REPORT ON FREEWAYS IN MINNEAPOLIS-ST. PAUL METROPOLITAN AREA

APRIL 27, 1960

REPORT TO THE LEGISLATIVE COMMISSION ON HIGHWAYS CONCERNING DEVELOPMENT OF THE INTERSTATE HIGHWAY SYSTEM IN THE TWIN CITY METROPOLITAN AREA

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APRIL 27, 1960

FOREWORD

This report, covering the history of Interstate Highway Route development in the Twin City area for presentation to the Legislative Commission on Highways in Minnesota, was compiled from information, reports, and records on file within the Department which pertained to the network in general, with specific reference to that portion of the Freeway System in the central core area of Minneapolis, the University district, Como district, Prospect Park district, Merriam Park district, and Beltrami Park district. The location of the Interstate Highway through sections of the above districts has been questioned by various groups representing residents of those areas.

This report outlines the many and varied studies made by the Department of Highways and its consulting engineers in close liaison with city and county engineers and planners, and other interested groups.

The studies began with designation of a Strategic Highway System in 1941; subsequent planning for an interregional system and an expressway system; culminating in the present Freeway System as proposed by this Department, and officially approved by the governing bodies of the cities of Minneapolis and St. Paul and the Bureau of Public Roads.

Although this report does not give complete details of previous studies conducted, full reports of such studies on file in this office are available for inspection or study by interested parties upon request.

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in the

Metropolitan Areas of Minneapolis and St. Paul

Presented to the Legislative Commission on Highways

April 27, 1960

Introduction

The presently planned network was developed from a series of economic, engineering, and traffic studies undertaken by planners and engineers representing municipalities, counties, and the State.

Mr. O. L. Kipp, as Chief Engineer and subsequently Consultant to the Highway Department, directed urban route planning for this Department until his death in 1958. He was recognized in this State and nationally as an outstanding planning and design engineer. His experience dates back to the earliest days of the Highway Department, and his accomplishments stand as a monument to his abilities. Concurrent with the work done by Mr. Kipp and his assistants, were the continuing studies and planning by the engineering staffs of St. Paul and Minneapolis, headed by Mr. George Shepard in St. Paul and Mr. Hugo Erickson and Mr. Gordon Bodien, respectively, in Minneapolis, all well qualified engineers in their own right. Close liaison was maintained between them. Though at times there was not always agreement, the differences were eventually resolved through conferences and careful reconsideration of all of the factors involved. It should be further pointed out that close liaison and consultation was maintained with the Division Office of the Bureau of Public Roads which, over the years, has maintained a capable staff of experienced, qualified highway engineers.

To some extent, the above studies were supplemented by the utilization of outside consulting firms. The proposed systems were reviewed, tested, and recommended by a qualified Automotive Safety Foundation staff, and later by George Barton and Associates.

Inasmuch as the demands and desires of traffic are the major justification for the location and construction of any highway, the Department's objective approach for determining route locations and roadway requirements is based on two essential planning principles:

1. Studies of route requirements must be sufficiently comprehensive to include known and anticipated transportation demands for the area encompassing all activities generating motor vehicle travel on the route or routes being considered. And, further,

2. The influence of individual communities or cells within the traffic-generating area is considered to the extent to which activities performed therein contribute towards the over-all economic, social, and travel demand.

It is a basic premise that the social and economic well-being of an area depends to a very high degree on efficient and rapid transportation. For this reason, evaluation of benefits and inconveniences likely to be created in each cell affected by the location and design of each segment of network is required.

These principles were, as will be demonstrated tonight, adhered to in the selection of routes designed to relieve the presently seriously congested Twin City network and provide sufficient capacity to meet new travel demands stemming from future area development.

Studies of Strategic Highways in the Twin City Metropolitan Area

The initial planning of a major highway network in the Metropolitan Area of the Twin Cities began with the passage of the Defense Highway Act of 1941. This Act authorized a federal appropriation of 10 million dollars to be apportioned among the states and to be matched by them to provide a fund for the making of surveys and plans for future highway construction.

The Defense Department, through the U. S. Bureau of Public Roads, requested the Highway Department to select a strategic highway network which would connect major economic and population centers in the State. To select the network, the Department, under the direction of Mr. O. L. Kipp, studied available data consisting of traffic flow maps and motor vehicle trip information gathered from motorists using radial routes to enter, leave, or pass through the then defined Twin City Metropolitan Area.

PLATE I is a Traffic Flow Map of the Minneapolis and St. Paul metropolitan area, excluding core areas of the two cities, showing 16-hour traffic volumes for an average 1941 summer week day by flow bands.

PLATE II is an inset of the Minneapolis core area.

PLATE III is an inset of the St. Paul core area.

The 28, 822 volume on University Avenue, the 19, 436 volume on the Franklin Avenue bridge, and the 13, 263 volume on the Lake Street bridge (Plate I), define concentrations of east-west movements in the Midway District.

Traffic volumes for other river crossings serving Minneapolis are shown on the flow map of Minneapolis core area streets (Plate II). Note that the importance of east-west traffic movements is again illustrated by the 17, 174 volume on the Washington Avenue bridge.

The importance of east-west movements is again illustrated by volumes shown on the flow map for the St. Paul core area (Plate III). Note the 25, 643 volume on University Avenue west of Rice Street and the 12, 182 volume on a parallel section of then existent Central Avenue.

By relating available traffic volume data to known area activities, the strategic highway system was selected. The portion of U. S. 12 routed over University Avenue in St. Paul and over Washington Avenue in Minneapolis was selected to link the two Central Business Districts and the Midway District. Estimates of traffic demand for this section of the strategic highway were, of necessity, crude.

Study of Interregional Highways in the St. Paul-Minneapolis Metropolitan Area

The Federal Aid Highway Act of 1944 provided funds for developing an Interregional System. This Act made funds available to aid in modernizing major urban traffic arteries. Following the allocation of Federal funds, the Department organized a Special Planning Section. This Section made special studies to determine the location of an east-west expressway between St. Paul and Minneapolis.

Using funds made available by this Act, the Department conducted a number of questionnaire-type traffic studies in the Twin City area in 1945. All studies were designed to obtain factual data on east-west motor vehicle trips performed on streets located between or radiating from the two central business districts. The chronological order of field activities for studies undertaken are:

PLATE IV (1) Special Minneapolis-St. Paul Origin and Destination Surveys of Motor Vehicle Trips Between Areas Easterly and Westerly of the Mississippi River.

PLATE V (2) St. Paul Traffic - Central Business District.

PLATE VI (3) Midway Origin-Destination Study.

PLATE VII (4) Traffic Study - Minneapolis Central Business District.

Data gathered in the Mississippi River crossing study (Special Minneapolis-St. Paul Origin-Destination Survey) supplied information on all trips using the Ford Parkway, Lake Street, Franklin Avenue, and Washington Avenue bridges. In addition, data were gathered on east-west trips made over the section of University Avenue located between Oak and 17th Streets, Southeast.

PLATE VIII, a Traffic Flow Band Map prepared from data obtained in the above survey, indicates the major traffic desire lines of Mississippi River crossings. The width of the flow band indicates the relative traffic volume.

The desire lines of the trips revealed that a river crossing between the Washington and Franklin Avenue bridges in the vicinity of Fulton Street, would serve the greatest number of motorists with the least amount of adverse travel. The data also revealed that many motorists would not be served by a bridge at Fulton Street.

The desire lines also indicated a possible need for a second river crossing north of Lake Street. Note the number of desired crossings between Lake Street and Franklin Avenue bridges (Plate VIII). This led to further study to determine whether two new bridges were required.

PLATE IX shows the Proposed Expressway Plan under study in 1945.

Future improvements being planned for the two core cities were injected into this study. Minneapolis Planning Commission proposals, including a partial inner-circumferential route around the Central Business District (commonly referred to as C. B. D.), a southeast radial, and a 26th Street river crossing were added to the street system on the west side of the river. Alternate crossings in the vicinity of 26th Street were studied. Two alternate routes extending westerly from a point near the junction of Mississippi Street with 12th Street (in Capitol Approach area in St. Paul) were given study as to their feasibility. One of these routes, known as the north route, extended westerly on the south side of the Great Northern Railway tracks to Prior Avenue. It posed three major problems:

1. Access from the north was difficult because of two sets of railway tracks running roughly parallel to the proposed line. It would not conveniently serve traffic generated in the area north of the tracks in St. Paul.

2. This line is too far north to serve a major portion of the traffic now using University Avenue and parallel streets in St. Paul.

3. This line could not be extended westerly from Prior Avenue in St. Paul toward downtown Minneapolis without excessive cost because of numerous railway tracks and extensive industrial properties.

Because of these difficulties the alternate line along St. Anthony Avenue in St. Paul was added to the proposed street system east of the river. This line, which was studied extensively at the time, extends westerly from the Capitol Approach area, and thence westerly between Rondo and St. Anthony Avenues to the city limits of St. Paul. This line provides a radial extending westerly from a point on the north side of the St. Paul Central Business District. It coincides closely with the traffic desire lines. By mutual agreement, the proposals were connected at the city limits as shown on Plate IX.

It is interesting to note the alignment of the Hiawatha and 26th Street routes.

The relative merits of various segments of the proposed routes were tested on the basis of travel time, travel distance, and operating cost. To make this test, the geographic location of trip ends were summarized by census tract.

PLATE X shows the relative density of origins and destinations by census tracts. Each dot represents five trip ends desiring to cross the river, east and west. Note the concentration of trip ends in the two core areas and along University Avenue in the Midway District and in southeast Minneapolis. It must be remembered that the trips terminating in these areas had to cross the Mississippi River. The census tract to census tract movements were assigned to each route by each of the three criteria: distance, travel time, and operating cost. Regardless of the criteria used, the Fulton Street crossing served the greatest number of motorists advantageously. However, the 26th Street crossing also served a significant number of motorists. Since the travel demands of these trips could not be ignored when selecting the location of new river crossings, it was decided that two bridges are needed.

The downtown St. Paul Traffic Study showed significant movements to the Midway District.

Data gathered in the Midway Study revealed the points where the greatest number of motorists could advantageously cross Lexington and Snelling Avenues in St. Paul.

PLATE XI, developed from data obtained in the Midway Origin-Destination Survey, shows the progressive traffic total crossing Snelling Avenue in St. Paul. The greatest concentration of east-west trip movements crossing Snelling Avenue is between University and St. Anthony Avenues.

PLATE XII, also developed from data obtained in the Midway Origin-Destination Survey, shows related traffic flow at Lexington Avenue in St. Paul. The greatest concentration of east-west trip movements crossing Lexington Avenue is at St. Anthony Avenue.

The Minneapolis Central Business District Study revealed a substantial movement between the C.B.D. and southeast Minneapolis or the Midway District.

PLATE XIII, the proposed expressway plan under study in 1945, shows the geographic arrangement of the six points of traffic concentration, or trip ends, as determined from the above traffic surveys.

The four points of east-west trip concentration – two determined from data gathered in the River Crossing Study, and two determined from data gathered in the Midway Study – are shown along with the two central business district traffic generators.

Note the geographic arrangement of these six points with regard to the proposed east-west route locations.

The 26th Street bridge would materially reduce traffic on the Lake Street and Franklin Avenue bridges, while a bridge at or near Fulton Street would relieve the traffic on the Franklin Avenue and Washington Avenue bridges; and also provide a by-pass route for traffic now moving through the University campus.

Only one of these locations could be used for the Interstate route. It was evident that the material reduction in traffic volumes served by Lake Street and the Lake Street bridge through the construction of a bridge and expressway over the 26th Street route would justify the construction of that bridge and expressway, as well as the construction of F.A.I. 94 on Fulton or Dartmouth. The latter was selected for the Interstate route because of the heavy traffic desire line through that corridor, as well as the urgency of relieving the traffic problems at the Franklin and Washington Avenue bridges and on the University campus.

The valuable information obtained from data gathered in these studies convinced the Department that complete basic traffic data should be acquired to evaluate the adequacy of existing networks, as well as the soundness of then current thinking regarding many improvements being considered. To accomplish this objective, a comprehensive study of all Twin City area travel by residents and visitors was undertaken in 1949.

PLATE XIV. The St. Paul-Minneapolis Traffic Survey conducted in 1949 supplied the first complete summarization of Twin City area travel.

PLATE XV, showing Major Traffic Desire Lines, was contained in the above report on page 91. This graphic presentation, as is stated on page 90 of the report, does not have sufficient refinement for analysis of specific existing and proposed facilities. It does, however, show the general pattern of predominant movements which will influence, or even dictate, the final

determination of route alignment and capacity.

Study of Twin City Area Network

After detailed study of data presented in the 1949 report, Mr. O. L. Kipp called a series of meetings to discuss the possibility of selecting a Twin City area network for study purposes. The meetings were attended by city and county planners and engineers. Consensus was that all routes considered in the past, as well as those proposed by the group, would be studied. It was also agreed that routes considered to be competitive should be included because traffic assignments based on competitive merits would indicate weakness in the designated system. In 1951 the system selected for analysis was completed to the satisfaction of all participants. Assigning traffic to this complete area network took about one year because movements between 1700 geographic areas were assigned.

PLATE XVI shows the Twin City area network selected and approved for further study. It should be noted that all previously considered routes or alternates were included for re-analysis on the basis of the new data. We were willing to restudy the complete system.

Highway Needs Study

Under the laws of 1953, Chapter 692, there was established the Minnesota Highway Study Commission. This commission consisted of 7 members of the State Senate and 7 members of the House. Also as a part of this commission were 7 members appointed by the Senate and 7 members appointed by the House. Three members of this present Legislative Commission on Highways were members of that Highway Study Commission. That Commission, in 1954, entered into an agreement with the nationally recognized Automotive Safety Foundation to direct and supervise an engineering analysis of the condition and needs of the highway and street systems of the State.

