NAPA and APA Update
Advancing the Asphalt Pavement Industry

Amy Miller, P.E.
National Director, APA
Vice President Member and Industry Alliances, NAPA

Northeast Asphalt User Producer Group
November 2, 2022 – Albany, NY
About the National Asphalt Pavement Association...

• Our Vision: Asphalt pavements’ quality and value pave the way for enhanced mobility and a sustainable transportation network.

• Our Mission: The National Asphalt Pavement Association works to advocate, advance, and support the asphalt pavement industry.
Industry Values

NAPA Strategies

Advancing Asphalt Pavements

• **OUR INDUSTRY**: Longevity & Growth

• **OUR PRODUCT**: Quality & Innovation, Sustainable

• **OUR NATION**: Highways Investment, & Smart Regulations

• **OUR PEOPLE & ENVIRONMENT**:  
  • Health & Safety, Environment  
  • Workforce: Recruit & Retain

• **THE POWER OF MANY**:  
  Engagement for Advancement
Asphalt Tonnage Produced in the U.S., by year
Changing Landscape

• Infrastructure Investment and Jobs Act (IIJA) or Bipartisan Infrastructure Law (BIL)
• General Services Administration
• Inflation Reduction Act (IRA)
• Federal & State Buy Clean Actions
An Industry-Wide Vision
The Road Forward
A Vision for Net Zero Carbon Emissions for the Asphalt Pavement Industry
Why?

PROFIT

LEGISLATION

NEXT GENERATIONS

AsphaltPavement.org/Forward
Industry Goals & Gaps
Net Zero Production and Construction

- Key drivers for emissions during production and construction
- Alternative and renewable fuels
- Align policies, procedures, and specs
- WMA technology
- Advanced logistical technologies
- Best practices
- Capital investments

Industry Goal 1
Scope 1 Emissions
Achieve net zero carbon emissions during asphalt production and construction by 2050.
Warm Mix Asphalt (WMA) Technologies

Percentage of Total Asphalt Production in the U.S.
RESEARCH & IMPLEMENTATION GAPS

• Research technologies that would allow a 50% reduction in energy and associated emissions required to produce asphalt mixtures.
  
  ▪ WARM MIX & HALF WARM MIX
  ▪ COLD CENTRAL PLANT RECYCLING
  ▪ BIOFUELS
Pavement Quality, Durability, and Use

- Alternative construction scheduling
- Perpetual pavements
- Rolling resistance
- Contract incentives for improved quality and improved vehicle fuel economy

Industry Goal 2

Partner with customers to reduce emissions through pavement quality, durability, longevity, and efficiency standards by 2050
RESEARCH & IMPLEMENTATION GAPS

• Develop a framework for owners to optimize pavement maintenance to reduce vehicular emissions by maintaining pavement smoothness.

• Rolling resistance
  ▪ Structural Response Models
  ▪ Alternative Scheduling
  ▪ User Delay Impacts
Net Zero Materials Supply Chain

- More recycled material
- Balanced Mix Design
- Industry summits
- New technology and materials

“"We are America’s No. 1 most recycled product,””

Industry Goal 3
Scope 3 Emissions

Develop a net zero materials supply chain by 2050
Asphalt Mix and RAP Tonnage

Total Production and Use in the U.S.

The graph shows the total production and use of asphalt mix and RAP in the U.S. from 2009 to 2020. The vertical axis represents millions of tons, with the values ranging from 246.0 to 446.0. The horizontal axis represents the years from 2009 to 2020.

- **Asphalt Mix** is represented by green bars.
- **RAP** is represented by an orange line.

The data indicates a consistent increase in both asphalt mix and RAP production and use over the years.
RESEARCH & IMPLEMENTATION GAPS

• New forms of asphalt binder and/or binder replacements
• Rapid assessment of new materials
• Education on use and acceptance of performance tests used in BMD leading to specification development that encourage innovation
• Research allowing industry to increase RAP content to greater than 40%
Industry Values

NAPA Strategies

Advocate
Advance
Support

• **OUR NATION**: Highways Investment & Smart Regulations

• **OUR PEOPLE**: Workforce
  • Health & Safety
  • Recruit & Retain

• **OUR INDUSTRY**: Longevity & Growth

• **OUR PRODUCT**: Quality & Innovation

• **THE POWER OF MANY**: Engagement for Advancement
MISSION:
As a trusted resource, the Alliance establishes asphalt as the pavement of choice by detailing proven advantages of asphalt pavement in the areas of safety, value, performance, and the environment.
OUR INDUSTRY: Longevity & Growth

- Engage and educate stakeholders, such as pavement owners and policy makers, to advance asphalt as the pavement of choice for mobility solutions.

- Extensive resources and efforts among 42 Associations

- A trusted resource for asphalt knowledge and solutions.
A Unified Industry – a Trusted Partner

DriveAsphalt.org
These shows have more than 50,000 attendees.
Pavement Design Learning Opportunities

EXPERIENCES & BEST PRACTICES OF LOCAL ROAD OWNERS

This webinar is aimed at helping local decision makers, pavement managers, and pavement engineers understand the short and long-term benefits asphalt pavement provides. Attendees will hear first-hand experiences from municipalities as they discuss best practices in owning and maintaining their road systems.

