

APA Unleashed

Dan Staebell
Regional Director
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Asphalt.

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The APA is a partnership of the Asphalt Institute, National Asphalt Pavement Association, and the State Asphalt Pavement Associations. We were formed nearly 10 years ago to promote the increased use of asphalt.





Marketing Council

Research & Technology

Market Research & Communications

Deployment Activities

Pavement Economics Committee
Six Task Groups

Other Research
• Asphalt Institute
• NCAT

Future Research

Go-To-Market Task Group

Deployment Task Group



Market Organizational Structure



**Best Quality &
Competitiveness**



**Pavement Type
Selection**



**Environmental
Sustainability**



Pavement Design



Legislative



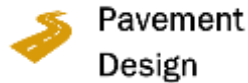
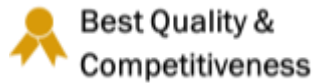
**Pavement
Preservation**



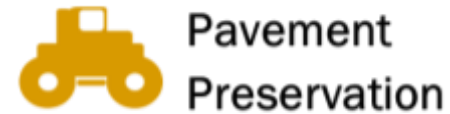
**Private Sector Markets &
Local Roads**

Pavement Economics Committee

Technology & Innovation



PaveXpress



THINLAY

SAFE. SMOOTH. DURABLE.



Legislative



Training

Completed
“On Demand”
Binder — February
Aggregate - March

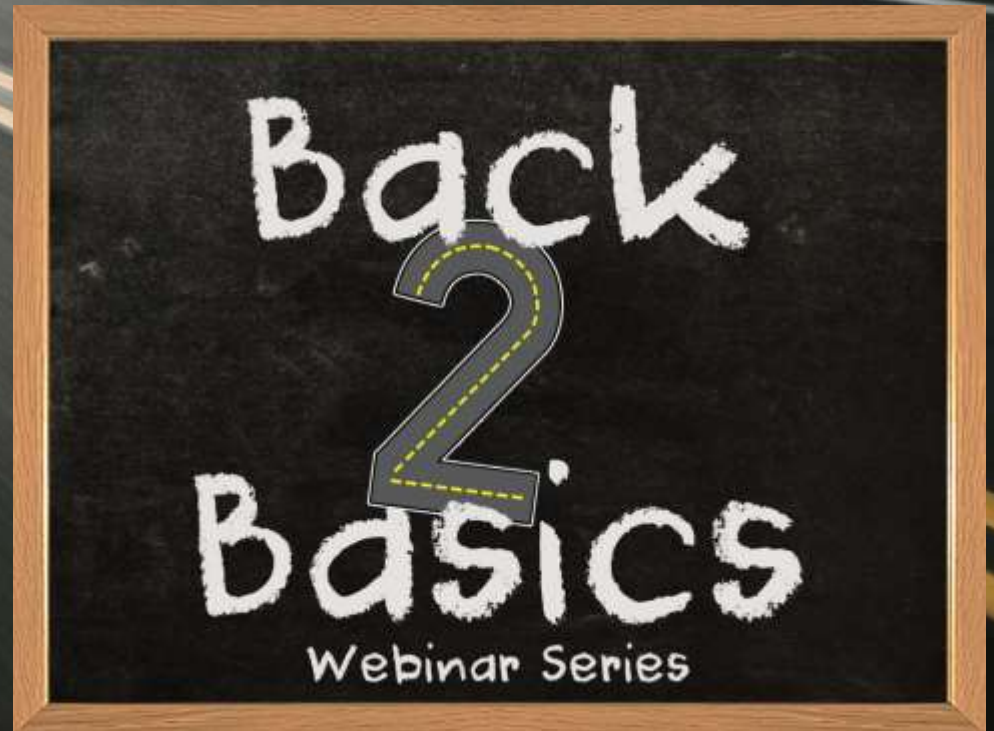
Scheduled:

Volumetrics — Tuesday, April 4

Mix Design — Thursday, April 27

Plants — Thursday, May 25


Paving — Wednesday, June 7



Go To Market

GETTING THERE ON TIME IS ALWAYS IMPORTANT

DRIVABILITY MATTERS




When it comes to getting to work, staying on schedule means making the most of all technology, not just in the car, but in the road. Let the different pieces of technology work together to make your commute as smooth as possible. The result?