PLATE XVII. The Automotive Safety Foundation report, titled "Highway Transportation in Minnesota", was presented to the Highway Study Commission on September 15, 1954.

Included in their report of September 15, 1954, to the Legislative Highway Study Commission was their study of a Minneapolis-St. Paul Major Thoroughfare plan.

PLATE XVIII shows the Twin City Major Thoroughfare Plan as recommended by the Automotive Safety Foundation and included on page 41 of their report to the Highway Study Commission.

This study abandoned the idea of carrying the thoroughfare, discussed above, through the Central Business District of Minneapolis along Washington Avenue. Instead, they recommended that it be carried from the Fulton Street bridge along the proposed Ring Street along the southerly and westerly sides of the Central Business District.

We would point out that the Automotive Safety Foundation report also provided for a crossing over the river extending generally along 28th Street across Minneapolis to a junction with Lake Street and Excelsior Avenue. It also recommended completion of the inner-circumferential route by providing an east-west expressway north of the Minneapolis Central Business District. This report also recognized the necessity of the northeast diagonal and Trunk Highway No. 280.

The Highway Department resumed extensive study of Highway locations in the Twin City area in September of 1955.

The assigned traffic volumes revealed solutions to many recognized problems, and also defined conditions creating new problems.

Federal-Aid Highway Act of 1956

In 1956 the National Congress passed and the President signed the so-called Federal-Aid Highway Act of 1956. This Act increased Federal Fund participation from 60 percent under the 1954 Act to 90 percent. It provided that a 40,000-mile system of Interstate Highways be constructed in 13 years; events since that time have caused a stretching out in time so that it presently appears that it will require about 16 years for its completion.

It may be well, in view of the area of discussion this evening, to point out that Section 116(b) stipulates that local needs, to the extent practicable, suitable, and feasible, shall be given equal consideration with the needs of interstate commerce. This intent was reaffirmed in the 1958 Act.

With Washington Avenue excluded from the major arteries, the traffic demand on the inner-circumferential increased. With increased demand for inner-circumferential usage, it was evident that the critical design feature was access capacity. There was no question that the central freeway terminals were an integral part of the freeway network without which the system would be deficient. This called for the maximum possible number of access ramps serving the city center, consistent with design standards, thereby requiring an extensive amount of land. Under the circumstances, the land demand for central portions of the freeway network is substantially greater per unit length of highway than for suburban or intercity highways. These individual ramp distributors became major factors in determining the size and shape of the Minneapolis Central Business District inner distributor.

The proposed south ring was too small and thereby cut down the possible number of access points because of spacing requirements for ramps. This limited the amount of traffic which could be deposited in the central area. It was recognized that with too large a loop either long access ramps to the core would be necessary to reach central destinations or parking lots, or that freeway traffic would disperse over inadequate streets for some distance before reaching the trip terminals. The necessary grade separations with the major cross streets, on- and off-ramps, and directional flow traffic changes, could not be adequately provided on the original close-in Ring Street location. It was agreed by engineers of the Bureau of Public Roads, the City of Minneapolis, and the State that the Ring Street originally proposed should be located a few blocks further away from the Central Business District.

PLATE XIX shows the revised Thoroughfare Plan of the Minneapolis core area under study in 1956.

From a detailed field reconnaissance it was concluded that the South Ring Street should be located to the south of the Auditorium. (The idea of the Ring Street around the central business district has been proposed over a long period of years by the Minneapolis City Planning Commission. The Automotive Safety Foundation in their major thoroughfare plan for Minneapolis also endorsed this concept.) From 4th Avenue South to 11th Avenue South the block between 17th and 18th Streets east was selected as the most feasible. The latter section is currently under study to determine the feasibility of a suggested minor shift in line.

Two possible locations for F. A. I. 94 west of St. Paul were considered. One route proposed would use an adaptation of the cross-town line, the 28th Street location. Extensive studies of the problems involved in crossing the Milwaukee yards near Hiawatha Avenue on this location led to the conclusion that this east-west route should follow 26th Street east of Cedar Avenue.

Traffic studies showed that a bridge at 26th Street with an expressway extending westerly across Minneapolis would carry approximately the same volume of traffic as a bridge at or near Fulton Street with the Freeway extending westerly from that location. This is with both the 26th Street and Fulton Street bridges in place.

Instead of continuing the Fulton Street location northwesterly from the west bank of the river to Washington Avenue, the more recent studies proposed a location connecting with South Ring near Hiawatha Avenue.

Following the completion of studies concerning the Fulton Street river crossing, discussions and conferences were held with engineers of the Bureau of Public Roads and the City of Minneapolis. It was subsequently determined to abandon further study of such a location and to study the possibility of a

river crossing at Dartmouth Avenue. It was apparent that a suitable line might be secured extending westerly from the Dartmouth Avenue river crossing north of Augsburg College along 7th Street. However, it was found that Augsburg College had already constructed its women's dormitory to the north of this line and their plans for further expansion would occupy the undeveloped area which had appeared to be open for the location of the Interstate route.

It was also found that St. Mary's Hospital had plans for expansion which would encroach on this location.

Following this development, a study was made of the possibility of locating the line to the south of Augsburg College, using the south half of the block between 8th and 9th Streets from Riverside Park westerly to 21st Avenue. From 21st Avenue the line would extend northwesterly across the Milwaukee tracks near 8th Street and continue westerly along the South Ring Street location between 17th and 18th Streets.

This alignment would provide a connection to the Minneapolis Central Business District over 3rd and 4th Streets via Riverside Avenue and a direct connection with 7th and 8th Streets.

In conjunction with the Arthur Avenue (Prospect Park) -Fulton Street location studies, other studies were made of the possibility of locating the northeast section of the Interstate System northerly along the general alignment of Oak Street. These studies included a traffic analysis from which it appeared that the northeast section of the Interstate System on this location would serve an annual daily average of only 13,000 vehicles in 1970. A route located on or near Cedar Avenue and 10th Avenue Southeast would serve about three times this volume.

Following the availability of these data, it was decided at a conference with engineers from the City of Minneapolis and the Bureau of Public Roads that the proposed Oak Street location was not desirable. Preference was given to a new location to be located a short distance westerly of the present Cedar Avenue bridge.

It seemed desirable to carry the northeast extension of the Interstate system northeasterly to a junction with Trunk Highway No. 36, near the Minneapolis-St. Paul city limits. This provided a line extending from F.A.I. 94 or (392 on Plate XX) between 10th and 14th Avenues to the new bridge and then northerly to the west of 9th Avenue Southeast with a crossing over the Great Northern Railway tracks and Johnson Street north of Como; thence extending to a point north of Talmadge Avenue and continuing easterly along the south half of the block between Talmadge and East Hennepin to the location previously studied crossing East Hennepin near 25th Avenue and then extending to the junction with Trunk Highway No. 36.

PLATE XX shows the proposed Interstate Highway plan presented at the March 1957 public hearing.

Analyses and Recommendations of Consulting Firms

At this point the studies and recommendations of two consulting firms are presented. In January 1957, the firm of George Barton and Associates, nationally known consultants of Evanston, Illinois, presented its report to the Minneapolis City Council and the City Planning Commission, who had retained them to make a study of freeways in Minneapolis.

We quote from the Barton report insofar as it applies to the section of Interstate from the Capitol Approach area in St. Paul to the Central Business District in Minneapolis (presently F. A. I. 94) and the northeast diagonal (presently F. A. I. 35W) from F. A. I. 94 to the junction with Trunk Highways No. 36 and 280 near the Minneapolis-St. Paul city limits. These are the sections of Interstate which are under discussion this evening.

Quoting:

"At this stage in its development, Minneapolis and its metropolitan community can best attain the transportation it requires through a system of well-planned freeways.

"If all the tax revenues now received by city, county, and state governments from the property in the planned freeway rights of way were devoted to freeway construction, it would require 75 years at current values and tax rates, to equal the federal contribution to the freeway system within the City of Minneapolis alone.

"The general location proposed for the freeway ringing the central business district appears desirable from the viewpoint of that district, the use of nearby land, and the service rendered to traffic. Before the details of traffic distribution from the freeway can be made firm, however, the physical plan for the central area, including its internal traffic system, should be more clearly defined.

"The route to the University of Minnesota and to St. Paul – the Southeast Diagonal – appears to be well located and designed. Modifications suggested for study include improved traffic interchange between the freeway and the University of Minnesota and provisions for an improvement along Cedar Avenue, harmonizing with the plans for that avenue which will provide a connection between the Southeast Diagonal and the planned 25th - 28th Street crosstown."

The Barton report also provides for a 26th Street bridge in addition to the Freeway bridge at Dartmouth Avenue.

Barton report quote continued:

"It is suggested that the alignment of the Northeast Diagonal be re-examined in the area north of the River for the purpose of providing better service to the industrial and residential areas to the north, to integrate this freeway more fully into the primary street system of northeast Minneapolis, and to select a location as compatible with existing land use as possible.

"Of primary significance to traffic is the fact that this route will create a new crossing over the Mississippi River in an area where bridge capacity is critically deficient. In addition to the bridge created by this route near Dartmouth Street, discussion has been given to the need for a second bridge near 25th Street which would connect the freeway along St. Anthony Avenue with a crosstown route extending westward near 25th and 28th Streets. The need for this crosstown route was demonstrated by traffic forecasts which show a potential movement on this route of 50,000 to 60,000 cars a day in 1970. The state's present traffic assignments for the year 1975 show a traffic volume of 46,200 cars a day across the Dartmouth Street bridge, plus an additional 43,200 across a second bridge near 25th Street. In view of this potential traffic, the need for two bridges is evident. The usefulness of the Dartmouth Street river crossing can be increased in the period prior to the construction of the second bridge through an improvement along the line of Cedar Avenue. This street is to be developed as a high-type improvement as a part of a long range urban highway plan. If the improvement already started could be extended northward to the freeway near 9th Street and southward to a crosstown location near 25th Street, a connection would be afforded from the new Dartmouth Street Bridge to 25th - 28th Street Crosstown. As a result the Crosstown Route could be built in stages and have access to southeast Minneapolis and St. Paul via the freeway bridge at Dartmouth, pending the time when the second bridge can be built." (The thinking of the Highway Department and the City of Minneapolis has been for several years totally consistent with this conclusion of Barton.)

"This route (F.A.I. 94 - Bottleneck in Minneapolis to the Capitol in St. Paul) will provide a fundamentally needed connection between downtown Minneapolis and downtown St. Paul. It also will afford access to the expanding University of Minnesota campus both east and west of the River.

"Though it passes through an established neighborhood, it follows a dividing line created by a railway track. By following this location it contributes materially to the by-passing of through traffic around the area of the University of Minnesota, while giving freeway access to this important traffic generator.

"Because of its proximity to the campus, it is suggested that further study be given to ramp design east of the River to allow convenient circulation from the campus to the freeway.

"In order that the freeway bridge near Dartmouth Street render maximum traffic service pending the construction of a second bridge near 25th Street it is suggested that designs contemplate interchange with a Cedar Avenue extension. This extension then could serve to interconnect a Crosstown Route near 25th - 28th Street with the major highways in southeast Minneapolis and St. Paul."

Subsequent to the studies referred to above and the public hearings, the general alignment of the freeways in St. Paul and Minneapolis was approved by the respective councils. It was understood, of course, that further studies would be continued concerning shifts in line as well as detailed design.

On the basis of official approval by the City of Minneapolis and the Bureau of Public Roads, the consultant firm of Edwards & Kelcey was employed to make a study and preliminary report of the freeways in Minneapolis, not including the section of north-south freeway south of about Lake Street and the portion of the south-east leg from 22nd Street through Prospect Park, both sections of which had been placed under consultant design. Edwards & Kelcey made detailed study of the alternates which had been proposed in the Bottleneck area of Minneapolis. Upon the basis of their study, they recommended that the originally proposed alignment of the Department, and subsequently endorsed by Barton Associates, be retained, with modifications of the northeast diagonal. These recommendations had the concurrence of the City Engineer of Minneapolis and, I believe, the City Council.

Studies were also made of alternate locations in the northeast diagonal north of the Mississippi River, as suggested by the Barton report.

PLATE XXI, Report on Trunk Highway A35 - 394 - Northeast Diagonal - Marshall Field to east corporate city limits, by Edwards & Kelcey, Engineers and Consultants, was presented to the Minnesota Department of Highways on November 14, 1958.

PLATES XXII, XXIII, XXIV, and XXV show the four alternate lines, A-1, A, B, and C, respectively, for location of the Northeast Diagonal, which were studied by Edwards & Kelcey and presented in their report to the Minnesota Highway Department on November 14, 1958.

Line C (Plate XXV) is the line originally proposed by the Minnesota Highway Department and which the Barton Associates suggest be given further study. This provided for a line from the new bridge crossing the Mississippi River immediately west of Cedar Avenue, northerly to the west of 9th Avenue Southeast, with a crossing over the Great Northern Railway tracks and Johnson Street north of Como Avenue; thence extending to a point north of Talmadge Avenue and continuing easterly along the south half of the block between Talmadge Avenue and East Hennepin Avenue to a crossing of East

Hennepin near 25th Avenue; and thence extending to the junction with Trunk Highway No. 36.

Overlays on Line C (Plate XXV) show the alternate lines subsequently studied by Edwards & Kelcey. Line B (Plate XXIV) started at a point common to Line C at the junction of Johnson Street and Como Avenue and thence northeasterly to a junction with Trunk Highway No. 36 at the city limits. Line A (Plate XXIII) was also included in the Edwards & Kelcey study, which line again started at the junction of Johnson Street and Como Avenue and then followed along Johnson Street northeast to approximately Broadway and then proceeding northeasterly on the north side of the Minneapolis-Honeywell Company to a junction with Trunk Highway No. 36 at the city limits. It was subsequently found that the location of the freeway in such close proximity to the north side of the Honeywell building would completely disrupt, because of vibration, the manufacture of extremely sensitive defense equipment. Upon further study it was decided to locate the freeway about 400 feet south of the Honeywell building. This line, which is generally common with Line A, except as it goes south of the Honeywell building, is indicated as Line A-1 (Plate XXII). Further studies were made on a portion along Johnson Street, with a recommended change, although this location has again been questioned and is currently under consideration.

