Please sign in at one of the rosters

Thank you

WELCOME!

2016
Asphalt Summit
Divisions 4 & 5

Dennis Jernigan, PE

Division 5 Construction Engineer

Wendi Johnson, PE

Division 4 Construction Engineer

‘Logistics’

- Restrooms
- Place phones on vibrate
- Hold all questions until each presenter finishes unless questions/comments are solicited

Joey Hopkins, PE

Division 5 Engineer

(Today Is My 50th Birthday!)

Tim Little, PE

Division 4 Engineer

Why Am I Here?

- Safety
- Specification Changes
- QMS Changes
- Upcoming Projects
- Expectations
- Industry Perspective
- Discussion

What is everyone's #1 priority on the job?

SAFETY!

Safety Tips

- Wear leather work boots that have non-slip soles and steel tips. They will help protect your feet. Sneakers can be melted by the hot asphalt and cause more harm than help if the plastic from the shoe becomes burnt to your skin.
- Never wear loose fitting clothes near any machinery.
- You should wear earplugs in any area where a jack hammer or other heavy equipment is being used.

Safety Tips

- Insulated gloves will help prevent burns on your hands.
- Always wash your hands after working with asphalt. Never eat, drink or touch your face before your hands are cleaned.
- Asphalt can be extremely flammable so never smoke or use a flame where asphalt is being placed.
- If a person begins to feel sick move them away from the asphalt to a place where they can breathe in fresh air.

Safety Tips

- If you get hot asphalt on your skin never attempt to remove it yourself. Call for help immediately.
- It might seem like the correct thing to do but never bandage an asphalt burn. Let the medical professionals do that to prevent further injuries.
- Avoid prolonged exposure to asphalt whenever possible.
- All asphalt equipment should only be used by persons trained to operate them.

Found an extra pair of boots at the worksite.
Decided to give my supervisor a heart attack.

What Should We Do?

- Ensure lower level employees are trained
- Watch out for everyone, regardless of who they work for or your personal feelings
- Document TC setup and devices daily, but especially when there is an incident
- Periodically check traffic control
- NO FLAGGERS IN TRAVEL LANES!

NC Department of Transportation Division Asphalt Summit

February-March 2016

NCDOT Project Delivery

- **We are Partners in this Mission!**
- Remember bullet number 1
- Significant Program Increase
- Industry Workforce will/is growing
- Managed growth very important to success
- Contract time and time of letting – keys to success.

capa

Who is CAPA?

- Formed by asphalt plant owners in 1949, **Carolina Asphalt Pavement Association (CAPA)** is a trade association representing the Asphalt Pavement Industry in North Carolina.
- Member firms of CAPA produce and place the majority of asphalt pavements in North Carolina.
- The purpose of the Association is to promote the use of quality asphalt pavement and to provide members with the services that enable them to excel in the Asphalt Pavement Industry.

capa

CAPA Team

- CAPA Member and Associate Member Firms
- Directory - CAPA DIRECTORY
- Ellis Powell – Executive Director
- Jennifer Cook – Office Manager
- Ken Melton and Associates

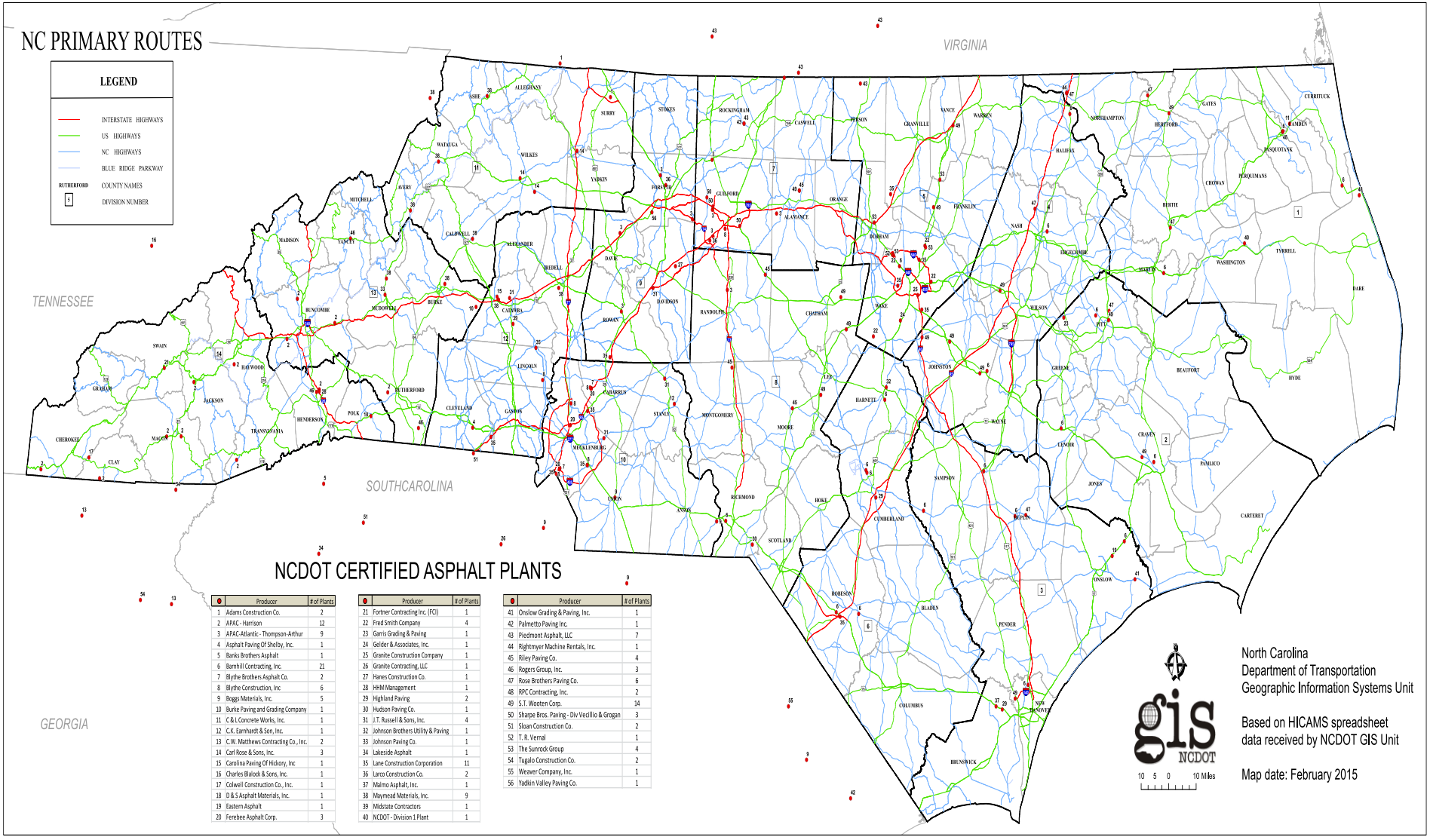
Asphalt Plants and Companies

- Stationary and mobile plants located in all areas of NC.
- Many have been in the same location for generations and are family owned businesses.
- Asphalt producers provide jobs for a large number of citizens in their communities.
- **The asphalt pavement industry in North Carolina consists of North Carolina citizens building and maintaining North Carolina Roads.**

capa


ASTEC
ASTEC
ASTEC

NC PRIMARY ROUTES



NCDOT CERTIFIED ASPHALT PLANTS

#	Producer	# of Plants
1	Adams Construction Co.	2
2	APAC - Harrison	12
3	APAC-Atlantic - Thompson-Arthur	9
4	Asphalt Paving Of Shelby, Inc.	1
5	Banks Brothers Asphalt	1
6	Barnhill Contracting, Inc.	21
7	Blythe Brothers Asphalt Co.	2
8	Blythe Construction, Inc	6
9	Boggs Materials, Inc.	5
10	Burke Paving and Grading Company	1
11	C & L Concrete Works, Inc.	1
12	C.K. Earnhardt & Son, Inc.	1
13	C.W. Matthews Contracting Co., Inc.	2
14	Carl Rose & Sons, Inc.	3
15	Carolina Paving Of Hickory, Inc	1
16	Charles Blalock & Sons, Inc.	1
17	Colwell Construction Co., Inc.	1
18	D & S Asphalt Materials, Inc.	1
19	Eastern Asphalt	1
20	Ferebee Asphalt Corp.	3

#	Producer	# of Plants
21	Fortner Contracting Inc. (FCI)	1
22	Fred Smith Company	4
23	Garris Grading & Paving	1
24	Gelder & Associates, Inc.	1
25	Granite Construction Company	1
26	Granite Contracting, LLC	1
27	Hanes Construction Co.	1
28	HHM Management	1
29	Highland Paving	2
30	Hudson Paving Co.	1
31	J.T. Russell & Sons, Inc.	4
32	Johnson Brothers Utility & Paving	1
33	Johnson Paving Co.	1
34	Lakeside Asphalt	1
35	Lane Construction Corporation	11
36	Larco Construction Co.	2
37	Malmo Asphalt, Inc.	1
38	Maymead Materials, Inc.	9
39	Midstate Contractors	1
40	NCDOT - Division 1 Plant	1

