

Research Development and Technology Division

Missouri
Department
of Transportation

1617 Missouri Blvd.
P.O. Box 270
Jefferson City,
Missouri 65101

Special Road District uses Recycled Asphalt Product (RAP)

Reclaim, Recycle and Relay

Local Technical Assistance Program (LTAP) would like to share the following success story from the Neosho Special Road District. Neosho is located in Newton County in southwest Missouri. This local project demonstrates a practical use of recycled material through a partnership commitment of the Newton County Commission and the Neosho Special Road District. The local transportation agency purchased excess pavement millings from an Oklahoma project.

Millings used in these projects consist of 3/8" pile run chat. These millings came off the Will Rogers Turnpike. These projects were done for two reasons; to convert a dirt road into a blacktop hard surface, and to recycle material at a minimal cost.

The dirt road was prepared by mowing the right of way, cleaning ditches for proper drainage, cleaning or replacing drainage structures, shaping of roadbed, and hauling off excess waste material.

Millings were hauled to the job site by contract. Material was dumped and spread at approximately twenty tons per station. A motor grader was used to wind row material. Millings were used for surface and also for base. The weather at the time of the haul was dry, so the roadbed was watered to keep it moist and to help roll the material down into the roadbed. The wind row was moved from side to side. A small amount was left on the road and rolled to make the surface firm. Wind rows were spread out and a five ton drum roller was pulled over it to break up large pieces of material for a more uniform size and to even out the size of wind row for mixing with asphalt.

On road number 1, the air temperature was 80 degrees Fahrenheit, but the nights were cool. MC 250 asphalt was used at the rate of 3.5 gallons per ton. It worked fine, mixed well, spread fair, and rolled down good.

On road number 2 the temperature was around 70 degrees with cool nights and heavy dews (almost too cool). With cooler temperatures, the MC 250 cut back activated the old AC oil enough that viscosity went from MC 250 to approximately MC 800. This didn't mix well and started to ball up (temperature was 70 degrees with a strong wind). Four to five days later the temperature came up, when it reached 85 degrees we finished laying the RAP.

On road number 3, MC 70 with asphalt of 55% and cut back at 45% was utilized. This worked really well. The cut back activated the old AC oil and the MC 70 set it together. At the rate of 4 gallons per ton, it mixed well, worked well, and rolled down tight and looked good. Because of the cool temperatures MC 70 was used on the remaining projects.

Approximately 1000 to 1200 gallons of tack oil per mile was used under the mix. What was a rough, rocky road is now a blacktop hard surface road that looks good, rides and drives well.

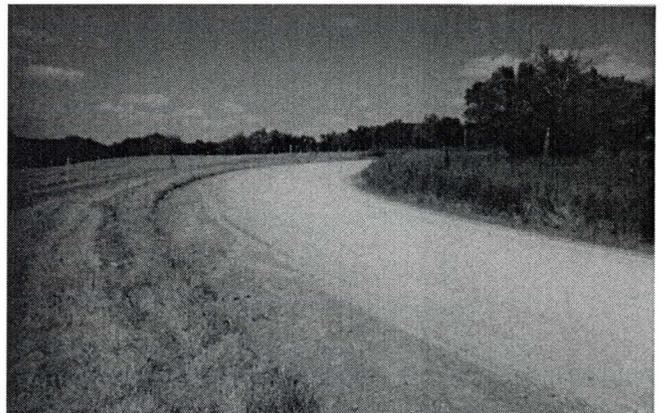
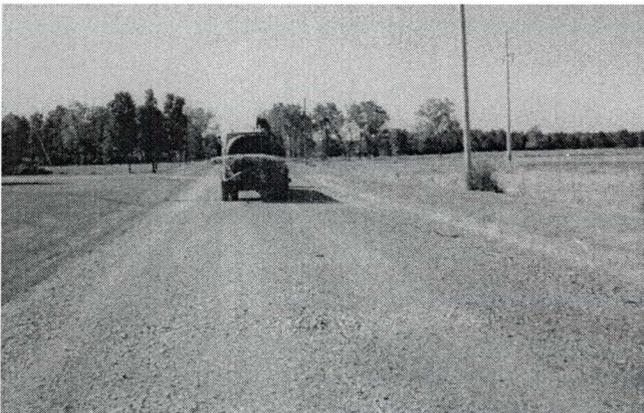
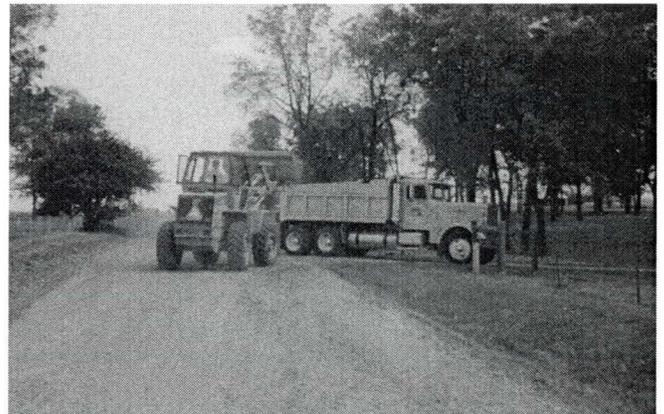
After completion of a new road surface, most pot-holes start on the edge of a road. Knowing this, approximately 3-4 weeks after completion the edge of the road was fly coated with MC 800 at the rate of .2 gallons per square yard 2 foot wide to strengthen the edge and prevent water from entering through the edge and under the road.