Studies Resulting from Meetings with Local Residents

After beginning design of the section through Prospect Park on the line previously approved by the City Council and endorsed by the association representing the citizens of that area, serious opposition arose to the placing of the freeway immediately alongside the existing Milwaukee Railroad which has been in that location for at least 60 years. The proposal of the group was that the freeway take over the right of way of the railroad, thus placing it out of business. Despite the serious obstacles anticipated by such a procedure and the obvious substantial increase in cost, the Department employed the firm of Edwards & Kelcey to make a thorough study of the proposal. They, in turn, engaged the consultant firm of Wyer, Dick & Company, a firm prominent in railroad studies, to make a study of the railroad operations and related problems. Following the completion of these studies, it was the decision of the Department, in view of the attendant seriously increased cost and other difficulties, to proceed on the basis of the original line with such modifications in detailed design as might be appropriate, including recommended changes suggested by the Prospect Park group. Such decision followed a number of meetings, including a formal hearing and considerable correspondence.

It should be emphasized here that the consultant engaged for the detailed design of this section of F.A.I. 94 had been issued a stop order at the time of engaging Edwards & Kelcey to make this railway study on June 30, 1958, and were only recently given instructions to proceed with the design of the Dartmouth Street bridge and the freeway east to Sharon Avenue in Prospect Park.

The acquisition of right of way had also been suspended but has again been resumed.

Following the Department's decision to leave this railroad connection in place, the group has taken the position that the approved location for F. A. I. 94 is in the wrong place and should be moved to connect with 26th Street rather than Dartmouth; that the Interstate system is excessively expensive; that sections of it should be deleted, with resultant savings of substantial sums; and that the Highway Department is overdesigning with obvious disregard of the Bureau of Public Roads regulations.

The 26th Street Crossing Instead of Dartmouth

The Prospect Park group has recently proposed the elimination of the Dartmouth crossing. This proposal is unrealistic. As has been cited previously in this report, it has been recognized for years that the 26th Street (or near) crossing will be a must in addition to a crossing at Dartmouth. The Automotive Safety Foundation had it in their 1954 recommendations and Barton and Associates in their 1957 report gave very cogent reasons for its necessity. Previous studies by this Department and the City of Minneapolis have emphasized its importance. The traffic situation is such that it requires all of the bridges proposed.

PLATE XXVI illustrates the potential traffic demands and trends of daily travel over the Lake Street, Franklin Avenue, and Washington Avenue bridges. The historic trends between the years 1949 and 1958 are show by legend. The estimated 1980 volume for total river crossings based on trends in economic and population growth is also shown. To show the trend in total river-crossing trips the historic river crossing volume for 1958 is connected to the estimated 1980 volume by a broken line. Based on our projections, the 1958 demand for river crossing facilities will double by 1980. Had the historic river-crossing data been used for this projection, the predicted 1980 demand would be even greater. I question that any more defense of the necessity of these bridges is warranted.

50 Million Saving

It is my understanding that spokesmen for the Prospect Park group have proposed to your committee that 50 million dollars in savings could be effected in the Interstate program by deletion of sections of the Interstate system in Minneapolis. Without questioning the accuracy of his figures, it is agreed that savings in that manner can be accomplished. We submit, however, that if this is done, the construction will have to be done with local finances at the

rate of 50% Federal money and 50% State money, if on the Federal primary or urban system; or with 100% City or City and State funds, if not on the Federal system. That they will have to built if traffic is to be served is not questioned, at least not by qualified engineers and planners.

1958 Traffic Survey

This conclusion is reaffirmed by preliminary analysis of traffic data gathered in a comprehensive metropolitan traffic study conducted in 1958.

To assign traffic to a network, the Department invited city, suburban, and county planners and engineers to a series of meetings to discuss their plans. During the meetings the current thoroughfare plan was reviewed and additional facilities were added. Through these discussions the thoroughfare plan for the 900 square mile metropolitan area was brought up to date. To test the merits of such an updated system, it was decided to assign future traffic to the agreed upon system on the basis of travel time required to perform trips between specific points. This method differed from previous assignment methods because the computer tested travel time for every combination of routes, and then assigned the trips to the route having the least travel time. The assignments were made mechanically.

PLATE XXVII shows traffic volumes assigned to routes serving motorists on approaches to the proposed Dartmouth and 26th Street bridges by flow bands.

Attention is directed to a 1975 volume of 43,700 vehicles assigned to the 26th Street bridge. The manually assigned volume based on 1949 data was 43,200. Now, note the 46,049 volume on the Dartmouth Bridge. The manually assigned volume based on 1949 data is 46,200.

I ask, could the computer and manually assigned volumes be in such close agreement if there was no need for either of the two bridges. And, further, can one question the soundness of the Department's planning in this area when two sets of basic data, gathered nine years apart, produce volumes of future traffic which are in such close agreement.

The following traffic estimates for 1975 based on the 1958 O-D Study are of interest and extreme significance.

Eustis Avenue - south of Franklin	35,530
Northeast Diagonal - north of 7th Street	58,245
Interstate 94 at Dartmouth Street bridge	46,049
26th Street Crossing - at bridge	43,700
28th Street at Park - Portland	58,991
F.A.I. 35W south of Lake Street	83,623

By the Prospect Park plan the 58, 245 on the Northeast Diagonal would have to find some route other than Interstate. The 46, 069 which would cross the river on the Interstate at Dartmouth would have to cross at Washington and go through the campus or go out of their way via Franklin Avenue. Our studies show that these logical Dartmouth crossing trips are not likely to use the 26th Street crossing. The 102, 191 traveling F. A. I. 35W north of 28th Street would have to use expressways or streets presumably of lower standard than Interstate and built with a much higher proportion of local or state funds.

Interstate Routes and Predominant Land Use

PLATE XXVIII is a reproduction of the Predominant Land Use Map of the Twin City Area prepared by the Twin City Metropolitan Planning Commission in 1958. Although it was impractical to reproduce this map in its original contrasting color legend, the various tones and grid patterns indicate the lack of homogeneity in the pattern of land use.

The intensive industrial areas appear on this map as solid dark plots. Extensive industrial areas appear as white figures on dark background plots. Commerical areas are identified as crosshatched dark plots. The dark plots with the crisscross grid pattern are either public or private parks and recreation areas. Three types of residential areas are shown on this map. The solid white plots are single family residential areas. The white plots with a light tone dotted grid pattern are mixed single- and multiple-family residential areas. The light background with deep toned dotted grid pattern plots are multiple-family residential areas. The plots, generally in the rural areas, with a medium toned dotted grid pattern on light background are open areas used for agriculture, airports, or are otherwise vacant.

It will be noted that intensive industrial areas are generally located adjacent to railroads, the Mississippi River or trunk highways. Extensive industrial areas usually border on the intensive industrial areas. In addition to the downtown business districts of the Twin Cities, minor commercial areas are interspersed throughout the area with major plots along University Avenue, Broadway, and other major streets. The continuity of industrial and commercial areas are interrupted by single- or multiple-family residential areas. The Interstate Route divides very few single-family residential areas. For the most part it skirts or passes through predominantly industrial areas.

Interchanges and Standards

The Prospect Park group has taken the position that the Department is

not conforming to the Bureau of Public Roads requirement as to spacing of interchanges and considerable money can be saved by conforming to such requirements. Your commission should be assured that this Department, even if desirous of doing so, which it is not, cannot evade conformance to such standards. Its experience over the years has been that the Bureau is quite adamant concerning conformance to its standards and policies. Criticism of the Department concerning spacing of interchanges and separations has been that they have not been close enough and both ourselves and the Bureau have had plenty of opportunity to be required to substantiate such situations.

Interchanges, of course, serve the function of "interchanging" traffic from one highway to another crossing it. I am sure that the interchanges proposed on the Interstate system in the Metropolitan area will more than justify their construction. For example, the interchange which that group suggests eliminating at Hawthorne Avenue on F. A. I. 94 in Minneapolis, is designed for the interchange of 38, 000 vehicles per day based on projected 1975 traffic volumes. Likewise, the interchange which they would eliminate at Broadway, also on F. A. I. 94, is designed for the interchange of 15, 800 vehicles per day. It occurs to us that recommendations of that sort should have a better basis of engineering facts than would appear to have been used.

A word as to Bureau standards which we are presumably not conforming with. All highway departments are presently engaged in the preparation of a new cost estimate as required by the 1956 and 1958 Highway Acts. This is for the purpose of estimating costs of completing the system and developing the distribution factors. It must be in the hands of the Bureau by July 1, 1960, and transmitted to Congress by January 2, 1961.

In order that all states would have the same standards on which to estimate and later to design, the Bureau prepared an instruction manual entitled "Revised Estimate - Cost of Completing the Interstate System". The manual is dated January 1960. In this manual are suggested spacings of interchanges for urban, suburban, and rural areas. At first sight, considerable consternation among the states resulted as it was felt that the limitations, at least in places, would be unreasonable.

In view of the apparent misunderstanding in this connection, Mr. Tallamy, the Federal Highway Administrator, directed a communication, under date of February 19, 1960, to all State Highway Departments and all Bureau of Public Roads offices. I quote from this memorandum:

"Some opinion prevails to the effect that the manual establishes the number of lanes permitted in certain areas and the spacing of interchanges. Actually, this is not so.

"It does point out what may be considered optimum values for these elements, but also states that exceptions to these will have to be made because of many varying conditions such as the pattern of the existing street or highway system to which the Interstate System is to be connected, type and volumes of traffic, and topography.

"The purpose of these sections of the manual is to establish a procedure within the Bureau whereby interchanges closer than the optimum value must have the concurrence of the regional engineer and whereby exceptional numbers of traffic lanes must have the concurrence of the Washington office."

Preliminary Cost Estimates

Considerable concern has been expressed by the spokesman for the Prospect Park group regarding cost of the Interstate Highway system, specifically that section of F. A. I. 94 between 22nd Avenue South in Minneapolis and the east corporate limits. This Department is also extremely concerned in this matter and is making a concerted effort to maintain the costs at a minimum consistent with the facility necessary and desirable to serve its proposed purpose.

Current estimate of cost of the 1.87 mile section of Interstate Route No. 94, between 22nd Avenue in Minneapolis and the east city limits of Minneapolis are summarized as follows:

ESTIMATE SUMMARY

Section	Construction Costs	Right of Way Costs	Total
22nd Ave. to West end of River Bridge	$ 2,795,888	$1,647,373	$ 4,443,261
(Dartmouth) River Bridge	3,300,000	41,800	3,341,800
East end of River Bridge to East City Limits	3,137,159	1,253,963	4,391,122
Total	$ 9,233,047	$ 2,943,136	$12,176,183

The above cost estimate was prepared for use in the 104(b) 5 study currently in progress, and reflects certain changes in the design of the Dartmouth Bridge, interchanges, and other plan changes since development of the previous estimate.

The estimate was based on consultant plans, as revised to date, by the Brown Engineering Company on that portion from 22nd Avenue to the Dartmouth Bridge and preliminary plans developed by this Department for the remaining portion of this section. The right of way cost includes compensation for all lands acquired to date.

Summary

We have tried to present to your Commission as objectively and reliably as we know how, the history of the planning of the Interstate System in the Metropolitan Area of St. Paul and Minneapolis.

It is our feeling that the work has been done on a sound engineering basis by competent state and city engineers, much of it under the direction of Mr. O. L. Kipp. The finally selected locations have been approved by the official bodies of Minneapolis and St. Paul, as well as having been endorsed by prominent civic groups and nationally recognized outside consultants.

Public hearings have been held, as provided by law, and such, together with other public and more informal meetings have been consistent with the wishes of the Bureau of Public Roads, city officials, and this Department to keep the public informed. We have listened to individuals and groups and given their objections an attentive ear. In many instances we have gone to considerable effort and expense to evaluate the proposals submitted to us. All in all, I believe the problems have been approached by the Department in a professional and objective manner without any other motive than to find sound solutions.

