

## Better Roads - December 1955

### Stable Relationships Aid County Road Progress

Ozaukee County, Wis., cares for state and township roads as well as its own county trunk system in atmosphere of harmony with other government units. Growing urbanization and consequent heavier traffic loads impose burden on county trunk roads.

OZAUKEE, the smallest of Wisconsin's counties, is among the oldest, from the standpoint of recorded history. The first white men known to have seen it were the French traders, La Salle and Joliet, who came down the west shore of Lake Michigan, between 1670 and 1680, to establish trading and military posts in the name of France.



They found the native Menominee, Pottawatomi, Sac and Fox tribes, of the Algonquin Nation, living peacefully in a land of great natural beauty and plenty. Dense forests of hardwoods and evergreens covered the rolling hills, and the many clear, cool streams, as well as the great lake itself, abounded with food.

The headquarters building of the county highway department of Ozaukee County, Wisc., is shown in the photograph above. The structure houses both the office force and the main shop, the interior of which is below. [Click the image to see an enlargement of the picture](#)

Although the explorers were soon followed by the Jesuit pioneers Allouez, Hennepin and Marquette, the French did not settle the territory, and in 1761 they ceded it to the British, who claimed possession until after the American Revolution. By the treaty of 1835, the Indian tribes gave up their claims and migrated westward, and in the year the territory was opened by the government for settlement.



The name "Ozaukee" was given to this area by the Indians. It means "yellow earth," descriptive of the sand and clay soils found throughout the county. Most of these soils were deposited by prehistoric glaciers, and by sedimentation at the time when this region was beneath the waters of Lake Algonquin, the mighty predecessor of today's Great Lakes.

Beneath the surface soils, running roughly on a diagonal from southwest to northeast, is the Niagara escarpment---a ledge of limestone that continues generally throughout the lake states and eventually forms the brink of Niagara Falls. In years past, this fine white stone was quarried extensively for use in construction throughout the county and nearby Milwaukee and Waukesha.

As a result of these fortunate geological circumstances, there are ample supplies of gravel in the northern and western parts of the county, and an almost limitless quantity of limestone in the south and east, where abandoned quarries stand, ready for reopening should the future require it.

An unusual topographic feature is a secondary ridge of limestone, more than 100-ft. high in places, which forms the shore of Lake Michigan and blocks almost all drainage in that direction. As a consequence, surface water drains away from the

lake, into the Milwaukee River, whose course is roughly parallel with the lake shore and from 1 to 4 miles inland. Although at times within sight of deep water, the river continues southward, behind this limestone barrier, some 27 miles before it is able to reach and empty into the lake at Milwaukee.

OZAUKEE COUNTY consists of only 232 square miles, compared with an average of 790 for all 71 counties in Wisconsin (now 72 with Menominee which was and is an Indian Reservation). Its population, especially in the southern portion, is dense, averaging 101 people per square mile, compared with 61 for the state as a whole. This is caused in part, by the increasing urbanization of the two southern-most towns, Mequon and Cedarburg, which lie in the greater Milwaukee area and have attracted many families who have built suburban homes there.

This northerly movement of former city dwellers, coupled with the natural richness of the farmland, has resulted in an equalized property valuation in 1954 of \$130,881,900, and tax collections of \$453,787. Nearly half the tax money was spent for highway purposes.

The county has two incorporated cities. On the lake shore, midway between the county's northern and southern borders, is Port Washington, the county seat, with a population of 4,755 in 1950. Some 8 miles southwest, and a few miles inland, at a natural water-power site formed by the passage of the Milwaukee River across the Niagara escarpment, is Cedarburg, with a population of 2,810. There are five villages, ranging from 460 to 1,489 inhabitants.

The county is principally populated by descendants of early German immigrants, who settled around Cedarburg, the Irish who came to the extreme northern and southern areas of the county, and the Belgians and Luxembourgers who combined forces to found the township and the tiny village of Belgium in the northeast.

The earliest and only roads in the county, up to 1844, were surveyed and built by the federal government for military purposes. In the north-south direction Green Bay Road was built to connect Fort Sheridan, near Chicago, Ill., with military posts in the Green Bay area and to continue northward to Fort Brady at Sault Ste. Maire, Mich. In the east-west direction, Dekorra Road was built to connect Port Washington with Fond du Lac, following generally the present route of Wisconsin Route 33.



