Sustainable Pavements

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National Concrete Consortium • Jacksonville, FL
April 22, 2014

FHWA Sustainable Pavements Program

Goals:

- Support the US DOT goals for sustainable transportation
- Increase the body of knowledge regarding "sustainability" aspects of **asphalt** and **concrete** materials in pavement design, construction, and maintenance.
- Increase the use of "sustainable" technologies and practices in pavement design, construction, and maintenance.

Current Program Framework

1. Establishment of a Sustainable Pavements Technical Working Group (TWG)
2. **Development of Reference Documents on Sustainable Pavements and Materials**
3. Evaluation and Assessment of Existing Tools
4. Evaluation and Assessment of Sustainable Techniques
5. Technology Transfer and Deployment

Development of Reference Documents

- Develop guidelines for the design, construction, preservation, and maintenance of sustainable pavements utilizing asphalt and concrete materials.
  - Educate practitioners on what sustainability means for pavements and materials.
  - Encourage practitioners to adopt sustainable practices.

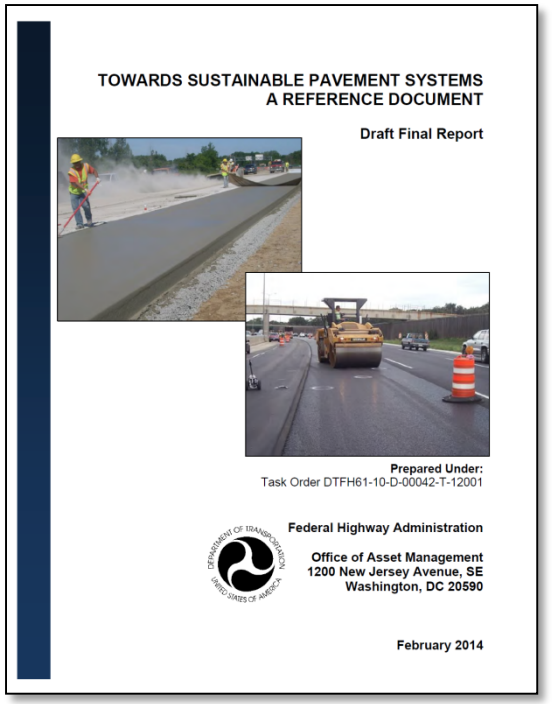
Towards Sustainable Pavement Systems: A Reference Document

1. Introduction
2. Concepts of Pavement Sustainability
3. Sustainable Materials for Paving
4. Design of Sustainable Pavements
5. Construction of Sustainable Pavements
6. Use Phase Considerations
7. Maintenance / Preservation / Rehabilitation Practices
8. End of Life for Sustainable Pavements
9. Sustainable Pavements in Liveable Communities
10. Assessing Pavement Sustainability
11. Concluding Remarks

1. Introduction

- What is Sustainability?

- Sustainability and Pavement Engineering



2. Concepts of Sustainability

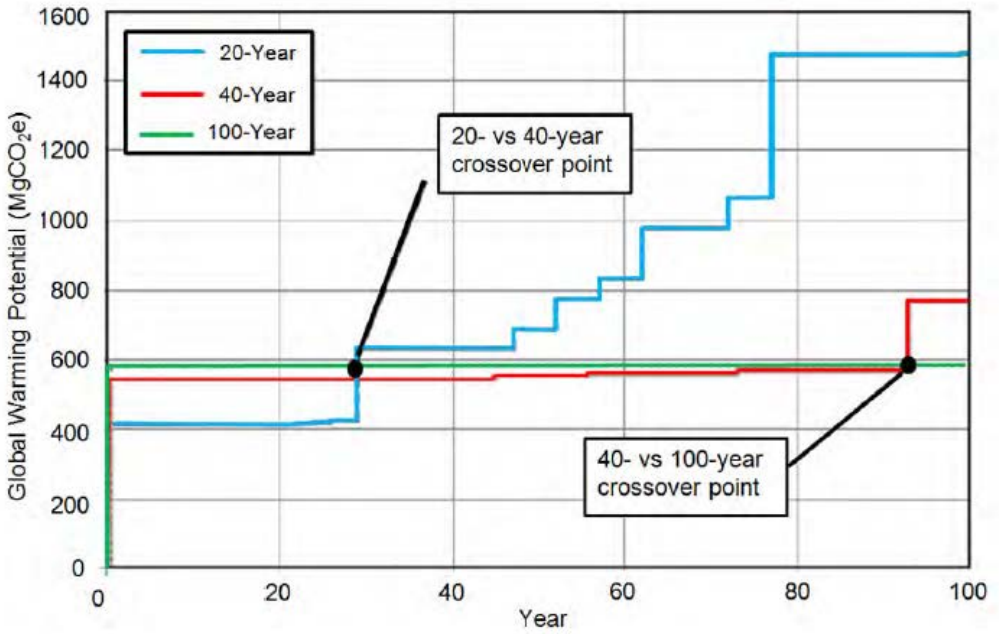
- Defining Sustainability
- The Role of Pavements in Sustainability
- Pavement Life Cycle
- Measuring Sustainability

