577)
Project 6-17: Performance Measures for Snow and Ice Control Operations (summarized as a NCHRP Research Results Digest 335; the agency report is available as NCHRP Web-Only Document 136)
Project 14-34: Guide for Performance Measures in Snow and Ice Control Operations (will be published as NCHRP Research Report 889)
Project 20-7(117): Benefit/Cost of RWIS and Anti-Icing Technologies (available as a SICOP web document)
Project 20-7 (147): Update of the Design Guidelines for the Control of Blowing and Drifting Snow (available as a SICOP web document, “Controlling Blowing and Drifting Snow with Snow Fences and Road Design”)
Project 20-7(200): Synthesis of Vehicle Based Winter Maintenance Technologies (available as a SICOP web document)
Project 20-7(250): Update the AASHTO Guide for Snow and Ice Control (submitted to AASHTO)
Project 20-7(287): Grand Challenges: A Research Plan for Winter Maintenance (available on AASHTO Highway Subcommittee on Maintenance Website)
Project 20-7(300): Methods for Estimating the Benefits of Winter Maintenance and Operations (available on AASHTO Highway Subcommittee on Maintenance Website)
Project 20-7(329): Alternative Delivery Methods for Winter Maintenance Operations (available on AASHTO Highway Subcommittee on Maintenance Website; summarized in NCHRP Research Results Digest 387)

3. Anticipated/Pending

Project 06-18: Update the AASHTO Guide for Snow and Ice Control
IV. Equipment Management

1. Completed


Project 13-3: Decision Making for Outsourcing and Privatization of Vehicle and Equipment Fleet Maintenance – Phase I (Phase II of the research was conducted under NCHRP Project 13-3A)

Project 13-3A: Decision Making for Outsourcing and Privatization of Vehicle and Equipment Fleet Maintenance (published as NCHRP Report 692 and also as AASHTO Publication Code EFM-1)


Project 20-7(309): Challenges and Opportunities: A Strategic Plan for Equipment Management Research (available on AASHTO Highway Subcommittee on Maintenance web site)

2. In Progress

Project 05-24: Guidelines for Vehicle and Equipment Color, Marking, and Lighting

Project 13-05: Guide for Utilization Measurement and Management of Fleet Equipment

Project 13-07: Guide to Calculating Ownership and Operating Costs of Department of Transportation Vehicle and Equipment Fleet

3. Anticipated/Pending

Project 13-06: Guide for the Formulation of Long-Range Plans for Replacement Needs and Budget of Highway Operations Equipment

Project 13-08: Guideline for Decision Making for Repair vs. Replacement of Highway Maintenance Equipment

Project 14-42: Determining State DOT Maintenance Program Implications of Connected and Automated Vehicles

V. Roadway/Roadside

1. Completed


Project 14-26: Culvert and Storm Drain Inspection Manual (submitted to the AASHTO Highway Subcommittee on Bridges and Structures)

Project 14-40: Comparison of Cost, Safety, and Environmental Benefits of Routine Mowing and Managed Succession of Roadside Vegetation

Project 20-7(177): Detectable Warning Products: Installation, Maintenance, and Durability Considerations (available on AASHTO Highway Subcommittee on Maintenance Website)

Project 20-7(190): Strategy for Evaluating Durable Pavement Marking Materials for High Traffic Areas and Mountain Passes (available on AASHTO Highway Subcommittee on Maintenance Website)
2. In Progress

