



Welcome & Introductions

Chris West – NB West Contracting

Brandon Atchison - MAPA



Why Parking Lots Matter!

Dan Staebell
Regional Director
National Asphalt Pavement Assoc.
dstaebell@asphaltpavement.org



Asphalt.

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Crowd Participation with Smartphone

Presenter session:
Audience texts

dans018 to **22333** to join the
session, you will receive notice
“You’ve Joined”
Poll Everywhere



Have you ever built, maintained, resurfaced, designed, inspected a parking lot?

YES

NO

What best describes your companies business?

Consultant

Maintenance Contractor

Building Owner / Developer

Government or Public Agency

Asphalt Producer / Contractor

Other

Research & Technology

Market Research & Communications

Deployment Activities

Pavement Economics Committee

- 4 Task Groups

Other Research

- Asphalt Institute
- NCAT

Future Research

Go-To-Market Task Group



Deployment Task Group



ASPHALT PAVEMENT ALLIANCE

Total Tons

Table 3: Summary of 2017 Estimated and Reported Tons, Millions

State	Tons, Millions	
	Estimated	Reported
Alabama	7.0	4.9
Alaska	5.1	*
American Samoa	0.03	*
Arizona	6.5	1.2
Arkansas	6.0	1.9
California	26.0	5.9
Colorado	5.3	2.0
Connecticut	4.9	2.8
Delaware	1.5	*
District of Columbia	1.4	*
Florida	16.5	4.6
Georgia	14.6	2.2
Hawaii	1.1	0.8
Idaho	2.8	1.7
Illinois	13.0	2.1
Indiana	11.8	6.6
Iowa	3.9	1.6
Kansas	2.0	1.1
Kentucky	4.4	4.4
Louisiana	7.8	1.2
Maine	1.7	2.0
Maryland	7.8	2.4
Massachusetts	6.5	5.0
Michigan	13.7	9.0
Minnesota	6.9	6.0
Mississippi	4.8	2.8
Missouri	6.5	3.9

NCR No Companies Responding
 * Fewer than 3 Companies Reporting
 † Total Reported Tons includes values from SAPA Estimated Tons
 Numbers do not add up exactly due to rounding

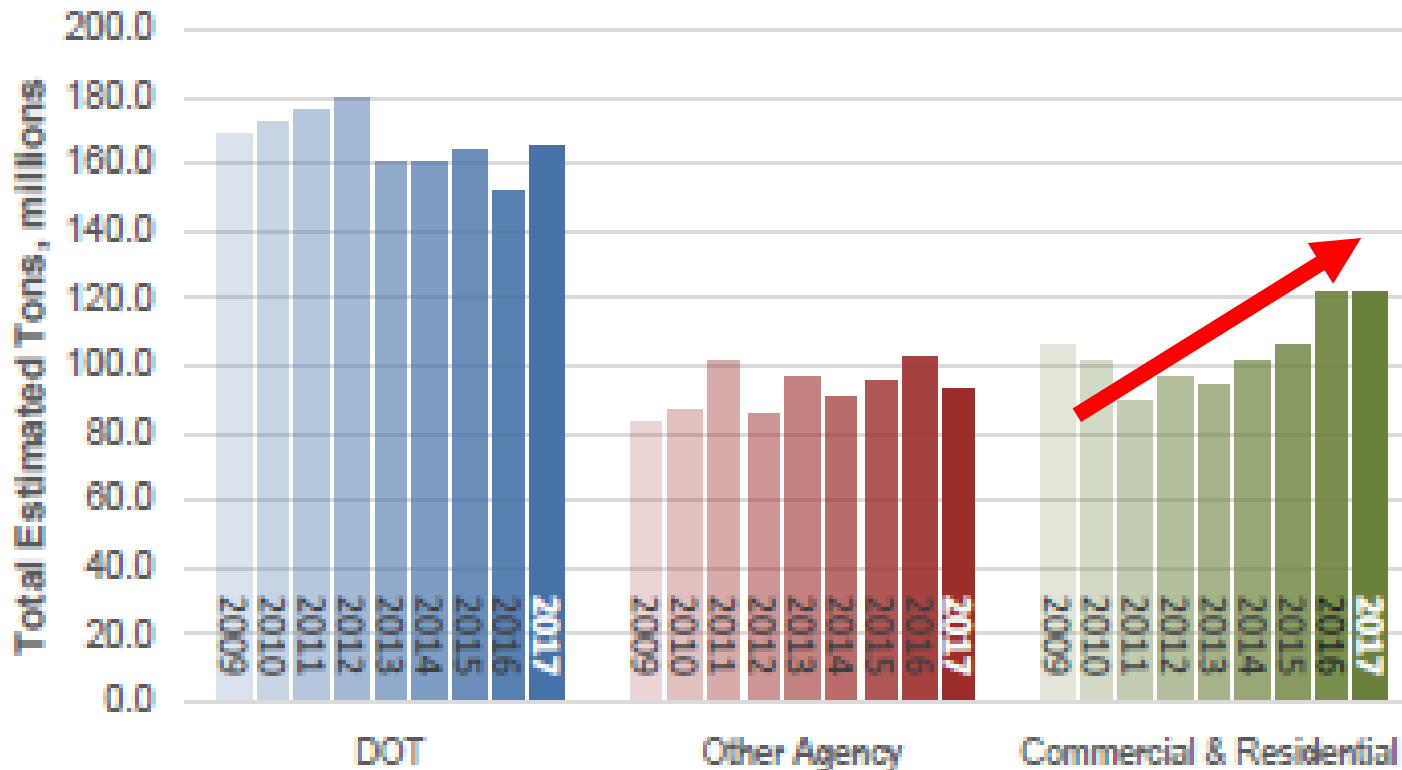


Figure 2: Estimated Total HMA/WMA Asphalt Mixture Production by Sector, 2009-2017

How many Walmart Retail units are located in Missouri?

