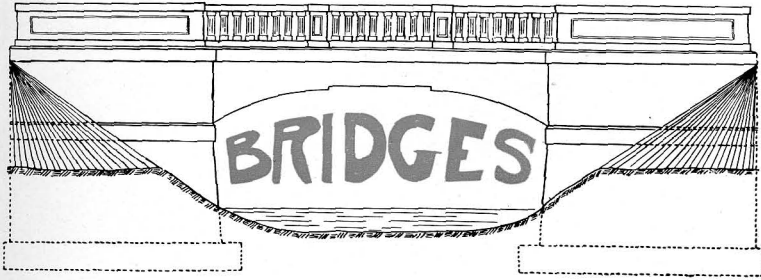


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# OAKLAND HIGHWAYS, 1927

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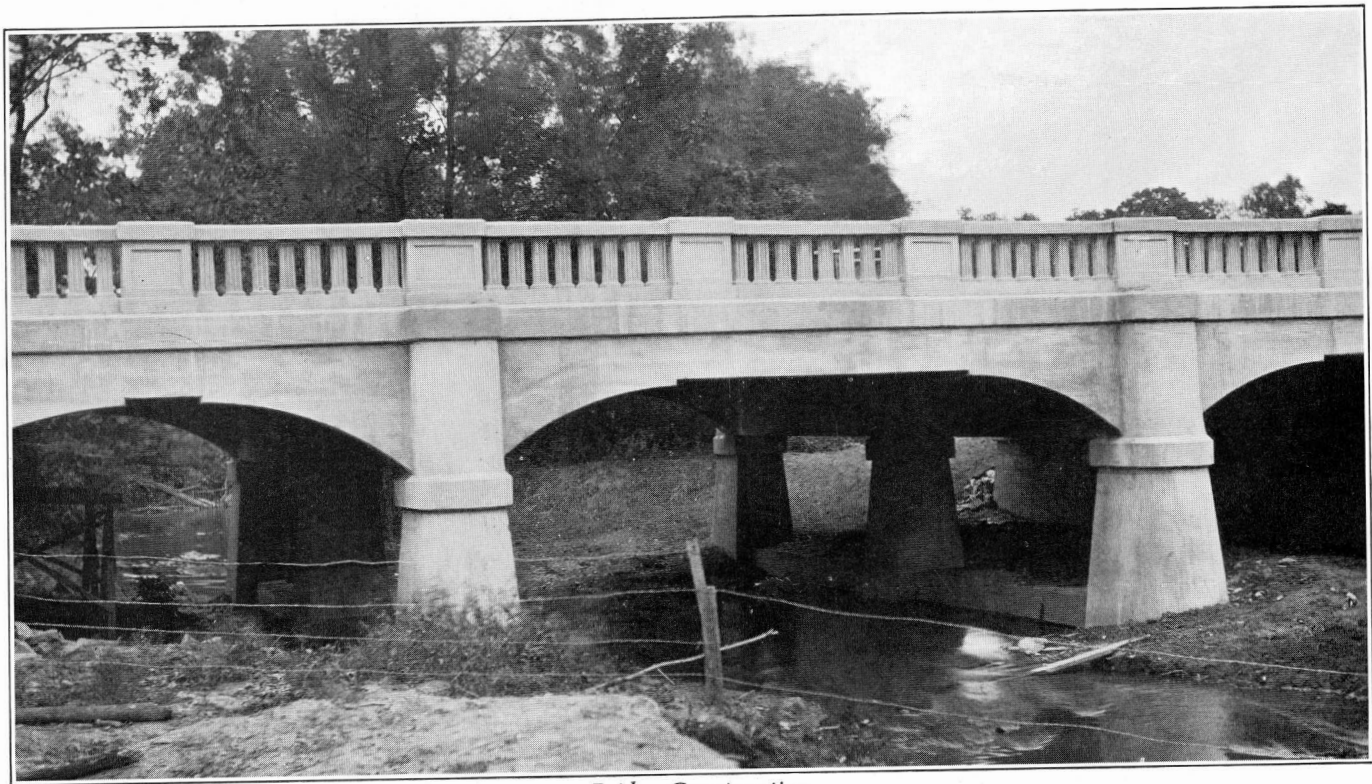
By L. W. MILLARD

Due to the fact that Oakland County is located in a lake region we are very fortunate in having but a few large bridges to construct in connection with our road work. The largest rivers are the Clinton and Rouge, and these have their head waters within the County. This means that neither stream reaches any great size until it passes our boundaries. Regardless of these facts, each construction season finds us building quite a number of smaller spans. During the present season, for example, we have built or are building 17 bridges of clear spans greater than 12 feet.

