

Gravel Road Test Sections in Loudoun County

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Virginia Department of Transportation

Rural Roads Meeting
March 17, 2021

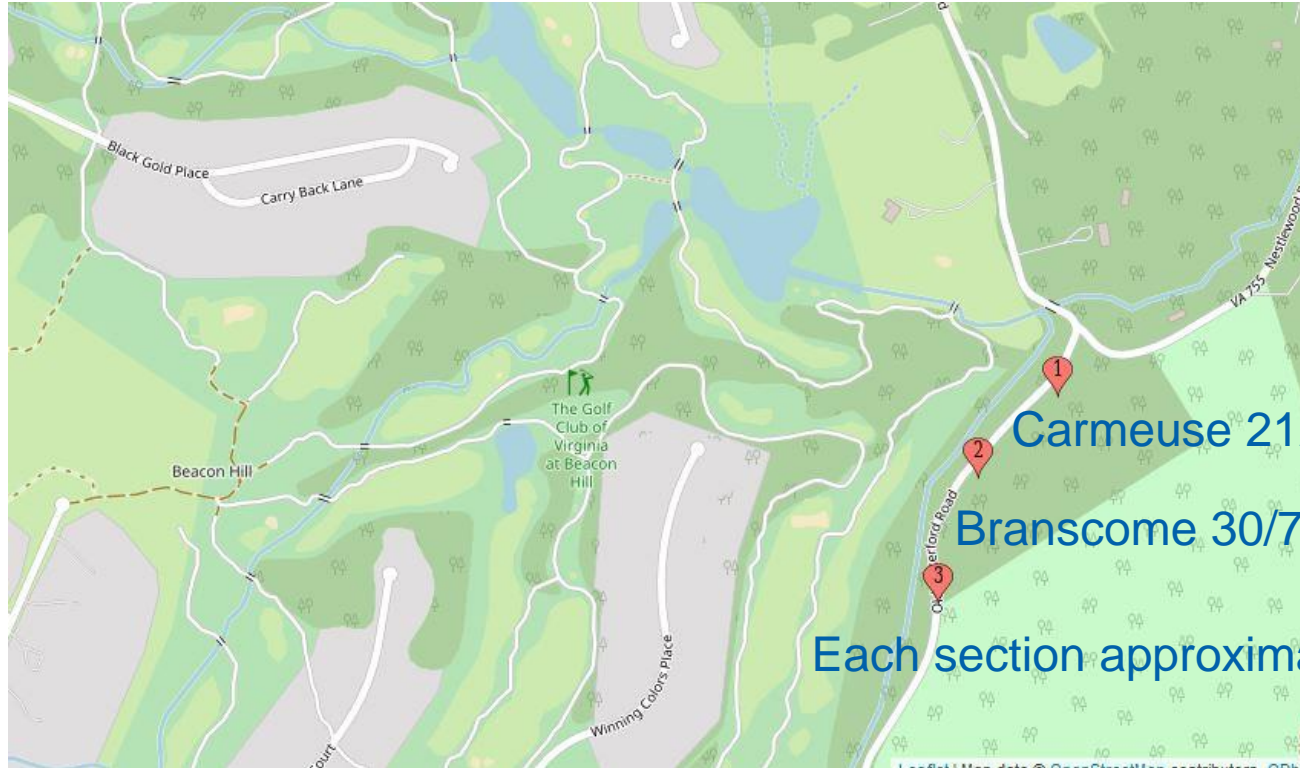
Gravel Roads in Loudoun Co.



Problem

Many state DOTs, including VDOT, do not have a surface aggregate specification for gravel roads. In contrast with a traditional road base aggregate, such as VDOT 21A and 21B, there is a need for more plastic fines to serve as binder and for smaller top size particles that will remain embedded in the surface.