#	Producer	# of Plants
41	Onslow Grading & Paving, Inc.	1
42	Palmetto Paving Inc.	1
43	Piedmont Asphalt, LLC	7
44	Rightmyer Machine Rentals, Inc.	1
45	Riley Paving Co.	4
46	Rogers Group, Inc.	3
47	Rose Brothers Paving Co.	6
48	RPC Contracting, Inc.	2
49	S.T. Wooten Corp.	14
50	Sharpe Bros. Paving - Div Vecillio & Grogan	3
51	Sloan Construction Co.	2
52	T. R. Vernal	1
53	The Sunrock Group	4
54	Tugalo Construction Co.	2
55	Weaver Company, Inc.	1
56	Yadkin Valley Paving Co.	1

North Carolina
Department of Transportation
Geographic Information Systems Unit

Based on HICAMS spreadsheet
data received by NCDOT GIS Unit

Map date: February 2015

Funding Increases Asphalt Related Projects "The Mission"

- STI
  - 16% increase in year 1
  - 17% increase in year 2
- Resurfacing
  - 16% increase year 1
  - 21% increase year 2
- AST
  - 54% increase in year 1
  - 23% increase in year 2
- Bridges, Patching and SR Maintenance

capa

Delivery Success - Contract Time

- Max. Contract Time for Resurfacing & AST
- Allows Contractor to bid more aggressively
- Allows Contractor to manage growth of workforce as work is procured
- Allows for more competition/best prices
- Resurfacing Let List great help for planning
- AST let List would be helpful

capa

Time of Letting - Resurfacing and AST

- Prefer you do not:
  - Let in spring, completion in summer same year
  - Let in fall with completion by end of year
- Prefer you do:
  - Let this year and give the entire season or most, next year to complete
  - Entire season – April to December

capa

Letting and Contract Time Considerations for Temperature

- OGFC - 60 degree min temp placement
- Ultrathin - 60 degree min temp placement
- AST - 50 degree min temp placement
- S9.5D - 50 degree min temp placement
- No early Spring, late Fall or Winter completion
- No night work in early Spring, late Fall or Winter

capa

Contract Time, Safety and Pavement Marking

- Night Work
  - Use as last option
  - Costs more, takes longer, increases risk on safety and quality
  - Harder to meet mb/wb/dbe goals (less hours of available work for haulers and they have better options during the day)
  - Please make “Blue Light” mandatory, not optional for night work
  - If important enough to do night work its important enough to have a blue light
- Pavement Marking
  - Limited Resources
  - ICT for all except Marking for CR and AST?

capa

Contract Time, Safety and Pavement Marking

- 16 working days per month, not 30
- Adjust for factors previously mentioned
- Time Restrictions
  - Prefer per map as necessary, not entire contract
  - Flexibility after work begins, change if you can get finished quicker without impacts you can't endure, finishing quicker saves time and money, equals more projects

capa

MILLING

- Different depths, what if all are not covered?
- Milling depth not in contract? SA? Please don't use the 1" tolerance for a different type of less productive milling if no contract item.
- Incidental – what's incidental milling?
- Prefer consistent butt joints, at bridges, causes bidding inaccuracies when each one is different and can be a significant cost impact, recommend standard lengths on route types and bridge approaches.
- The cost of reducing a minor contract item like this is very costly as travel costs and labor are a large portion of the cost, milling is paid by the SF. Can't sustain losing money.

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Spec and QMS Manual Changes

- AST Provision
- Small Quantity Testing
- Final Surface Testing
- Density Testing in Irregular Area
- Wedge Device for Drop-off Mitigation Update
- Aggregate and Asphalt Scale Check Frequency
- Paving Fabric and Pay Item
- Pothole Repair Requirements

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Assistance,Questions,Suggestions

- Please Contact CAPA
  - Email Ellis Powell epowell@carolinaasphalt.org
  - 919-838-8004 office
  - 919-524-2395 mobile, call or text

Thank You!

Nothing Compares
NORTH CAROLINA

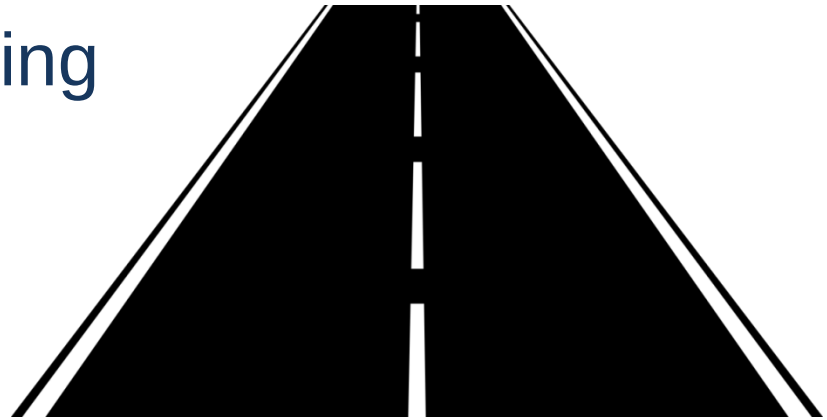
2016 Asphalt Summits

Specs and Updates

Nilesh Surti, PE
State Pavement Construction Engineer

Topics

- Funding Allocations
- Asphalt Spec Changes
- Surface smoothness
- AST Specifications & Training
- Innovation
- Safety Edge revision
- PDHs



2015 = 7.21 million tons placed

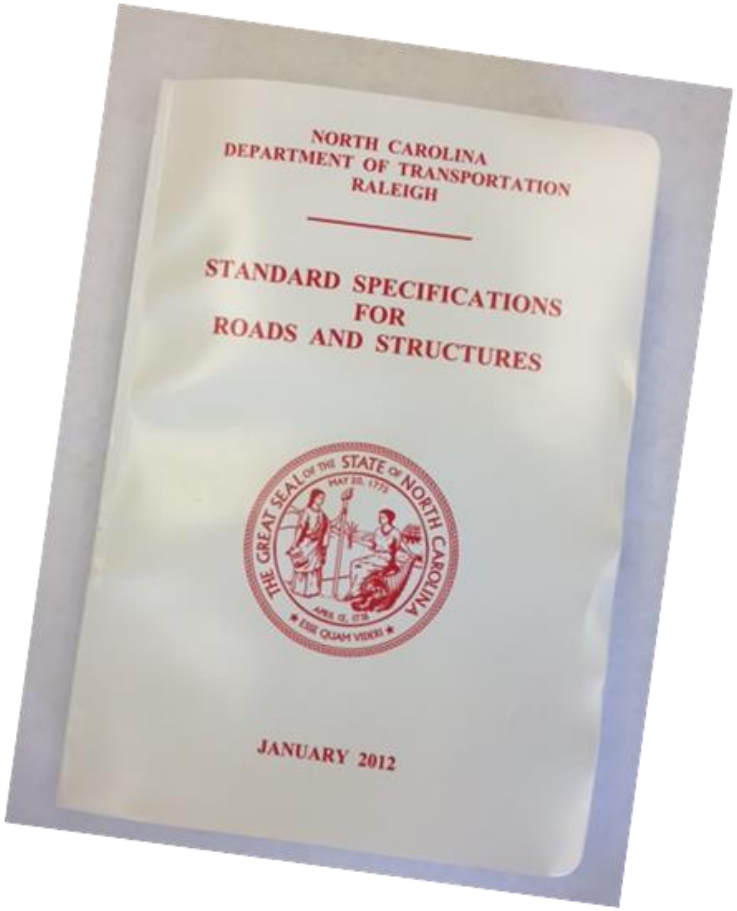
Funding FY 2015-16 – Contract Resurfacing ($ millions)

