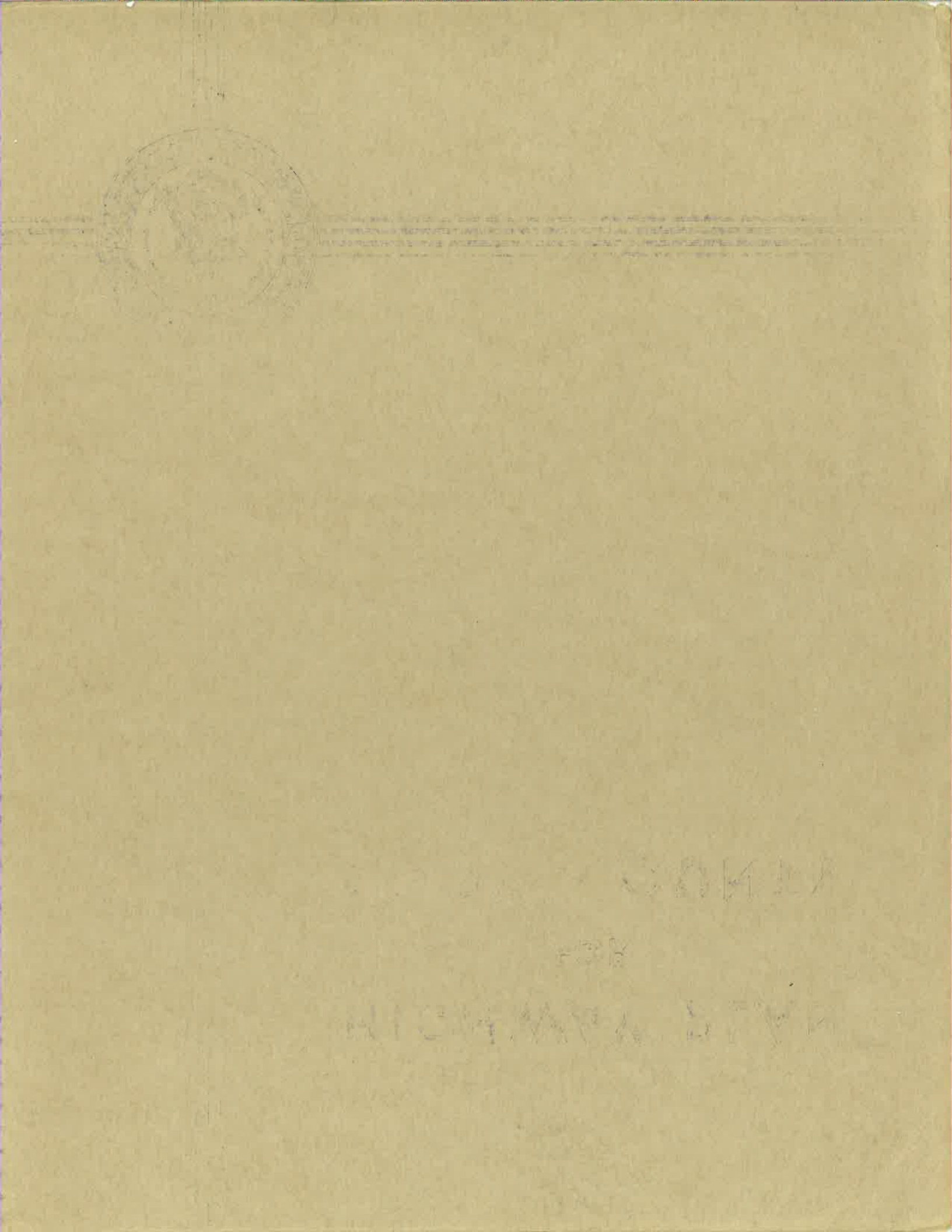
J. F. KELLY

HIGHWAY PLAN
FOR
COOK COUNTY

PLEASE RETURN TO JAMES F. KELLY



DETAILED STUDY

OF

HIGHWAY PLAN

FOR

COOK COUNTY

PREPARED FOR THE

BOARD OF COMMISSIONERS

OF THE

COUNTY OF COOK

BY THE

COOK COUNTY HIGHWAY DEPARTMENT

GEORGE A. QUINLAN
SUPERINTENDENT OF COUNTY HIGHWAYS

CHICAGO, ILLINOIS
AUGUST, 1940

Part I

A STUDY OF THE SUPERHIGHWAY FINANCING BY COOK COUNTY ON A PAY AS YOU GO PLAN

The undertaking of the construction of that portion of the Superhighway System within the Central Business District of Chicago by Cook County on a pay as you go basis would require the allocation of approximately 43% of its anticipated highway funds for the next 20 years. The construction of the several units of the system by the County would require a programming of the work in a manner similar to the following:

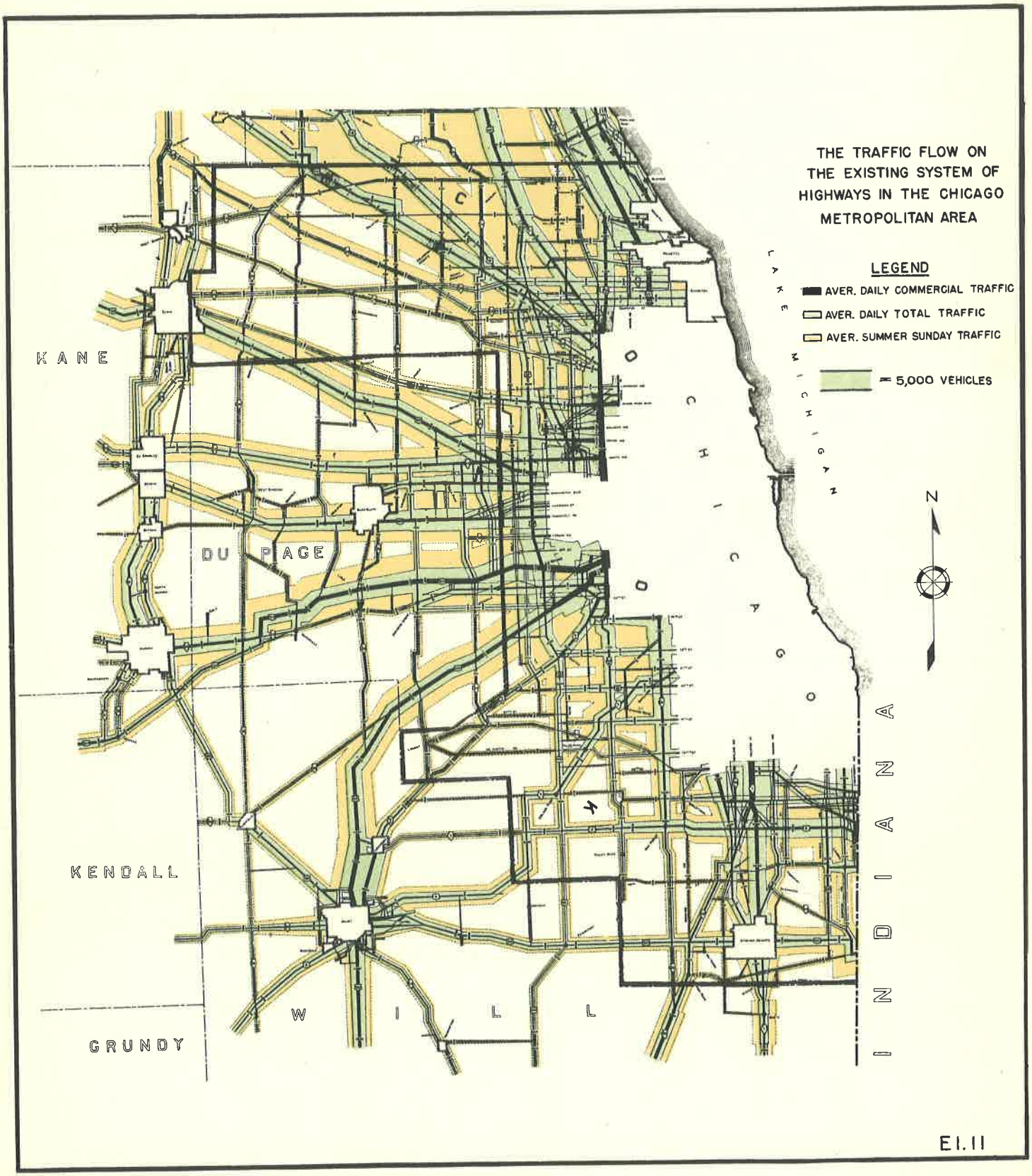
Year	*Unit No.*	*Improvement*	*Estimated Cost in Millions of Dollars*
1941	1	Tunnel Connection with Outer Drive—(Drive shore protection and place fill)	.5
1942	1	Tunnel Connection with Outer Drive—(Construct tunnels, pavements and landscaping) .	3.0
1943	2	Elm and Cedar Street tunnels—(Buy Right of Way)	.8
1944	2	Elm and Cedar Street tunnels—(Construct Elm Street tunnel)	2.9
1945	2	Elm and Cedar Street Tunnels—(Construct Cedar Street tunnel)	3.0
1946	3	Northwest Superhighway—Sheffield to Division (Buy Right of Way and construct) . . .	3.9
1947	4	Northwest Superhighway—Division to Chicago —(Buy Right of Way and construct) . . .	1.8
	5	Northwest Superhighway—Wacker Drive connection—(Buy Right of Way)	.3
			2.1
1948 and 1949	5	Northwest Superhighway—Wacker Drive connection—(Construct connection)	8.1
1950	6	Northwest Superhighway—surface distributor (Buy Right of Way and construct) . . .	3.0
1951 1952 and 1953	7	Wacker Drive—Randolph to Congress (Buy Right of Way)	8.4

Year	*Unit No.*	*Improvement*	*Estimated Cost in Millions of Dollars*
1954	7	Wacker Drive—Randolph to Congress (Construct)	5.7
1955	8	Congress Street—Halsted to Wacker Drive (Buy Right of Way and construct) . . .	4.0
1956 1957 and 1958	9	Congress Street—Wacker Drive to State Street —(Buy Right of Way and Construct) . .	12.5
1959	10	Congress Street—Tunnel connection with Outer Drive	3.8
1960	11	South Superhighway—Roosevelt Road to Congress Street (Buy Right of Way and construct)	3.6

It is to be noted that with the exception of Unit 11, the South Superhighway, no single unit of the system which might individually be of value to traffic could be financed by the County in any one year. The financing of each of the other units requires the accumulating of the County's funds for two or more years to construct a usable section. Under these conditions it appears that a pay as you go policy in the financing of superhighway construction within Chicago by Cook County would be impracticable.

Part II

A STUDY OF A SYSTEM OF EXPRESS HIGHWAYS


THE TRAFFIC FLOW ON THE EXISTING SYSTEM OF HIGHWAYS IN THE CHICAGO METROPOLITAN AREA
LEGEND
AVER. DAILY COMMERCIAL TRAFFIC
AVER. DAILY TOTAL TRAFFIC
AVER. SUMMER SUNDAY TRAFFIC
= 5,000 VEHICLES
KANE
DU PAGE
KENDALL
GRUNDY
WILL
LAKE MICHIGAN
CHICAGO
INDIANA
N
E1.11

A study was made of the degree of accommodation afforded this flow of traffic on the present system of roads. Each of the factors contributing to the delay and inconvenience of traffic movement was analyzed. The outline of those factors is shown on the following chart:

DELAY FACTORS
EXISTING ON PRIMARY SYSTEM OF HIGHWAYS
IN COOK COUNTY
OUTSIDE THE CITY OF CHICAGO

280 STOP SIGNS _____ 

284 TRAFFIC SIGNALS _____ 

399 RESTRICTED SPEED ZONES

9.8 MILES _____ 

47.8 " _____ 

91.9 " _____ 

99.9 " _____ 

23.1 " _____ 

65.0 " _____ 

337.5 MILES OF RESTRICTED SPEED ZONES

P1.16

The delay factors shown on the preceding chart prevent free movement of traffic and curtail operating efficiency of the highways on our present system. The constant interruption of thru traffic causes not only annoying inconveniences and delays, but an economic loss to the motorist.

In seeking to establish the actual time lost by delay a series of test drives was made by engineers of the highway department. These field checks indicated that on an average motorists are delayed at every third stop and go light. The average time of delay was found to be 14 seconds plus 6 seconds for accelerating and decelerating, resulting in a total loss of 20 seconds. The stop signs average 4 seconds delay plus the 6 seconds for accelerating and decelerating, or a total of 10 seconds.

Marginal interference such as places of business along the highway, cross streets, private entrances, and thickly populated areas constitute an important factor in restricting free movement of traffic. In arriving at a value of delay for this factor the speed zones as determined by the State Highway Department were used. These zones are basically the average speed travelled by the motorists using the highways within the zone limits.

No delay value has been considered for railroad crossings inasmuch as this is treated as a separate study in the following chapter.

To establish the average time required to travel any major highway on our present system, the following formula was evolved:

$$\text{Average Travel Time in Minutes} = 60\frac{D}{M} + \frac{1}{3}S_1\frac{20}{60} + S_s\frac{10}{60}$$

Explanation of terms:

D = Distance traveled in miles.

M = Speed in miles per hour as determined from speed zones. Where no speed zones have been established M = 50 M.P.H.

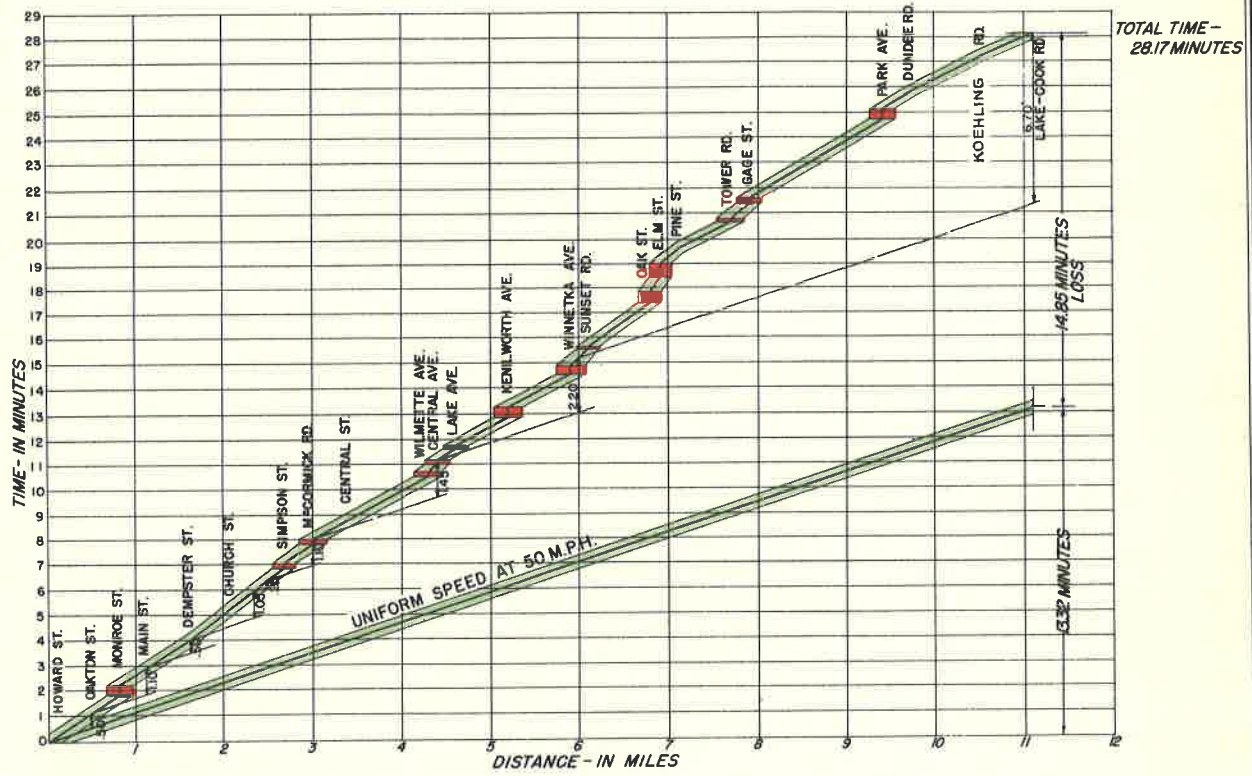
S_1 = Number of traffic lights on route.

S_s = Number of stop signs on route.

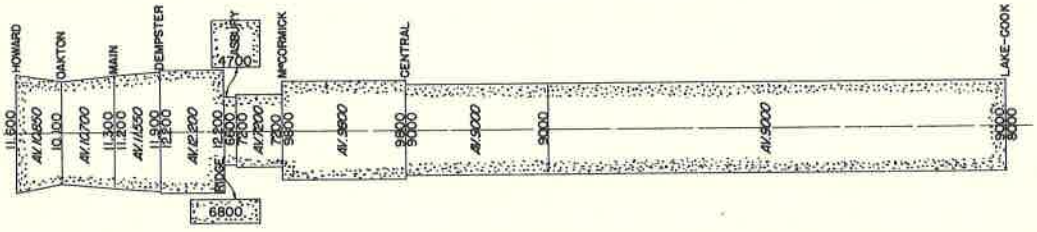
Assuming a uniform speed of 50 miles per hour as desirable for highway travel, the difference between the time required to travel at that rate and the average travel time as computed by the formula gives minutes of delay. The economic loss due to this delay is shown on the following chart.

