

SUSTAINABILITY + CONCRETE PAVEMENT TECHNOLOGY



The Federal Highway Administration (FHWA) launched its Sustainable Pavement Program in 2010 to promote sustainability principles and practices as they apply to the design, construction, and performance of highway pavements. The word “sustainable” in the context of pavements refers to system characteristics that reflect a pavement’s ability to:

- + Achieve engineering goals for which it was constructed
- + Preserve, and ideally, restore surrounding ecosystems
- + Use financial, human and environmental resources economically
- + Meet basic human needs such as health, safety, equity, employment, comfort & happiness¹

BENEFITS OF BEING MORE SUSTAINABLE

Sustainability goes far beyond just recycling of materials, but instead focuses on key economic, environmental, and social considerations. Opportunities for improving pavement sustainability exist throughout its life cycle, from the materials and mix design stages and through the construction and end-of-life stages.



Reduced pavement life-cycle costs



Reduced energy and noise, and improved air quality



Improved safety and ride, and conservation of resources

FHWA OUTREACH

FHWA’s multi-tiered approach makes information available on sustainability through:

Education outreach through webinars & workshops

Guidance & tech brief documents

www.fhwa.dot.gov/pavement/sustainability/



MEASURING SUSTAINABILITY



LIFE-CYCLE COST ANALYSIS

Examines the economic impacts of pavement alternatives



LIFE-CYCLE ASSESSMENT

Quantifies the environmental impacts associated with a product or system



SUSTAINABILITY RATING SYSTEMS

List of sustainability best practices with an associated common metric

¹ “Towards Sustainable Pavement Systems: A Reference Document.” U.S. Department of Transportation/Federal Highway Administration. Accessed April 14, 2020. https://www.fhwa.dot.gov/pavement/sustainability/ref_doc.cfm.

MOBILE CONCRETE TECHNOLOGY CENTER



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The MCTC, working in partnership with state agencies and their industry partners, bridges the gap between research and implementation, showcasing materials and construction best practices, championing emerging technologies, and introducing stakeholders to new and evolving test methods.

PERFORMANCE ENGINEERED MIXTURE

Designing for durability

OPTIMIZED MIXTURE GRADATION

Reducing cement content

COMPREHENSIVE QUALITY CONTROL

Improving quality, consistency, and efficiency of concrete production and construction operations

CONCRETE OVERLAYS

Maximizing use of existing resources



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SUSTAINABLE PAVEMENTS PROGRAM PRODUCTS

TECH BRIEFS

[Pavement Sustainability](#)

[Strategies for Improving Sustainability of Concrete Pavements](#)

[Climate Change Adaptation](#)

[Life-Cycle Assessment](#)

[Pavement Life-Cycle Thinking](#)

[Data Needs for Pavement LCA](#)

MORE PRODUCTS

[Sustainable Pavements Reference Document](#)

[LCA Framework Document](#)

[Sustainable Pavements Road Map](#)

[Sustainable Pavement Program Checklist](#)

CASE STUDIES

Concrete Surface Texturing Pilot Project in California

High Performance Concrete Pavements in Minnesota

Economical Concrete with Recycled Concrete Aggregate in Texas

Sustainability Rating Systems as Applied to Pavements

Concrete Material and Construction Innovations for Sustainability Benefits in Colorado

GET INVOLVED

It's easy to become involved in the Sustainable Pavements Program. You can become a Friend of the SPTWG and attend future meetings, [sign up for monthly newsletters](#), [view available webinars](#) on various sustainability topics, and [download our resources](#).

For more information, contact Heather Dylla, FHWA (heather.dylla@dot.gov)
www.fhwa.dot.gov/pavement/sustainability/