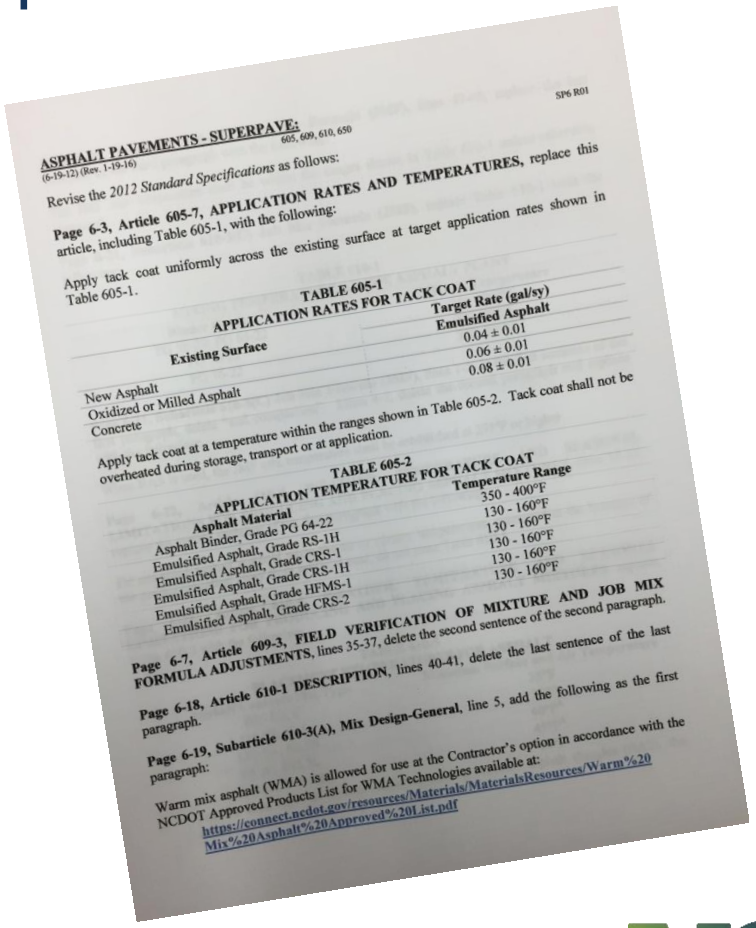
Div.	Original Allocation	Supplemental Allocation	TOTAL
1	$25.01	$8.07	$33.08
2	$31.03	$4.61	$35.64
3	$35.11	$3.46	$38.57
4	$26.27	$3.46	$29.73
5	$44.20	$4.03	$48.23
6	$23.28	$2.88	$26.16
7	$30.22	$2.88	$33.10
8	$32.82	$4.61	$37.43
9	$14.32	$2.88	$17.20
10	$34.41	$2.88	$37.29
11	$22.21	$4.61	$26.82
12	$29.81	$3.46	$33.27
13	$29.99	$4.03	$34.02
14	$27.91	$5.76	$33.67

$467 million

Asphalt Superpave Special Provisions

- Supplement to the 2012 Specifications





SP6 R01

ASPHALT PAVEMENTS - SUPERPAVE: 605, 609, 610, 650

(6-19-12) (Rev. 1-19-16)

Revise the *2012 Standard Specifications* as follows:

Page 6-3, Article 605-7, APPLICATION RATES AND TEMPERATURES, replace this article, including Table 605-1, with the following:

Apply tack coat uniformly across the existing surface at target application rates shown in Table 605-1.

TABLE 605-1
APPLICATION RATES FOR TACK COAT

Existing Surface	Target Rate (gal/sy) Emulsified Asphalt
New Asphalt	0.04 ± 0.01
Oxidized or Milled Asphalt	0.06 ± 0.01
Concrete	0.08 ± 0.01

Apply tack coat at a temperature within the ranges shown in Table 605-2. Tack coat shall not be overheated during storage, transport or at application.

TABLE 605-2
APPLICATION TEMPERATURE FOR TACK COAT

Asphalt Material	Temperature Range
Asphalt Binder, Grade PG 64-22	350 - 400°F
Emulsified Asphalt, Grade RS-1H	130 - 160°F
Emulsified Asphalt, Grade CRS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-1H	130 - 160°F
Emulsified Asphalt, Grade HFMS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-2	130 - 160°F

Page 6-7, Article 609-3, FIELD VERIFICATION OF MIXTURE AND JOB MIX FORMULA ADJUSTMENTS, lines 35-37, delete the second sentence of the second paragraph.

Page 6-18, Article 610-1 DESCRIPTION, lines 40-41, delete the last sentence of the last paragraph.

Page 6-19, Subarticle 610-3(A), Mix Design-General, line 5, add the following as the first paragraph:

Warm mix asphalt (WMA) is allowed for use at the Contractor's option in accordance with the NCDOT Approved Products List for WMA Technologies available at: https://connect.ncdot.gov/resources/Materials/MaterialsResources/Warm%20Mix%20Asphalt%20Approved%20List.pdf

Asphalt Superpave SP

- Supplement to the 2012 Specifications
  - Tack Coat rev. in 2012
    - Best Practices Pamphlet
    - Re-focus in 2016

FHWA Tack Coat Workshop

- FHWA Workshop
  - Less Bond = Less Life
  - 10% bond loss = 50% Less fatigue life
  - 30% bond loss = 70% Loss of life
  - No bond = 60% - 75% Loss of pavement life

Asphalt Superpave SP

- WMA
  - Use at Contractor's option
  - Divisions should require when needed
- RAS temp. = Min. 50 degrees for surface mix
- Temp = +/- 25 degrees at plant and road
- Fixed vs. Mobile String Line

Asphalt Superpave SP

- Final Surface Testing Criteria
  - Not on SR routes
  - Map must be one mile in length
  - Speed limit > 45 mph
  - Constructing 2 layers of asphalt

  - No IRI on ramps, loops, turn lanes
  - Localized Roughness changes
    - IRI > 165 in/mile
    - Penalty formula created

      Pay Adjustment ($) = (165 - LR#) x 5

Section 610-12: Surface Requirements & Acceptance

- Check each pavement layer
- Any location on pavement selected by DOT
- All transverse joints
- Do not exceed 1/8” variation

- **Does anyone have a 10-ft straightedge???**

10-foot Straightedge (Detachable)

Does anyone WANT this type of straightedge???

Funding FY 2015-16 – Pmt Preservation ($ millions)

Div.	Original Allocation	Supplemental Allocation	TOTAL
1	$3.41	$1.84	$5.25
2	$3.38	$1.82	$5.20
3	$3.99	$2.15	$6.14
4	$4.31	$2.32	$6.63
5	$3.68	$1.98	$5.66
6	$4.17	$2.25	$6.42
7	$3.77	$2.03	$5.80
8	$5.54	$2.98	$8.52
9	$5.27	$2.84	$8.11
10	$4.82	$2.60	$7.41
11	$8.26	$4.45	$12.72
12	$4.94	$2.66	$7.60
13	$4.07	$2.19	$6.26
14	$5.25	$2.83	$8.08

$100 million

AST Specs

- AST is Asphalt Surface Treatments (Chip Seals)
- Pavement Preservation work predominantly done by DOT forces
- In 2014, legislation passed to outsource work to Contracting industry
  - Target in 2015-2016 = 30%
  - Target in 2016-2017 = 55%
  - Target in 2017-2018 = 80%
- Transition Teams were formed to help with Contract Admin & Spec development, training to Industry, and reporting.
- AST Spec was revised from the 2012 Spec Book
  - Improve and clarify spec for Contractors

Chip Seal Best Practices Training

- One-day class
- Near Raleigh, NC
- Tentative for April 2016
- Another class if demand is HIGH
- Instructors:
  - Consultant: 25 yrs. of experience
  - DOT BST Supervisor
  - Construction Unit personnel
  - Materials & Tests Unit personnel
- Attendees:
  - Contractors
  - DOT Roadway inspectors
  - CEI personnel