Lead **Follow** **Market**

APPA
LEAD 2011
FOLLOW 2012
MARKET 2013

SPEED OF CONSTRUCTION
To lead one of the ways people drive differently



SAFETY AND CONTROL ARE ESSENTIAL

DRIVABILITY MATTERS



Professional drivers know, there's no room for error. It's about the way you drive. Because your car is a tool to work. And when it comes to safety, your car is a tool to work. And when it comes to safety, your car is a tool to work.

Lead **Follow** **Market**

APPA
LEAD 2011
FOLLOW 2012
MARKET 2013

4 WAYS
To lead one of the ways people drive differently



SUSTAINABILITY IS YOUR GOAL

DRIVABILITY MATTERS



In the 21st century, your car is not just a mode of transport. It's a tool to work. And when it comes to sustainability, your car is a tool to work. And when it comes to sustainability, your car is a tool to work.

Lead **Follow** **Market**

APPA
LEAD 2011
FOLLOW 2012
MARKET 2013

SUSTAINABILITY
To lead one of the ways people drive differently



NEVER IS ONE PASSENGER TOO MANY

DRIVABILITY MATTERS



Whether you're a family driver, a business driver, or a professional driver, you know your car is a tool to work. And when it comes to safety, your car is a tool to work. And when it comes to safety, your car is a tool to work.

Lead **Follow** **Market**

APPA
LEAD 2011
FOLLOW 2012
MARKET 2013

4 WAYS
To lead one of the ways people drive differently



SMOOTH ROADS ARE SAFER ROADS

DRIVABILITY MATTERS



Whether you're a family driver, a business driver, or a professional driver, you know your car is a tool to work. And when it comes to safety, your car is a tool to work. And when it comes to safety, your car is a tool to work.

Lead **Follow** **Market**

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LEAD 2011
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MARKET 2013

4 WAYS
To lead one of the ways people drive differently



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Messaging

WHEN IT COMES TO A QUIET RIDE DRIVABILITY MATTERS

ASPHALT DELIVERS QUIETNESS

Asphalt's quietness is a key benefit for drivers, communities, and the environment. It's a quiet ride that's good for everyone. Asphalt's quietness is a key benefit for drivers, communities, and the environment. It's a quiet ride that's good for everyone.

53% Quieter than concrete roads. Asphalt's quietness is a key benefit for drivers, communities, and the environment. It's a quiet ride that's good for everyone.

\$2 MILL Savings in noise abatement costs. Asphalt's quietness is a key benefit for drivers, communities, and the environment. It's a quiet ride that's good for everyone.

-7dB Noise reduction. Asphalt's quietness is a key benefit for drivers, communities, and the environment. It's a quiet ride that's good for everyone.

81% Quieter than concrete roads. Asphalt's quietness is a key benefit for drivers, communities, and the environment. It's a quiet ride that's good for everyone.

DRIVABILITY MATTERS

Asphalt's quietness is a key benefit for drivers, communities, and the environment. It's a quiet ride that's good for everyone.

WHEN IT COMES TO A SAFE RIDE DRIVABILITY MATTERS

ASPHALT DELIVERS DRIVABILITY

Asphalt's drivability is a key benefit for drivers, communities, and the environment. It's a safe ride that's good for everyone. Asphalt's drivability is a key benefit for drivers, communities, and the environment. It's a safe ride that's good for everyone.

\$3B Savings in maintenance costs. Asphalt's drivability is a key benefit for drivers, communities, and the environment. It's a safe ride that's good for everyone.

20% Fewer potholes. Asphalt's drivability is a key benefit for drivers, communities, and the environment. It's a safe ride that's good for everyone.

55% Longer road life. Asphalt's drivability is a key benefit for drivers, communities, and the environment. It's a safe ride that's good for everyone.

DRIVABILITY MATTERS

Asphalt's drivability is a key benefit for drivers, communities, and the environment. It's a safe ride that's good for everyone.

WHEN IT COMES TO A SMOOTH RIDE DRIVABILITY MATTERS

ASPHALT DELIVERS DRIVABILITY

Asphalt's smoothness is a key benefit for drivers, communities, and the environment. It's a smooth ride that's good for everyone. Asphalt's smoothness is a key benefit for drivers, communities, and the environment. It's a smooth ride that's good for everyone.

