

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

List of Current and Recently Completed Projects Related to Aggregates and Soils, Asphalt Mixtures and Binders, Concrete and Cement, and Other Selected Topics (1997 - 2015)

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More information is available on the Cooperative Highway Research Programs' WWW Homepage
<http://www.trb.org>

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I. Aggregates and Soils

1. Completed

- Project 4-19: Aggregate Tests Related to Asphalt Concrete Performance in Pavements (published as NCHRP Report 405)
- Project 4-19(2): Validation of Performance-Related Tests of Aggregates for Use in Hot-Mix Asphalt Pavements (published as NCHRP Report 557)
- Project 4-20: Aggregate Tests Related to Performance of Portland Cement Concrete (Phase I)
- Project 4-20A: Aggregate Tests Related to Performance of Portland Cement Concrete Pavements: State of the Art Report and Plan for Research
- Project 4-20B: Aggregate Tests Related to Performance of Portland Cement Concrete Pavements: Background and Research Plan
- Project 4-20C: Aggregate Tests Related to Performance of Portland Cement Concrete Pavements (summarized in NCHRP Research Results Digest 281)
- Project 4-21: Appropriate Use of Waste and Recycled Materials in the Transportation Industry (an informational database is available on CRP-CD-5)
- Project 4-23: Aggregate Tests Related to Performance of Unbound Pavement Layers (published as NCHRP Report 453)
- Project 4-25: Implementation Plan for Automating Highway-Materials Testing (published as NCHRP Report 427)
- Project 4-30: Test Methods for Characterizing Aggregate Shape, Texture, and angularity (Phase I)
- Project 4-30A: Test Methods for Characterizing Aggregate Shape, Texture, and Angularity (published as NCHRP Report 555)
- Project 4-31: Tests of Recycled Aggregates for Use in Unbound Pavement Layers (published as NCHRP Report 598)
- Project 4-34: Application of LADAR in the Shape Analysis of Aggregates Characteristics (published as NCHRP Report 724)
- Project 4-35: Improved Test Methods for Specific Gravity and Absorption of Coarse and Fine Aggregate (published as NCHRP Report 805)
- Project 4-36: Characterization of Cementitiously Stabilized Layers for Use in Pavement Design and Analysis (published as NCHRP Report 789)
- Project 9-14: The Restricted Zone in the Superpave Aggregate Gradation Specification (published as NCHRP Report 464)
- Project 9-35: Aggregate Properties and the Performance of Superpave-Designed Hot Mix Asphalt (published as NCHRP Report 539)

Aggregates and Soils - Completed (continued)

- Project 9-37: Using Surface Energy Measurements to Select Materials for Asphalt Pavements (summarized in NCHRP Research Results Digest 281; available as NCHRP Web-Only Document 104)
- Project 20-05: Practices for Unbound Aggregate Pavement Layers (published as NCHRP Synthesis 445)

2. In Progress

- Project 1-53: Proposed Enhancements to Pavement ME Design: Improved Consideration of the Influence of Subgrade and Unbound Layers on Pavement Performance
- Project 9-51: Material Properties of Cold In-Place Recycled and Full-Depth Reclamation Asphalt Concrete for Pavement Design