Guest Speakers:
- Dennis Breckinridge
- Mark Edwards
- Kyle Jakes
- Judge Gary Minore
- Ryan Smiley
- Judge Galindo
- Bill Roberts

Top 3 Reasons to Attend:
1. Learn about best practices in local design, materials, and construction.
2. Hear firsthand from municipalities regarding asphalt pavement solutions.
3. Learn about the importance of working collaboratively with industry partners to solve problems.

FREE WEBINAR

September 27
2:00-3:30 PM EDT

FREE Webinar
August 25/2:00 PM EDT

Designing a Perpetual Pavement

This webinar will discuss material selection and mixes, design to optimize Perpetual Pavement performance, discuss current perpetual design practices, and present best practices for construction of high quality, high performance pavements.

PARTICIPANTS WILL:
- Learn the chief advantages of Perpetual Pavements
- Be able to describe the functions of the various design layers in Perpetual Pavements
- Understand the principle design features of Perpetual Pavements

Speaker:
David E. Newcomb, P.E., Ph.D.

APA
ASPHALT PAVEMENT ALLIANCE

29
Pavement Design
Perpetual Pavement Design

Perpetual Pavement Cross-Section

Typical Depths
- 1.5 – 3"
- 4 – 7"
- 3 – 4"

Materials
- High Quality AC
- High Modulus, Rut Resistant AC
- Fatigue Resistant AC

Asphalt, AMERICA RIDES ON US

FREE Webinar
October 13/2:00 PM EDT

This webinar will introduce traditional and conversion Perpetual Pavement design concepts, with emphasis on the development of the design and application using PerRoad and PAVEExpress. Real world case studies will be presented.

PARTICIPANTS WILL:
1. Learn the fundamental concepts needed to convert an existing pavement into a Perpetual Pavement
2. Understand how PerRoad and PAVEExpress can be used to facilitate Perpetual Pavement design by conversion
3. See real-world examples of converted Perpetual Pavements

Speaker:
Dave Timm, Ph.D.
Professor & Gina Clasen Chair
Department of Civil & Environmental Engineering
University of Utah

APA
Pavement Alliance
Perpetual Pavement Awards

This new Perpetual Pavement Award (PPA) celebrates long-life asphalt pavements that reflect the characteristics expected from Perpetual Pavements: excellence in design, quality in construction, and value to taxpayers.

Two New Awards Began in 2021!
Perpetual Pavement Award Winners

Oldest award winner to date: 91 years old in Ohio when awarded
## Number of PPAs by NEAUPG States

<table>
<thead>
<tr>
<th>STATE AGENCY</th>
<th>PPA BY PERFORMANCE</th>
<th>PPA BY DESIGN</th>
<th>PPA BY CONVERSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTDOT</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DelDOT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MassDOT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MDOT</td>
<td>7</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>MaineDOT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NHDOT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NJDOT</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NYSDOT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PennDOT</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RIDOT</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vtrans</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDOT</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PAVE Xpress

A Simplified Pavement Design Tool

www.PAVEXpress.com
Private Markets

Market Segments

driveasphalt.org/resources/commercial-applications
When asked, highway agency leaders report that their No. 1 challenge is funding (Ehrlich, 2010). As federal funding for infrastructure investment continues to remain inadequate compared to the need, many agencies are looking to prioritize performance, life-cycle cost analysis (LCCA), and pavement durability in their decision-making processes. For instance, agencies want to know: How will this investment in pavement life possible from a reduction in total construction and maintenance costs? And what is the life cycle cost of the project (Pierce, 2016). Two agencies have developed the concept of “life cycle cost analysis” (LCCA) into a practical tool for making decisions (Share, 2010). It is critical to ensure that the right data and inputs are applied. While many studies have databases of cost estimates for initial construction, the data to accurately estimate maintenance and rehabilitation cycles, salvage value benefits, and end-of-life costs are more difficult to ascertain.

Recent guidance has been developed to aid roadway owners in applying a data-driven process to determine the true value of an asphalt pavement at the end of its life (Jia & Tan, 2016). Its estimated that about one-third of total agency dollars currently represent the cost of design and construction. Over time, this investment in initial smoothness yields an increase of seven years of functional life compared.

“A life-cycle cost analysis (LCCA) is an evaluation technique applicable for the consideration of various transportation decisions” (Pierce, 2016). The process includes the calculation of initial development, capital and financing costs, discounted operating and maintenance costs, and end-of-life costs. The value associated with a specific asset or project (Pierce, 2016). To provide a robust analysis of life cycle costs, it is critical to ensure that the right data and inputs are applied. While many studies have databases of cost estimates for initial construction, the data to accurately estimate maintenance and rehabilitation cycles, salvage value benefits, and end-of-life costs are more difficult to ascertain.

Recent guidance has been developed to aid roadway owners in applying a data-driven process to determine the true value of an asphalt pavement at the end of its life (Jia & Tan, 2016). It is estimated that about one-third of total agency dollars currently represent the cost of design and construction. Over time, this investment in initial smoothness yields an increase of seven years of functional life compared.
Thank you!
Amy Miller
amiller@asphaltroads.org

Women of Asphalt