

# Development and Progress of Superhighways in Cook County, Illinois

JAMES F. KELLY

Assistant Chief Engineer,  
Cook County Highway Department,  
Chicago, Illinois

It is a pleasure to be with you this afternoon and to take part in this program. It is indeed interesting to talk shop to a group of highway men and highway engineers, whose problems are parallel, not perhaps the same type and magnitude as we have in Cook County, but, with the same objective of serving the general public and in particular the motoring public.

If you are not a highway engineer, your interest in attending the Road School indicates that your business is associated with the highway or automotive industry in one of its numerous branches. Research indicates that one out of seven people gainfully employed in these United States is associated with the automotive industry, and in turn the highway planning and construction business. The automotive industry is a big business. It is here to stay, and as highway engineers we must recognize that our thinking must always be coupled with that industry in terms of highways, traffic, and people.

My subject is the "Development and Progress of Superhighways in Cook County." A method of approach and a solution for the problems associated with traffic congestion can be made in an intelligent and systematic manner so that the motoring public and the public in general will get the most for their tax dollars.

Many of you highway engineers will recall that the first street improvements for the use of automobiles were constructed in the cities and villages by special assessments. Then came the need for streets and roads to connect these villages and cities, and moneys from bond issues and motor fuel tax funds were used. However, we must admit that the building of highways has not kept up with the accelerated automobile industry.

You will recall further that the systems of roads and streets established for town-to-market types of road were not all-weather by any



Construction view of Torrence Avenue over Calumet Superhighway in March, 1949.

means. With the increased use of automobiles, it became necessary to provide for new and improved routes for motor vehicles. You recall what happened—country lanes on poor alignments were paved with concrete or blacktop, but were still only high-class horse and buggy roads; and as congestion increased there was a continued clamor for the widening of the old country lanes and city streets built on narrow rights-of-way. This did take place, but it has been expensive, especially in built-up communities.

Moreover, the increasing automobile traffic and attendant congestion and delay at railroad grade crossings and important intersections caused another wild clamor for bridges at each railroad crossing. In short, everybody was trying to get the answer for a quick and complete solution for traffic problems. In general, that highway program brought the motorists out of the mud into a muddle, and that is what has happened in the majority of large metropolitan areas and in particular the Chicago Metropolitan Area.

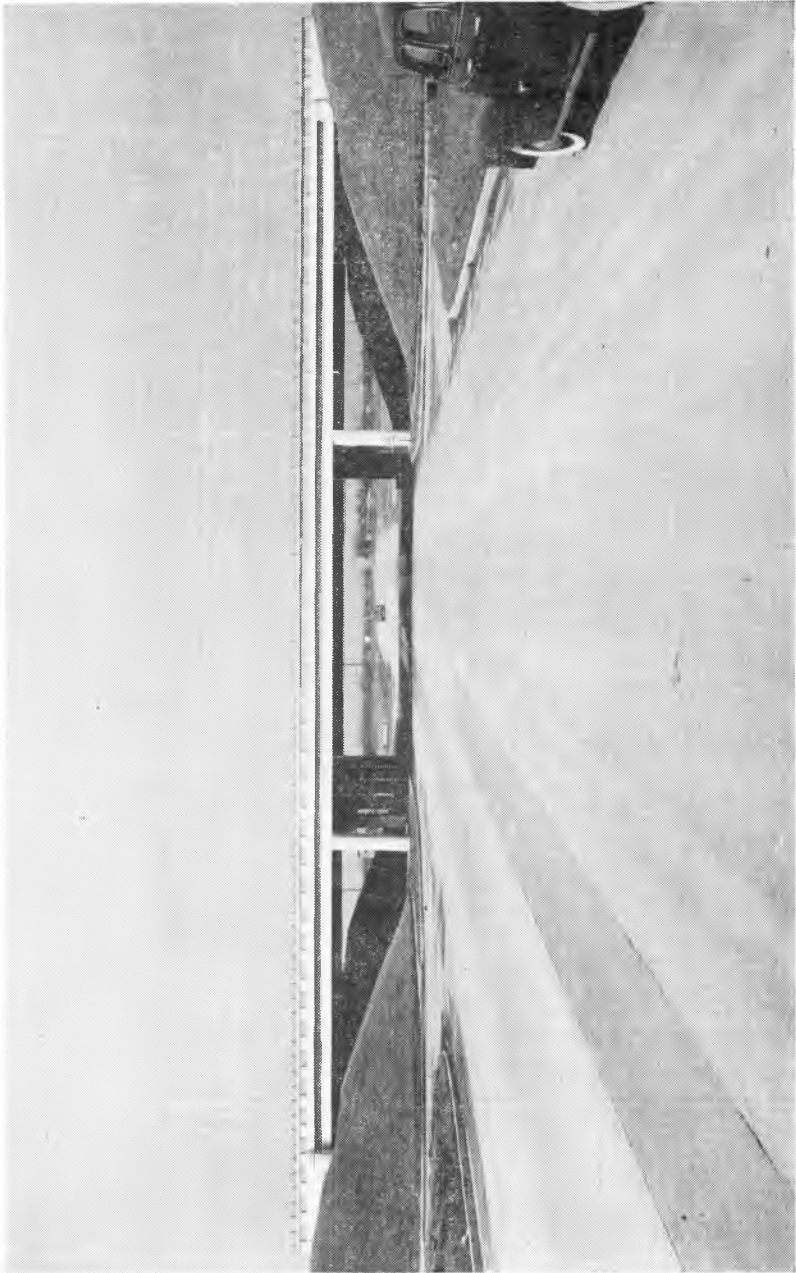
In the Chicago Metropolitan Area, and especially in Cook County, we found it necessary to tackle the problem immediately because of the increasing congestion and attendant fatalities.