A STUDY INDICATING ECONOMIC LOSS DUE TO DELAY ON A MAJOR HIGHWAY - GREEN BAY ROAD

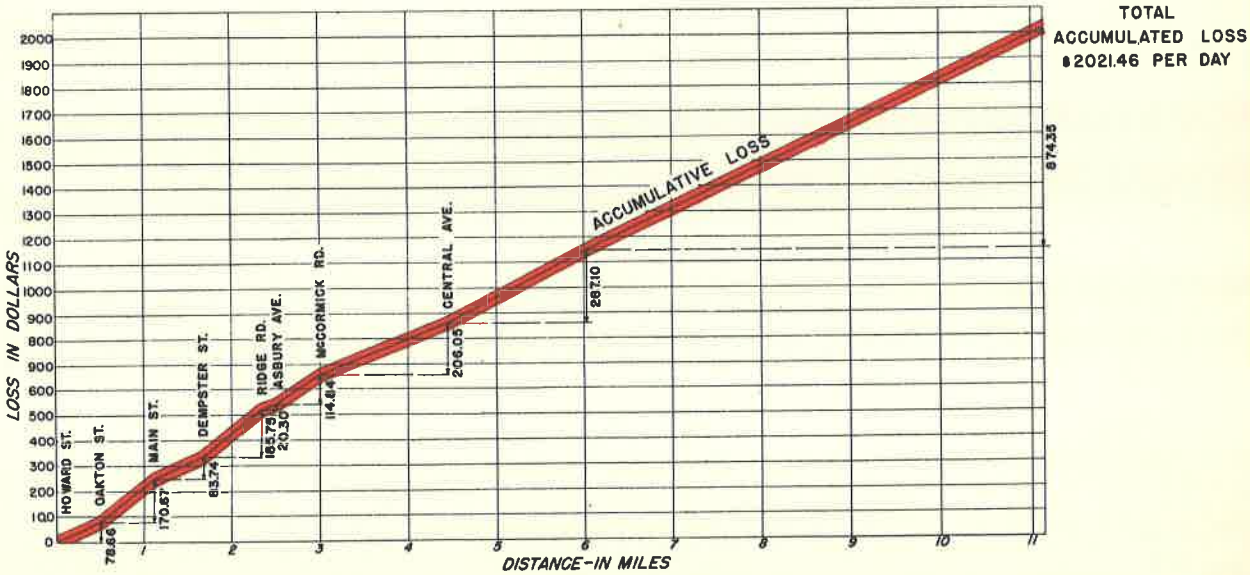
TIME STUDY



TRAFFIC VOLUME
24 HOUR ANNUAL AVERAGE



VEHICLE MINUTE LOSS
AT 1.45¢ PER VEHICLE MINUTE DELAY



*BASED ON 1.45¢ PER MINUTE PER CAR COST OF DELAY.

P1.12

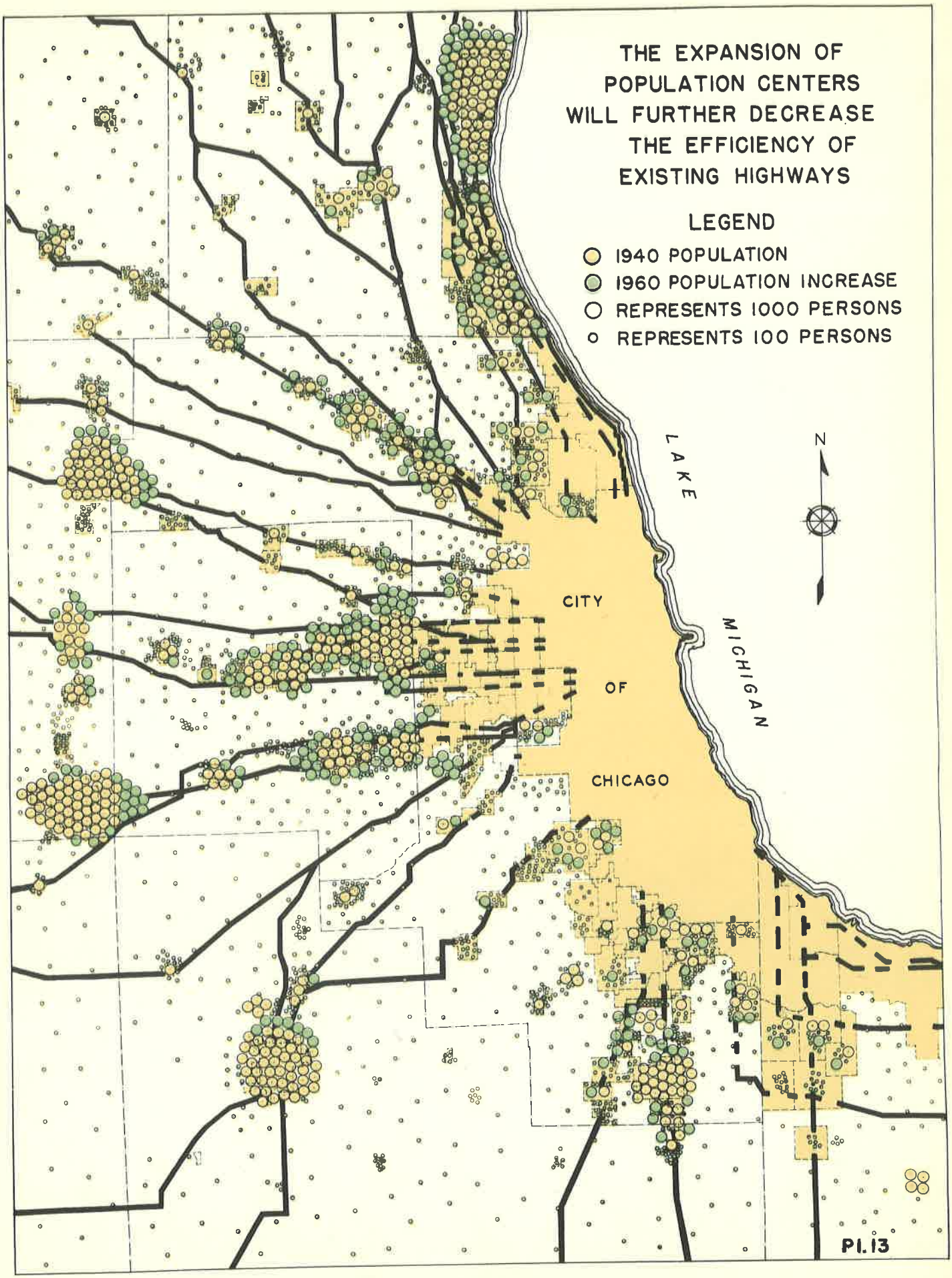
In addition to Green Bay Road, the economic loss due to delay was computed the same manner for the following highways, representative of each section of the County:

South Route (Halsted Street)—67th and State Streets to County Line
Economic Loss per day—$2,364.49

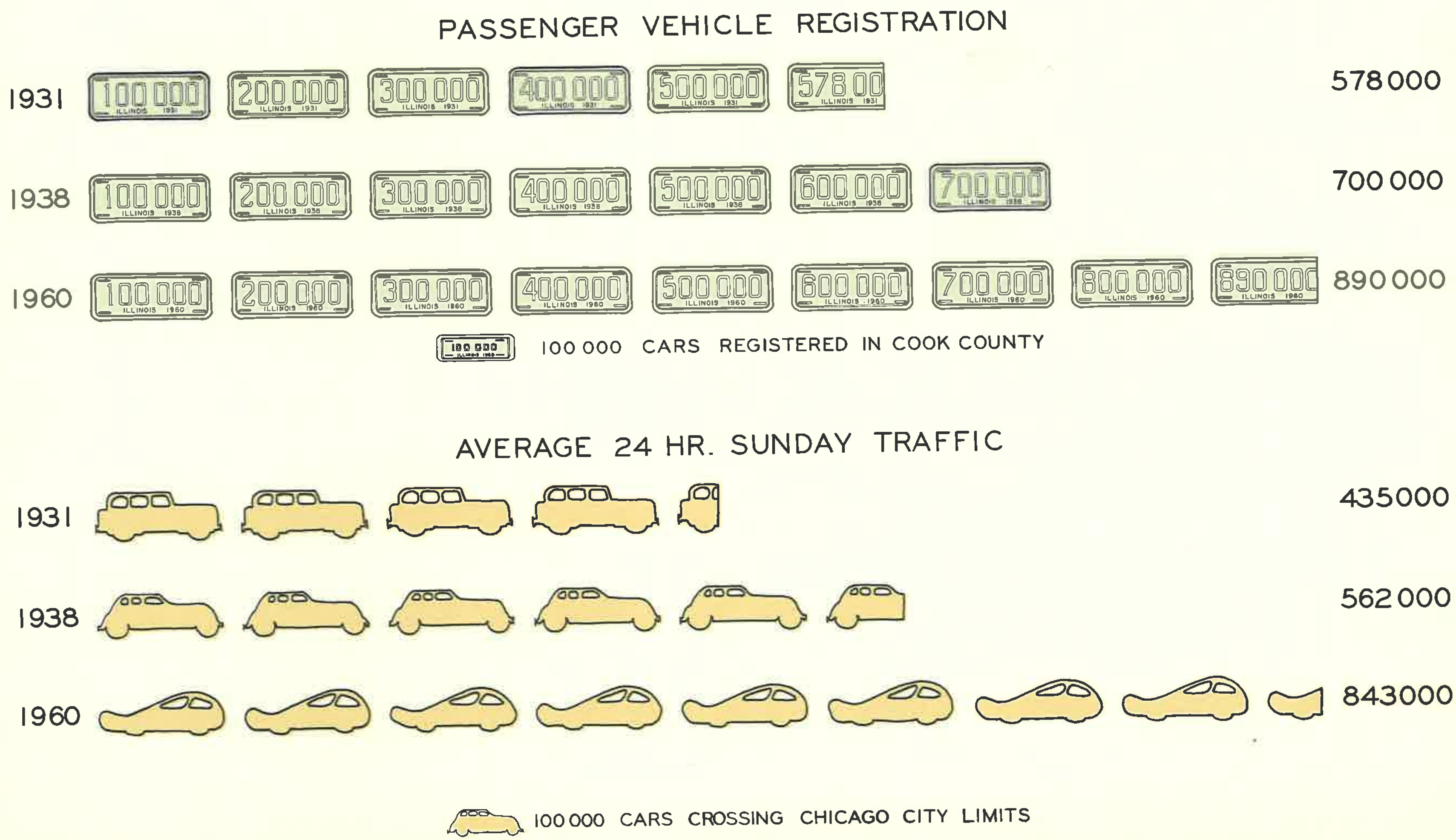
South West Route (Ogden Avenue)—City Limits to County Line
Economic Loss per day—$1,239.58

West Route (Lake Street)—City Limits to County Line
Economic Loss per day—$957.52

North West Route (Northwest Highway)—Milwaukee Ave. to County Line
Economic Loss per day—$651.53


THE EXPANSION OF
POPULATION CENTERS
WILL FURTHER DECREASE
THE EFFICIENCY OF
EXISTING HIGHWAYS
LEGEND
1940 POPULATION
1960 POPULATION INCREASE
REPRESENTS 1000 PERSONS
REPRESENTS 100 PERSONS
N
LAKE
MICHIGAN
CITY
OF
CHICAGO
PI. 13

EFFICIENCY OF EXISTING HIGHWAYS WILL DECREASE AS CAR REGISTRATION AND USAGE INCREASES



Pl.14

From the foregoing facts it is apparent that a major change in highway planning and construction is necessary to provide adequate facilities for traffic movement for the present and future years. Such facilities can be accomplished only by a system of highways which will permit uninterrupted flow of traffic.

In detail such highways should have no cross traffic, being grade separated throughout with traffic moving in opposite directions separated by a median strip. The right of way should be of sufficient width to allow for service roads for the abutting properties with access to the express highway only at controlled locations. The parkways should be landscaped, providing pleasant and scenic drives.

This type of highway is illustrated in the following two sketches:

The following considerations influenced the location of the Parkway Highways:

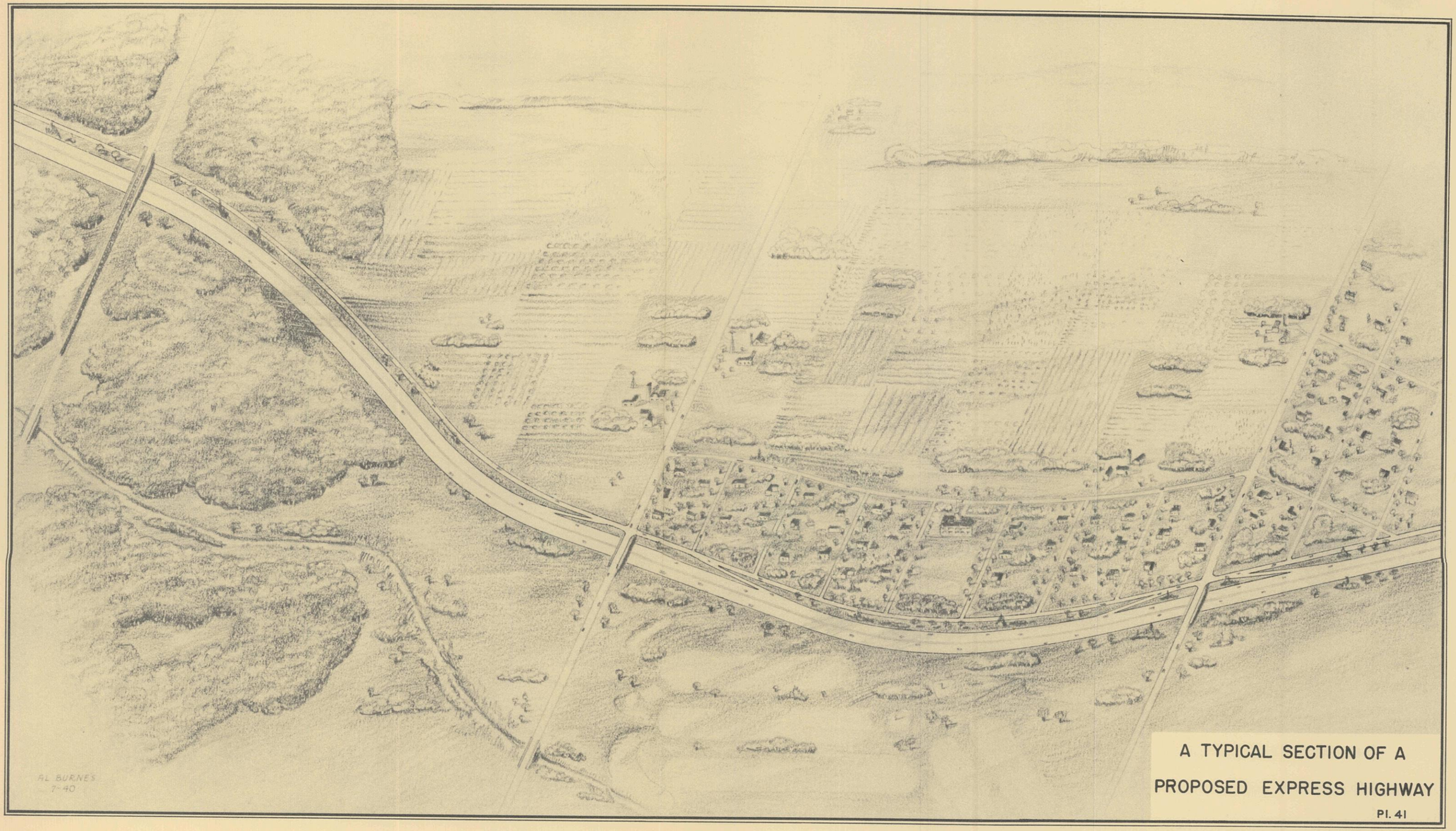
Service to populated areas.

The interception of through traffic before it reaches populated and congested areas.

The providing of pleasant drives adjoining Forest Preserves and scenic areas.

The cost and availability of Rights of Way.

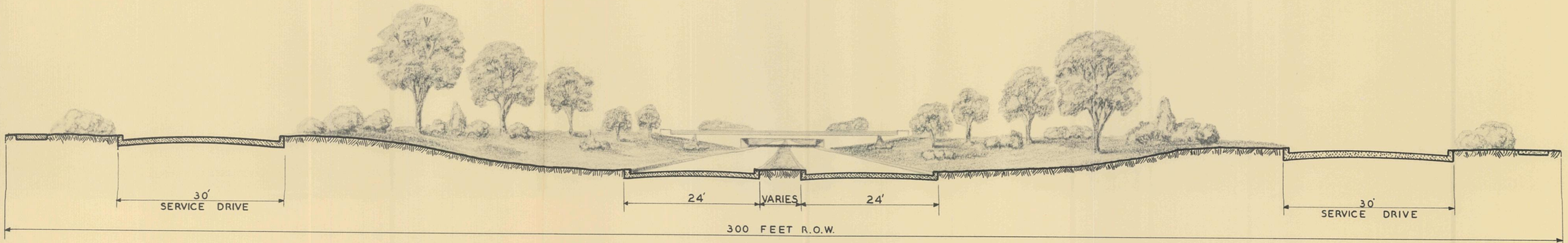
The locations of parkways in reference to these considerations are shown on the following charts.