Focus on Innovation at NCDOT

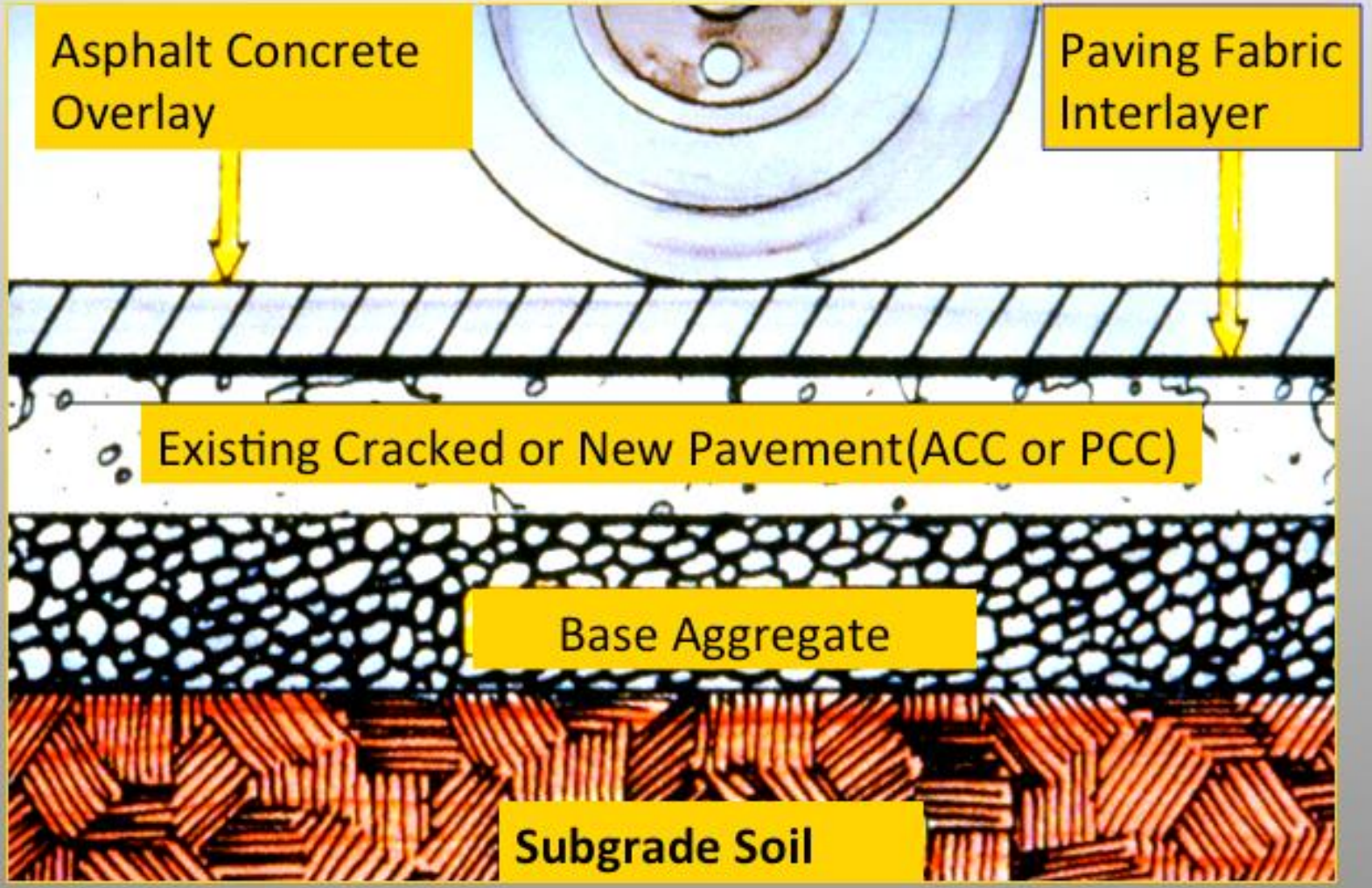
Alyson Tamer – Value Management Group

Innovations – Pavement Interlayers

Dynamic loading effect in Bending

Reflective Cracking

What is a Paving Fabric Interlayer System?



Washington, NC

Self-Adhesive Pavement Interlayer

Self-adhesive over old concrete joint

Tack coat (PG 64-22) with Pavement Interlayer

Asphalt overlay on pavement interlayer

Pavement Interlayer Projects

- Division 3 – Shallotte in 2012 plus numerous projects
- Divisions 2, 6, 8, and 14

- Main goal is to mitigate reflective cracking
- Last 18 months, NCDOT has had over 16 projects
- Placed over 1.2 million SY of pavement interlayers
- Weighted average = $3.60 / SY

NCDOT working with GMA

- **GMA = Geosynthetic Materials Association**
- **Working on Standardized Spec and testing**
- **Plus, a Guidance Document for Divisions**
- **EXAMPLE:**

Class 3

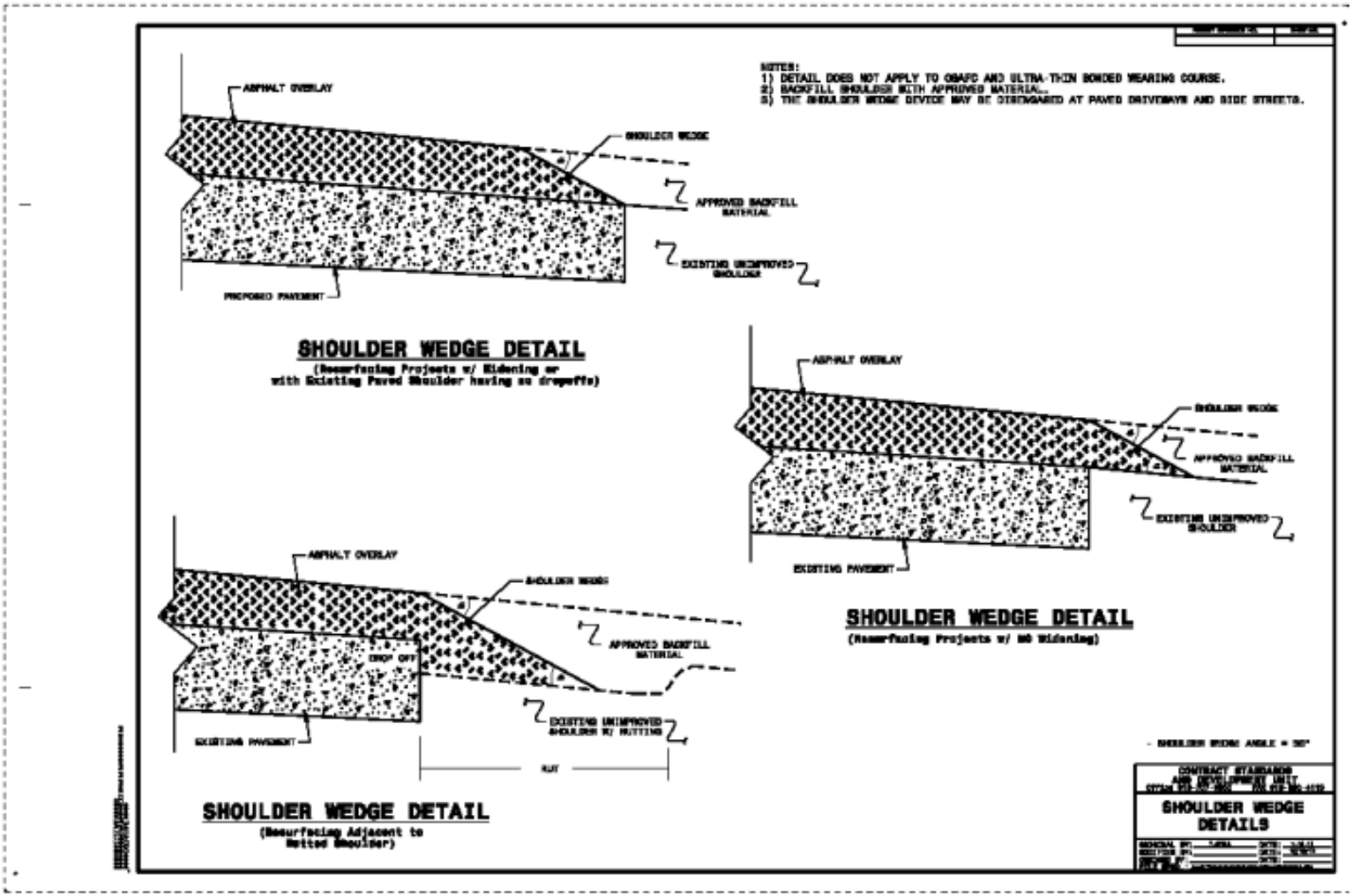
Class 2

Class 1

Typical Price range of $2.30 – 5.50 / SY

Safety Edge Update & Revision

Revised Note #3: The Shoulder Wedge device may be disengaged at paved driveways, side streets, **high shoulders, and other locations not feasible to construct as approved by the Engineer.**



PDH Approval Form & Evaluations

- Summits approved for 3 PDHs
- Fill out and turn in Evaluation form

- Keep a copy of PDH approval form
- Keep a copy of the Agenda
- Keep a copy of the Roster

Questions - ???

Nilesh Surti, PE
nsurti@ncdot.gov
919-707-2403

Richard Burley
rburley@ncdot.gov
919-909-6493

Nothing Compares
NORTH CAROLINA

2016 Asphalt Summits

Todd Whittington – State Asphalt Materials Engineer

QMS Technician Certifications

- Now Good for 5 years
- Class Cost up to $250 per student
  - All except the Online Intro. Class – remains $100/student

- 2016 Schedule:

https://connect.ncdot.gov/resources/Materials/pages/qmsasphalttrainingschool.aspx

Mix Temperatures

- New Table 610-1

TABLE 610-1 MIXING TEMPERATURE AT THE ASPHALT PLANT	
Binder Grade	**JMF Mix Temperature**
PG 58-28; PG 64-22	250 - 290° F
PG 70-22	275 - 305° F
PG 76-22	300 - 325° F

- Changed Allowable Range at the Roadway
  - From page 10-6, 2016 QMS Manual:

"When checked in the truck at the roadway, mix temperature must be within ± 25° F of the temperature specified on the JMF."

Mix Temperatures

- Done to allow Contractors to have only one JMF for both Hot-mix & Warm-mix
  - This is an option – contractor may choose to keep separate JMFs
- JMF Mix Temperature is chosen by the contractor and set when the JMF is approved.
  - The temperature will be set within the ranges shown in Table 610-1.

Roadway Density

- Situations when Density is REQUIRED:

1. All full width travel lane pavements, including:
   a. Normal mainline and -Y- line travel lane pavements
   b. Turn lanes
   c. Collector lanes
   d. Ramps and Loops
   e. Temporary pavements
2. Pavement widening 4.0 feet or greater
3. Uniform width paved shoulders paved in the same operation as the travel lane. Uniform width paved shoulders greater than 4.0 feet paved as a separate operation from the travel lane.

Roadway Density

- Situations when Density is NOT Required:

1. Pavement widening less than 4.0 feet.
2. Intersections and driveways paved as a separate operation and less than 100 feet.
3. Paving in irregular areas. Irregular areas are shapes such as tapers or bulb outs that may make them difficult to compact.
4. Paving for patching, wedging, or leveling.