<https://corporate.walmart.com/our-story/locations/united-states/missouri>



105 **A**

202 **B**

156 **C**

236 **D**

Have you ever heard this?

It's just a
parking lot!
It is a
parking lot!



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Facilities Welcome Mat



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7 Keys

Handout

- Pick your Mix
- Dig Deep
- Drain the Rain
- Build a Base
- Trucking Along
- The Green Scene
- Pave and Save

Pay attention to details

1 PICK YOUR MIX

Asphalt mixtures can be manufactured with different combinations of aggregates, liquid asphalt, and additives and should be designed specifically for the application. The combination of materials that perform well in a parking lot typically are different from those used on high-traffic roadways. Long-lasting parking lot mixtures should be fine graded to prevent moisture intrusion and should have a high liquid asphalt content for durability.



2 DIG DEEP

The quality and strength of existing subgrade soil is a significant factor in the design and performance of your parking lot. Perform a geotechnical analysis and testing to establish current site conditions which will guide site grading activities in terms of moisture content and compaction. The pavement thickness will be heavily influenced by the strength of the onsite soils.



3 DRAIN THE RAIN

Water can be detrimental to a soil subgrade and paving materials so drainage should be a strong consideration in the design and construction of any parking lot. The pavement surface must be sloped to provide adequate drainage and to avoid low areas that could lead to ponding of water. A minimum combined slope of 2 percent is recommended. In contrast, porous pavements are different and are designed so that the water drains through the surface pavement layers and is slowly released to the underlying ground. For more information on porous asphalt pavements, visit www.porouaspavement.net.



4 BUILD A BASE

All structures need a solid foundation and a well-prepared base will pay dividends in building a long-lasting pavement structure. Quality materials and good compaction are essential to establish a strong working platform. Most projects will use a 4- to 6-inch layer of compacted dense-graded aggregate (DGA), which serves as an important foundation for the pavement system.

5 TRUCKING ALONG

Passenger cars, pickup trucks, and sport utility vehicles are relatively lightweight and have little influence in pavement thickness. In contrast, the anticipated size, weight, and frequency of commercial trucks are sensitive parameters in this analysis and will have a big influence on pavement thickness. The cumulative effect of traffic may be expressed as Equivalent Single Axle Loads (ESALs) for the purpose of pavement design.



6 THE GREEN SCENE

Asphalt is the most recycled product in America and experts recognize that mixtures using reclaimed asphalt pavement (RAP) result in quality pavements. Recycling and reusing materials saves landfill space and is environmentally responsible. Some asphalt producers also recycle asphalt roofing shingles (RAS), use warm-mix asphalt to conserve fuel and improve compaction, and producing porous asphalt mixtures that are used in porous pavements for stormwater management. On building projects with requirements for LEED, these green materials and practices may assist designers and owners in achieving certification.



7 PAVE AND SAVE

With proper base preparation and DGA placement, the asphalt mixture can be evenly placed and well compacted for optimal performance. Quality paving contractors are capable of building parking lots to meet compressed building schedules to better serve their customers. Asphalt pavements remain the most versatile and economical pavement product and have decades of proven performance.

LEARN MORE AT WWW.DRIVEASPHALT.ORG

The APA is a partnership of the Asphalt Institute, National Asphalt Pavement Association and the State Asphalt Pavement Associations.



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6 Steps

6 Steps to Highly Successful Parking Lots

Includes:
 - Asphalt
 - Aggregate
 - Subsurface Drainage

Step 1: Plan Before You Pave
 The anticipated size, weight, and frequency of commercial trucks are sensitive parameters in this analysis and will have a big influence on pavement thickness.

Step 2: Dig Deep
 The pavement thickness will be heavily influenced by the strength of the onsite soil.

Step 3: Drain the Rain
 Water can be detrimental to a soil subgrade & paving materials, so drainage should be a strong consideration in the design and construction of any parking lot.

Step 4: Build A Base
 Quality materials and good compaction are essential to establish a strong working platform.

Step 5: Pick Your Mix
 Asphalt mixtures can be manufactured with different combinations of aggregates, liquid asphalt, and additives designed specifically for the desired application.

Step 6: Pavement Thickness
 The anticipated size, weight, and frequency of commercial trucks are sensitive parameters in this analysis and will have a big influence on pavement thickness.

Step 7: Pavement Performance
 Asphalt pavements remain the most versatile & economic pavement product and have decades of proven performance.

