

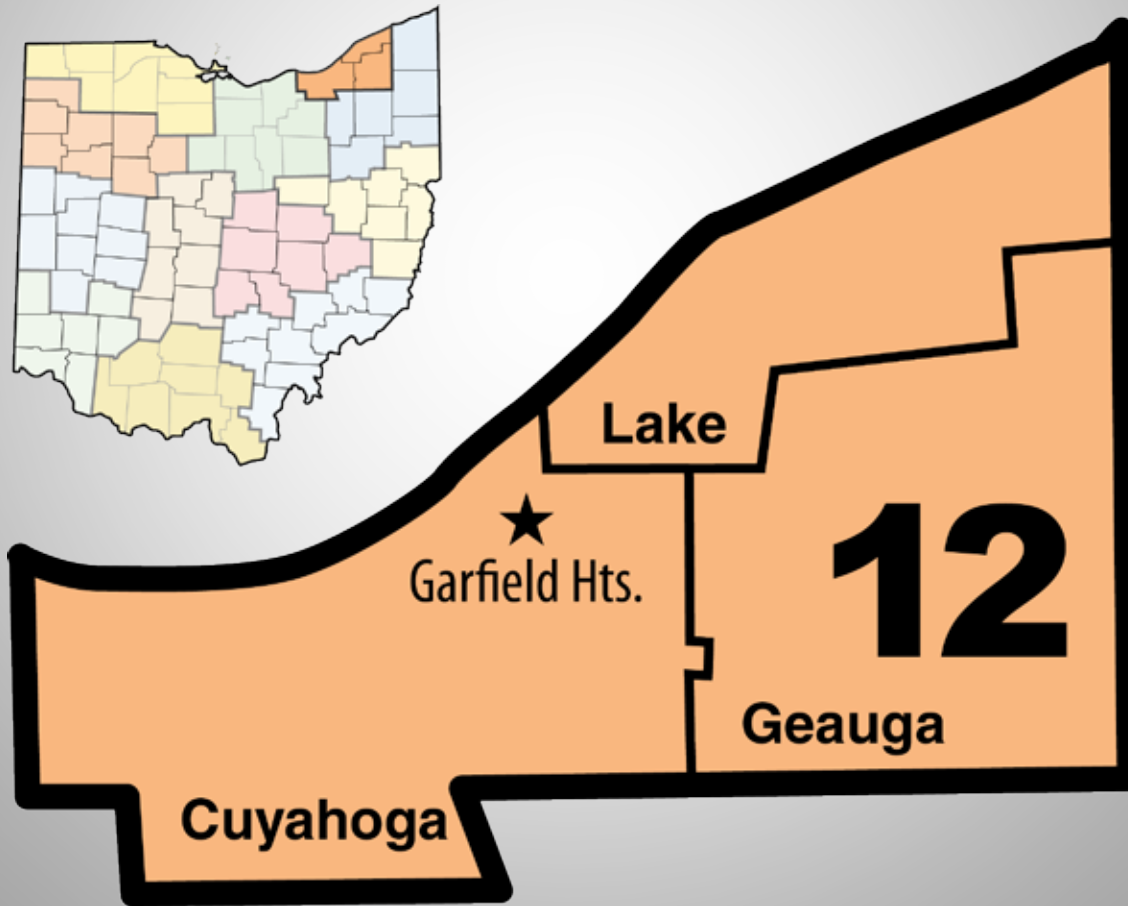
Fine Graded Polymer Asphalt Concrete “Ohio Smoothseal”

Application and Attributes of
Fine Graded Polymer Asphalt Concrete
in ODOT, District 12
Cleveland, Ohio

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Ohio Department of Transportation District 12



Ohio Department of Transportation

Flexible Pavement

Standard Asphalt Concrete

- Item 442 – Superpave Asphalt Concrete
- Item 446/448 – Asphalt Concrete

Special Use Asphalt Concrete

- Item 443 – Stone Matrix Asphalt Concrete
- **Item 424 – Fine Graded Polymer Asphalt Concrete**
- Misc.: Ultrathin Bonded, Rubberized Open Graded Friction, Verglimit, Fiber Reinforced, etc.

Item 424 – Fine Graded Polymer Asphalt Concrete

Type A Mix Characteristics

- Polymer modified sand asphalt
- 8.5% polymer modified binder (PG 76-22M)
- Silicon dioxide requirement for skid resistance
- Overlay thickness 5/8 inch to 1 inch; Typ. 3/4 inch
- Typical Application: Light to Medium Traffic

SR-91

§ City of Solon

§ Proj. 97-0233

§ Age = 15 Years

§ Treatment:

2" HIPR, $\frac{3}{4}$ inch 424A

§ ADT = 9130 vehicles

§ 2% Trucks

§ Future Resurfacing - 2020

§ Anticipated Age at Next
Resurfacing - 23 years



SR-91



SR-82

§ City of Brecksville

§ Proj. 03-0163

§ Age = 9 years

§ Treatment:

1.5 inch Planing

1 inch Intermediate

5/8 inch 424A

§ ADT = 13,730 vehicles

§ 3% Trucks

§ Future Resurfacing - 2020

§ Anticipated Age at Next
Resurfacing - 17 years



SR-82



SR-21

§ City of Brecksville

§ Proj. 04-0059

§ Age = 8 years

§ Treatment:

