

Section 1 - Guide to the Plan

The Comprehensive Road Improvement Plan (CRIP) is comprised of nine sections. The following synopsis gives the reader a general idea of what is found in each section.

Section 2: Legislative Authority

This section excerpts State statutes that describe the processes that must be followed in implementing a CRIP.

Section 3: CRIP Methodology and Impact Fees

The methodology that was used in producing the plan is described in Section 3. This section summarizes the program development process from updating land use assumptions through implementation.

Section 4: Land Use Assumptions

Section 4 presents the land use assumptions update jointly produced by the Kane County Division of Transportation and the Development Department for this plan. The methodology that was used in deriving present and future population and employment is included here.

Section 5: Development, Traffic Growth, and Impact Fees

This section describes reasons why road improvements continue to be necessary and why impact fees must become a part of future funding in Kane County.

Section 6: The Kane County DOT System and Existing Deficiencies

This section examines the Kane County Division of Transportation's roadway network and presents a summary of the intersections and roadway segments that are presenting commuters and other travelers the most difficulty in traveling from one place to another in the county. The methodology for determining deficiencies is also described in this section.

Section 7: 2013 Forecasts and System Deficiencies

This section presents the anticipated 2013 network deficiency list and map for KCDOT roadways and describes how the deficiencies were identified.

Section 8: FY 2004-2013 Comprehensive Road Improvement Plan

This section identifies the recommended capital improvements program for the Kane County Division of Transportation for Fiscal Years 2004-2013. The program is based on the existing deficiency lists in Section 6, the forecast deficiency list in Section 7, and other projects programmed by the KCDOT. Impact fee eligible projects are identified.

Section 9: Revenues and Expenditures Analysis

Section 9 presents the Division of Transportation's anticipated revenue projections for the FY04-13 period and compares the earning estimates against the projected program costs.

Section 2 - Legislative Authority

Kane County has the authority to impose impact or user fees for travel on Kane County DOT highways as granted by State Statute ICLS 5/5 901-919, enacted on July 26, 1989. This statute, entitled the *Road Improvement Impact Fee Law*, imposes a series of obligations upon each unit of local government that wishes to levy road improvement impact fees.

Establishment of an Advisory Committee

A road improvement impact fee advisory committee must be created by the County to serve in an advisory capacity. The advisory committee has the following duties:

1. Advise and assist the County by recommending proposed land use assumptions.
2. Make recommendations with respect to the development of a comprehensive road improvement plan (CRIP).
3. Make recommendations to approve, disapprove, or modify the CRIP.
4. Report to the County on all matters relating to the imposition of impact fees.
5. Monitor and evaluate the implementation of the CRIP and the assessment of impact fees.
6. Report annually to the County with respect to progress in implementation of the CRIP.
7. Advise the County of the need to update or revise the land use assumptions, CRIP, or impact fees.

The *Road Improvement Impact Fee Law* requires the Unit of Local Government to cooperate with the advisory committee.

Consideration of Land Use Assumptions

The County is required to develop assumptions relating to changes in land uses, densities, and population growth rates that affect the level of traffic within the service areas over a 20-year period of time. To impose an impact fee, the County is required to adopt an ordinance or resolution establishing a public hearing date to consider land use assumptions that will be used to develop the CRIP. The County is also required to publish notices of intent to hold a public hearing, allow for public comment, and then adopt by ordinance or resolution the land use assumptions.

Comprehensive Road Improvement Plan (CRIP)

The County is required to prepare a Comprehensive Road Improvement Plan (CRIP) containing the following (Section 5/5-910 of the Statute):

1. For each service area within the County, a description of all existing roadways and their existing deficiencies, together with a reasonable estimate of the cost of curing existing deficiencies, and the current level of service of existing roadways.

2. A commitment by the County to cure existing deficiencies where practicable relating to the roadways.
3. A description of the land use assumptions adopted by the County.
4. A description of all roadways proposed to be improved, expanded, or enlarged to serve new development, and a reasonable estimate of the cost of improvements needed to serve new development at a level of service not to exceed the level of service on existing roadways.
5. Identification of all sources and levels of funding available to the County for the financing of road improvements.
6. A schedule setting forth estimated dates for commencing construction of all road improvements identified in the CRIP.

Similar to the consideration of land use assumptions, the County is required to adopt a resolution establishing a public hearing date to facilitate public input on the CRIP and imposition of impact fees. The County is also required to publish notices of intent to hold a public hearing, allow for public comment on the CRIP and imposition of impact fees, and then adopt, by ordinance or resolution, the impact fee program.

The Statute also calls for an agreement with the State of Illinois regarding sharing costs of State highway improvements if included in the impact fee program. This stipulation will not apply for the Kane County impact fee program. It is the intention of Kane County that the revenue from the impact fee program be used exclusively for KCDOT roadways.

Section 3 - CRIP Methodology and Impact Fees

The Kane County Division of Transportation (KCDOT) must determine through the Comprehensive Road Improvement Plan (CRIP) a rational process for establishing needed road improvements on the KCDOT system based on development. The programming process establishes a list of improvements upon adoption of the CRIP by the County Board. The program may only be updated through the legislated annual update process that the Impact Fee Advisory Committee oversees.

The CRIP provides guidance on where impact fee revenue may be spent such that contributing developers realize benefit. Fees are determined based on a needs driven methodology using a formula documented in the Kane County Technical Specifications Manual for Impact Fees, January 2004. Implementation of the impact fee program is governed by County ordinance.

3.1 CRIP Development

The CRIP process for identifying the forecast road improvement needs involved the following four phases.

Phase 1: Update Land Use Assumptions

For purposes of travel forecasting, Kane County has been divided into 780 traffic analysis zones (TAZs) ranging in size from one quarter section to sixteen quarter sections (four sections). The zone system is a further breakdown of the TAZ system established by the Chicago Area Transportation Study (CATS) for the metropolitan region. A finer “grid” of TAZs covers the more urbanized portions of the County, feathering out to larger TAZs in the more rural parts of the County. Land use assumption updates were made for each TAZ for use in the analysis of forecast travel demand.

The 2020 population and employment projections adopted by the Northeastern Illinois Planning Commission (NIPC) were deemed to be the best available data to develop new Kane County population and employment control totals for the years 2003, 2013, and 2023. NIPC has indicated that the 2030 population of Kane County would be approximately 700,000. This information combined with the existing Census data and the adopted NIPC 2020 forecasts, led to establishing a 2023 control total of approximately 582,000. This represents a County population change of about 30,000 persons between 2020 and 2023, or about 10,000 persons per year. Three years (2020-2023) of “growth” were added to reach a new “control total” for the year 2023. This control total for 2023 was then used along with the 2000 Census information to obtain control totals for the intermediate years (2003 and 2013) by straight-line interpolation.

With the understanding that development and population increases will be most prominent in certain portions of the County, and not evenly distributed across the entire County, population growth “hot spots” were identified. These were developed with input from both the Kane County Division of Transportation and the Development Department as well as from NIPC staff by combining their collective knowledge on proposed or approved developments and anticipated growth areas. Using the NIPC 2020 population projections as a base, the additional 3 years of population growth were distributed only to these areas to

obtain the 2023 population projections. None of the “hot spot” areas was assumed to reach full build-out by 2023.

When the 2000 census data became available in 2001, it appeared the NIPC 2020 forecast had underestimated the employment growth in several areas of Kane County, particularly in central business districts in the Fox Valley area. To account for this discrepancy, County Transportation Staff calculated the difference in employment from 2000-2020 and highlighted the areas where the 2000 employment approached or exceeded the 2020 projection. Employment data in these areas were then adjusted to account for the growth that had already occurred as of 2000. In general, adjustments were made to entire sections (four quarter sections) to create an adjusted 2020 projection. Using this adjusted NIPC 2020 employment projection as a base, three years (2020-2023) of employment growth were then added in employment growth “hot spots” to reach a new control total for the year 2023. This 2023 employment projection was then used along with the 2000 Census information to obtain employment projections for the intermediate years (2003 and 2013) by straight-line interpolation.

Phase 2: Existing Roadway Deficiencies

The analysis of existing traffic operations at intersections and segments of the KCDOT road system was accomplished utilizing a multi-step process as follows:

- 1) Identify data source and collect data
- 2) Develop Synchro model
- 3) Perform traffic operations analysis
- 4) Report analysis results

Over 200 intersections and approximately 230 segments were identified for analysis. To augment available intersection turning movement data, extensive field data collection was conducted. A method of computing peak-hour turning movement volumes from average daily traffic (ADT) data combined with intersection turning movement short counts was utilized at selected locations. Traffic volume data was obtained in the form of 24-hr directional counts at over 400 locations and turning movement counts at 208 intersections. The peak hour intersection turning movement volumes were determined by approach in one of four ways depending on the intersection control type and data available.

Data was stored in a spatial database that provided a single point for data access, multi-user data entry, data quality controls, interchange capabilities with Synchro (a highway performance model), and mapping using Geographic Information System (GIS) functionality. A Synchro network was developed from the existing street network GIS layer. Turning movement and lane arrangement data was imported into Synchro from the spatial database and operational analysis performed in Synchro. After Synchro results had been assessed for reasonableness, deficient intersections and segments were listed and mapped.

Phase 3: 2013 Forecasts, System Deficiencies and Programs

The travel forecasting model developed for the Kane County 2020 Transportation Plan² and subsequently updated by CH2M HILL³ was the basic tool used in developing travel forecasts. Travel forecasts for 2003 and 2013 were developed utilizing population and employment projections, by TAZ, described earlier. Comparison of the daily traffic volume assigned to each road segment in 2003 and 2013 produced expansion factors, which were then applied to the base year traffic counts.

The forecast traffic volumes were input into Synchro and 2013 traffic performance measures were calculated. Segment and intersection deficiencies identified in this process served as a guide for staff to generate, test, analyze, and recommend needed projects for inclusion in the recommended roadway improvement plan.