When a road contract is awarded to the successful bidder this work includes all bridge structures. In addition to our regular road contracts we usually have one or more bridge replacements to make, in which case separate contracts are let to cover this work.

In the past a great many bridges have been built too narrow for present traffic conditions. Roadway widths are something which are receiving much attention by all Highway Engineers. Believing that we should prepare for even greater traffic we have adopted a policy of making all our bridge structures on concrete roads with a clear roadway width of 40 feet, and on our gravel roads we are placing them at from 24 to 36 feet depending upon the shoulder width of the road under construction. These jobs are all constructed so that the roadway width can be increased from 6 to 10 feet without changing the substructure units. As regards types of construction, we are using reinforced concrete slab floor designs up to and including spans of 16 feet. All spans over 16 feet we are using steel I beams with a reinforced concrete floor and spindle hand rail. A square spindle design is being used which harmonizes with the straight line effect of the rest of the structure.

The supervision and inspection of all spans greater than 12 feet is being handled independent of the road work. This insures more uni-



*Bridge Construction*

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# OAKLAND HIGHWAYS, 1927

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form work throughout the County and permits the placing of inspectors on the work who are thoroughly familiar with the detail plans.

A brief summary of the season's work by projects is as follows:

**ROCHESTER VIADUCT A. D. NO. 16.** This bridge is by far the largest one ever built in Oakland County. It is being built jointly by the State Highway Department and the Oakland County Road Commission. Detail plans of the structure were prepared by the State and our organization prepared plans for the bridge approaches and the Division road which is a part of the project.

The structure passes over Mill street, First street, and Clinton River and the Air Line of the Grand Trunk Railway, in the Village of Rochester. There are four spans of 70 feet, two of 65 feet, and eight of 50 feet, making a total length of 810 feet. An idea of the size of the project can be gained from the following quantities which are required for the work:

3,201.5	cu. yds. of concrete
1,678,043	lbs. of structural steel
331,298	lbs. of reinforcing steel
1,502	concrete spindles

A roadway width of 28 feet with one 5-foot sidewalk has been provided for. Future widening to a 40-foot roadway with 2 5-foot sidewalks can be arranged without changing the substructure units or removing any of the present floor system.

Contracts for the entire project were let to the Wisconsin Bridge & Iron Company in the Fall of 1926. All the foundation work, all structural steel work and a large part of the floor is now completed. It is expected that the project will be completed on schedule time, which is November 1st, 1927.

**NORTHVILLE-NOVI ROAD**—The Board of Supervisors made a special appropriation for a bridge on the Novi-Northville road at the base line. Plans were prepared for this work and the contract let early in the season. This bridge has a clear span of 24 feet with a clear roadway of 24 feet. Provision was made to widen to 30 feet without altering the substructure units.

On this same road we placed a new hand rail on an 18-foot bridge just south of the South Lyon road.

**10-MILE ROAD, A. D. NO. 103**—It has been necessary to build more bridges on this project than any individual project in the County. The Rouge River and several of its tributaries cross this road, which necessitated our placing 4 12-foot spans, 1 18-foot span, 1 24-foot span and



*Upper—Culvert, 10 Mile Road. Lower—Rochester Bridge*



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## OAKLAND HIGHWAYS, 1927

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one triple span composed of one 30-foot and two 20-foot openings. These bridges all have a clear roadway width of 40 feet and carry our standard spindle railing.

CROOKS ROAD, A. D. No. 99—This road crosses the Clinton river about one and one-quarter miles North of Auburn Avenue. At this location we have built a bridge with a clear span of 40 feet. By carrying the railing back over the abutments, which is our standard construction, we get an overall railing length of 70 feet. This type of construction tends to give length to the structure which is desirable with wider roadway widths.

In addition to the above, we placed a 12-foot span just north of the Big Beaver road.

BALDWIN ROAD, A. D. No. 97—On this project two bridges of 14 feet span were placed. One of these was designed to carry about 3 feet of fill over the structure, as this method is cheaper than to build high abutment walls and carry curb and railing. This type can only be built where high water clearance will permit.

The other bridge has a clear roadway width of 36 feet and carries our standard spindle railing. A very soft foundation was found and it was necessary to drive piling to properly support the loads.

GROVELAND, A. D. No. 96—A 16-foot span was placed crossing Thread creek on this project. A slab floor design was used with a 30-foot clear roadway.

