


## About the Presenter



- Danny Lane** works for the Tennessee Department of Transportation as an Assistant Director for the Division of Materials and Tests. Danny manages the Research and Product Evaluation section within the Division. This section handles the (Qualified Products List) which consist of 45 lists with over 3,000 products. This section also manages all in house research and assists in Departmental and University research.
- Danny is a 40-year employee with the Department, he holds Chairmanships with in the AASHTO National Transportation Product Evaluation Program and serves as the Departments representative and voting member of the AASHTO Committee on Materials and Pavements (COMP).




1





**NATIONAL CONCRETE CONSORTIUM  
2020 ANNUAL MEETING**

# NTPEP State Experience Tennessee DOT


**Danny Lane**  
**Tennessee Department of Transportation**  
**Research & Product Evaluation**









**NATIONAL CONCRETE CONSORTIUM  
2020 ANNUAL MEETING**



**TTCD**  
**1988 / 1989**







**NATIONAL CONCRETE CONSORTIUM  
2020 ANNUAL MEETING**





**TTCD IMPACTS  
 DRUMS & DELINEATORS**







**NATIONAL CONCRETE CONSORTIUM**  
2020 ANNUAL MEETING

**AASHTO's National Transportation Product Evaluation Program (NTPEP)**  
**Application of Binder**

**HFTO TEST DECKS**

**NTPEP**  
NATIONAL TRANSPORTATION  
PRODUCT EVALUATION PROGRAM

**TN** **TDOT**  
Department of  
Transportation

**NATIONAL CONCRETE CONSORTIUM**  
2020 ANNUAL MEETING

**AASHTO's National Transportation Product Evaluation Program (NTPEP)**  
**Test Decks**

**NTPEP**  
NATIONAL TRANSPORTATION  
PRODUCT EVALUATION PROGRAM

**TN** **TDOT**  
Department of  
Transportation

**NATIONAL CONCRETE CONSORTIUM**  
2020 ANNUAL MEETING

**AASHTO's National Transportation Product Evaluation Program (NTPEP)**  
**HFTO Test Decks**

**ers**

Aggregate Type	Test	Specification	Unit Value (in mm)	Decimal Value (in "0.001")	Value
Binder	Viscosity	CB81	PA's	0.001	2.11
	Viscosity - Spindle Selection	CB81	Unitless	0	RV-3
	Viscosity - Spread Selection	CB81	cm/min	0	20
	Gel Time	CB81	min	0.1	14
	Tensile Strength	CB81	PSI	0.001	3379
	Tensile Elongation	CB81	%	0.1	48.7
	Tensile Modulus	D028	PSI	0.001	137626
	Absorption	CB81	%	0.1	0.2
	Shore D Hardness	D2240	Unitless	0	75
	Compressive Strength	CB81	PSI	0.001	2101

– Flint (Picher Oklahoma) **Bridge I**

– Basalt (Washington State Granite)

– Taconite (Silica/Iron Oxide) **Bridge**

– Feldspar **Bridge Preservation**

**NTPEP**  
NATIONAL TRANSPORTATION  
PRODUCT EVALUATION PROGRAM

**TN** **TDOT**  
Department of  
Transportation

**NATIONAL CONCRETE CONSORTIUM**  
2020 ANNUAL MEETING

**AASHTO's National Transportation Product Evaluation Program (NTPEP)**  
**HFTO Test Decks**

- 3-year Evaluation for
  - Friction SKID Test
  - Bonding
  - Ware and Delamination
- Currently Evaluating (37), 200 ' Test Sections Placed in **2016 & 2017**
  - 10 Asphalt Pavement Decks (**Single Lift**) **HFST**
  - 9 Concrete Pavement Decks (**Single Lift**) **HFST**
  - 11 Concrete Bridge Decks (**Double Lift**) **Bridge Preservation**