Phase 4: Revenues and Expenditures Analysis

A revenue and expenditures analysis was conducted to assess anticipated KCDOT revenues and expenditures over the life of the CRIP. Historic budget information was used to inform the revenue forecast. Impact fee revenue was forecasted based on the updated land use assumptions. Expenditure forecasts were made based on historic expenditure in addition to the programmed projects listed in Section 8 of this document. Project costs were estimated using a cost model that includes engineering, construction, and right-of-way costs.

3.2 Program Implementation

Once the County Board adopts the CRIP, the Division of Transportation then implements the program through the Kane County Impact Fee Ordinance. That ordinance governs the processes of impact fee assessment, collection, and distribution.

Fee Assessment

The ordinance uses a “fair share” assessment procedure that is based on land use type and the relative impact each type has on KCDOT roads in the design hour. That procedure is manifested in the equation shown below⁴:

$$\text{GROSS FEE} = \frac{((\text{TRIPS} \times \text{NT}) \times (\text{TRIP LENGTH} \times \% \text{VMT}))}{2} \times \text{COST} \\ (\text{CAPACITY})$$

$$\text{NET FEE} = \text{GROSS FEE} - \text{TAX CREDITS} - \text{IMPROVEMENT CREDITS}$$

² Kane County 2020 Transportation Plan, Bucher, Willis & Ratliff, July, 1996

³ Kane County Transportation Planning Area Study – Existing Transportation Conditions and Forecasts of Future Travel Demand, CH2M HILL, May, 2001

⁴ Kane County Technical Specifications Manual for Impact Fees. Kane County Division of Transportation, St. Charles, IL. January 2004.

Where:

TRIPS = Number of trips generated on a weekday during the peak hour of adjacent street traffic between 4:00 p.m. and 6:00 p.m.

NT = Fraction of TRIPS that represents new trips on the roadway system (discounting pass-by and link diverted trips)

TRIP LENGTH = The average trip length by land use category in miles.

% VMT = % of vehicle-miles of travel on the KCDOT system in a given impact fee service area.

CAPACITY = Lane-mile capacity at LOS "D" in vehicles per hour.

COST = Average construction and right-of-way cost of building one lane-mile of road.

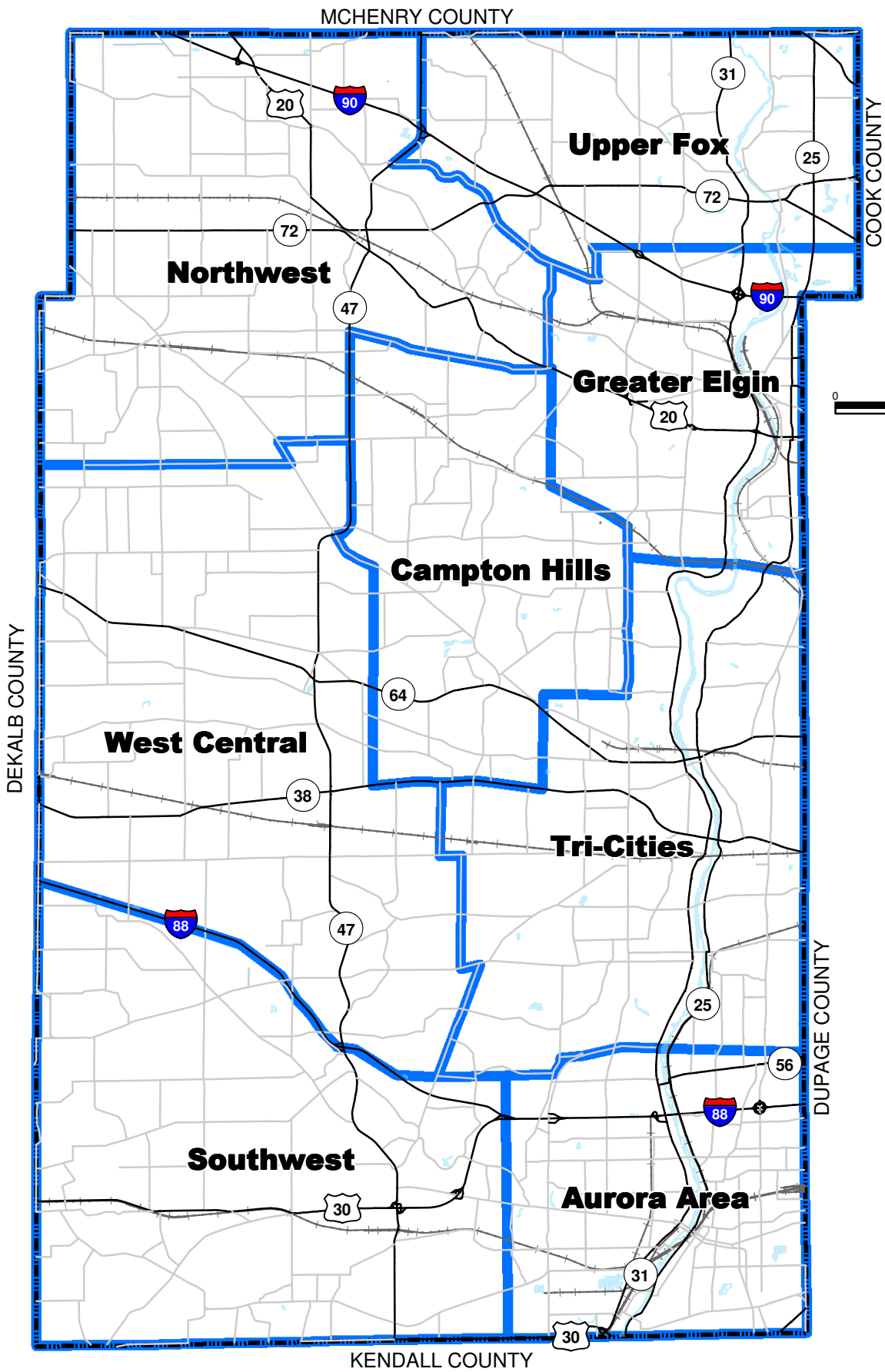
TAX CREDITS = The present value of that portion of the motor fuel taxes expected to be generated by the development that are used for capital projects.

IMPROVEMENT CREDITS = The value of improvement credits completed by the development. These may be for right-of-way dedication or system improvements.


Fee Collection and Distribution

Fee collection is based upon impact fee service areas, which, in Kane County, have been established based on the Planning Partnership Areas (PPAs). These fee service areas serve two functions. The first function is to establish assessment levels relative to the amount of travel and, hence, the impact of a development on KCDOT roads. The second function of the service area is statutory. The fees collected in each service area must be distributed to projects in the fee payer's service area identified in this plan. The requirement thereby provides some guarantee to the fee payer that the assessment is going to have some relevance to the development.

Figure 3-1 shows the eight (8) impact fee service areas that are used for fee collection and distribution. The service areas are coterminous with the Planning Partnership Areas (PPAs) established earlier in Kane County. The service areas have been kept relatively small so that impact fee assessment can have a closer relation to the improvements made in each service area. The variability in assessment of fees is dictated by the % VMT (the percentage of total vehicle-miles traveled on KCDOT roads in the service area) and the average trip length.



Legend

-  Service Area Boundaries

**Figure 3-1
Kane County Impact Fee Service Areas**

Section 4 - Land Use Assumptions

Land use assumptions were updated for a 20-year planning horizon as stipulated by the *Road Improvement Impact Fee Law*. Household, population, and employment projections were updated to establish growth in travel demand on the highway system. The following describes the methodology that Kane County Division of Transportation staff and Development Department staff used for determining 2013 and 2023 population, households, and employment projections.

4.1 Population Update Methodology

The population update methodology was a multi-step process. Existing data was leveraged and the collective knowledge of Kane County staff and the Northeastern Illinois Planning Commission were used to update population for the years 2003, 2013, and 2023. The following steps were followed.

- Develop updated population control totals for 2003, 2013, and 2023
- Identify population growth “hot spots”
- Distribute projected 2020 to 2023 growth to “hot spots”
- Interpolate 2003 and 2013 population
- Summarize updated population at the TAZ level