### THE PROBLEM OF HIGHWAY-RAILWAY GRADE CROSSINGS

As you know, Cook County is in the northeast corner of Illinois at the extreme lower end of Lake Michigan. Chicago is its largest city, but there are more than 100 smaller cities and villages within a radius of twenty miles from the central business district. All these cities and villages contribute to the daily population and traffic problems of Chicago and Cook County. The Chicago Metropolitan Area, therefore, is the subject of our conclusions on the design and location of our super-highways and has influenced our decisions in the development and progress of superhighways in the area.

The region known as the Chicago Metropolitan Area is composed of the northern part of Indiana, that is, the Gary and Michigan City area on the southeast, thence down to Joliet, north to Aurora and Elgin, and on through to the Waukegan, Milwaukee, and Racine areas in lower Wisconsin, including, in short, all the cities and villages within a radius of 50 to 100 miles.

The highway system in Cook County and Chicago includes many federal, state, county, and township highways and many city streets and boulevards. They converge in or close to the city of Chicago. These highways serve the many thousands of vehicles daily from the Chicago



Burnham Avenue under Tri-State Highway.

area as well as the interstate traffic from other cities such as Detroit, Cincinnati, Indianapolis, Kansas City, Omaha, St. Paul, and Minneapolis, in general, an area of traffic generation within a radius of from 300 to 500 miles from Chicago.

We must remember Chicago as a great railroad center. In fact, Chicago was built around its railroad and waterway systems. The Chicago Terminal District happens to be one of the greatest switching districts in the world. In fact, eight percent of the entire railroad investment of the United States is centered in this district approximately twenty miles square. More than 1,500 trains move in and out of this switching district daily. The passenger trains alone bring in and out of Chicago more than one-half million people every day. More than 10,000 carloads of freight move in and out daily. It is interesting to note as a sidelight that this switching district alone handles more freight and passenger trains daily than New York and St. Louis combined. In this district, these many freight trains are slowing down to come to a terminal in Chicago or are just starting out for destinations to all points of the compass. Visualize for a moment, then, our highway system being superimposed on this great railroad installation, and the resultant dangers, traffic congestion, and delay at the many railroad-highway crossings.

We realized this was a major highway problem. A study was made of the types and locations of the many highway-railroad crossings and the few grade separations both in Cook County and the city of Chicago. After much deliberation and study, the answer to the traffic problem was not to be found in a costly, time-consuming highway-railroad grade separation program. However, the congestion and traffic delays at these railroad crossings coupled with frequency of accidents resulting in either loss of life or personal injuries, aside from the maintenance costs of such grade crossings, caused a decided economic loss each year. Our studies indicated that, on the basis of a minute delay factor of \$.0145 per vehicle, there was a loss of approximately \$30,000,000 per year to the motoring public, with the net result that the motorist was paying out a huge sum of money that could be converted and utilized in terms of a more efficient highway system.