**NTPEP**  
NATIONAL TRANSPORTATION  
PRODUCT EVALUATION PROGRAM

**TN** **TDOT**  
Department of  
Transportation

**NATIONAL CONCRETE CONSORTIUM  
2020 ANNUAL MEETING**

**BEFORE DATAMINE**

**NTPEP**  
AASHTO NATIONAL TRANSPORTATION  
PRODUCT EVALUATION PROGRAM

**TN** **TDOT**  
Department of  
Transportation

**NATIONAL CONCRETE CONSORTIUM  
2020 ANNUAL MEETING**

**BEFORE DATAMINE**

**NTPEP**  
AASHTO NATIONAL TRANSPORTATION  
PRODUCT EVALUATION PROGRAM

**TN** **TDOT**  
Department of  
Transportation

**NATIONAL CONCRETE CONSORTIUM  
2020 ANNUAL MEETING**

**NTPEP DATAMINE**

**NTPEP**  
AASHTO NATIONAL TRANSPORTATION  
PRODUCT EVALUATION PROGRAM

**TN** **TDOT**  
Department of  
Transportation

**NATIONAL CONCRETE CONSORTIUM  
2020 ANNUAL MEETING**

**EVALUATED PRODUCTS**

**TRAFFIC SAFETY**

- Pavement Marking Materials
- Portable Changeable Message Signs and Flashing Arrow Panels
- Raised Pavement Markers
- Roll Up Signage Materials
- Sign Sheeting Materials
- Temporary Traffic Control Devices

**MAINTENANCE**

- Concrete Coating Systems
- High Friction and Thin Overlays
- PCC Joint Sealants and HMA Crack Sealers
- Rapid Set Concrete Patch Materials
- Spray Applied Pipe Liners
- Structural Steel Coatings

**CONSTRUCTION**

- Asphalt Release Agents
- Concrete Admixtures
- Concrete Curing Compounds
- Corrugated Metal Pipe
- Elastomeric Bridge Bearing Pads
- Epoxy and Resin Based Adhesive Bonding Systems
- Erosion Control Products/Sediment Retention Devices
- Geosynthetic Reinforcement
- Geotextiles and Geosynthetics
- Guardrail/Guide Rail
- Reinforcing Steel/Welded Wire Reinforcement
- Thermoplastic Pipe
- Warm Mix Asphalt Technologies

Using NTPEP DataMine, manufacturers can submit their products for evaluations while NTPEP testing facilities can enter online test results data. These test results can then be shared publicly by their respective manufacturers.

**6,338**

**NTPEP**  
AASHTO NATIONAL TRANSPORTATION  
PRODUCT EVALUATION PROGRAM

**TN** **TDOT**  
Department of  
Transportation

**NATIONAL CONCRETE CONSORTIUM**  
2020 ANNUAL MEETING

**PRODUCTS**

**CURRENT QUALIFIED PRODUCTS LIST**

PRODUCT LIST	APPROVED PRODUCTS
1. Traffic Control Materials	889
2. Waterproofing Membranes & Materials	14
3. Epoxy, Isocyanate, Epoxy Primers and Topcoats	19
4. Air Entraining and Chemical Admixtures for Concrete	889
5. Joint Sealants and Fillers	90
6. Traffic Control Detection Lamp Systems	11
7. Traditional Compression Joint Seals with Lubricant	80
8. Epoxy Resin Systems	84
9. Elastomeric Bridge Joints and Bridge Joint Systems	6
10. Reflective Sheeting	80
11. Biodegradable Asphalt Substitutes	12
12. Coatings for Concrete	20
13. Patching Materials	290
14. Joint Sealing Adhesives	50
15. There is no QPL 15 list at this time	0
16. There is no QPL 16 list at this time	0
17. Erosion Prevention and Sediment Control	291
18. Manhole Frames	14
19. Epoxy Powder for Reinforcing Steel	80
20. Street Curb Guard	0
21. Release Compounds for Asphalt Mixes	11
22. Release Compounds	889
23. Concrete Waterproofing	80
24. Concrete Joint Sealants	0
25. Pressure Injected Epoxy Systems	80
26. Anti-Cracking Products	14
27. Rebar Surface	10
28. Wire Accessories	10
29. Flashing Arrow Panels and Arrow Boards	10
30. Portable Changeable Message Signs	10
31. High Friction Surface Treatments for Roadways	27
32. Retracted Plastic Overlaid Blank mats	10
33. RASID or RASID II Approved Sign Post Hardware	20
34. Approved Roadside Safety Hardware	889
35. Aggregate	2
36. Detection and Communication	40
37. ADA Detectable Warning Truncated Cones	47
38. Retaining Wall Systems	10
39. Warm Mix Asphalt	11
40. Pavement Sealants and Treatments	10
41. Rockfill Mitigation	11
42. Spray Applied Liner Material	1
43. Closure Pour Materials	0
44. Workzone Traffic Control Products	0
45. Miscellaneous	84
<b>TOTAL APPROVED PRODUCTS</b>	<b>2903</b>

