
I. PURPOSE OF AND NEED FOR ACTION

1.1 Project Purpose

The purpose of the Proposed Action is to provide a transportation system improvement that will address capacity, operational, and safety deficiencies; and satisfy projected 2030 travel demands within a regional corridor extending between Caton Farm Road at U.S. Route 30 and IL Route 7 (159th Street) at Cedar Road. Specifically, the proposed system improvements should accommodate population and employment growth, provide improved system linkage by providing a new bridge over the DesPlaines River, accommodate projected transportation demand, optimize modal interrelationships and increase travel safety in the study area.

The project corridor is located on the urban fringes between the Chicago and Joliet metropolitan areas. The project corridor has undergone rapid growth including development within existing municipalities, municipal expansion through annexation and infill development. The project corridor extends a length of approximately 10 miles and encompasses an area of 125 square miles. It is located approximately 30 miles southwest of the City of Chicago and just three miles north of Joliet within northern Will County. Exhibit I-1 contains a general project location map.

1.2 Project Needs

1.2.1 Accommodate Population and Employment Growth

This portion of Will County has experienced rapid growth as it transitions from primarily rural and agricultural uses to a suburban landscape. See Tables A-1, A-2, and A-3 contained in Appendix A. Between 1990 and 2000, population and households in Northeastern Illinois grew by 11%. During that same time period, Will County experienced a 41% increase in population and a 43% increase in households. Over this ten year period, Will County has added on average 15,000 residents per year. Recent increases in population show that Will County is growing at a rapid pace despite the lack of major new transportation improvements. Furthermore, this growth is projected to continue into the future. Population forecasts by NIPC show that an additional 605,512 people will reside in Will County by 2030. This is more than double the County's 2000 population levels as shown on Tables A-1 and A-2. In addition, some of the Townships located in the study area are expected to see even greater percent increases than the County in population and households by the year 2030.

Between 1990 and 2000, employment in Northeastern Illinois grew by an average of 12%. During that same time period, Will County experienced a 70% increase in employment. The rate of employment growth between 1990 and 2000 exceeded the rate of population growth for that same time period. The migration of jobs to largely undeveloped areas like Will County is consistent with manufacturing and businesses desire to locate where there is an abundance of relatively inexpensive land available in large parcels.

As is seen in Table A-3, this trend of rapid growth in Will County is expected to continue. It is estimated that by the year 2030 an additional 274,053 jobs will exist in Will County. This is approximately 2.5 times the number of jobs that existed in Will County in the year 2000. In fact several of the Townships in the study area are predicted to have even larger employment growth rates.

Overall, as population, housing and employment have increased in Will County transportation improvements have not kept pace. Whereas population and employment have substantially increased between 1990 and 2000, few major roadways in the study area have been improved to meet the growing traffic demand. Together with the projected household and employment growth come the needs to plan for and to implement transportation improvements that meet the demands of this growth.

1.2.2 Improve System Linkage

Historically the study area could be considered to be part of the sparsely developed urban fringes. However, over the past ten years the amount of growth that has occurred within the study area has dramatically changed its character to a developing suburban area. This trend toward urbanization is projected to continue. Therefore, there is the need to provide an additional crossing of the Des Plaines River Valley to improve the overall roadway system continuity in the study area.

A connection across the Des Plaines River Valley has been planned by Will County for the last 40 years. In 1992 IDOT initiated their Strategic Regional Arterial (SRA) Study for this area. The SRA system is intended to supplement the existing and proposed expressway facilities by accommodating a significant portion of long-distance, high-volume automobile and commercial vehicle traffic in the region. The original SRA corridor in this area was along the U.S. Route 6/IL Route 7 corridor extending from IL Route 59 in Will County east along portions of Renwick Road, IL Route 7, and U.S. Route 6 to IL Route 83 in Calumet City. As part of the public involvement process during the study, it was determined that the SRA designation should be shifted to Caton Farm/Bruce Road west of Cedar Road in order to avoid impacts to the historic district in the City of Lockport as well as to the Renwick Heron Rookery. The Caton Farm/Bruce Road corridor also created a well-spaced grid network of arterial routes traversing the Des Plaines River Valley with the existing IL Route 7 crossing located 1.5 miles to the north and the existing Ruby Street bridge located 2 miles to the south.