3. Sustainable Materials for Paving

- Aggregates
- Asphalt Materials and Mixtures
- Hydraulic Cement Materials and Mixtures
- Other Materials
  - Steel, Reinforcing Fibers, etc.

4. Design of Sustainable Pavements

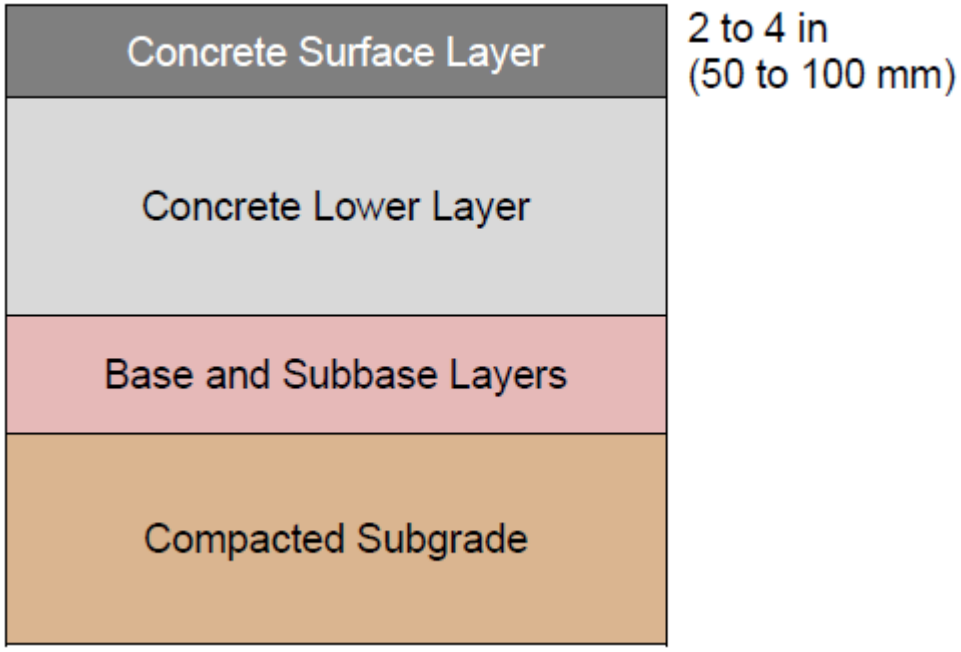
- Process for Consideration of Sustainability in Pavement Design
- Sample Sustainable Design Strategies



Sustainable Design Considerations

- Long-life pavement
- Design for local materials
- Maximize recycled materials
  - RAP, RAS, RCA
- Fast track construction
- Permeable pavements
- Enhance pavement smoothness

Concrete Pavement Design: Two-Lift Pavement to Maximize Recycled Materials



Illinois Tollway August 2013

5. Construction of Sustainable Pavements

- Sustainability of Pavement Construction Operations
  - Equipment fuel usage
  - Quality Assurance
- Strategies for Improving Sustainability of Asphalt Pavement Construction
- Strategies for Improving the Sustainability of Concrete Pavement Construction

