

However, with the realization that this lies in the future, and that you are now doing your utmost with what you have, education and enforcement must pick up the task and carry it forward. In a very real sense, police work is both education and enforcement. We are the moppper-uppers of the reckless and ignorant when other means of controlling them have failed.

In the traffic war, unlike other wars, the police, who are the defenders of the public, are seldom the victims of the fight. Innocent lives pay the price for our modern high-speed transportation system. The sole aim of the trooper's arrests and warnings, his safety speeches, and his motor car inspections, and his own training in safety and first aid, is to reduce accidents to the lowest point. To be effective, his work must be publicized, for the state trooper knows that it is almost as effective to arrest one man who will tell others, or to make it known through the press to the community, as it would be to arrest ten persons for traffic violations. He seeks only to influence the driver by whatever legitimate means are required to get him to conform to safe practices and the law. The trooper knows what every citizen must sooner or later learn: that traffic safety is dependent upon the personal responsibility of every motorist and every pedestrian whether he exists in the very shadow of the law or whether he is a hundred miles from an officer. In the prevention of accidents, the police can only remind us of what we can do for ourselves.

EXPRESS HIGHWAYS IN THE CHICAGO METROPOLITAN AREA

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There has been developed within the Chicago metropolitan area a comprehensive system of paved highways. These highways pass through the numerous suburban cities and villages, the through-traffic movement being interrupted by local traffic, local parking, traffic lights, and pedestrians. With but slight modification, this I believe to be true of most metropolitan areas in this country.

The highway system in Cook County has been superimposed on the greatest concentration of railroad facilities anywhere in the country. Eight percent of the entire railroad investment in the United States is within less than one-half

of Cook County. This has resulted in many highway-railroad grade crossings with the attendant delay to highway traffic. To construct additional surface facilities for through traffic would but decrease the efficiency of the present system by constructing additional intersections requiring more stop-and-go lights and stop signs. The present system of roads can be much improved only by the elimination of many highway-railroad grade crossings.

To accommodate the heavy movement of traffic in and around the metropolitan area, there must be undertaken the construction of a system of limited-access express highways, eliminating cross traffic, lefthand turns, and access from abutting properties. In terms of construction this will require a system of superhighways, either elevated or depressed, radiating from the center of the shopping and business district of the city, and a system of express highways beyond the city limits.

Cook County undertook a study to determine the most feasible and satisfactory location and type of design of a superhighway within the City of Chicago, beginning at the central business district, which we call "the Loop", and running northwesterly to approximately the city limits.

NORTHWEST SUPERHIGHWAY STUDIES

Many locations for the Northwest Superhighway were considered. In general, they fall in three groups: the first lying parallel to and adjacent to the Wisconsin Division tracks of the Chicago & Northwestern Railway, the second parallel to Clybourn Avenue and Elston Avenue, and the third parallel to Clybourn Avenue, the North Shore Channel, and Bryn Mawr Avenue.

Aeroplane photographs of the areas traversed by the routes were used in determining the several locations. By means of these maps, together with Sanborn Insurance maps, the necessary information regarding physical obstacles found in each area were readily determined without making lengthy and costly field inspections.

So as to locate the least expensive properties, and thereby find a highway location which would be least costly from the right-of-way-purchase standpoint, the valuations of the land and buildings in each block were estimated and expressed in an average price per sq. ft. for each block. This information was assembled on a map showing in red the blocks in which the land and improvements averaged less than \$1.50 per sq. ft.; in yellow those blocks averaging between \$1.50 and \$3.00 per sq. ft.; and in green those blocks costing from \$3.00 per sq. ft. and up.

Of the several routes studied, three were selected as being most worthy of detailed analysis and investigation. These three included one location parallel to the Northwestern Railway tracks, a second parallel to Clybourn and Elston Avenue, lying from one-half block to one-and-one-half blocks away from these streets, and a third parallel to Clybourn Avenue, the North Shore Channel, and Bryn Mawr Avenue. The northwest terminus of each of these locations was laid out so as to tap the several radial state highways entering the northwest corner of the city. The traffic from each of these highways is picked up before the highways converge and reach points of congestion.

