

# The FHWA Sustainable Pavements Program

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U.S. Department of Transportation  
**Federal Highway Administration**

# FHWA Sustainable Pavements Program Goals

- Support the US DOT goals for liveability and 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 and Coordination 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



*Subject to funding availability*

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# 1) Sustainable Pavements Technical Working Group (SP TWG)

- TWG is composed of stakeholders in State DOT's, academia, industry, and other government agencies.
  - 20 members and approximately 100+ friends.
- Goal is for FHWA to gather feedback on the technical aspects of the Program.



# Current Status of the SP TWG

- Meetings held in May 2011, November 2011, and April 2012
  - Anticipating a web meeting in November 2012
  - Anticipating 2 face-to-face meetings in 2013
- Meeting participants represents
  - State DOTs
  - Other Agencies (city and municipality, Canada, other Federal)
  - Asphalt Industry
  - Concrete Industry
  - Academia (pavements, construction, sustainability)

# SP TWG Discussions

- Concrete Strategies for Sustainability
  - Mixture optimization
  - Darwin ME
  - Long-Life Designs
  - Surface Characteristics
  - RCA, Industrial By-Products, Two-Lift Paving
  
- Asphalt Strategies for Sustainability
  - WMA
  - RAP, RAS
  - Perpetual Pavement Thickness
  - In-Place Recycling



# SP TWG Discussions, cont.

- Spotlight on Rating Systems
  - FHWA Invest
  - ISI envision
  - Green Roads
- What is a Rating System?
- How do Rating Systems Differ?
- Pros and Cons of Rating Systems?





# SP TWG Discussions, cont.

- Life Cycle Assessment
  - What is a Life Cycle Assessment (LCA)?
  - What is the status of LCA in the US and in Europe?
  - Presentation of Palate software
- Identification of Research Needs Statements
  - Teams are developing and refining RNS
  - Will look for champions to move the RNS through various research channels such as AASHTO, TRB, NCHRP, etc.



# Current Program Framework

- 1) Establishment and Coordination of a Sustainable Pavements Technical Working Group (TWG)
- 2) **Development of Guidelines for a Sustainable Pavements Program**
- 3) Evaluation and Assessment of Existing Tools
- 4) Evaluation and Assessment of Sustainable Techniques
- 5) Technology Transfer and Deployment

## 2) Development of Reference Document

- Develop guidelines for the design and construction of sustainable pavements utilizing concrete materials.
- Develop guidelines for the design and construction of sustainable pavements utilizing asphalt materials.



# Development of Reference Document

## *Table of Contents*

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. Summary and Future Needs

*Anticipated completion in 2013*

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- 3) **Evaluation and Assessment of Existing Tools**
- 4) Evaluation and Assessment of Sustainable Techniques
- 5) Technology Transfer and Deployment

### 3) Evaluation and Assessment of Existing Tools



- Assessment of existing tools such as:
  - Life Cycle Inventory (LCI)
  - Life Cycle Analysis (LCA)
  - Rating Systems
- What are the limitations, boundaries and how can these tools be used in a practical manner?
- Current thinking is to document a **FRAMEWORK** for LCA

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# 4) Evaluation and Assessment of Sustainable Techniques

*Materials, Design, and Construction Practices*

- Guidance on assessments
- Performance considerations
- Sustainability considerations

*Based on other needs this Program Area has not been defined*

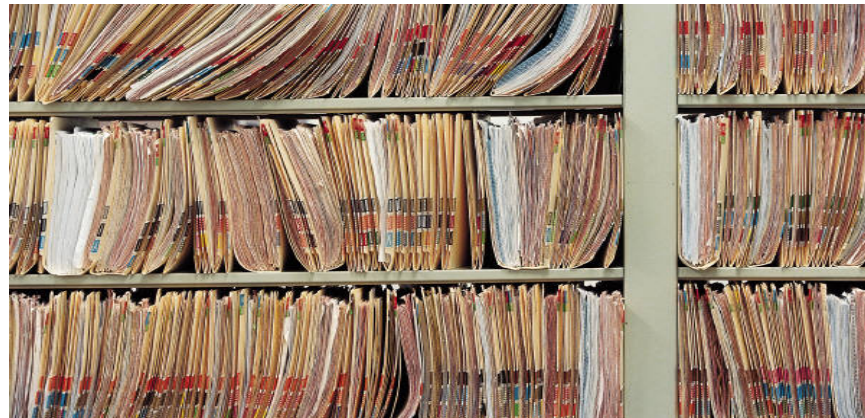


# Current Program Framework

- 1) Establishment and Coordination of a Sustainable Pavements Technical Working Group (TWG)
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- 3) Evaluation and Assessment of Existing Tools
- 4) Evaluation and Assessment of Sustainable Techniques
- 5) **Technology Transfer and Deployment**

# 5) Technology Transfer

- Move the information from paper to practice.
- Provide tools to stakeholders to enhance the sustainability of our pavement systems.
- Current thinking is to develop Tech Briefs on topics such as Life Cycle Assessments and Rating Systems.