72% Smoother ride. Asphalt's smoothness is a key benefit for drivers, communities, and the environment. It's a smooth ride that's good for everyone.

\$109B Savings in maintenance costs. Asphalt's smoothness is a key benefit for drivers, communities, and the environment. It's a smooth ride that's good for everyone.

7/10 Driver satisfaction. Asphalt's smoothness is a key benefit for drivers, communities, and the environment. It's a smooth ride that's good for everyone.

58% Quieter ride. Asphalt's smoothness is a key benefit for drivers, communities, and the environment. It's a smooth ride that's good for everyone.

1,300 Miles per gallon. Asphalt's smoothness is a key benefit for drivers, communities, and the environment. It's a smooth ride that's good for everyone.

+4.5% Fuel economy. Asphalt's smoothness is a key benefit for drivers, communities, and the environment. It's a smooth ride that's good for everyone.

DRIVABILITY MATTERS

Asphalt's smoothness is a key benefit for drivers, communities, and the environment. It's a smooth ride that's good for everyone.

WHEN IT COMES TO A QUIET RIDE DRIVABILITY MATTERS

ASPHALT DELIVERS QUIETNESS

Asphalt's quietness is a key benefit for drivers, communities, and the environment. It's a quiet ride that's good for everyone. Asphalt's quietness is a key benefit for drivers, communities, and the environment. It's a quiet ride that's good for everyone.

13,500 Hours of quietness. Asphalt's quietness is a key benefit for drivers, communities, and the environment. It's a quiet ride that's good for everyone.

3.2M Savings in noise abatement costs. Asphalt's quietness is a key benefit for drivers, communities, and the environment. It's a quiet ride that's good for everyone.

+4.5% Fuel economy. Asphalt's quietness is a key benefit for drivers, communities, and the environment. It's a quiet ride that's good for everyone.

\$2.8B Savings in maintenance costs. Asphalt's quietness is a key benefit for drivers, communities, and the environment. It's a quiet ride that's good for everyone.

-7dB Noise reduction. Asphalt's quietness is a key benefit for drivers, communities, and the environment. It's a quiet ride that's good for everyone.

\$3.5B Savings in noise abatement costs. Asphalt's quietness is a key benefit for drivers, communities, and the environment. It's a quiet ride that's good for everyone.

DRIVABILITY MATTERS

Asphalt's quietness is a key benefit for drivers, communities, and the environment. It's a quiet ride that's good for everyone.

WHEN IT COMES TO ROADWAY CONSTRUCTION DRIVABILITY MATTERS

ASPHALT DELIVERS DRIVABILITY

Asphalt's drivability is a key benefit for drivers, communities, and the environment. It's a safe ride that's good for everyone. Asphalt's drivability is a key benefit for drivers, communities, and the environment. It's a safe ride that's good for everyone.

1 HOUR Faster construction. Asphalt's drivability is a key benefit for drivers, communities, and the environment. It's a safe ride that's good for everyone.

\$9.2B Savings in maintenance costs. Asphalt's drivability is a key benefit for drivers, communities, and the environment. It's a safe ride that's good for everyone.

70% FASTER Construction. Asphalt's drivability is a key benefit for drivers, communities, and the environment. It's a safe ride that's good for everyone.

2.5X Faster construction. Asphalt's drivability is a key benefit for drivers, communities, and the environment. It's a safe ride that's good for everyone.

\$160B Savings in maintenance costs. Asphalt's drivability is a key benefit for drivers, communities, and the environment. It's a safe ride that's good for everyone.

48% LESS Construction. Asphalt's drivability is a key benefit for drivers, communities, and the environment. It's a safe ride that's good for everyone.

DRIVABILITY MATTERS

Asphalt's drivability is a key benefit for drivers, communities, and the environment. It's a safe ride that's good for everyone.

Video



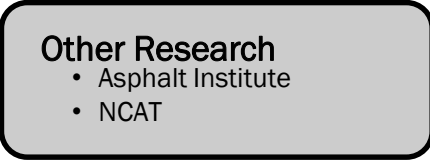
Asphalt.