Project 14-41: Permanent Vegetation Control Treatments for Roadsides

VI. Asset Management/General

I. Completed

Project 08-71: Methodology for Estimating Life Expectancies of Highway Assets (published as NCHRP Report 713)
Project 14-09(3): Maintenance Contracting (published as NCHRP Report 344)
Project 14-18: Determining Highway Maintenance Costs (published as NCHRP Report 688)
Project 14-20: Consequences of Delayed Maintenance (Phase I)
Project 14-20A: Consequences of Delayed Maintenance of Highway Assets (published as NCHRP Report 859)
Project 14-25: Guide for Selecting Level-of-Service Targets for Maintaining and Operating Highway Assets (summarized in NCHRP Research Results Digest 396)
Project 14-33: Quantifying the effects of Preservation Treatments on Pavement Performance (will be published as NCHRP Report 858)
Project 19-07: GASB 34 – Methods for Condition Assessment and Preservation (published as NCHRP Report 608)
Project 20-24(11) Asset Management Guidance for Transportation Agencies (published by AASHTO and summarized as NCHRP Research Results Digest 266, and includes Project 20-07(134), Asset Management Education and Communication Materials)
Project 20-57 Analytic Tools to Support Transportation asset Management (published as NCHRP Report 545. The software tools, AssetManager NT and AssetManager PT, and other user guides are available on CD-Rom CRP-CD-57)
Project 20-60: Performance Measures and Targets for Transportation Asset Management (published as NCHRP Report 551)
Project 20-68A: US Domestic Scan Program (11-01, Leading Practices in Large-Scale Outsourcing and Privatization of Maintenance Functions; 14-01, Leading Management Practices in Determining Funding Levels for Maintenance and Preservation; and other topics). Scan reports available on project website.
VI. Asset Management/General (Continued)

Completed (continued)

Project 20-74: Developing an Asset Management Framework for the Interstate Highway System (published as NCHRP Report 632)
Project 20-74A: Development of Levels of Service for the Interstate Highway System (published as NCHRP Report 677)
Project 20-7(340): National Training: Challenges and Opportunities (available on AASHTO Highway Subcommittee on Maintenance web site)
Project 20-7(357): Guidelines for Collecting, Processing, and Managing Roadway Asset Inventory Data (submitted to AASHTO)

VII. Synthesis of Information Related to Highway Problems

1. Completed

Topic 28-08: Historic Highway Bridge Preservation Practices (NCHRP Synthesis 275)
Topic 29-03: Performance Survey on Open-Graded Friction Course Mixes (NCHRP Synthesis 284)
Topic 29-07: Fleet Management and Selection Systems for Highway Maintenance Equipment (NCHRP Synthesis 283)
Topic 30-10: Maintenance of Highway Edgedrains (NCHRP Synthesis 285)
Topic 31-03: Assessment and Rehabilitation of Existing culverts (NCHRP Synthesis 303)
Topic 32-06: Public Benefits of Highway System Maintenance and Operation (NCHRP Synthesis 330)
Topic 33-04: Integrated Roadside Vegetation Management (NCHRP Synthesis 341)
Topic 34-10: Winter Highway Operations (NCHRP Synthesis 344)
Topic 35-02: Chip Seal Best Practices (NCHRP Synthesis 342)
Topic 35-07: Inspection and Maintenance of Bridge Stay Cable Systems (NCHRP Synthesis 353)
Topic 35-08: Investigation and Management of Bridges with Fracture-Critical Details (NCHRP Synthesis 354)
Topic 36-05: Control of Invasive Species (NCHRP Synthesis 363)
Topic 37-09: Performance-Based Contracting for Maintenance (NCHRP Synthesis 389)
Topic 39-07: Reducing Litter on Roadsides (NCHRP Synthesis 394)
Topic 41-04: Sustainable Pavement Maintenance Practices (summarized as NCHRP Research Results Digest 365)
Topic 41-12: Microsurfacing (NCHRP Synthesis 411)
Topic 42-06: Performance-Based Highway Maintenance and Operations Management (NCHRP Synthesis 426)
Topic 42-07: Waterproofing Membranes for Concrete Bridge Decks (NCHRP Synthesis 425)
Topic 43-12: Strategies to Mitigate the Impacts of Chloride Roadway Deicers on Natural Environment (NCHRP Synthesis 449)
Topic 43-14: State Department of Transportation Fleet Replacement Management Practices (NCHRP Synthesis 452)
Topic 44-04: Pavement Patching Practices (NCHRP Synthesis 463)
Topic 44-07: Thin Asphalt Concrete Overlays (NCHRP synthesis 465)
Topic 45-13: Maintenance Quality Assurance Field Inspection Practices (NCHRP synthesis 470)
Topic 46-17: Training and Certification of Highway Maintenance Workers (NCHRP Synthesis 483)
Topic 47-01: Control of Cracking in Bridge Decks (NCHRP Synthesis 500)