The *Will County 2020 Transportation Framework Plan* approved and adopted by the Will County Board on December 21, 2000, includes the recommendation for a new bridge over the Des Plaines River Valley connecting Caton Farm Road to a new Bruce Road alignment. The plan also includes the development of a four-lane continuous roadway along the Caton Farm Road/Bruce Road/Cedar Road/IL Route 7 corridor.

In addition, the *2030 Regional Transportation Plan for Northeastern Illinois* adopted by CATS on October 9, 2003 calls for an additional Des Plaines River crossing and major east-west arterial highway for a 38-mile corridor between the eastern Kendall County line and the Indiana State line.

The spacing of arterials mainly depends on population and employment densities. According to *A Policy on Geometric Design of Highways and Streets (2001)* published by AASHTO, the spacing between principal arterials may vary from less than one mile in the highly developed central business areas to five miles or more in the sparsely developed urban fringes. The principal arterial system serves the major centers of activity of urbanized areas, the highest traffic volume corridors, and the longest trips. In addition, significant intra-area travel, such as between central business districts and outlying residential areas, between major inner-city communities, and between major suburban centers is served by this class of facilities.

The spacing of minor arterial streets may vary from 0.1 to 0.5 mile in the central business district to two or three miles in the suburban fringes but is normally not more than one mile in fully developed areas. The minor arterial system interconnects with and augments the principal arterial system. It accommodates trips of moderate length at a somewhat lower level of travel mobility than principal arterials. This system places more emphasis on land access.

On either side of the Des Plaines River, the existing arterial streets are arranged in a fairly well developed grid system. The grid system provides a number of alternative routes for most trips and thus spreads out traffic demand so no one roadway is overburdened with traffic compared to another. The Des Plaines River Valley, however, creates a significant barrier to east-west travel in Will County. As seen on Exhibit I-2, the IL Route 7 bridge provides the only crossing within an 8-mile stretch of the river. This has greatly limited the number of regional east-west corridors developed in this area. Located four miles to the south of the IL Route 7 bridge is the Ruby Street bridge, which serves the northern portion of Joliet. The Ruby Street bridge is a four lane facility that currently carries 18,000 vehicles per day (vpd). Approximately four miles to the north of the IL Route 7 bridge is the 135th Street bridge. This bridge was reconstructed in 1998 to provide a four lane facility to serve the Village of Romeoville. The most recent traffic counts indicate that in 1999, the four lane facility carried 13,500 vpd. With the dramatic growth Will County has experienced in the last five years, it is likely that this number is considerably higher.

1.2.3 Accommodate Projected Transportation Demand

In the suburban region surrounding Chicago, traffic volumes have increased steadily due to the regional growth in population and employment. This pattern is evident on Table A-4, which shows Historic Average Annual Daily Traffic volumes for a number of selected roadways in the

study area.

As is seen on Table A-4, the total number of vehicles on these roadways increased from 63,675 vehicles to 87,325 vehicles or a 37% increase over the 17 years between 1965 and 1982. This amounts to a 2.0% annualized growth rate. Between 1982 and 2001, the total volume increased from 87,325 vehicles to 203,750 vehicles or a 133% increase. The annualized growth rate was 4.8% per year over this recent 19-year period, illustrating that the annual growth rate is accelerating within the study area.

While most of the roadways in the study area have steadily increased, the volume on the IL Route 7 bridge has remained relatively steady since 1991. This is because the two-lane bridge is operating at or above capacity with traffic growth diverted to other locations.

The rapid traffic growth in the study area is further illustrated with statistics published by the Illinois Department of Transportation (IDOT) regarding average vehicle miles of travel. For the five year period between 1998 and 2002, overall the State of Illinois experienced a 5% increase in the average vehicles miles of travel. During that same time period, Will County experienced a 20% increase in vehicles of miles traveled. As can be seen on Table A-5 this growth is dramatic compared to other counties in the area.

Exhibit I-2 shows 2001 Average Daily Traffic (ADT) volumes for the study area. This exhibit illustrates that currently travel in the study area is predominantly north-south rather than east-west. This is due in part to the barrier to east-west travel that is created by the river as well as to the location of traditional employment and commercial centers in Joliet and Chicago. Though most arterial roadways in the study area are only two lanes wide, the existing traffic volumes (with the exception of those two-lane portions of U.S. Route 30 and on IL Route 7) are still well below the desirable capacity of a two-lane roadway.