A TYPICAL SECTION OF A

PROPOSED EXPRESS HIGHWAY

PI. 41

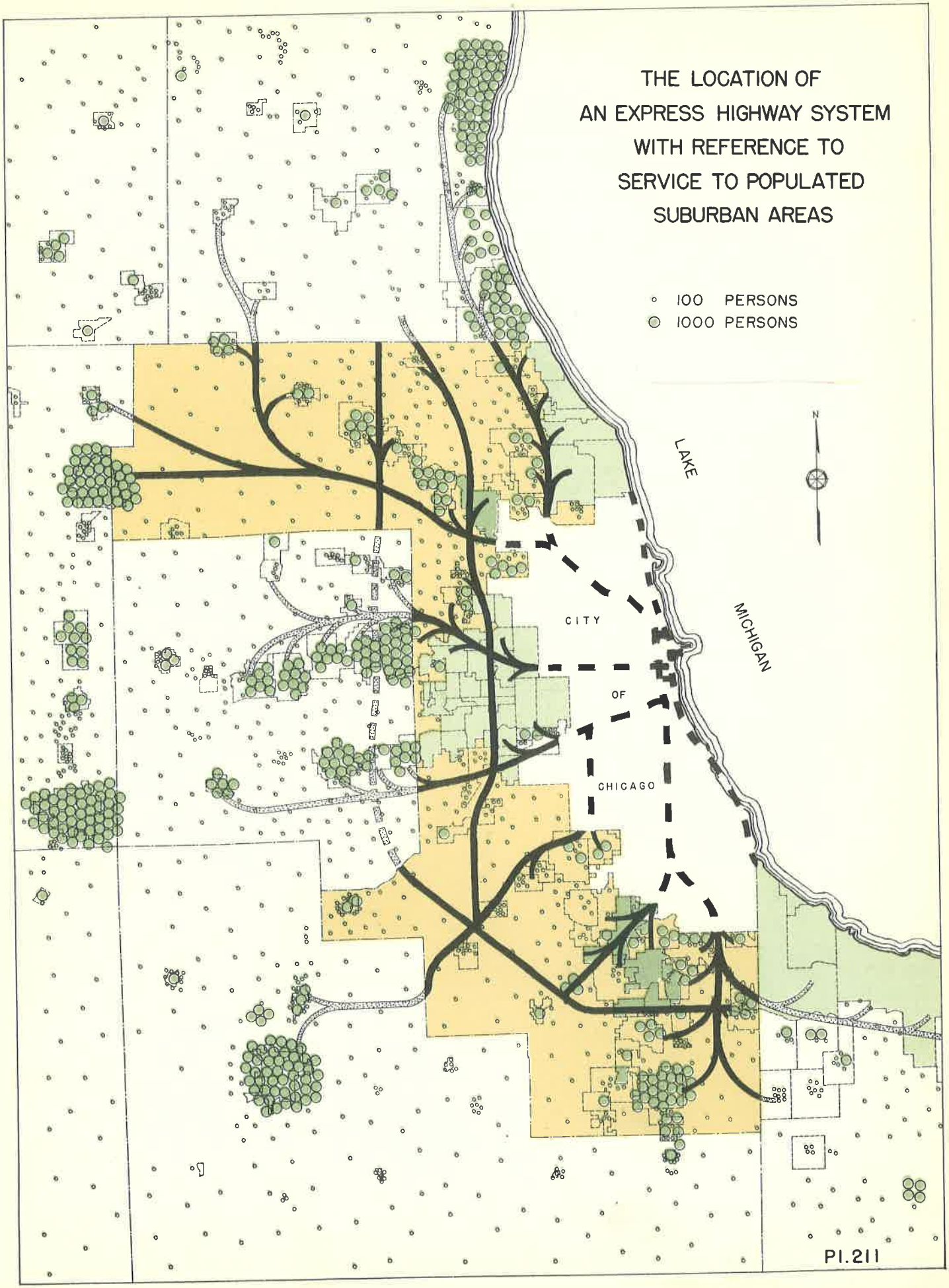


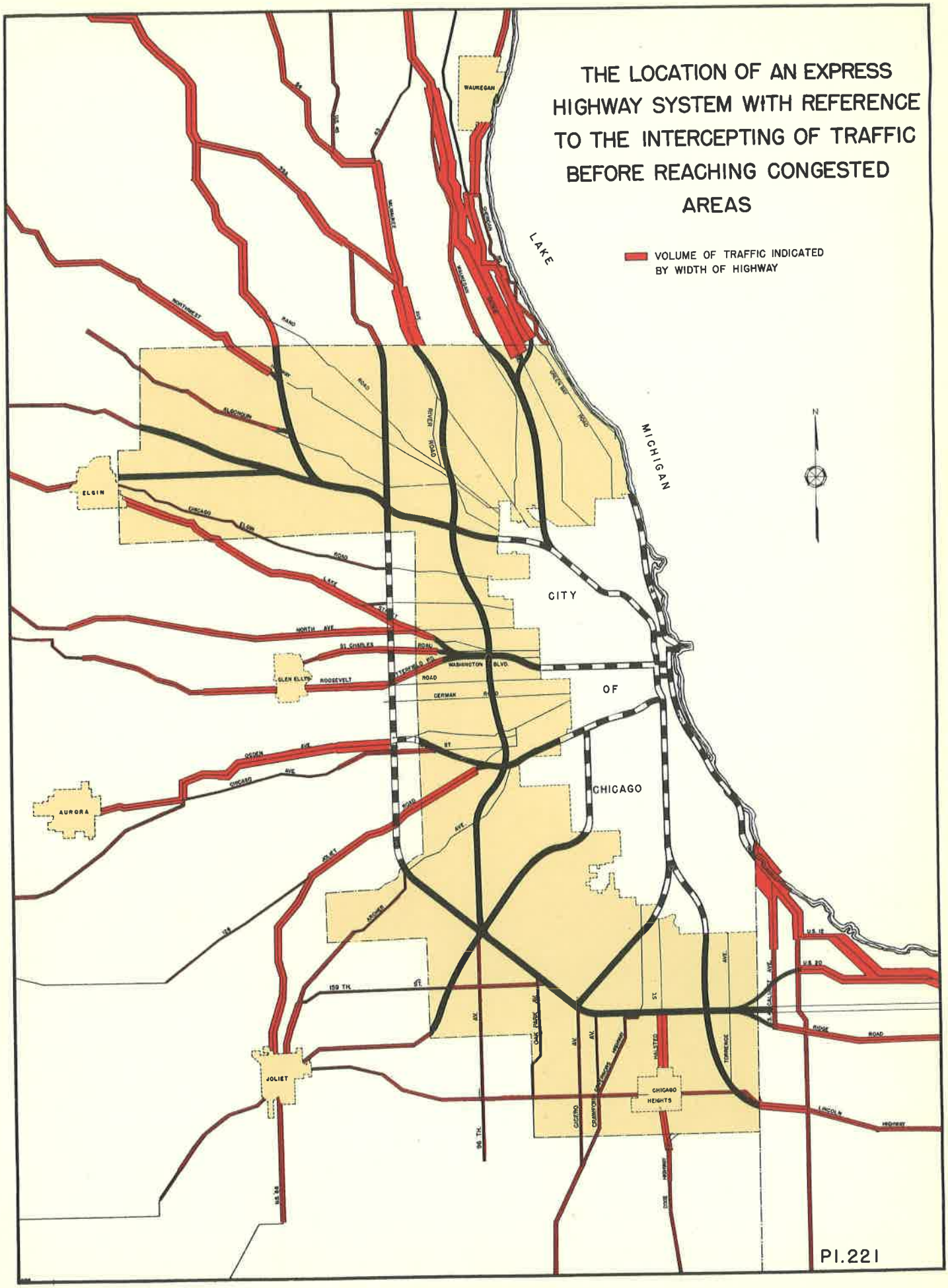
A RIGHT OF WAY OF 300 FEET IS REQUIRED

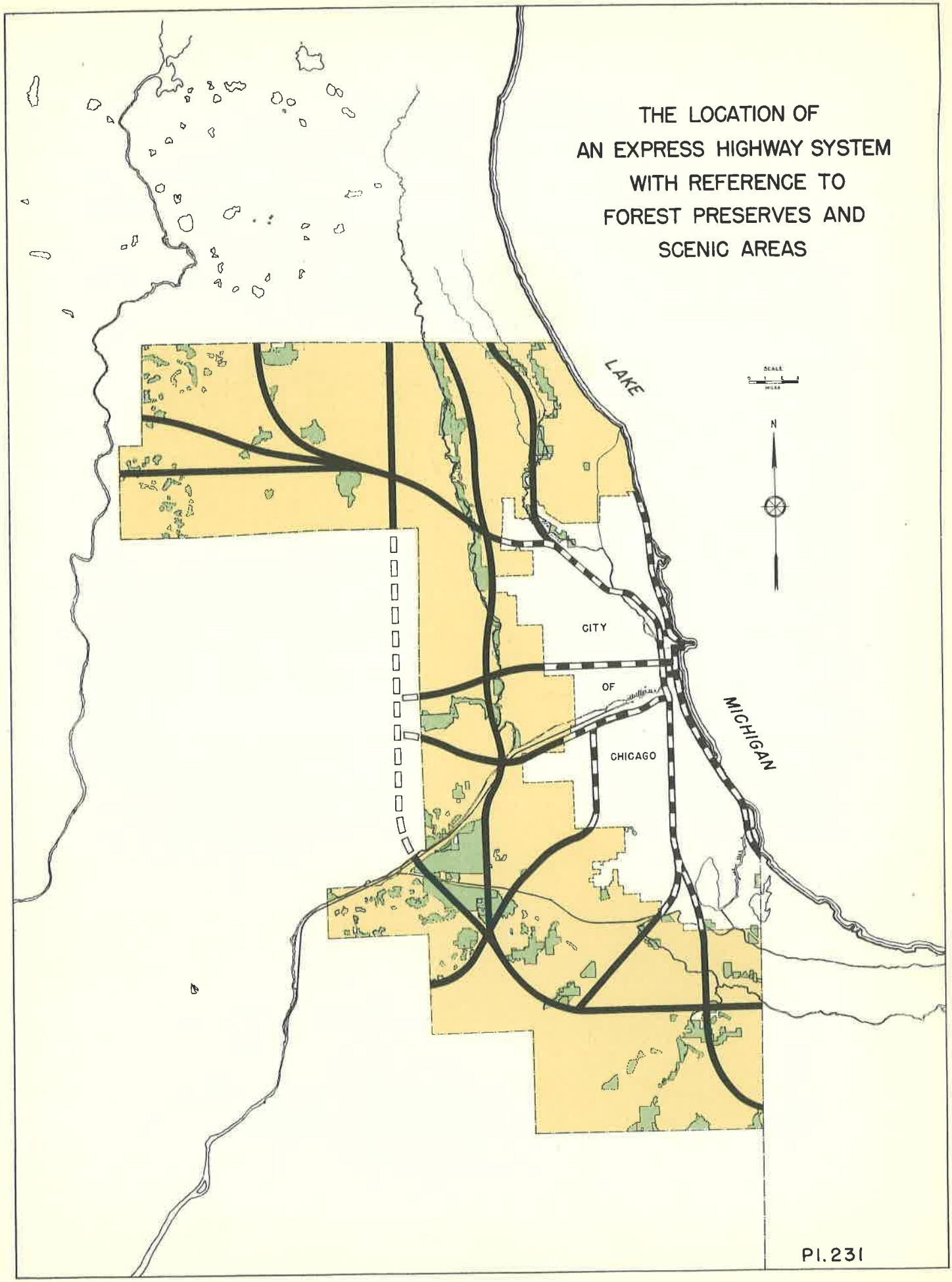
FOR

EXPRESS HIGHWAYS

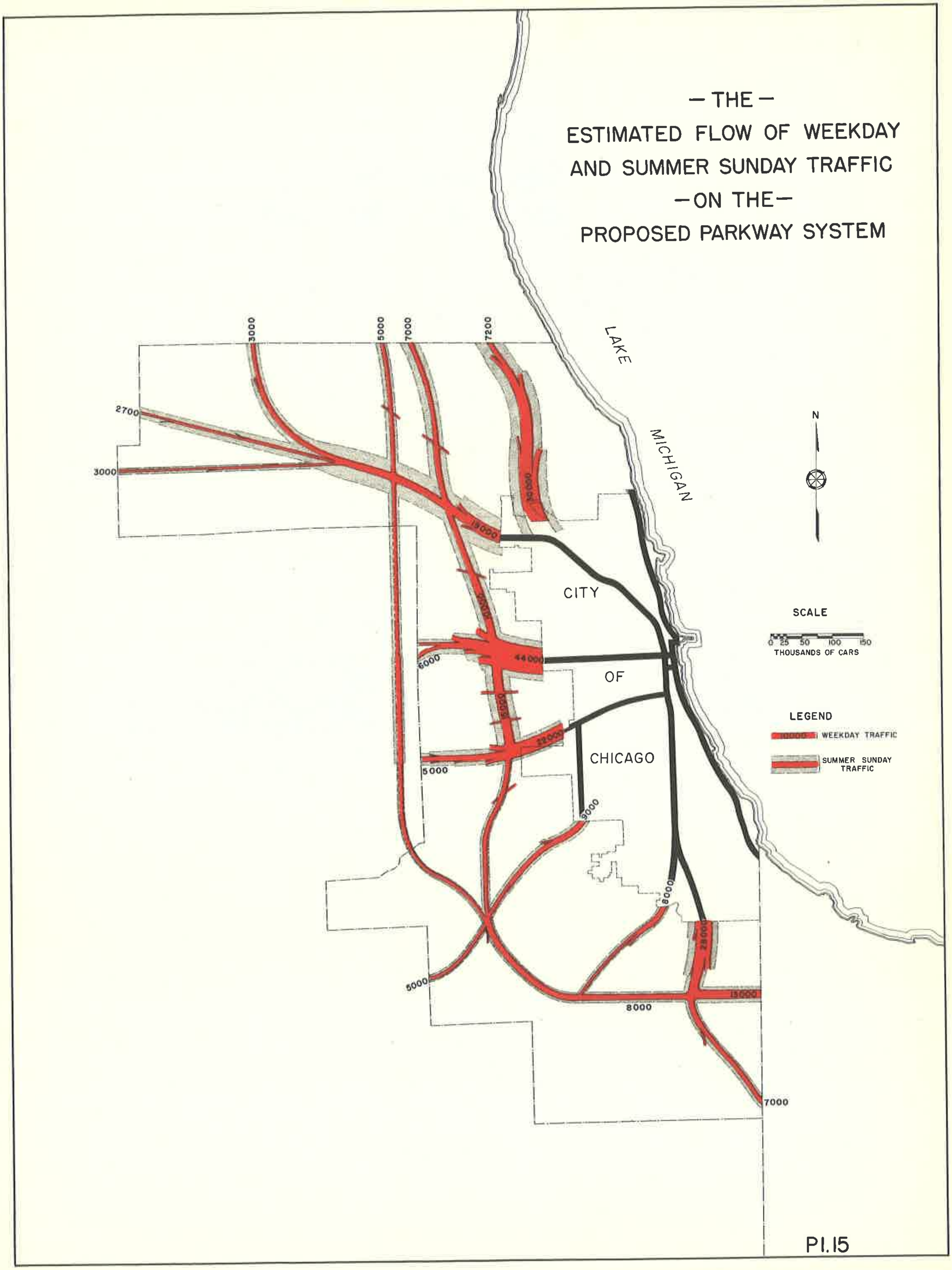
Pl. 42


THE LOCATION OF
AN EXPRESS HIGHWAY SYSTEM
WITH REFERENCE TO
SERVICE TO POPULATED
SUBURBAN AREAS
100 PERSONS
1000 PERSONS
N
LAKE
MICHIGAN
CITY
OF
CHICAGO
PI. 211


THE LOCATION OF AN EXPRESS HIGHWAY SYSTEM WITH REFERENCE TO THE INTERCEPTING OF TRAFFIC BEFORE REACHING CONGESTED AREAS
VOLUME OF TRAFFIC INDICATED BY WIDTH OF HIGHWAY
LAKE
MICHIGAN
CITY
OF
CHICAGO
WAUKEGAN
ELGIN
AURORA
JOLIET
CHICAGO HEIGHTS
GLEN ELLYN
N
P1.221