MAPA
 MICHIGAN ASPHALT PAVEMENT ASSOCIATION

1221 Jefferson Street | PO Box 104855

6 Steps to Highly Successful Parking Lots

Information courtesy Plantmix Asphalt Industry of Kentucky | www.paiky.org

- 1 Plan Before You Pave**
 Passenger cars, pickup trucks, and sport utility vehicles are relatively lightweight, and have little influence in pavement thickness. The anticipated size, weight, and frequency of commercial trucks are sensitive parameters in this analysis and will have a big influence on pavement thicknesses and mixes within the same parking lot. The cumulative effect to traffic may be expressed as Equivalent Single Axle Loads (ESALs) for the purpose of pavement design.
- 2 Dig Deep**
 The quality and strength of existing subgrade soil is a significant factor in the design and performance of your parking lot. Perform a geotechnical analysis and testing to establish current site conditions, which will guide site grading activities in terms of moisture content and compaction. The pavement thickness will be heavily influenced by the strength of the onsite soil.
- 3 Drain the Rain**
 Water can be detrimental to a soil subgrade and paving materials, so drainage should be a strong consideration in the design and construction of any parking lot. The pavement surface must be sloped to provide adequate drainage, and to avoid low areas that could lead to ponding water. A minimum combined slope of 2 percent is recommended. In contrast, porous pavements are different and are designed so water drains through the surface pavement layers, and is slowly released to the underlying ground. For more information on porous asphalt pavements, visit www.porouspavement.net.
- 4 Build A Base**
 All structures need a solid foundation, and a well-prepared base will pay dividends in building a long-lasting pavement structure. Quality materials and good compaction are essential to establish a strong working platform. Most projects will use a 4-8 inch layer of compacted dense-graded aggregate (DGA), which serves as an important foundation for the pavement system.
- 5 Pick Your Mix**
 Asphalt mixtures can be manufactured with different combinations of aggregates, liquid asphalt, and additives designed specifically for the desired application. The combination of materials that perform well in a parking lot typically are different from those used on high-traffic roadways. Long-lasting parking lot mixtures should be fine graded to prevent moisture intrusion, and should have a high liquid asphalt content for durability. Asphalt is the most recycled product in America and experts recognize that mixtures using Reclaimed Asphalt Pavement (RAP) result in quality pavements.
- 6 Pavement Performance**
 With proper base preparation and DGA placement, the asphalt mixture can be evenly placed & well compacted for optimal performance. Quality paving contractors are capable of building parking lots to meet compressed building schedules to better serve their customers. Asphalt pavements remain the most versatile and economic pavement product with decades of performance.

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 MICHIGAN ASPHALT PAVEMENT ASSOCIATION

1221 Jefferson Street | PO Box 104855 | Jefferson City, MO 65110
 (573) 635-6071 | mapa.org

Pick your Mix

- Parking vs. Highway
 - Static
 - Rolling



Pick your Mix

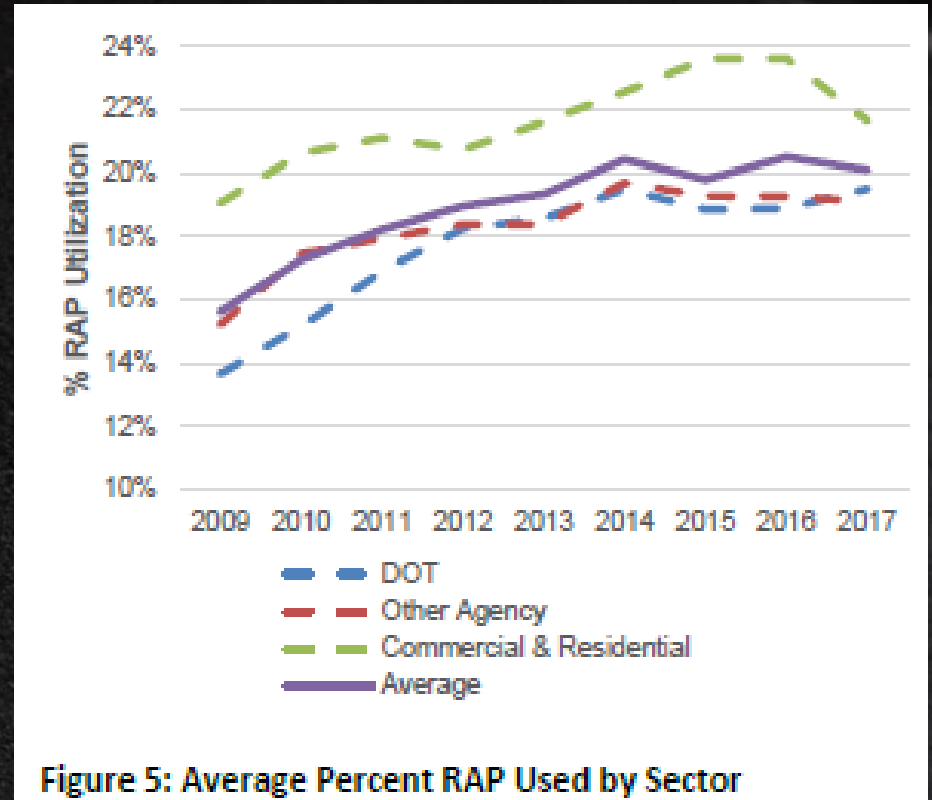
- Understand Asphalt Cement – Binder
 - Proper % Binder
 - Performance Grade (PG)
 - Ask for guidance!
 - Physical Location of Use
 - Base or Surface
 - Polymer additives
- **Warning:** Improper Selection can result in:



Just Right!

Rap Percent Use

- Manage Percentage
- Liquid Binder
- Mix Design = Performance



Dig Deep

- Subbase Platform
 - Understanding Support = Critical Part of Design



Plan & Trucking Along

- Nothing Temporary-Plan and design for the long term...
- 1 Loaded Semi = 3000 Cars
 - ESAL Calculation Pavement Interactive
- Cars Minimal Impact –
 - Design Minimum (See SAPA)

Pavement Thickness Schematic

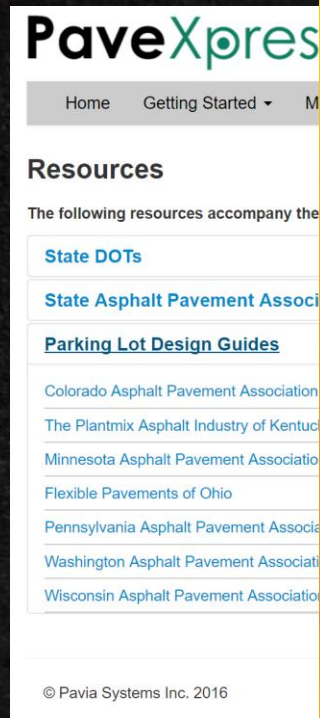


Thickness Design Guides



PaveXpress
A Simplified Pavement Design Tool

PaveXpressdesign.com



PaveXpress

Home Getting Started ▾ M

Resources

The following resources accompany the

- [State DOTs](#)
- [State Asphalt Pavement Associations](#)
- [Parking Lot Design Guides](#)