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Research & Technology



Market Research & Communications



Deployment Activities



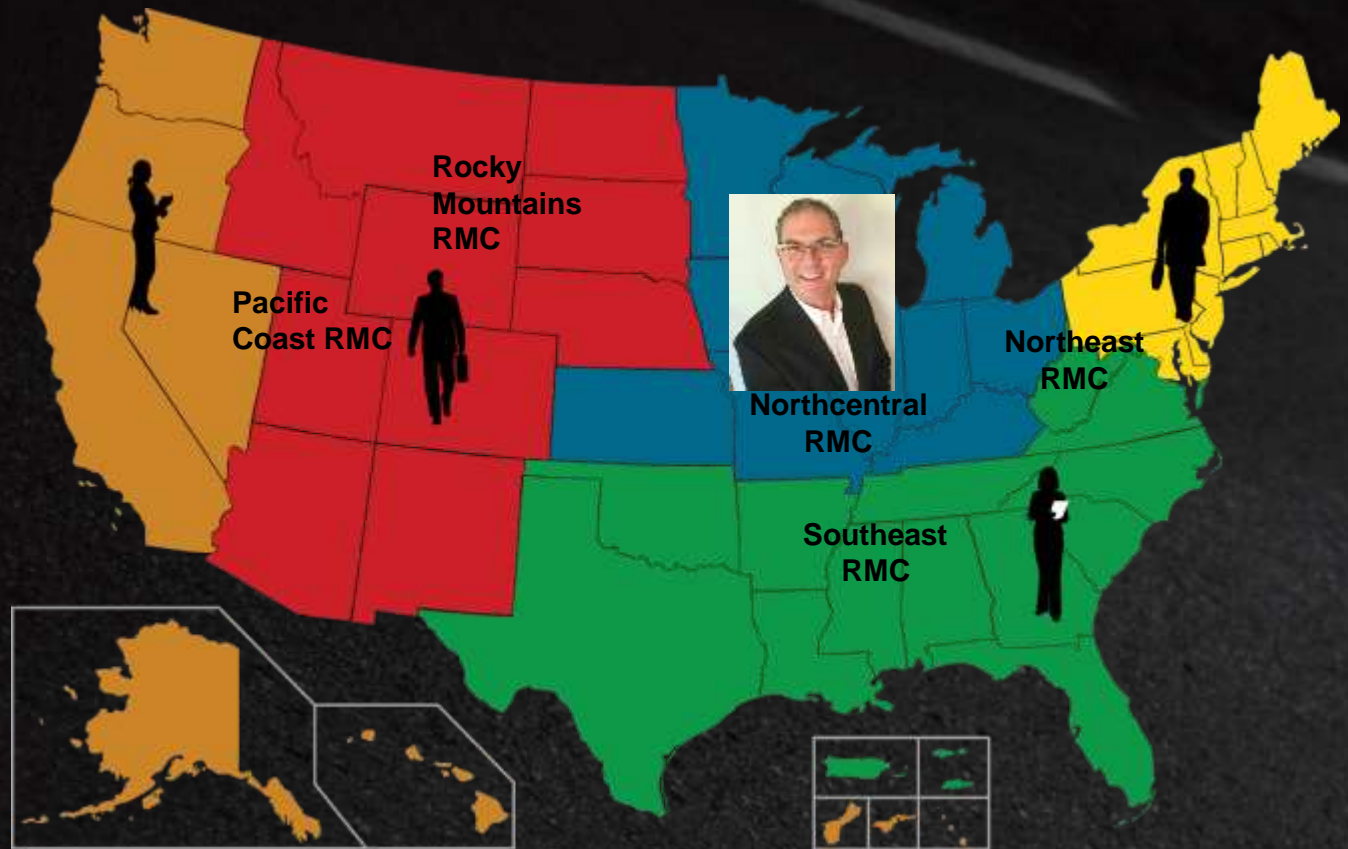
Market Organizational Structure

To establish asphalt pavement as the preferred choice for quality, performance and the environment.



Mission

Amy Miller
National Director



Five regional councils focused on what works in the field to the benefit of the asphalt pavement industry locally and nationally.