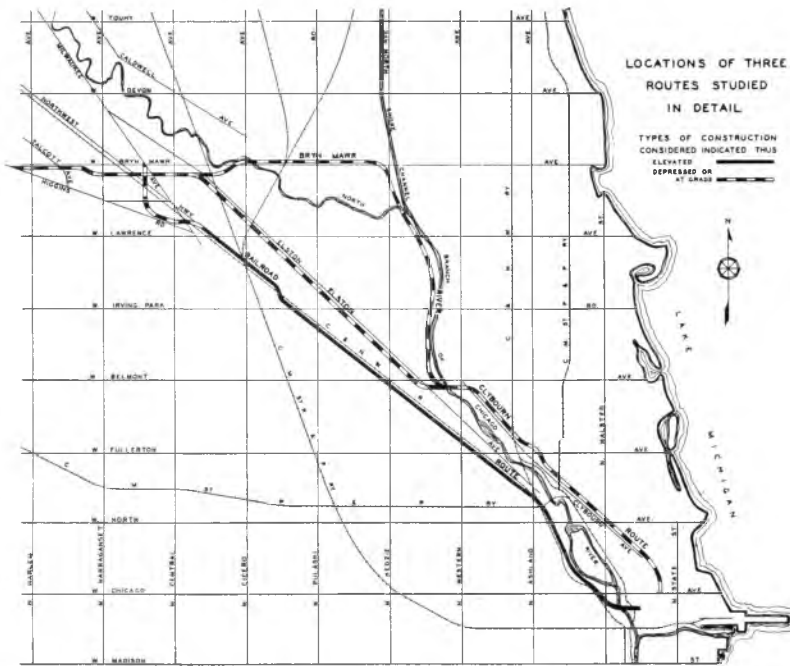


Fig. 1. Map showing locations of the three proposed routes on which detailed studies were made.

A comparison of these three routes showed that the line parallel to the railroad was the shortest, being 9.5 miles. The Clybourn-Elston route was 9.6 miles in length and the Clybourn-River-Bryn Mawr location 11.3 miles in length. Total estimated cost of the route parallel to the railroad would be \$17,300,000.00 for the necessary right-of-way and \$25,000,000.00 for construction, making a total estimated cost of \$42,300,000.00. The Clybourn-Elston location would cost \$30,500,000.00, and the Clybourn-River-Bryn Mawr route \$27,200,000.00.

ESTIMATED COST OF SUPERHIGHWAY ROUTES

COSTS BASED ON SPECIFIC TYPES OF CONSTRUCTION
AND RESULTANT REQUIRED RIGHTS OF WAY

ROUTE	LENGTH IN MILES*	RIGHT OF WAY COST IN MILLIONS	CONSTRUCTION COST IN MILLIONS	TOTAL COST IN MILLIONS
RAILROAD CLYBOURN	9.5	8.3	24.5	32.8
ELSTON CLYBOURN	9.6	11.2	19.3	30.5
RIVER - BRYN MAWR	11.3	9.4	17.8	27.2

* LENGTH IN MILES MEASURED FROM CENTRAL BUSINESS DISTRICT
TO COMMON POINT AT MILWAUKEE AND BRYN MAWR AVENUES.

Fig. 2. Table showing lengths and comparative estimated costs of the three superhighways.



Fig. 3. Sketch of type of depressed highway construction considered for the Clybourn-Elston Route and the Bryn Mawr-River-Clybourn Route.

