



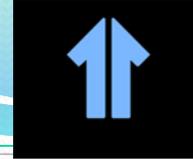
Pavement Preservation

North Carolina Department of Transportation

2016 Best Construction Practices

Chip Seal Treatment





About Your Instructor.....



Howard Averette Moore
Area Roadway Specialist

Mr. Moore has over 34 years of construction experience which includes experience in highway maintenance and construction inspection of roadways and bridges. Additionally, Mr. Moore has extensive hands-on experience with land/construction surveying, and construction materials sampling and testing.

Mr. Moore's professional career is as follows:

- **Summit Design and Engineering, Project Engineer, 2014 – Present.**
 - Mr. Moore is a Project Manager and Area Specialist on several projects with Summit. His most recent projects include the Town of Hillsborough Resurfacing, the Town of Hillsborough's Riverwalk Trail, the IBM Roadway Rehabilitation, the Town of Knightdale's Mingo Creek Trail, the Town of Wake Forest's Crenshaw Multi- Use Path, and the Town of Carthage Pavement Condition Survey.
- **NCDOT Bituminous Unit Division 5, Engineering Technician VI, 1996 – 2013.**
- **NCDOT Durham County, Maintenance Supervisor, 1988 – 1996.**
- **NCDOT Division 5, Project Inspector, 1981 – 1988.**



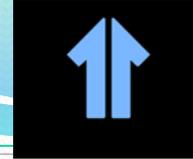
Pavement Preservation – Chip Seals



THE GOOD ROADS STATE

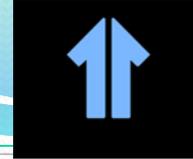
- After 7 decades (70 years) of NCDOT self-performing Chip Seals
- Contractor's stepping up to provide contract Chip Seals
- Utilizing new technology and ongoing training to stay the "GOOD ROADS STATE"





Facts About The Chip Seal Program

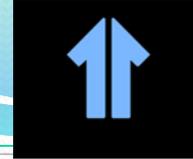
- The NCDOT's Chip Seal Program is critical to the preservation of our State road system.
- Each Division utilizes and benefits extensively from the application of Chip Seal as a preservation technique each and every year.
- Important point to the continued success of the chip seal program
THE RIGHT TREATMENT, ON THE RIGHT ROAD, AT THE RIGHT TIME



Our Goal is to Achieve the Best Quality Product Possible to Extend Pavement Life

- In 2014 DOT forces alone chip sealed approximately 1200 miles at a cost of 35.5 million dollars statewide.
- In fiscal year 2016/2017, 3 times that amount, approximately 100 million has been appropriated for pavement preservation activities.





Basics for Contractor-Performed Chip Seal

- **Contract Specifications**

Refer to 2012 Roadway Standard Specifications; Section 660

- **Substrate Preparation**

Patching and Profile Corrections

- **Materials**

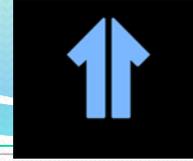
Compatibility Testing of Aggregate and Emulsion.

- **Compaction**

Proper Types of Rollers and Proper Rolling Patterns

- **Embedment Depth**

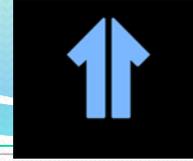
Test Strips to Assure Proper Rates of Aggregate and Emulsion.



Contract Specifications

2012 Roadway Standard Specifications; Section 660

- **Preconstruction meeting:** The meeting should be held prior to installing chip seal. Representatives should include project engineer, project inspector, contractor, and material and test unit.
- **Topics of preconstruction meeting:** Traffic control, asphalt materials compatibility and acceptance, surface preparation, application equipment, construction methods, construction schedule, weather and seasonal limitations.



Substrate Preparation

Prior to applying a chip seal it is very important to repair structural defects in existing pavement that will cause premature failure of the chip seal.



Materials



- Before any chip seal is placed the emulsion supplier is to furnish the engineer a Certification of Compatibility.
- Assure correct pounds per square yard of aggregate are being used to achieve a one stone coverage.
- Assure correct gallons per square yard of emulsion base upon existing road conditions and aggregate size.



Compaction and Embedment Depth

- **Pneumatic Roller** should be first roller to embed aggregate into emulsion, the independent and flexible movement of the tires allow for embedment even with minor depressions in existing pavement. This roller should follow aggregate spreader as closely as possible.





Compaction and Embedment Depth

Static Steel Wheel Roller will assist with compressing the aggregate into the emulsion to provide strength and smoothness of finish product.

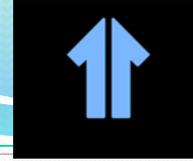
- Caution must be taken to avoid crushing the aggregate.
- Ideal size is 5 to 7 ton roller without vibrating function.



Compaction and Embedment Depth

Rolling Patterns: Caution should be taken to assure rollers provide a minimum of one pass coverage to the entire width of chip seal being placed as quickly as practically possible behind aggregate placement.

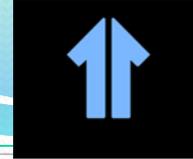




Additional Pavement Preservations Techniques

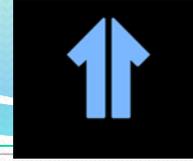
Fog Seals: Ideal application on newly installed chip seals to provide enhanced aggregate retention. This application gives the appearance of hot mix asphalt and is received and accepted well, by the traveling public.





Additional Pavement Preservations Techniques

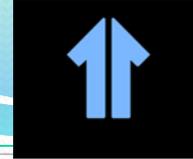
Slurry Seals: Ideal application on newly installed chip seals to provide enhanced aggregate retention. Product is a mixture of emulsified asphalt, mineral fillers, and lime. Applied with asphalt distributor and drag box to provide fulfilment of smallest voids.



Additional Pavement Preservations Techniques

Manufactured Matting: Rolled matting or cut fiberglass along with emulsified asphalt, are excellent for retarding reflective cracking.

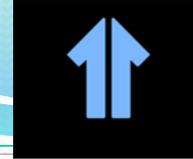




Additional Pavement Preservations Techniques

Crack Sealing: Ideal application to fill existing crack in pavement prior to treatment. The key here is to minimize over banding.





Coming Soon.....

- **Formal Training:** Chip seal best practices training will be coming soon.
- **Available to:** NCDOT employees, contractor employees, and CEI firm employees.
- **For Further information contact:**

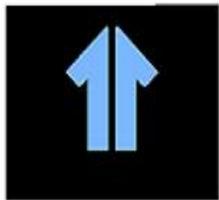
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QUESTIONS?



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