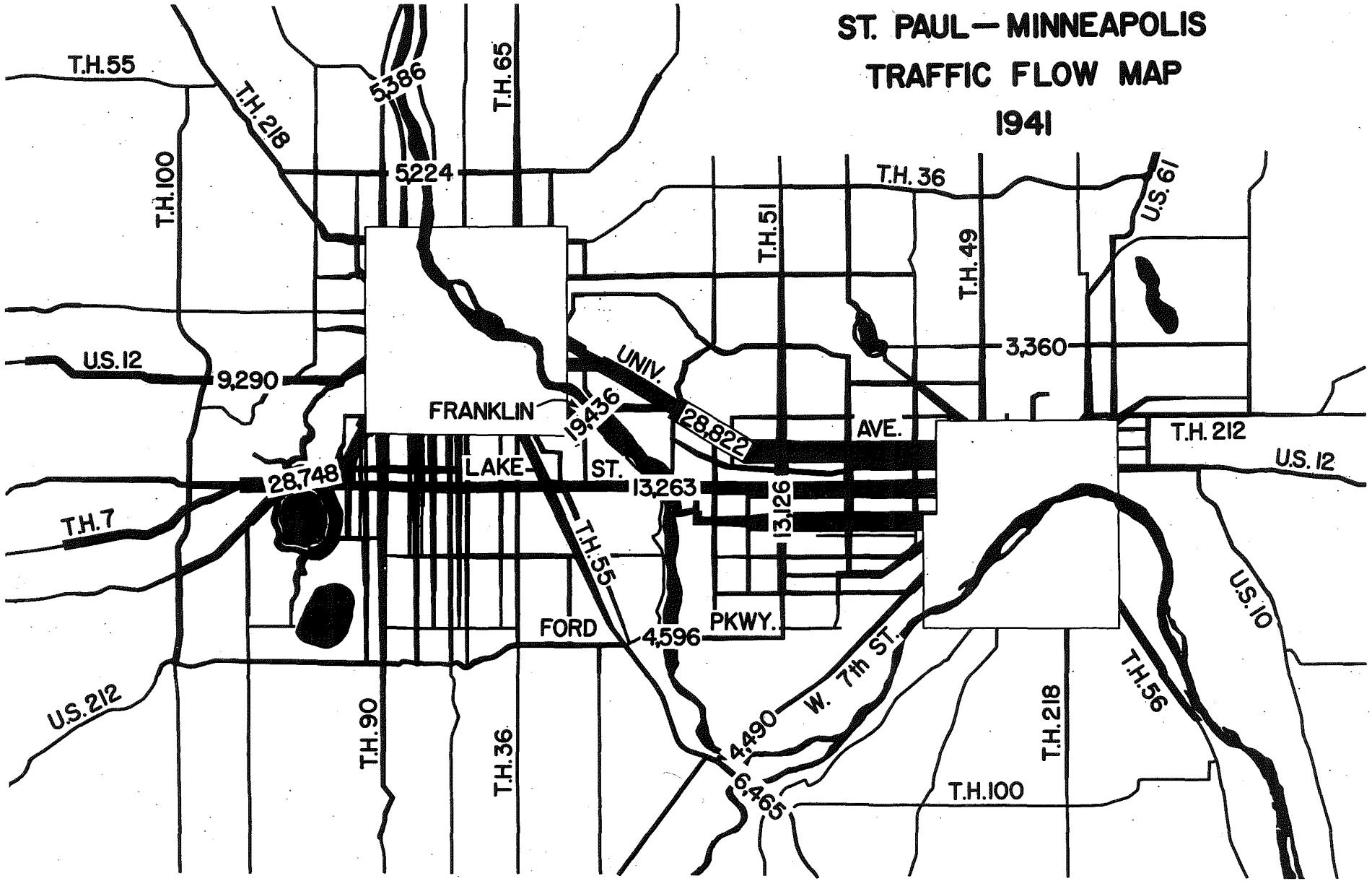

ST. PAUL—MINNEAPOLIS
TRAFFIC FLOW MAP
1941
T.H.55
T.H.218
T.H.100
5386
T.H.65
5224
T.H. 36
U.S. 61
T.H.51
T.H.49
3,360
U.S.12
9,290
UNIV.
FRANKLIN
19,436
28,822
AVE.
T.H. 212
U.S. 12
28,748
LAKE
ST.
13,263
13,126
T.H.7
T.H.55
FORD
4,596
PKWY.
U.S.10
W. 7th ST.
4,490
T.H.56
U.S.212
T.H.90
T.H.36
T.H.218
6,465
T.H.100

PLATE 1

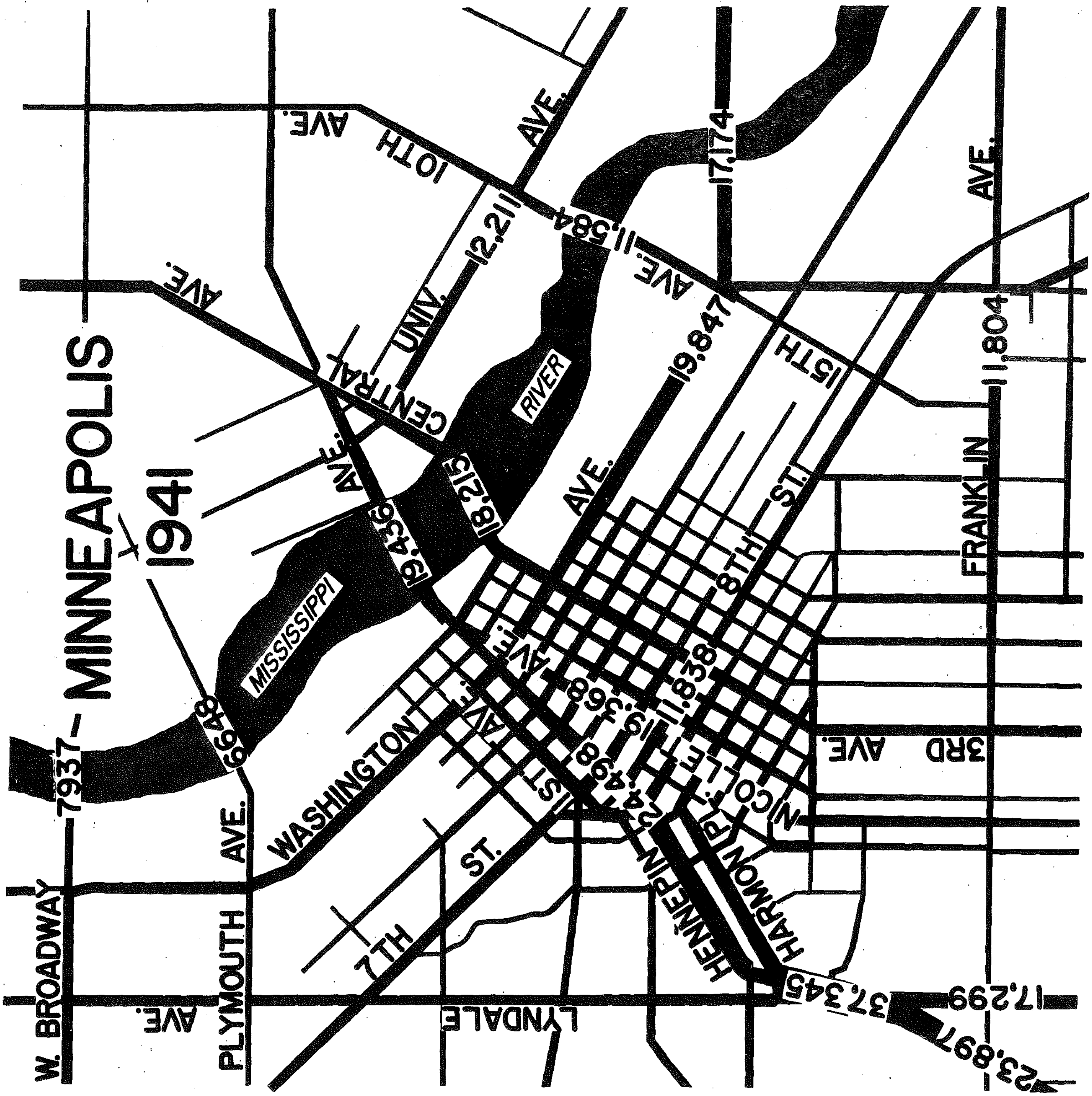

MINNEAPOLIS
1941
MISSISSIPPI
RIVER
W. BROADWAY
7937
6648
PLYMOUTH AVE.
WASHINGTON
7TH ST.
1ST AVE.
19,436
18,215
CENTRAL AVE.
UNIV. AVE.
12,211
10TH AVE.
11,584
17,174
AVE.
19,847
15TH AVE.
8TH ST.
11,838
19,368
24,498
HENNEPIN
HARMON PL.
NICOLLET
3RD AVE.
FRANKLIN AVE.
11,804
LYNDALE AVE.
PLYMOUTH AVE.
37,345
17,299
23,897

PLATE II

UNIV. AVE.
25,643
12,182
CENTRAL
8,182
WABASHA
8TH
9,292
E. 7TH ST.
26,045
KELLOGG BLVD.
RIVER
36,804
23,571
16,409
ST.
ROBERT
ST.
16,077
AVE.
ST.
PLEASANT
17,158
W. 7TH
SMITH
8853
AVE.
MISSISSIPPI
ST. PAUL
1941

PLATE III

PROGRESS REPORT
on
SPECIAL MINNEAPOLIS-ST. PAUL ORIGIN & DESTINATION SURVEYS

SURVEY OF JUNE 6, 1945

Distribution of Motor Vehicle Trips
Between Area Easterly and Westerly of the
Mississippi River

September, 1945

Including Supplement No. 1, Data
September 25, 1945

PLATE IV

PLATE V

Minnesota Highway Planning Survey

Dept. of Highways–U.S. Public Roads Administration

MIDWAY ORIGIN-DESTINATION SURVEY

Progressive Traffic Total Crossing Snelling Avenue

One Mile Zone of Influence

with

Related Traffic Flow at Prior and Lexington Avenue

PLATE VI

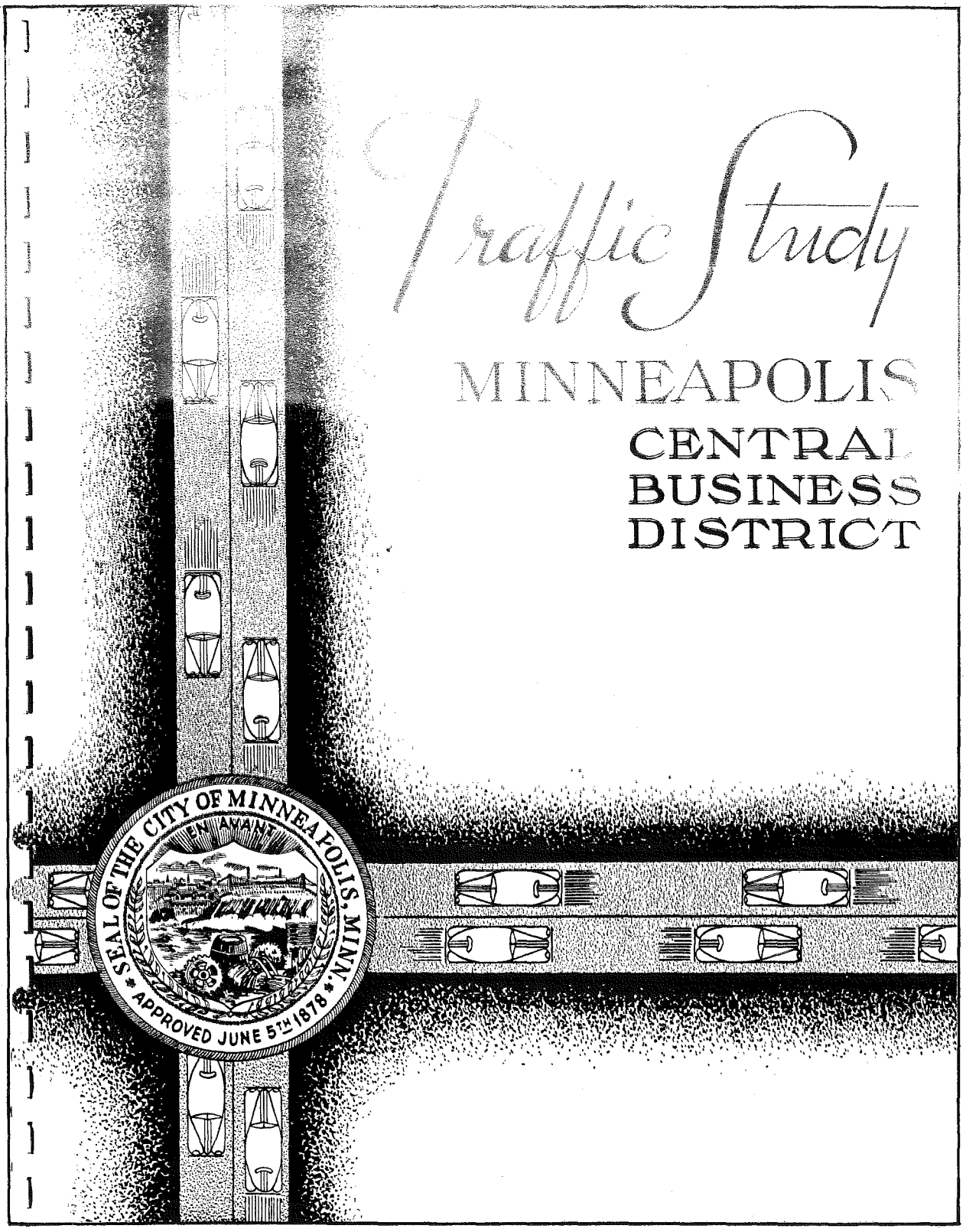

Traffic Study
MINNEAPOLIS
CENTRAL
BUSINESS
DISTRICT
SEAL OF THE CITY OF MINNEAPOLIS, MINN.
EN AVANT
APPROVED JUNE 5TH 1878