Exhibit I-3 shows the 2030 Projected No-Action Average Daily Traffic volumes for the study area. This scenario represents a prediction of the traffic conditions that would exist on study area roadways in the year 2030 if none of the various corridor improvement options that are part of this study are implemented. This scenario quantifies the consequences of doing no corridor improvement in the face of long range local and regional change. The Project No-Action scenario includes a complete analysis of the future traffic conditions and provides a basis by which the merits of all of the “Build” options can be evaluated.

The Project No-Action scenario limits transportation improvements within the immediate study area to those which are normally part of the existing traffic and maintenance program. For example, street repairs would continue to be made and traffic signals would be adjusted as necessary to accommodate future traffic demands.

As mentioned previously, the Northern Will County area is poised to experience dramatic population and employment growth over the next 20 to 25 years. With that change will come substantial increases in traffic demand on the existing street network.

Though the 2030 projected traffic volumes show growth in east-west trips in the study area,

north-south is still the predominant travel direction. Whether serving purely east-west trips or as a link in north-south trips, travel demand crossing the Des Plaines River bridges is projected to increase by almost 65% over the 2001 existing volumes even if no new river bridge is constructed.

Because of the arterial grid system, area-wide growth in travel demand is forecast to spread out over a number of roadways in the study area. Even with the 2030 Regional Transportation Plan (RTP) improvements, there will be a number of arterial roadways where forecasted travel demand will exceed desirable capacity. Using IDOT urban design criteria for 4-lane roadways (i.e. Design Hourly Volume (DHV) in excess of 1250 vph), roadways with ADT's in excess of about 15,000 vpd warrant 4-lane cross sections to provide adequate traffic safety and operation. Travel demand in excess of about 32,000 vpd warrants a 6-lane cross section (i.e. DHV in excess of 2050 vph). Based upon these criteria, the following roadway segments would be subject to travel demand in excess of desirable capacity under the Project No-Action scenario:

<u>Roadway</u>	<u>Section Limits</u>
North-South Roadways	
IL Route 53	Division Street to Airport Road
Gougar Road	U.S. Route 6 to Bruce Road
Wolf Road	Southwest Highway to 143rd Street
Cedar Road	167 th Street to 159 th Street
East-West Roadways	
135th Street	IL Route 53 to Lockport Road
Renwick Road/IL Route 7	Weber Road to Farrell Road
Caton Farm Road	West of U.S. Route 30
U.S. Route 6	Cedar Road to Wolf Road

These traffic demand projections evaluated in the 2030 Transportation Plan by CATS validate the need to create a higher-capacity, continuous east-west arterial connecting the west central and north central subareas of the county.

1.2.4 Optimize Modal Interrelationships

Regional and local transportation planning agencies have continually explored ways to improve the connectivity between transportation modes. Travel in Will County is heavily dependent upon the automobile. Transit serves a relatively small percentage of the total travel in Will County. According to 2000 census data from the U.S. Census Bureau, only 4.1 percent of the work trips in Will County were made by public transportation and the majority of these were served by rail. The commuter rail system in Will County has served the downtown Chicago work trips well with two rail lines, the Metra/Heritage Corridor which serves northern Will County and the Metra/Rock Island District which serves eastern Will County. Both of these lines operate between Joliet and Chicago.

However, as employment centers have steadily grown in the suburban region of Northeastern

Illinois, commuter trips have changed from primarily suburb-to-city to inter-suburban in nature. Providing transit service to these varied locations is more problematic. Research has shown that a successful transit service must be competitive with the automobile in terms of origin and destination. Limited future resources, however, will make it impossible to satisfy all future travel demand through highway improvements alone. Thus planning and development objectives should support enhancement of other travel modes. To the maximum extent practicable, any improvement measures must meet the need to enhance intermodal transportation relationships. This can be accomplished in a number of ways, ranging from planning joint use facilities to designing exclusive or priority use features that enhance the service provided by other modes.