THE LOCATION OF
AN EXPRESS HIGHWAY SYSTEM
WITH REFERENCE TO
FOREST PRESERVES AND
SCENIC AREAS
LAKE
MICHIGAN
CITY
OF
CHICAGO
SCALE
N
Pl. 231

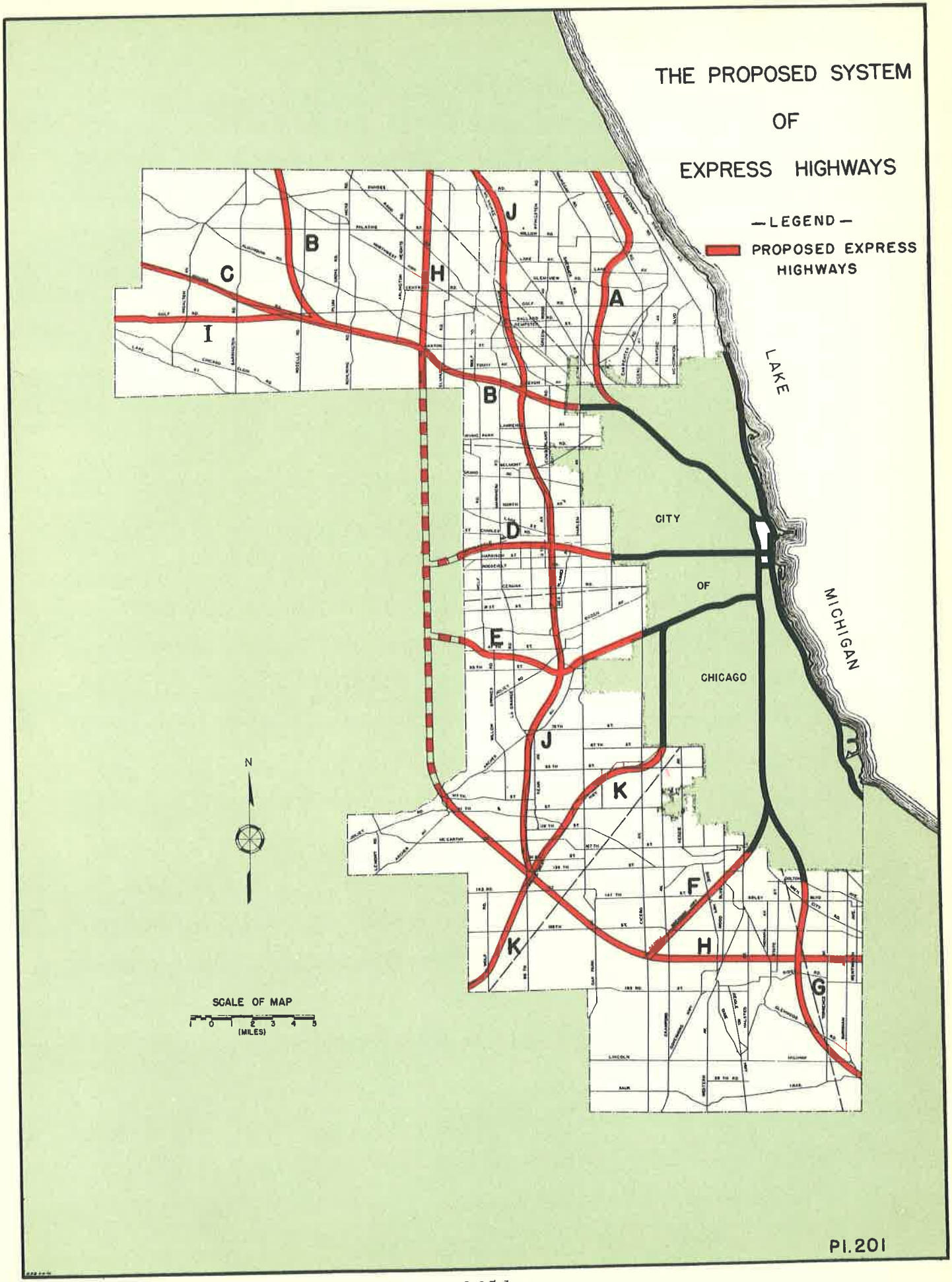
The estimated week day and Sunday traffic on the proposed express highway system is shown on the following chart.



— THE —
ESTIMATED FLOW OF WEEKDAY
AND SUMMER SUNDAY TRAFFIC
— ON THE —
PROPOSED PARKWAY SYSTEM

Pl. 15

From the foregoing considerations a system of express highways was determined as indicated on the following map.


THE PROPOSED SYSTEM
OF
EXPRESS HIGHWAYS
—LEGEND—
PROPOSED EXPRESS HIGHWAYS
LAKE
MICHIGAN
CITY
OF
CHICAGO
A
B
C
D
E
F
G
H
I
J
K
N
SCALE OF MAP
0 1 2 3 4 5
(MILES)
PI. 201

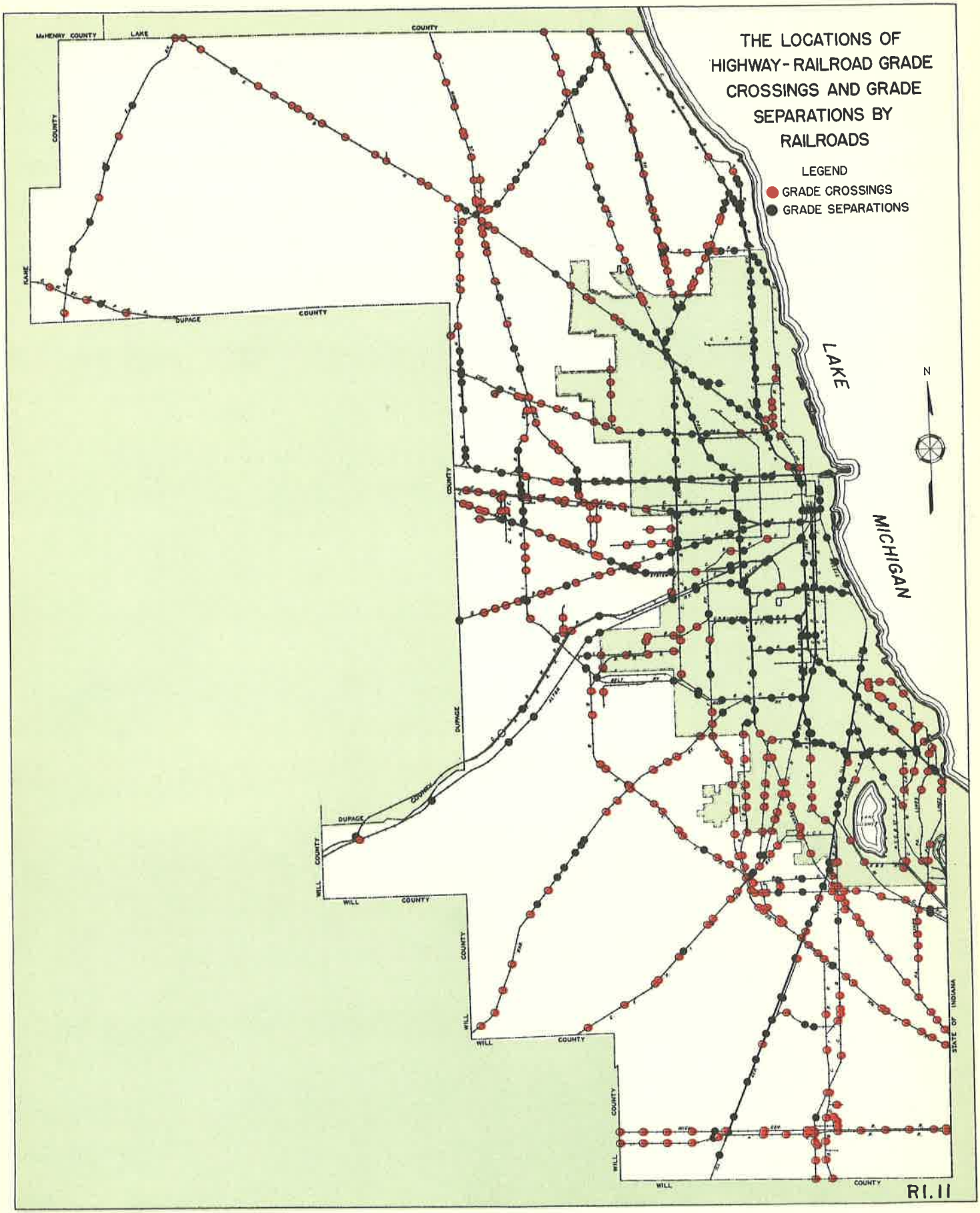
Part III

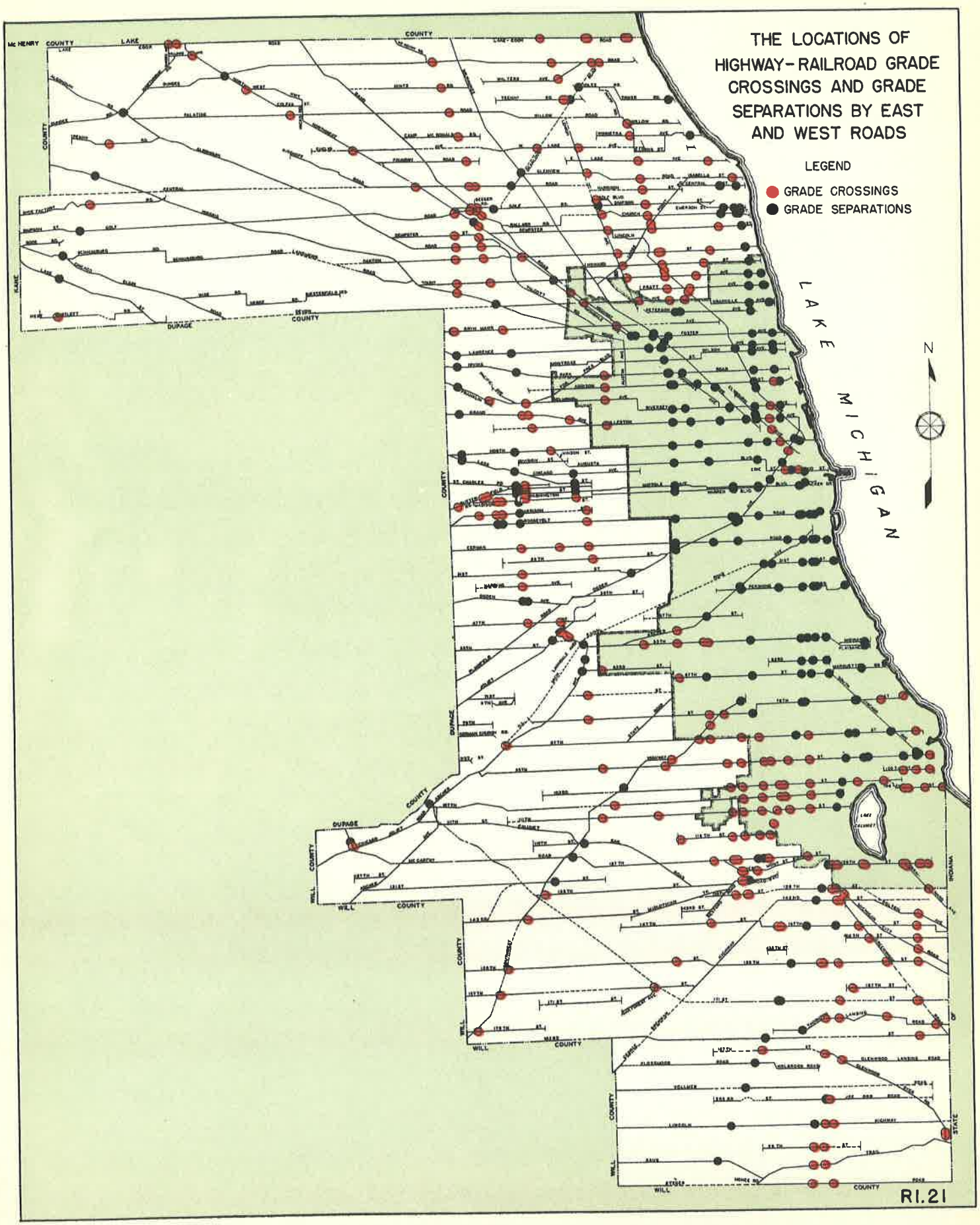
A STUDY
OF
HIGHWAY-RAILROAD GRADE CROSSING
ELIMINATION

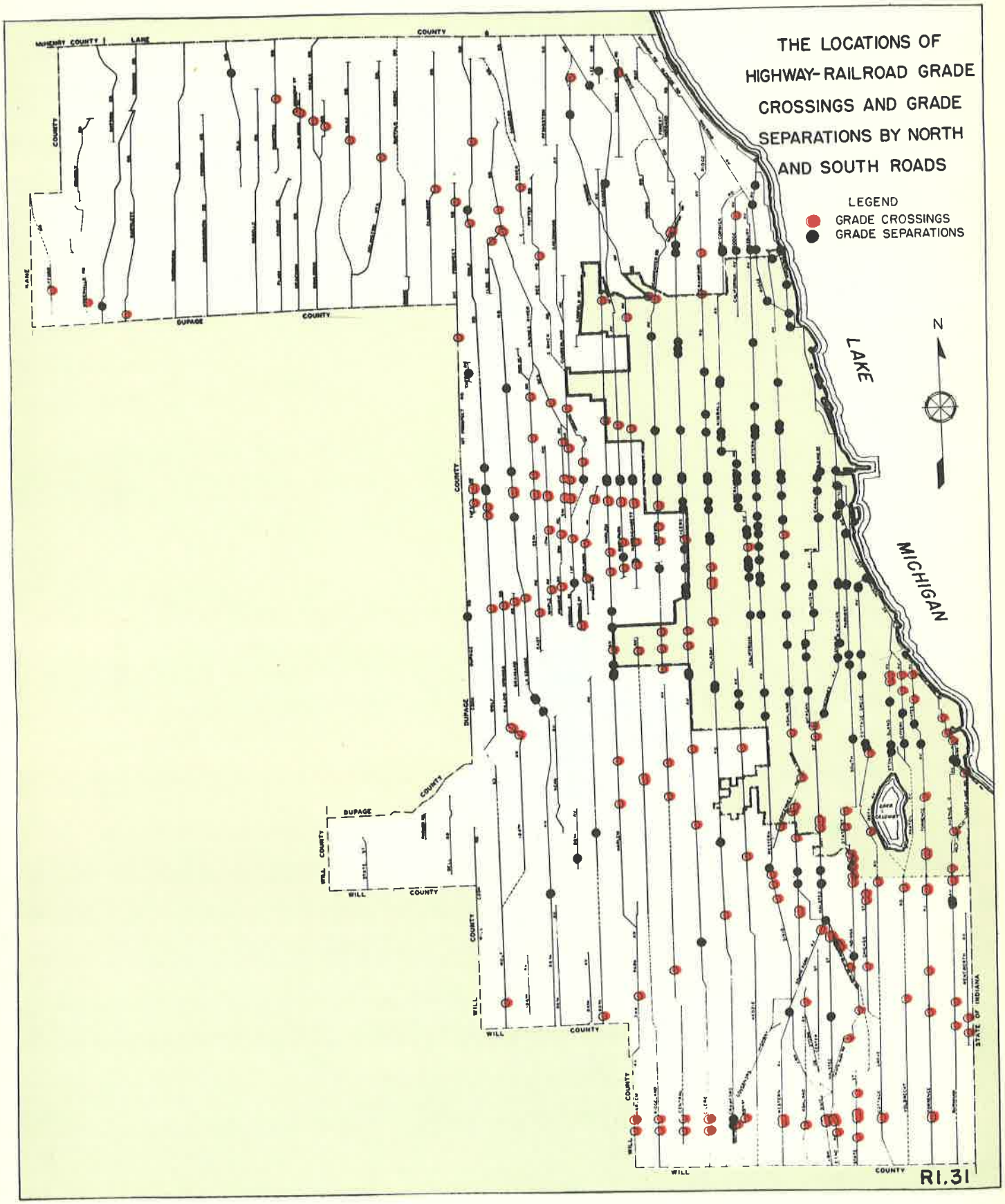
There are at present in Cook County on the Federal, State and County systems of roads both within and without municipalities 445 highway-railroad grade crossings and 321 highway-railroad grade separations. These are divided as follows:

	Highway-Railroad Grade Crossings	*Highway-Railroad Grade Separations*
County's system of roads . . .	335	214
State Bond Issue and Federal Aid roads	90	107

Their locations are shown on the following three maps.