II. Asphalt Mixtures and Binders

1. Completed

- Project 1-28: Laboratory Determination of Resilient Modulus for Flexible Pavement Design (available as NCHRP Web Document 14)
- Project 1-28A: Harmonized Test Methods for Laboratory Determination of Resilient Modulus for Flexible Pavement Design (summarized in NCHRP Research Results Digest 285)
- Project 4-18: Design and Evaluation of Large Stone Mixtures (published as NCHRP Report 386)
- Project 9-7: Field Procedures and Equipment to Implement SHRP Asphalt Specifications (published as NCHRP Report 409)
- Project 9-8: Designing Stone Matrix Asphalt Mixtures (published as NCHRP Report 425 and available on the CD-ROM CRP-CD-1)
- Project 9-9: Refinement of SUPERPAVE Gyrotory Compaction Procedure (summarized in NCHRP Research Results Digest 237 and on available on the CD-ROM CRP-CD-1)
- Project 9-9(1): Verification of Gyration Levels in the Ndesign Table (published as NCHRP Report 573; appendices available as NCHRP Web-Only Document 96)
- Project 9-10: Superpave Protocols for Modified Asphalt Binders (published as NCHRP Report 459)
- Project 9-11: Segregation in Hot-Mix Asphalt Pavements (published as NCHRP Report 441)
- Project 9-12: Incorporation of Reclaimed Asphalt Pavement in the Superpave System (summarized in NCHRP Research Results Digest 253; Technician's manual published as NCHRP Report 452; available as NCHRP Web Document 30 and on the CD-ROM CRP-CD-8)
- Project 9-13: Evaluation of Water Sensitivity Tests (published as NCHRP Report 444 and available on the CD-ROM CRP-CD-8)
- Project 9-15: Quality Characteristics and Test Methods for Use in Performance-Related Specifications of Hot-Mix Asphalt Pavements (summarized in an NCHRP Research Results Digest 291)
- Project 9-16: Relationship Between Superpave Gyrotory Compaction Properties and Permanent Deformation of Pavements in Service (published as NCHRP Report 478)
- Project 9-17: Accelerated Laboratory Rutting Tests: Asphalt Pavement Analyzer (published as NCHRP Report 508)
- Project 9-18: Field Shear Test for Hot Mix Asphalt (summarized in NCHRP Research Results Digest 262)
- Project 9-19: Superpave Support and Performance Model Management (published as NCHRP Report 547, a summary of the work to identify the simple performance tests selected for field validation has been published as NCHRP Report 465 and available on CRP CD-10)
- Project 9-20: Performance-Related Specifications for Hot-Mix Asphalt Construction (published as NCHRP Report 455)
- Project 9-22: Beta Testing and Validation of HMA PRS (published as NCHRP Report 704)
- Project 9-23: Environmental Effects in Pavement Mix and Structural Design Systems (published as NCHRP Report 602 and summarized in NCHRP Research Results Digest 324)

Asphalt Mixtures and Binders - Completed (continued)

- Project 9-25: Requirements for Voids in Mineral Aggregates for Superpave Mixtures (published as NCHRP Report 567 that also includes the research on NCHRP Project 9-31)
- Project 9-27: Relationship of HMA In-Place Air Voids, Lift Thickness, and Permeability (published as NCHRP Report 531)
- Project 9-29: Simple Performance Tester for Superpave Mix Design (completed work has been published as NCHRP Reports 513, 530, 614, 629, and 702)
- Project 9-31: Air Void Requirements for Superpave Mix Design (published as NCHRP Report 567 that also includes the research on NCHRP Project 9-25)
- Project 9-33: A Mix Design Manual for Hot Mix Asphalt (published as NCHRP Report 673)
- Project 9-33A: Adapting SPT Specification Criteria to HMA Mix Design (available as NCHRP Web-Only Document 157)
- Project 9-34: Improved Conditioning Procedure for Predicting the Moisture Susceptibility of HMA Pavements (published as NCHRP Report 589)
- Project 9-36: Improved Procedure for Laboratory Aging of Asphalt Binders in Pavements (published as NCHRP Report 709)
- Project 9-38: Endurance Limit of Hot Mix Asphalt Mixtures to Prevent Fatigue Cracking in Flexible Pavements (published as NCHRP Report 646)
- Project 9-39: Procedure for Determining the Mixing and Compaction Temperatures of Asphalt Binders in Hot Mix Asphalt (published as NCHRP Report 648)
- Project 9-40: Optimization of Tack Coat for HMA Placement (published as NCHRP Report 712)
- Project 9-41: Performance and Maintenance of Permeable Friction Courses (published as NCHRP Report 640)
- Project 9-42: History of Superpave: Documenting the Research Program and Implementation Process (available as NCHRP Web-Only Document 186)
- Project 9-43: Mix Design Practices for Warm Mix Asphalt Technologies (published as NCHRP Report 691)
- Project 9-44: Developing a Plan for Validating an Endurance Limit for HMA Pavements (available as NCHRP Web-Only Document 134)
- Project 9-44A: Validating an Endurance Limit for HMA Pavements: Laboratory Experiment and Algorithm Development (published as NCHRP Report 762)
- Project 9-45: Test Methods and Specification Criteria for Mineral Fines Used in HMA (summarized in NCHRP Research Results Digest 357)
- Project 9-46: Improved Mix Design, Evaluation, and Materials Management Practices for Hot Mix Asphalt with High Reclaimed Asphalt Pavement Content (published as NCHRP Report 752)
- Project 9-47: Engineering Properties, Emissions, and Field Performance of Warm Mix Asphalt Technologies (Phase II will be accomplished under NCHRP Project 9-47A)
- Project 9-47A: Properties and Performance of Warm Mix Asphalt Technologies (published as NCHRP Report 779)
- Project 9-48: Field versus Laboratory Volumetrics and Mechanical Properties (published as NCHRP Report 818)
- Project 9-49: Performance of WMA Technologies: Stage I--Moisture Susceptibility Project (published as NCHRP Report 763)
- Project 9-50: Performance-Based Specifications for Asphaltic Binders Used in Preservation Surface Treatments (publication decision pending)
- Project 9-52: Short-Term Laboratory Conditioning of Asphalt Mixtures (published as NCHRP Report 815)
- Project 9-53: Properties of Foamed Asphalt for Warm Mix Asphalt Applications (published as NCHRP Report 807)
- Project 9-57: Experimental Design for Field Validation of Tests to Assess Cracking Resistance of Asphalt Mixtures (will be summarized in an NCHRP Research Results Digest)
- Project 20-7(311): Development of a Warm Mix Asphalt Technology Evaluation Program
- Project 20-50(14): LTPP Data Analysis: Variation of AC Air Voids as a Function of Specification and its Significance to Performance (summarized in NCHRP Research Results Digest 269)