Easy access to the rail stations in the study area is critical for maintaining and increasing rail transit ridership. Access to rail stations through park-and-ride facilities and feeder bus services could also expand the ridership in the area. Bus service in the study is currently inconvenient. Travel times for bus service in the area are high not only due to the heavy congestion on the IL Route 7 bridge but also due to the lack of adequately spaced river crossings. Adjacent river crossings are located four miles to the north and south of the IL Route 7 crossing. Provision of another river crossing would serve to increase efficiency and attractiveness of using bus service in the area. As part of the proposed improvement, consideration must be given to accommodating the future expansion of transit services in Will County. Specifically, bus turn outs and shelters will be considered in the project corridor.

The improvement must also consider accommodating pedestrian and cyclists in the study area. The project area passes adjacent to several park facilities, forest preserve properties, schools, and other recreational facilities as well as through numerous existing and developing residential areas.

In addition, the project corridor crosses a significant regional trail system in Will County. The Will County Forest Preserve District's I&M Canal Trail passes through the project area. The trail serves downtown Lockport, Dellwood Park as well as the Joliet Iron Works Historic Site for a total length of 11.4 miles. The Will County I&M Canal Trail connects via a system of street bike routes to the Illinois Department of Natural Resources I&M Canal Trail which extends for a length of 60 miles to LaSalle/Peru, Illinois. Provision of bicycle and pedestrian facilities along the project corridor will provide a key east-west connection for access to these regional trail facilities.

1.2.5 Increase Travel Safety

Rapid growth in travel demand brings with it an accompanying growth in traffic crashes. Accident data was collected and analyzed for a three year period from January 1, 2000 through December 31, 2002. A total of 531 crashes occurred within the study area during this period with almost half of these being rear end collisions. Following is a breakdown of the crashes for the entire study area by type of collision:

Rear End	48%
Right Angle	20%
Left Turn	13%
Side Swipe	6%
Other	6%
Animal	3%
Off Road Fixed Object	3%
Parked Vehicle	<1%
Head On	<1%
Pedestrian	<1%

Crash frequencies and rates were calculated for major intersections and roadway segments within the study area and these values were then compared to statewide accident rates and frequency statistics compiled by the Illinois Department of Transportation. If both the actual frequency and rate exceed Critical Values, an intersection is considered to be a High Crash Location. Critical Values for frequency and rate are equal to the average value plus two times the standard deviation of the sample size. Three intersections in the study area were identified as High Crash Locations. These include the intersections of U.S. Route 30/Caton Farm Road, Cedar Road/Bruce Road and IL Route 7/IL Route 53/ Renwick Road. In addition, two roadway sections in the study were identified as High Crash Locations. These include Caton Farm Road from Gaylord Road to IL Route 53 and IL Route 7 from IL Route 53 to IL Route 171 which includes the IL Route 7 bridge over the DesPlaines River Valley.

The large number of rear end collisions is indicative of the severe congestion levels that exist in certain portions of the study area, particularly in the vicinity of the IL Route 7 bridge and the U.S. Route 30/Caton Farm Road intersection. There is a need to address existing accident problems on study area roadways in any improvement measure.

The proposed project will improve safety by providing another river crossing which will greatly help to reduce congestion in the study area thereby reducing the number of rear end collisions. In addition, widening existing two lane roadways to provide a refuge for left turning vehicles will also help to reduce the number of left turn crashes. Finally, improving operation and geometric configuration at many of the rural, unsignalized intersections in the study area will help to reduce the number of right angle collisions.

Appendix A Supplemental Information

Table A-1
Population & Population Growth by Metro Area, County and Township

	% Growth 1990 -2000	Year 2000	Projected Year 2030	Projected % Growth 2000-2030
Northeastern Illinois	11%	8,091,720	10,034,835	24%
Cook County	5%	5,376,741	5,938,248	10%
Will County	41%	502,266	1,107,778	121%
DuPage Township	29%	71,745	99,040	38%
Frankfort Township	60%	41,292	79,521	93%
Homer Township	35%	28,992	65,645	126%
Joliet Township	3%	86,468	84,792	-2%
Lockport Township	30%	42,048	67,984	62%
New Lenox Township	44%	29,730	80,925	172%
Plainfield Township	197%	45,691	93,871	105%
Troy Township	29%	27,970	73,045	161%
Wheatland Township	313%	44,349	107,754	143%

