

Alabama DOT

Pavement Preservation

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Roadway

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ALDOT Pavement Preservation

- Overview
 - Pavement Preservation Policy (PPP)
 - Pavement Preservation Training
 - Federal Maintenance Resurfacing Program
 - Interstate Maintenance Program
- Success Story
 - I-20/59 Micro-Surfacing Test Project

Pavement Preservation Policy

- Put into place in 2019
- Between ALDOT and Alabama Division of FHWA
- Purpose
 - Define the eligibility of two preservation strategies: Preventative Maintenance (PM) and Minor Rehabilitation (MR)
- Provides decision-making matrices for PM 1, PM 2, and MR projects
- Maximizes eligible funding sources for pavement management

Pavement Preservation Policy

- Example matrix for decision-making

| | Preventative Maintenance 1 (PM 1) | Preventative Maintenance 2 (PM 2) | Minor Rehabilitation (MR) |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Flexible Pavement Selection of Treatments | <ul style="list-style-type: none"> • Crack Filling and Sealing • Fog Seal • Scrub Seal • Chip Seal • Double Surface Treatment • Triple Surface Treatment • Slurry Seal • Micro-surfacing • Surface Sealing • High Friction Surface Treatment • Thin Lift Asphalt Concrete Layer (not to exceed 110 lbs./sq. ft.) • Safety Layer • Cape Seals | <ul style="list-style-type: none"> • PM 1 eligible treatments • Asphalt Concrete pavement should not exceed 2.0" in total thickness (excluding any safety layer). | <ul style="list-style-type: none"> • PM 1 and PM 2 eligible treatments • Adjustment layer (as needed for cross-slope and/or superelevation correction) • The combination of Asphalt Concrete binder and wearing surface layers should not exceed 5.0" in total thickness (excluding any safety layer or adjustment layers). |

Pavement Preservation Training

- National Center for Asphalt Technology (NCAT) – Opelika, AL
 - Training held in 2019
 - ALDOT personnel were able to see different applications that had been placed on CR-57 and US-280
- Alabama Transportation Assistance Program (ATAP)
 - Training was held in August
 - Topics:
 - Distress identification
 - Treatments available
 - Selecting the right treatment for the right road at the right time

Pavement Preservation Training

- ALDOT Area Offices
 - Training tentatively set for 2024
 - Topics:
 - How to develop a pavement preservation program
 - Different applications that are available to us
 - How to select the correct application for a specific roadway
 - Train designers to implement the PPP into plan development

Pavement Preservation Training

- Impact of Training
 - FY 2019 – FY 2023 FM Resurfacing Program overview
 - PM 1 projects increased, and MR projects decreased
 - Time for training again

| FM Resurfacing Program | | | |
|------------------------|------|------|----|
| | PM 1 | PM 2 | MR |
| FY 2019 | 7 | 55 | 45 |
| FY 2020 | 10 | 76 | 19 |
| FY 2021 | 15 | 70 | 24 |
| FY 2022 | 11 | 72 | 14 |
| FY 2023 | 9 | 63 | 20 |

Federal Maintenance Resurfacing Program

- Budget set at \$270 million annually (FY 2020 – FY 2023)
- FY 2023 breakdown of preventative maintenance projects

| Application | Percentage of Total PM 1 and PM 2 Projects Let |
|----------------------------------------|------------------------------------------------|
| Traditional Mill & Fill | 62.86% |
| Milling, Scrub Seal & Wearing Surface | 11.43% |
| Milling, G Treatment & Wearing Surface | 5.71% |
| Milling, Wearing Surface & OGFC | 4.29% |
| Cape Seal | 2.86% |
| Scrub Seal | 1.43% |
| Micro-surface, Type II | 1.43% |
| Micro-surface, Type III and Type II | 1.43% |
| Scrub Seal & Micro-surface, Type III | 1.43% |
| G Treatment and Wearing Surface | 1.43% |
| Wearing Surface | 1.43% |
| Milling, E Treatment & Wearing Surface | 1.43% |
| OGFC | 1.43% |
| HDMB on Shoulders | 11.43% |

Interstate Maintenance Program

- FY 2019 – FY 2022 Overview
 - Pavement preservation projects
 - Amount spent on preservation projects

| IM Resurfacing Program | | | | |
|------------------------|--------------|--------------|--------------|---------------|
| | PM 1 | PM 2 | MR | Total |
| FY 2019 | 11 | 4 | 6 | 21 |
| Amount Spent | \$39,055,459 | \$44,714,935 | \$89,859,597 | \$173,629,991 |
| FY 2020 | 7 | 6 | 5 | 18 |
| Amount Spent | \$39,724,555 | \$42,794,635 | \$63,506,110 | \$146,025,300 |
| FY 2021 | 6 | 5 | 3 | 14 |
| Amount Spent | \$25,161,317 | \$53,390,841 | \$41,855,418 | \$120,407,576 |
| FY 2022 | 8 | 8 | 2 | 18 |
| Amount Spent | \$29,979,285 | \$54,626,389 | \$44,703,298 | \$129,308,972 |