A little later the growing needs for more and better highways led to the licensing of private companies to construct toll roads. There were four of these, including the Cedarburg Plank Road, connecting Cedarburg with Port Washington, and the Fond du Lac Road that followed the Dekorra Road route.

Ozaukee County performs maintenance work for the state highway commission under contract. At the left is Wisconsin Route 57, which is maintained by the county. This section of the highway is scheduled for improvement. At the right is U.S. Route 141.

Today the county has a modern road system of 526 miles (presently 872.27 miles). Ninety miles (40.59 and 27.58 as Interstate) are state highways, 125 (151.51) miles make up the county trunk system, and the remaining 311 miles are township roads. Of the township roads, 125 miles have been designated as "county-aid" roads.



U.S. Route 141 (now Hwy LL), which traverses the county from north to south, is surfaced with portland-cement concrete. State trunk highways are all surfaced with bituminous material. All 125 miles of the county trunk system are black-topped, as are about 65 per cent of the county-aid roads and 15 per cent of the remaining township roads. The remainder are

of naturally-stabilized gravel, spot-treated with calcium chloride for dust control.

The entire county trunk highway system of 125 miles in Ozaukee County has been black-topped. The photograph at the left shows a county road receiving mixed-in-place surfacing. At the right a road-mix job has been completed except for shoulder stabilization.

Below there are 31 major bridges on the county highway system of Ozaukee County. The commission has developed a design consisting of wing-walls parallel to and extensions of the end-walls, as in this photograph. This bridge can be widened without major changes.



There are 31 major bridges in the county, up to 120-ft. span. One of the principal problems is the replacement or improvement of smaller drainage structures, many of which are too narrow or not in proper alignment with the road. A new, reinforced-concrete design has been developed by the county highway commission, featuring wing walls parallel to and extensions of the end walls, so arranged that the bridge can be widened without major changes in the structure. It is believed that this design will be especially adaptable to the requirements of increasing traffic for wider road surfaces and more ample drainage

structures. A large part of the county's share of federal-aid secondary funds is devoted to this work, much of which is being done with a county bridge crew that has become very skillful in building this type of structure.

BECAUSE of the relationship between the state and the counties that exists in Wisconsin, Ozaukee County is responsible for the maintenance of all state trunk highways within its borders, as well as for the acquisition in the name of the state, of rights-of-way for any new construction or additions to the state system. The cost of maintenance of state and federal routes is reimbursed under directives and standards established by the state highway department, and under the general supervision of its appropriate division.

Construction is usually contracted by the state, with the county entering into the real-estate transaction only when necessary. However, approval of the county board of supervisors is required for any change in the state trunk system of more than 2 ½ miles. As a matter of practice, there has developed an excellent informal coordinating and working relationship between state and county highway authorities that lends itself to the resolution of matters of conflict of interest before they develop into problems.

All work done by the county for the state is governed by state standards comparable to, and in some instances exceeding those of, the American Association of State Highway Officials. The county itself has no formal, published standards, principally because it is necessary to preserve an element of flexibility, within good engineering practice, to adapt to right-of-way conditions or other local factors that cannot always be rectified or standardized. Usually, however, the minimum width of right-of-way is 66 ft., the roadway width is 32 ft. and pavement width 22 ft., with flat-sloped ditches whose cross-section varies with the terrain. New county construction incorporates a 6-in. gravel base course, on a natural soil subgrade, with a 3-in. mixed-in-place surface. Weight limits for state trunk highways have been set at 20,000 lb. per axle, and for the county trunk roads, and the county-aid system at 14,000 lb. per axle.

Traditionally in Wisconsin, the responsibility for roads has rested upon local governments. In the horse-and-buggy days, the township was the most important unit in providing and maintaining local roads; today its importance has dwindled. The county now has become the principal unit for local road work.

In Ozaukee county, any town can ask for county aid for improvements on its county-aid system. As much as \$2,000 can be allotted by the county to any one project, with a total of \$6,000 to any one town in a year's time, with these funds to be matched by the town. This action is initiated by petition to the county board of supervisors by the town board, usually in April, outlining the work to be done, stating that the town has raised its part of the cost, and asking that an equal sum be

made available by the county. If the request is granted, the work is usually done by county forces, or under contract awarded with county concurrence.