In analyzing a highway lying parallel to the railroad embankment but one type of highway could be built, an elevated structure. It was found that it would be impossible to provide ramps leading to and from the highway where the highway was directly adjacent to the railroad. Access to the ramp would be possible only by passing under a long, dark viaduct, either under the railroad or under the highway, and then making a very sharp confined turn in the ramp, this turn in the majority of cases being more than a right angle turn, which would require vehicles practically to stop. For that reason it was found that the only manner in which a highway might be built parallel to the tracks would be to move the highway about 200 feet away from the railroad right-of-way to provide sufficient room between the two embankments to accommodate the ramps and easy connections to the cross streets. In addition to this problem it was found that a highway parallel and adjacent to the railroad tracks would cross 20 industrial switchtracks, varying from one to

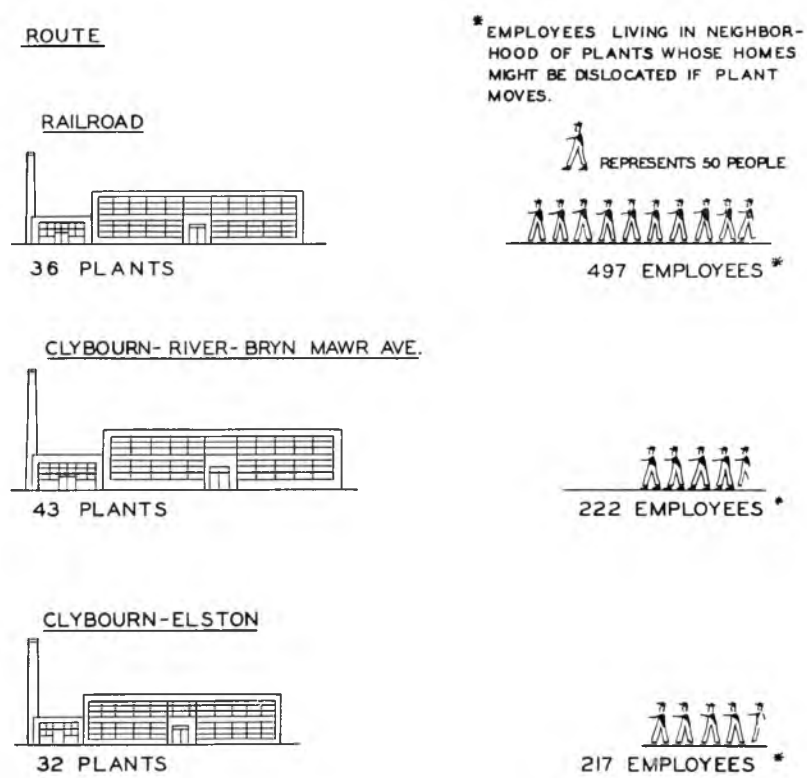


Fig. 4. The number of manufacturing plants affected and their employees living in the neighborhood of the plants as determined for each route.

22 tracks each. These tracks are wholly or partially elevated, which would require the highway to be built at some 30 or 35 feet above ground level at these crossings. This would necessitate the highway's being built at that elevation throughout practically its entire length or else the adoption of a roller-coaster grade line, which was found to be most undesirable.

In considering the other two locations a depressed type of highway was considered, being, in general, similar to the design used by the Federal Public Roads Administration in its report to Congress wherein this type of construction is recommended for urban locations.

A count was made of the number of factories which were affected by each of the locations. It was found that the route paralleling the railroad affected 36 such manufacturing plants, the Clybourn-River-Bryn Mawr Route 45 plants, and the Clybourn-Elston Route 32 plants. The number of employees of these plants who live in the neighborhood of the plant and whose homes might be dislocated if the plants were moved was determined. There were 500 such employees whose homes might be dislocated if the railroad route were