Roadway Density

- QA Cores Removed
  - QA Roadway Technician with only have to obtain V-cores and corresponding DR-cores.
  - QA Labs will continue to perform Retests of QC-cores.
    - Increased frequency from 5% to 10%

- NO Changes to Density Gauge process.

Small Quantities Density

- One Change for 2016:
  - A minimum of **2** core samples per pavement layer **PER DAY** (gives a minimum of 2/day for Average)
- Remember:
  - For individual structure replacements and projects having 1,500 linear feet or less of roadway pavement.
  - No Verification or Dispute Resolution cores are required for Small Quantities

Small Quantities Density

- SQ Cores – Data Entry
  - There should still be an M&T 605 for SQ Work
  - They should be input to HiCAMS under the "Review Density Asphalt Cores QC" module
  - Input the Core as "1S", "2S", etc.
  - Input the Core Type as "QC"
  - Comment (on M&T605 & HiCAMS):

    "SMALL QUANTITY CORES - No Verification or Comparison cores required. (10.8.2 - QMS Manual)"

New M&T 605 Form

- With the Older Roadway Form is was difficult to tell which mix type had cores cut:

MATERIALS PLACED (TONS)							
Mix Type	B25B	RI 19C	R9.5C				
JMF No.	14-0541-121	14-0578-121	14-0545-121				
Today's Tons	20.79	534.75	115.85				

QUALITY ASSURANCE (QA) DENSITY INFORMATION			
Type of Density Control:	CORE	No. of QA Verification Tests Today:	Ø
No. of QC Tests Today:	3	No. of QA Comparison Tests Today:	1

New M&T 605 Form

M&T FORM 605 — NORTH CAROLINA DEPARTMENT OF TRANSPORTATION — *Revised 01-2016*

ASPHALT ROADWAY INSPECTOR'S DAILY REPORT

Contract/PO/WBS No.:	County:	Div.:	Report No.
Date:	Weather:	Temp. High:	Low:
Type of Construction:		Route No.	Miles:
Map Project No.:		Map No.:	Map Length:
Contractor (Prime):		Paving Contractor:	
Contractor Producing Asphalt Mix:		Plant Site:	

SPREADING/ROLLING EQUIPMENT

No.	Make	Type	Weight

ROADWAY OPERATIONS

No. Loads Received:		Total Hours:	
Time First Rec'd	Time Last Rec'd	Delay Time	Hrs. Operation

TACK COAT

Source		Batch No.		Grade		Gallons		Temp.	

MATERIAL PLACED TODAY

Mix Type										
JMF No.										
Map No.	Mat Location									
Base Type (ABC, New Mix, Exist Pav't)										
Begin Station										
End Station										
Linear Feet										
Width										
Square Yards										
Today's Tons										
Rate of Spread (lbs. per sq. yd.)										
Tack Coat Rate (gals. per sq. yd.)										
Air Temp. (°F)	Surface Temp. (°F)									
Time Placed										
Mix Temperature (°F)										
Type of Density Control										
# QC Density Tests										
# Verification Density Tests										
Paving Application Type (check one)										
Full Width Paving	☐		☐		☐		☐		☐	
Widening - 4 ft. or greater	☐		☐		☐		☐		☐	
Uniform Paved Shldr - 4 ft. or greater	☐		☐		☐		☐		☐	
Widening - Less than 4 ft.	☐		☐		☐		☐		☐	
Intersections (separate operation)	☐		☐		☐		☐		☐	
Driveways / Irregular Areas	☐		☐		☐		☐		☐	
Patching / Wedging / Leveling	☐		☐		☐		☐		☐	

Remarks:

*Print Rdwy Tech's. Name:	RD1-	Res. Eng.
*Rdwy Tech Signature:		

Pink – M&T

Yellow – RoadwayTech.

White – Resident

New M&T 605 Form

MATERIAL PLACED TODAY						
Mix Type						
JMF No.						
Map No.	Mat Location					
Base Type (ABC, New Mix, Exist Pav't)						
Begin Station						
End Station						
Linear Feet						
Width						
Square Yards						
Today's Tons						
Rate of Spread (lbs. per sq. yd.)						
Tack Coat Rate (gals. per sq. yd.)						
Air Temp. (°F)	Surface Temp. (°F)					
Time Placed						
Mix Temperature (°F)						
Type of Density Control						
# QC Density Tests						
# Verification Density Tests						
Paving Application Type (check one)						
Full Width Paving	☐	☐	☐	☐	☐	
Widening - 4 ft. or greater	☐	☐	☐	☐	☐	
Uniform Paved Shldr - 4 ft. or greater	☐	☐	☐	☐	☐	
Widening - Less than 4 ft.	☐	☐	☐	☐	☐	
Intersections (separate operation)	☐	☐	☐	☐	☐	
Driveways / Irregular Areas	☐	☐	☐	☐	☐	
Patching / Wedging / Leveling	☐	☐	☐	☐	☐	

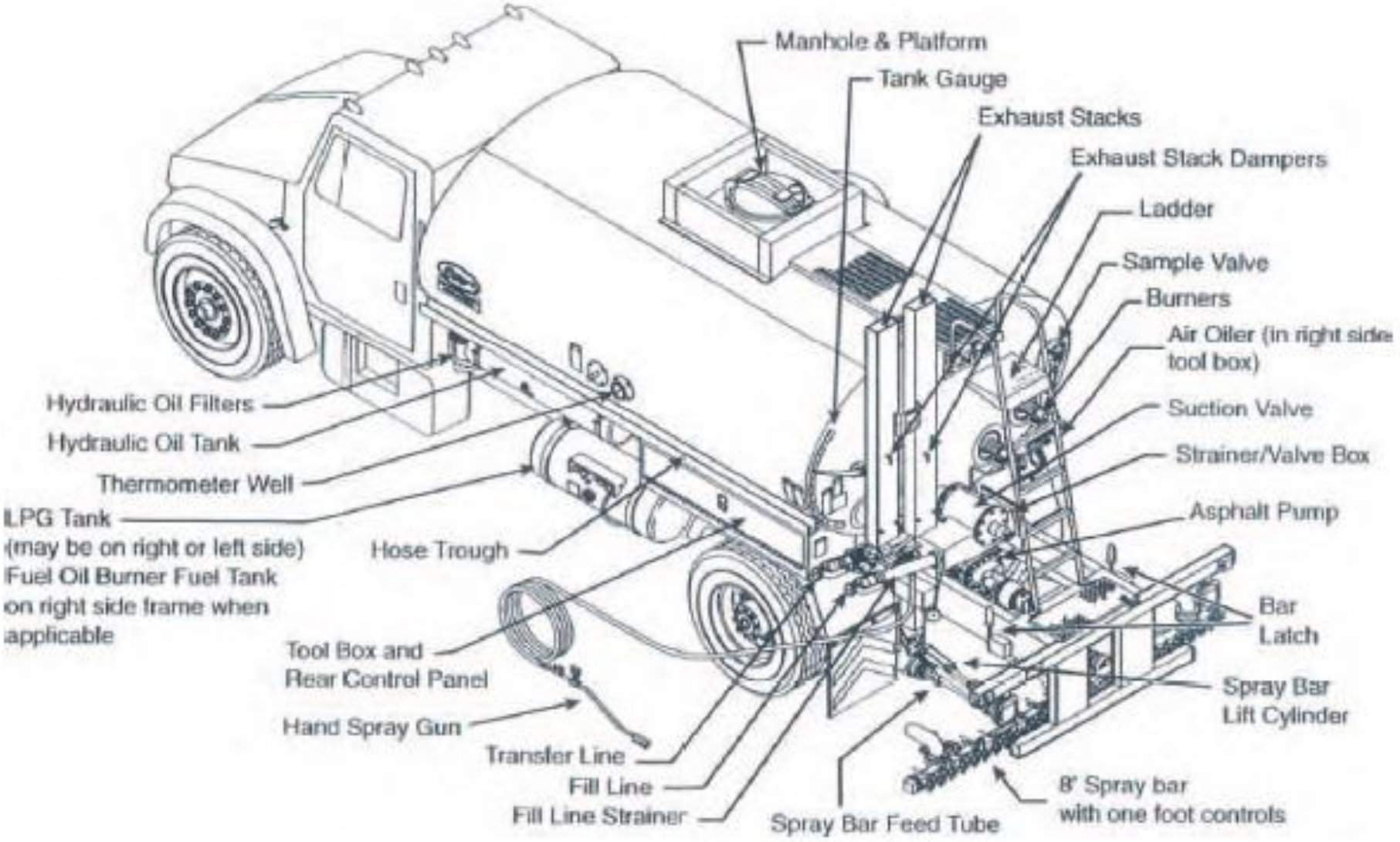
Audit Findings – Mix

- Auditor chose 60 Asphalt Mixes
  - Traced them through the Mix testing process from the QC Lab (plant) and the QA Lab
- 14 Findings
  - Consisting of either missing QA and/or V samples
  - Most errors occurred prior to implementation of corrective actions from last year's audit
  - Many errors occurred with JMFs that were produced with only very small tonnages