In addition to the work on the county-aid system, any town can arrange for the county to do its work, subject to the load on the county organization, on a reimbursable basis. As a result, the Ozaukee County highway commission does virtually all improvement work on township roads, and maintenance work in all but two of the towns. These townships, Mequon and Cedarburg, each own a motor grader and one or two small trucks, equipped with snow plows. Work beyond the capacity of this equipment is done either by the county organization or by contract, depending upon the circumstances.

LEGAL MACHINERY exists for the incorporation of township roads into the county-aid system by petition of the town board to the county board of supervisors, and this has been done in the past, in instances where traffic counts and other criteria made it desirable. Experience has shown, however, that it is unwise to accept substandard roads into the county-aid system, and for that reason it is the present policy that roads proposed for this system must first be improved to standards considered acceptable by the county highway committee.

Emphasis has been placed, in recent years, on black-topping the county system and county-aid roads. This has been necessary because of increased traffic volumes and heavier loads that have accelerated the obsolescence of existing surfaces. Ozaukee County is situated in the Milwaukee and Chicago "milk shed," from which enormous quantities of dairy products flow southward over nearly every road in the county into the metropolitan areas. Collections of these perishable commodities must be made daily, using heavy tank trucks and trailers of ever-increasing size and speed. They must be able to reach every dairy farm, regardless of weather or season. This requires a relatively high-type system of roads, capable of handling this specialized traffic that extends into every part of the county.

As a consequence, many miles of county highways have become prematurely obsolete. Highways that were stabilized 20 years ago, and which were given a black-top wearing surface 1 ½ in. thick, are no longer adequate. They are being reinforced, as rapidly as possible, with a 3-in. road-mixed surface of bank-run gravel and slow-curing asphalt, laid over the original surface. During the 1955 season, 30 miles of this type of work was programmed, including improved drainage systems and structures, as compared with 20 miles in a normal year. A special crew has been organized, equipped with three motor graders, a distributor, a pulverizing mixer, a tandem roller, and dump trucks as required, for doing this work. The crew has become highly skilled and able to complete as much as 3 miles of this work in 4 days' time, exclusive of time spent on drainage systems and structures.



The portable gravel plant owned by the county. Gravel has been plentiful in the county in the past, and there is now enough in county-owned pits in the northern section to last another 50 years. Other sources are being sought in the south to augment the supply.

Gravel has been plentiful in the past, and there is enough in county-owned pits in the northwest section of the county to last another 50 years. To augment this supply and to cut down hauling distances, other sources are being opened in the southern part of the county.

The road commission owns a modern portable gravel plant that it puts into private pits, paying the owner 7c. to 15c. per yd., depending on quality; this effects a considerable saving in hauling costs and conserves county supplies. The day is foreseen, however, when gravel sources will be either exhausted or it will become uneconomical to use gravel because of haul distances. It may then be necessary to reopen some of the old quarries and convert operations to crushed limestone instead of gravel.

A number of improvements to the state highway system were programmed for 1955. These included the placing of high-type asphalt surfacing on a total of 9 miles in the area of Port Washington, the reconstruction of an important intersection



between two state trunk lines, near Fredonia, and part of the work for a belt line around the city of Port Washington. The latter project is about 4 miles in length, requiring a combined railroad overhead and river crossing at one point, and an interchange with one of the state trunk lines at another. Acquisition of the right-of-way, in the name of the state, was carried forward by the county, and the roadbed and structures were programmed for 1955, with the portland-cement-concrete surfacing to be placed in 1956. No county funds were required for this project; it is the fiscal responsibility of the state and federal governments.



Grading a township road in Ozaukee County with a county-owned motor grader. The county highway department does nearly all improvement work on township roads and maintenance work for all but two townships. Any town can ask the county to do its work.

The two-way shift of road responsibilities, downward from the state, on the one hand, and upward from the towns, on the other, has resulted in a very strong highway department. In order to meet its responsibilities, Ozaukee County maintains a fleet of equipment conservatively valued at \$640,000, including 41 trucks, a complete road-mix set-up as previously described, a portable gravel crushing and screening plant, mud-jacking equipment, and 24 heavy-duty snow plows, and one rotary plow.

