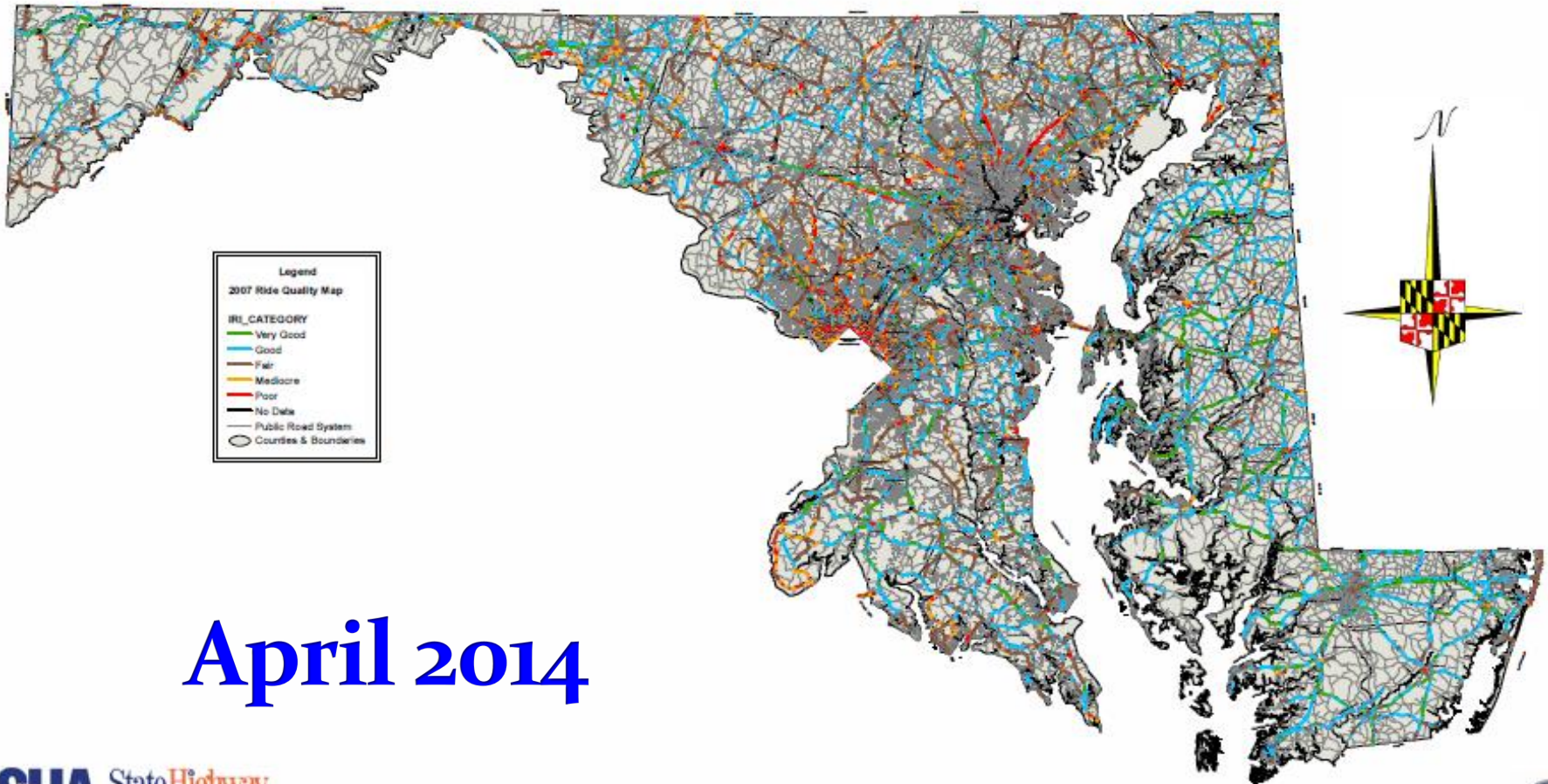


# Maryland State Report: NEPPP 2014

## Maryland State Highway Administration



April 2014



# Pavement Preservation: District “Goodwill” Tour



# Overview

- **Select Preservation Treatments**
  - **Appropriate Applications**
  - **Benefits**
  - **Challenges**
- **Optimization**
- **Feedback/Discussion**



# Treatments Discussed

- **Crack Seal**
- **Fog Seal**
- **High Friction Surface Treatment**
- **Surface Abrasion**
- **Ultra-Thin Bonded Wearing Course**
- **Micro-surfacing**