PLATE VII

PLATE VIII

PROPOSED EXPRESSWAY PLAN
1945

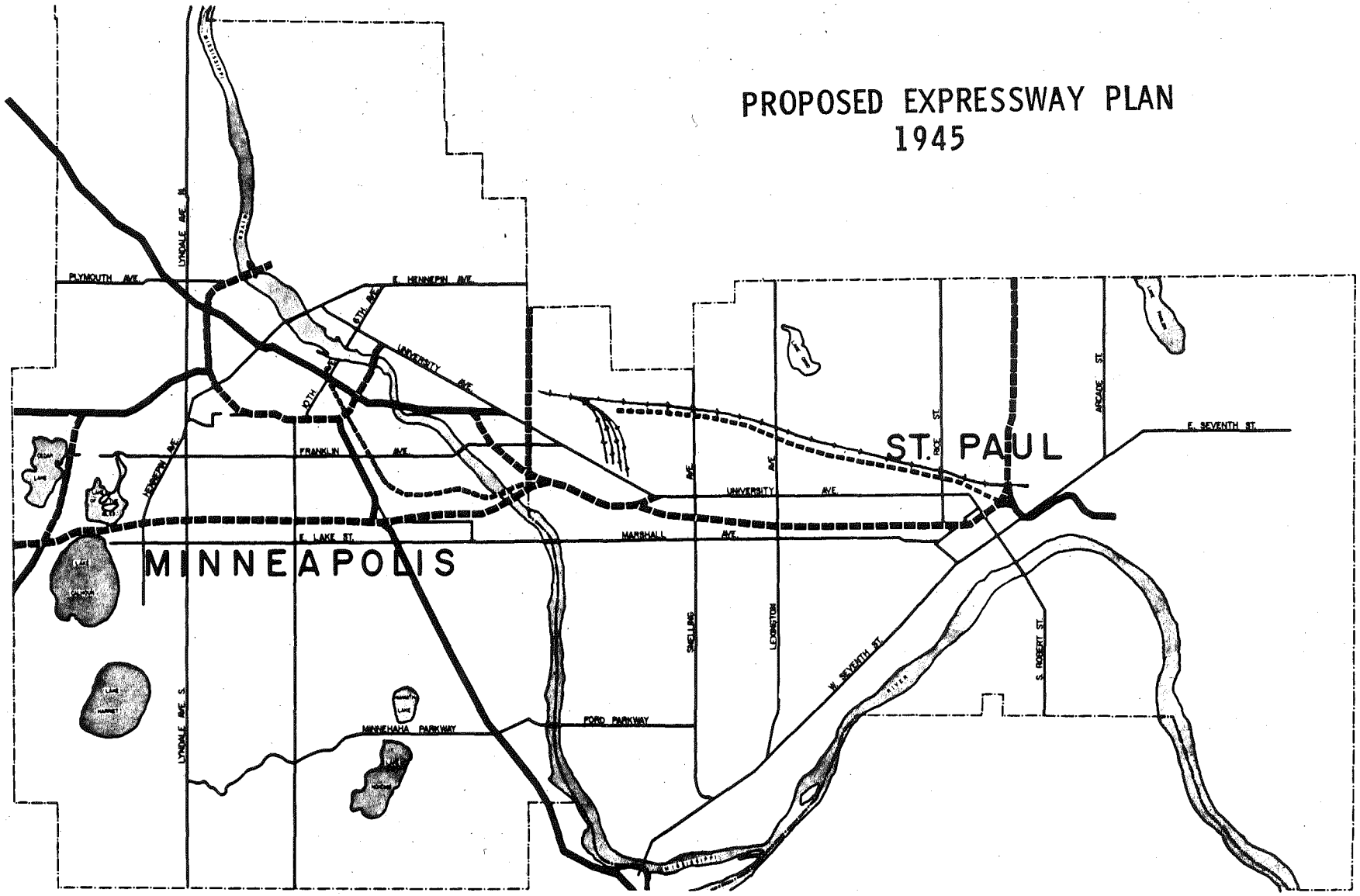


PLATE IX

MAP SHOWING

RELATIVE DENSITY OF ORIGINS AND DESTINATIONS BY CENSUS TRACTS

SPECIAL ST. PAUL—MINNEAPOLIS ORIGIN-DESTINATION SURVEY

OF JUNE 6, 1945

PREPARED BY THE MINNESOTA HIGHWAY PLANNING SURVEY
U.S. PUBLIC ROADS ADMINISTRATION—MINNESOTA DEPARTMENT OF HIGHWAYS

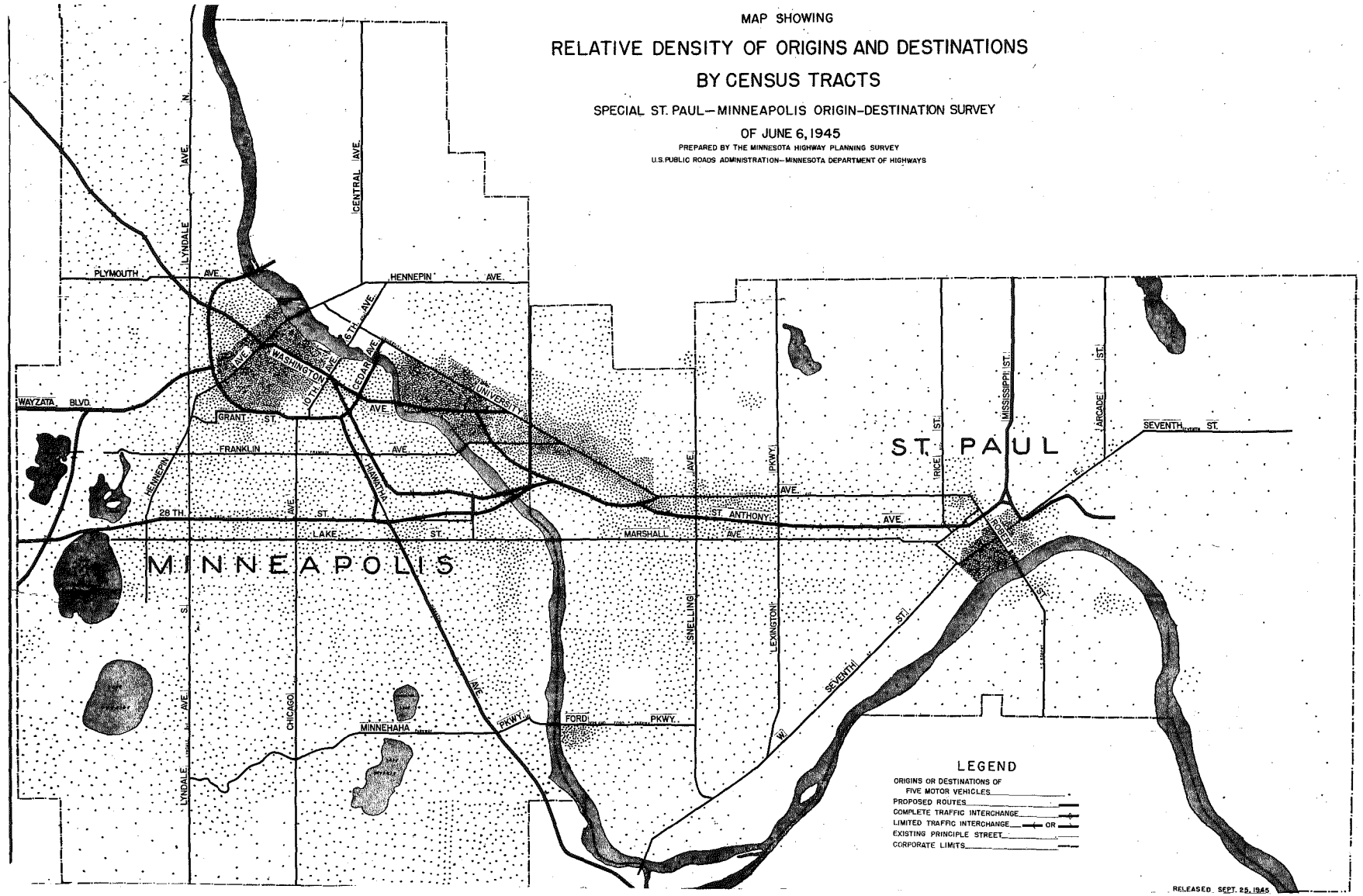


PLATE X

MIDWAY ORIGIN-DESTINATION STUDY
PROGRESSIVE TRAFFIC TOTAL CROSSING SNELLING AVE.

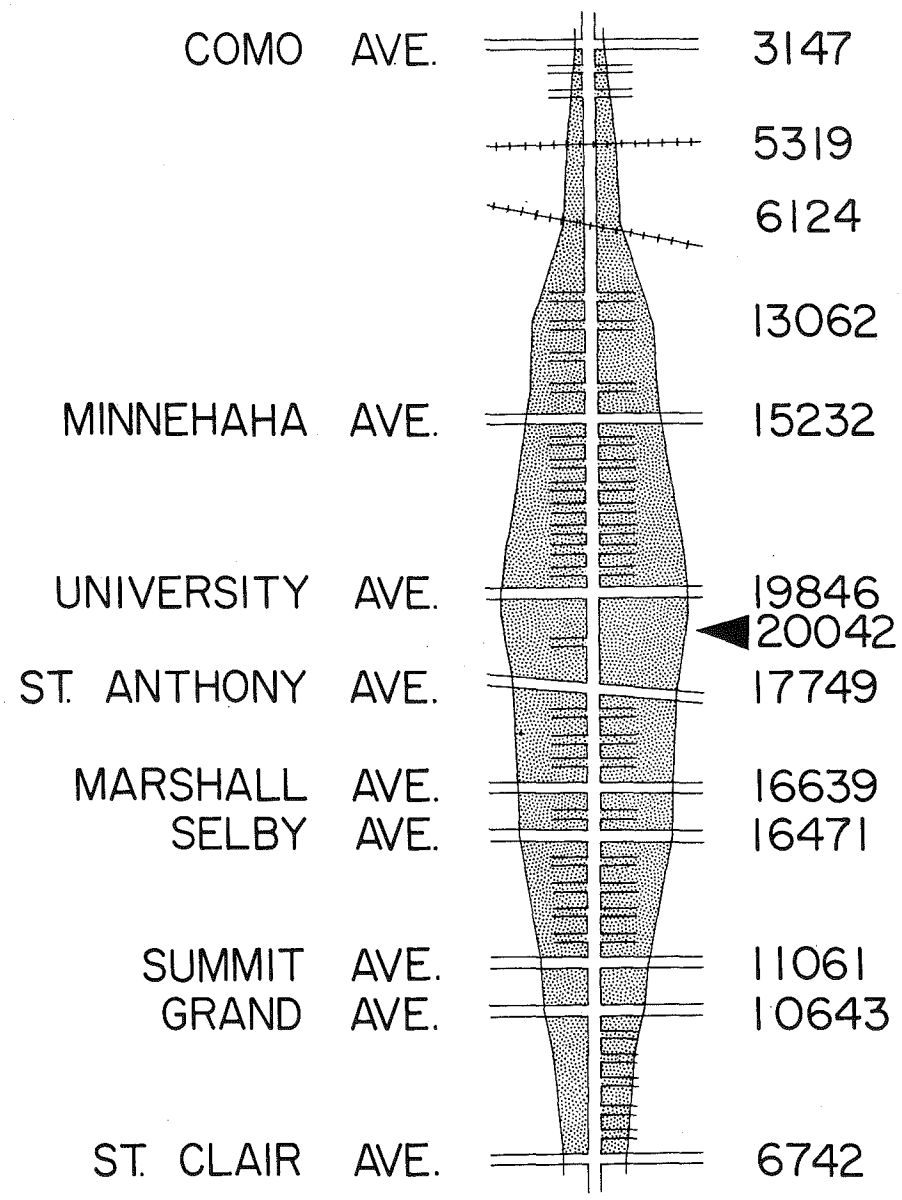


PLATE XI

MIDWAY ORIGIN-DESTINATION STUDY
PROGRESSIVE TRAFFIC TOTAL CROSSING LEXINGTON AVE.