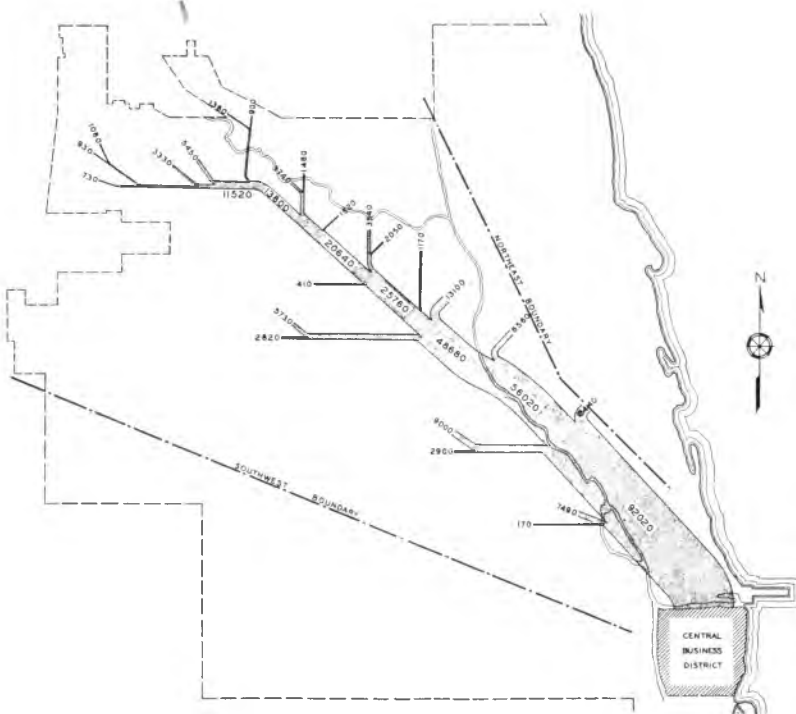


Fig. 5. Traffic flow map showing total estimated traffic which might use Clybourn-Elston Route.

followed, 222 on the Clybourn-River-Bryn Mawr Route, and 217 on the Clybourn-Elston Route.

From data regarding existing traffic an estimate was made of the traffic usage of such a Northwest Highway if it were provided. It was found that from today's traffic figures about 90,000 vehicles might use such a highway each day. To accommodate that volume of traffic, with a reasonable allowance for future increase, four lanes of pavement would be required in each direction.

The relative density of population in the northwest area of Chicago was determined. This information was shown on a map of that portion of Chicago on which was superimposed the three highway locations considered. From that standpoint it was found that the route parallel to the Northwestern tracks and the route parallel to Clybourn-Elston Avenues provided the most direct accommodation for city population. After weighing these several studies, it was found that the depressed highway parallel to Clybourn-Elston Avenues was the most desirable. A report of these studies was subsequently presented to the County Board and that recommendation was concurred in.

The downtown terminus of such a superhighway should include not only a distribution and collection system for the business district, but should also include articulating connections with the Outer Drive as a means to allow traffic wishing to pass around the Loop to do so without filtering through the present congested surface streets. Many locations to accomplish these purposes were considered. Consideration was given to elevated highways, depressed highways, tunnel pavements, and plaza distributors.

After analyzing each of the possible types of construction, it was found that the most flexible type consisted of connections to four surface streets—Superior, Huron, Erie, and Ontario Streets. Two of these streets would be made one-way east bound and two one-way west bound. Traffic wishing to go to the Loop would use these four streets connecting to the various north and south streets entering the Loop. In addition, tunnel pavement connections would be provided to the Outer Drive in the Oak Street Beach area, with a reconstruction of the Outer Drive at that point to provide easy connections without the use of traffic lights. As a future development, the plan calls for a connection to the lower level of Wacker Drive at about Washington Street, with the thought that Wacker Drive might be developed south to connect with the West Side Superhighway and the South Side Superhighway.

The tunnel pavements connecting the superhighway with the Outer Drive are being planned as "basement drives". The roof of the tunnel would serve as the pavement of the surface streets. Emergency sidewalks would be provided in the tunnels with frequent stairs leading to the ground level.