ANDERSONVILLE, A. D. No. 106—This road crosses the Clinton river at two points. Both of these locations are between small lakes and a bridge design was necessary that would accommodate small boats in addition to giving proper water opening. For these reasons I beam spans of 24 feet with a special arch effect, were used. Both bridges have a clear roadway width of 40 feet. The overall length of the panel and spindle railing is 54 feet. These designs fit in with the surroundings beautifully and give an especially pleasing effect from the lakes.

SWITZER ROAD—A very dangerous creek crossing existed just South of the 10-Mile Road. Narrow fills on either side of the narrow bridge made this location especially undesirable. Plans were prepared early in the year for a new bridge at this location. The contract was let during the summer and the work completed shortly after. This bridge provides a clear roadway width of 30 feet with provision to widen to 40 feet, if need be.

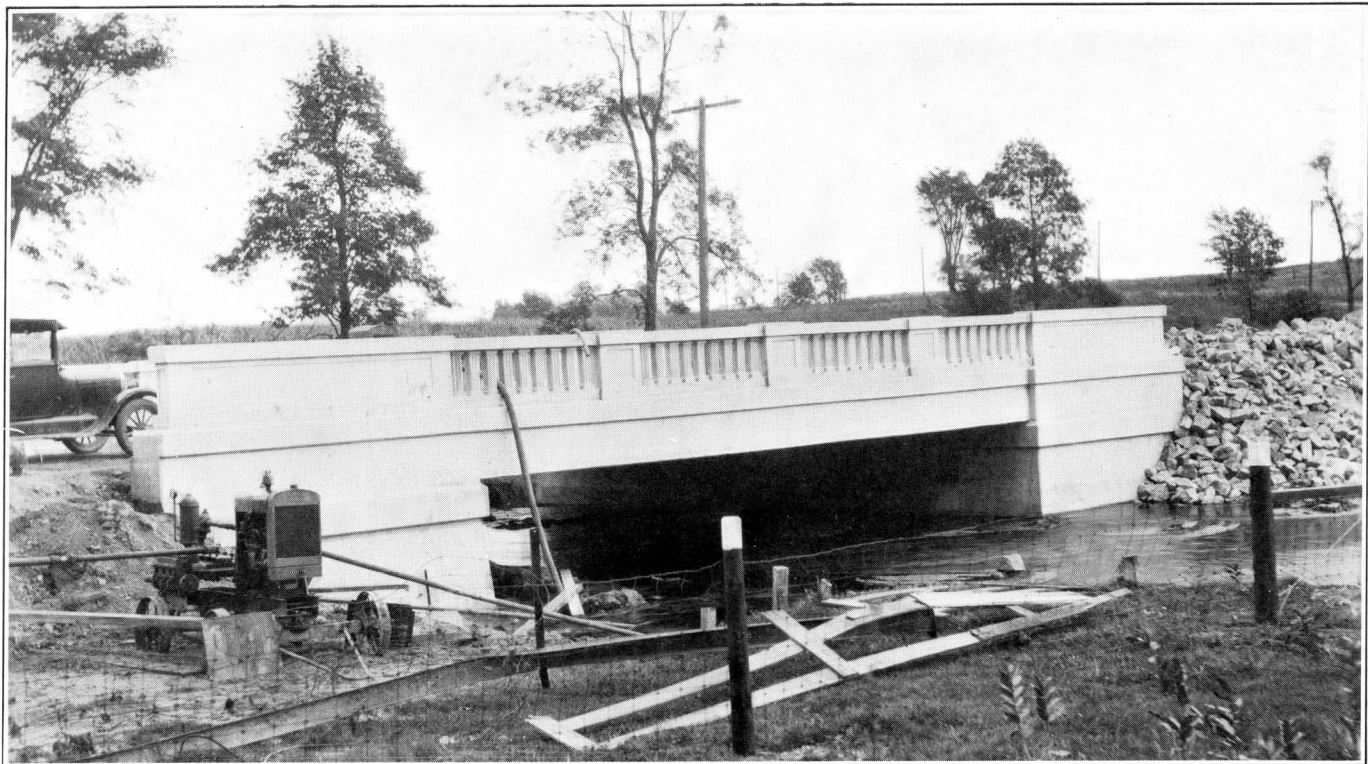
Oakland County is already noted for its scenic highways. We believe, however, that these can be made more beautiful by devoting special attention to our bridge designs and insisting upon the very best kind of workmanship.



*Ten Mile Road Bridge*



*Rochester Bridge*



*Ten Mile Road Bridge*