THE LOCATIONS OF HIGHWAY-RAILROAD GRADE CROSSINGS AND GRADE SEPARATIONS BY RAILROADS
LEGEND
GRADE CROSSINGS
GRADE SEPARATIONS
McHENRY COUNTY
LAKE COUNTY
LAKE COUNTY
DUPAGE COUNTY
DUPAGE COUNTY
DUPAGE COUNTY
WILL COUNTY
WILL COUNTY
WILL COUNTY
WILL COUNTY
WILL COUNTY
LAKE MICHIGAN
N
STATE OF INDIANA
R1.11


THE LOCATIONS OF HIGHWAY-RAILROAD GRADE CROSSINGS AND GRADE SEPARATIONS BY EAST AND WEST ROADS
LEGEND
GRADE CROSSINGS
GRADE SEPARATIONS
LAKE MICHIGAN
N
Mc HENRY COUNTY
LAKE COUNTY
DUPAGE COUNTY
WILL COUNTY
KANE COUNTY
INDIANA
STATE OF
R1.21


THE LOCATIONS OF HIGHWAY-RAILROAD GRADE CROSSINGS AND GRADE SEPARATIONS BY NORTH AND SOUTH ROADS
LEGEND
GRADE CROSSINGS
GRADE SEPARATIONS
N
LAKE
MICHIGAN
McHENRY COUNTY
LAKE
COUNTY
DUPAGE
COUNTY
WILL
COUNTY
STATE OF INDIANA
R1.31

Traffic delays occasioned by the closing of highway-railroad crossings for the movement of trains, results in an economic loss to the public.

Counts of such traffic delays at several typical highway-railroad grade crossings were made. From these studies it was found that the amount of traffic delay was a direct function to the amount of highway traffic multiplied by the amount of railroad traffic, giving consideration to certain variables and factors.

This relationship was expressed in a formula from which the amount of traffic delay at all crossings was determined. The formula is as follows:

$$V.M.D. = [(T_{pd} \times V_d + (T_{pn} \times V_n)] K_p + [(T_{fd} \times V_d) + (T_{fn} \times V_n)] K_f$$

Explanation of Terms:

V.M.D. = Average daily vehicles minutes delay.

T_{pd} = Time crossing is closed by passenger trains 6 A.M. to 6 P.M. in minutes.

T_{pn} = Time crossing is closed by passenger trains 6 P.M. to 6 A.M. in minutes.

T_{fd} = Time crossing is closed by freight trains 6 A.M. to 6 P.M. in minutes.

T_{fn} = Time crossing is closed by freight trains 6 P.M. to 6 A.M. in minutes.

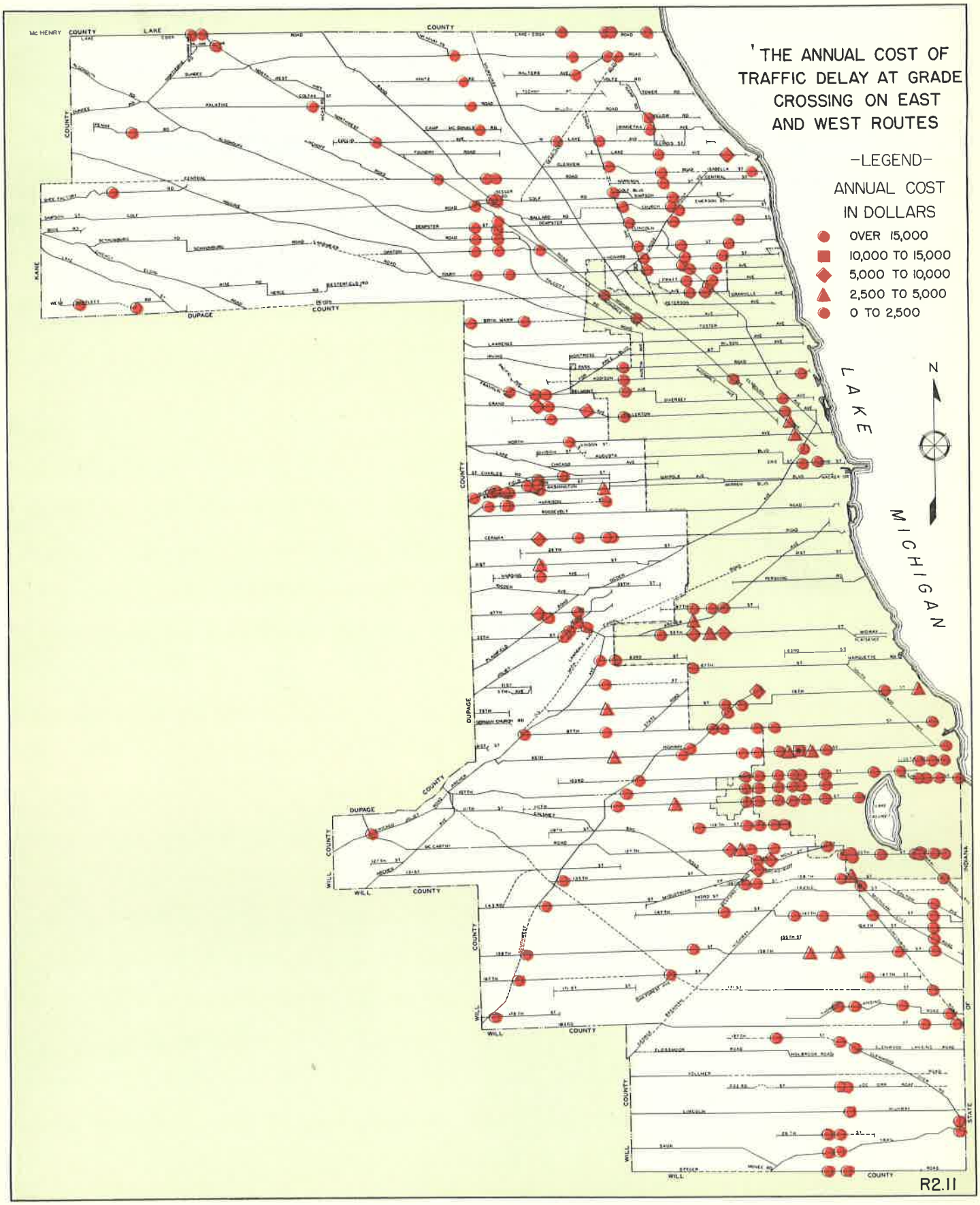
V_d = Vehicles passing crossing per minutes 6 A.M. to 6 P.M.

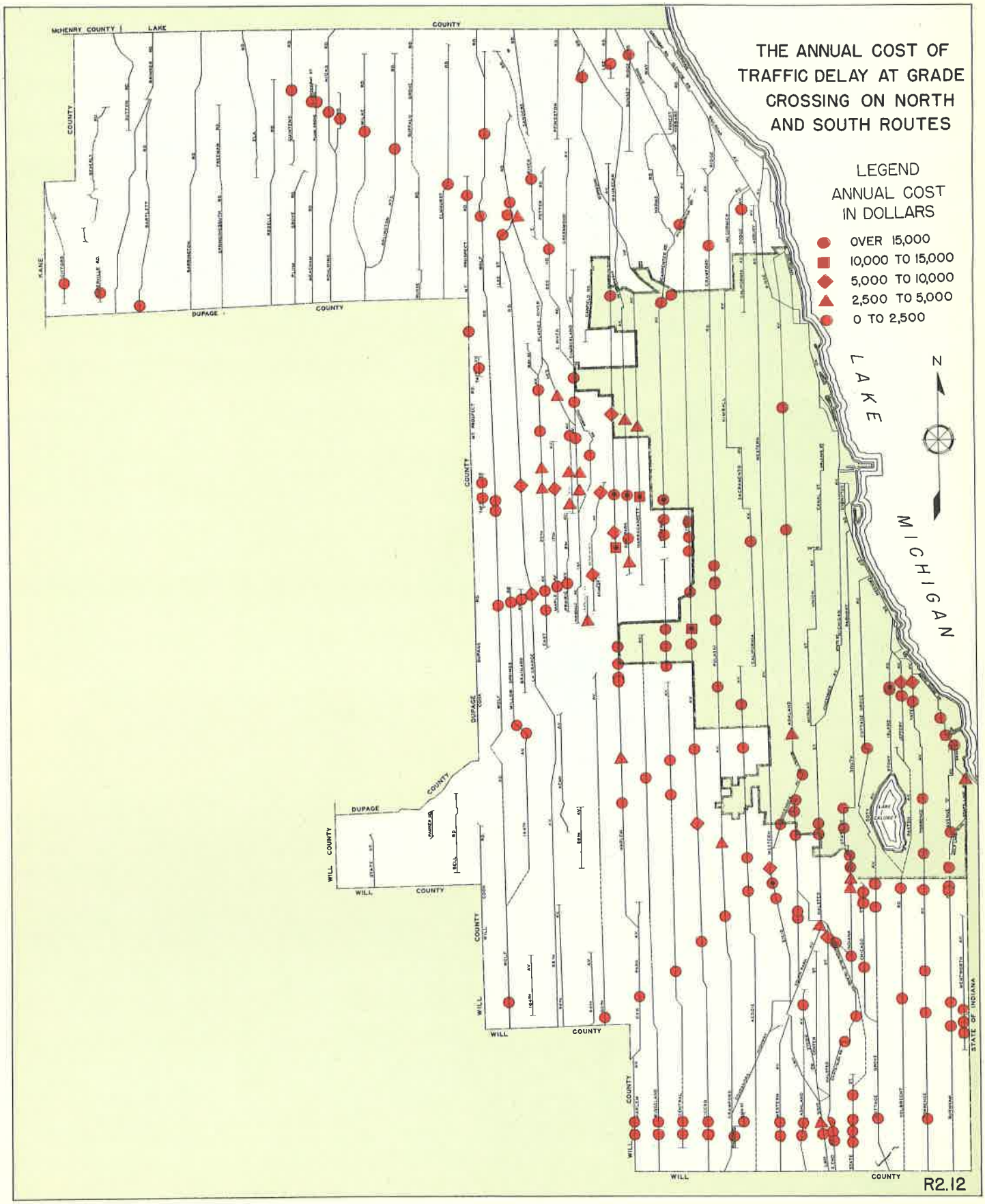
V_n = Vehicles passing crossing per minutes 6 P.M. to 6 A.M.

K_p = Constant to compensate for progressive accumulation of vehicles while crossing is closed by passenger trains. For average crossing $K_p = 1$.

K_f = Constant to compensate for progressive accumulation of vehicles while crossing is closed by freight trains. For average crossing $K_f = 1.6$.

The average annual cost of traffic delay at each crossing was determined, evaluating delay at 1.45c per vehicle minute, which is illustrated on the following two maps.


THE ANNUAL COST OF TRAFFIC DELAY AT GRADE CROSSING ON EAST AND WEST ROUTES
-LEGEND-
ANNUAL COST IN DOLLARS
OVER 15,000
10,000 TO 15,000
5,000 TO 10,000
2,500 TO 5,000
0 TO 2,500
LAKE MICHIGAN
N
R2.11


THE ANNUAL COST OF TRAFFIC DELAY AT GRADE CROSSING ON NORTH AND SOUTH ROUTES
LEGEND
ANNUAL COST IN DOLLARS
OVER 15,000
10,000 TO 15,000
5,000 TO 10,000
2,500 TO 5,000
0 TO 2,500
LAKE MICHIGAN
McHENRY COUNTY
LAKE COUNTY
KANE COUNTY
DUPAGE COUNTY
WILL COUNTY
STATE OF INDIANA
R2.12

The cost of eliminating each grade crossing was determined, from which was deducted the railroads' portion as obtained by applying the County's policy regarding grade crossing elimination costs. The remaining public cost was then weighed against the annual cost of highway traffic delay resulting in the following economic priority of eliminations.

Priority Number	*Highway*	*Jurisdiction of Highway*	*Railroad*	*Location Near*	*Estimated Public Cost Of Elimination in Dollars*
1	Harlem Ave.	State F.A.	C. A. & E.-B. & O. C. T.	Harrison	$200,000
2	Oak Park Avenue	County	C. A. & E.-B. & O. C. T.	Harrison	270,000
3	Narragansett Ave.	County	C. A. & E.-B. & O. C. T.	Harrison	220,000
4	Harlem Ave.	State F.A.	C. B. & Q.	34th St.	290,000
5	Dixie Hwy.	County	I. H. B.	140th St.	430,000
6	Central Ave.	County	C. A. & E.-B. & O. C. T.	Harrison	440,000
7	95th St. (E)	State F.A.	C. R. I. & P. Main Line	Vincennes	330,000
8	Michigan City Rd.	County	B. & O. C. T. & I. H. B.	140th St.	380,000
9	Cicero	State S.B.I.	I. H. B. and Belt	54th St.	360,000
10	Southwest Hwy. (Columbus Ave.)	State F.A.	Belt Ry.	75th St.	230,000
11	Broadway	State S.B.I.	B. & O. C. T.-I. H. B.-G. T. W.	Vine St.	280,000
12	LaGrange Road	State S.B.I.	C. B. & Q.	Ogden	280,000
13	55th St.	State F.A.	I. H. B. & Belt	Central	250,000
14	Harlem Ave.	State F.A.	C. M. St. P. & P.	Fullerton	280,000
15	LaGrange Road	State S.B.I.	C. G. W. & C. A. & E.	Madison	290,000
16	111th St.	County	B. & O. C. T.-D	Central	160,000
17	55th St.	State F.A.	Belt	Cicero	190,000
18	Dixie Hwy.-Western	County	B. & O. C. T.	135th St.	270,000
19	Vermont	County	C. R. I. & P.	Western	260,000
20	Harlem Ave.	State F.A.	I. C.	27th St.	200,000
21	Des Plaines Ave. Longcommon Rd.	County	C. B. & Q.	Forest Ave.	250,000
22	Harlem Ave.	State F.A.	B. & O. C. T.	96th St.	200,000
23	Des Plaines Ave.	County	C. A. & E. & B. & O. C. T.	Harrison	380,000

Priority Number	*Highway*	*Jurisdiction of Highway*	*Railroad*	*Location Near*	*Estimated Public Cost Of Elimination in Dollars*
24	Grand Ave.	County	C. M. St. P. & P.	77th Ave.	$320,000
25	Cicero Ave.	State S.B.I.	B. & O. C. T.	117th St.	430,000
26	17th Ave.	County	C. G. W. & C. A. & E.	Madison	290,000
27	95th St.	State F.A.	B. & O. C. T.–D	Harlem	220,000
28	1st Avenue	County	C. & N. W.-Galena	Lake St.	170,000
29	Halsted St.	State S.B.I.	G. T. W. & B. & O. C. T.	155th St.	410,000
30	25th Ave.	County	C. & N. W.-Galena	Lake St.	190,000
31	Oak Park Ave.	County	C. M. St. P. & P.	Palmer St.	250,000
32	Archer Ave.	State F.A.	Belt	52nd St.	200,000
33	Indiana Ave.	County	I. H. B.	140th St.	260,000
34	5th Ave.	County	C. & N. W.-Galena	Lake St.	200,000
35	47th St.	County	I. H. B.	Eberly-East Ave.	330,000
36	Grand Ave.	County	I. H. B.	25th Ave.	370,000
37	Dixie Hwy.	State S.B.I.	E. J. & E.	23rd St.-Chgo Hts.	230,000
38	Madison St.	County	Soo Line	Des Plaines	240,000
39	159th St.	State S.B.I.	C. & E. I.	Indiana Ave.	170,000
40	159th St.	State S.B.I.	G. T. E.-B. & O. C. T.	Blue Island Rd.	230,000
41	Pulaski Rd.	County	I. H. B. and Belt	51st St.	340,000
42	Ashland Ave.	State S.B.I.	C. R. I. & P. (Sub)	89th St.	270,000
43	Lake Ave.	County	C. & N. W. & C. N. S. & M. (Milwaukee)	Green Bay Rd.	410,000
44	79th St.	County	G. T. W.	Central Park	190,000
45	5th Ave.	County	C. G. W. & C. A. & E.	Madison	330,000
46	22nd St.	State S.B.I.	I. H. B.	25th Ave.	460,000
47	127th St.	County	B. & O. C. T.-D	Central Park	440,000
48	1st Ave.	County	C. G. W. & C. A. & E.	Madison	340,000
49	55th St.	State F.A.	G. T. W.	St. Louis	350,000
50	East End-Halsted	County	E. J. & E.	21st St.-Chgo Hts.	210,000
51	Oak Park Ave.	County	C. B. & Q.	32nd St.	290,000
52	79th St.	State S.B.I.	B. & O. C. T.-D	Harlem	420,000
53	Indianapolis Blvd.	State F.A.	P. R. R.	104th St.	280,000

Priority Number	*Highway*	*Jurisdiction of Highway*	*Railroad*	*Location Near*	*Estimated Public Cost Of Elimination in Dollars*
54	25th Ave.	County	C. G. W.-I. H. B. & C. A. & E.	Madison	$400,000
55	Lawndale Ave.	County	A. T. & S. F. & C. & I. W.	51st St.	330,000
56	Indiana & 138th St.	County	P. R. R. & B. & O. C. T.	Michigan City Rd.	360,000
57	95th St.	State F.A.	P. R. R.	Ashland	360,000
58	Michigan City Rd.	County	C. & W. I.	138th St.	330,000
59	95th St. (W)	State F.A.	C. R. I. & P. (Sub. Line)	Ashland	520,000
60	Southwest Hwy. (Columbus Ave.)	State F.A.	G. T. W.	82nd St.	240,000
61	1st Ave.	County	C. M. St. P. & P.	Grand	270,000
62	87th St.	County	P. R. R. & B. & O. C. T.	Damen	480,000
63	South Park Ave.	County	G. T. W. & B. & O. C. T.	153rd St.	400,000
64	Narragansett Ave.	County	C. M. St. P. & P.	Armitage	350,000
65	River Road	County	C. M. St. P. & P.	Grand	440,000
66	Stony Island Ave.	State S.B.I.	I. C. (SC)	71st St.	2,140,000
67	Devon Ave.	County	C. M. St. P. & P.	Central	230,000
68	North Ave.	State S.B.I.	C. M. St. P. & P. (C&E)	Sheffield	430,000
69	31st St.	County	I. H. B.	25th St.	470,000
70	Maple (17th)	County	C. B. & Q.	Ogden	270,000
71	Blue Island Rd.	County	G. T. W. & B. & O. C. T.	157th St.	290,000
72	127th St.	County	G. T. W. & B. & O. C. T.	California Ave.	690,000
73	Glen-Dyer Road (Lincoln Hwy.)	State S.B.I.	M. C. & E. J. & E.	Sauk Trail	490,000
74	Clybourn Ave.	County	C. M. St. P. & P. (C&E)	Dickens	530,000
75	Prairie Ave.	County	C. B. & Q.	Ogden	220,000
76	River Road	County	C. & N. W. (Wis.)	Miner	590,000
77	Harlem Ave.	State F.A.	I. H. B.	59th St.	390,000
78	Jeffery Ave.	County	I. C. (S. C.)	71st St.	2,090,000
79	147th St. (Sibley)	County	B. & O. C. T. & G. T. W.	Wood	530,000
80	111th St.	County	B. & O. C. T.-A	Rockwell	210,000
81	Caldwell Ave.	State S.B.I.	C. M. St. P. & P.	Devon	210,000
82	Dempster St.	County	C. & N. W.-C. N. S. & M. (Skokie)	Gross Point Rd.	300,000

Of these 82 highway-railroad grade crossings found to require prior elimination because of traffic delays costing $29,840,000.00, 33 are on State or Federal Highways, the elimination of which are estimated to cost $11,830,000.00, and 49 are on County Highways, the elimination of which are estimated to cost $18,010,000.00.