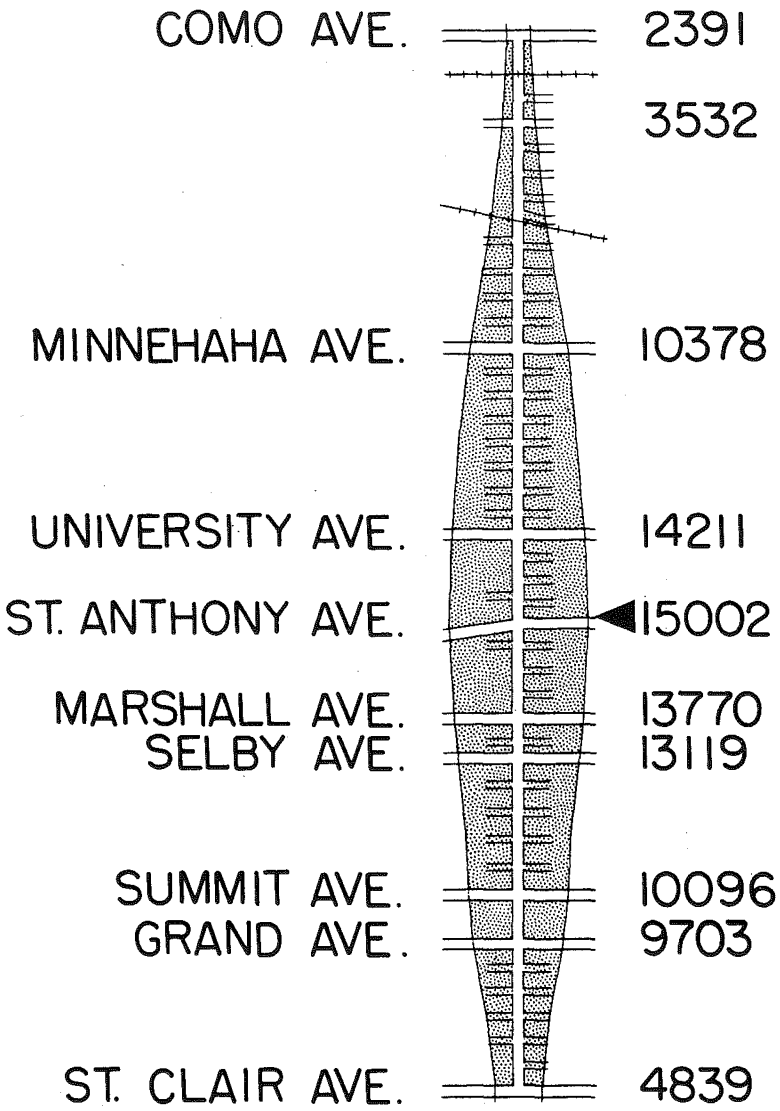


PLATE XII

PROPOSED EXPRESSWAY PLAN
1945
SHOWING POINTS OF CONCENTRATION
FOR EAST-WEST TRIPS

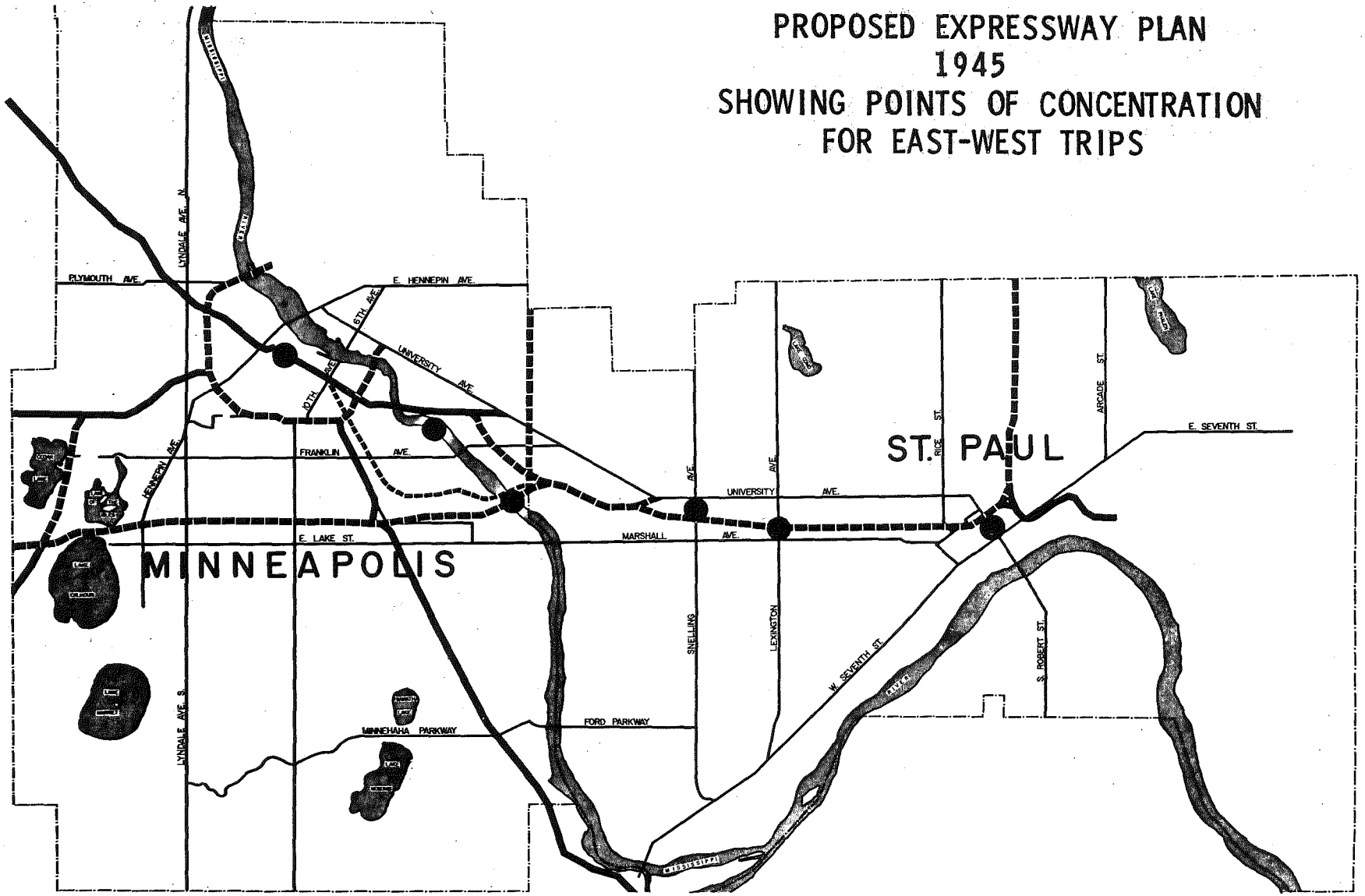


PLATE XIII

PLATE XIV

ST. PAUL — MINNEAPOLIS ORIGIN AND DESTINATION TRAFFIC SURVEY 1949

MAJOR DIRECTIONAL TRAFFIC DESIRE LINES

SCALE: PER 1000 TRIPS

0 100 200

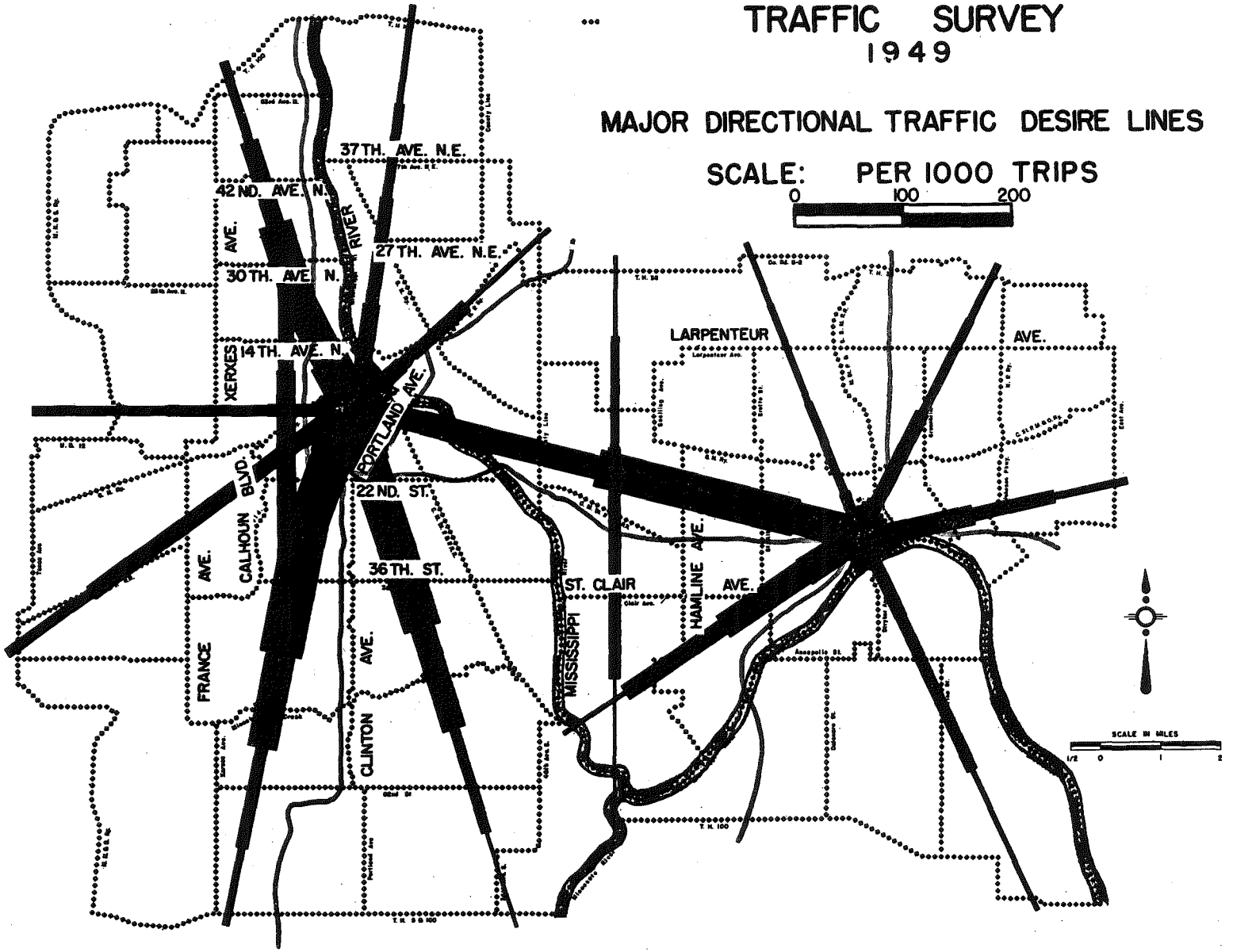


PLATE XV

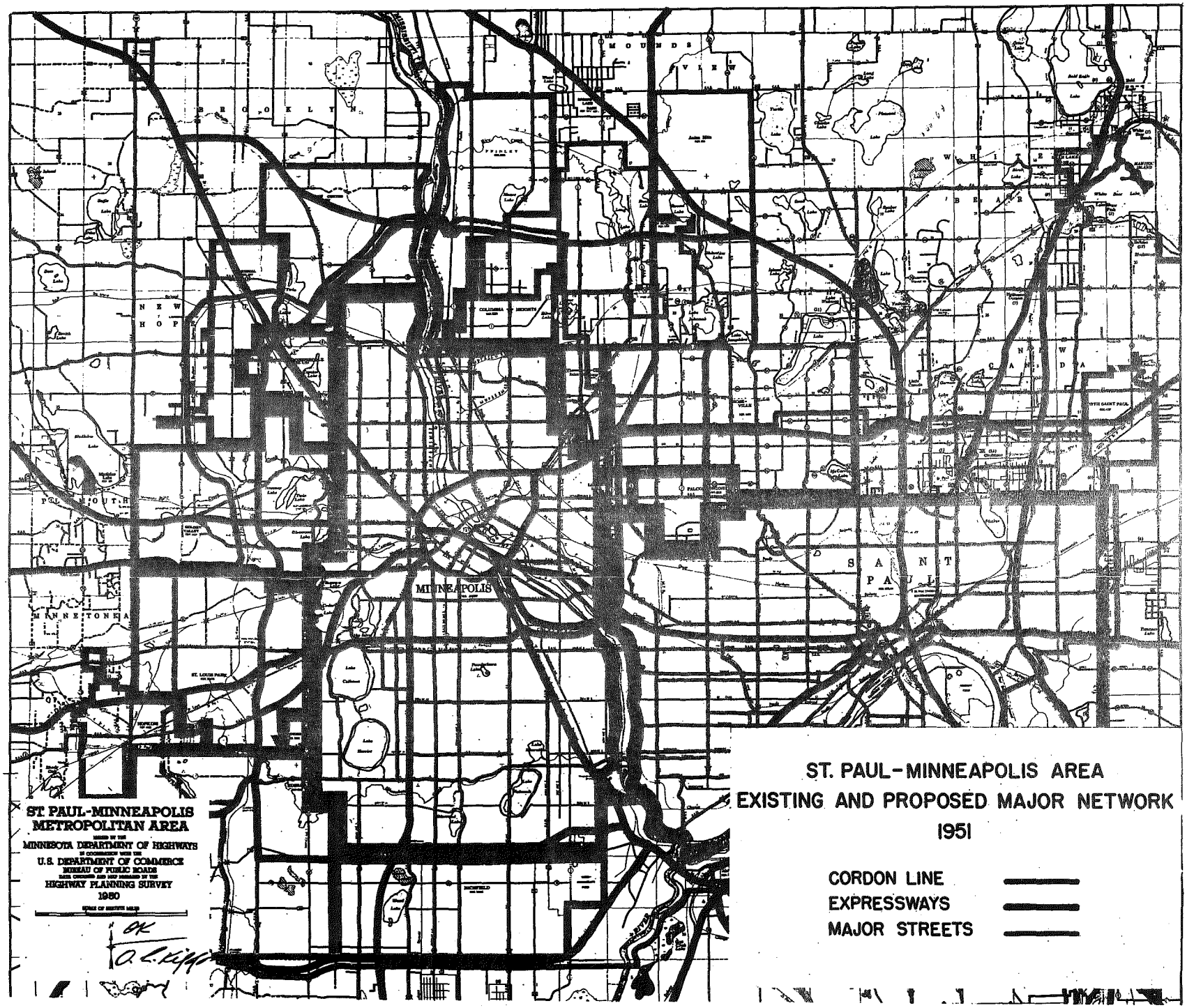

MINNEAPOLIS
SAINT PAUL
ST PAUL-MINNEAPOLIS
METROPOLITAN AREA
MINNESOTA DEPARTMENT OF HIGHWAYS
U.S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
HIGHWAY PLANNING SURVEY
1950
ST. PAUL-MINNEAPOLIS AREA
EXISTING AND PROPOSED MAJOR NETWORK
1951
CORDON LINE
EXPRESSWAYS
MAJOR STREETS