Colorado Asphalt Pavement Association
The Plantmix Asphalt Industry of Kentucky
Minnesota Asphalt Pavement Association
Flexible Pavements of Ohio
Pennsylvania Asphalt Pavement Association
Washington Asphalt Pavement Association
Wisconsin Asphalt Pavement Association

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Join us for a free webinar

PAVE Xpress

A Free, Simplified Pavement Design Tool

An Overview of Major Enhancements

An in-depth look at:

- New life cycle cost analysis module
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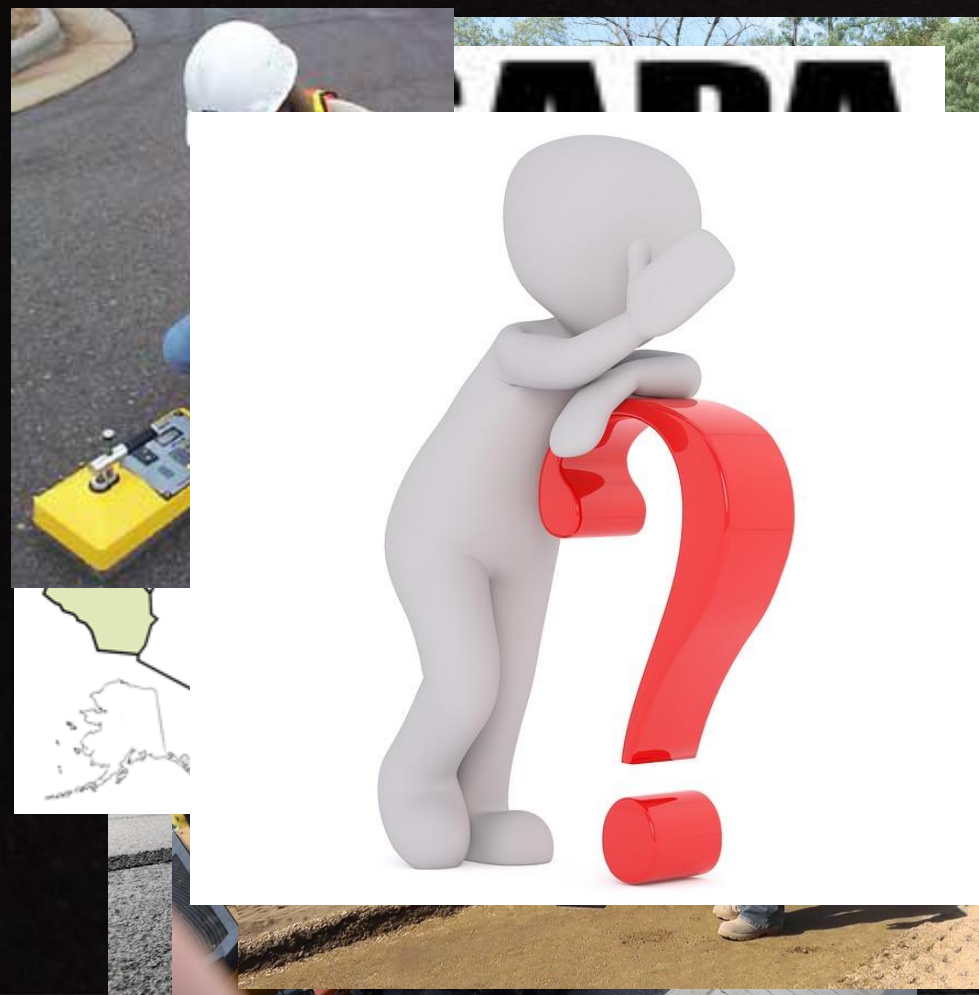
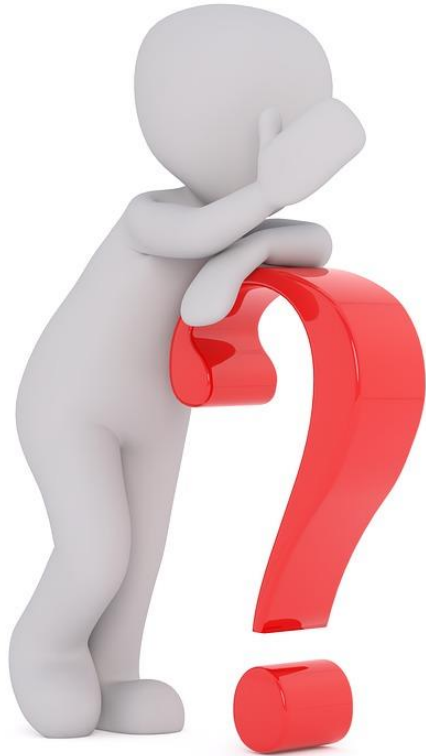
Go to asphaltroads.org to sign up

May 27, 2020
1:00 - 2:30 EDT



Pave and Save

- Select Qualified Contractor
 - SAPA List
- Inspect – Inspect – Inspect
 - Oversight = Sleep like a baby!
- Ask Questions



Recap

- Pick your Mix
- Dig Deep
- Drain the Rain
- Build a Base
- Trucking Along
- The Green Scene
- Pave and Save

Pay attention to details

7 Keys to Highly Successful Parking Lots

Information courtesy Plantmix Asphalt Industry of Kentucky
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Which "Key" would you consider most important?