# Project/Treatment Selection

## **Now optimizing based on:**

- **Ride Quality**
  - **Cracking (structural and functional)**
  - **Rutting**
  - **Friction**
- 
- **Distinct Functional Class requirements**

# Project/Treatment Selection

## **Overtly providing pavement preservation treatment targets:**

- **~10% of budget**
- **~30% of lane-miles**



# Project/Treatment “Suggestions”

| Route | RNum | Begin STA | End STA | Functional Class | Treatment         | Category |
|-------|------|-----------|---------|------------------|-------------------|----------|
| IS    | 68   | 12.43     | 14.76   | 11               | Crack Seal        | Maint    |
| MD    | 36   | 8.07      | 8.45    | 6                | Grind and Overlay | Rehab    |
| MD    | 51   | 22.43     | 25.44   | 7                | Grind and Overlay | Rehab    |
| US    | 220  | 11.7      | 14.03   | 14               | Thin Overlay      | Pres     |
| US    | 220  | 14.03     | 16.7    | 14               | Thin Overlay      | Pres     |
| US    | 220  | 16.7      | 18      | 14               | Thin Overlay      | Pres     |
| US    | 220  | 18        | 18.37   | 14               | Grind and Overlay | Rehab    |
| US    | 220  | 6.6       | 9.4     | 2                | Microsurface      | Pres     |

# Treatment Goals

| <b>Treatment Type</b>                     | <b>Budget (\$k)</b> | <b>Benefit (LMY)</b> | <b>Suggested LM</b> | <b>\$(k)/LM</b> |
|---|---------------------|----------------------|---------------------|-----------------|
| <b>Crack Seal</b>                         | <b>\$885</b>        | <b>28</b>            | <b>20</b>           | <b>\$43</b>     |
| <b>Microsurface</b>                       | <b>\$260</b>        | <b>24</b>            | <b>6</b>            | <b>\$47</b>     |
| <b>Thin Overlay</b>                       | <b>\$2,360</b>      | <b>347</b>           | <b>22</b>           | <b>\$105</b>    |
| <b>Grind and Overlay</b>                  | <b>\$7,300</b>      | <b>387</b>           | <b>30</b>           | <b>\$244</b>    |
| <b>Overlay</b>                            | <b>\$825</b>        | <b>114</b>           | <b>6</b>            | <b>\$150</b>    |
| <b>Surface Abrasion</b>                   | <b>\$700</b>        | <b>142</b>           | <b>24</b>           | <b>\$29</b>     |
| <b>Full-Depth Reclamation and Overlay</b> | <b>\$3,450</b>      | <b>120</b>           | <b>6</b>            | <b>\$600</b>    |