- IM Scope Team – ALDOT’s Maintenance Bureau and Bureau of Materials & Tests; and AL Division of FHWA

I-20/59 Micro-Surfacing Test Project

- Project Information
 - IM-I059(401)
 - Sumter County – Tuscaloosa Area
 - Let in 2017
 - MP 19.590 – 26.902, project limits
 - MP 19.590 – 21.590, micro-surfacing test section NBR
 - Outside of test section, micro-milling (less than ½”) and placement of 90 lbs/sy of OGFC
 - Existing roadway pavement conditions
 - No cracking
 - Slight raveling and rutting

I-20/59 Micro-Surfacing Test Project

- Placed two layers in test section
 - No milling was performed
 - Micro-Surfacing Seal Coat, Type III (approx. 22 lbs/sy)
 - Micro-Surfacing Seal Coat, Type III (approx. 23 lbs/sy)
 - Placed on the mainline and outside shoulders
 - HDMB placed on the inside shoulders

| TABLE NO. 1 MICRO-SURFACING DESIGN LIMITS | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|------------------------------------------------------------------------------------|-------------|
| GRADATION REQUIREMENTS | | | |
| Mixture Control Tolerances | Sieve Size | Percent Passing | |
| | | Type II | Type III |
| ± 0 % | 3/8 inch | 100 | 100 |
| ± 5 % | No. 4 | 90 - 100 | 70 - 90 |
| ± 5 % | No. 8 | 65 - 90 | 45 - 70 |
| ± 5 % | No. 16 | 45 - 70 | 28 - 50 |
| ± 5 % | No. 30 | 30 - 50 | 19 - 34 |
| ± 5 % | No. 50 | 18 - 30 | 12 - 25 |
| ± 3 % | No. 100 | 10 - 21 | 7 - 18 |
| ± 2 % | No. 200 | 5 - 15 | 5 - 15 |
| DESIGN REQUIREMENTS | | | |
| ± 0.75 % | Range for Residual Asphalt | 6.0 - 10.0 | 5.0 - 9.0 |
| | | Specification | Test Method |
| | Mixing Time Test, secs @ 77° F (25° C), | 120 minimum | ISSA TB 102 |
| | Mix Time @ 50 and 100° F (10° C and 37.7° C) | (informational) | ISSA TB 102 |
| | Set Time Tests: 30 minutes | 12 kg-cm minimum | ISSA TB 139 |
| | Early Rolling Traffic Time: 60 minutes, | 20 kg-cm minimum | ISSA TB 139 |
| | Wet Stripping Test, % coating | 90% minimum | ISSA TB 114 |
| | Wet Track Abrasion Test, loss in g/ft2 (g/m2) | 75 (800) max 6 days 50 (538) max. 1 hour | ISSA TB 100 |
| | Measurement of Excess Asphalt | Max. 50 grams/ft2 (540 grams/m2) Sand Adhesion, 1,000 Cycles @ 125lbs. (57 kgs) | ISSA TB 109 |
| | Classification Compatibility | 11 pt. minimum | ISSA TB 144 |
| <p>Note 1: Percent residual asphalt based on weight of dry aggregate.</p> <p>Note 2: Type II for spread rates of 10 - 20* pounds per square yard based on dry aggregate weight.</p> <p>Note 3: Type III for spread rates of 15 - 30* pounds per square yard based on dry aggregate weight.</p> <p>Note 4: If more than 30 pounds per square yard of mixture is required, additional lifts shall be applied.</p> <p>Note 5: The gradation and percent residual asphalt as shown on the Micro-Surfacing design or as established by the Engineer shall be maintained with the listed Mixture Control Tolerances.</p> <p>* The Micro-surfacing type and target spread rate will be as shown in the plans and shall be controlled to within plus or minus 2 pounds per square yard except in no case shall a spread rate be less than the minimum be allowed. Scratch courses and rut filling applications are exempt from this specifications as rates will vary based upon the depth of the ruts and shall be spread as separate lifts.</p> | | | |

I-20/59 Micro-Surfacing Test Project

- 2017 during construction



I-20/59 Micro-Surfacing Test Project

- 2017 during construction



I-20/59 Micro-Surfacing Test Project

- Current pictures



I-20/59 Micro-Surfacing Test Project

- Current pictures



I-20/59 Micro-Surfacing Test Project

- What we learned
 - Use one – Type III layer with one – Type II layer on top
 - Provides a smoother ride and is less audible
- Success
 - Allowed ALDOT to use micro-surfacing more on State Routes
 - Let a project in August to place micro-surfacing on 17.900 miles of I-59 in Sumter County – Tuscaloosa Area

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