Test Sections on Old Waterford Road



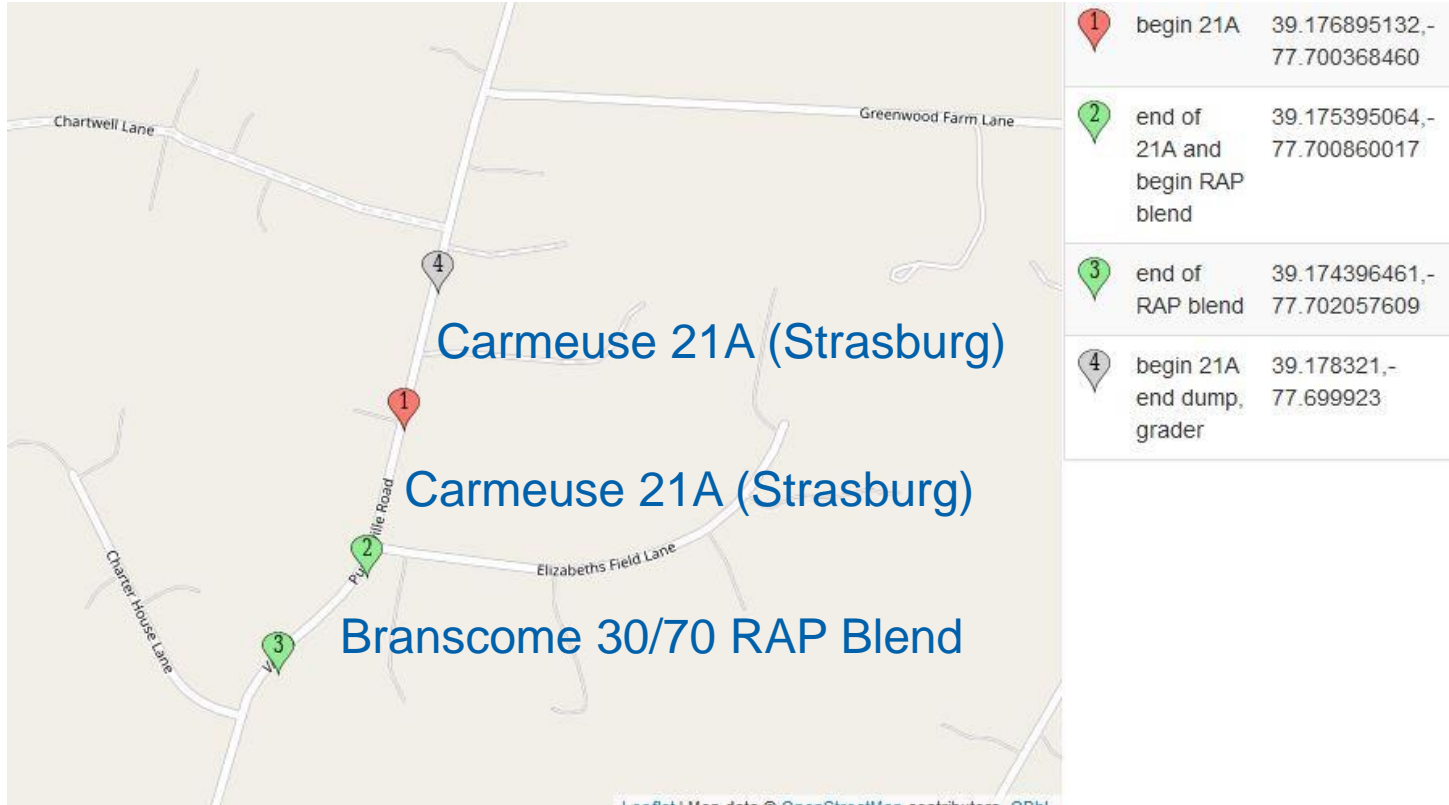
1	start 21A	39.146983,- 77.582703
2	end 21A and start RAP blend	39.146103,- 77.583811
3	end RAP blend	39.144744,- 77.584383

Carmeuse 21A (Strasburg)

Branscome 30/70 RAP Blend

Each section approximately 450 feet

Test Sections on Purcellville Road



Old Waterford Road – September 2020 (after construction)



Carmeuse 21A (Strasburg)



Branscome 30/70 RAP Blend

Old Waterford Road – November 2020



Carmeuse 21A (Strasburg)



Branscome 30/70 RAP Blend

Old Waterford Road – January 2021



Carmeuse 21A (Strasburg)



Branscome 30/70 RAP Blend

Old Waterford Road – March 2021



Carmeuse 21A (Strasburg)