# Project/Treatment “Suggestions”

| C               | D              | S          | T          | U          | V          | W           | X              | Y          | Z                  | AA        | AB           | AC          | AD        | AE                       | AF        | AG               | AH           | AI                   | AJ          |
|-----------------|----------------|------------|------------|------------|------------|-------------|----------------|------------|--------------------|-----------|--------------|-------------|-----------|--------------------------|-----------|------------------|--------------|----------------------|-------------|
| FACILITY        | SECTION        | IRI<br>RSI | FCI<br>RSI | SCI<br>RSI | RUT<br>RSI | SKID<br>RSI | RSL<br>OVERALL | CRACK SEAL | JOINT<br>RESEALING | FOG SEAL  | REJUVENATORS | CAPE SEAL   | CHIP SEAL | HIGH FRICTION<br>SURFACE | SAND SEAL | MICRO<br>SURFACE | THIN OVERLAY | GRIND AND<br>OVERLAY | OVERLAY     |
| GA-IS 68        | 19.15-24.52(E) | 24         | 0          | 0          | 31         | 47          | 0              | \$ -       | \$ -               | \$ -      | \$ -         | \$ -        | \$ -      | \$ -                     | \$ -      | \$ -             | \$ -         | \$3,600,000          | \$2,800,000 |
| GA-IS 68        | 19.15-24.52(W) | 24         | 0          | 10         | 37         | 46          | 0              | \$ 510,000 | \$ -               | \$280,000 | \$ 350,000   | \$1,500,000 | \$ -      | \$ -                     | \$ -      | \$ 980,000       | \$ 1,900,000 | \$3,500,000          | \$2,700,000 |
| GA-IS 68        | 24.52-28.85(E) | 21         | 0          | 0          | 31         | 47          | 0              | \$ -       | \$ -               | \$ -      | \$ -         | \$ -        | \$ -      | \$ -                     | \$ -      | \$ -             | \$ -         | \$2,600,000          | \$2,100,000 |
| GA-IS 68        | 24.52-28.85(W) | 11         | 0          | 15         | 35         | 45          | 0              | \$ -       | \$ -               | \$ -      | \$ -         | \$ -        | \$ -      | \$ -                     | \$ -      | \$ 700,000       | \$ 1,300,000 | \$2,500,000          | \$1,900,000 |
| GA-IS 68        | 28.85-31.78(E) | 28         | 0          | 3          | 31         | 47          | 0              | \$ 260,000 | \$ -               | \$140,000 | \$ 170,000   | \$ 760,000  | \$ -      | \$ -                     | \$ -      | \$ 500,000       | \$ 930,000   | \$1,700,000          | \$1,400,000 |
| GA-IS 68        | 28.85-31.78(W) | 30         | 1          | 24         | 40         | 45          | 1              | \$ 270,000 | \$ -               | \$150,000 | \$ 190,000   | \$ 800,000  | \$ -      | \$ -                     | \$ -      | \$ 530,000       | \$ 990,000   | \$ -                 | \$1,400,000 |
| GA-IS 68        | 3.24-3.76(W)   | 32         | 18         | 26         | 27         | 46          | 18             | \$ 57,000  | \$ -               | \$ 31,000 | \$ 39,000    | \$ 170,000  | \$ -      | \$ -                     | \$ -      | \$ 110,000       | \$ 210,000   | \$ -                 | \$ 300,000  |
| GA-IS 68        | 3.76-7.45(W)   | 31         | 11         | 24         | 37         | 46          | 11             | \$ 280,000 | \$ -               | \$150,000 | \$ 190,000   | \$ 830,000  | \$ -      | \$ -                     | \$ -      | \$ 540,000       | \$ 1,000,000 | \$ -                 | \$1,500,000 |
| GA-IS 68        | 3.85-7.24(E)   | 30         | 9          | 21         | 23         | 47          | 9              | \$ 360,000 | \$ -               | \$190,000 | \$ 240,000   | \$1,000,000 | \$ -      | \$ -                     | \$ -      | \$ 680,000       | \$ 1,300,000 | \$ -                 | \$1,900,000 |
| GA-IS 68        | 7.24-10.9(E)   | 32         | 7          | 21         | 23         | 47          | 7              | \$ 370,000 | \$ -               | \$200,000 | \$ 250,000   | \$1,100,000 | \$ -      | \$ -                     | \$ -      | \$ 710,000       | \$ 1,300,000 | \$ -                 | \$2,000,000 |
| GA-IS 68        | 7.45-10.9(W)   | 31         | 8          | 23         | 37         | 46          | 8              | \$ 260,000 | \$ -               | \$140,000 | \$ 180,000   | \$ 760,000  | \$ -      | \$ -                     | \$ -      | \$ 500,000       | \$ 940,000   | \$ -                 | \$1,400,000 |
| GA-IS 68 RP1-14 | 0-0.42(E)      | 19         | 5          | 12         | 26         | 47          | 5              | \$ 16,000  | \$ -               | \$ 8,600  | \$ 11,000    | \$ 46,000   | \$ 16,000 | \$ -                     | \$ 8,100  | \$ 30,000        | \$ 57,000    | \$ -                 | \$ 83,000   |
