Concrete Pavement Industry Update

AASHTO COMP
Cincinnati, Ohio
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Leif G. Wathne, P.E.
American Concrete Pavement Association
Organizational
  - Focus, market, etc.

Vision2040
  - Future of Paving

Technical Efforts
  - PavementDesigner.org
  - Training, Resources
  - PEM...
Organizational Focus...

- Effective and valued technical leadership/support and advocacy
- Good stewardship - sound engineering and economic decision-making: ME Design, LCCA, Competition
- Life cycle thinking – design, economics, AM, environment…
Strength through Partnerships

- **ACPA National**
  - Issue/Technical leadership
  - Federal legislation/policy
  - Define industry standards

- **International Grooving & Grinding Assn.**
  - Surface smoothness
  - Tire/Road Noise
  - Pavement Preservation

- **ACPA Chapters & State Assn.**
  - State support/policies
  - Contractor lead

- **CP Tech Center**
  - Research and Implementation
  - DOT support
  - National Resource
Much to be Optimistic About…

- Contractor membership – near an all-time high
- Overall membership growing
- Added a new chapter – Florida!
- 2018 projection strong!
  - 57M SY - 6yr high
  - Market share growing ~19%
  - Concrete Overlays ~12%
Investing in the Future

- Emerging Leaders Group
- Interns for the Future
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THE FUTURE OF CONCRETE PAVEMENT
Vision 2040...

- Assembled 28 experts to serve on a Blue Ribbon Panel (Sep 2017)
  - DOTs, FHWA, TRB, Academia, Equipment, Materials, Consultants
- Challenged panelists to look ahead to 2040 – given broad latitude
  - What will transportation look like?
  - What are public agencies’ future needs for pavement solutions?
  - What role will concrete pavement play?
Change is Coming!

Increase in Vehicle Miles Traveled (VMT) and Miles of Roadway (1990 – 2012)

Percent Increase from 1990

<table>
<thead>
<tr>
<th>Year</th>
<th>VMT</th>
<th>Road Miles</th>
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<tbody>
<tr>
<td>1990</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>2000</td>
<td>38%</td>
<td>6%</td>
</tr>
<tr>
<td>2012</td>
<td>40%</td>
<td>6%</td>
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Population Increase

2015: 320 million people
2045: 390 million people

In 30 years our population is expected to grow by about 70 million... that's more than the current populations of NY, TX, FL.

Source: USDOT
Population Centers...

- The majority of US population lives in **mega regions**, comprised of urban areas surrounded by growing suburban and exurban areas.
- Urban areas are reimagined as livable communities with open spaces, plazas, and greater and more flexible mobility options.

[Image: National Geographic]
In urban areas...

- Open and adaptable pavement design options for multifunctionality and ease of utility access
- Incorporate new and emerging technologies related to energy generation, energy storage, charging, LED arrays etc...

[Image: PowerElectronics.com]
Freight moves on dedicated freight corridors largely via autonomous connected trucks.

- Designed for max. longevity and min. service disruption
- Axle loads, Tires, Platooning?

[Source: USDOT]
Pavement design considers resilience, to more effectively survive and function under more frequent and intense climate events.
To cope with the enormous challenges...

Agencies will need **better**, **adaptable**, **resource** **efficient** pavements that have **reliable long-term performance**... accommodating variety of sensing and measurement technologies needed for connected vehicles of the future.

[Image: Integrated Roadways]
Delivering on the durability/performance promise...

Performance Engineered Mixtures (PEM) will help ensure that concrete pavement mixtures deliver on the durability promise every time.

[Image: Integrated Roadways]
Improved concrete pavement design methods

- Allow for more efficient pavement structures
  - New materials
  - Composite structures
  - Innovative subgrade treatments
- Thin concrete resurfacing…
  - Innovative designs?
  - New cementitious materials?

Equipment and Paving Innovations

- Enhanced 3D integration
- BIM (Building Information Modelling)
- Faster (one-pass) paving with more efficient operations
- Auto-pilot paving systems tie mixture to paving speed, vibration & smoothness
- Minimize user impact
About SHAPING the future… informing our path forward

“If we don’t know where we’re going, we’ll end up someplace else…”
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TECHNICAL EFFORTS

WikiPave.org
Developed jointly with NRMCA and PCA

- Streets (JP, CRC, RCC, overlays, FDR), Parking, Industrial (StreetPave/PCA Pave, BCOA –ME, AASTO93, Layered Elastic)
- Free, web-based application
Technical Resources

- Resource Center – 1,400+ pubs
- Recent ACPA Specifications

Smoothness Specs
- Guidelines for all markets

Dowel Alignment Spec
- Guideline for how to evaluate DBI
- Revisions from field experiences

RCC Spec
- Guideline for bare-surface RCC
- Fully commented

Sponsor 3rd Edition Overlay Guide
- CP Tech Author

Fabric Interlayer Spec in progress…
Technical Resources

- New Technical Bulletins
- Web Explorers
  - Concrete Overlays
    overlays.acpa.org (~1250)
  - RCC
    rcc.acpa.org (~300)
  - Historical
    explorer.acpa.org (<20)
New Training Courses – Preservation of PCCP

- FHWA sponsored work with CPTech Center
- 5 courses...
- Practitioner focused
- Interactive content
- Spanish translations

Available through NHI online learning management system
Thank You!

ACPA

www.acpa.org

apps.acpa.org | ACPA Application Library
local.acpa.org | ACPA-affiliated Chapter/States
resources.acpa.org | Resource Center
wikipave.org | ACPA’s paving wiki

Nov 26-29, 2018
Fort Lauderdale FL