# Thank you

*For more information contact:*

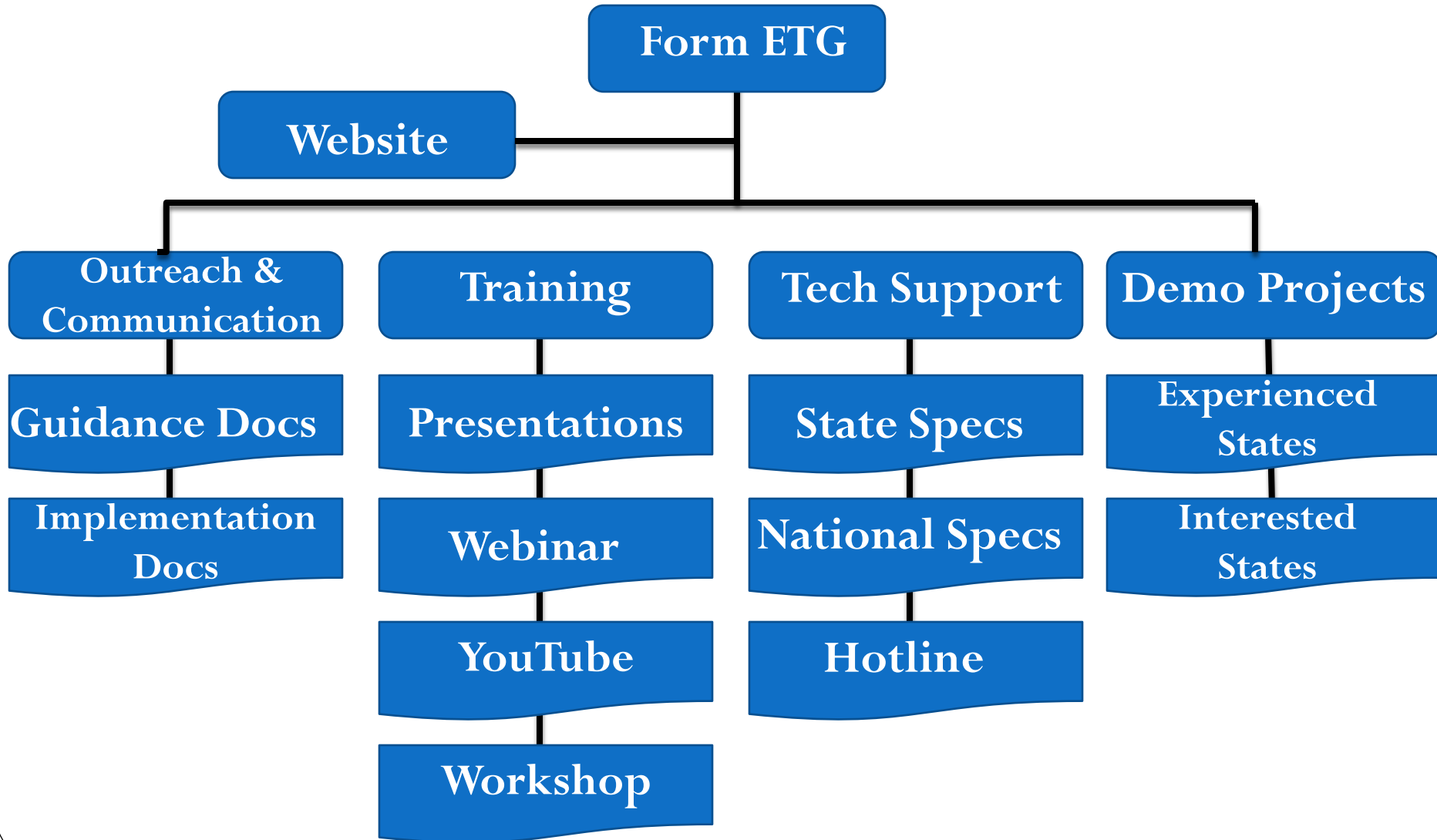
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# Update Recycled Concrete Pavement

# Technology Deployment Plan



# Next Steps

- Form an Expert Task Group (ETG) for information sharing and providing momentum for executing the Deployment plan
- Identify low hanging fruit
- Identify long range goals



# ETG Established

- John Staton, Michigan DOT
- Kenny Seward- Oklahoma DOT
- Scott Seiter- Oklahoma DOT
- Kirk Williams- Washington DOT
- Steve Gillen- Illinois Tollway
  - Mike Praul, FHWA
  - Gina Ahlstrom, FHWA
  - Jerry Voigt- ACPA
- Kevin McMullen- Wisconsin ACPA
  - Steve Kosmatka- PCA
  - Colin Lobo- NRMCA
- Tuncil Edil- University of Washington
  - Nancy Whiting- Purdue

# Low Hanging Fruit

- Provide AASHTO Revisions to MP 16-10

“Standard Specification for Recycled Concrete Aggregate for Use as Coarse Aggregate in Hydraulic Cement Concrete”

- Revisions Provided to AASHTO SOM Tech Section 1c Aggregate Materials
  - Future revisions to specification should include fine aggregate fraction
- Future efforts related to RCA will be dependent on availability of funding