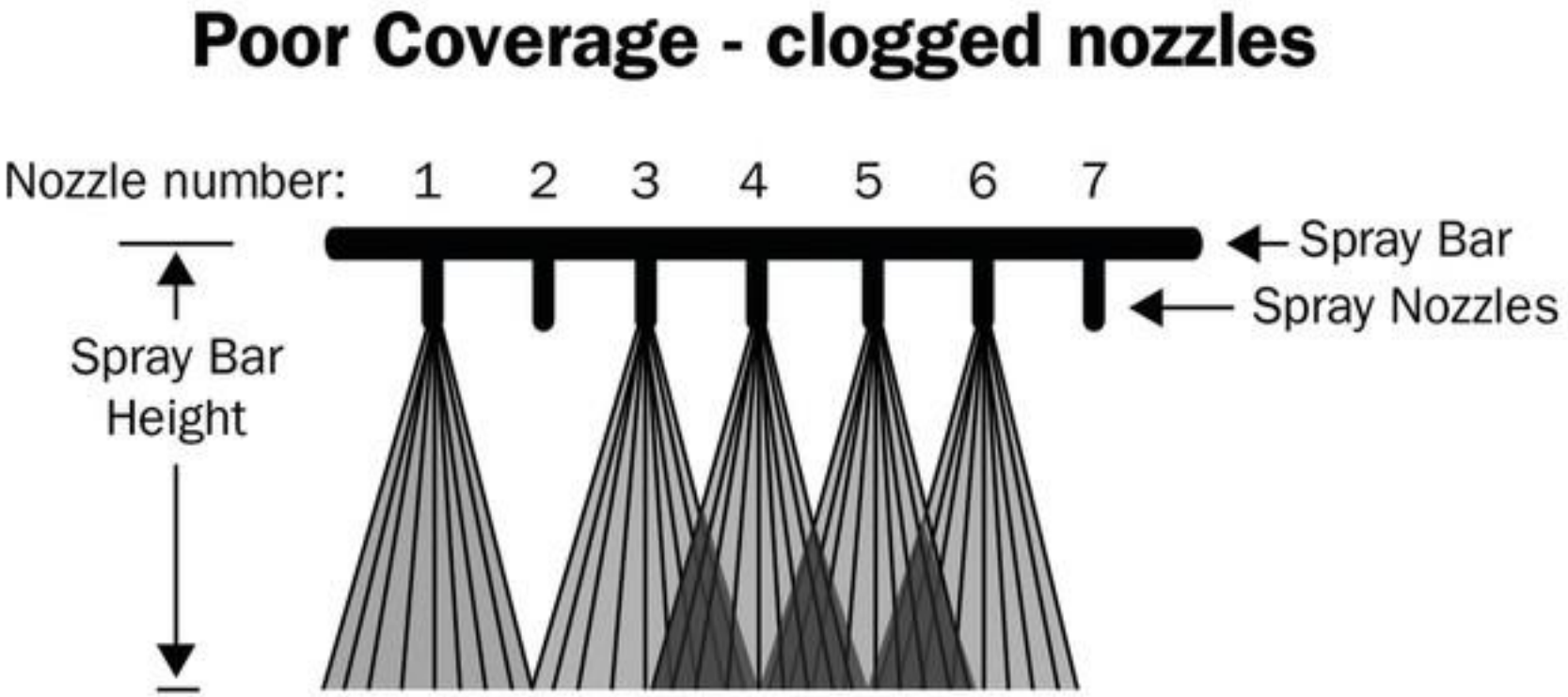
Audit Findings – Density

- Auditor chose 60 Contracts
  - Traced them through Density Testing at the Roadway by both Contractor and DOT personnel
- 9 Findings
  - Consisting of either missing QA and/or V cores
  - Again, most errors occurred prior to implementation of corrective actions from last year's audit

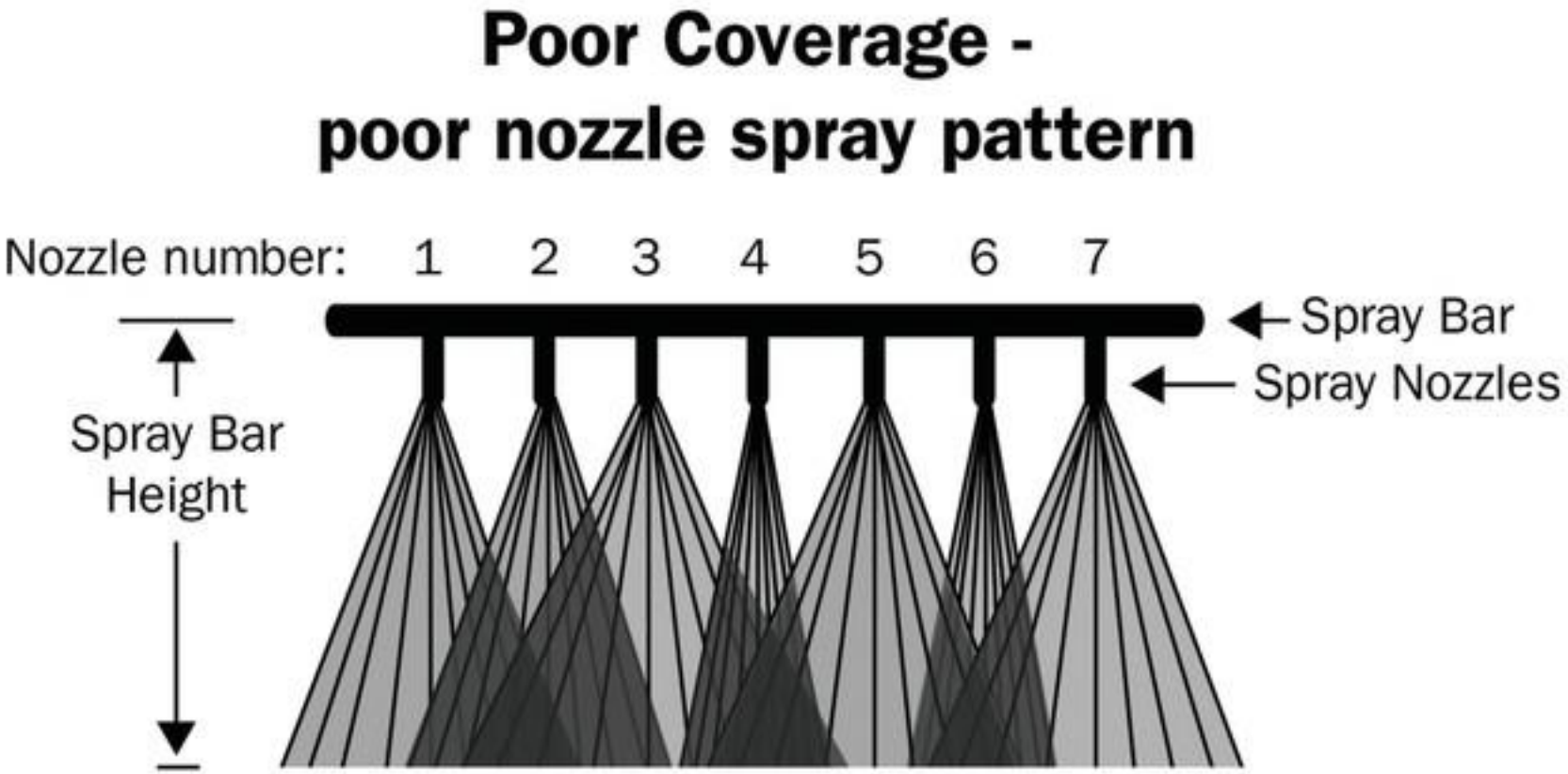
Tack Coat


Manhole & Platform
Tank Gauge
Exhaust Stacks
Exhaust Stack Dampers
Ladder
Sample Valve
Burners
Air Oiler (in right side tool box)
Suction Valve
Strainer/Valve Box
Asphalt Pump
Bar Latch
Spray Bar Lift Cylinder
8' Spray bar with one foot controls
Spray Bar Feed Tube
Hydraulic Oil Filters
Hydraulic Oil Tank
Thermometer Well
LPG Tank (may be on right or left side) Fuel Oil Burner Fuel Tank on right side frame when applicable
Hose Trough
Tool Box and Rear Control Panel
Hand Spray Gun
Transfer Line
Fill Line
Fill Line Strainer