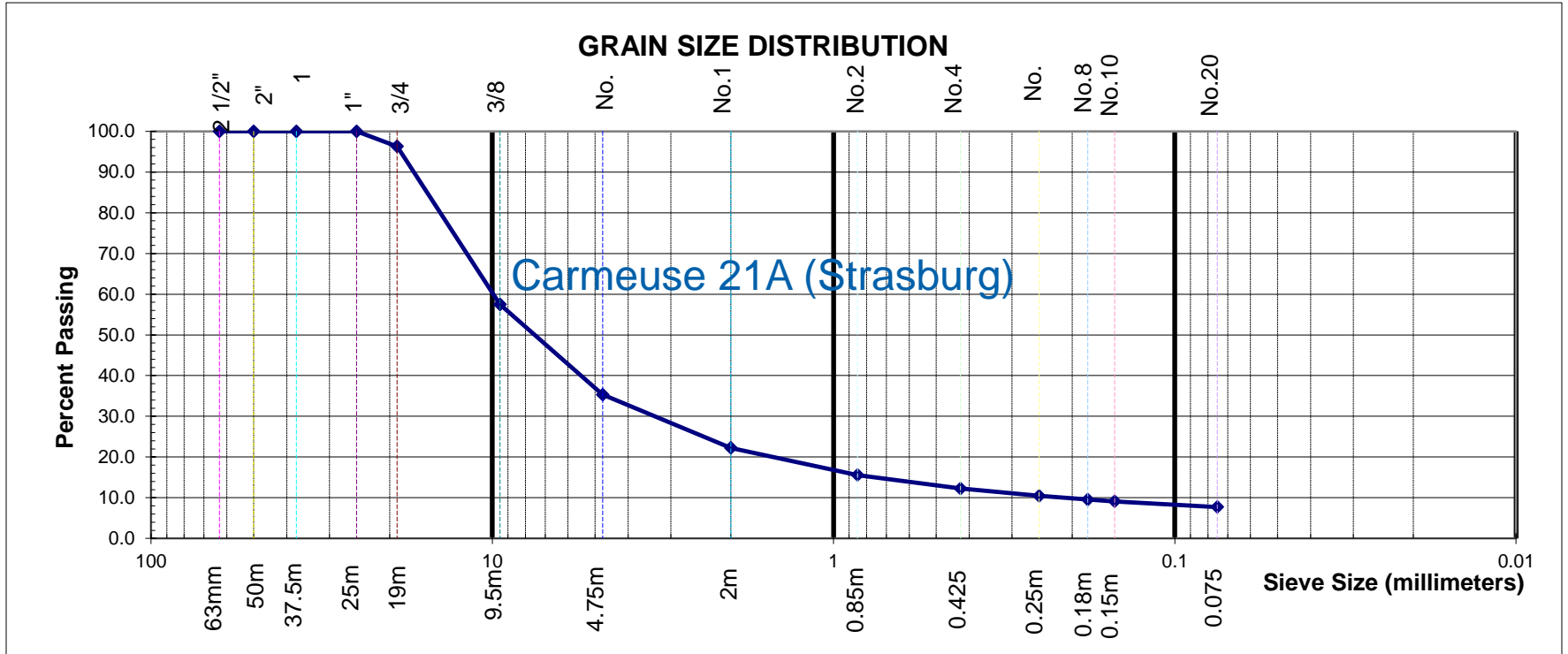
Branscome 30/70 RAP Blend

Credit: Emily Houston

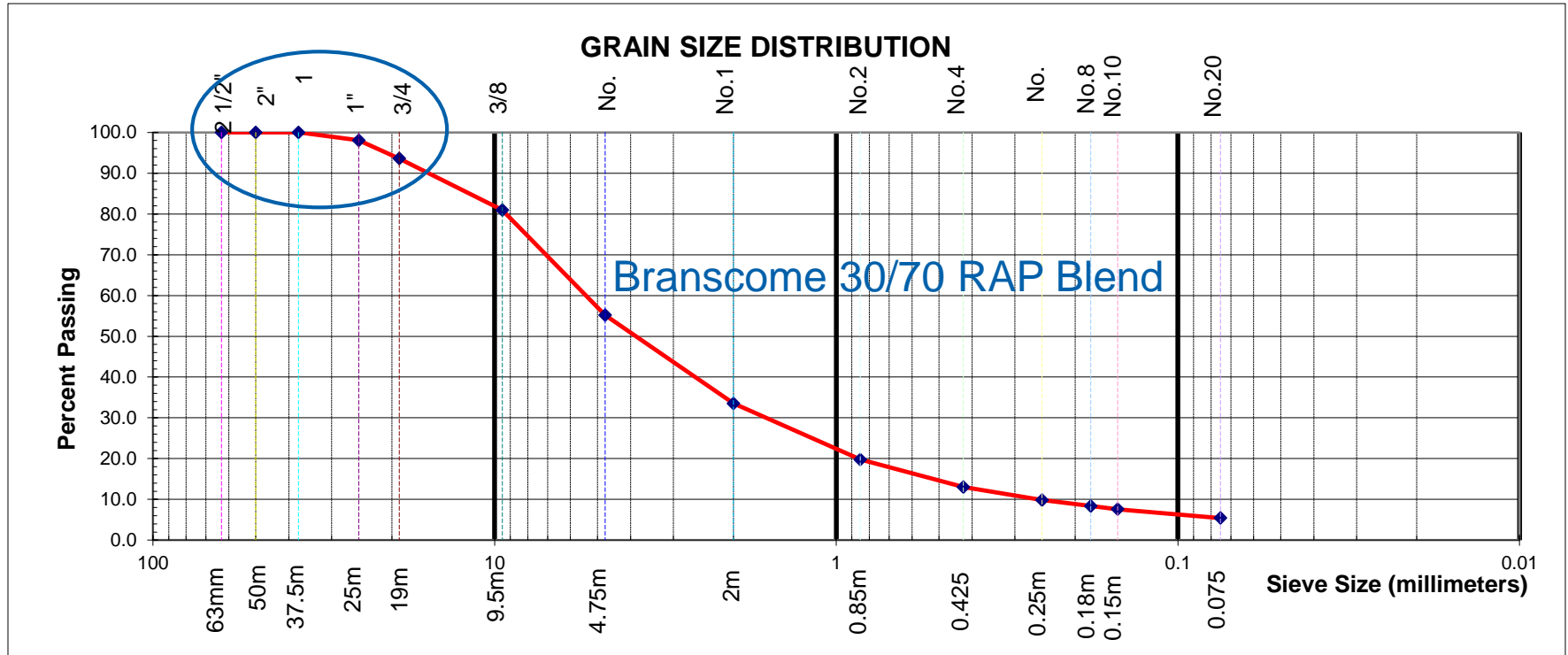
Materials



Materials



Materials



Methods



3" lift x 2
using paver



Methods



Paver section



End dump section



Methods



Informational Bulletin

Driving Surface Aggregate

3/2014

Driving Surface Aggregate (DSA): Developed by Penn State's Center for Dirt and Gravel Road Studies, DSA is a mixture of crushed stone developed specifically as a surface wearing course for unpaved roads. DSA has a unique particle size distribution designed to maximize packing density and produce a durable road surface that performs better than conventional aggregates.



Inside the DSA: Larger particles locked tightly in place by smaller particles and fines.



prevent a large drop-off, and facilitate compaction.

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DSA Placement

An un-compacted uniform depth of 6 to 8 inches of DSA is to be used to establish the driving surface (figure 3). Placement is to be in a single lift. The preferred method of application is through a paver. Set the paver adjustments on application thickness and width so it is unnecessary to use a grader. The required crown or side slope is $\frac{1}{2}$ " to $\frac{3}{4}$ " rise per horizontal foot. This slope is to be achieved by properly preparing base and placing aggregate in a uniform lift (figure 2). When the paver is applying aggregate, care should be taken to keep the paver at or near capacity at all times. To fill driving surface areas outside the specified width (e.g.

Conclusions

- 1. The use of an asphalt paver to place crushed stone resulted in a noticeable improvement in road surface performance.***
- 2. After 6 months in service the RAP blend surfacing material performed worse than the Carmeuse 21A crushed stone from Strasburg.***

Path Forward ?





Western Loudoun County - 1929