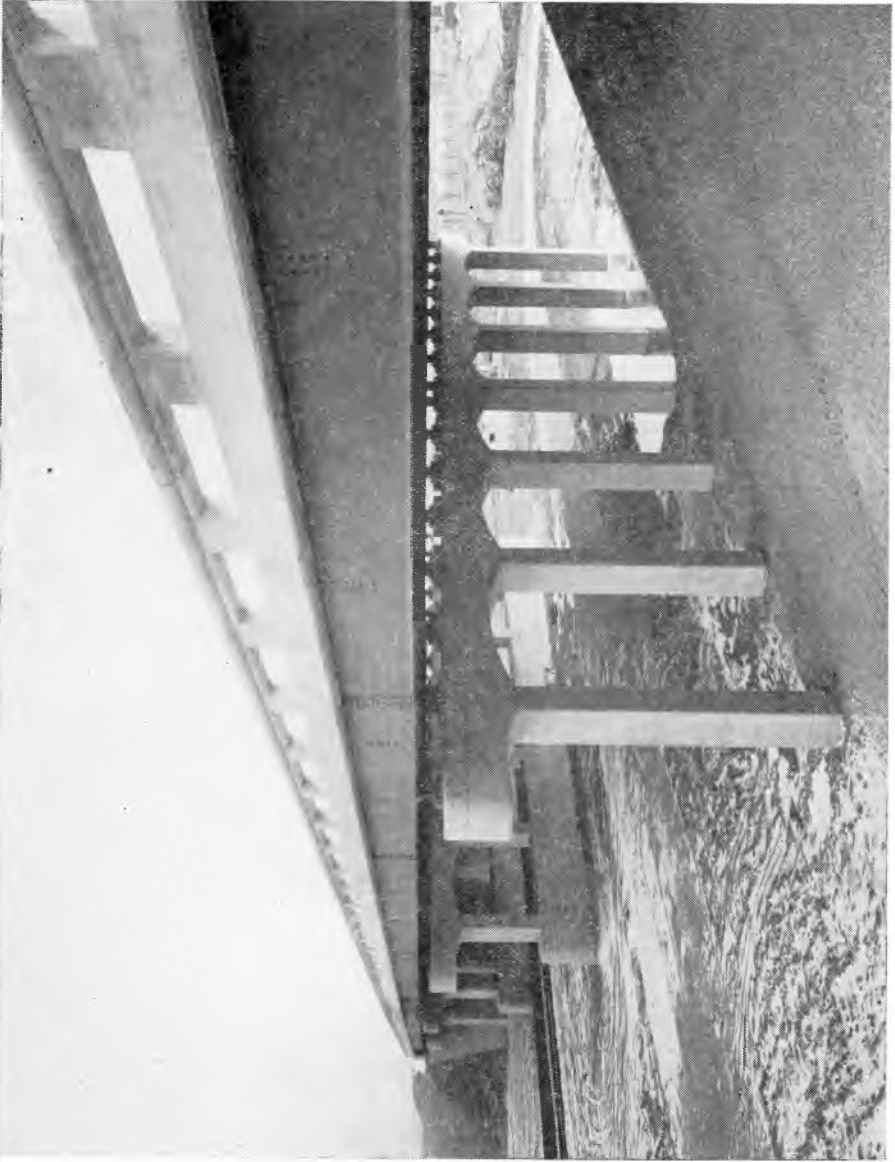
In an effort to solve the traffic-congestion problems, many highways were widened. There was a great clamor to keep on widening highways, but it appeared that this was not going to be an efficient and economic answer to traffic-congestion problems, for the widening of any existing highway was costing more and more as the development and usage of the land increased adjacent to our established routes.

However, we studied the operating efficiency and conditions affecting a typical state road. One in particular is Route 45. The portion studied in detail is in the west part of Cook County and passes through the village of LaGrange. It is a typical state road, with stop signs, stop-and-go lights, railroad grade crossings, highly developed and concentrated business areas, marginal interferences, and valuable right-of-way. The effective widths of pavement were studied; traffic congestion and volumes were likewise reviewed; and all the features which tend to minimize the value of this route were considered from the standpoint of the route as a through highway and as it affected the community and the business area in general in the commingling of local and through traffic. We found that the widening of the existing highway was not the most suitable answer and that it would then be necessary to consider further means of relieving traffic congestion and its attendant undesirable features.