Mechanical maintenance of the county road-equipment fleet is carried out in a central shop, although there are four outlying garages in various parts of the county, for storing, servicing and minor repair of equipment assigned to those areas. All major maintenance jobs go to the central garage, where there are more than \$16,000 worth of tools and equipment for this purpose. The garage is on the outskirts of Port Washington, and serves all parts of the county, and is convenient to rail facilities. This building also houses a sign shop, where signs are made for use on all road systems in the county. Inasmuch as the state highway department specifies plywood for its signs, the county finds it advisable to use the same material for most of its work, although it is experimenting with aluminum blanks, covered with reflectorizing materials for stop signs for county highways.

THE OFFICES of the highway committee are in the central building, where all administration is centralized. This committee is the policy-making body, which is given jurisdiction over county road work by the county board of supervisors. The board is a large body, consisting of one representative from each of the seven towns and one from each ward of incorporated cities, 19 in all. This board appoints the county road committee, usually but not necessarily from its own membership. These appointments carry high prestige, and they are usually given to men with exceptional qualifications and understanding of road problems. Customarily, they are re-appointed repeatedly, subject to their willingness to serve, and their tenure brings stability and continuity to county road operations and policies.

The committee, in turn, appoints a county highway commissioner, a professional engineer, to serve for a 2-year period. Here, again, re-appointment is customary and the present commissioner, [Herbert H. Peters](#), has served continuously since 1937. He was first appointed from the ranks of the county highway organization, where he had been employed since 1921. In all, the commission has 46 employees in the field, shop and office, responsible to Mr. Peters.

Both the county and the towns are required by law to publish budgets in advance of the year's operations. The county budget is published in the early part of the calendar year. The towns place their budgets in the hands of the county board of supervisors immediately following public hearings during April; the budgets serve as the basis for planning the year's road work.



A distributor shoots in-place material for a road-mix surface on an Ozaukee County trunk highway. The minimum right-of-way width for county roads is 66 ft., the roadway width is 32 ft., and the pavement width 22

ft. Weight limits for county roads is 14,000 lb.

The county operates on a 10-year plan, which is revised and renewed frequently. Although there is no legal requirement for the townships to engage in advance planning, the county highway commissioner has worked closely with them, in an attempt to get them to set up agreed 5-year plans. This is not easy, because township officers hold office for only 2 years, and the complexion of a town board can change considerably in 5 years' time. However, by virtue of sound personal relationships and prompt action when new township board members take office, some measure of continuity has been achieved in the township road program.

In addition to his normal duties, the county highway commissioner in Ozaukee County is also county park board commissioner. In that capacity, Mr. Peters has under his jurisdiction one large park of 65 acres, situated high on the ridge overlooking Lake Michigan, another of 46 acres, alongside Wisconsin Route 33 and the Milwaukee River, and several smaller roadside areas.



The last-remaining covered bridge in Ozaukee County and probably the state of Wisconsin. It spans Cedar Creek a few miles north of Cedarburg, on a quiet township road. County records and testimony of old settlers have set 1876 as the year it was built.

But the apple of his eye is what is said to be the last surviving covered bridge in the state of Wisconsin, across Cedar Creek a few miles north of Cedarburg, on a quiet 1 ½ -mile section of a county-aid road. Constructed in 1876, the bridge's historical pedigree has been established by a diligent combing of county records and the testimony of old settlers.

Elsewhere in the county there is an interesting example of the progress which has been made in highway construction during the past generation. In 1921, when Mr. Peters entered the employ of the county, the state was engaged in a complete reconstruction of the north-south route now known as Wisconsin Route 57. As a principal section of Green Bay Road, and one of the important north-south highways of the state, no expense was spared in its location, design or construction.

Gradually over the years, it has been overtaken by obsolescence. Increased vehicle loads have broken and tilted its concrete

slabs, narrow shoulders have required the posting of "No Parking" signs over nearly two-thirds of its length, short sight distances have necessitated the marking of numerous long "No Passing" zones, and many special speed restrictions have had to be established because of hazardous intersections. Last year the state completed a new U.S. Route 141, roughly parallel to old Wisconsin Route 57 and taking its place as the principal north-south artery, again sparing no expense in location, design or construction.

Passing from one to the other, the differences between 35 years of road building are striking. Looking at the new road Mr. Peters said, "I have seen a complete road building cycle here—the work of 35 years ago completely outmoded and superseded because of the requirements of modern traffic. I wonder what we'll be saying about this fine new road 35 years hence?"