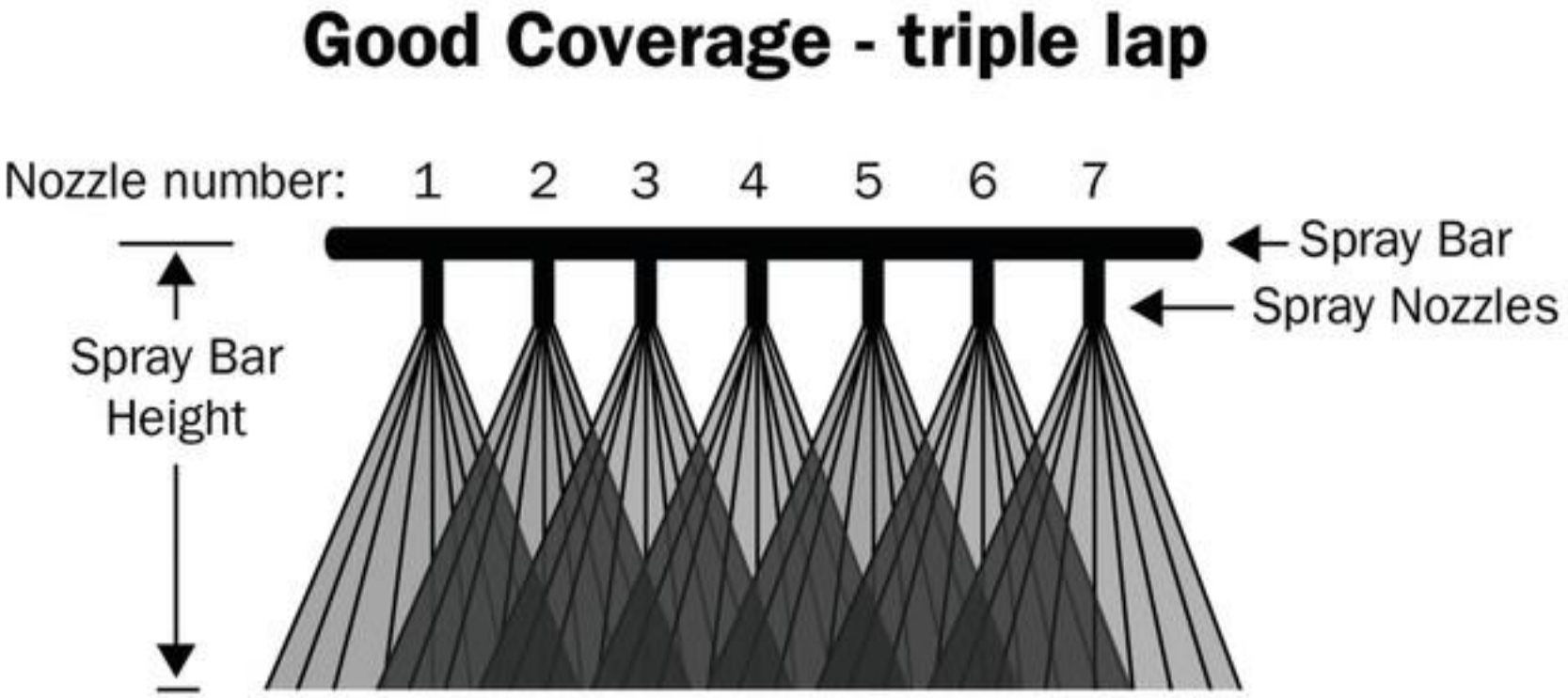
Tack Coat


Poor Coverage - clogged nozzles
Nozzle number: 1 2 3 4 5 6 7
Spray Bar
Spray Nozzles
Spray Bar Height

Tack Coat


Poor Coverage -
poor nozzle spray pattern
Nozzle number: 1 2 3 4 5 6 7
Spray Bar
Spray Nozzles
Spray Bar
Height

Tack Coat


Good Coverage - triple lap
Nozzle number: 1 2 3 4 5 6 7
Spray Bar
Spray Nozzles
Spray Bar Height

Tack Coat

Tack Coat

Tack Coat

Tack Coat

Tack Coat

Tack Coat

Tack Coat

Tack Coat

QUESTIONS ?

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State Asphalt Materials Engineer
Materials and Tests
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(919) 329-4060

Tack Coat

Chris Pendergraph, PE

N.C. Department of Transportation

Looking Ahead – 2016 Division 5 Resurfacing

2016 Asphalt Summit
Division 5
February 22, 2016

Resurfacing Funding

Division 5

Total FY 2013 - $40.1 M

Total FY 2014 - $44.5 M

Total FY 2015 - $39.7 M

Total FY 2016 - $48.2 M

Anticipated FY 2017 - $48 M

Resurfacing Projects

Under contract	**$14.9M**
Spring lettings	**$45.7M**
Total	**$60.6M**

2017 Resurfacing Letting Schedule

- **Wake** - **Jan 2016**
- **Vance/Warren** - **Feb 2016**
- **Granville** - **Mar 2016**
- **Person** - **Apr 2016**
- **Franklin** - **May 2016**
- **Durham** - **Jun 2016**

This letting schedule is for anticipated FY 17 $$

FY 2016 Preservation Goals

Division 5

Total Paved Lane-Miles	**~14,300**
10% of Pavement	**~1430 Lane-Miles**

$5.6 M in FY 2016

- **Chip Seals – 266 Lane-Miles**
- **Crack Sealing – 242 Lane-Miles**

- **Resurfacing expectation – 922 Lane-Miles**

Questions?

Divisions 4 & 5
Asphalt Summit
February 22, 2016

Objectives

- Acknowledge hard work of 2015
- Review successes from last year's paving
- Discuss areas for improvement
- Review "Good Paving Practices" for successful upcoming paving season

Thank You for a Good 2015

- Projects successes
- Cooperation between Industry and NCDOT
- Expectations were met

Thank You for a Good 2015

- Division 4
- 390,433 tons of Asphalt Produced Division wide for public projects
- Division 5
- ~1,400,000 tons of Asphalt Produced Division wide for public projects


Roxboro Bypass
Paving Contractor – Adams Construction


Fayetteville Outer Loop
Barnhill Contracting

Resurfacing Projects
Carolina Sunrock

Rolesville Bypass
Paving Contractor -Fred Smith Company

Fortify – Area 3 (I-440)
Granite Construction

Kelly Road Bridge Replacement Lane Construction


I-85 Reconstruction
S. T. Wooten


State Contracting
Forestville Road

Division 5 Resurfacing

- Successes
- Areas for Improvement
  - Core holes
  - Longitudinal joints
  - Segregation
  - Holding water on pavement
  - Pavement marking issues
  - Debris in final surface
  - Shoulder construction/ ASB

Core Holes


Joint Placement


Turn it black and don’t look back!
When it rains, pray it drains!


Segregation


Pavement Marking Issues

Debris in mat


Shoulder Construction


Easy
fresh
affordable

Roadway Placing Operation

- Planning
- Preparation
- Coordination
- Communication
- Understanding Expectations
- Working Together

Roadway Preparation

- Remove grass, dirt, mud, and other debris
- Remove and properly dispose of raised pavement markers (not on the shoulder)
- Double check the Typical Section
- Plan your longitudinal joint offset

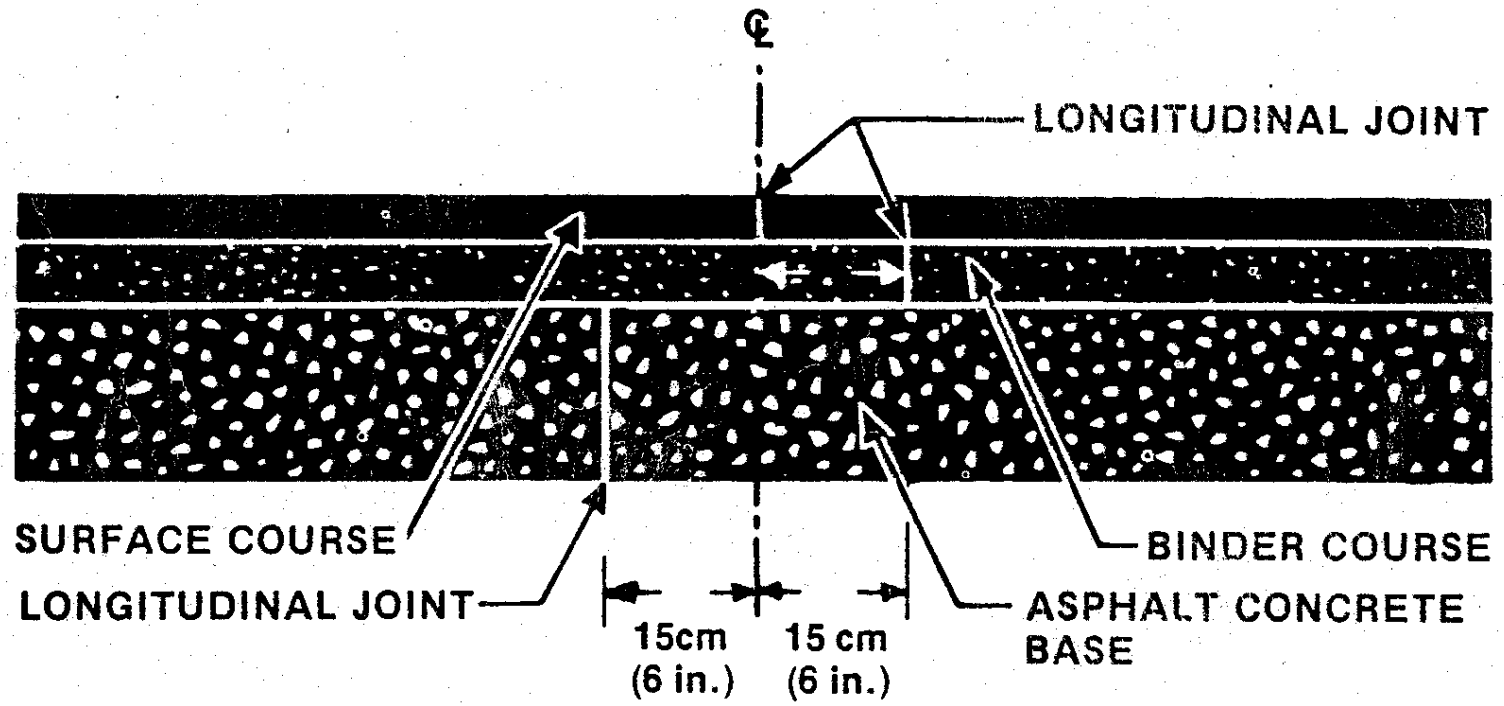

Clean Pavement before tack application


Why pave over markers?