Mix Design
and Thickness Design

Solid Subgrade and
Aggregate

Drainage (Sub and
Surface)

Contractor Selection

All the above

Handy Checklist

Contact dstaebell@asphaltpavement.org

Checklist for Parking Lots

To achieve the longest life, lowest maintenance costs, and best performance from an asphalt parking lot, the entire construction process should be monitored for the quality of both its materials and workmanship. It is important in case of claims that the parking lot be photographed before, during, and after construction. A new parking lot project begins with a subgrade of compacted soil and the base layers and continues through the paving process. The following checklist is designed to help the onsite inspector or owner's representative identify key aspects of the process and understand best practices known to produce a quality pavement project. The checklist is based upon national recommendations, local recommendations may vary depending upon climate, materials, and practices.

Project Review

Every paving project should start with a detailed review of the project's contract, plans, and specifications. Any questions arising from this review should be directed to the design firm's

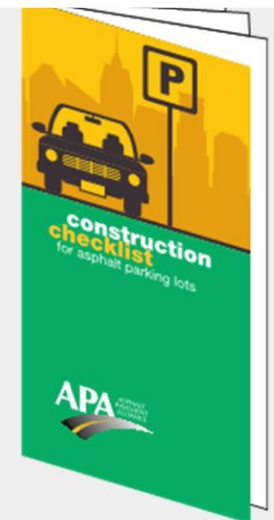
Asphalt Mixture

Prior to starting this project, the design engineers determined the depth of each pavement layer and the type of asphalt mixture to be used. Your responsibility is to verify that the correct, specified asphalt mixtures are coming to the site. You can check and collect the truck delivery tickets to verify and document asphalt type and tonnage arriving on the project.

Ask Yourself –

- Is this the correct mix type for the project and the layer you are constructing?
- Is the mix type specified being installed at the minimum lift thickness?
- Does the truck delivery ticket match the approved mix design?
- How many tons are estimated to pave the project?
- Does the paving foreman know how many tons he expects to use?

- How many dump trucks are scheduled to deliver the mix from the plant and how many tons are in each round?
 - The goal is to balance the mix delivery schedule to avoid having to start and stop the paving operation.
- Are there enough trucks on the run to haul the mix needed to complete the job?
 - If you have 5 trucks on the round each carrying 25 tons = 125 tons per round.
 - If each round takes 1 hour to make, then the production rate is 125 tons per hour.
 - If the job requires 1,000 tons at 125 tons per hour = 8 hours to get the mix to the job.
- Are the truck bodies cleaned of debris and are they tarped when they arrive on site?
- Is an approved release agent being used?
DIESEL FUEL is not allowed!
- Is the temperature of the mix arriving at the site within the project guidelines?



Contact us today for your free copy of Construction Checklist

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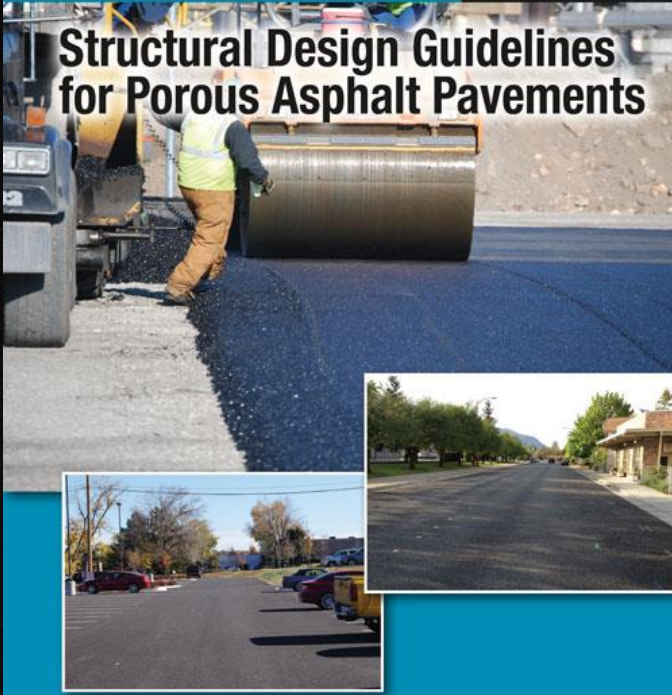
Information Series 140



Want to become a member?

EVENTS

Structural Design Guidelines for Porous Asphalt Pavements



sphalt

Pringle Creek porous



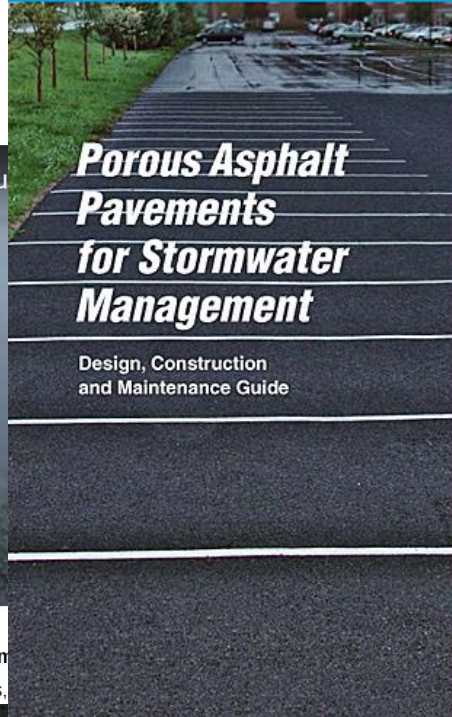
Environmentally friendly tool for stormwater management. Stormwater naturally finds its way to streams, ponds,

Information Series 131



Porous Asphalt Pavements for Stormwater Management

Design, Construction and Maintenance Guide



Resource asphaltpavement.org

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Which of the following companies do you believe to be the most cost conscious?