| GA-IS 68 RP2-14 | 0-0.65(W)      | 19         | 5          | 12         | 26         | 47          | 5              | \$ 24,000  | \$ -               | \$ 13,000 | \$ 17,000    | \$ 72,000   | \$ 25,000 | \$ -                     | \$ 13,000 | \$ 47,000        | \$ 89,000    | \$ -                 | \$ 130,000  |
| GA-IS 68 RP2-19 | 0-0.28(N)      | 19         | 5          | 12         | 26         | 47          | 5              | \$ 11,000  | \$ -               | \$ 5,700  | \$ 7,100     | \$ 31,000   | \$ 11,000 | \$ -                     | \$ 5,400  | \$ 20,000        | \$ 38,000    | \$ -                 | \$ 56,000   |
| GA-IS 68 RP2-22 | 0-0.57(N)      | 19         | 5          | 12         | 26         | 47          | 5              | \$ 21,000  | \$ -               | \$ 12,000 | \$ 15,000    | \$ 63,000   | \$ 22,000 | \$ -                     | \$ 11,000 | \$ 41,000        | \$ 78,000    | \$ -                 | \$ 110,000  |
| GA-IS 68 RP2-24 | 0-0.32(N)      | 19         | 5          | 12         | 26         | 48          | 5              | \$ 12,000  | \$ -               | \$ 6,500  | \$ 8,200     | \$ 35,000   | \$ 12,000 | \$ -                     | \$ 6,200  | \$ 23,000        | \$ 44,000    | \$ -                 | \$ 64,000   |
| GA-IS 68 RP2-29 | 0-0.31(N)      | 19         | 5          | 12         | 26         | 47          | 5              | \$ 12,000  | \$ -               | \$ 6,300  | \$ 7,900     | \$ 34,000   | \$ 12,000 | \$ -                     | \$ 6,000  | \$ 22,000        | \$ 42,000    | \$ -                 | \$ 62,000   |
| GA-IS 68 RP3-14 | 0-0.32(E)      | 19         | 5          | 12         | 26         | 47          | 5              | \$ 12,000  | \$ -               | \$ 6,500  | \$ 8,200     | \$ 35,000   | \$ 12,000 | \$ -                     | \$ 6,200  | \$ 23,000        | \$ 44,000    | \$ -                 | \$ 64,000   |
| GA-IS 68 RP4-14 | 0-0.52(N)      | 19         | 5          | 12         | 26         | 47          | 5              | \$ 20,000  | \$ -               | \$ 11,000 | \$ 13,000    | \$ 57,000   | \$ 20,000 | \$ -                     | \$ 10,000 | \$ 38,000        | \$ 71,000    | \$ -                 | \$ 100,000  |
| GA-IS 68 RP4-19 | 0-0.32(N)      | 19         | 5          | 12         | 26         | 47          | 5              | \$ 12,000  | \$ -               | \$ 6,500  | \$ 8,200     | \$ 35,000   | \$ 12,000 | \$ -                     | \$ 6,200  | \$ 23,000        | \$ 44,000    | \$ -                 | \$ 64,000   |
| GA-IS 68 RP4-22 | 0-0.41(E)      | 19         | 5          | 12         | 26         | 47          | 5              | \$ 15,000  | \$ -               | \$ 8,400  | \$ 10,000    | \$ 45,000   | \$ 16,000 | \$ -                     | \$ 7,900  | \$ 30,000        | \$ 56,000    | \$ -                 | \$ 81,000   |
| GA-IS 68 RP4-24 | 0-0.43(N)      | 19         | 5          | 12         | 26         | 47          | 5              | \$ 16,000  | \$ -               | \$ 8,800  | \$ 11,000    | \$ 47,000   | \$ 16,000 | \$ -                     | \$ 8,300  | \$ 31,000        | \$ 59,000    | \$ -                 | \$ 85,000   |
| GA-IS 68 RP4-29 | 0-0.36(S)      | 19         | 5          | 12         | 26         | 47          | 5              | \$ 14,000  | \$ -               | \$ 7,300  | \$ 9,200     | \$ 40,000   | \$ 14,000 | \$ -                     | \$ 7,000  | \$ 26,000        | \$ 49,000    | \$ -                 | \$ 71,000   |
| GA-IS 68 RP5-14 | 0-0.32(W)      | 19         | 5          | 12         | 26         | 47          | 5              | \$ 12,000  | \$ -               | \$ 6,500  | \$ 8,200     | \$ 35,000   | \$ 12,000 | \$ -                     | \$ 6,200  | \$ 23,000        | \$ 44,000    | \$ -                 | \$ 64,000   |
| GA-IS 68 RP6-14 | 0-0.67(S)      | 19         | 5          | 12         | 26         | 47          | 5              | \$ 25,000  | \$ -               | \$ 14,000 | \$ 17,000    | \$ 74,000   | \$ 25,000 | \$ -                     | \$ 13,000 | \$ 48,000        | \$ 91,000    | \$ -                 | \$ 130,000  |
| GA-IS 68 RP6-19 | 0-0.34(S)      | 19         | 5          | 12         | 26         | 47          | 5              | \$ 13,000  | \$ -               | \$ 6,900  | \$ 8,700     | \$ 37,000   | \$ 13,000 | \$ -                     | \$ 6,600  | \$ 25,000        | \$ 46,000    | \$ -                 | \$ 68,000   |
| GA-IS 68 RP6-24 | 0-0.29(S)      | 19         | 5          | 12         | 26         | 48          | 5              | \$ 11,000  | \$ -               | \$ 5,900  | \$ 7,400     | \$ 32,000   | \$ 11,000 | \$ -                     | \$ 5,600  | \$ 21,000        | \$ 40,000    | \$ -                 | \$ 58,000   |
| GA-IS 68 RP6-29 | 0-0.37(S)      | 19         | 5          | 12         | 26         | 47          | 5              | \$ 14,000  | \$ -               | \$ 7,500  | \$ 9,400     | \$ 41,000   | \$ 14,000 | \$ -                     | \$ 7,100  | \$ 27,000        | \$ 50,000    | \$ -                 | \$ 73,000   |

