

Experience with Plant-Mix Bituminous Materials

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Our experience with plant-mix bituminous materials in Jefferson County is limited to the use of bituminous concrete surface material (AH) meeting Indiana state highway specifications. The first was used in 1937 to resurface old blacktop roads running through the unincorporated towns in the county which had a solid base and good drainage, but a badly worn surface.

The old surface was cleaned and the holes were patched. Then a light tack coat of R.C.3 was applied to insure the sticking of the new surface to the old. The mixed material was then hauled from the plant in dump trucks. It was covered with a tarpaulin to keep it hot, and dumped as needed ahead of the spreaders. This being a WPA project, the material was spread by hand with shovels and leveled with floats to an average depth of $1\frac{1}{4}$ inches. The thickness was controlled by use of flat iron bars of this width held on edge by a six-inch T welded to the forward end, which made it convenient to draw bars forward as the work progressed. As soon as the material was cold enough to prevent pushing, a ten-ton roller was used to compact the material to approximately one inch in thickness. The road was open to traffic as soon as it was cooled and solid enough to prevent tracking. One ton of material, one inch thick, will cover 18 square yards. The mixture cost \$6.00 per ton at the plant at that time.

During ten years' use this pavement has not required any maintenance and apparently will not require any for a few years, and then possibly only a light seal coat. There is no indication of checking or raveling, and the wear-down of the surface is very slow. This project included roads in four small towns with a total length of 2.8 miles.

While we were well pleased with the project, we did not feel that a county could afford to build a pavement of this type until the traffic was heavy enough to justify doing so. Also we wanted to be

reasonably sure that no more changes would be made in alignment, and all base failures corrected as near as possible before paving. With this in mind we planned to build a few miles of low-cost blacktop each year and correct the weak spots as they developed from heavy traffic. We hoped eventually to be able to pave a part of them with plant-mix material if we could get a plant into our county to save the cost of haul. This opportunity came in 1946 when a hot-mix plant was moved in to pave some state roads. We let a contract for material to be laid with a tamping paver at a cost of \$7.00 per ton in place. This included all labor and equipment for sweeping the old surface, all patching, guarding traffic, rolling, and any other expense connected with the project. The county had an inspector on the job at all times.

The old blacktop surface was cleaned and primed with a fog coat of R.C.3 asphalt the day before paving started. Dump trucks hauled and dumped the material directly into the paver. Rolling was kept up close to the paver, and the road was opened to traffic at the end of each day's work.

This time we did not attempt to add any certain thickness over the whole road, but set the paver so it would spread the material as thin as possible but leave a smooth surface with a slight crown. This made an average depth of about three-fourths of an inch, with very little on the high spots and the low spots brought up level and tamped full. We feel that with a tamping paver we can get a good job with one pass over the old pavement without so much work and expense in filling the holes and low spots ahead of the paver. It is very important that all holes and low spots be tamped full enough so that no depressions will develop under traffic, as often happens to resurface jobs.

While this type of material may seem too expensive for county roads, we feel that plant-mix material of some kind will eventually replace the road-mix and result in a better and more lasting pavement with a saving of bituminous material.