



VAN DYKE ROAD, WAYNE COUNTY, MICH.

Before Improving.

After Improving with 16-Foot Concrete Surface.

A Satisfactory Paving Material

The time has arrived when good roads must be built. The people are now educated in regard to road value from the standpoint of financial gain and the social advantages to people living in the rural districts. The graded earth and gravel road no longer fulfills the demands of traffic. These types provide roads that can be used advantageously only during parts of the year. This condition makes it necessary to adopt durable roads of the hard surface type.

Formerly, farmers objected to hard surface roads claiming they were too hard on horses feet, but they now realize that a good hard surface road, which can be used every day in the year is such a great advantage that this objection is negligible.

In adopting the hard surface road (that composed of stones) the road builders' problem is to select a binder that will keep the stones in place. The automobile, being driven by the rear wheels, soon loosens the stones in a loosely bound road causing the road to ravel and rut. To overcome this trouble the binder used must be rigid and permanent. Portland cement is the only binder that meets these requirements.

Quality.

Portland Cement Concrete makes a road of the highest quality. It fulfills all the necessary requirements of a good road. By having a low crown and being smooth and non-slippery, it forms a road surface which is very favorable for easy and fast travel. As a concrete wears very slowly by abrasion, a concrete road does not form dust or mud. The only dirt ever noticeable is that carried to it from adjoining earth roads, which is readily removed by wind and rain. Another valuable quality of a concrete road is its ease of maintenance. The contraction joints and any defects, which may develop from poor construction, are repaired with bitumen and sand or stone, and is a very simple operation. Necessary repairs are very slight, seldom costing over \$25.00 per mile per year, and can be done without closing the roads to traffic.

Economy.

Present conditions demand economy, not retrenchment, in expenditures. Money should be invested, not spent. Roads should be constructed which are economical when considered as investments. Investigation will show that the high initial cost, cheaply maintained road is an economical investment and that the low initial cost, expensively maintained road is a costly expenditure. Concrete roads can easily be maintained for the life of at least 20 year debentures for \$50.00 per mile, per year. Wayne Co., Mich., maintains its concrete roads for \$25.50 per mile per year. The average yearly cost for maintaining the macadam types used in New York and Massachusetts is over \$600.00 per mile and these roads require rebuilding every ten years. Assume for example; a concrete road surface can be constructed for \$14,000 a mile and can be maintained for 20 years at a yearly cost of \$50.00 per mile. The money to build the road obtained by issuing 20 year debentures. It is essential that the road be maintained every year, that the interest (assume

5 per cent) on the debentures be paid yearly and enough money procured by yearly payments to rebuild the road in 20 years. The total yearly cost for this perpetual improvement is \$1,173.40. A road of the macadam type can be constructed for \$8,000 per mile, and can be maintained for ten years at a yearly cost of \$500 per mile. Ten year debentures are issued to build this road. The total yearly cost for this perpetual improvement, including maintenance, interest and sinking fund, is \$1,536.04 per year. The community by building concrete saves annually \$362.64 per mile. Choosing the concrete road would certainly be economy.

Permanence.

The permanency of concrete roads is unquestioned. Concrete paving which has been in use many years shows practically no signs of wear as is instanced in Bellefontaine, Ohio, where it was introduced in 1893, and Wayne County, Mich. Wayne County built 2½ miles on Woodward avenue in 1909. This road has had very heavy mixed traffic. A census taken in 1913 showed a daily average of 320 horse-drawn vehicles and 2,290 automobiles. This road proves the durability and permanence of concrete for all classes of traffic. The following paragraph is taken from the Ninth Annual Report of the Board of County Road Commissioners, dated Detroit, Mich., December 20th, 1915:

"With the exception of the finishing up of the small stretch of brick roadway on Gratiot Road (let by contract) and 643 feet of gravel construction on the Ford Republic Road, all of our work is of our standard concrete construction and has been done under our own supervision and jurisdiction by our own forces. We have made no changes in our concrete specifications as we feel that the manner in which our concrete roads have stood the test of time and use during the past seven years and the small amount spent annually on their upkeep is ample justification for our adherence to the specifications we have evolved and the methods we have followed in their building. We have never taken up and replaced a twenty-five foot section since we have been building and developing this type of road, and its freedom from ruts and holes has permitted us to devote our energies and moneys to new work instead of resurfacing and repair work, which forms so large a part of the activities of other communities where a less durable type of road has been built at the outset."

Satisfaction.

Concrete roads embody in their highest degree of development the three great factors essential to a satisfactory modern highway,—Quality, Economy and Permanence. Permanent roads make the country property more valuable. Economical improvements make the people wealthier and these advantages combined with the high quality of concrete roads completely satisfy the people. When people are satisfied with an article they purchase it again. When the road builders give the people roads which are satisfactory the whole country will be lifted out of the mud in record time.