Asphalt Mixtures and Binders (continued)

2. In Progress

- Project 1-54: Guidelines for Limiting Damage to Flexible and Composite Pavements Due to the Presence of Water
- Project 1-55: Performance-Based Mix Design of Porous Friction Courses
- Project 9-49A: Performance of WMA Technologies: Stage II--Long-Term Field Performance (Guidelines for Project Selection and Materials Sampling, Conditioning, and Testing in WMA Research Studies are summarized in NCHRP Research Results Digest 370)
- Project 9-54: Long-Term Aging of Asphalt Mixture for Performance Testing and Prediction
- Project 9-55: Recycled Asphalt Shingles in Asphalt Mixtures with Warm Mix Asphalt Technologies
- Project 9-56: Identifying Influences on and Minimizing the Variability of Ignition Furnace Correction Factors
- Project 9-58: Recycling Agents Used For Asphalt Mixtures Containing High Recycled Asphalt Binder Ratios
- Project 9-59: Relating Asphalt Binder Fatigue Properties to Asphalt Mixture Fatigue Performance
- Project 9-60: Addressing Impacts of Changes in Asphalt Binder Formulation and Manufacture on Pavement Performance through Changes in Asphalt Binder Specifications

3. Anticipated/Pending

- Project 9-61: Short and Long-Term Aging Methods to Accurately Reflect Binder Aging in Different Asphalt Applications
- Project 9-62: Quality Assurance and Specifications for In-Place Recycled Pavements Constructed Using Asphalt-Based Recycling Agents

III. Concrete and Cement

1. Completed

- Project 10-45: Procedures for Evaluating Corrosion-Inhibiting Admixtures for Structural Concrete (available as NCHRP Web Document 29)
- Project 18-3: Silica Fume Concrete for Bridge Decks (published as NCHRP Report 410)
- Project 18-4A: Durability of "Early-Opening-To-Traffic" Portland Cement Concrete for Pavement Rehabilitation (Phase A)
- Project 18-4B: Durability of "Early-Opening-To-Traffic" Portland Cement Concrete for Pavement Rehabilitation (published as NCHRP Report 540)
- Project 18-5: Relationship of Portland Cement Characteristics to Concrete Durability (summarized in NCHRP Research Results Digest 270)
- Project 18-8: Supplementary Cementitious Materials to Enhance Durability of Concrete Bridge Decks (Phase I)
- Project 18-8A: Guidelines for Concrete Mixtures Containing Supplementary Cementitious Materials to Enhance Durability of Concrete Bridge Decks (published as NCHRP Report 566)
- Project 18-9A: Guidelines for Reducing Premature Deterioration of Hydraulic Cement Concrete Pavements: Background and Research Plan
- Project 18-10: Procedures for Evaluating Air-Entraining Admixtures for Highway Concrete (published as NCHRP Report 578)
- Project 18-11: Improved Specifications and Protocols for Acceptance Tests on "Processing Additions" in Cement Manufacturing (published as NCHRP Report 607)
- Project 18-12: Self-Consolidating Concrete for Precast, Prestressed Concrete Bridge Elements (published as NCHRP Report 628)

Cement and Concrete - Completed (continued)

- Project 18-13: Specifications and Protocols for Acceptance Tests of Fly Ash Used in Highway Concrete (will be published as NCHRP Report 749)
- Project 18-16: Self-Consolidating Concrete for Cast-in-Place Concrete Bridge Components (will be published as NCHRP Report 819)
- Project 20-7(87): Investigate the Need for Research on the Performance of Portland Cement Concrete
- Project 20-7(266): Alternative Calibration Method for AASHTO T 153 (submitted to AASHTO)
- Project 20-7(301): Measuring Cement Particle Size and Surface Area by Laser Diffraction (summarized in NCHRP Research Results Digest 382)
- Project 20-7(319): Evaluating Applicability of the Dual-Ring Test Procedure for Assessing the Cracking Tendency of Repair Materials (submitted to AASHTO)
- Project 20-7(331): Report on the Methods and Standards to Measure the Permeability of Concrete
- Project 20-05: High Performance Concrete Specifications and Practices for Bridges (published as NCHRP Synthesis 441)