DOWNTOWN TERMINUS

In connection with the planning of the downtown terminus of this highway a joint study was made by the County with the Chicago Housing Authority and the Water Filtration Division of the City of Chicago, to determine a joint development of a run-down area of the city through which the highway passed. This area was bounded by Division Street on the north, Chicago Avenue on the south, Sedgwick Street on the east, and Larrabee Avenue on the west. The area is bounded on the west by manufacturing plants and on the east by poten-

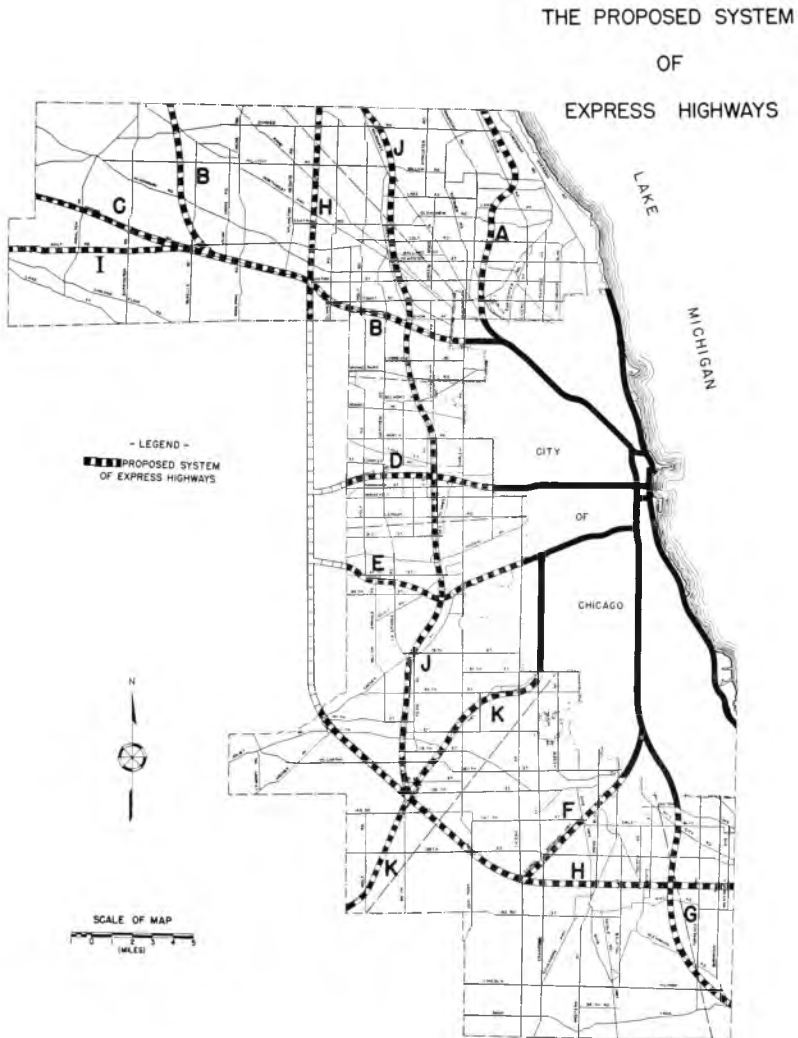


Fig. 6. Map of proposed locations of express highways in Cook County.

tially-valuable apartment and hotel sites. A joint plan for the development of this area, containing slightly more than 100 acres of property, embodied the redevelopment of a portion of the property as a housing project adjoining a filtration plant. The majority of the filtration plant would be constructed below ground level—the surface being developed as a park. The depressed superhighway would pass through this development, which would serve as a buffer between the manufacturing properties and the residential properties. The distributor facilities for this highway were estimated to cost \$9,500,000.00, which together with the estimated cost of the route, \$30,500,000.00, brought the estimate of the entire construction to \$40,000,000.00. This one highway is a part of a comprehensive system of such routes in the City of Chicago—the initial units of which are estimated at slightly more than \$100,000,000.00. Such highways should not terminate at the city limits, but because of the large suburban towns must continue throughout the County. Studies were made of a system of express highways on wide rights-of-way, grade separated throughout, eliminating lefthand turns and cross traffic. Abutting property would have no access to those highways—local service drives being provided for that purpose where needed. The construction of such a system of highways through the County would, for many years, provide means for rapid, safe movements of large volumes of traffic; and by dividing and segregating that traffic the existing system of highways would be freed of their present excessive loads. At the same time, property along those existing roads would be made more desirable for residential purposes. The locations of these routes were determined by a study of existing population centers, by existing flows of traffic, and by available rights-of-way.