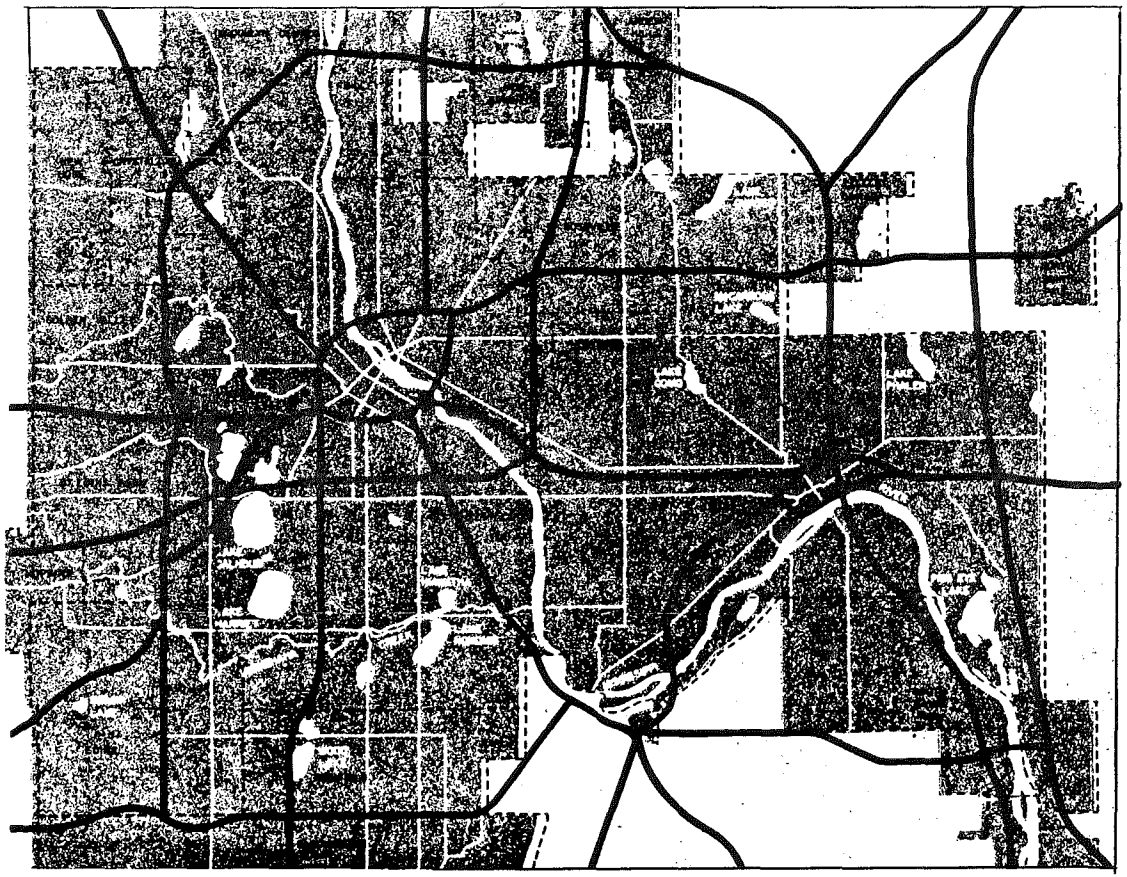
PLATE XVI

Highway Transportation in MINNESOTA

AN ENGINEERING ANALYSIS

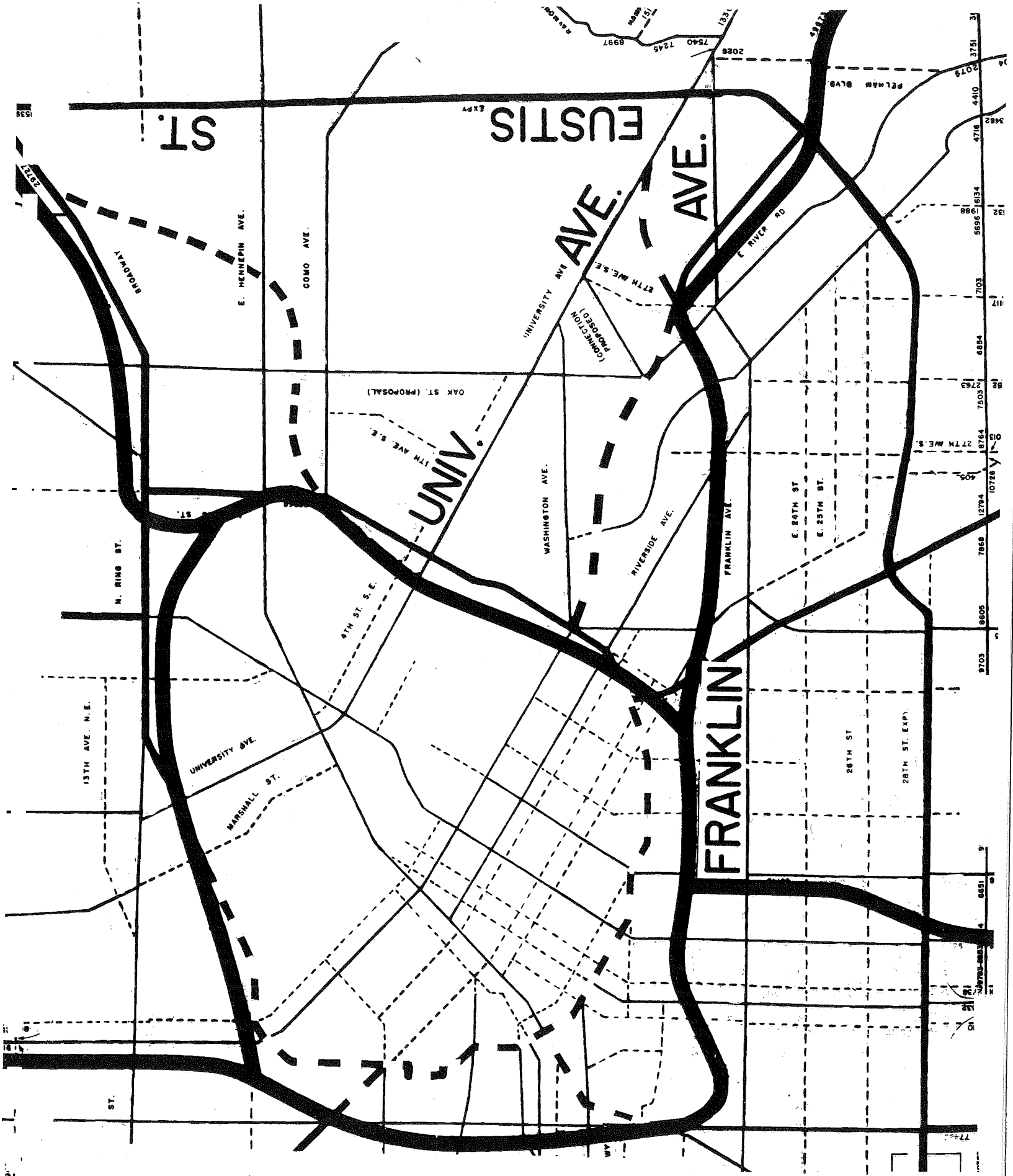
PLATE XVII

TWIN CITY MAJOR THOROUGHFARE PLAN



Construction of the expressway facilities portrayed on this map offers the most practical means of providing the additional capacity to relieve the heavy traffic congestion in the Twin City Area.

PLATE XVIII



REVISED THOROUGHFARE PLAN - 1956
MINNEAPOLIS CORE AREA

PLATE XIX

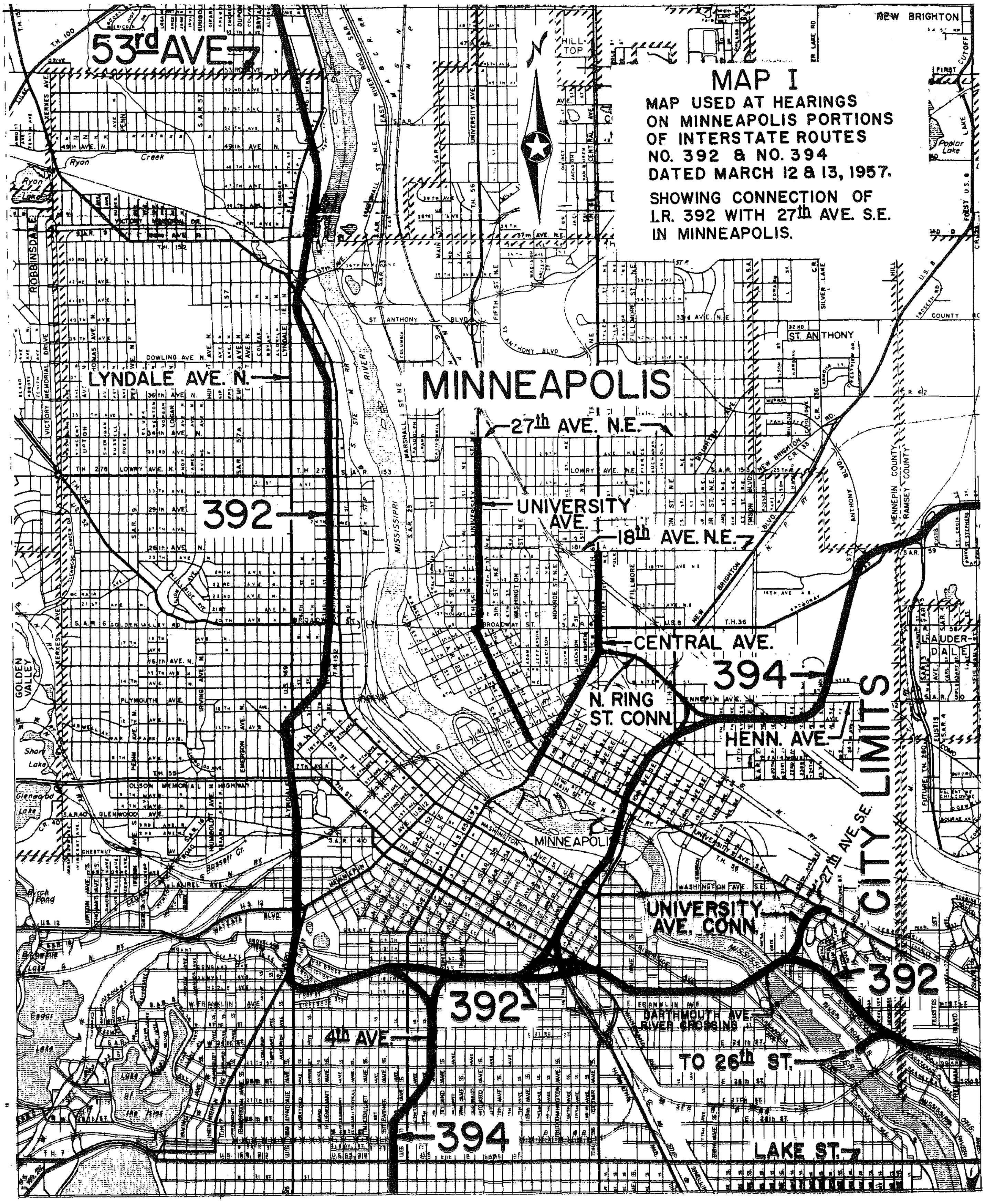

MAP I
MAP USED AT HEARINGS
ON MINNEAPOLIS PORTIONS
OF INTERSTATE ROUTES
NO. 392 & NO. 394
DATED MARCH 12 & 13, 1957.
SHOWING CONNECTION OF
I.R. 392 WITH 27th AVE. S.E.
IN MINNEAPOLIS.
53rd AVE.
MINNEAPOLIS
LYNDALE AVE. N.
27th AVE. N.E.
UNIVERSITY AVE.
18th AVE. N.E.
392
CENTRAL AVE.
394
N. RING ST. CONN.
HENN. AVE.
CITY LIMITS
27th AVE. S.E.
UNIVERSITY AVE. CONN.
392
DARTHMOUTH AVE. RIVER CROSSING
4th AVE.
TO 26th ST.
394
LAKE ST.
NEW BRIGHTON
ST. ANTHONY
GOLDEN VALLEY
ROBBINSDALE
HENNEPIN COUNTY
RAMSEY COUNTY
LAUDERDALE

PLATE XX

REPORT ON TH A35-394
NORTHEAST DIAGONAL
MARSHALL FIELD TO EAST
CORPORATE CITY LIMITS
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BY

EDWARDS AND KELCEY

ENGINEERS AND CONSULTANTS

PLATE XXI

PLATE XXII

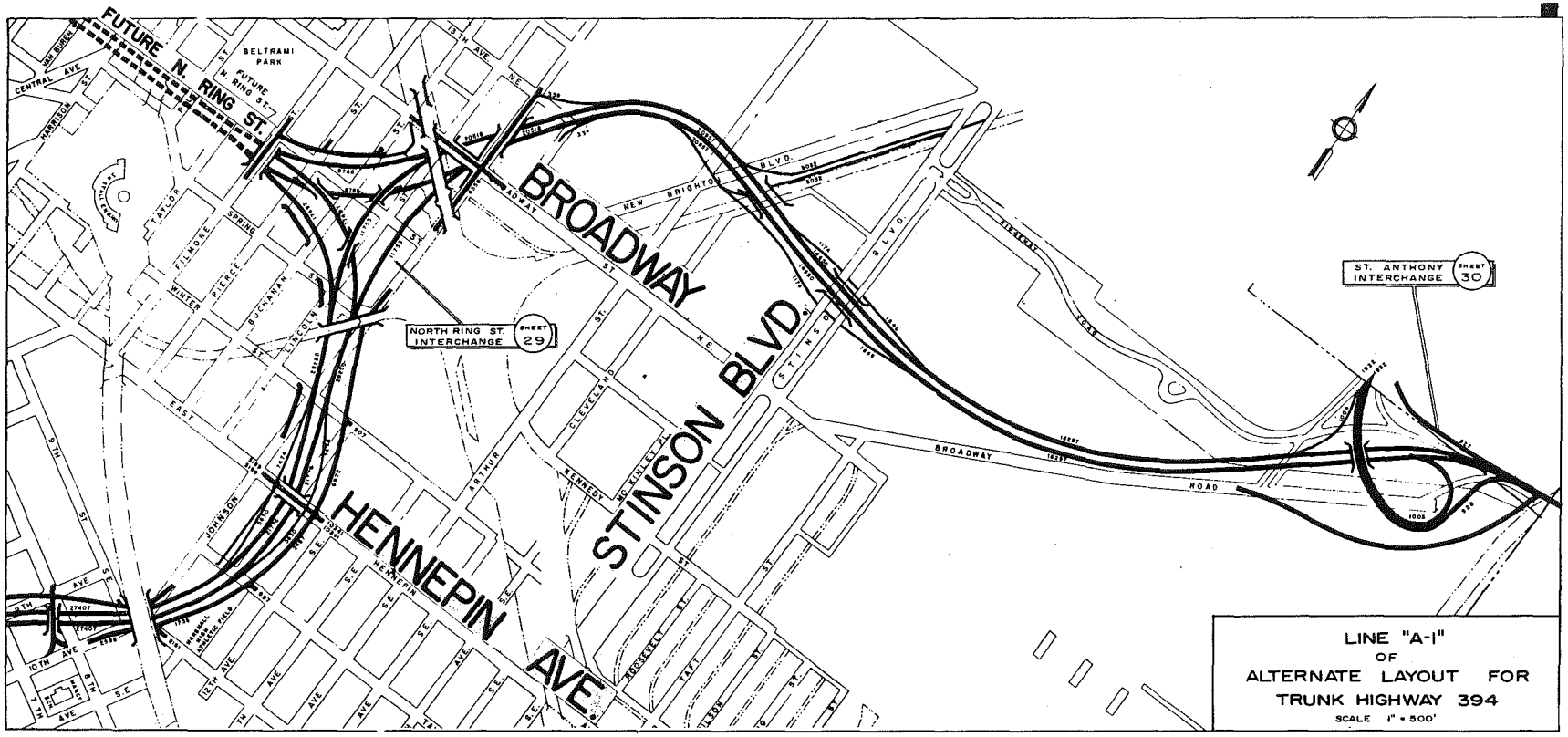

FUTURE N. RING ST.
BELTRAMI PARK
FUTURE N. RING ST.
BROADWAY
STINSON BLVD.
HENNEPIN AVE.
NORTH RING ST. INTERCHANGE
SHEET 29
ST. ANTHONY INTERCHANGE
SHEET 30
BROADWAY ROAD
LINE "A-1"
OF
ALTERNATE LAYOUT FOR
TRUNK HIGHWAY 394
SCALE 1" = 500'