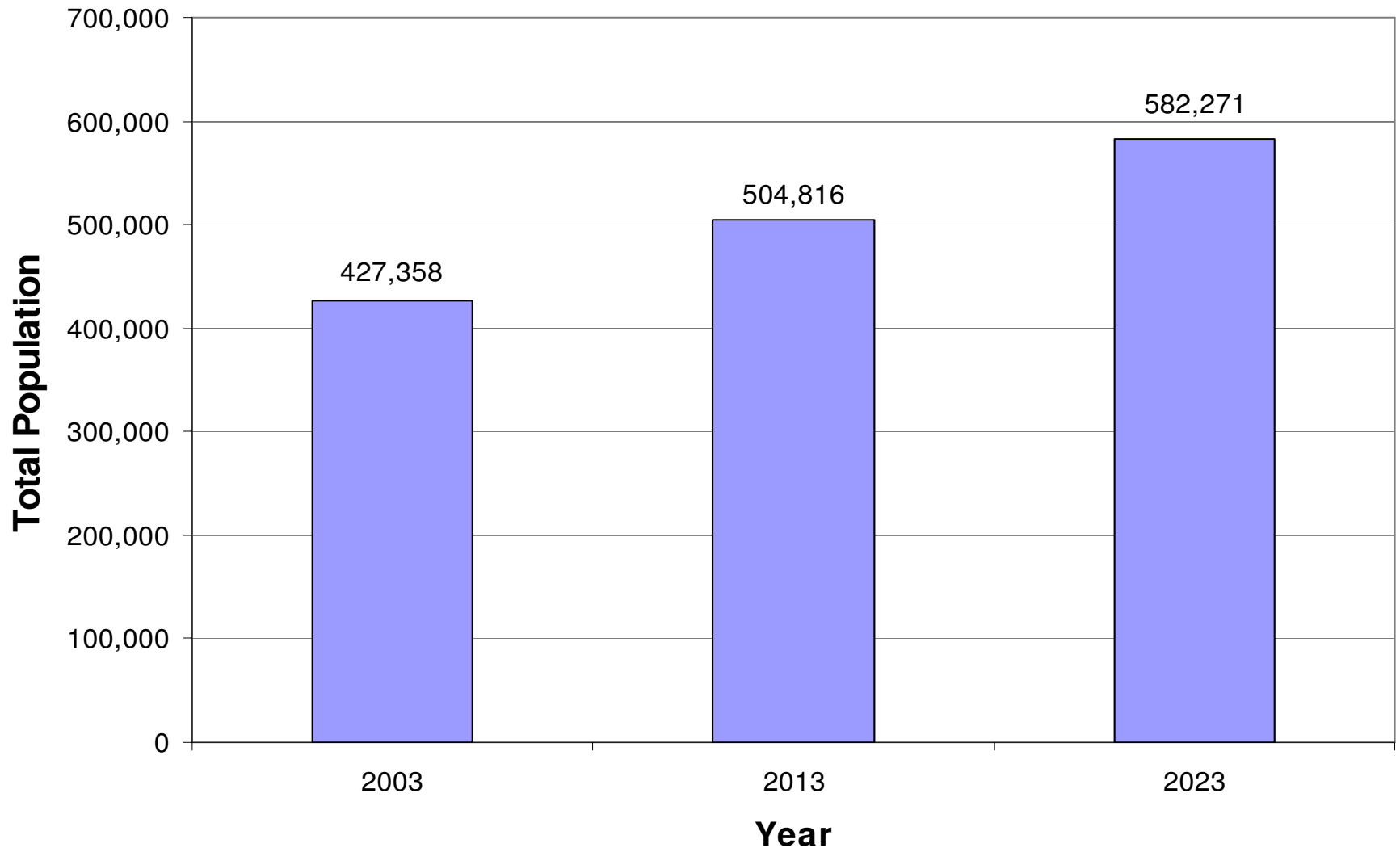
Development of Control Totals

New Kane County population control totals for the years 2003, 2013, and 2023 were determined. Two existing sources of demographic data were used in the process. The 2000 U.S. Census had recently been released and provided an accurate accounting of current demographics. 2020 population, household, and employment projections, adopted by the Northeastern Illinois Planning Commission (NIPC), were also used as they were the best long-range land use forecast available.

The Kane County Development Department discussed a preliminary 2030 population projection during a meeting with NIPC representatives on December 23, 2002. NIPC did not expect this number to be released publicly until February 2003, however the preliminary results indicated that the 2030 Kane County population would be approximately 700,000. This additional piece of information, combined with the existing Census data and the adopted NIPC 2020 forecasts, led staff to establish a 2023 control total of approximately 582,000. This represented an increase of about 30,000 in population between 2020 and 2023, or about 10,000 people annually. This control total for 2023, combined with the 2000 Census data, was used to obtain control totals for the intermediate years (2003 and 2013) by straight-line interpolation. Population control totals for Kane County are presented in Figure 4-1.

Distribution of Population Growth

Once population control totals were established for the years 2003, 2013 and 2023, population data was distributed in the County. The geographic unit used for this distribution was the public land survey system quarter section. The NIPC 2020 population projection at the quarter section level was used as a base for this exercise.



Kane County Comprehensive Road Improvement Plan

Figure 4-1
Kane County Forecast Population Control Totals

Population growth “Hot Spots” were identified with the understanding that development and population growth would be most prominent in certain portions of the County, and not evenly distributed across the entire County. Population “Hot Spots” are shown in Figure 4-2. These were developed with input from both Kane County and NIPC staff on proposed or approved developments and anticipated growth areas. The additional three years of population growth were added to the NIPC 2020 population forecast in these high-growth quarter sections. None of the “hot spot” areas were assumed to reach full build out by 2023.

Year 2003 and 2013 population was determined at the quarter section level by interpolating between the updated 2023 population forecast and the Census 2000 population for each quarter section.

Transportation Analysis Zone (TAZ)

Population data for 2003 and projections for 2013 and 2023 were summarized from the quarter section level to a different unit of geography called the Transportation Analysis Zone (TAZ). 780 TAZs have been established for use in the Kane County travel demand model. These zones represent sub-areas of the County that have similar development characteristics. In the Kane County model, a finer “grid” of TAZs covers the more urbanized portions of the County, feathering out to larger TAZs in the more rural parts of the County. The smallest TAZ is the size of a public land survey system quarter section. The largest is the size of four sections or 16 quartersections.

The population data were summarized at the TAZ level for several reasons. First, the data can then be directly imported and used in the Kane County travel demand model. Second, by generalizing the data to larger areas, uncertainties about development patterns within each community are mitigated. There are also fewer TAZs than quarter sections, making the TAZ a logical choice for managing the data in future stages of the project. Appendix A contains the updated land use assumptions developed for the Kane County road improvement impact fee by TAZ.

4.2 Household Update Methodology

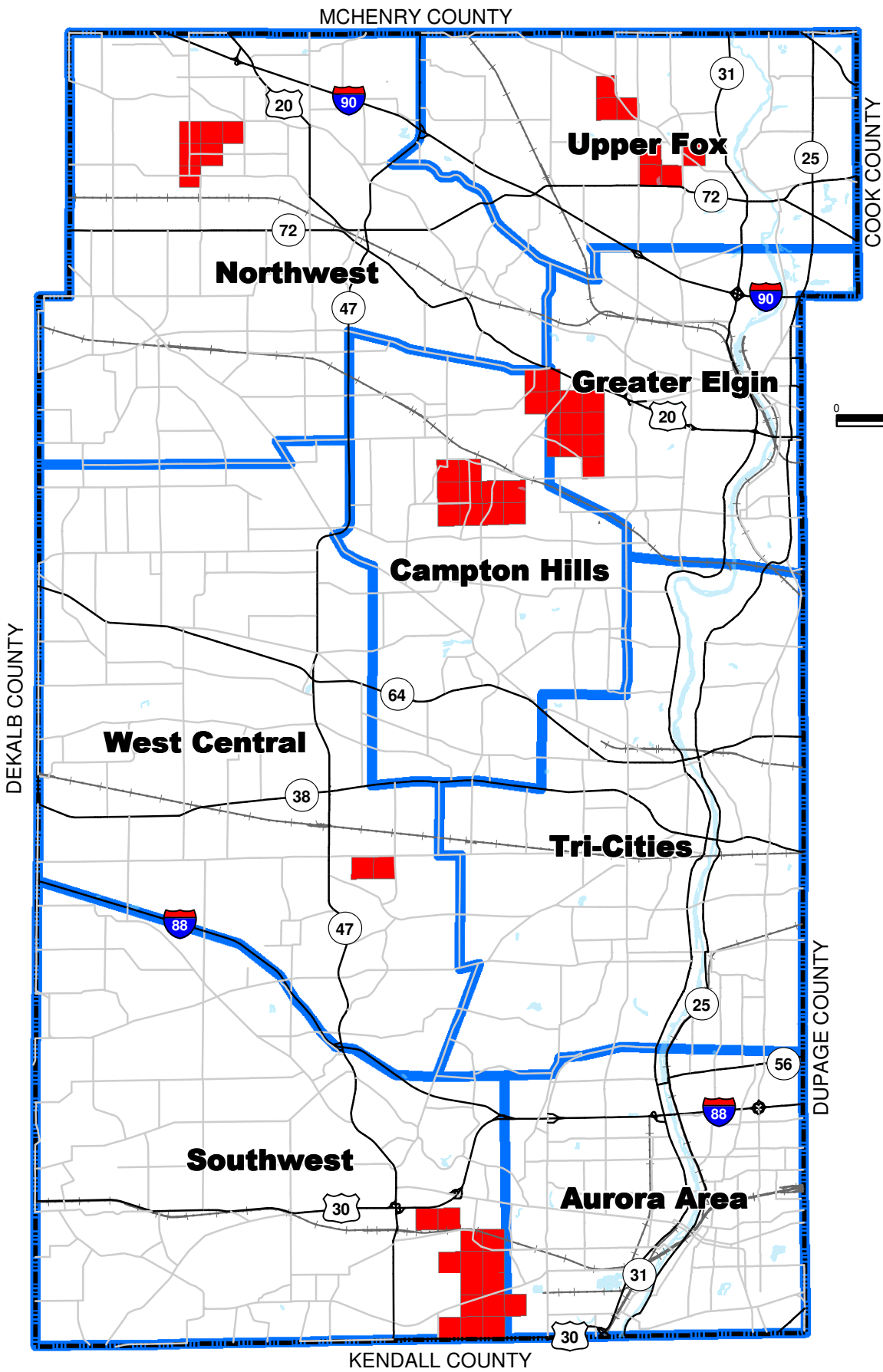
The same methodology used to update the population projections was used to update the household projections for the years 2003, 2013, and 2023.

Development of Control Totals

The household update used the same data sources as were used during the population update. This information led staff to establish a 2023 control total of approximately 214,100. This represented a change of about 15,200 households between 2020 and 2023, or about 5,075 households per year. This control total for 2023, combined with the 2000 Census information, was used to obtain control totals for the intermediate years (2003 and 2013) by straight-line interpolation.

Distribution of Household Growth

Once control totals were established for the years 2003, 2013 and 2023, total County households were distributed in the County. The geographic unit used for this



Legend

- Service Area Boundaries
- Population Growth Hot Spots (by quartersection)

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**Figure 4-2
Kane County Population Growth Hot Spots**

distribution was the public land survey system quarter section. The NIPC 2020 household projection at the quarter section level was used as a base for this exercise.

The population growth “Hot Spots” identified for the population updates were also used for households. These population and household “Hot Spots” are shown in Figure 4-2. The additional three years of household growth were added to the NIPC 2020 household forecast in these high-growth quarter sections. None of the “hot spot” areas were assumed to reach full build out by 2023.

Years 2003 and 2013 households were determined at the quarter section level by interpolating between the updated 2023 household forecast and the Census 2000 households at the quarter section level.