In planning these highways, divided pavements were contemplated with service drives constructed where access would be required for adjoining properties. This type of development would call for a right-of-way width of 200 feet where service roads were not required and 300 feet where required. The acquisition of such a wide right-of-way would insure for all times a highway for through traffic without interference from adjoining properties or local traffic. The cost of such a system of express highways is estimated at approximately \$80,000,000.00.

GRADE CROSSING STUDIES

As an improvement of the existing system of highways, a study was made of grade crossings looking towards a program of elimination. There are in the County, on the County and State system of highways, 445 grade crossings and 221 grade separations.

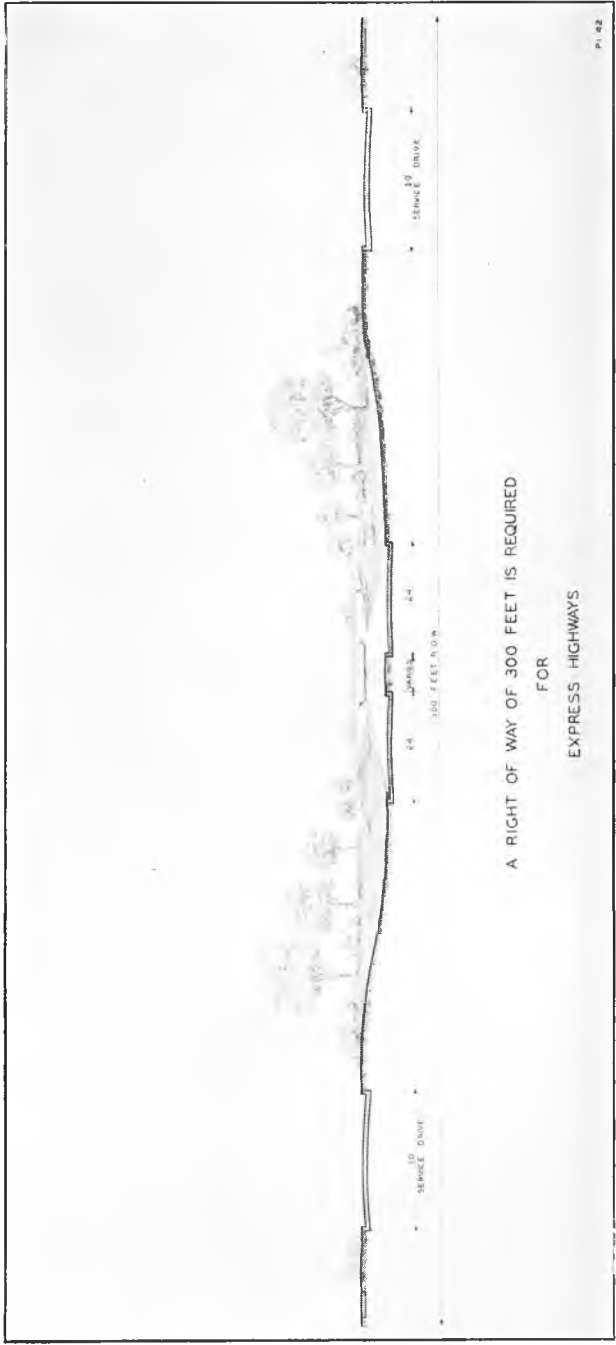
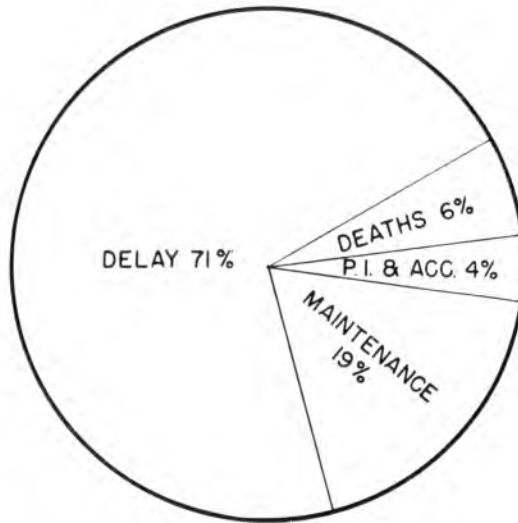