A

B

C

D

What percentage of Walmarts have Concrete Parking Lots?



0%

<5%

5-10%

>10



Used Google Earth

Sample Info = Largest Metro in Each State

Most appear to be built in last 15-20 Years. Many Super Walmarts!

Less than 5% total Parking lots were PCC.

Average SY @ 45K SY

Site Average HMA tons 15 M Tons (6")

Walmart sees value in ASPHALT!

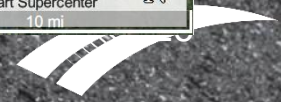
Total ACC	Total PCC	Total	Average Size SY
260.07	12.93	273	43,795
Percent PCC			
4.7%			



- Walmart Supercenter
- Walmart Supercenter
- Walmart Supercenter
- Walmart Supercenter
- Walmart Supercenter

10 mi

ASPHALT
MENT
LIANCE



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Which One?



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In Depth Training



Parking Lot Asset Management

In today's world, being efficient and effective with resources keeps customers and tenants returning year after year. Proper parking lot design and maintenance is akin to the presentation of a welcome mat at home. Join us for in-depth training and education related to the unique requirements of your commercial and industrial parking lots.

Two Options
 ½ Day or 1 ½ Day

Who Should Attend:
 This course is tailored for those who own, manage, specify, consult, construct, or design commercial and industrial parking lots.

"The Asset Management Course done in Kansas City was a very common-sense course designed for everyone from a novice in the industry to the most tenured design consultant. The presenters did an excellent job of keeping it efficient and to the point, which is exactly what we need in our business."
 — Brian Johanning, Vice President of Business Development, Superior Bowen

"Dan is one of the few presenters in this industry that is able to engage, captivate, and excite an audience; his presentations are always worth the price of admission."
 — Brad Laramie, CPM, Diversified Contractors




How to Build
 Considerations for designing and constructing quality pavements

How to Maintain
 Maximize the ROI of your pavement investment

How to Rehabilitate
 Provide pavement rehabilitation options for all facilities needing upgrades

OPTIONS

Option One – 1 ½ day comprehensive training course that provides an overview on the NAPA document, "7 keys to Building a Successful Parking Lot." The training digs deep into all aspects of materials and mix design, pavement design, and pavement condition knowledge. The course also teaches how to maintain and rehabilitate. This option provides an opportunity for a short tour and networking during an evening dinner at an industry hosted location following the first full day of training.

OR

Option Two – ½ day (4-6 hr) that highlights the NAPA document, "7 keys to Building a Successful Parking Lot" noting key decision areas that make a difference in owning and also gives a brief overview of material and mixture design and discusses construction practices necessary for success.

COST

Please contact Dan Staebell (see below) regarding course options and cost.

Training is provided by asphalt industry experts.

For more information, contact Dan Staebell at dstaebell@asphaltpavement.org or 563.927.3044 (office), 608.440.0142 (cell).



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Additional Training

NATIONAL ASPHALT PAVEMENT ASSOCIATION

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ENGINEERING SUSTAINABILITY ADVOCACY EVENTS MEMBERSHIP COMMUNICATIONS

MEETINGS AND EVENTS

- Midyear Meeting
- Upcoming NAPA Events
- Annual Meeting
- NAPA Webinars
- World of Asphalt
- Calendar of Industry Events

NAPA Webinars

NAPA offers a variety of webinars throughout the year on various topics related to the asphalt industry. These topics range from newly released industry regulations to innovative processes and technology that can benefit your company. The NAPA webinar program will deliver the information you need to the comfort of your home or office. **Professional Development Hours (PDHs)** Participation in NAPA webinars may earn you Professional Development Hours (PDHs). PDHs are educational units used to fulfill continuing education requirements for licensure or certification. In most cases, 1 hour of participation in a webinar equals 1 PDH. Some states and certifying bodies require pre-approval of professional development hours and documentation requirements also vary, so be sure to check with your appropriate agency. You are responsible for maintaining the documentation for your PDHs. You can request a certificate of completion after you attend any of the webinars to keep for your records.

UPCOMING WEBINARS

- ▶ Prepare and Protect – A Risk Management Series: Little Things, BIG Results – Paving Equipment (Members Only) — Thursday, May 21
- ▶ PaveXpress: An Overview of Major Enhancements — Wednesday, May 27
- ▶ Benefits of Rehabilitating Concrete Pavements with Slab Fracturing and Asphalt Overlays — Thursday, June 4
- ▶ Prepare and Protect – A Risk Management Series: Little Things, BIG Results – Paving Operations (Members Only) — Thursday, June 11
- ▶ PaveXpress-How to Evaluate Pavement Alternatives Using LCCA — Tuesday, June 16
- ▶ PaveXpress: How to Perform a Mechanistic-Empirical Pavement Design in 3 Simple Steps — Thursday, July 16

ASPHALT SOWS THE SEEDS FOR A SUSTAINABLE FUTURE

LEARN MORE AT WWW.DRIVEASPHALT.ORG

LAS VEGAS, NV MARCH 10-14

LEARN MORE

NAPA Care Emergency Benevolent Fund

Join us for a free webinar

PAVE Xpress

A Free, Simplified Pavement Design Tool

An Overview of Major Enhancements

An in-depth look at:

- New life cycle cost analysis module
- New mechanistic-empirical pavement design module based on PerRoad
- The ability to perform designs in both English and Metric units

Go to asphaltroads.org to sign up

May 27, 2020

1:00 - 2:30 EDT

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Why Parking Lots Matter

Rick Biermann
Business Development Director – St. Louis

Why Parking Lots Matter



→ Parking lots and pavements make up about 10% of initial structural construction costs.



