

# Resurfacing City Streets

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The Street Department, in 1948, started a four year program of resurfacing 36 miles of unsurfaced streets within the city limits of Kokomo.

Until recently, the method employed was to scarify the streets, blade the loose earth to a proper crown and gutter, roll and oil. This treatment averaged about \$0.15 per square yard but had very little permanency. Any heavy rain after this treatment would soften the surface and the movement of vehicles over it would put the street back in its previous condition. Using M. C-o cutback asphalt instead of an S. C-o road oil will add a crust to the surface which can be salvaged later in a pulvimix operation, as an addition to the stabilizing of the base.

The street department in LaPorte boasted they did not have a "dirt" street in town. Our Street Department examined what they were doing in La Porte and found they were scarifying the surface, adding stone and asphalt, mixing, spreading and rolling. We found they had a sandy berm into which the surface water could drain which eliminated much of their drainage problem.

In 1948 we tried out five city blocks of pulvimixing. The method employed on "dirt" and cinder streets was to fill the holes and low places during the winter and spring months on those streets which we intended to pulvimix that year. Later 60 pounds per square yard of No. 8 or No. 9 stone was tailgated on the street. The surface was then scarified, shot with 0.5 gallon per square yard of A S-2 or A S-200 and pulvimixed. Then the material was windrowed and road mixed and again shot with 0.5 gallon of asphalt and mixed again. Then we primed the base with 0.25 gallon per square yard.

The material was then laid out and rolled immediately with a 7-ton, rubber tired roller. Twenty-four hours later it was wheel rolled with a 10-ton, 3-wheel roller. When properly cured, say 30 days later, the fatty spots, if any, were dug out and properly patched.

It was then sealed with 0.3 gallon of M.C.-4 or M.C.-5 and covered with 20 pounds per square yard of pea gravel or stone. We prefer pea gravel on residential streets to get away from the stone dust nuisance.

The cost of this type is \$0.45 per square yard. This replaces the type of streets which had been oiled one or two times a year for years. Three years of oiling costs will pay for a pulvimixing job. In addition to getting rid of puddles and holes you get rid of dust and the city saves on oil. The cost of road oil to the city in 1949 was \$12,569. The cost of road oil to the city in 1950 was \$9,871.

Of course there will always be some road oil required on dusty alleys which cannot be repaired for a few years. The traffic in alleys is usually slower than on the streets and the dust is not as bothersome. Bituminous surfaces reduce the amount of cinders and dirt that gets into our catch basins and eliminates the grit which formerly reached our pump pits at the sewage plant and caused wear on our pumps.

In 1949 we pulvimixed about nine miles of "dirt" and cinder streets. In 1950 we pulvimixed about 11 miles of "dirt" and cinder streets averaging 18 feet wide. We paved 124,302 square yards at an average cost of \$0.45 a square yard making a total cost of about \$56,000.

Compare this on the basis of benefits received per dollar with North Delphos Street, which we just finished, where a six-inch concrete slab 36 feet wide and 1300 feet long with curb and gutters cost \$24,361. This was bid at \$3.10 a square yard for plain concrete and \$1.60 a linear foot for curb and gutters. The city paid 27 per cent of cost for drainage, excavation, street and alley intersections.

It is better, we think, to make 11 miles of people comfortable than it is to make  $\frac{1}{2}$  mile of people comfortable and satisfied in eliminating "dirt" streets. In many cases, this pulvimixing treatment will last several years. The better jobs can then be resurfaced with  $1\frac{1}{2}$ " of hot-mix top at a cost of \$0.75 to \$0.89 per square yard. Total cost for pulvimixing and a top is \$0.96 to \$1.00 a square yard. A surface 18 feet wide would cost \$2.00 per linear foot, or \$1.00 per foot frontage on each side of the street.

If you could get the property owners to pay for resurfacing under the Barrett Law *after* the street has been pulvimixed it would be a very good program. Pulvimix streets should be watched and when they begin to crack they should be sealed promptly to avoid breaking up. Sealing operations will soon pay for a hot-mix top.

East Mulberry Street, 1607 feet long and 31 feet wide with sidewalks, curbs and gutters, a six inch stone base and 2½" hot-mix top, cost \$26,457. The city paid 15½ per cent of the cost.

South Bell Street, 1200 feet long and 31 feet wide, with sidewalks, curbs and gutters, a six inch stone base and 2½" hot-mix top, cost \$22,463. The city paid 34 per cent of the cost. The drainage increased the city's cost here. The city paid for street and alley intersections and for excavation and drainage. The property owners paid the balance under the Barrett Law. On the streets built under the Barrett Law, where the property owners paid for a part of the street, it was decided that the city would pay as its part the equivalent of a pulvimixed street which usually was about equal to the grading costs in permanent streets. We expect to pulvimix 17 miles of "dirt" and cinder streets in 1951.