We know Chicago is a convention city and attracts many thousands of people every year, many of whom travel to Chicago in their own vehicles. People cause traffic, and traffic arteries are our problem. So it is necessary, then, to consider the areas of traffic generation, especially from the many small towns, villages, and cities that surround the city of Chicago. The population in this area is close to 4,000,000 people and within a radius of 500 miles over 60,000,000 people. As population increased, automobile registration increased; and early in 1936 our studies indicated that the efficiency of existing highways definitely decreased as automobile registration and usage increased. It was necessary, then, to know what volumes of traffic were utilizing the principal streets both in the city of Chicago and outside. Traffic volumes were studied; and in terms of traffic volume, we found that when the highways were conveniently located so that consequently they became overloaded, their operating efficiency was reduced as volumes increased.

### SUPERHIGHWAYS NEEDED

We see how the Outer Drive, because of its modern design, attracts many more motor vehicles than any other highway or street in the Chicago Metropolitan Area. With this information as a basis, and coupled with the studies made on other highways, and knowing the traffic conditions on our present system of highways, we concluded that a new system of highways was necessary. There would have to be a clean break with past highway practices. This new type of highways would be on wide widths of right-of-way. There would be an uninterrupted flow of traffic throughout. This new express highway would be grade-



Structure carrying Tri-State Highway over Pennsylvania Railroad.

separated throughout, and the main travel lanes on the express highway would be separated by median strips. These new highways would be flanked on both sides by local or service roads to provide for local and community traffic. Access to the new superhighways would be at controlled locations only.

In general, there are four primary factors influencing the location and design of these superhighways. They are:

1. Service to populated areas.
2. The interception of through traffic before it reaches heavily populated and congested areas.
3. Location of the routes to provide pleasant drives adjoining forest preserves and recreational areas. Landscaping throughout to enhance the neighborhoods through which they pass.
4. The availability and cost of right-of-way for the various routes.

So, with these four salient features in mind, we proceeded to develop the location of a system of superhighways that would conveniently serve the heavily populated areas. They would intercept heavy volumes of traffic before it reached points of heavy traffic congestion.

Consideration was also given to the existing and contemplated land use, such as industrial, commercial, and residential areas, forest preserves and recreational areas, airports, cemeteries and, in the main, those areas which were potential centers of major movements of traffic. In all route selections and locations, consideration was given to right-of-way values, accessibility, availability, and the resultant damages in the acquisition of land for the right-of-way for these highways.

After much deliberation and many studies, the location of a system of highways was recommended. Engineer committees, local group committees, financing committees, and all agencies interested in the development of an over-all superhighway or express-highway system for Cook County were consulted, and the suggestions of each agency were superimposed on a map. A general concurrence as to the location of a system of express highways, for the solution of the growing traffic problem, was presented to the Board of Cook County Commissioners early in 1940.

This system of super- or express-highways located conveniently would do the most good for the greatest number of motorists and with the least amount of interference to the public in general. The construction of such a system of superhighways throughout the county would, for many years, provide means for rapid, safe movements of large volumes of traffic. By dividing or segregating the two types of



traffic, that is, the local and through traffic, the existing primary system of highways would be freed of its present excessive loads and its streets would become again the local community streets which they were originally designed to be.