The Special Road District overlaid 4.8 miles of road with 5,398 tons of millings. The cost of hauling was \$19,836.85. We purchased 30,820 gallons of asphalt for mixing and tack. The total cost was \$39,695.29 for all material, which divides to \$7.35 per ton. If purchased from the plant this material costs \$23.50 - \$25.00 per ton, which would have cost us \$134,950 for the same 4.8 miles, and that does not include the price to haul. If we mix this ourselves on our mix board the cost is \$17.34 per ton, which would amount to \$93,601.32 with no hauling and no tack oil. Clearly, this is a bargain and a great way to convert dirt roads to hard surface.

The Neosho Special Road District, thanks the County Commission for the materials used in these projects we appreciate the help and harmony of cooperation between the two commissions. Again Thanks.

Ed Russell
Superintendent
Neosho Special Road District

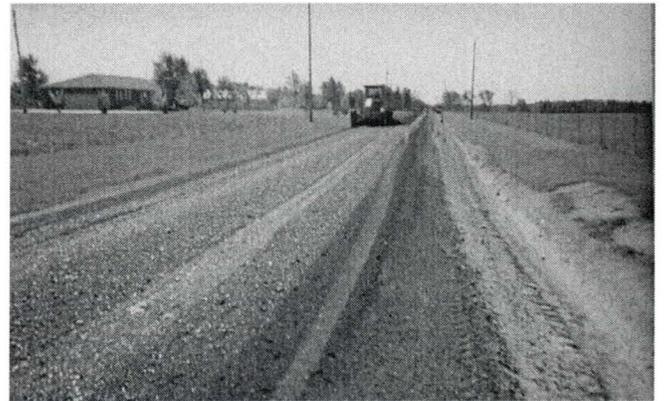
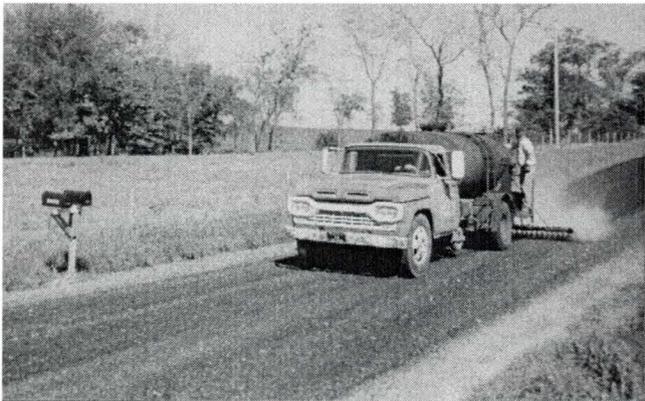
Newton County Commission
Newton County Court House
P.O. Box 488
Neosho, Missouri 64850
417-451-8221



Roadway and ditches are reshaped, waste material is hauled off, roadbed is watered and compacted.



RAP millings are dumped, material is graded into wind rows for uniform thickness.



Tack is applied to the roadway. Oil is then added to the millings, mixed, placed and rolled.