Quality is Key

- The bottom line…

  Proper construction is vital

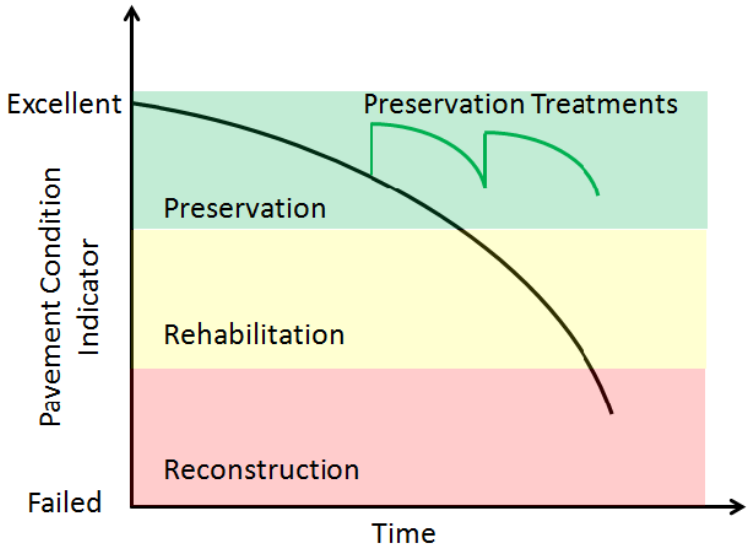
From a stable subgrade to a smooth surface we can use best practices to improve sustainability

6. Use Phase Considerations

- Vehicle Fuel Consumption and Pavement Characteristics
- Tire-Pavement Noise
- Addressing Stormwater Runoff through Permeable Pavement Surfaces
- Pavement Thermal Performance and the Urban and Global Climate
- Lighting

7. Maintenance/Preservation/ Rehabilitation Practices

- Pavement Preservation and Sustainability
- Asphalt-Surfaced Pavement Maintenance and Preservation Treatments
- Concrete-Surfaced Pavement Maintenance and Preservation Treatments



8. End of Life for Sustainable Pavements

- End of Life Considerations for Asphalt Pavements
- End of Life Considerations for Concrete Pavements

Fractionated Recycled Asphalt Pavement (RAP) for use in new concrete pavement

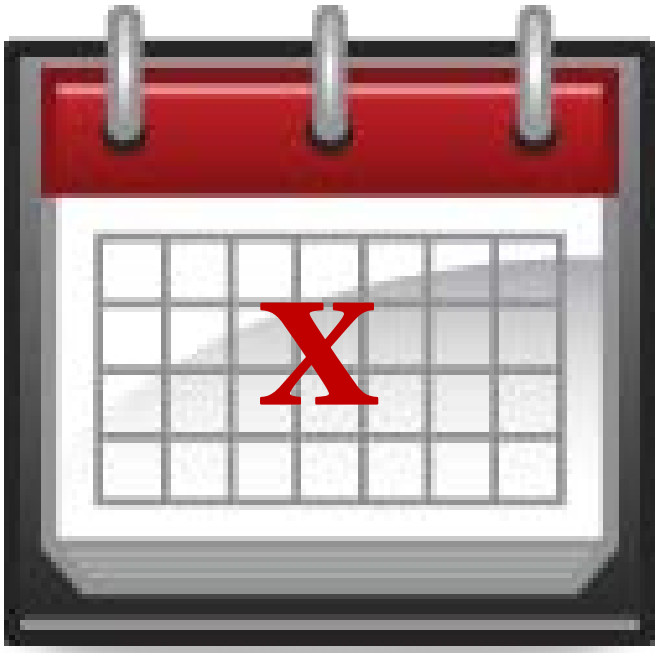
9. Sustainable Pavements in Liveable Communities

- Larger System Goals and Metrics
- Strategies for Improving Sustainability

10. Assessing Pavement Sustainability

- Life Cycle Cost Analysis
- Life Cycle Assessment
- Sustainability Rating Systems

Publication



Thank you

For questions on the FHWA Sustainable Pavements Program contact:

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