### NORTHWEST SUPERHIGHWAY

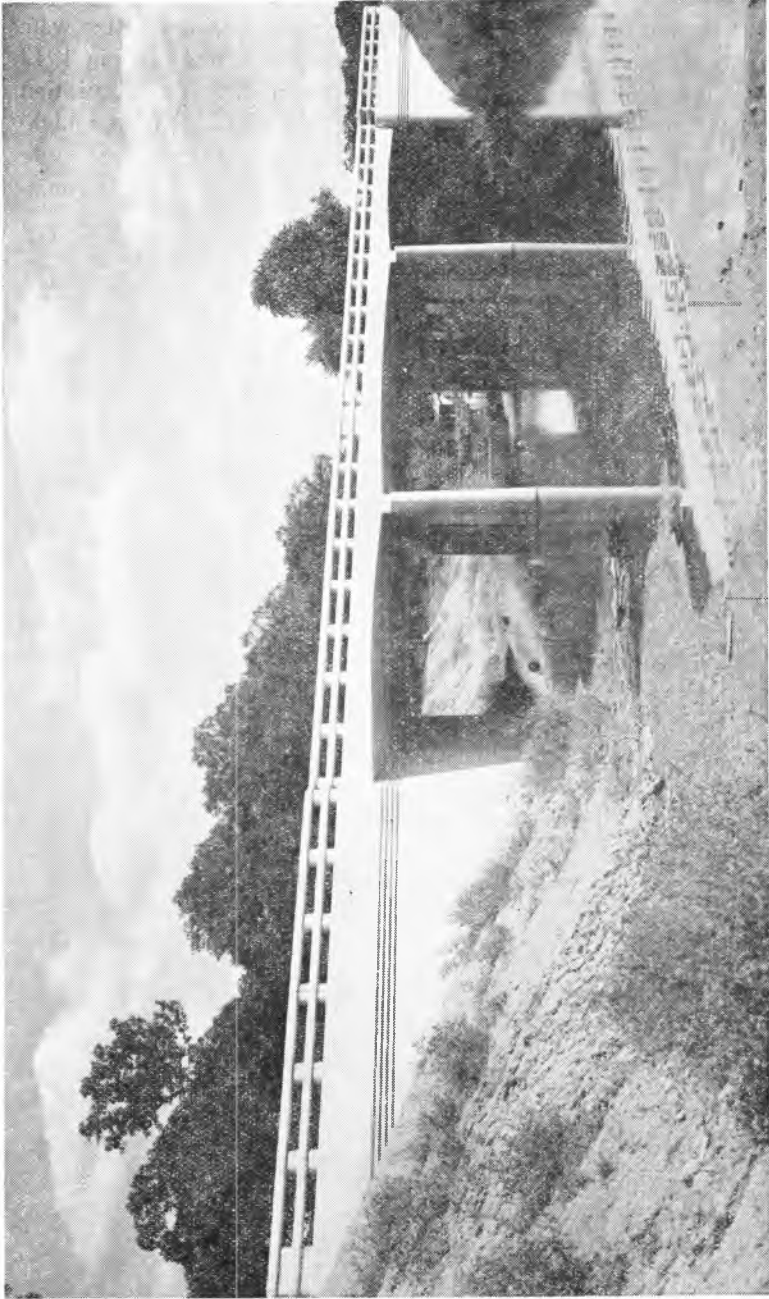
The first superhighway we studied in detail is known as the Northwest Superhighway. It was to begin at or near the central business district in Chicago and extend in a northwesterly direction to approximately the city limits. Various locations were selected and studied in detail. To expedite these studies and to evaluate information regarding physical obstacles found in each area, aerial photographs of the areas to be traversed were used. These helped immeasurably and avoided the necessity of making lengthy and costly field inspections and surveys. Assessor's maps and Sanborn Insurance Maps were used to determine the values of the land and buildings traversed by each of the several routes.

Along with the route studies, much thought was given to a collector and distributor system for the proper dissemination of traffic entering and leaving the superhighway, that is, going to or coming from the downtown or central business district.

The same type of detailed studies made on the Northwest Route were made in determining the location and general features for the several other superhighway routes outside of the city of Chicago. It was necessary however, as time passed, to have more detailed information on both the movement of traffic and the general traffic pattern as well as driver behavior in the various areas of traffic generation.

### ORIGIN-AND-DESTINATION SURVEY

Early in 1941, the Cook County Highway Department launched a new traffic study to be known as the Origin-and-Destination Survey. The county was divided into zones or areas, and recording stations were set up at principal street intersections both inside and outside the city of Chicago. This survey provided information on the general traffic pattern and flow of traffic within or adjacent to the superhighway zones and helped immeasurably in the location and type of interchanges as well as the width and number of lanes to be provided for the main traffic lanes and local drives. Incidentally, this traffic survey confirmed the selection and location of the superhighway routes recommended for our Comprehensive System of Superhighways.



Structure carrying Calumet Superhighway over Thorn Creek "A". September, 1947.