Fig. 7. A typical cross-section for express highways.

From the Commerce Commission the records of deaths, accidents, and injuries for a ten-year period were obtained. From previous surveys of traffic delay at grade crossings and from later traffic flow information, an evaluation of that delay in dollars and cents was determined. From the railroad there was obtained the cost of operating, maintaining, and protecting each grade crossing. It was found by an evaluation of traffic delay at 1.45 cents per vehicle minute, deaths at \$5,000.00 each, personal injuries at \$1,500.00, and accidents at \$500.00, that the delay in traffic amounted to approximately 70 percent of the public cost of grade crossings, that deaths, injuries, and accidents amounted to but 10 percent, and the railroad cost of maintenance and operation to the remaining 20 percent. In addition it was found that deaths and injuries at grade crossings result from uncontrollable and chance situations. For example, whether there be one or five persons in the vehicle at the time of the accident is entirely uncontrollable and whether the driver of the car is



UNIT VALUES

VEHICLE MINUTES DELAY	\$.0145
DEATHS	5,000
PERSONAL INJURIES	1,500
ACCIDENTS	500
MAINTENANCE	VARIABLE

Fig. 8. Elements of grade crossing cost to the public.

mentally agile enough to avert the accident, when he finds himself in a hazardous situation, is entirely a chance condition. For this reason the study was based solely upon the cost to the public of traffic delay. The cost of elimination of each grade crossing was determined and weighed against the public cost occasioned by each crossing. In that manner an economic priority was determined for each location, and a program of elimination totaling \$18,000,000.00 was developed.

HIGHWAY AUTHORITY NEEDED

Reviewing these major projects consisting of superhighways in Chicago, the initial units of which are estimated to cost \$100,000,000.00, express highways through the county, estimated to cost \$80,000,000.00, and grade crossing elimination work, costing \$18,000,000.00, it was found that local road-building agencies did not have sufficient annual revenues to undertake the construction of such work. Every means of raising the necessary funds was investigated, and it was found that the creation of a highway authority, a public corporation empowered to use private money in constructing highways, was the only feasible solution. A service charge or toll would be made for the use of such projects, which in no way would interfere with the use of the present system of highways.

The bonds issued by such an authority would be a charge solely against the tolls collected and would not be an obligation of any governmental agency. Ample evidence of the effectiveness of such highway construction is to be found in the New York City area, within which there have been built over \$300,000,000.00 of such highway authority projects.

A bill creating such an authority under the Superintendent of Highways of Cook County is now being prepared and will be introduced before the current session of the State Legislature.

A CRITICAL ANALYSIS OF INDIANA DRAINAGE LAWS

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The power to construct drains is no part of the ordinary powers of municipalities. Such authority must be conferred by the legislature, as the right to construct drains over the lands of others did not exist at common law.

The authority of the legislative body of the State to enact drainage laws is derived from the police power of the State, the right of eminent domain, and the general power of taxation.