The elimination of these 49 grade crossings might be undertaken by Cook County by a budgeting of approximately 20% of its anticipated highway funds during the next 14 years for this purpose.

Because of the close proximity of grade crossings on many of the railroads it may be necessary that a continuous change of grade of the railroad tracks be effected at those locations. Such construction may involve joint financing and action with the State and the municipalities in which the improvements are located. Therefore, in view of these facts the programming of the constructions may require minor rearrangements as plans are prepared.

Part IV

A STUDY OF THE IMPROVEMENT AND USAGE OF THE COUNTY'S EXISTING SYSTEM OF HIGHWAYS

The Road and Bridge Laws of the State of Illinois permit a County of the third class (Cook) to designate as State Aid Roads (for County improvement or maintenance) fifty percent of those public roads lying outside of the corporate limits of a City or Village, as well as to improve under certain conditions the extensions of those roads running in a direct manner through those Cities and Villages.

This County has designated for improvement 881 miles of such highway outside of the corporate limits of Cities and Villages of which 718 miles have been improved as follows:

303 miles of concrete pavements
168 miles of bituminous pavements
247 miles of crushed stone or gravel pavements

718 miles

The concrete pavements built in the unincorporated areas of the County during the past 10 years have amounted to 141 miles, costing $6,884,961.00, or $49,000 per mile.

In addition to these improvements, made by the County on its roads the State of Illinois and the Federal Government have paved 78 miles of forty foot roads and 121.5 miles of twenty foot roads in the unincorporated areas of the County on State and Federal Highways. These County, State and Federal improvements total 670.5 miles of concrete and bituminous pavements in the 504 square miles of unincorporated districts of the County.

It appears safe to assume that no other community is as well served for local traffic by improved roads as the County of Cook.

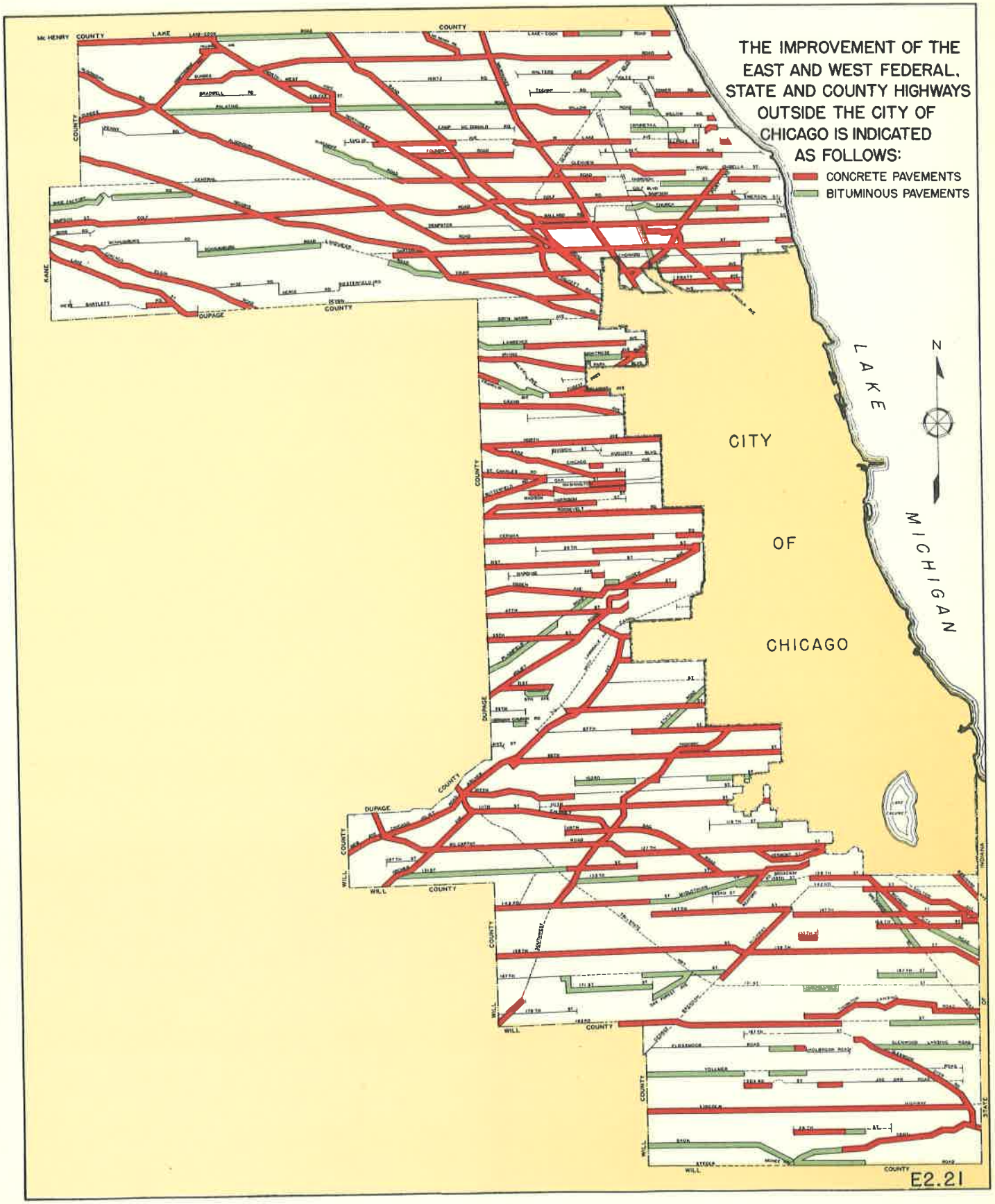
The extensions of those roads through the Villages and Cities in the County (exclusive of the City of Chicago) have been improved by the County as follows:

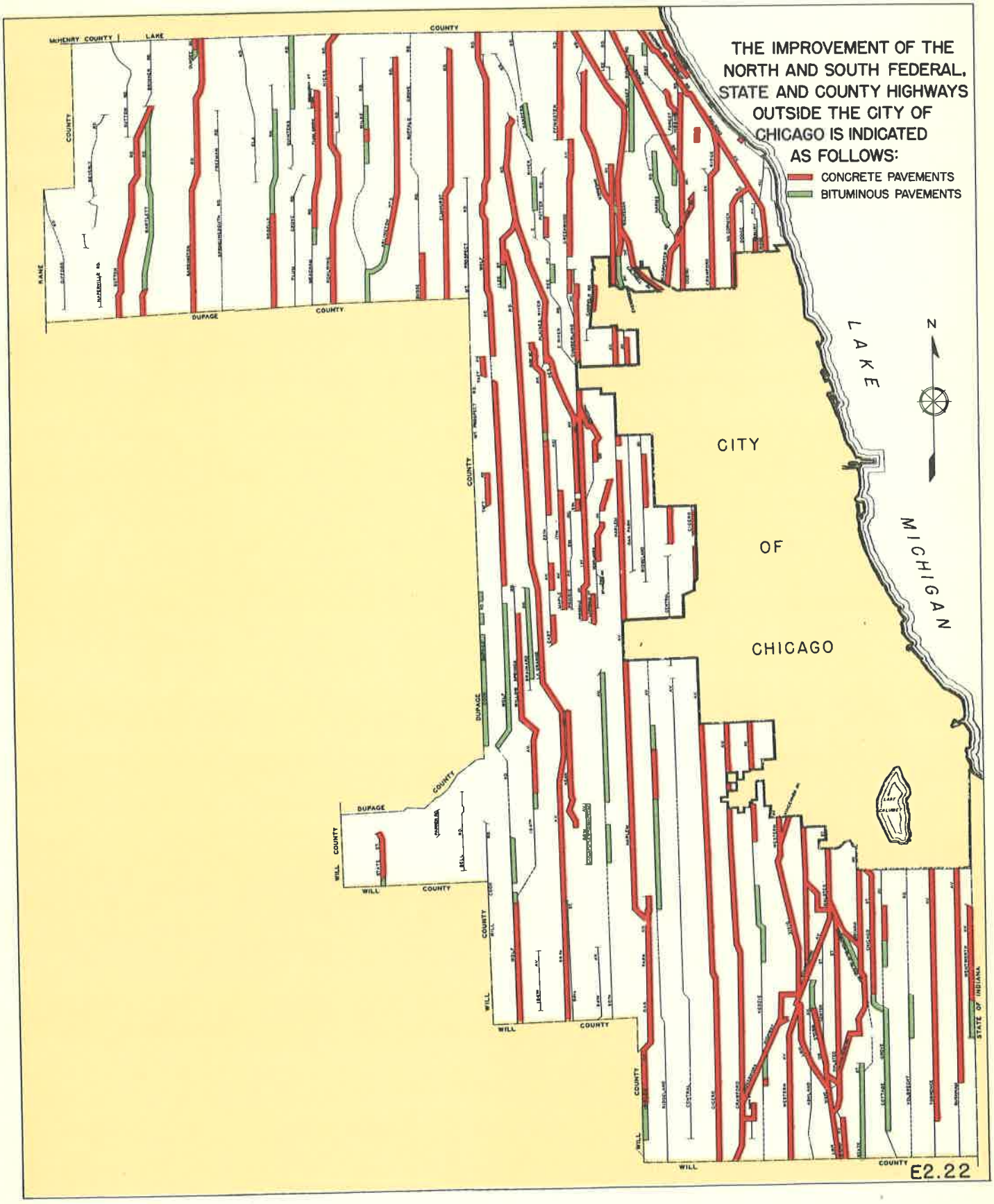
342 miles of concrete pavements
108 miles of bituminous pavements
74 miles of crushed stone or gravel pavements

524 miles

The concrete pavements built by the County in Villages and Cities (exclusive of Chicago) during the past 10 years have amounted to 154.5 miles, costing $8,981,816.00, or $58,000 per mile.

The locations of those highways are shown on the following two maps.


THE IMPROVEMENT OF THE EAST AND WEST FEDERAL, STATE AND COUNTY HIGHWAYS OUTSIDE THE CITY OF CHICAGO IS INDICATED AS FOLLOWS:
CONCRETE PAVEMENTS
BITUMINOUS PAVEMENTS
CITY
OF
CHICAGO
LAKE
MICHIGAN
N
E2.21


THE IMPROVEMENT OF THE NORTH AND SOUTH FEDERAL, STATE AND COUNTY HIGHWAYS OUTSIDE THE CITY OF CHICAGO IS INDICATED AS FOLLOWS:
CONCRETE PAVEMENTS
BITUMINOUS PAVEMENTS
CITY
OF
CHICAGO
LAKE
MICHIGAN
N
McHENRY COUNTY
LAKE
COUNTY
DUPAGE
COUNTY
KANE
COUNTY
WILL
COUNTY
STATE OF INDIANA
E2.22

Since 1930 when the County became actively engaged in improving extensions of State Aid Roads within the City of Chicago there have been built by the County

82.5 miles of streets improved with pavements 20 feet in width.
78.7 Miles of streets improved with pavements 40 feet in width.

An analysis of these pavements shows that of the twenty foot pavements within the City of Chicago there have been built 82.5 miles at a cost of $3,629,532.00 or $43,994.00 per mile, while there have been 78.7 miles of streets improved with pavements forty feet in width, and these have cost $10,351,748.00, or an average cost of $131,467.00 per mile.

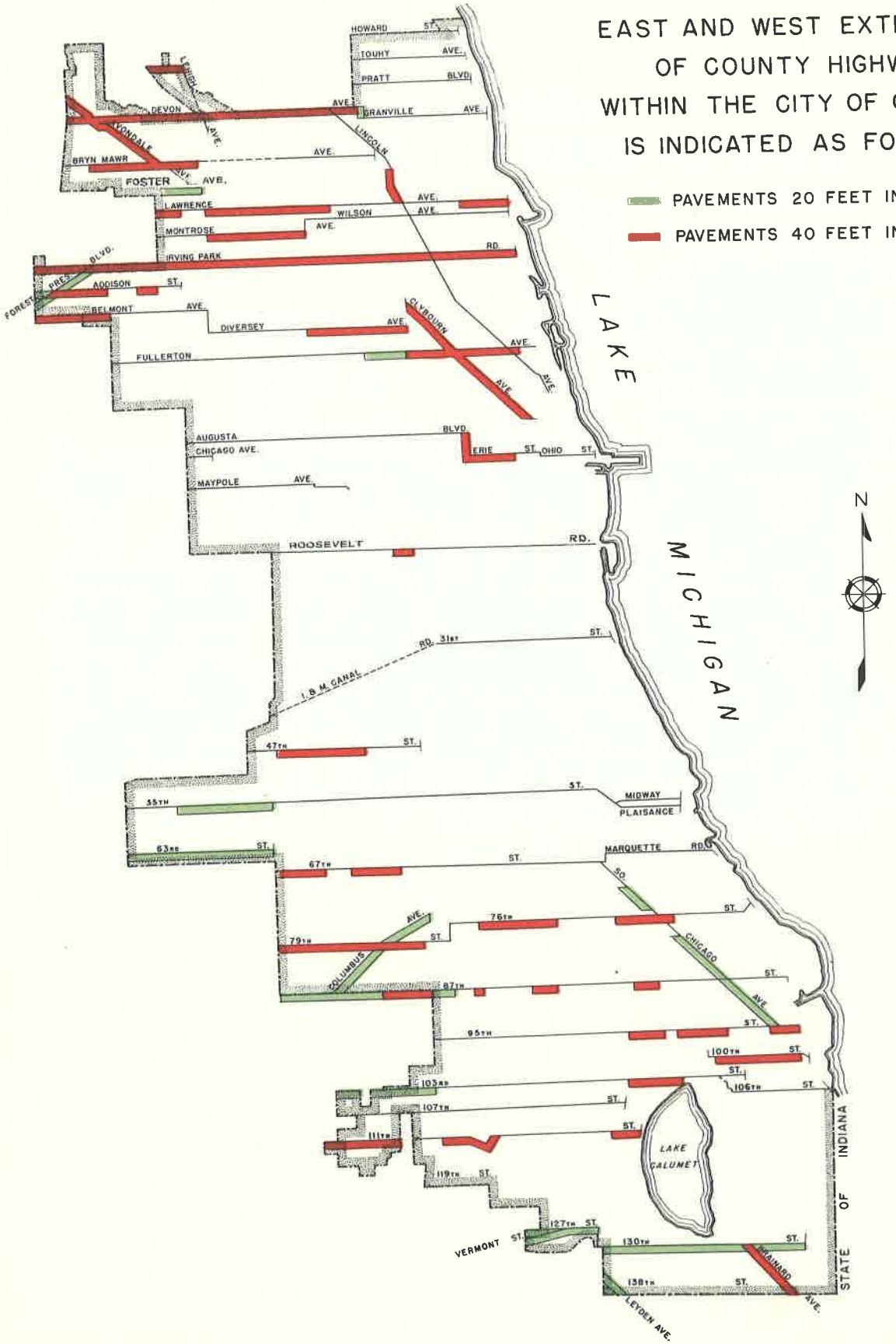
The pavements built within the City of Chicago by the County during the past 10 years amounting to 155 miles have cost $13,474,171.00 or $87,000.00 per mile. In addition, bridges and grade separations have been built within Chicago which cost $2,376,540.00, resulting in a total expenditure of County funds within Chicago during the past 10 years of $15,850,711.00.