Regional Marketing Councils

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NC APA Region SAPA Members

Minnesota



Jill Thomas
Brandon Brever

Wisconsin



Brandon Strand
Deb Schwerman



John Becsey
Chuck Mills

Michigan

Iowa



Bill Rosener
Royce, Larry and
Darwin

Illinois



Kevin Burke



Bill Knopf
Dudley Bonte

Indiana

Ohio



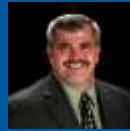
Cliff Ursich &
Andrew Gall

Kansas



Dan Scherschligt

Missouri



Dale Williams
Brandon Atchison

Brian Wood and
Paul Del Rio

Kentucky



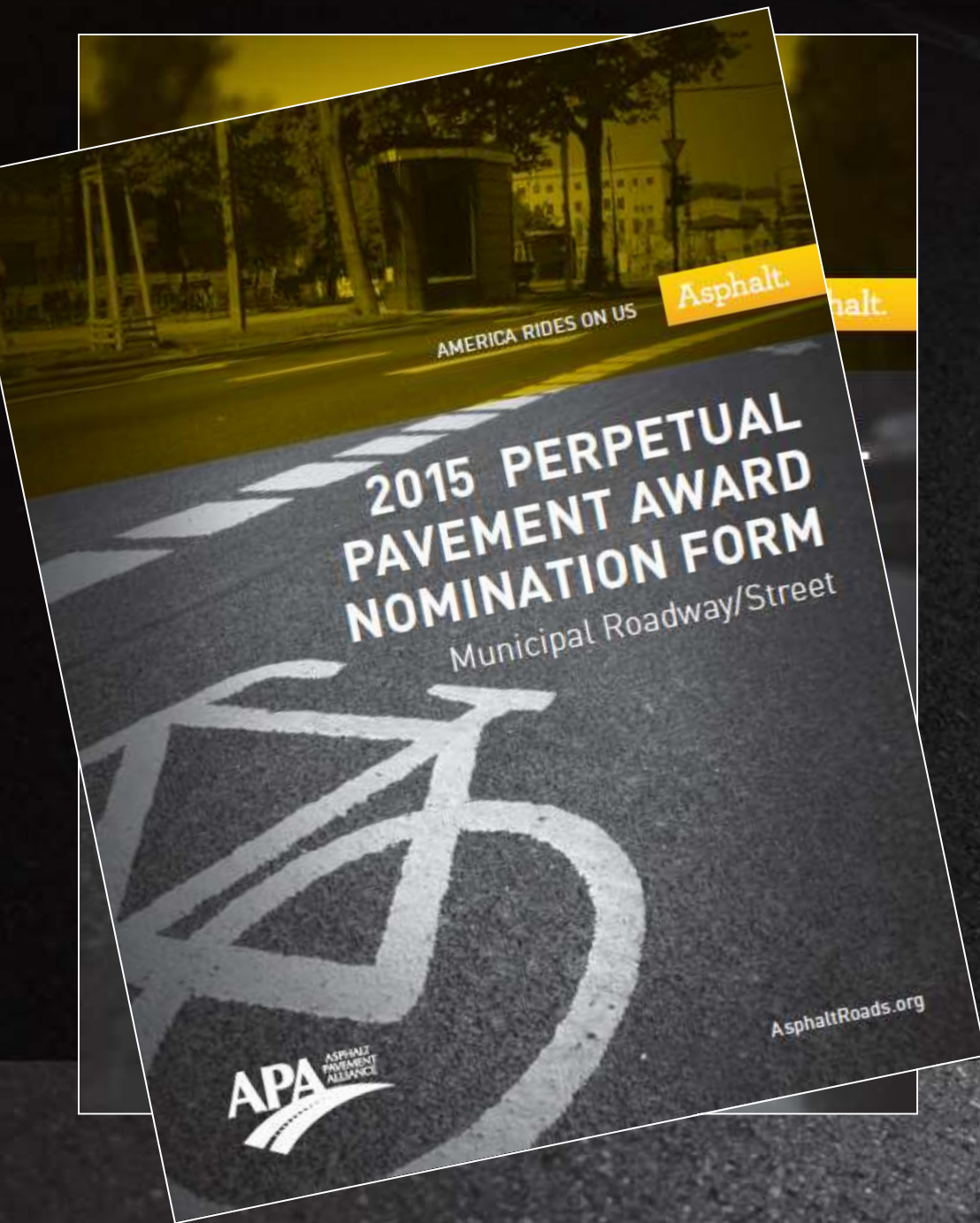
Perpetual Pavement



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Criteria:

- 35+ years old
- 13+ years between overlays (average)
- No increase > 4"

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This award honors asphalt pavements that were designed and built with outstanding care and exceptional quality. The result is a long-lasting pavement, one that serves the traveling public well, provides true value to the taxpayers, and demonstrates both the convenience and the quality of asphalt pavements.

