Outline

- Introduction
- FHWA Sustainable Pavements Program
- Reference Document
- Outline and Review of Selected Content
- Current Status and Future Plans
Introduction

• Sustainability considerations continue to grow worldwide
• In transportation, agencies seeking more sustainable solutions for pavement infrastructure
• Limited guidance currently available
What is Sustainability?

“Meet[ing] the needs of the present without compromising the ability of future generations to meet their own needs”

—World Commission on Environment and Development, 1987
FHWA Sustainable Pavements Program

• Major effort launched in 2010 to:
  – Increase knowledge of sustainability
  – Advance/promote sustainable practices

• Range of work activities:
  – Technical Working Group
  – Technical guidance
    ➢ Reference Document
    ➢ Tech Briefs
  – Technology transfer
  – Web page
Reference Document

- Provide guidance on sustainable practices for all major pavement materials/types
- Work Period: May 2012 - Summer 2014
- Broad-based team with backgrounds in:
  - Pavement materials
  - Pavement design, construction, and rehabilitation
  - Sustainability assessment
Document Scope

• Focus on pavements only (surface, base, subbase, and modified subgrade)
• All major pavement construction materials
  – Aggregate
  – Asphalt
  – Concrete
  – Modifiers, recycled materials, by-products, etc.
• Facilities: Highways, roadways, streets, shoulders, parking areas
Target Audience

- State DOT practitioners involved in:
  - Design
  - Materials
  - Construction
  - Preservation and Rehabilitation

- Other key stakeholders:
  - Local agencies
  - Industry
  - Academia
Characteristics

• Single document
  – All common paving materials
  – Includes general impacts that apply to all pavements
  – Separate sections of key chapters devoted to specific pavements

• Focus on ways to improve sustainability throughout pavement life cycle
Pavement Life Cycle

- Opportunities exist in every stage
- A number of technologies and innovations are already being used
Recurring Theme

- **Sustainability = an aspirational goal**
  - Some pavements or designs are more sustainable than others
  - Continual improvements needed
- **Sustainability = context sensitive**
  - To surrounding social & ecosystems
  - To project needs & agency goals
- **Sustainability = trade-offs**
  - Consider together economic, environmental, and social impacts
  - Evaluate short- and long-term effects
Work Approach

• Literature Review

• Detailed Outline

• Develop Draft Reference Document
  • Bi-weekly conference calls
  • Dropbox cloud storage/sharing
  • Internal peer-review process
  • FHWA and external review process
## Overall Outline

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General Outline: Chapters 3-8 (Key Life Cycle Phases)

- Introduction
  - Background/description on topic
  - Effect on sustainability
- Strategies for Improving Sustainability
  - Approaches
  - Benefits
  - Trade-offs
- Future Directions & Emerging Technologies

Ch. 3
Material Production
Ch. 4
Pavement Design
Ch. 5
Construction
Ch. 6
Use Phase
Ch. 7
Maintenance/Preservation
Ch. 8
End Of Life
Chapter 9 Outline
(Within Larger Systems)

• Overview of Larger Systems
  – Sustainable Communities
  – Ecosystems

• Potential Considerations
  – Aesthetics
  – Historical/Cultural Identity
  – Utility Cuts
  – Odor/Particulate Matter

• Future Directions/Emerging Technologies
Chapter 10 Outline (Assessment)

- Assessment Methods
  - Life Cycle Cost Analysis
  - Life Cycle Assessment
  - Sustainability Rating Systems
- Use of Assessment Methods
- Future Needs & Developments
Current Status

- August 2013: draft report submitted to FHWA
- August 2013 – October 2013: technical review by FHWA, SPTWG, and others – 452 comments
- November 2013 – February 2014: Updates, revisions, point-by-point responses
- February 2014: Revised report submitted to FHWA
Final Editing and Publication

• March – May 2014: FHWA final review and final document preparation (including 508 requirements)

• June/July 2014: Final published document in print and electronic form
Outreach Efforts

• FHWA will make document available:
  – National/international conferences
  – Technical workshops/meetings
  – Sustainable pavements website (in development)
• Planned webinar in Fall 2014
• Possible TRB workshop, January 2015
Questions?

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