The locations of these improvements are shown on the following two maps.

THE IMPROVEMENT OF THE EAST AND WEST EXTENSIONS OF COUNTY HIGHWAYS WITHIN THE CITY OF CHICAGO IS INDICATED AS FOLLOWS:

PAVEMENTS 20 FEET IN WIDTH

PAVEMENTS 40 FEET IN WIDTH

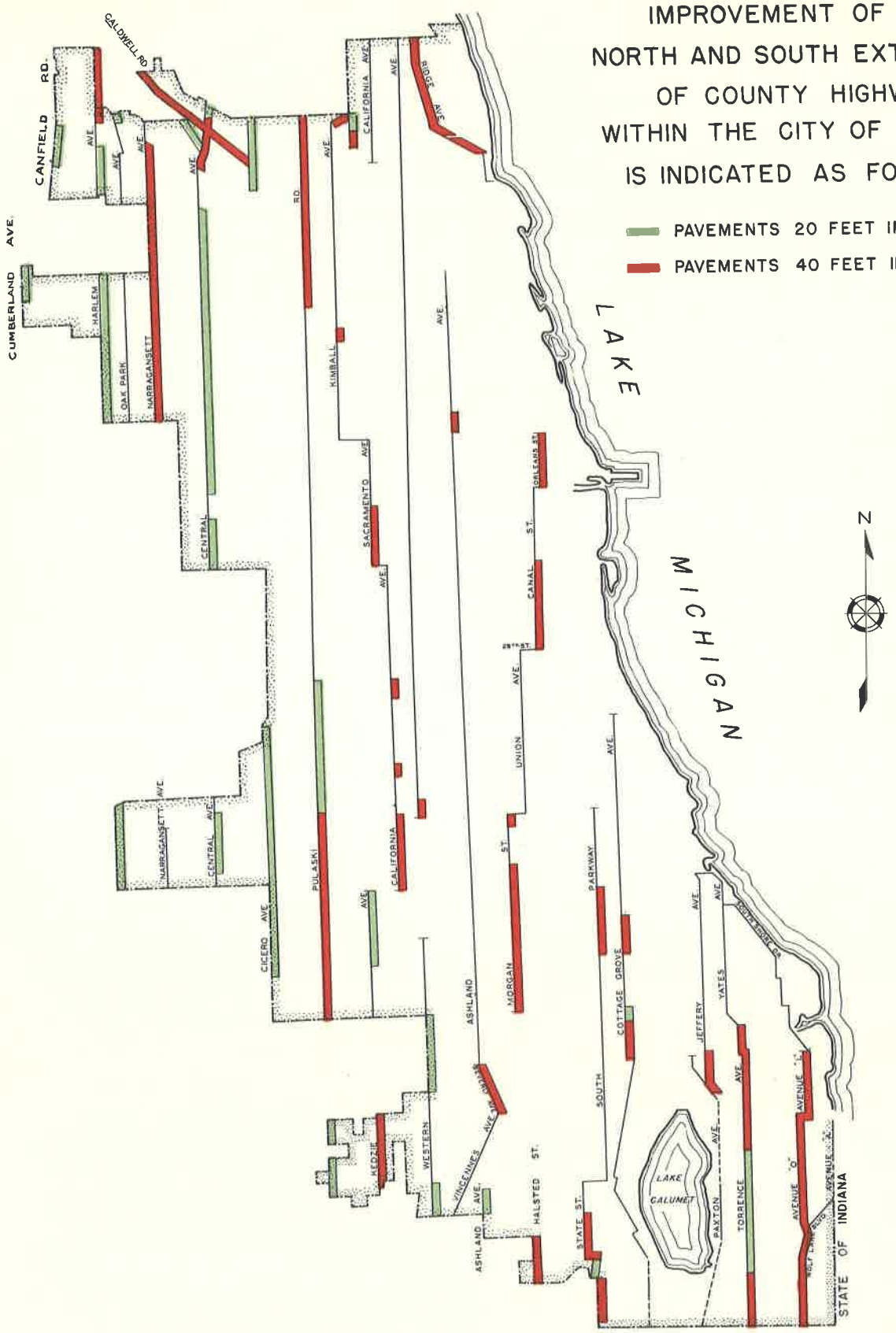


E2.11

THE IMPROVEMENT OF THE NORTH AND SOUTH EXTENSIONS OF COUNTY HIGHWAYS WITHIN THE CITY OF CHICAGO IS INDICATED AS FOLLOWS:

PAVEMENTS 20 FEET IN WIDTH

PAVEMENTS 40 FEET IN WIDTH



E2.12

Totaling the pavements built by Cook County during the past 10 years the following facts are found:

Pavement built in unincorporated areas of Cook County
141 miles costing . . . . . $ 6,884,961.00

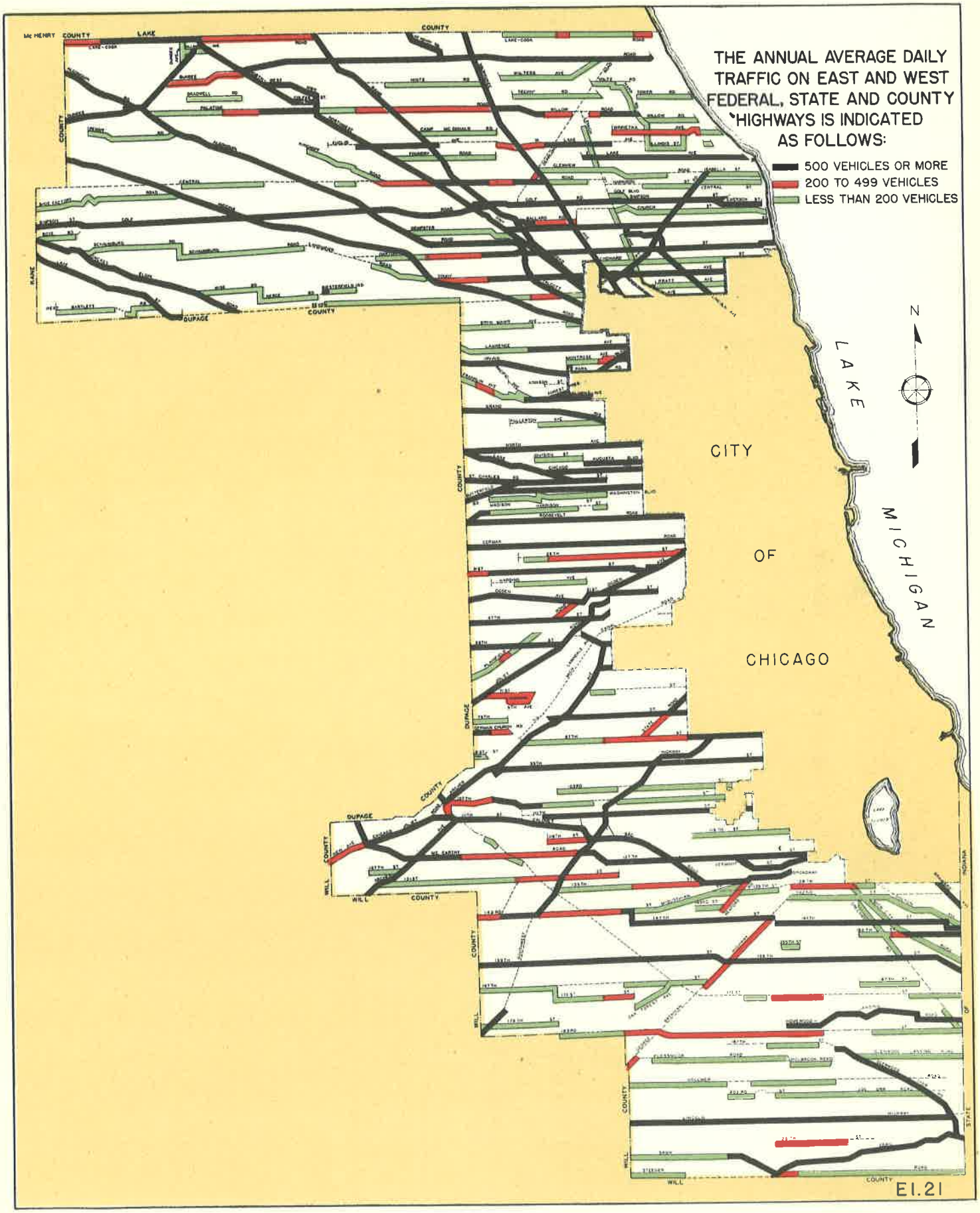
Pavements built within Cities and Villages (Exclusive of Chicago)
154.5 miles costing $ 8,981,816.00

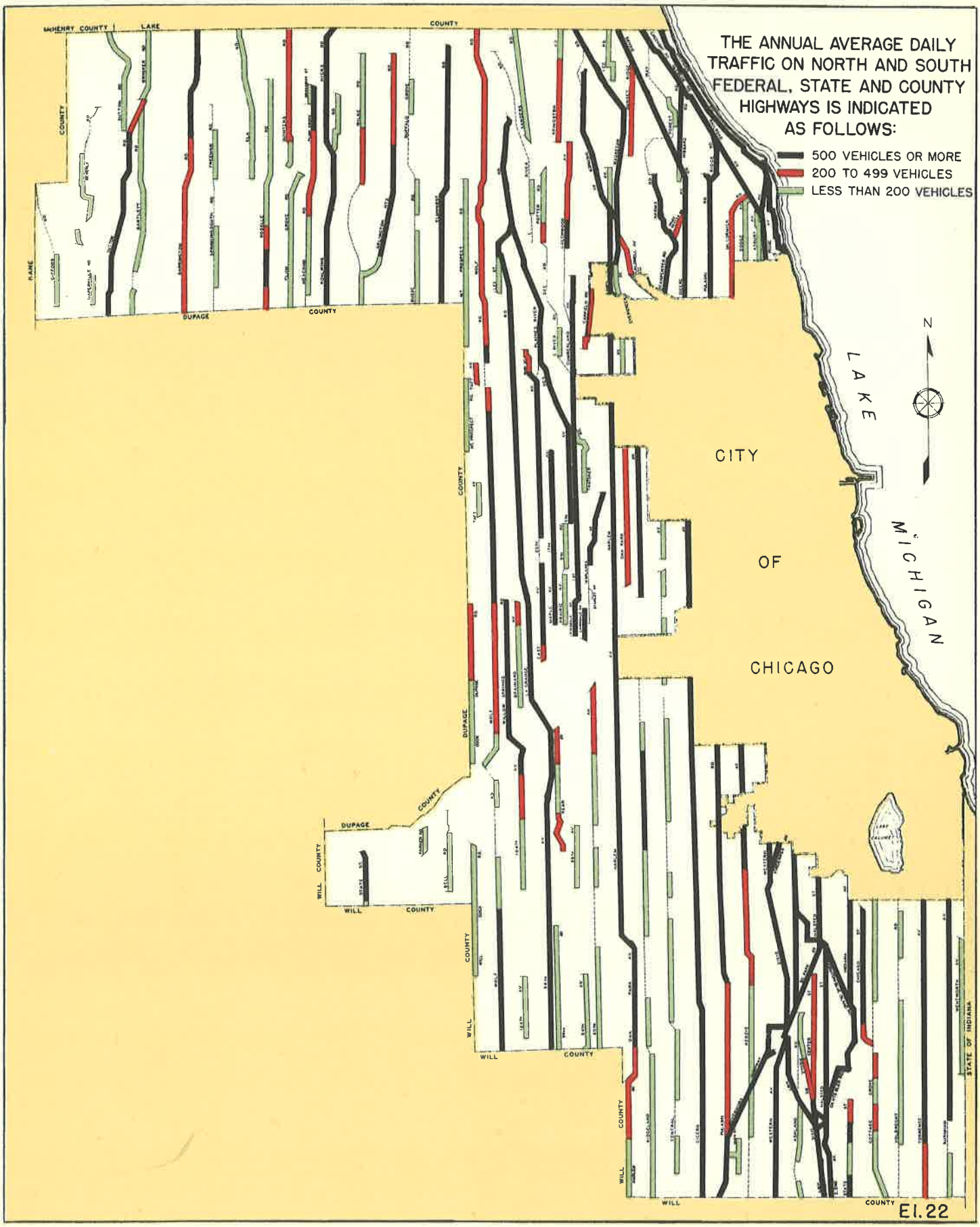
Pavements built within the City of Chicago
155 miles costing $13,474,171.00

The annual average traffic usage of the improved highway system of County, State and Federal roads, outside the City of Chicago, was found to be as follows:

523 miles carrying more than 500 vehicles per day
234 miles carrying from 200 to 500 vehicles per day
399 miles carrying less than 200 vehicles per day.

This traffic usage is shown on the following two maps.


THE ANNUAL AVERAGE DAILY TRAFFIC ON EAST AND WEST FEDERAL, STATE AND COUNTY HIGHWAYS IS INDICATED AS FOLLOWS:
500 VEHICLES OR MORE
200 TO 499 VEHICLES
LESS THAN 200 VEHICLES
N
LAKE MICHIGAN
CITY OF CHICAGO
Mc HENRY COUNTY
LAKE COUNTY
KANE COUNTY
DUPAGE COUNTY
WILL COUNTY
E1.21


THE ANNUAL AVERAGE DAILY TRAFFIC ON NORTH AND SOUTH FEDERAL, STATE AND COUNTY HIGHWAYS IS INDICATED AS FOLLOWS:
500 VEHICLES OR MORE
200 TO 499 VEHICLES
LESS THAN 200 VEHICLES
N
LAKE MICHIGAN
CITY OF CHICAGO
McHENRY COUNTY
LAKE COUNTY
DUPAGE COUNTY
WILL COUNTY
STATE OF INDIANA
E1.22

In the design of these pavements through unincorporated areas of the County and in the less developed portions of municipalities, attention has been given to the widths of traffic lanes, lengths of curves, flatness of grades and other design features, all with the view of being able to serve traffic at a rate of sixty miles per hour. However, because of cross traffic, stop signs, traffic lights and other local interferences the rate of speed of traffic on these roads is so decreased as to permit of an average of but twenty-seven miles per hour. In future years, as the areas through which these pavements pass are developed, those interferences will increase and the efficiency of these roads further reduced.

It would appear that this policy is not economically sound and that the designs for local roads should either be changed for this rate of travel or else steps should be taken to eliminate the inefficiencies caused by cross traffic and the other interferences. The latter policy is obviously the more sound.

While the improvements which have been made on the extensions of these country highways through Cities and Villages have been of general local benefit, they have in many cases resulted in an overburdening of those streets by attempting to serve both local and through traffic. Though these pavements have cost from 1½ to 3 times as much per mile as pavements in unincorporated areas of the County their traffic accommodation is not proportional. In comparison their efficiency and usage is in general less than that found on country pavements. Further, these improvements in most cases pass through the business districts and as the municipalities grow and expand the conflict between through traffic and the usage of the abutting property increases to the detriment of both.

It is further to be noted that within the past ten years, with rare exception, the 102 cities and villages within the County have abandoned improvement of local streets by special assessment and have looked almost wholly to the County, the State or the Federal Government to provide local pavements within these municipalities.

It is far beyond the financial ability of the County with its funds to take over all of these improvements within municipalities which obviously should not be, nor is it reasonable that it should take over only a few, and not all. Rather it appears that the improvements assumed by the County should be of a general County wide nature to serve the volumes of through traffic rather than local traffic.

On April 7, 1937, the Board of County Commissioners adopted a 5-year highway construction program for the years 1938-1942 inclusive. As amended from time to time by the County Board that program is at the present time 50% com-

pleted—there remaining 72 projects uncompleted estimated to cost $11,885,000.00.

Since the adoption of that program requests and petitions have been received from municipalities, civic organizations and other agencies to add to the program many projects. These requested additions are estimated to cost $7,012,000.00, exclusive of superhighways within the City of Chicago.

The uncompleted projects in the current improvement program amounting to $11,885,000.00 in addition to these requested additions amounting to $7,012,000.00, total $18,897,000.00. This amount of work would require the entire road building revenue of the County for the next 5 years.

It is therefore apparent that it is beyond the financial ability of the County to take over the traffic responsibilities of all Cities and Villages and that as far as possible the County's resources should be devoted to the providing of uninterrupted facilities for the general volumes of traffic. To accomplish this a major change in the programming and planning of highway improvements is necessary.

Part V

A STATUS OF THE CURRENT FIVE YEAR HIGHWAY CONSTRUCTION PROGRAM

The five-year highway improvement program for the years 1938-1942 inclusive, as adopted by the Board of County Commissioners on April 7, 1937, and as amended from time to time, contained 168 projects estimated to cost $23,081,000.00

As of July 1, 1940, there have been built or placed under contract 67 of the improvements costing $7,856,000.00.