Regional Initiatives

- **Life Cycle Cost Analysis**

- GOAL: Adapting standard procedure for LCCA in NC Region that can incorporate state specific input. Gather best practices and deploy best strategies with region

- **Rehab Competition**

- GOAL: Create competitive industry message promoting best HMA practices.

- **Proper Design Thickness**

- GOAL: Promote initiatives designed to teach designers how to optimize pavement design while ensuring performance.

- **Commercial Market Strategy**

- GOAL: Implement tools designed to enhance market share in private sector market.

WARNING!



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Versatility

ver·sa·tile

(vûr'sə-təl, -tīl')*adj.*

1. Capable of doing many things competently.
2. Having varied uses or serving many functions:
3. Variable or inconstant; changeable:

A Miracle Product



Placement

- History
 - Pavers
 - Smoothness
 - Transfer Machines
 - Segregation Understood
 - Mix
 - Heat
- Speed of Construction
 - Get out of the Traffic



70% FASTER

Utilizing accelerated techniques, asphalt pavement construction can be up to **70% faster**.⁴

APA ASPHALT PAVEMENT ALLIANCE
DriveAsphalt.org

<68.0°F

Recycle

- History

- 80's – Today
- NAPA Report
 - 25% Just Be Careful
 - Additional Testing
- Drivability
 - 2.8\$ Billion Saved Annually



\$2.8B

In 2014, reused asphalt materials, saved taxpayers more than **\$2.8 billion**.¹

APA ASPHALT PAVEMENT ALLIANCE
DriveAsphalt.org

Inspection

- 80's – Today
Quality Initiatives
 - QMA, QC, QMP
- Increased Knowledge
 - Agency
 - Industry
- Performance Testing



Durability & Design

- Durability
 - Density = Life
 - 1% = LCCA savings 8.8%
 - AC Content
 - Understand Rutting
- Optimized Design

In summary, results of increased in-place air voids summarizes these results. Density was estimated to improve and 43.8%.

Table 1. Effect of Air Voids on

Study	Lab/Field Experiment
UCB (Epps and Monismith 1969)	Lab
UCB (Harvey and Tsai 1996)	Lab
WesTrack (Epps et al. 2002)	Lab
	Field
AI (Fisher et al. 2010)	Lab

¹ (Seeds et al. 2002)



NCAT Report 16-02

ENHANCED COMPACTION TO IMPROVE DURABILITY AND EXTEND PAVEMENT SERVICE LIFE: A LITERATURE REVIEW

By
 Nam Tran, Ph.D., P.E., LEED GA
 Pamela Turner
 James Shambley

April 2016

277 Technology Parkway • Auburn, AL 36830

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for
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Review of Initial Service Life Determination in LCCA Procedures and In Practice – *DRAFT*

Summary of Middle 90% of Pavement Ages at Time of 1st Rehab

Pavement Type	No.	Avg	Min	Max	Std Dev
AC	206	17.68	7.09	28.93	5.51
PCC	121	23.84	12.88	35.44	5.79

Ride Quality (IRI) Prior to Rehabilitation

Pavement Type	Percent of Total Pavement Sections				
	Very Good** < 60	Good 61 – 95	Fair 96 – 120	Poor 121 – 170	Very Poor > 170
AC Pavements	9.6%	34.3%	24.1%	17.5%	14.5%
PCC Pavements*	1.1%	23.3%	26.7%	34.4%	14.4%



Advancements in Flexible Pavement Design

NCAT Report 14-08

RECALIBRATION PROCEDURES FOR THE STRUCTURAL ASPHALT LAYER COEFFICIENT IN THE 1993 AASHTO PAVEMENT DESIGN GUIDE

By
Dr. David H. Timm, P.E.
Dr. Mary M. Robbins
Dr. Nam Tran, P.E.
Dr. Carolina Rodezno