So with our preliminary plans and studies completed, actual alignments were located in the field. Right-of-way acquisition plates were prepared, and the acquisition of right-of-way was started early in 1942 for several of the high-priority superhighway routes. The acquisition of right-of-way was carried on during the war years. On these high-priority routes, the acquisition of land was completed and we were ready to advance to the actual construction phases on one of the first superhighway routes.

### FIRST CONSTRUCTION CONTRACTS

In the fall of 1946 the Cook County Board of Commissioners awarded the first contracts for the construction of nine grade separations on one portion of the superhighway system. These routes are known as the Calumet and Tri-State Superhighways. They are in the southern part of Cook County and form the Cook County link of the Chicago-Detroit Expressway. Perhaps some of you have seen the construction activity at the Illinois and Indiana State Line, where it will connect with the Indiana portion of the Tri-State Superhighway. All the grade separations, drainage, and grading contracts on both these routes between the Indiana State Line and the Little Calumet River, within a distance of eight miles, are now nearing completion as a joint project between the State of Illinois and the County of Cook.

It is interesting to note that simplicity has been the keynote in the design of all our grade separations. All structures were given detailed consideration by architects. Fundamental basic design features were carried out. We concluded that if care was exercised in the basic design and pleasing architectural treatment was blended into the ordinary type of viaduct or underpass, they would be more favorably accepted by the public. They would blend in with the neighborhood and in general create a pleasing appearance.

Another superhighway known as the Edens Superhighway likewise is now under construction. The Edens Superhighway will replace the Skokie Route, known as the Killer No. 1. It is in the northwest part of Chicago and continues north in Cook County to a connection with a divided-lane highway at the Lake-Cook County Line.

The third high-priority route is well along in the final planning stages. It has been the subject of much discussion for many years and is known as the Congress Street Superhighway or West Route. This route will accommodate part of the subway system and elevated lines in the city of Chicago. Outside the city of Chicago a steam and electric line will operate within the right-of-way. It is the only route on the

system in which mass-transit facilities as well as vehicular traffic are combined. This route passes through the heavily populated west side in the city of Chicago as well as the intensely developed west suburban towns. Construction has started on this project, and it is anticipated that within the next year an augmented construction program will begin.

### ESTIMATED COSTS

In the Chicago Metropolitan Area there has been established, as I have shown to you, a Comprehensive System of Superhighways. The system of highways I have described to you for the city of Chicago and the Chicago Metropolitan Area will cost approximately \$500,000,000 and will comprise a total of approximately 190 miles. To undertake such a program of financing is out of the question for one highway building agency alone. Therefore, the City of Chicago, the County of Cook and the State of Illinois, in order to undertake the construction of such a major highway building program, have entered into agreements wherein each agency agrees to participate jointly in the costs of these routes. We believe the construction of these routes is part of the answer for the solution of our ever-increasing traffic problems.

The construction and use of this type of highway in other parts of the country indicate that the volume of traffic that can be carried safely and expeditiously on them warrants their construction.

A review of our 1948 traffic record of accidents, injuries, and fatalities based on National Safety Council monetary values is almost \$32,000,000. Safety records of superhighways are excellent, and statistics on accident reductions show that an economic savings from the construction of superhighways in the Chicago Metropolitan Area will amount to about \$10,500,000. So again we say that the motoring public is paying for these highways without having them.

### PLAN FOR THE FUTURE

You are part of a large group planning and building for the use of products of another great industry. You should take time as individuals, as I am sure you do as highway engineers, to look down the years ahead and determine whether or not your city, township, county, or state is heading in the right direction with its highway program. Today, as in the past, vehicle manufacturers are far ahead of road builders. Efforts are being made in every state to advance highway construction to standards comparable to motor-vehicle developments.

Predictions almost always involve uncertainties. Unforeseen factors and changes may enter which may greatly modify or alter the situation and perhaps invalidate the assumptions and conclusions upon which your predictions were based. The longer the period involved in the prediction, the greater the likelihood of substantial error. Engineers must attempt to anticipate highway needs for ten or twenty years from now so that roads built today will be adequate then. Nevertheless, predictions are essential as a basis for planning and programming a highway system and, with the increasing number and use of automobiles, we cannot proceed too rapidly with an adequate highway system. So, establish your conclusions on a sound engineering and economic basis, incorporate these conclusions in a program of constructive activity, and then give it everything you've got.