



Recycled Asphalt Shingles (RAS) in Town Gravel Roads



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Introduction

Gravel roads are well documented to have issues with rutting, potholing, washboarding, airborne dust and the repeated need for maintenance. Several states have implemented the use of Recycled Asphalt Shingles (RAS) in gravel roads and seen improvement in performance as compared to conventional aggregate.



Figure 1. Left: RAS stockpile, Right: 20/80 RAS/gravel mix

Methodology

Six town DPWs coordinated the installation of RAS on short sections of an unpaved road. The towns obtained $<1/8$ " ground RAS from a local shingle recycler and mixed it with their gravel source at an 80/20 gravel to RAS ratio. The towns each used their standard unpaved road resurfacing techniques when installing the RAS/gravel mix. VTTrans and ANR DEC observed installations, provided guidance, and continue to conduct periodic site visits and obtain feedback from the towns to document the condition of the roads and the effectiveness of RAS.



Figure 2. Left: Grading and mixing RAS/Gravel, Right: Spraying Calcium Chloride

Results

All Towns that have participated in this Experimental Features Study have been pleased with the results of the installations, stating that there has been less maintenance needed, less airborne dust, fewer potholes, less rutting, fewer frost heaves and less calcium chloride used. There have been some minor issues including gravel floating to the surface after rain events. However, the Towns have all been very positive in their feedback overall.

Some Towns have expressed interest in installing more RAS/gravel mix on gravel roads in the future. However, they do plan on using a higher ratio of RAS to gravel so that the road will bind together more, potentially a 3:1 RAS/gravel ratio or even a 50/50 mix. Some mentioned also using fabric underneath the mix and installing a thicker layer, approximately 6" instead of the 2-3" layer used in these installations.



Figure 3. Left: Issues a week after installation, Right: Success a month after installation

Potential Benefits

If effective, RAS/gravel may provide Towns with an unpaved road system that requires less maintenance, less aggregate, with commensurate lower cost. A productive use of RAS would divert from disposal a portion of the estimated 25,000 tons of waste asphalt shingles that are generated in Vermont yearly.

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More Information

More information available here: <https://vtrans.vermont.gov/planning/research/2020-symposium/cms11>