November 2014





277 Technology Parkway = Auburn, AL 368

NCAT Report 14-04

FLEXIBLE PAVEMENT DESIGN – STATE OF THE PRACTICE

By
Dr. David H. Timm, P.E.
Dr. Mary M. Robbins
Dr. Nam Tran, P.E.
Dr. Carolina Rodezno

August 26, 2014





277 Technology Parkway = Au

NCAT Report 15-05

REFINED LIMITING STRAIN CRITERIA AND APPROXIMATE RANGES OF MAXIMUM THICKNESSES FOR DESIGNING LONG-LIFE ASPHALT PAVEMENTS

By
Dr. Nam Tran, P.E.
Dr. Mary M. Robbins
Dr. David H. Timm, P.E.
Dr. J. Richard Willis
Dr. Carolina Rodezno

September 2015



277 Technology Parkway = Auburn, AL 36830

What does Optimized Design mean?

SN Value .52

SN Value .44

Surface (AC)	2.00"
Binder/Intermediate (AC)	2.00"
Base (AC)	1.50"
Aggregate Base	6.00"

Surface (AC)	2.00"
Binder/Intermediate (AC)	2.00"
Base (AC)	3.00"
Aggregate Base	6.00"

Subbase

Subbase

20% Savings

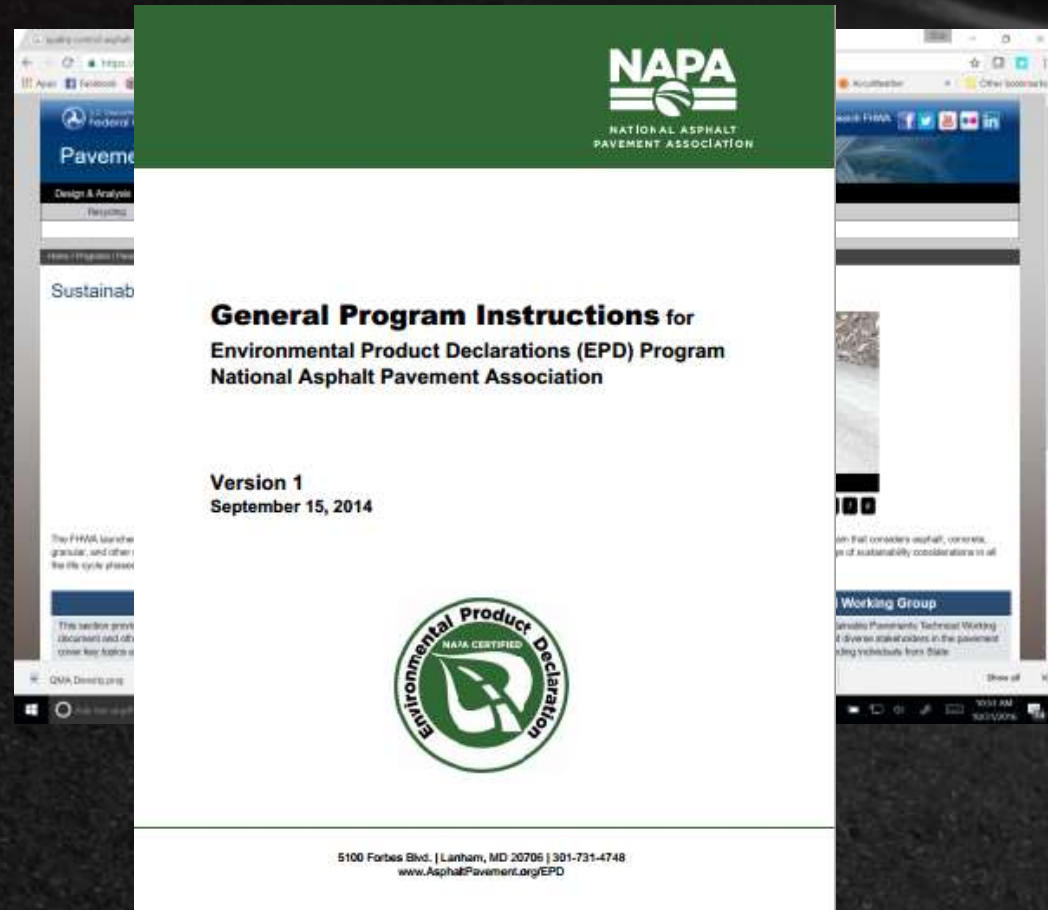
5.5" HMA

7" HMA



Environment

- Sustainability
- Can't improve what we do not measure
- LCA
- EPD's
 - NAPA
 - Industry ready