→ Parking lots will be responsible for up to 25% of the future maintenance cost

What Do Owners Care About

- Cost
- Speed
- Reliability
- Aesthetics
- Sustainability



Which following statement do you percieve to be most accurate?

Concrete has no maintenance costs **A**

Asphalt costs more to maintain **B**

Asphalt has the lowest Life Cycle Cost **C** 50%

Unsure, it depends. **D** 50%

Cost Effective

ASPHALT

TOTAL 30 YEAR COST: **\$82,960**

Installation Cost	\$27,160
Maintenance Cost	
• First 5 Years	\$10,000
• Years 5-10	\$8,800
• Years 10-15	\$14,000
• Years 15-20	\$23,000
• Years 20-30	\$10,000

AVERAGE ANNUAL MAINTENANCE: \$1.70/sq. yd.
Based on a 1,000 square yard lot

CONCRETE

TOTAL 30 YEAR COST: **\$106,290**

Installation Cost	\$31,802
Maintenance Cost	
• First 5 Years	\$9,906
• Years 5-10	\$18,712
• Years 10-15	\$20,520
• Years 15-20	\$25,350
• Years 20-30	\$30,750

AVERAGE ANNUAL MAINTENANCE: \$3.80/sq. yd.
Based on a 1,000 square yard lot

**Original construction is at least
15% less than concrete.**

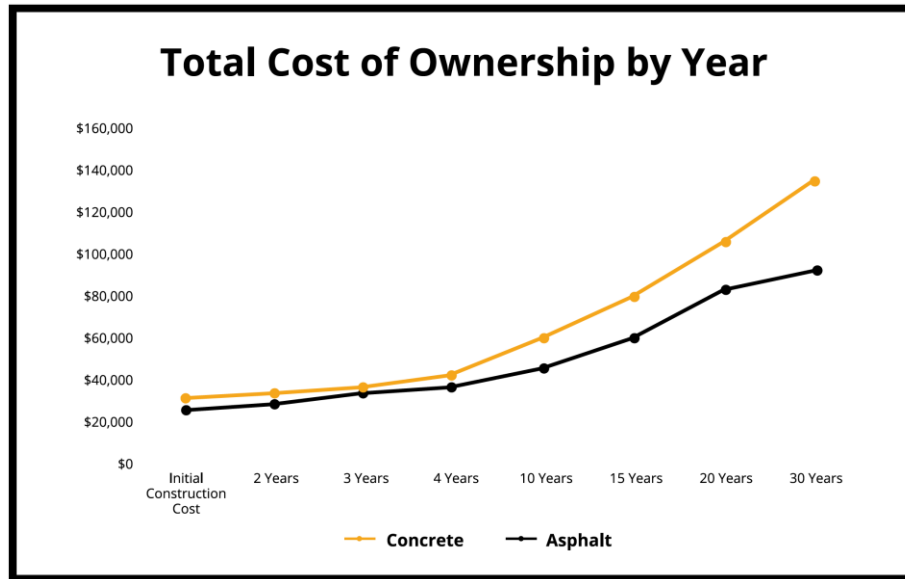
Maintenance Schedule

Nothing is Maintenance Free!

YEAR	ASPHALT	CONCRETE
1 - 3	Crack Fill, Sealcoat, Restripe	Joint Seal
3 - 5	Crack Fill, Sealcoat, Restripe	1% Slab Repair / Replace , Restripe
5 - 10	Crack Fill, Sealcoat, Restripe	1-3% Slab Repair / Replace
10 -15	Asphalt Patching, Restripe	3% Slab Repair / Replace Restripe
15 - 20	Mill, Fill / Repair Base	Joint Reseal / 3% Slab Repair / Replace
20 - 25	Crack Fill, Sealcoat, Restripe	3% Slab Repair / Replace
25 - 30	Crack Fill, Sealcoat, Restripe	3% Slab Repair / Replace



Cost Effective



A 1,000 sqyd asphalt parking lot cost **17% less** to construct & up to **75% less** to maintain over the life, compared to concrete

Speed of Construction

In Construction Time is MONEY!

Asphalt Pavements are Constructed up to **70% faster** than other pavements.

Newly constructed or repaired asphalt can be driven on **almost immediately upon completion.**

Speed of Construction



Routine maintenance can be performed overnight. Giving asphalt pavements a fresh appearance and smoothness with little to no impact on normal traffic and/or business operations.

Proven Performance

Properly designed and constructed asphalt pavements are perpetual and may never need complete full depth reconstruction.

93% of pavement surfaces in America are asphalt pavements.

Aesthetics

**The Parking Lot is Often
the first Impression a
customer has of a
Business.**



Which parking lot below do find most appealing?



A



B

Aesthetics

Which One?



8 out of 10 people
prefer the look of
asphalt pavements

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Aesthetics

How many car commercials have you seen showing the vehicle driving on a pavement other than asphalt?



Which pavement type do you believe to be more sustainable?



Sustainable & Eco-Friendly

Asphalt is 100% recyclable & the world #1 recycled product.



The use of recycled asphalt
in the production of
new asphalt
saves almost
\$3 Billion annually

Sustainable & Eco-Friendly

Bloomberg

Cement Produces More Pollution Than All the Trucks in the World

Vanessa Dezem 6/23/2019

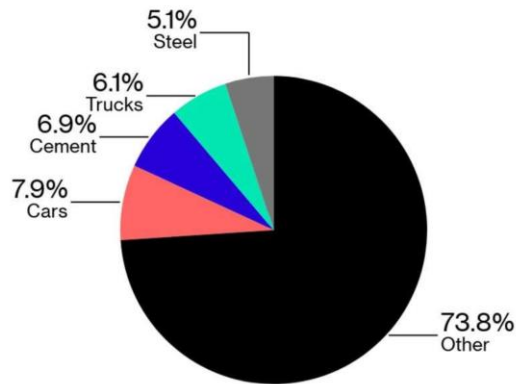
(Bloomberg) -- The most astonishing thing about cement is how much air pollution it produces.