Transportation Analysis Zone (TAZ)

Household data was summarized at the TAZ level. This was done for the same reasons that population data was summarized at the TAZ level. Appendix A contains the updated land use assumptions developed for the Kane County road improvement impact fee by TAZ.

4.3 Employment Update Methodology

A similar process to the population update was used to update employment assumptions for the years 2003, 2013, and 2023.

Development of Control Totals

New employment control totals for 2003, 2013, and 2023 were determined. The 2020 projections adopted by the Northeastern Illinois Planning Commission (NIPC) were again the best available data to base new Kane County employment control totals for the years 2003, 2013, and 2023. These projections were originally released in 1997 and re-released in September 2000. When the 2000 census data became available in 2001, it appeared that NIPC underestimated the employment growth in several areas of the County, particularly in Central Business Districts in the Fox Valley area. This was confirmed through a series of conversations with NIPC Staff during the week of January 27, 2003. To account for this discrepancy, transportation staff calculated the difference in employment from 2000-2020 and highlighted the areas where the 2000 employment approached or exceeded the 2020 projection. Year 2020 employment data in these areas was then adjusted to account for the growth that had already occurred as of 2000. In general, adjustments were made to entire sections (four quarter sections) to create an adjusted 2020 projection.

NIPC representatives shared a preliminary 2030 employment projection on August 4, 2002. NIPC did not expect this number to be released publicly until February 2003, however the preliminary results indicated that the 2030 employment would be approximately 325,000. This additional piece of information, combined with the existing Census data and the adjusted NIPC 2020 forecasts, led staff to establish a 2023 employment control total of approximately 278,000.

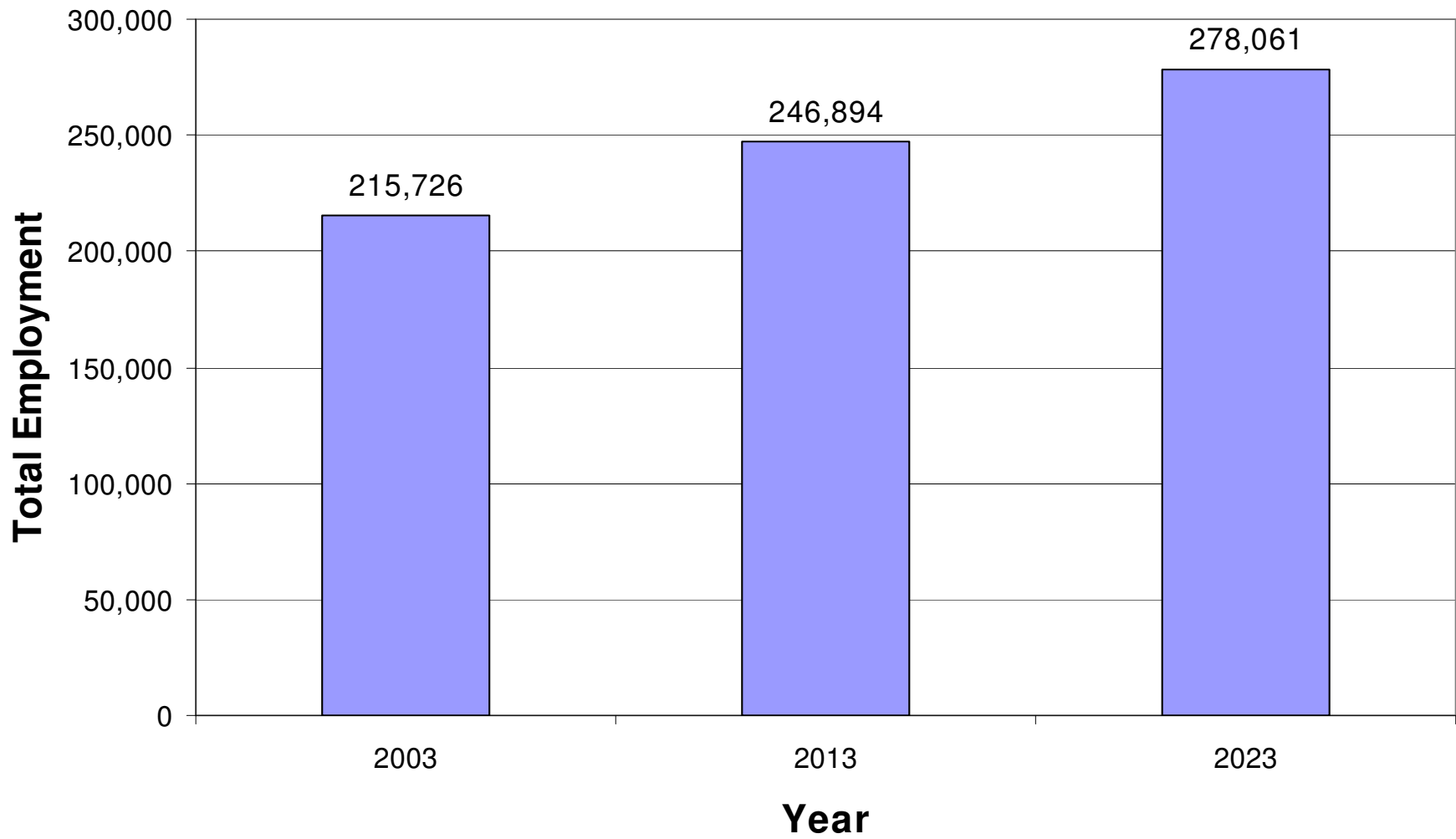
This control total for 2023 was then combined with the 2000 Census information to obtain control totals for the intermediate years (2003 and 2013) by straight-line interpolation. Employment control totals for 2003, 2013, and 2023 are shown in Figure 4-3.

Distribution of Employment Growth

With the understanding that employment increases will be most prominent in certain portions of the County, and not evenly distributed across the entire County, employment growth “Hot Spots” were identified, shown in Figure 4-4. These were developed with input from both Kane County and NIPC staff on proposed or approved commercial, industrial, or business developments and anticipated employment growth areas. The additional three years of employment growth were distributed only to these areas. None of the “hot spot” areas were assumed to reach full build out by 2023.

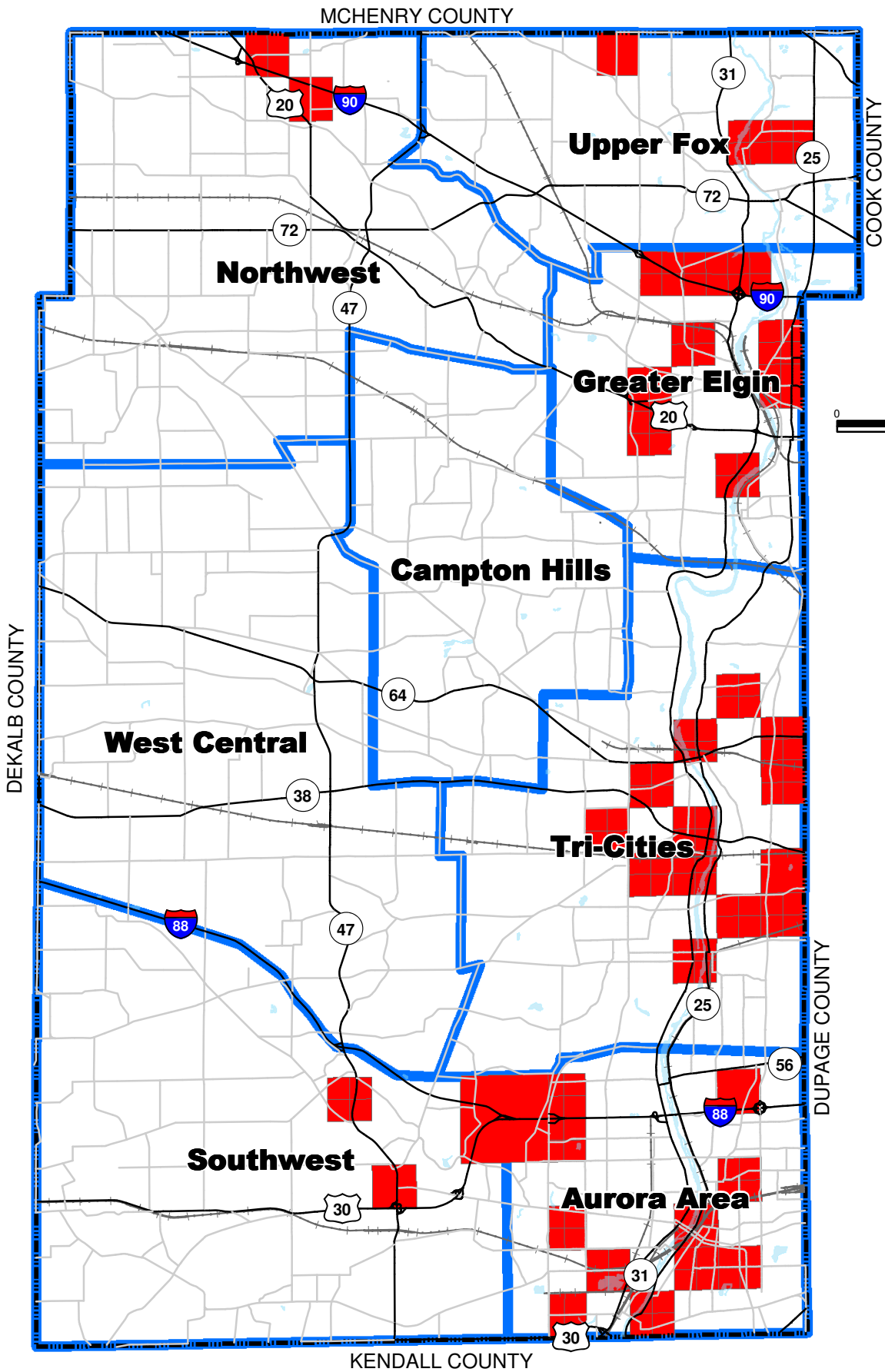
Transportation Analysis Zones (TAZ)

Employment data was summarized at the TAZ level. This was done for the same reasons that population and household data was summarized at the TAZ level. Population, household, and employment data are key indicators of travel demand and were formatted by TAZ such that it could be easily utilized during subsequent stages of the Impact Fee program development process. Appendix A contains the updated land use assumptions by TAZ developed for the Kane County road improvement impact fee program.