1 ¾ inch Planing

1 inch Intermediate

¾ inch 424A

§ ADT = 16,950 vehicles

§ 3 % Trucks

§ Future Resurfacing - 2026

§ Anticipated Age at Next
Resurfacing - 22 years



SR-21



SR-21

§ City of Brecksville

§ Proj. 07-0067

§ Age = 5 years

§ Treatment:

2 inch Planing

1 ¼ inch Intermediate

¾ inch 424A

§ ADT = 12,970 vehicles

§ 3% Trucks

§ Future Resurfacing - 2026

§ Anticipated Age at Next
Resurfacing - 19 years



SR-21



Punderson State Park

§ ODNR – Geauga County

§ Proj. 05-5011

§ Age = 7 years

§ Treatment

Polymer Chip Seal

1 ½ inch Intermediate

5/8 inch 424A



Punderson State Park



Punderson State Park



424 Type A - Attributes

- Quality special use surface treatment for light/medium traffic routes (PM or resurfacing program)
- High polymer modification for long term performance and durability
- Surprisingly high skid resistance for improved safety
- $\frac{3}{4}$ inch thickness ($\frac{5}{8}$ inch if desired) has minimal impact upon castings and curb reveal
- Somewhat “self healing” in summer months; cracks remain tight
- Provides optimum contrast with pavement markings for improved safety
- Attractive mix, i.e. stays black for the entire life of the product
- Extremely smooth pavement
 - Improved Safety, Save \$\$/Fuel Efficiency, Last Longer, Reduced M&R

Item 424 – Fine Graded Polymer Asphalt Concrete

Type B Mix Characteristics

- 1/2 inch max. course aggregate and sand
- Silicon dioxide requirement for fine aggregate for skid resistance
- 100% two-faced crushed course agg. for heavy traffic strength and stability
- 10% RAP is permitted
- Min. 6.4% polymer modified binder (PG 76-22M)
- Overlay thickness 3/4 inch to 1 1/2 inch; Typ. 1 inch
- Typical Application: Medium to Heavy Traffic

US-322

§ Geauga County, Chester Twp.

§ Proj. 01-0013

§ Age = 11 years

§ Treatment:

2 inch Planing

½ inch leveling course

1 ½ inch 424B

§ ADT = 14,540 vehicles

§ 3% Trucks

§ Future Resurfacing - 2017

§ Anticipated Age at Next
Resurfacing - 16 years



US-322



SR-176

§ City of Cleveland

§ Proj. 08-0475

§ Age = 4 years

§ Treatment:

 ½ inch Planing

 1 inch 424B, app

§ ADT = 77,850 vehicles

§ 3% Trucks

§ Future Resurfacing - 2016

§ Anticipated Age at Next
Resurfacing - 8 years



I-71

§ City of Cleveland

§ Proj. 09-0010

§ Age = 3 years

§ Treatment:
 ½ inch Planing
 1 inch 424B, app

§ ADT = 99,360 vehicles

§ 3% Trucks

§ Future Resurfacing - 2020

§ Anticipated Age at Next
Resurfacing - 11 years



I-71



SR-306

§ Geauga County, Bainbridge Twp.

§ Proj. 09-0067

§ Age = 3 years

§ Treatment:

1 inch Intermediate

1 inch 424B, app

§ ADT = 28,260 vehicles

§ 4% Trucks

§ Future Resurfacing - 2023

§ Anticipated Age at Next Resurfacing - 14 years



SR-306



I-90

§ City of Cleveland

§ Proj. 10-0068

§ Age = 2 years

§ Treatment:

1 inch Planing

1 inch 424B, app

§ ADT = 123,970 vehicles

§ 5% Trucks

§ Future Resurfacing - 2021

§ Anticipated Age at Next
Resurfacing - 11 years



I-90



424 Type B - Attributes

- Premium treatment for medium and heavy traffic routes
- High quality PG 76-22M binder for long term performance and durability
- High quality aggregates for strength, stability, rut resistance
- Very good skid resistance for improved safety due to SiO₂ sand and crushed course agg. (can blend with ACBFS if desired)
- 1 inch typ. thickness has minimal impact upon curb reveal or guardrail height
- Cracks tend to stay tight and are less susceptible to degradation and pothole formation in polymer modified mixes
- Attractive dense mix seemingly less permeable
- Can be applied as warm mix asphalt
- Extremely smooth pavements
 - Improved Safety, Save \$\$/Fuel Efficiency, Last Longer, Reduced M&R

Cost Comparison

	\$ per CY	\$ per SY	Lift Thickness
Item 424 Type A	\$172	\$3.58	¾ inch
Item 424 Type B	\$162	\$4.50	1 inch
Standard HMA	\$125	\$4.34	1 ¼ inch
Standard HMA	\$125	\$5.21	1 ½ inch
Std. Polymer HMA	\$135	\$4.69	1 ¼ inch
Std. Polymer HMA	\$135	\$5.62	1 ½ inch

Conclusion

Ø Smoothseal is a premium quality, high performing and durable fine graded polymer asphalt concrete that can be used successfully in preventive maintenance applications or as a surface course as part of your normal resurfacing and rehabilitation program.

Thank you!!

For additional information, I can be contacted at
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