**AND APPLICATIONS**

**NTPEP**  
AASHTO NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM

**TN** **TDOT** Department of Transportation

**NATIONAL CONCRETE CONSORTIUM**  
2020 ANNUAL MEETING

**QPL 1** Raised Pavement Markers / Snowplowable Raised Pavement Markers (RPM/SRPM)

**QPL 1** Delineators and Workzone Drums

**QPL 1** Pavement Marking Materials (PMM)

**QPL 3** Structural Steel Coatings/Concrete Coating Systems (SSC/CCS)

**QPL 4** Concrete Admixtures/Concrete Curing Compounds (CADD/CCC)

**QPL 8** Epoxy and Resin Based Adhesive Bonding Systems (ERB)\*

**QPL 10** Sign Sheeting Materials/Roll Up Signs (SSM/RUP)

**QPL 13** Rapid Set Concrete Patch Materials (RSCP)

**QPL 14** Portland & Blended Cement (PBC)\*

**NTPEP**  
AASHTO NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM

**TN** **TDOT** Department of Transportation

**NATIONAL CONCRETE CONSORTIUM**  
2020 ANNUAL MEETING

**QPL 17** Erosion Control Products (ECP)

**QPL 21** Asphalt Release Agents (ARA)

**QPL 29** Flashing Arrow Panels (PCMS/FAP)

**QPL 30** Portable Changeable Message Signs

**QPL 23 & 31** High Friction and Thin Overlays (HFTO)

**QPL 36** Geosynthetics (GTX & REGEO)

**QPL 37** Detectable Warning Systems (DWS)

**QPL 39** Warm Mix Asphalt Technologies (WMA)

**QPL 42** Spray Applied Pipe Liners (SAPL) **NEW 2019**

**NTPEP**  
AASHTO NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM

**TN** **TDOT** Department of Transportation

**NATIONAL CONCRETE CONSORTIUM**  
2020 ANNUAL MEETING

**Special Provision Regarding Spray Applied Pipe Liners (SAPL)**

**Table 1 - Mix Proportions and Labors**

SPRINT	STATE	OE	TESTING
			January 1, 2015

**DISCUSSION:**

This specification shall govern all work, materials, and equipment required for pipe and culvert rehabilitation using a "spray applied method" for the purpose of structural rehabilitation and extending repair of work, not restoration of the structural integrity of the pipe or culvert.

**Material:**

Products meeting this provision shall have been submitted and evaluated through AASHTO's National Transportation Product Evaluation Program (NTPEP) or AASHTO Product Evaluation List (PEL). Any product that is on the TDOT Qualified Product List (QPL) or SPRAY APPLIED PIPE LINERS (SAPL) may be used.

Consistent with the establishment of pipe systems and for filling voids shall meet the requirements of section 21.06- Type 1 of the Standard Specifications. Alternate products shall be approved by the State Engineer prior to use.

**Spray Applied Pipe Lining Method**

The spray applied lining material shall be used to form structurally reinforced assemblies lining existing all section members of the structure, including headwalls and levels of stability.

The spray applied pipe lining shall conform to the minimum physical requirements as tested as approved during the initial NTPEP Evaluation. The physical requirements must be verified by an independent, certified, third party testing laboratory within the first five years.