Designated truck clean out area

Mat Appearance-Segregation Free


Longitudinal Joints


℄
LONGITUDINAL JOINT
SURFACE COURSE
LONGITUDINAL JOINT
BINDER COURSE
ASPHALT CONCRETE BASE
15cm (6 in.)
15 cm (6 in.)


Good Tack Coat Application

Tack

Pavement Clean

Proper rate

Uniform Application

Ensure tack breaks before paving

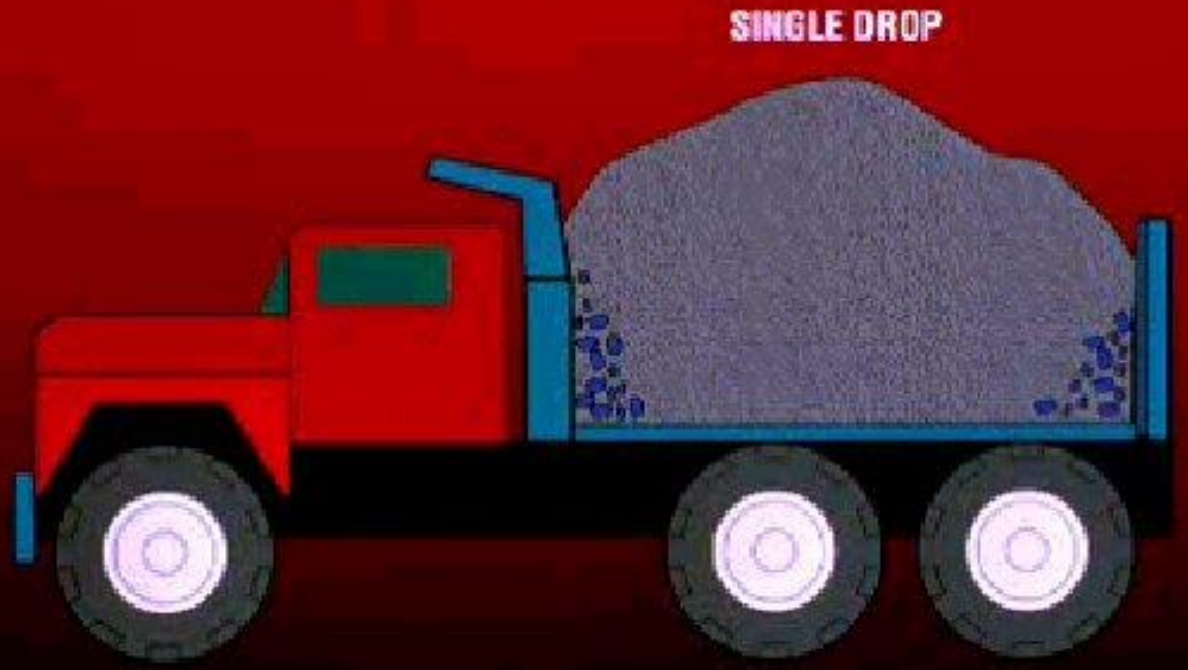
Tack Coat Best Practices Guide

- Application between 0.04 and 0.08 gal/SY
  - Rate depends on the oxidation of the map
    - Concrete surface (0.08)
    - Oxidized or Milled surface (0.06)
    - Placing onto newly placed lift (0.04)
- Check Temperature emulsion in distributer (~150°F)
- Uniform coverage over the mat

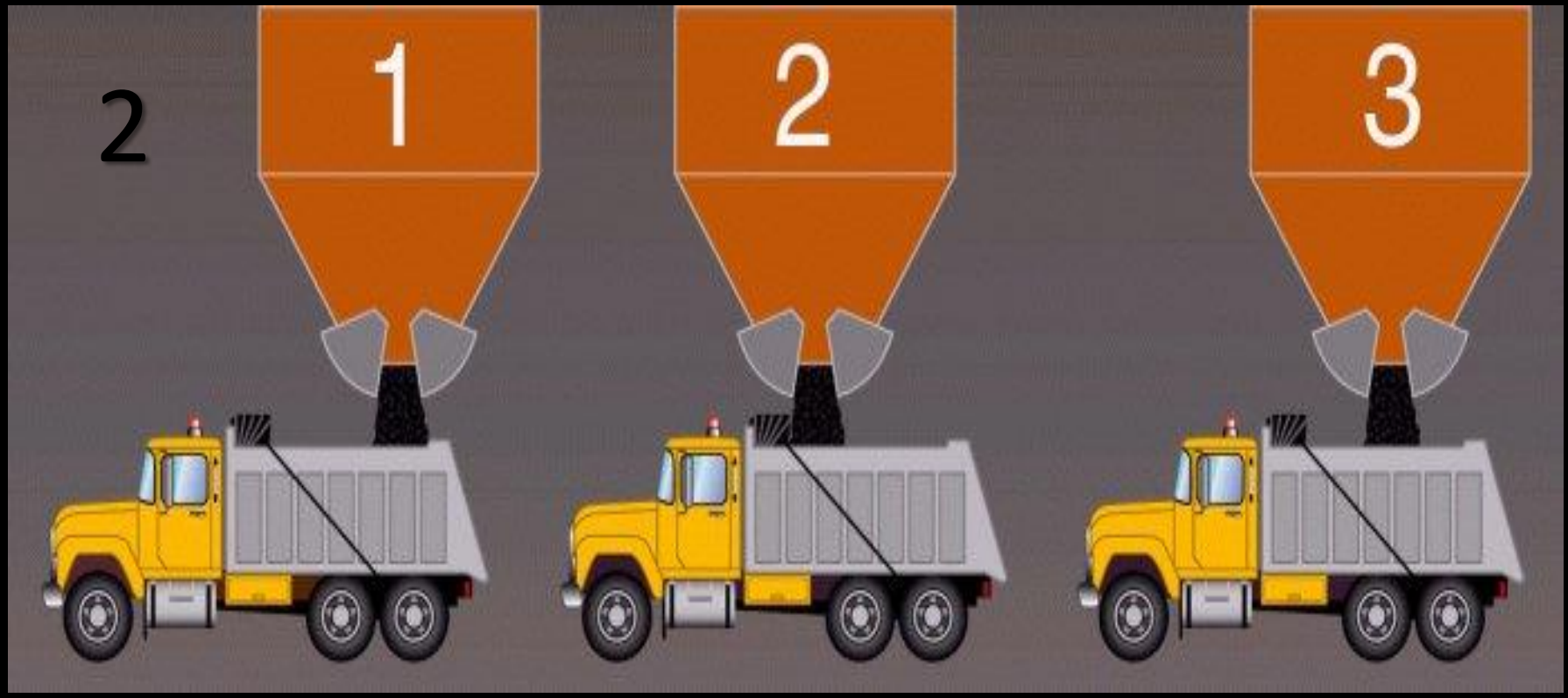
Segregation

“Take necessary precautions during production, loading of trucks, transportation, truck exchanges with paver, folding of paver hopper wings, and conveying material in front of the screed to prevent segregation of the asphalt mixtures.” -QMS Manual

1



IMPROPER TRUCK LOADING



Minimizes accumulation of larger aggregate in corners

Confines mix and allows some reblending during dumping

Hopper completely empty between loads


Keep the hopper full between loads
CATERPILLAR


CAT
AP655D


800-451-6819 - NC
866-880-8365 - SC
WARNING
WARNING


SPEED LIMIT
35


1
2011

In Conclusion

- Let's put into practice "Good Paving Practices" for another successful paving season
- Provide a Quality Product that is

"Pleasing to the eyes of the Public"


END
OF
ROAD

What Do We Want?

- Long life pavement
- Smooth pavement
- No material segregation
- No temperature segregation
- Uniform density
- Good mix

Thank You For Your Attendance And Attention!