Manufacturing the stone-like building material is

Significant Share

The cement industry's CO2 emissions were more than all the trucks on the road in 2017



1 Bloomberg Significant Share

The production of asphalt pavements produces up to **30% less CO₂** than the production of Portland cement *

* CARBON FOOTPRINT: HOW DOES ASPHALT STACK UP? -

http://www.asphaltroads.org/assets/control/content/files/carbon_footprint_web.pdf

Sustainable & Eco-Friendly

Reflective Pavements and Urban Heat Island

Do reflective pavement mandates make sense?

Legislative efforts to mandate reflective pavements have been introduced in some areas, but the scientific evidence doesn't clearly support the use of reflective pavements to address the urban heat island effect. While these pavements do redirect some energy from a pavement's surface, much of it ends up interacting with buildings, pedestrians, and cars — leading to potential unintended negative consequences.

ROOFS
MOST OF THE SCIENCE SURROUNDING REFLECTIVITY AND UHI FOCUSES ON ROOFS, WHICH ARE AT THE TOP OF THE URBAN ENVIRONMENT. PAVEMENTS ARE NOT ROOFS.

REFLECTIVE CONCRETE PAVEMENTS MIGHT NOT WORK AS CLAIMED TO REDUCE THE URBAN HEAT ISLAND EFFECT

SURFACE TEMPS DIFFERENCES IN SURFACE TEMPERATURES HAVE MINIMAL BEARING ON AIR TEMPERATURE.	SUMMER REFLECTED RADIATION CAN INCREASE COOLING LOADS FOR SURROUNDING BUILDINGS IN THE SUMMER.	WINTER LIGHT-COLORED PAVEMENTS REQUIRE MORE DEICING CHEMICALS IN WINTER TO CONTROL SNOW AND ICE.	PEDESTRIANS REFLECTIVE PAVEMENTS CAN BOOST THE TEMPERATURE PEDESTRIANS EXPERIENCE BY 3° TO 5° CELSIUS, AS WELL AS INCREASE ULTRAVIOLET RADIATION EXPOSURE.
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Source: Yang, J., Z. Wang, & R. E. Kulkarni (2013). Unintended consequences: A research synthesis examining the use of reflective pavements to mitigate the urban heat island effect. Arizona State University National Center of Excellence for Smart Innovations. <http://dx.doi.org/10.26434/chemrxiv-2013-02>

The APA is a partnership of the Asphalt Institute, National Asphalt Pavement Association, and the State Asphalt Pavement Association.

Reflective pavements, like concrete, increase surrounding building's cooling load to up to **11%** and increase surrounding air temps by 5 - 10°

<http://www.asphaltroads.org/news/post/asu-sights-unintended-consequences-reflective-pavements/>

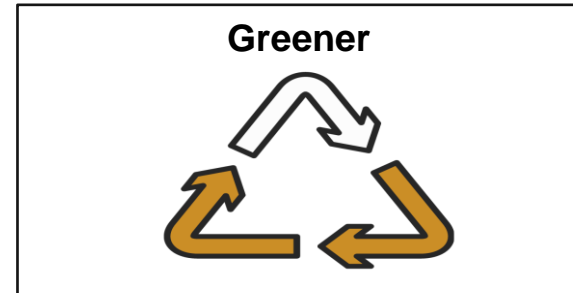
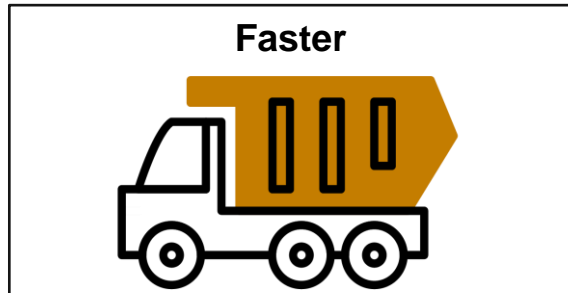
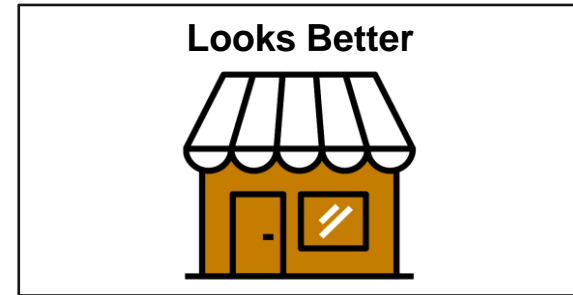
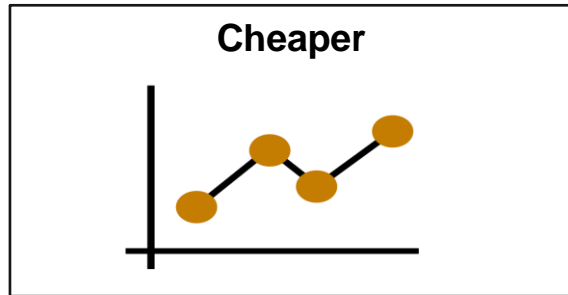
It's **NOT** just a parking lot!

Why should an Owner care about the Parking Lot?

- It will be responsible for up to 25% of their future maintenance cost
- It is the first and last thing everyone sees

Materials Matter

Why should Asphalt be everyone's first choice in pavements?



Asphalt outperforms every other pavement!

Questions?



Resources & Contacts



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