Submittal to the project engineer manufacturer's detailed product data with complete information on test pipe material, types, units, grades, sizes, dimensions, field physical properties, dimensions, installation instructions, maximum allowable pressures, etc. as determined by independent, certified, third party testing laboratory within the first five years.

The SAPL will include applying a self-healing agent to repair needed sections followed by the application of a TDOT approved spray applied lining process.

**Summary of Product Test Results**



Test Age	Average Test Results
25 days	77.0 & Very Low
7 days	8,000
28 days	10,000
Initial Set	457
Final Set	853
28 days	0.833
25 days	3.36 E-06
7 days	890
28 days	890
1 day	-0.015
1 day	-0.019
7 days	-0.040
14 days	-0.054
28 days	-0.042
25 days	1.470
7 days	1.000
28 days	1.105

**NTPEP**  
AASHTO NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM

**TN** **TDOT** Department of Transportation



**NATIONAL CONCRETE CONSORTIUM**  
2020 ANNUAL MEETING

**AASHTO** FOLLOW US ON:   

Transportation News Services Meetings About Products

**NTPEP** National Transportation Product Evaluation Program

**NTPEP Web Site**

- Home
- Membership
- Technical Committees
- Documents
- NTPEP Database
- States Only
- APEL
- FAQ
- NTPEP Lab Inquiries
- YouTube Channel

**NTPEP Status**

- Continued
- Past State Contributions
- State Contribution Inquiries

**NTPEP Newsletters**

- CEF 527

**Rapid Set Concrete Patch Materials**

AASHTO - NTPEP - Rapid Set Concrete Patch Materials

**Rapid Set Concrete Patch Materials (RSCP)**

Rapid set concrete patch materials are used widely in the transportation industry, from horizontal applications for pavements, to vertical and overhead applications for bridges and structures. According to the NTPEP Project Work Plan which describes the ASTM and AASHTO test methods under which products are evaluated, "the study will look at both water based and non water based rapid setting materials used to patch portland cement concrete. These will include cementitious, latex modified, polymer resin, magnesium phosphate, and other materials expressly designed for patching portland cement concrete bridge decks and portland cement concrete pavements. In order to be classified as fast setting, the product must reach a traffic loadable condition (1200 psi compression) in less than three hours.

The NTPEP Project Panel responsible for authoring the Project Work Plan convenes yearly at the NTPEP National (Annual) Meeting. During this working meeting, the Project Work Plan is discussed; changes made, and shortly thereafter balloted for adoption. Improvements are immediately implemented in the next available testing cycle. When compared to other standards development exercises, the NTPEP process is agile, effective and efficient.

**NTPEP Designated Lab:**

- Nelson Testing Laboratories

**NTPEP** **AASHTO** NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM

**TN** **TDOT** Department of Transportation

**NATIONAL CONCRETE CONSORTIUM**  
2020 ANNUAL MEETING

**NTPEP Rapid Set Concrete Patch Materials (RSCP)**

**QPL 15 Pre-Packaged Concrete Mixture**

**QPL 15: PRE-PACKAGED CONCRETE MIXTURE**

**GENERAL**

This evaluation procedure outlines the Department's approval process for pre-packaged concrete mixture. The use of this material is limited to minor structures and quantities that do not exceed 2 cubic yards per day.

**SPECIFICATIONS**

- TDOT Standard Specifications Section 604.03B
- AASHTO T22 - Compressive Strength of Cylindrical Concrete Specimens
- ASTM C387 - Standard Specification for Packaged, Dry, Combined Materials for Concrete and High-Strength Mortar

**PROCEDURES**

A completed Product Evaluation Form, safety data sheet (if applicable), product data information, and test results from an independent laboratory.

The pre-packaged concrete mixture shall be in general conformance with ASTM C387 with the following exceptions:

- The product shall be combined with a coarse aggregate with size fractions of 3/8-inch or larger.
- The 7- and 28-day compressive strength test results shall be reported.
- The strength requirements are as follows:

Age	Compressive Strength
7 days	For Information Only
28 days	4000

**Additional Requirements**

- The use of a mechanical mixing machine is required.
- The concrete must be stored in accordance with the manufacturer's recommendations.
- The Pre-Packaged Concrete Mixture selected for use by the contractor must meet the design strength on the contract plans.

