A Commitment to the Future

Asphalt Pavement Research and Technology
• Roadmap builds on significant effort for last 10 years by NAPA’s committee
VISION:

Develop improved asphalt pavement technologies that ensure the continued delivery of safe and economical pavements to satisfy our Nation’s needs.
Asphalt Community

- Government agencies
- Industry
- Academia

All understand importance of HMA to the nation’s transportation system
Overarching Themes

- Safety
- Environmental Stewardship
- Pavement Performance
- Economics
Roadmap

• 69 Projects
• 2 to 3 page “problem statement” for each
  – Introduction
  – Background
  – Overview of research topic
• Wide variety of general subject areas
• Various research approaches may be used
  – Other research may be in progress
Program Areas

1. Workforce Development
2. Long-life Pavements and Pavement Performance
3. Improved Design of Pavements
4. Materials Characterization and Mix Design
5. Construction Practices and Quality Management
6. Innovative Contracting Practices
7. Surface Characteristics
Program 1
Workforce Development

Develop strategies to recruit, retain and develop the HMA workforce.
Program 2
Long-Life Pavements and Pavement Performance

Verify and improve technology for long-life pavement structural design, materials optimization, life cycle cost analysis and data collection techniques for pavement evaluation.
Program 3
Improved Structural Design of Pavements

Develop improved design methods which will optimize HMA pavements to accommodate future changes in traffic and materials while accounting for environmental effects.
Program 4
Materials Characterization and Mix Design

Develop test methods, specifications, and performance relationships which will lead to optimization of materials and mix design for asphalt pavements.
Program 5
Construction Practices and Quality Management Systems

Develop construction practices to improve quality, increase productivity, improve safety, and extend pavement life
Program 6
Innovative Contracting Approaches

Evaluate advantages and disadvantages of non-traditional financing and contracting approaches used for HMA projects.
Program 7
Surface Characteristics

Develop materials selection, design methods, QC/QA guidelines, performance relationships, and mix type selection for mixes to improve surface characteristics of HMA pavements.
CART Priorities 2008

• Pick top 10 projects & rank

• Summary
  – 1\textsuperscript{st} ranked by total responses received
  – 2\textsuperscript{nd} ranked by top 5 responses
  – 3\textsuperscript{rd} ranked by average score
2008 Priorities
Identified by CART

- Develop High RAP Content Mix Design Procedure
- Warm Mix Asphalt
- Document Performance to Date of Perpetual Pavements
- Recycled Materials (Other than RAP)
- Real-time Process Control for Asphalt Plant Operations
- Improved Rehabilitation of Pavements to Achieve Long-Life Pavement Criteria
- Field Versus Laboratory Volumetrics and Mechanical Properties
- Recycling Technologies
- Remaining Service Life on In-Place Asphalt Pavements
- Economics of Pavement Smoothness
High RAP Content (4.09)

- NCAT Test Track RAP Study
  - 0, 20, and 45% RAP test sections
- FHWA RAP Cooperative Study
  - High RAP content field projects, best practices, binder bumping, RAP heating, RAP-virgin blending
- NCHRP 09-46
  - Mix design for high RAP content mixes
- RAP ETG
Warm Mix Asphalt (4.07)

- **NCHRP**
  - 9-43 Mix Design Practices for WMA
  - 9-47 Engineering Properties, Emission and Field Performance

- **FHWA, State DOT, and Industry Sponsored**
  - Feasibility of using new WMA technologies
  - Evaluation of moisture susceptibility
  - Monitoring performance
  - Evaluation of performance
  - Effects on plant
Some test track sections meet perpetual pavement definition

– Test Track Monitoring
  • Rutting, cracking, texture
  • Regular weekly and monthly evaluations
The National Asphalt Roadmap is the result of public-private partnership and presents the shared vision of the Asphalt Community for research and technology in the field of asphalt pavement and material technologies. To download the Roadmap please click here.
Purpose of the Roadmap…

• This document is the result of public-private partnership and encapsulates the shared vision of the Asphalt Community for research and technology.
Asphalt Roadmap

Shared Vision
“Living Document”