Kane County Comprehensive Road Improvement Plan

Figure 4-3
Kane County Forecast Employment Control Totals



Legend

- Service Area Boundaries
- Employment Growth Hot Spots (by TAZ)

**Figure 4-4
Kane County Employment Growth Hot Spots**

Section 5 - Development, Traffic Growth, and Impact Fees

This section serves as a guide to the user for linking development, traffic growth, travel orientation, and the impact fee process.

5.1 Development

In the previous section, the growth in population, households, and employment were shown in detail. Development has two separate impacts. Household (residential) growth is correlated with vehicle trip productions. Employment growth is related to trip attractions. As indicated in Table 5-1, during the period from 1970-2000, Kane County population grew by 61 percent and employment by 97 percent. During the past decade, the growth in registered vehicles nearly mirrored the rate of increase in population.

Table 5-1: Kane County Growth in Population, Employment, and Registered Vehicles, 1960-2000

Year	Population	Percent Increase	Employment	Percent Increase	Registered Vehicles	Percent Increase	Vehicles per Capita
1960	208,246	-	-	-	-	-	-
1970	251,005	21%	104,948	-	-	-	-
1980	278,400	11%	132,847	27%	-	-	-
1990	317,500	14%	145,200	9%	280,661	-	0.88
2000	404,100	27%	206,376	42%	343,953	23%	0.85

Source: Historic population and employment statistics from Northeastern Illinois Planning Commission (NIPC)
Historic registered vehicle statistics from Office of the Illinois Secretary of State

5.2 Traffic Growth

The explosive growth in population and employment in the county from 1970 to 2000 resulted in a dramatic increase in daily traffic in the county. As shown in Table 5-2, daily vehicle miles of travel (VMT) increased by approximately 42 percent during the 13-year period from 1990 to 2003, or by approximately 3.2 percent per year not compounded.

Table 5-2: Kane County Growth in Daily Vehicle Miles of Travel (VMT), 1990-2003

Year	Daily Vehicle Miles of Travel (VMT)	Percent Increase
1990	6,400,000	-
1996	7,700,000	20%
2003	9,100,000	18%

Source: 1990 from CATS 1996 TIP Appendix A
1996 and 2003 from Kane County travel demand model

The growth in daily vehicle miles of travel in Kane County cannot be explained solely by growth in population, employment, and vehicle ownership within Kane County. This growth is also reflective of the growth in travel between Kane County and the surrounding counties that make up the Chicago land Standard Metropolitan Statistical Area (SMSA). For example, for trips with at least one end in the county, it is estimated that only 47 percent of the total base year (2003) vehicle trips would be made wholly within Kane County. The

remainder, 53 percent, would be travel between Kane County and other parts of the metropolitan area. There is a great interdependence, therefore, between growth in Kane County and in other counties such as DuPage, Will, Cook, Lake, Kendall, and McHenry.

5.3 Travel Orientation

Travel in Kane County is heavily oriented to the impact fee service areas along the eastern county boundary. As indicated in Table 5-3, the easternmost four service areas (Upper Fox, Greater Elgin, Tri-Cities, and Aurora) account for over 86 percent of total daily VMT on KCDOT roadways in 2003. It is noteworthy, however, that only approximately one-third of county highway route miles are in these four service areas. The remaining two-thirds of the county system serve only about 14 percent of daily VMT on the county system.

Table 5-3: Vehicle Miles of Travel on KCDOT Roadways by Impact Fee Service Area

Impact Fee Service Area	2003 Average Daily VMT on KCDOT Roads	2003 Percent of Total VMT on KCDOT Roads in Impact Fee Service Area
Aurora	202,600	11.5%
Campton Hills	70,800	4.0%
Greater Elgin	292,400	16.7%
Northwest	57,900	3.3%
Southwest	71,500	4.1%
Tri-Cities	817,900	46.6%
Upper Fox	200,100	11.4%
West Central	42,200	2.4%
TOTAL	1,755,400	100.0%

Source: Kane County travel demand model

As shown in Table 5-4, average daily VMT on KCDOT highways amounted to approximately 19.4 percent of the total Kane County VMT in 2003. The table also gives the percentage of VMT on county highways by impact fee service area. It was shown earlier in Section 3 that the %VMT values, for each service area, are those used in the impact fee assessment equation as a discount that is applied to the gross fee. The factor is applied to allow the County to collect and distribute impact fees base upon the fair share impact to KCDOT roads within each service area. These percentages are likely to change from year to year as the DOT and other implementing agencies add lanes or transfer maintenance of roads, and as travel patterns adjust as a result of future development.

Table 5-4: Vehicle Miles of Travel (VMT) in Impact Fee Service Areas

Impact Fee Service Area	2003 Average Daily VMT on All Roadways	2003 VMT on KCDOT Roadways	2003 Percent of Total VMT on KCDOT Roadways
Aurora	2,154,600	202,600	9.4%
Campton Hills	207,700	70,800	34.1%
Greater Elgin	1,941,800	292,400	15.1%
Northwest	554,600	57,900	10.4%
Southwest	357,100	71,500	20.0%
Tri-Cities	1,786,100	817,900	45.8%
Upper Fox	1,391,600	200,100	14.4%
West Central	632,300	42,200	6.7%
TOTAL	9,025,800	1,755,400	19.4%

Source: Kane County travel demand model

5.4 Traffic Growth and Impact Fees

The overall growth in VMT and ADT on roads maintained by the Kane County DOT has caused the County to respond by adding new or improving existing facilities to accommodate the growth. Over the previous ten years, Randall Road has been widened from two to four lanes from Orchard Road to the McHenry County line. Many other roads have been widened and intersections enlarged and signalized to accommodate growth in travel demand.

As the County develops and that development consumes more roadway frontage, the cost of constructing an additional lane-mile of capacity will increase. This increase has already been observed in Kane County. Increasing costs are in direct proportion to items such as land acquisition for road right-of-way, relocation of utilities, drainage complexities, and traffic management during construction.

The cost to construct and acquire right-of-way for an additional lane-mile is a direct input into the impact fee formula. These costs are used to determine the gross fee for each land use category. The cost to design and construct an additional lane-mile was calculated using historic road widening projects in Kane County. Based on this data, the average cost to design and construct an additional lane-mile of road is \$1.27 million (2003). Countywide land value data was used to determine the average cost per square foot of land area in Kane County. This analysis resulted in a value of \$2 per square foot. Therefore right-of-way for an additional lane-mile would cost \$130,000 (2003). All together, it costs approximately \$1.40 million (2003) to add one lane-mile of capacity to the Kane County highway system.

Development and thus traffic are expected to increase in Kane County over the next ten years. This additional demand will require that additional capacity be added to the Kane County highway system in order to maintain acceptable traffic operations. Kane County has adopted a local option motor fuel tax on all fuel purchases in the County to help fund road improvements required to keep pace with growing demand. County staff also aggressively seek federal and state funds annually to improve KCDOT roads. The cost of making these improvements is expected to increase and additional funding must be identified to keep up with increasing travel demand and improvement costs. The next

sections will demonstrate the expected effect this growth will have on the Kane County highway system and present projects developed to accommodate this growth.

Section 6 - The Kane County DOT System and Existing Deficiencies

The objective of this section is to describe and characterize the existing Kane County DOT roadway system and to establish which of those roadways and intersections are presently operating at a poor level of service. In doing this, the Division of Transportation is identifying potential projects that the agency must attempt to address as well as identifying the kind of funding that may be applied to those projects. According to the *Road Improvement Impact Fee Law*, existing deficiencies may not be mitigated through the use of impact fee funds.

6.1 Existing Transportation System

Figures 6-1 and 6-2 describe the existing highway system in Kane County. Jurisdictional and functional classification of highways is shown in Figures 6-1 and 6-2, respectively. Table 6-1 summarizes the lane-miles of highway by jurisdiction in each impact fee service area.