PLATE XXIIII

PLATE XXIV

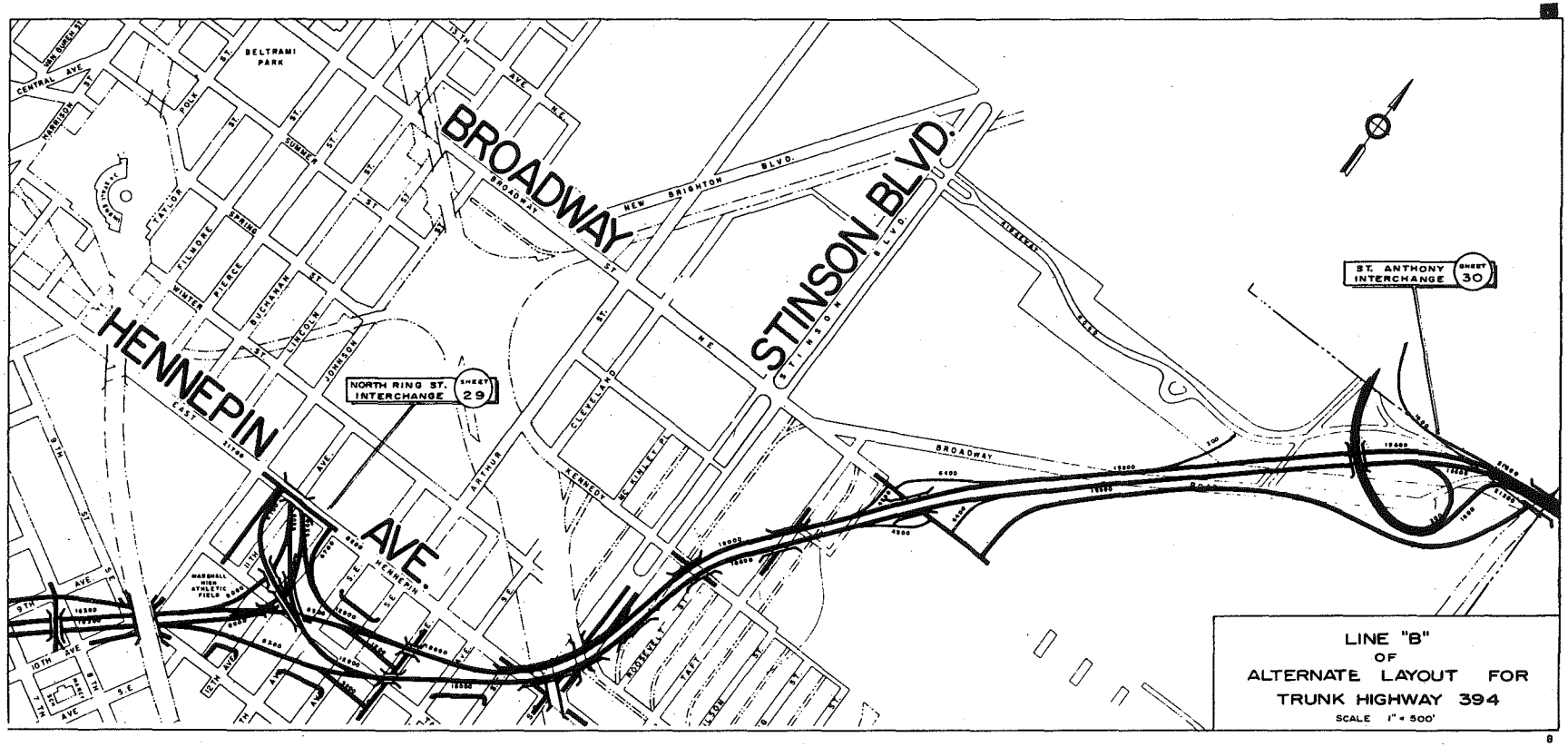

BROADWAY
HENNEPIN AVE.
STINSON BLVD.
BELTRAMI PARK
NORTH RING ST. INTERCHANGE SHEET 29
ST. ANTHONY INTERCHANGE SHEET 30
LINE "B"
OF
ALTERNATE LAYOUT FOR
TRUNK HIGHWAY 394
SCALE 1" = 500'

PLATE XXV

LINE "C"
OF
ALTERNATE LAYOUTS FOR
TRUNK HIGHWAY 394
SCALE 1" = 500'

1980 AVERAGE DAILY TRAFFIC BASED ON LAND USE PROJECTIONS

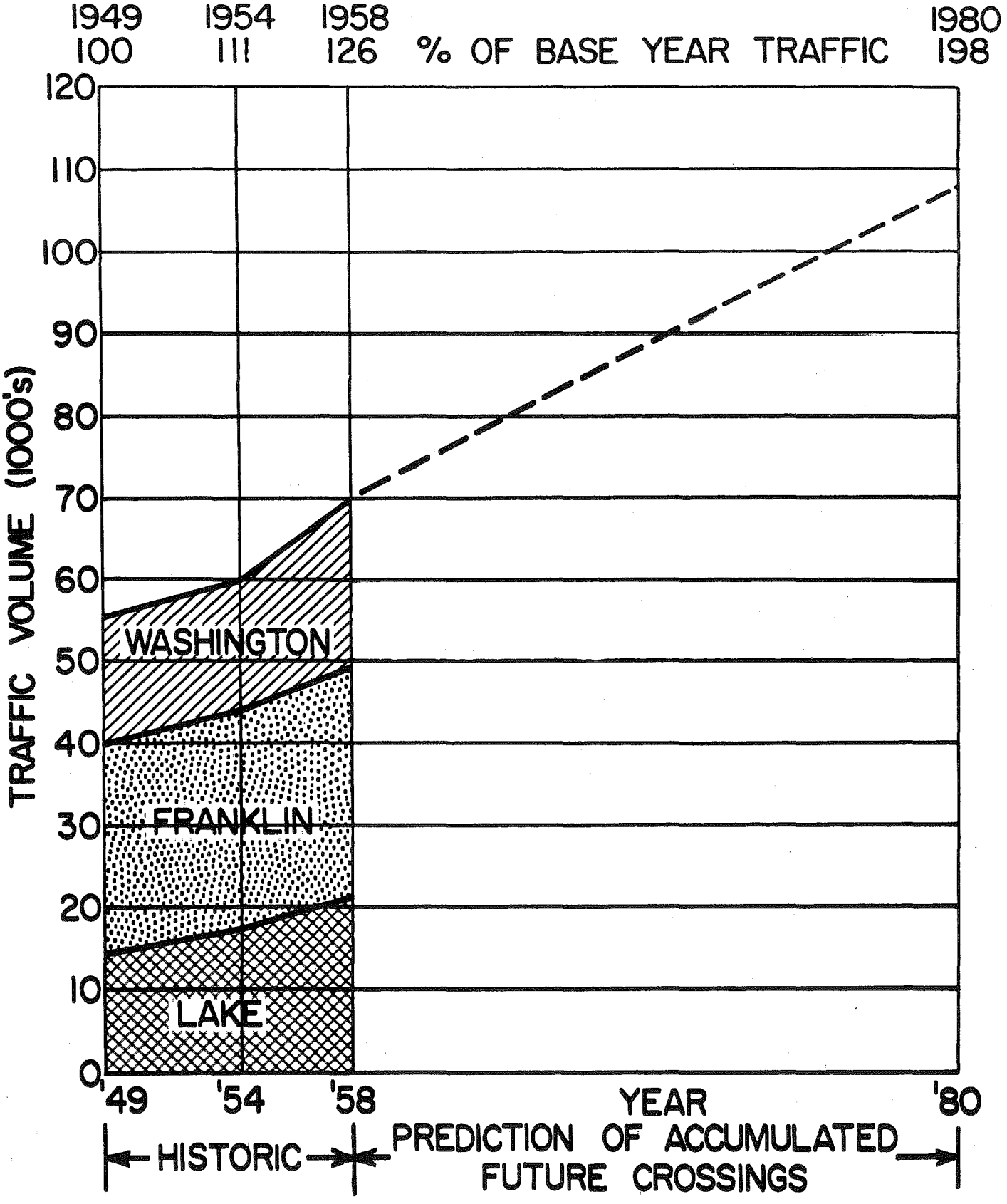
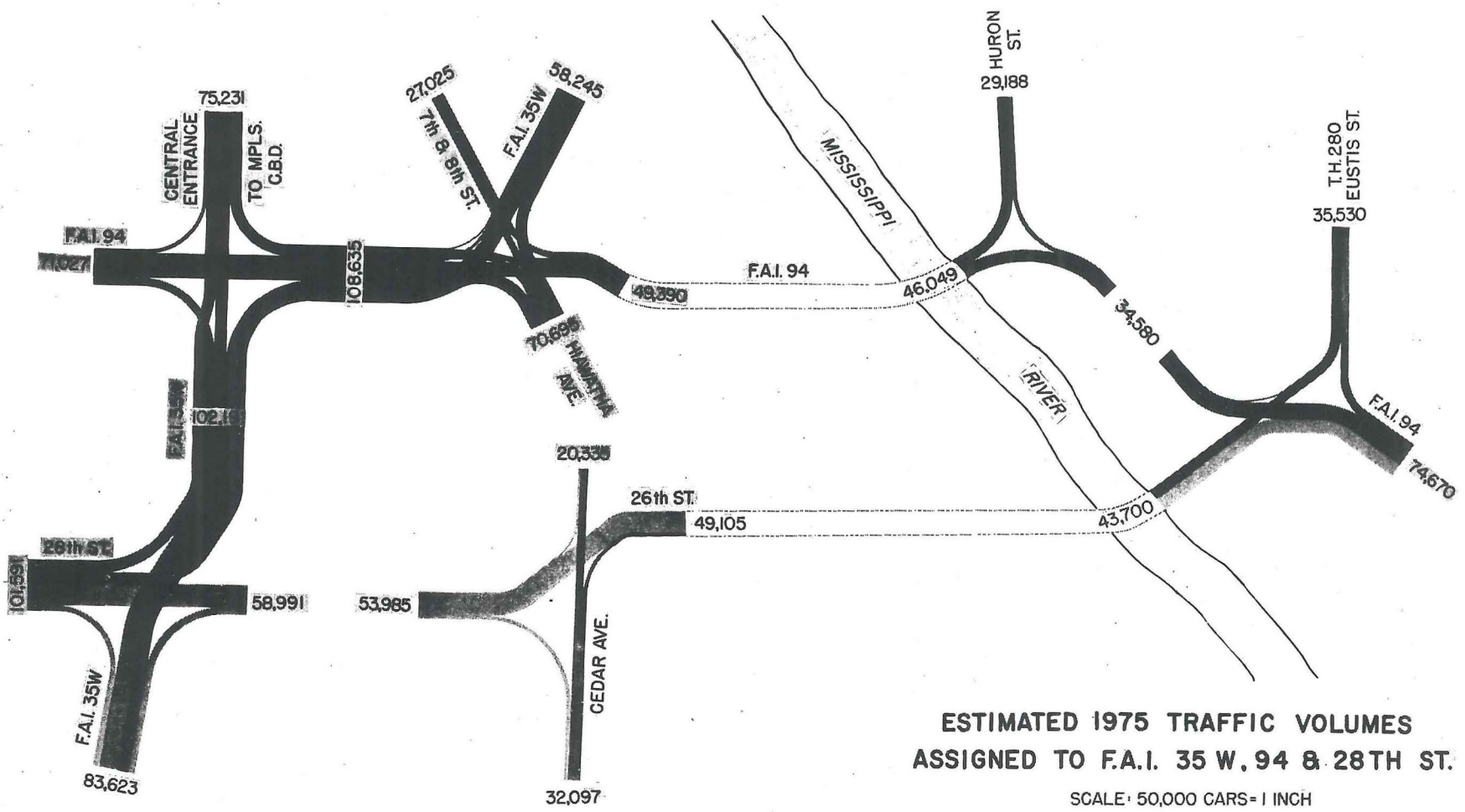


PLATE XXVI



ESTIMATED 1975 TRAFFIC VOLUMES
ASSIGNED TO F.A.I. 35 W, 94 & 28TH ST.

SCALE: 50,000 CARS = 1 INCH

PLATE XXVII