Source: Northeastern Illinois Planning Commission

Table A-2
Household and Household Growth by Metro Area, County and Township

	% Growth 1990 - 2000	Year 2000	Projected Year 2030	Projected % Growth 2000-2030
Northeastern Illinois	11%	2,906,925	3,627,752	25%
Cook County	5%	1,974,181	2,224,929	13%
Will County	43%	167,542	358,867	114%
DuPage Township	36%	22,858	32,548	42%
Frankfort Township	65%	13,192	26,484	101%
Homer Township	46%	9,074	20,308	124%
Joliet Township	3%	30,370	30,673	1%
Lockport Township	42%	14,499	21,849	51%
New Lenox Township	45%	9,704	25,672	165%
Plainfield Township	187%	14,726	29,978	104%
Troy Township	38%	9,957	23,372	135%
Wheatland Township	313%	13,003	32,593	151%

Source: Northeastern Illinois Planning Commission

Table A-3
Employment and Employment Growth by Metro Area, County and Township

	% Growth 1990 - 2000	Year 2000	Projected Year 2030	Projected % Growth 2000-2030
Northeastern Illinois	12%	4,323,207	5,563,934	29%
Cook County	2%	2,841,941	3,318,234	17%
Will County	70%	169,317	443,370	162%
DuPage Township	196%	33,007	54,557	65%
Frankfort Township	264%	24,840	60,117	142%
Homer Township	-63%	459	10,624	2215%
Joliet Township	-6%	34,767	49,718	43%
Lockport Township	13%	10,482	21,306	103%
New Lenox Township	180%	10,563	28,454	169%
Plainfield Township	100%	11,288	18,573	65%
Troy Township	91%	15,210	35,163	131%
Wheatland Township	68%	3,858	39,605	927%

Source: Northeastern Illinois Planning Commission

Table A-4
Historic Average Annual Daily Traffic Volumes
for Roadways in Study Area