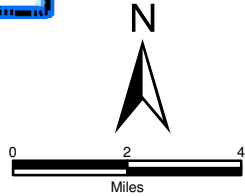
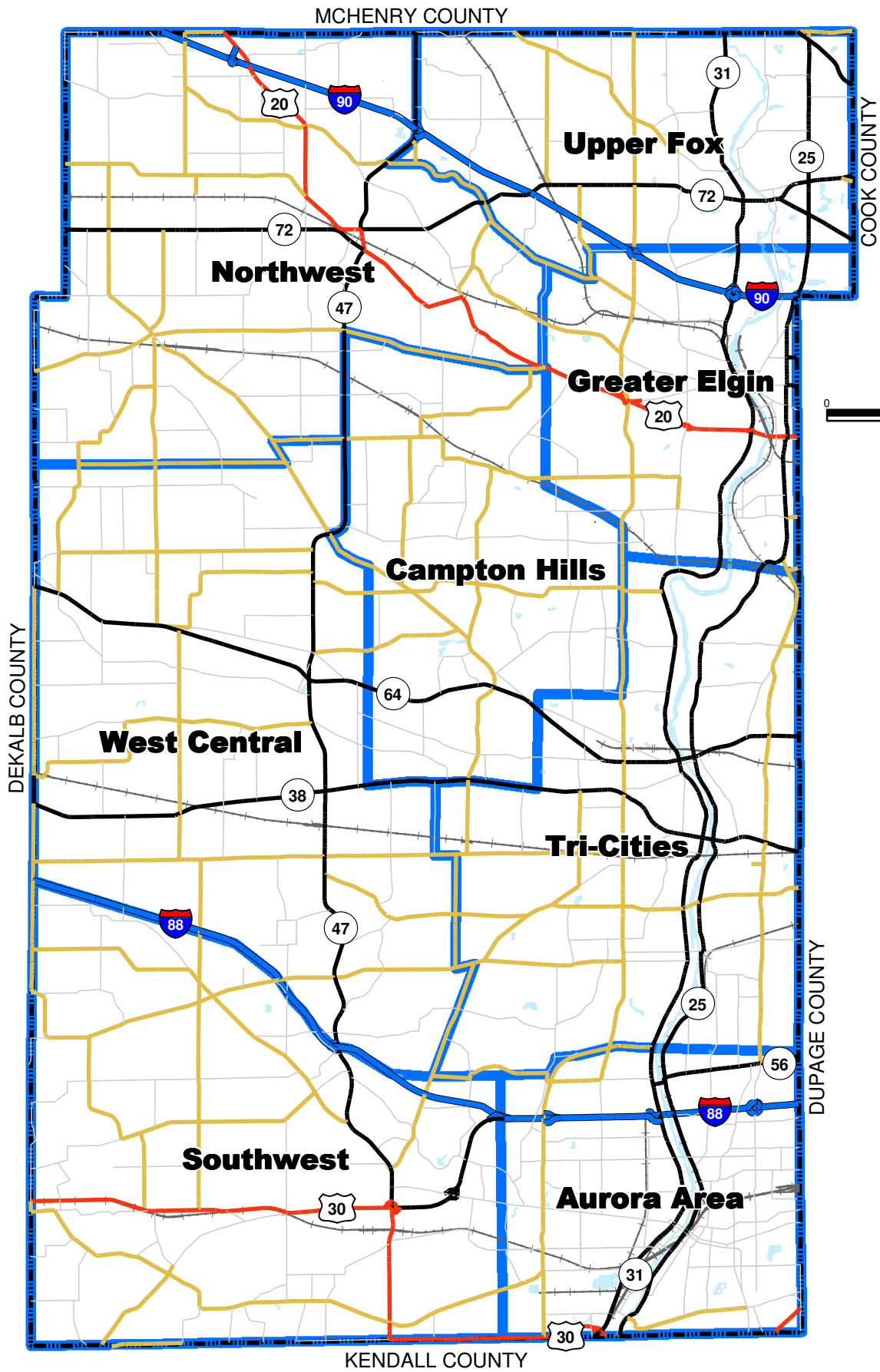
Table 6-1: Kane County Lane Miles of Roadway by Jurisdiction and Impact Fee Service Area

Impact Fee Service Area	Lane-Miles of Roadway by Jurisdiction				Total	Percent KCDOT
	ISTHA	IDOT	KCDOT	Other		
Aurora	50	60	42	279	431	9.7%
Campton Hills	0	18	65	85	168	38.7%
Greater Elgin	39	64	52	170	325	16.0%
Northwest	26	52	108	138	324	33.3%
Southwest	0	57	102	125	284	35.9%
Tri-Cities	0	116	156	187	459	34.0%
Upper Fox	21	82	57	102	262	21.8%
West Central	76	58	112	138	384	29.2%
TOTAL	212	507	694	1224	2637	26.3%

Source: Kane County travel demand model

On a lane-mile basis, the KCDOT roadway system comprises approximately one-quarter of the roadway system in Kane County with a functional classification of collector and higher. KCDOT roadways range from a low of only about ten percent of the total lane-miles (functional classification of collector or higher) of road in the Aurora Service Area to more than one-third of all roadway lane-miles in the Campton Hills, Northwest, Southwest and Tri-Cities Service Areas.

KCDOT roadways are classified as to the function each performs. Functional classifications extend from principal arterial (primarily high mobility traffic service) to local roads (primarily access to abutting land uses). The route-miles and lane-miles of KCDOT roadways for arterials and collectors are shown in Table 6-2.

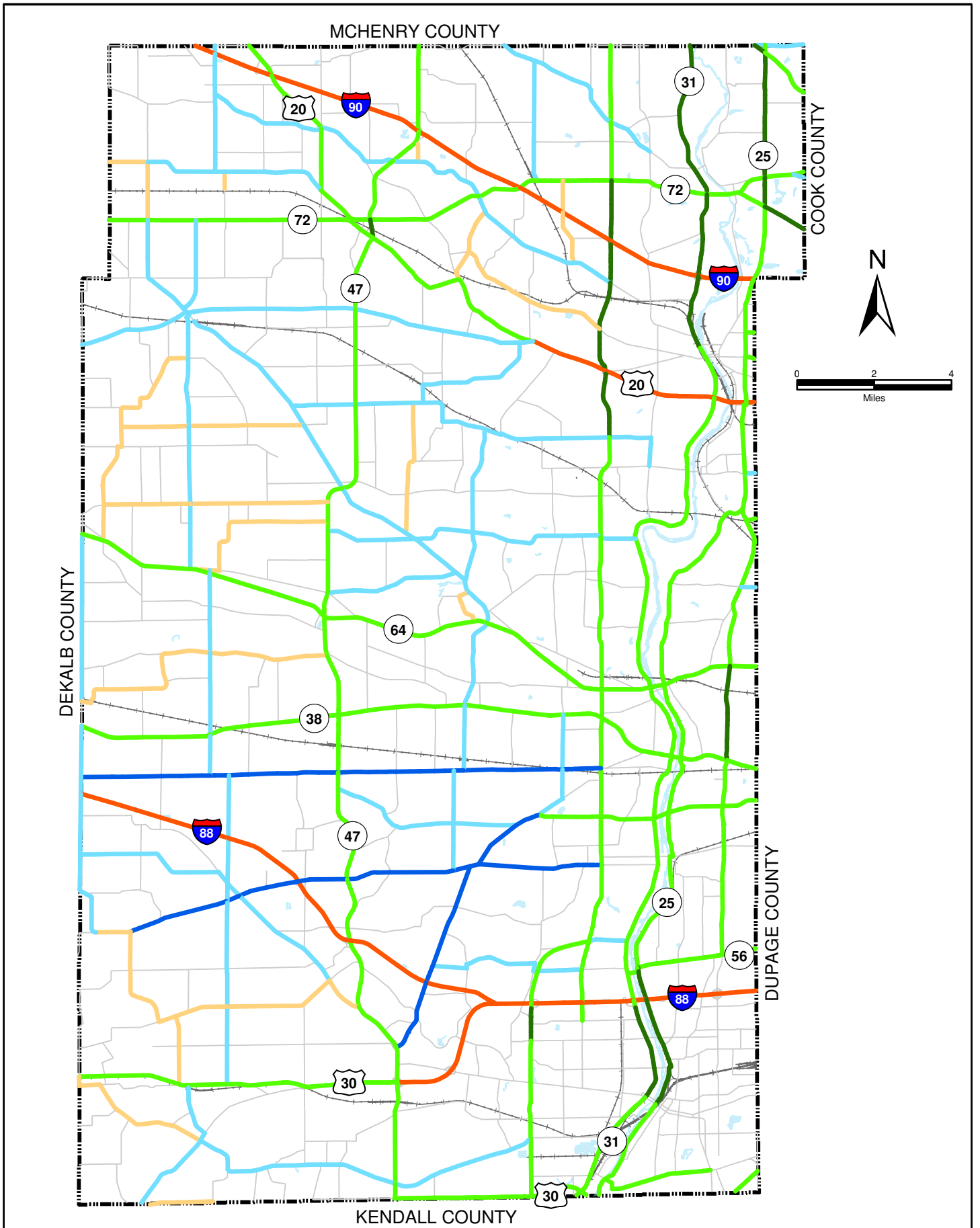


Legend

- Interstate
- U.S. Highway
- State Highway
- County Roads
- Other
- Service Area Boundaries

Kane County Comprehensive Road Improvement Plan

Figure 6-1
Kane County Highway System
by Jurisdictional Classification



Kane County Comprehensive Road Improvement Plan

Legend

- Freeway/Expressway
- Divided Principal Arterial
- Undivided Principal Arterial
- Wide Minor Arterial
- Narrow Minor Arterial
- Collector

Figure 6-2
Kane County Highway System
by Functional Classification

Table 6-2: Mileage of KCDOT Roadways by Functional Classification

Functional Class	Route-Miles		Lane- Miles	
	Miles	Percent of Total	Miles	Percent of Total
Principal Arterial (and Expressway)	51.7	16.9%	183	26.4%
Minor Arterial	182.3	59.4%	365	52.6%
Collector	72.8	23.7%	146	21.0%
TOTAL	306.8	100.0%	694	100.0%

Source: Kane County travel demand model.

Level of Service

Level of service is a qualitative measure describing operational conditions within the traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. Intersection LOS is typically based on delay time. The greater the delay time the worse the level of service. For roadway segments, LOS is typically expressed in terms of average operating speed ranging from LOS A (highest speed) to LOS F (lowest speed, or failure).

“Deficient” intersections or roadway segments, for purposes of the impact fee system analysis, are deemed to be those operating at LOS E or LOS F. This level of service is characterized by significant delays and average travel speeds of one-third of the free-flow speed or less.

6.2 Existing System Performance

The highway performance model, Synchro, was used to perform the traffic operation analysis. Synchro implements Highway Capacity Manual (HCM) 2000 procedures to analyze both stop-controlled and signalized intersections. For signalized intersections, cycle length, signal phasing, signal timing, and offsets were modified manually or through use of Synchro optimization tools. The strategy was to optimize traffic operations under the assumption that this analysis would represent the best possible operating scenario.

Synchro’s built-in reporting tools were used to output intersection Level of Service (LOS) and delay. For unsignalized intersections, the HCM report from within Synchro was used, as this was the only option available. For all way stop-controlled intersections the intersection average delay and corresponding LOS was reported. However, HCM procedures do not determine an intersection delay for two-way stop controlled intersections. Therefore, to identify existing deficiencies at two-way stop controlled intersections, the worst approach delay and corresponding LOS was used to represent the operational performance. For signalized intersections, the Synchro delay values and LOS were used.