Emerald ECO LABEL



Environmental Product Declaration for Asphalt Mixtures

Company

{Company_name} is a plant asphalt mixture producer.

{Company_logo}

{Plant_name}

{Plant_street_address}

{Plant_city}, {Plant_state} {Plant_zip_code}

Product Description

This EPD reports the impacts for {Env_product_code} a {Env_type} asphalt mixture which can be incorporated as part of the structure for a roadway, parking lot and recreational pavement and meets {Env_spec} mix specifications provided for its application. This asphalt mixture is categorized as a {wears-mile asphalt} and {Env_mixing_method} uses a {Emulsion} {wears-mile technology}. This asphalt mixture was produced within a temperature range of {production_range}.



This declaration is an environmental product declaration in accordance with ISO 14025:2006 Type III environmental performance labels which transparently describes the potential environmental impacts of the described product caused during the site listed stages. The data specific to this product can be found on page 3 of this document. Declaration Number: {Software Output no.} Date of Issue: {en/issued} Period of Validity: {12/16/2020}

Environmental Product Declaration for Asphalt Mixtures

{Company_logo}

Environmental Impacts

The life cycle impact assessment results are relative expressions and do not predict actual impacts on category endpoints, the weighting of thresholds, safety margins, or risks.

IMPACT ASSESSMENT RESULTS

	IMPACT CATEGORY	UNIT	TOTAL	SAFETY MARGINS	WEIGHTING	PROXIMITY SCORE
	Global Climate Change (Global Warming Potential)	kg CO ₂ -eq				
	Ozone Depletion Potential	kg CFC-11-eq				
	Acidification Potential	kg SO ₂ -eq				
	Eutrophication Potential	kg N-eq				
	Smog Formation Potential	kg O ₃ -eq				
	Hazardous Waste	kg				

Interpretation

The information presented in this EPD can be used to avoid the environmental impacts of asphalt mixtures supposed to be part of (but not limited to) roadways, parking lot, or recreational pavements. This EPD alone does not provide the environmental impacts of the entire pavement structure itself and does not make any statements that the product covered by the EPD is better or worse than any other product.

Comparison of the environmental performance of asphalt mixtures using EPD information shall be based on the products' performance and function, and therefore EPDs shall not be used for comparability purposes when the asphalt mixture performance and functions are not the same. ISO 14025 certified asphalt mixture EPDs that are expected to meet the same performance and function can be compared. EPDs of other programs may not be comparable because they could be calculated using a different PCR.

Additional Environmental Information

{Plant_name} is a Green Diamond Achievement Sustainability Communication Participant. Visit <http://go.asphalt.org/2020> to see current status.

{None}

Declaration of Limitations

This EPD reports the results of a multi-stage LCA for asphalt mixtures. This EPD may be used as a data input for full life cycle assessments to compare the environmental impacts of different asphalt roadways, parking lot, or recreational pavement design alternatives.

DATA GAPS

[This mix uses additives such as fibers, crumb rubbers if it is added at a plant], liquid asphalt, recycling agents, stabilizers, etc., which no known public data source exists. The upstream impacts associated with the process of extraction, manufacturing/production, and transportation of the materials listed have not been accounted for in this EPD.]

[This mix uses a {polymer}GTR/{polymer} + GTR modified asphalt binder. The upstream impacts associated with the process of extraction, manufacturing/production, and transportation of the materials used in the modification process have not been accounted for in this EPD.]

[The impact of recycling asphalt shingles was estimated using data for processing reclaimed asphalt pavement. The source of the shingles (near off or factory reject) is not being accounted.]

{None}

Recap

- Placement
- Recycle
- Inspection
- Durability
- Environment

=

P R I D E

Thank You

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APA

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