I know you can't read this.

# Project/Treatment “Suggestions”

| C        | D              | S   | T   | U   | V   | W    | X       |
|----------|----------------|-----|-----|-----|-----|------|---------|
| FACILITY | SECTION        | IRI | FCI | SCI | RUT | SKID | RSL     |
|          |                | RSI | RSI | RSI | RSI | RSI  | OVERALL |
| GA-IS 68 | 19.15-24.52(E) | 24  | 0   | 0   | 31  | 47   | 0       |
| GA-IS 68 | 19.15-24.52(W) | 24  | 0   | 10  | 37  | 46   | 0       |
| GA-IS 68 | 24.52-28.85(E) | 21  | 0   | 0   | 31  | 47   | 0       |
| GA-IS 68 | 24.52-28.85(W) | 11  | 0   | 15  | 35  | 45   | 0       |
| GA-IS 68 | 28.85-31.78(E) | 28  | 0   | 3   | 31  | 47   | 0       |
| GA-IS 68 | 28.85-31.78(W) | 30  | 1   | 24  | 40  | 45   | 1       |
| GA-IS 68 | 3.24-3.76(W)   | 32  | 18  | 26  | 27  | 46   | 18      |
| GA-IS 68 | 3.76-7.45(W)   | 31  | 11  | 24  | 37  | 46   | 11      |
| GA-IS 68 | 3.85-7.24(E)   | 30  | 9   | 21  | 23  | 47   | 9       |
| GA-IS 68 | 7.24-10.0(E)   | 22  | 7   | 21  | 22  | 47   | 7       |

You should be able to read this.

# Project/Treatment “Suggestions”

|  | Y          | Z               | AA        | AB           | AC          | CF |
|--|------------|-----------------|-----------|--------------|-------------|----|
|  | CRACK SEAL | JOINT RESEALING | FOG SEAL  | REJUVENATORS | CAPE SEAL   | CF |
|  | \$ -       | \$ -            | \$ -      | \$ -         | \$ -        | \$ |
|  | \$ 510,000 | \$ -            | \$280,000 | \$ 350,000   | \$1,500,000 | \$ |
|  | \$ -       | \$ -            | \$ -      | \$ -         | \$ -        | \$ |
|  | \$ -       | \$ -            | \$ -      | \$ -         | \$ -        | \$ |
|  | \$ 260,000 | \$ -            | \$140,000 | \$ 170,000   | \$ 760,000  | \$ |
|  | \$ 270,000 | \$ -            | \$150,000 | \$ 190,000   | \$ 800,000  | \$ |
|  | \$ 57,000  | \$ -            | \$ 31,000 | \$ 39,000    | \$ 170,000  | \$ |
|  | \$ 280,000 | \$ -            | \$150,000 | \$ 190,000   | \$ 830,000  | \$ |
|  | \$ 360,000 | \$ -            | \$190,000 | \$ 240,000   | \$1,000,000 | \$ |
|  | \$ 270,000 | \$ -            | \$100,000 | \$ 250,000   | \$1,100,000 | \$ |

You should be able to read this too.



# Feedback/Discussion

## **In No Particular Order...**

- **Who determines the projects and treatments?**
- **How do they determine when a road needs fixing?**
- **What are they looking for when they pick projects?**

## Action Items

- Provide a separate Grind & OL list, micro list, crack seal list, etc., by shop area
- Create separate document for appropriate applications and typical life extension for treatments

# Action Items

- Senior Management to discuss inter-district contracts for preservation treatments
- Pavement Management to present training to RME Association on preservation/project selection



# Questions?

**Contact:**

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