**QPL 15: Page 1 of 1**

**NTPEP** **AASHTO** NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM

**TN** **TDOT** Department of Transportation

**NASHVILLE**  
**FAST FIX 8**  
**40**

**NATIONAL CONCRETE CONSORTIUM**  
2020 ANNUAL MEETING

**QPL 43 Closure Pour Materials**

**NTPEP Rapid Set Concrete Patch Materials (RSCP) DATA**

**THE EXTENDED PRODUCT SHALL MEET THE FOLLOWING CRITERIA:**

- 1) AASHTO T106/ASTM C 109 - or - AASHTO T22/ASTM C39  
Compressive Strength:  
Age Compressive Strength  
8 hours **1,000 PSI**  
24 hours For Information Only  
3 days For Information Only  
7 days For Information Only  
28 days **6,000 PSI**
- 2) ASTM C157 - Length Change of Hardened Concrete (cured in air)  
Age Maximum Length Change  
28 days **-0.10 %**
- 3) ASTM C882 - Bond Strength by Slant Shear (modified to test at early ages)  
Age Bond Strength  
24 hours **1,000 PSI**  
7 days For Information Only

**NTPEP** **AASHTO** NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM

**TN** **TDOT** Department of Transportation

**NATIONAL CONCRETE CONSORTIUM**  
2020 ANNUAL MEETING

**NTPEP 2020 Implementation**

**PCC Joint Sealants (JS) & Hot Mix Asphalt Crack Sealant (CS) \***

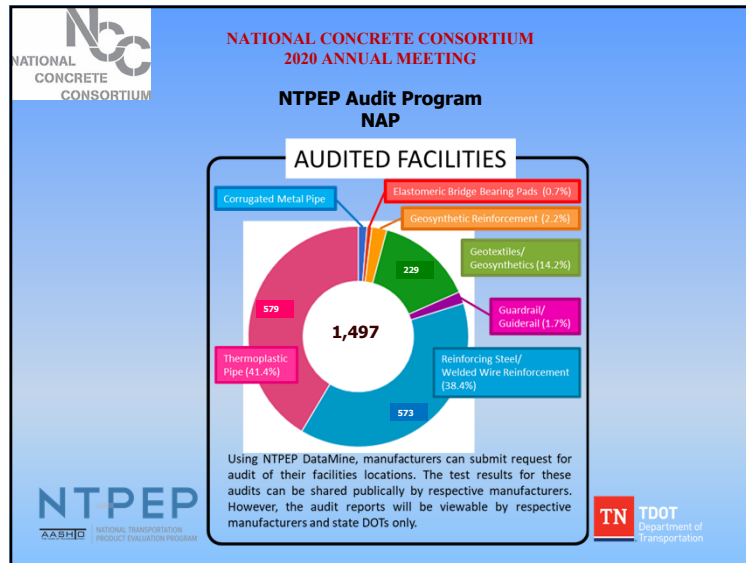
**Detectable Warning Systems (DWS) \***

**Epoxy and Resin-Based Adhesive Bonding Systems (ERB) \***

**Portland & Blended Cement (PBC) \***

**NTPEP** **AASHTO** NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM

**TN** **TDOT** Department of Transportation



**NATIONAL CONCRETE CONSORTIUM  
2020 ANNUAL MEETING**

**Corrugated Metal Pipe (CMP)**

**Elastomeric Bridge Bearing Pads (EBB)**

**Guardrail/Guidrail (GR)**

**Thermoplastic Pipe (THP)**

**Reinforcement (REBAR/WWW)**

**NTPEP**  
AASHTO NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM

**TN** **TDOT**  
Department of Transportation

**March 1, 2018**  
Reinforcing Inc.  
1230 Industrial Drive  
Hempstead, TN 37055

**To Whom It May Concern,**  
TDOT Materials and Tests Division has recently updated the steel bar reinforcing requirements for the Department's Producer List.