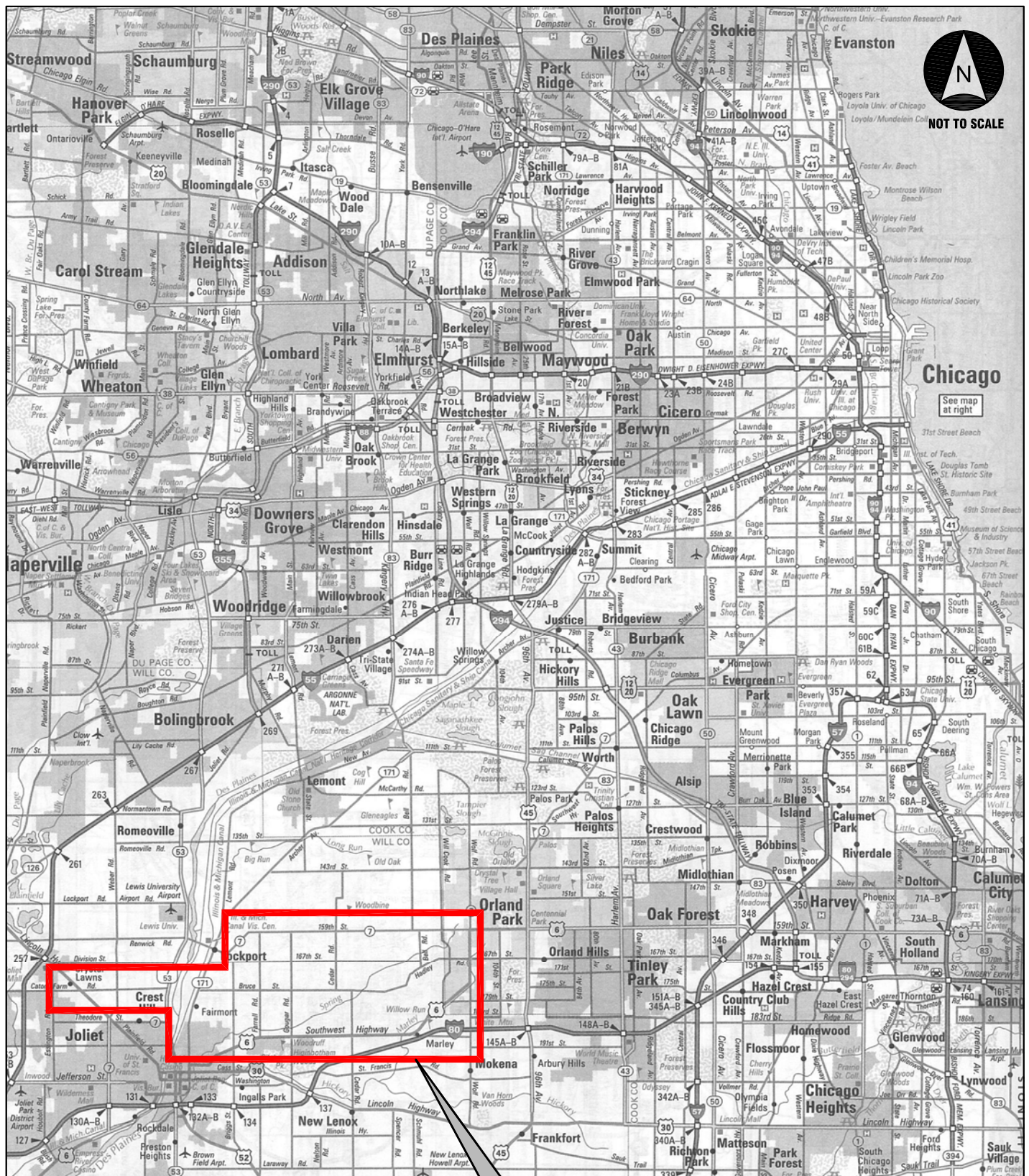
Roadway Name	Year							
	1965	1968	1978	1982	1987	1991	1995	2001
135th Street Bridge	2,150	4,600	6,000	7,000	2,200	1,700	0	13,400
143rd Street	1,200	1,400	2,250	1,800	3,750	2,500	2,500	3,300
151st Street	100	100	N/A	125	150	1,550	N/A	3,800
Bell Road	650	1,200	3,350	2,550	4,850	10,000	14,900	15,100
Briggs Street	5,900	3,450	5,300	5,900	7,300	6,300	7,500	9,300
Bruce Road	200	225	N/A	375	375	750	1,100	2,500
Caton Farm Road	2,250	1,050	5,500	5,300	5,400	6,500	6,900	8,700
Cedar Road	900	1,150	2800	3,500	5,600	6,400	6,700	8,700
Division Street	250	275	650	250	250	325	4,100	4,300
Farrell Road	100	175	N/A	375	425	800	1,200	1,950
Gougar Road	175	175	N/A	150	175	225	1,900	6,500
IL Route 171	14,100	13,700	21,000	13,100	13,400	13,200	14,800	18,900
IL Route 53	16,600	15,000	27,200	13,800	14,000	18,600	20,900	28,500
IL Route 7 @ Bridge	10,100	8,800	27,600	17,900	17,900	26,000	25,500	22,000
IL Route 7 @ Cedar	4,350	3,150	6,900	6,200	9,500	10,200	14,000	12,800
Renwick Road	175	150	3,600	5,700	5,600	8,200	8,500	13,200
U.S. Route 6	4,400	3,100	2,350	2,000	2,600	4,800	7,800	6,900
Weber Road	75	75	N/A	1,300	1,550	15,200	20,200	23,900
Total	63,675	57,775	114,500	87,325	95,025	133,250	158,500	203,750

Source: *Traffic Map, Will County Illinois* published at the indicated years by the Illinois Department of Transportation.

Table A-5
1998-2002 Increase
in Illinois Average Vehicle Miles of Travel

Region	% Increase
State of Illinois	5.2%
Northeastern Illinois	5.3%
Cook County	1.3%
DuPage County	7.4%
Kane County	17.5%
Lake County	8.5%
McHenry County	13.2%
Will County	20.5%

Source: *Illinois Travel Statistics, 2002*, Illinois Department of Transportation, Office of Planning and Programming