2. In Progress

- Project 18-17: Entrained Air Void System for Durable Highway Concrete

3. Anticipated/Pending

- Project 20-07(381): Rating Concrete Permeability Based on Resistivity Measurements

IV. Other Selected Topics

1. Completed

- Project 1-43: Guide for Pavement Friction (published by AASHTO and summarized in NCHRP Research Results Digest 321; the research report is available as NCHRP Web-Only Document 108)
- Project 1-44: Measuring Tire-Pavement Noise at the Source (published as NCHRP Report 630)
- Project 1-44(01): Measuring Tire-Pavement Noise at the Source: Precision and Bias Statement (final report available on NCHRP Web site)
- Project 4-26: Thermoplastic Drainage Pipe, Design and Testing (published as NCHRP Report 631)
- Project 4-32: Performance and Quality Control of Corrugated Pipe Manufactured with Recycled Polyethylene Content (published as NCHRP Report 696)
- Project 4-33: Procedures for Testing and Evaluating Detectable Warning Systems (published as NCHRP Report 670)
- Project 4-37: Long-Term Performance of Epoxy Adhesive Anchor Systems (published as NCHRP Report 757)
- Project 4-38: Recommended Laboratory Test for Predicting the Initial Retroreflectivity of Pavement Markings from Glass Bead Quality (published as NCHRP Report 743)
- Project 9-26: Precision Statement for AASHTO Laboratory Test Methods (interim results are available as NCHRP Web Documents 54, 66, 71, 108, and 114)
- Project 9-26A: Data Mining and Interlaboratory Studies to Prepare Precision Statements for AASHTO Standard Test Methods (summarized in NCHRP Research Results Digests 342 and 351)
- Project 10-44: Measuring Tire-Pavement Noise at the Source (published as NCHRP Report 630)
- Project 10-55: Fiber Reinforced Polymer Composites for Concrete Bridge Deck Reinforcement (summarized in NCHRP Research Results Digest 282)
- Project 10-62: Acceptance Tests for Surface Characteristics for Steel Strands Used in Prestressed Concrete (published as NCHRP Report 621)
- Project 10-86: Bidding Alternative Drainage Pipe Systems (published as NCHRP Report 801)

Other Selected Topics – Completed (continued)

- Project 10-87: Precision Statements for AASHTO Standard Methods of Test Reinforcement (summarized in NCHRP Research Results Digests 369, 388, and 389)
- Project 10-88: Developing Precision and Bias Statements for AASHTO Standard Methods of Test TP 98 and TP 99 (available as NCHRP Web Only Document 217)
- Project 14-17: Manual for Emulsion-Based Chip Seals for Pavement Preservation (published as NCHRP Report 680)
- Project 20-7(235): Testing Protocols for Surface Applied Concrete Sealers (submitted to AASHTO)
- Project 20-7(280): AASHTO Materials “C” Specifications (submitted to AASHTO)
- Project 20-7(349): Guidelines for developing Materials Acceptance Plans for Alternative Contracting Methods (submitted to AASHTO)
- Project 20-05: Implementation of the AASHTO Mechanistic-Empirical Pavement Design Guide and Software (NCHRP Synthesis 457)
- Project 20-05: Practices for Permitting Superheavy Load Movements on Highway Pavements (NCHRP Synthesis 476)
- Project 20-05: Practices for High-Tension Cable Barriers (NCHRP Synthesis 493)

2. In Progress

- Project 1-57: Standard Definitions for Comparable Pavement Cracking Data
- Project 4-39: Field Performance of Corrugated Pipe Manufactured with Recycled Polyethylene Content
- Project 10-86A: Software for Bidding Alternative Drainage Pipe Systems
- Project 10-92: Optimizing the Risk and Cost of Materials QA Programs
- Project 10-93: Measuring, Characterizing, and Reporting Pavement Roughness of Low-Speed and Urban Roads
- Project 20-07(364): Revision of AASHTO PP-74 Test Method for Optical Sizing and Roundness Determination of Glass Beads Utilized in Traffic Markings
- Project 20-05: Use of Fiber Reinforced Polymers in Transportation Infrastructure (Synthesis Topic 47-12)

3. Anticipated/Pending

- Project 10-98: Protocols for Network-Level Macrotexture Measurement
- Project 10-100: Optimal Procedures for Validating Contractor Test Data