Performance measures for segments were also obtained from Synchro. Segments were defined between every intersection analyzed on the KCDOT road system and a unique segment name entered in the Synchro software. Travel speed was determined by Synchro from the free flow speed entered for each segment, the length of the segment and corresponding approach delay at each end of the segment. The free flow travel time was

determined by dividing the segment length by the free flow speed. This travel time was increased by adjacent intersection approach delay and total travel time was divided by segment length to calculate travel speed. LOS was determined based on travel speed using HCM procedures for two-lane highways and urban streets.

All two-lane highways were assumed to be Class I, indicating the expectation of higher speeds. The table below provides the LOS Criteria for Class I Two-Lane Highways.

Table 6-3: LOS Criteria for Two-Lane Highways in Class I

LOS	Percent Time-Spent-Following	Average Travel Speed (mph)
A	<= 35	> 55
B	> 35 – 50	> 50 – 55
C	> 50 – 65	> 45 – 50
D	> 65 – 80	> 40 – 45
E	> 80	<= 40

Note: LOS F applies whenever the flow rate exceeds the segment capacity.

Source: HCM 2000, Highway Capacity Manual, Exhibit 20-2

Arterial segments, generally multilane segments with signalized intersections, were analyzed according to guidance in the Urban Streets Methodology chapter of the HCM. The urban street classification was determined based on the free flow speed (FFS) entered for each segment. The following table details the average travel speed criteria for determining LOS on urban streets.

Table 6-4: Urban Street LOS by Class

Urban Street Class	I	II
Range of FFS	55 to 45 mph	45 to 35 mph
Typical FFS	50 mph	40 mph
LOS	Average Travel Speed (mph)	
A	> 42	>35
B	> 34 – 42	>28-35
C	>27 - 34	>22-28
D	> 21 – 27	>17-22
E	> 16 – 21	>13-17
F	<= 16	<=13

Note: FFS = Free Flow Speed

Source: HCM 2000, Highway Capacity Manual, Exhibit 15-2

6.3 Existing System Deficiencies

The operational analysis from Synchro was used to identify deficient intersections and segments based on traffic operations. A field review of the facilities classified as deficient was also conducted to compare the results from the operational analysis to actual field conditions. The list of deficient intersections and segments are summarized in Tables 6-5 and 6-6.

Existing deficiencies were categorized as “projects” consisting of roadway segments and isolated intersections. In cases where a deficient intersection was found to be included within a deficient roadway segment, the intersection was not treated separately but was analyzed along with the roadway segment. Six roadway segments were rated deficient in 2002. All of the deficient segments operated at LOS E. Sixteen intersections were rated deficient under existing (2002) conditions. Eleven of the deficient intersections operated at LOS F and five at LOS E.

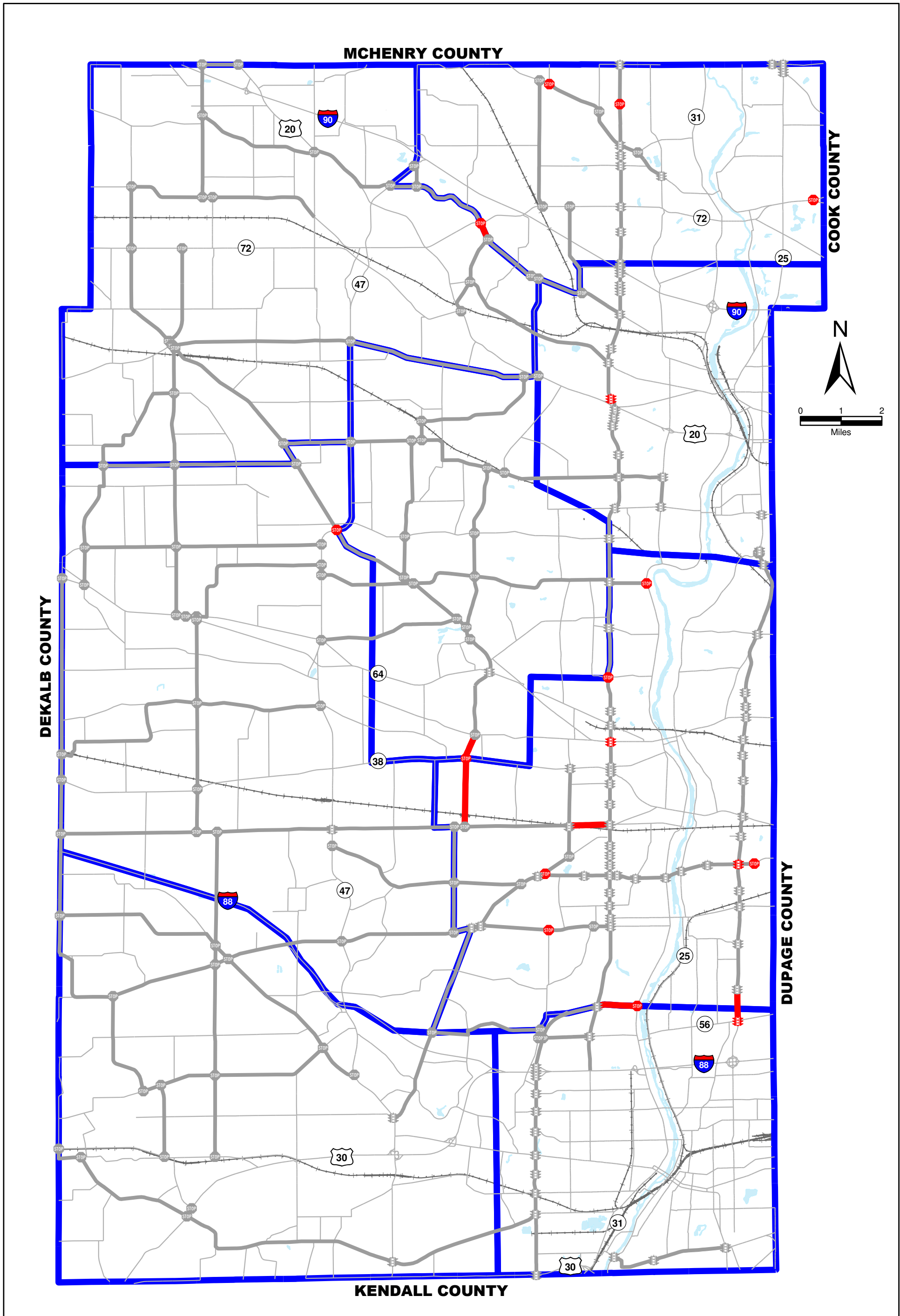
Table 6-5: Existing (2002) Intersection Deficiencies on KCDOT System

Intersecting Roadways	Intersection Type	LOS	Average Delay (Seconds)*	Primary Cause of Deficiency
Kirk Rd. & IL 56	Signalized	F	120.8	Heavy northbound and southbound approach volumes
Burlington Rd. & IL 47	Unsignalized	F	173.5	Heavy approach volumes on IL 47
Big Timber Rd. & IL 72	Unsignalized	F	154.2	Heavy westbound and southbound approach volumes
Huntley Rd. & Square Barn Rd.	Unsignalized	F	972.4	Heavy westbound approach and eastbound left turn volumes
Randall Rd. & Crane Rd.	Unsignalized	F	800.5	Heavy northbound and southbound approach volumes
Randall Rd. & Longmeadow Pkwy.	Unsignalized	F	377.2	Heavy northbound and southbound approach volume
Fabyan Pkwy. & Paramount Pkwy.	Unsignalized	F	367.9	Heavy westbound approach volume
Mooseheart Rd. & IL 31	Unsignalized	F	238.5	Heavy northbound and southbound approach volumes
La Fox Rd. & IL 38	Unsignalized	F	212.3	Heavy eastbound and westbound approach volumes
Silver Glen Rd. & IL 31	Unsignalized	F	57.1	Heavy northbound and southbound approach volumes
Fabyan Pky. & Kaneville Rd.	Unsignalized	F	50.8	Heavy westbound approach volume
Randall Rd. & IL 64	Signalized	E	65.2	Heavy turning volumes on all approaches
Randall Rd & US 20 Ramps/Foothill Dr.	Signalized	E	61.5	Heavy northbound and southbound approach volumes; heavy eastbound turning movements
Kirk Rd. & Fabyan Pkwy.	Signalized	E	56.5	Heavy turning movements on all approaches
Penny Rd. & IL 68	Unsignalized	E	49.7	Heavy westbound and eastbound approach volumes
Main St. & Nelson Lake Rd.	Unsignalized	E	47.0	Heavy westbound approach volumes

*Average Delay (seconds) represents average intersection control delay for signalized intersections and all-way stop controlled intersections. Delay for other unsignalized intersections represents the average approach delay of the worst performing stop controlled approach.

Table 6-6: Existing (2002) Segment Deficiencies on KCDOT Highways

Roadway	From	To	Roadway Type	Free Flow Speed (mph)	Average Speed (mph)	LOS
Big Timber Rd.	IL 72	Damisch Rd.	Two-Lane Highway	55	30	E
Keslinger Rd.	Randall Rd.	Peck Rd.	Two-Lane Highway	55	33	E
La Fox Rd.	Keslinger Rd.	IL 38	Two-Lane Highway	55	28	E
La Fox Rd.	IL 38	Campton Hills Rd.	Two-Lane Highway	55	19	E
Mooseheart Rd.	Randall Rd.	IL 31	Urban Class I	50	18	E
Kirk Rd .	IL 56	Wind Energy Pass	Urban Class II	45	17	E



Year 2002	Signalized Intersections	Unsignalized Intersections	County Road Segments	
Acceptable LOS				Service Area Boundary
Deficient LOS				

See Table 6-5 and 6-6 for 2002 deficiencies list

Kane County Comprehensive Road Improvement Plan
Figure 6-3
Kane County Existing (2002) Deficiencies

As indicated in Table 6-7, only seven percent of KCDOT roadway route-miles were rated deficient (LOS F or LOS E). Nearly three-quarters of KCDOT roadways operated at LOS A in 2003.

