

Continued - Plant Issues – We worked on these and figured out by doing test sections at the plant yard and milling up some mix from the road.



EPDs

Lower carbon = savings \$\$\$?

What about **Quality Mixtures?????**



On average we have seen 30-40% increase of EPD over conventional asphalt mixtures!

Can we find ways to lower the EPD on a SMA?

- Use less virgin binder – cannot go below 6.0% with most SMA mixtures!
- Push to use more RAP and RAS - difficult to meet criteria on gradation and pass VCA – (savings of both virgin binder and aggregate).
- Use more fuel or gas to produce SMA – SMA requires higher temps due to PG 76-22 and GTR.
- Increased haul distances to obtain stringent aggregate properties - aggregates.
- Unsuccessful with WMA thus far in SC – we need to keep trying and innovate!



Ultimate Question!

Will SC get more service life out of SMA compared to other high volume mix options? OGFC? Yes – when compared to a 1" OGFC surface layer vs. 2" SMA"

What about using a dense graded mix with more PMA – highly modified?? Use a PG 82-22... Success in other states has been noticed and should be investigated!



2024 Changes to the Special Provision

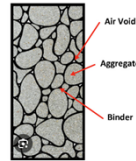
Changes made by SCDOT – Changes in gradation, especially in upper tolerance to aid in allowing blended aggregate sources.

New **option** to use **10 %** dry process GTR – 2024 in lieu of PG 76-22.

Adding durability additives – single dose of Aramid Fibers when GTR is not used. Time will tell whether this adds more life to the pavement for the added initial cost.



Compacted Asphalt Mixture Section



Finding our balance... TBD

We must remain flexible and find means to innovate and help our industry rise to the challenge!



Future Concerns – Lack of sources of mineral filler to continue using SMA?

Fly ash

- Sourced from coal fired power plants
- Are we going to have continued access of this material with increased pressure to get away from coal? – Environmental push to reduce carbon, etc.
- Not all fly ash makes good mineral filler, it often contains cementitious material properties, it will clog the silo up and create no flow situations.

Marble dust

- Very effective filler base on a couple projects in SC. Successful for years on GDOT projects, included part of the FHWA TOPS study in 2022.
- Higher specific gravity, likely need more air to aid in material feeding – flowing correctly.
- Very few sources of this material available in our region, future concerns with distance to obtain the material, and perhaps impact on EPDs.
- Other Products? Tailings from other manufacturers, etc. Be sure and read the SDS prior to introducing a potentially harmful chemical into our mixtures! We must ensure that our mixtures are sustainable and not harmful when being recycled 15-20 years from now!

Thank for your attention and enjoy the conference!

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