TDOT will utilize the National Transportation Product Evaluation Program's (NTPEP) National Audit Program (NAP) in its approval process for Reinforcing Steel Manufacturing. Manufacturers will be required to submit NTPEP and Evaluation of Reinforcing Steel Manufacturing (ERS) audit program reports annually. NTPEP certification will be required by December 31, 2018 in order for manufacturers to remain on the TDOT's Producer List.

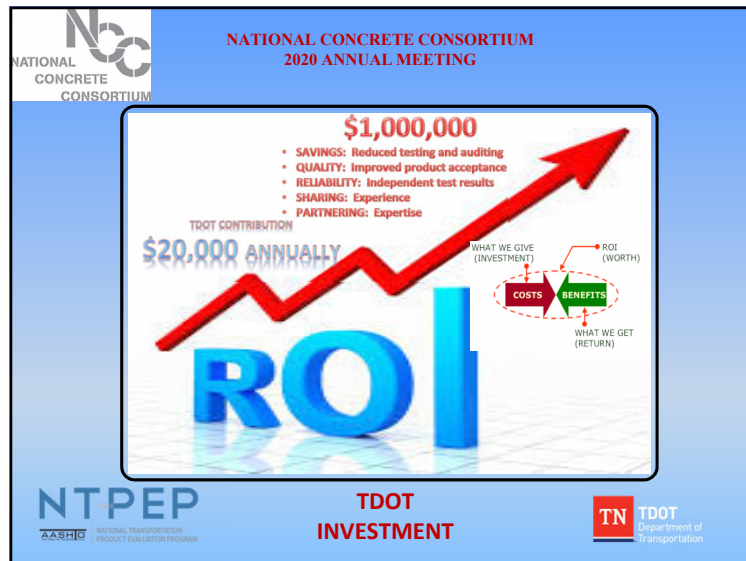
TDOT will use the audit results to determine inclusion of the manufacturer based on compliance with NTPEP and the evaluation of ERS audit program. A review of the final audit report, along with corrective actions and test sample test results will be considered in the evaluation.

For reinforcing that goes through a cold drawing process, the original mill certification must be supplied for each size of the original material. After the cold drawing process, an independent laboratory must verify each size for the tensile strength that meets the original certification of the material.

For other steel reinforcement (epoxy coated, welded wire fabric, etc.), please refer to the SOP 7-1.

Sincerely,  
Brian Egan  
Director of Materials and Tests Division  
BEG

Materials and Tests Division • Building A, 1<sup>st</sup> Floor • 600 Chemical Building • Nashville, TN 37203  
Tel: 615-255-4100 • Fax: 615-255-4120 • b.egan@dot.gov



**NATIONAL CONCRETE CONSORTIUM  
2020 ANNUAL MEETING**

**TDOT DIVISIONS  
BENEFITTING FROM  
NTPEP**

**Construction** **Maintenance**

**Design** **Materials & Tests** **Safety**

**Occupational Health and Safety**

**Traffic Operations** **Environmental**

**Structures**

**NTPEP**  
AASHTO NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM

**TN** **TDOT**  
Department of Transportation



NATIONAL CONCRETE CONSORTIUM

NATIONAL CONCRETE CONSORTIUM  
2020 ANNUAL MEETING

STATE AGENCIES

INDUSTRY PARTNERS



PARTNERSHIP



NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM



TN TDOT  
Department of Transportation



NATIONAL CONCRETE CONSORTIUM

NATIONAL CONCRETE CONSORTIUM  
2020 ANNUAL MEETING

A Big Tennessee DOT



NTPEP 25<sup>th</sup>  
ANNIVERSARY  
1995-2020

Thank You  
TO



TN TDOT  
Department of Transportation

INDUSTRY PARTNERS



AASHTO

STATE AGENCIES

CHAIRS & VICE CHAIRS COMMITTEES MEMBERS



NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM



TN TDOT  
Department of Transportation