STUDY AREA

May 21, 2004



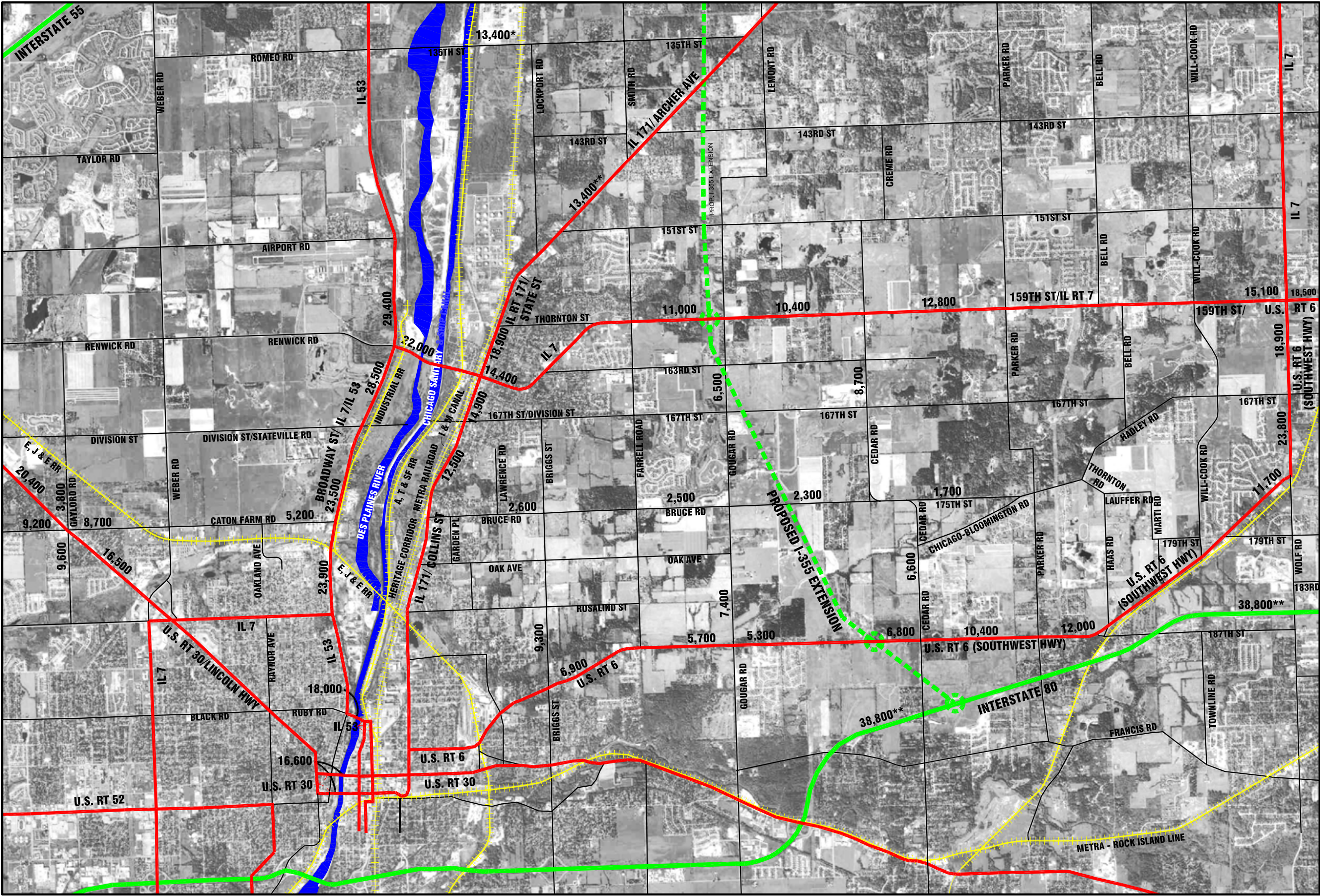
Will County Department of Highways

Caton Farm - Bruce Road Phase I Study

STUDY AREA LOCATION MAP

EXHIBIT I-1





LEGEND

- Minor Arterial or Collector Route
- Principal Arterial Route
- Interstate Route
- Proposed Interstate Route
- Railways
- Proposed Interchange
- Waterways