Certain of the projects contained in the program have been removed for one or more of several reasons, such as, the improvement has been undertaken by some other agency, the municipality in which the project lies has petitioned the dropping of the improvement, etc. Projects on which such action has been necessary total 29, estimated to cost $3,340,000.00.

The remaining improvements in the program yet to be built number 72, estimated to cost $11,885,000.00.

The status of the individual projects contained in the program is shown in detail in the attached tabulation.

PROJECTS CONSTRUCTED OR UNDER CONTRACT

1938 PROGRAM

Projects	*Estimated Cost in Thousands of Dollars*
Belmont Avenue—Pacific to Harlem, 1.0 mi. Widen	39
Belmont Avenue—Cumberland to Pacific, 0.5 mi. Widen	28
Central Avenue—rebuild overhead C. M. St. P. & P. yards at Grand Avenue	809
Clybourn Avenue—Western to Ashland, rebuild 1.5 mi.	249
Diversey Avenue—Kimball to Logan, rebuild 1.5 mi.	207
Erie Street—Noble to Halsted, 0.8 mi. rebuild where necessary	166
87th Street—Repave subway, N. Y. C. at S. Chicago Ave.	19
1st Avenue—Joliet Road to Ogden, 40 ft. Pavement 1.2 mi.	90
Fullerton Avenue—Western to Orchard, rebuild 1.8 mi.	276
Kedzie Avenue—67th to 79th, 1.5 mi., pave center strip	45
Noble Street—Augusta to Erie, 0.5 mi. rebuild where necessary	105
Oak Park Avenue—Montrose to Gunnison, 20 ft., 0.5 mi.	24
103rd Street—Cottage Grove to Doty, 40 ft., 1.1 mi.	109
Ridge Avenue—Devon to Howard, 1.5 mi. rebuild	128
76th Street—Ashland to Racine, 0.5 mi. pave and widen	54
State Street—123d to 119th, rebuild 0.5 mi.	55
Total	2,403

UNCOMPLETED PROJECTS
REMAINING IN THE PROGRAM

1938 PROGRAM

Projects	*Estimated Cost in Thousands of Dollars*
Cottage Grove—Bridge, South Branch of Thornton Creek	20
47th St.—Cicero to Kenneth, .3 mi. and grade separation Belt Ry.	325
Tri-State Highway (Ford Road) 111th St. to McCarthy Road, 2.2 mi.	300
Kedzie Avenue—Overhead, B. & O. C. T. at 127th St.	150
76th Street—Colfax to South Shore Drive, 0.3 mi. widen	40
Western Avenue—Rebuild underpass C. & N. W. at Logan	750
Total	1,585

1939 PROGRAM

Bernice Road—Grade Separation, Pennsylvania R. R.	150
Crawford Ave.—rebuild and widen overhead Belt Ry. at 73d	200
Crawford Avenue—widen Bridge N. Branch of Chicago River	25
Cook-DuPage Road—47th to Ogden, 20 ft., 0.8 mi.	40
Cook-DuPage Road—underpass C. B. & Q.	150
Greenwood Avenue—Touhy to Rand, 0.7 mi.	35
Greenwood Avenue—underpass C. & N. W.	300
Oakton Street—rebuild bridge North Shore Channel	150
Touhy Avenue—rebuild and widen underpass, C. & N. W. in Park Ridge	330
Total	1,380

1939 PROGRAM

PROJECTS	*Estimated Cost in Thousands of Dollars*
Torrence Avenue—140th Street to 134th St., 0.6 mi.	92
Colfax Avenue—extended 97th to 95th, 0.3 mi.	40
Crawford Avenue—Argyle to Bryn Mawr, rebuild 0.75 mi.	86
47th Street—Kenneth to Kedzie, pave center strip, 1.6 mi.	172
Foundry Road—Northwest Highway to River Road, 4.3 mi.	189
Harrison Street—I. H. B. to 17th Avenue, Widen 0.7 mi.	44
Lawrence Avenue—Ashland to Outer Drive, rebuild 1.1 mi.	156
Morgan Street—63rd to 69th, rebuild 0.75 mi.	108
Crawford, Harlem and Southwest Highway—Lights on Bridges over Sag Channel	2
111th Street—Cottage Grove to Stony Island, 40 ft., 0.6 mi.	60
147th Street (Sibley)—Widen Little Calumet River Bridge	62
147th Street (Sibley)—Dixie to Indiana, Widen 2.8 mi.	271
147th Street (Sibley)—State to Indiana Line, widen 4.3 mi.	329
South Park Avenue—79th to 68th, rebuild 1.4 mi.	182
Kedzie Avenue, Southwest Highway, 79th Street, Wabash Railroad—Grade Separation	282
Harlem Avenue—Shermer to Glenview, 2 mi.	102
Beverly Avenue—103d to 95th Street, widen 1.3 mi.	72
100th Street—Retaining wall at Calumet River	48
Removal of old Burnham Bridge	25
Removal of old Feeder Road Bridge over Sag Channel	12
17th Avenue—Ogden to 31st Street, widen 1.5 mi.	75
1st Avenue—Chicago to River Road, curb, gutter and repairs	33
TOTAL	2,442

1940 PROGRAM

Projects	*Estimated Cost in Thousands of Dollars*
Crawford Avenue—71st to Columbus, widen 2.0 mi.	92
Lawrence Avenue—Central to Central Park, rebuild 2.5 mi.	309
147th Street—Pedestrian Underpass	20
Lee Street—Willow Creek No. of Touhy, Bridge	21
Traffic Lights at 87th, Crawford, Southwest Highway and Wabash Railroad	8
State Street Bridge (Lemont)	30
Homewood-Lansing Road—Torrence to Indiana State Line, 2.0 mi., widen	85
63d Street—Archer to Harlem, 0.5 mi., widen	27
Ridge Avenue—Clark to Broadway, rebuild 1.0	101
Lake Avenue—Hibbard to Ridge, widen 2.0 mi.	90
Indiana Avenue—138th to 130th, widen 1.0 mi.	40
103d Street—Cicero to Western, 22 ft., 3.0 mi.	210
Cumberland—Forest Preserve District Traffic Circle, rebuild	22
Burnham Avenue—Schrum to Harding, widen 3.0 mi.	70
Dixie Highway—175th to South Park, widen 0.1 mi.	6
Ridgeland Avenue—12th Street to Augusta, rebuild 2.5 mi.	237
Sauk Trail—Approaches to I. C. Railroad Subway, rebuild	18
127th Street—Kedzie to Western, widen 1.0 mi.	110
26th Street—Ridgeland to Lombard, rebuild 0.3 mi.	30
Five Railroad Grade Crossing Improvements	30
Eight Railroad Grade Crossing Protection Contracts	53
Longcommon Road—Desplaines River, Bridge Repairs	4
Avenue L—100th Street to 106th Street	99
Total	1,712

1941 PROGRAM

Projects	*Estimated Cost in Thousands of Dollars*
Brainard Avenue—Torrence to Indiana Line, 2.5 mi.	129
Torrence Avenue—95th to 104th, rebuilt 1.0 mi.	100
Total	229

1942 PROGRAM

Projects	*Estimated Cost in Thousands of Dollars*
Avenue L and Avenue O—106th Street to Brainard, Widen 4.1 mi.	210
Kedzie Avenue—87th to 115th, widen 3.5 mi.	275
127 Street (Burr Oak)—Rebuild overhead C. R. I. & P. R. R.	480
Kedzie Avenue—115th Street to 127th Street, Widen 1.5	105
Total	1,070

TOTAL OF PROJECTS CONSTRUCTED OR UNDER CONTRACT

1938 Program	$2,403,000
1939 Program	2,442,000
1940 Program	1,712,000
1941 Program	229,000
1942 Program	1,070,000
Total	$7,856,000

PROJECTS
ABANDONED OR REMOVED FROM PROGRAM

1938 PROGRAM

Projects	*Estimated Cost in Thousands of Dollars*
Forestway—Tower to Dundee, 20 ft., 1.5 mi.-(bit.) (Removed, to be constructed by Maintenance Division)	40
95th Street—Central to Cicero Avenue, 1 mi., curb, gutter and drainage—(Removed, disapproved by State)	30
Schaumberg Road ext.—Meacham to Higgins (bit.), 2 mi. (Removed. To be constructed by Maintenance Division)	60
Wolf Road—135th to 139th, (bit.) 0.5 mi. (Removed. To be constructed by Maintenance Division)	15
Total	145

1939 PROGRAM

California Avenue—Santa Fe Ry. to 26th, 0.7 mi. Rebuild where necessary. (Removed. Improved by City of Chicago)	70
Canal Street—Lake to Kinzie, rebuild 0.125 mi. (Removed. Part of Superhighway System)	25
Chicago Avenue—Lake Street to 1st Avenue, widen 1.0 mi. (Removed at request of Village of Maywood)	50
Crawford Avenue ext.—Gross Point Road to Illinois Road 40 ft., 0.7 mi. (Removed—Traffic now accommodated by other routes)	50
Higgins Avenue—Central to Milwaukee, rebuild 0.4 mi. (Removed. Not on State Aid System)	40
Jeffery Avenue—75th to 67th, rebuild 1 mi. (Removed. Improved by Chicago Park District)	100
Kinzie Street—Canal Street to Orleans, rebuild 0.1 mi. (Removed. Part of Superhighway System)	10

1939 PROGRAM (Continued)

Projects	*Estimated Cost in Thousands of Dollars*
Kirchoff Road—Plum Grove to Wilke (Correct job at Wilke) (bit.) 2.2 mi. (Removed. To be constructed by Maintenance Division)	66
Lathrop Avenue ext.—Des Plaines Avenue to Madison, 40 ft., 0.1 mi. (Removed—Traffic now accommodated by other routes)	20
Lee Street—Higgins to Mannheim (bit.) 1.5 mi. (Removed—Constructed by Maintenance Division)	45
Lincoln Avenue—Western to Diversey, rebuild 3.0 mi. (Removed at request of City of Chicago)	360
95th Street—Harlem to Southwest Highway, widen 1.3 mi. and grade separation I.H.B. (Removed—State preparing plans)	370
Total	1,206

1940 PROGRAM

Dolton Avenue—Burnham Avenue to Indiana Line, widen 0.8 mi. (Removed—Widened by County with bituminous surface)	40
East River Road—Lawrence to Rand, 20 ft. (bit.) 4.2 mi. (Removed—Under construction by Maintenance Division)	126
Forestway (Hohlfelder)—Dundee to Green Bay, 20 ft., (bit.) 0.6 mi. (Removed—Constructed by Maintenance Division)	18
State Street—Glenwood—Dyer Road to Sauk Trail (Bit.) 4 mi. (Removed—Constructed by Maintenance Division)	120
Willow Road—Open and signalize grade crossing C. M. St. P. & P. R. R. (Removed—County Board passed resolution for grade separation)	5
Lawrence Ave.—Central Park Ave. to Chicago River 8 mi. (Removed—Request of City of Chicago)	80
Total	389

1941 PROGRAM

PROJECTS:	*Estimated Cost in Thousands of Dollars*
Carpenter Road—Devon to Lincoln, widen 1.5 mi. (Removed—Traffic accommodated by other routes)	75
Oakton Street—South Blvd.—Rebuild subway, C. & N. W. and C. R. T. in Evanston (Removed at request of City of Evanston)	825
Oakton Street—Ridge to Chicago Avenue, 0.4 mi. (Removed at request of City of Evanston)	40
Thatcher Avenue—North to Cumberland, 1.3 mi. widen (Removed at request of Forest Preserve District)	65
TOTAL	1,005

1942 PROGRAM

Thornton Road—Underpasses I. H. B. (Removed. Not on State Aid System)	200
Thornton Road—Vermont (via Chicago Avenue) to Ashland 1.7 mi. (Removed. Not on State Aid System)	375
31st Street—Ogden to 56th. 0.2 mi. (Removed—Constructed by town of Cicero)	20
TOTAL	595

TOTAL OF PROJECTS ABANDONED OR REMOVED FROM PROGRAM

1938 Program	$ 145,000.00
1939 Program	1,206,000.00
1940 Program	389,000.00
1941 Program	1,005,000.00
1942 Program	595,000.00
TOTAL	$3,340,000.00

1940 PROGRAM

PROJECTS:	*Estimated Cost in Thousands of Dollars*
Bernice Road—Stony Island to Torrence Ave., 1.0 mi . . .	100
Bernice Road—Indiana State Line to Torrence Avenue, 1.7 mi.	200
Indiana Avenue—Bridge over Little Calumet River and approach pavement	400
Narragansett Avenue—Underpass C. M. St. P. & P. R. R. near Grand	700
123rd Street—Widen Grade separation Wabash Ry. . . .	100
130th. Street—Bridge over Calumet River	150
130th. Street—Overhead South Shore Electric & M. C. R. R.	350
Western Avenue—Sag Channel Bridge and Grade Separation C. R. I. & P. in Blue Island	600
Willow Road—Underpass C. & N. W. near Shermer. . . .	100
Willow Road—Overpass C. M. St. P. & P. near Lehigh. . .	225
Willow Road—Shermer to Waukegan, 20 ft., 1.6 mi. . . .	100
Six Railroad Grade Crossing Improvements	50
Kirchoff Road—Salt Creek Bridge.	20
Tower Road—C. & N. W. Ry. Grade Separation.	80
Pratt Avenue—North Shore Channel Bridge.	150
Pratt Avenue—McCormick Road to Western Ave. 1.0 mi . .	100
I. & M. Canal Parkway—Cicero to Kedzie, 2 mi.	200
Central Road—Milwaukee to Harlem. 2.3 mi.	140
Winnetka Ave.—Approaches to C. & N. W. Subway. . . .	30
106th Street—Torrence to Buffalo, rebuild 1.0 mi.	100
87th. Street—Damen to Western, widen 0.5 mi.	25
Ridge Road—Dixie Highway to Halsted, widen 0.5 mi. . . .	60
DesPlaines Avenue—26th. St. to 16th. St. widen 1.0 mi. . .	55

1940 PROGRAM (Continued)

PROJECTS:	*Estimated Cost in Thousands of Dollars*
Simpson Street—Equestrian Underpass	10
Lawrence Avenue—Equestrian Underpass	10
Glenview Road—Equestrian Underpass	10
Devon Avenue—Equestrian Underpass	10
Irving Park Blvd.—Soo Line R. R.—Drainage	20
Flossmoor Road—Bridge Repairs	20
Madison Street—Bridge Repairs	10
Glenwood-Lansing Road—Burnham Avenue Culvert	5
Glenwood-Lansing Road—Torrence Avenue Culvert	10
Volbrecht Road—North Creek Bridge	80
TOTAL	4,220

1941 PROGRAM

55th Street ext. (Lawndale Ave.) in Joliet Road to Archer—bridges, separations and pavement, 1.5 mi.	700
Kedzie Avenue—Underpass, C. R. I. & P. in Robbins	80
Lincoln Avenue—Diversey to Lincoln Park, rebuild 1.7 mi.	300
130th Street—Indiana Avenue to Torrence, 3 mi.	150
State Street Ext.—127th to 130th and Indiana Avenue, 40 ft. 0.5 mi. includes grade separation at Illinois Central Railroad	350
Thatcher Avenue—Division to North, 9.5 mi. widen	80
31st Street—Grade Separation, Belt Ry. et al, east of Cicero Avenue	250
25th Avenue—Underpass, I. C.	70
25th Avenue—Bridge, Salt Creek	10

1941 PROGRAM (Continued)

PROJECTS	*Estimated Cost in Thousands of Dollars*
25th Avenue—Underpass, C. B. & Q.	80
25th Avenue—Bridge, Addison Creek	20
25th Avenue—26th Street to Roosevelt Road, 20 ft., 1.5 mi.	80
Willow Road—Waukegan Road to Hibbard, 20 ft. and 40 ft., 2.6 mi.	150
12 Railroad Grade Crossing Improvements	100
TOTAL	2,420

1942 PROGRAM

1st Avenue—C. A. & E. R. R. and C. G. W. R. R. Grade Separation	400
Euclid-Lake Avenue—Elmhurst Road to River Road, 2.3 mi.	120
George Brennan Highway—Overhead B. & O. C. T. and G. T. W. R. R.	300
George Brennan Highway—147th to Ashland, 1.2 mi.	120
I. & M. Canal Parkway—Cicero to Lawndale, 4 mi.	400
Kedzie Avenue—Rexford to 159th, 3.1 mi.	155
31st Street—Overhead I. H. B. in LaGrange Park	375
31st Street—Cicero to Kostner, 0.5 mi.	50
28th Street—Union to Canal Street, rebuild 0.3 mi.	30
Union Avenue—28th to 55th, rebuild 3.3 mi.	330
TOTAL	2,280

TOTAL OF UNCOMPLETED PROJECTS REMAINING IN THE PROGRAM

1938 Program	$1,585,000.00
1939 Program	1,380,000.00
1940 Program	4,220,000.00
1941 Program	2,420,000.00
1942 Program	2,280,000.00
TOTAL	$11,885,000.00