XX,XXX 2001 Existing Average Daily Traffic Volumes

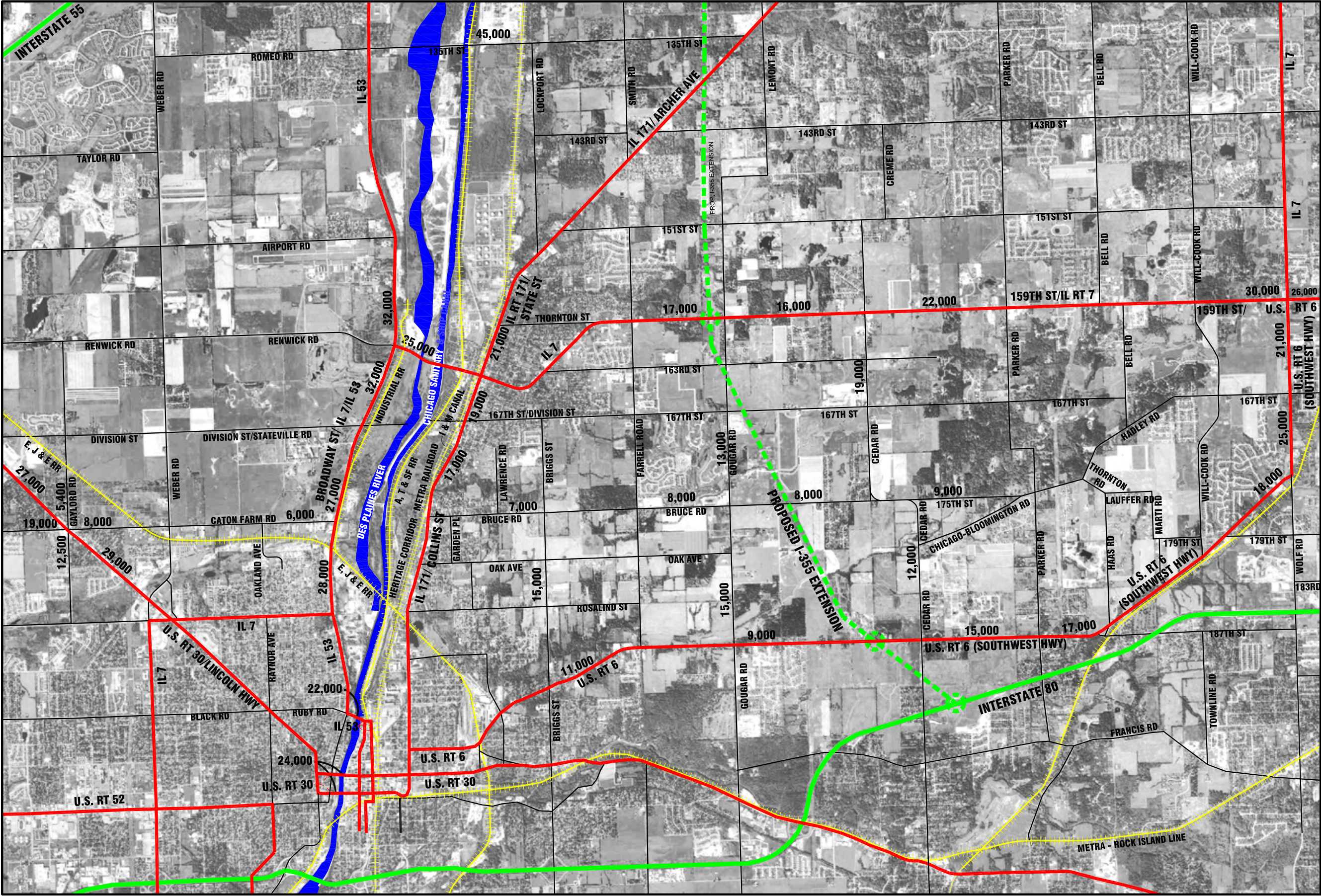
* 1999 IDOT Traffic Count

** 2001 IDOT Traffic Count



Will County Department of Highways

EXISTING AVERAGE DAILY TRAFFIC (ADT) VOLUMES
EXHIBIT I-2



LEGEND

- Minor Arterial or Collector Route
- Principal Arterial Route
- Interstate Route
- Proposed Interstate Route
- Railways
- Proposed Interchange
- Waterways

XX,XXX 2030 Average Daily Traffic Volumes



Will County Department of Highways

2030 PROJECTED AVERAGE DAILY TRAFFIC (ADT) VOLUMES
EXHIBIT I-3



August 2004