Table 6-7: Percentage of Route Miles under KCDOT Jurisdiction by LOS (2003)

Level of Service (LOS)	Percentage of Route Miles by LOS
A	73%
B	9%
C	6%
D	5%
E	4%
F	3%
TOTAL	100%

Source: Kane County travel demand model

An engineering assessment of all existing deficiencies was conducted. Eighteen projects were developed to improve the operations of the facilities that were classified as deficient. The total cost of engineering, construction, and right-of-way for these projects was estimated at approximately \$13.0 million. Kane County, as required under the *Road Improvement Impact Fee Law*, will address existing deficiencies where feasible. It is recognized that impact fees cannot be used to address existing deficiencies.

Section 7 - 2013 Forecasts and System Deficiencies

The objective of the Comprehensive Road Improvement Plan (CRIP) and the Impact Fee Program is to identify future capacity needs of the Kane County DOT roadway system brought about by new developments. In Section 4, the land use assumptions and the population and employment projections for 2013 were discussed in detail. This section relates the expected growth to traffic impacts.

As indicated in Section 3, the traffic forecasts were developed through the use of the Kane County travel demand model in combination with traffic count data. Inputs to the model are projections of socio-economic variables such as population and employment by TAZ, along with a description of the transportation network.

The travel forecast roadway network consisted of the existing roadway system augmented by programmed and funded improvements. Future (2013) zone-to-zone trips were generated and assigned to the network.

Expansion factors were developed for each network link by comparing the future (2013) ADT link volume with the previously assigned (2003) volume. These factors were applied to existing traffic volumes to develop forecast 2013 traffic volumes. The Synchro model road network was updated to reflect designed and funded improvements. Then the Synchro model was re-run with expanded traffic volumes. As with the existing system, operational analyses from Synchro were used to identify intersections and segments that would be deemed deficient based on traffic operations.

The forecast 2013 deficient KCDOT intersections and roadway segments are presented in Tables 7-1 and 7-2. Locations of the indicated deficiencies are shown in Figure 7-1.

Table 7-1: Forecast 2013 Intersection Deficiencies on KCDOT System

Intersecting Roadways	Intersection Type	LOS	Average Delay (Seconds)*	Primary Cause of Deficiency
Randall Rd. & US 20 Ramps/Foothill Dr.	Signalized	F	162.1	Heavy northbound and southbound approach volumes; heavy eastbound turning movement volumes
Randall Rd. & Royal Blvd.	Signalized	F	106.7	Heavy northbound and southbound approaches volumes; heavy westbound turning movement volumes
Randall Rd. & Keslinger Rd.	Signalized	F	91.4	Heavy northbound and southbound approach volumes; heavy westbound turning movement volumes
Randall Rd. & IL 72	Signalized	F	86.9	Heavy northbound approach volumes
Kirk Rd. & Fabyan Pkwy.	Signalized	F	86.6	Heavy turning volumes
Randall Rd. & Huntley Rd.	Signalized	F	83.3	Heavy northbound approach volumes
Big Timber Rd. & IL 72	Unsignalized	F	858.7	Heavy northbound and southbound approach volumes
Burlington Rd. & IL 47	Unsignalized	F	529.8	Heavy approach volumes on IL 47
Plank Rd. & IL 47	Unsignalized	F	96.2	
Main St. & IL 47	Unsignalized	F	59.7	Heavy northbound and southbound approach volumes
Main St. & Deerpath Rd.	Unsignalized	F	out of range	Heavy westbound approach volumes
Huntley Rd. & Square Barn Rd.	Unsignalized	F	out of range	Heavy eastbound and westbound approach volumes
Big Timber Rd. & IL 47	Unsignalized	F	out of range	Heavy northbound and southbound approach volumes
Randall Rd. & Crane Rd.	Unsignalized	F	out of range	Heavy northbound and southbound approach volumes
Randall Rd. & Longmeadow Pkwy.	Unsignalized	F	out of range	Heavy northbound and southbound approach volumes
Fabyan Pkwy. & Kaneville Rd.	Unsignalized	F	out of range	Heavy westbound approach volumes
Fabyan Pkwy. & Paramount Pkwy.	Unsignalized	F	5726.6	Heavy eastbound and westbound approach volumes

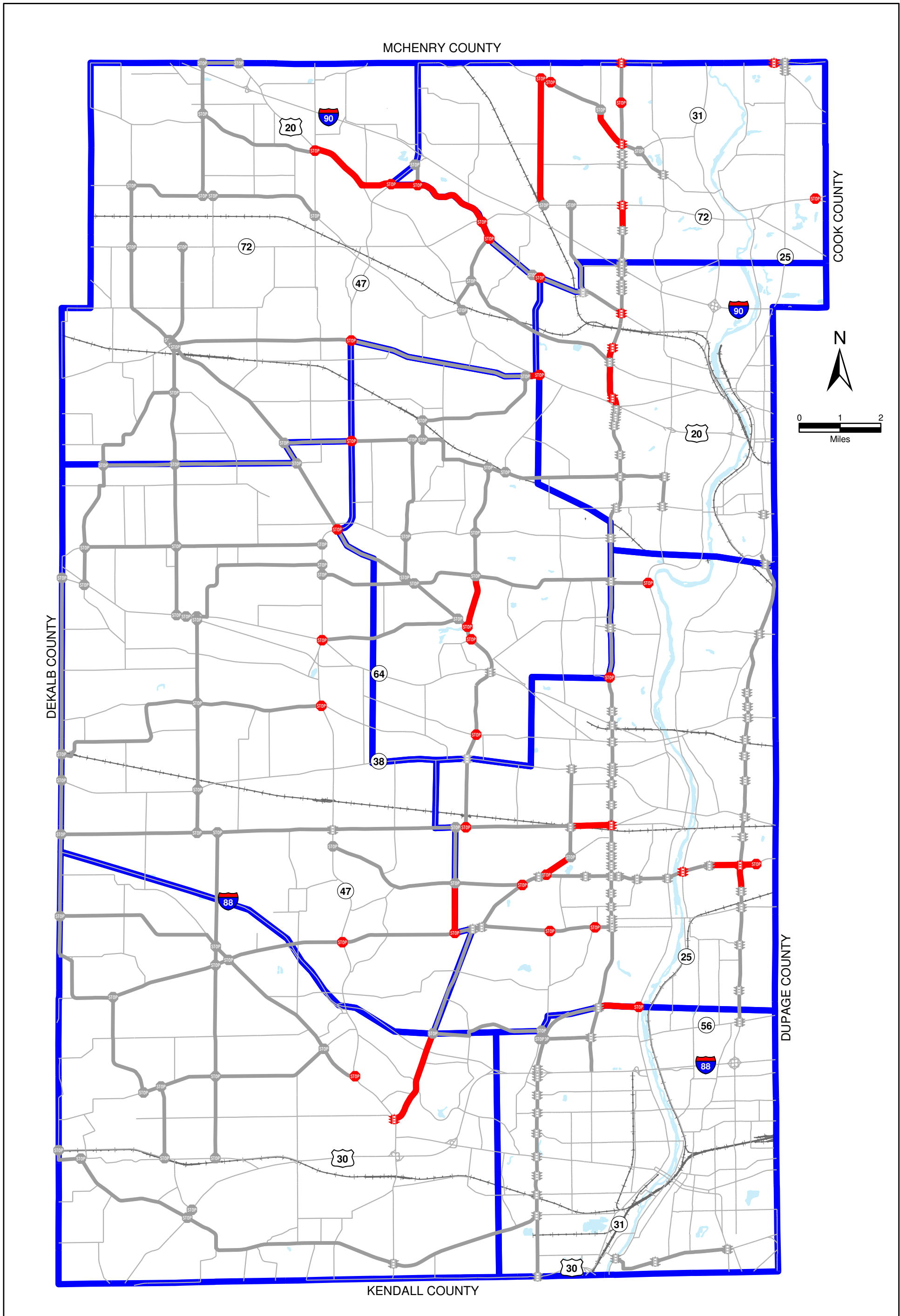
Intersecting Roadways	Intersection Type	LOS	Average Delay (Seconds)*	Primary Cause of Deficiency
Big Timer Rd. & Coombs Rd.	Unsignalized	F	2831.7	Heavy westbound approach volumes
Mooseheart Rd. & IL 31	Unsignalized	F	818.3	Heavy northbound and southbound approach volumes
Main St. & Nelson Lake Rd.	Unsignalized	F	713.1	Heavy westbound approach volumes
Plank Rd. & US 20	Unsignalized	F	451.4	Heavy eastbound and westbound approach volumes
Burlington Rd. & Corron Rd.	Unsignalized	F	342.2	Heavy eastbound approach volumes
Burlington Rd. & La Fox Rd.	Unsignalized	F	310.0	Heavy northbound and southbound approach volumes
Penny Rd. & IL 68	Unsignalized	F	189.8	Heavy eastbound and westbound approach volumes
Silver Glen Rd. & IL 31	Unsignalized	F	137.9	Heavy northbound and southbound approach volumes
Big Timber Rd. & Brier Hill Rd.	Unsignalized	F	135.6	Heavy northbound and southbound approach volumes
Huntley Rd. & Galligan Rd.	Unsignalized	F	134.3	Heavy westbound approach volumes
Bunker Rd. & Main St.	Unsignalized	F	96.2	Heavy westbound approach volumes
Fabyan Pkwy. & Hughes Rd.	Unsignalized	F	56.5	Heavy southbound approach volumes
Randall Rd. & Big Timber Rd.	Signalized	E	71.3	Heavy northbound and southbound approach volumes
Bliss Rd. & IL 47	Signalized	E	70.1	Heavy westbound turning movement volumes
Lake Cook Rd. & Algonquin Rd.	Signalized	E	68.0	Heavy north-westbound approach volumes
Randall Rd. & County Line Rd.	Signalized	E	63.9	Heavy northbound and southbound approach volumes
Fabyan Pkwy. & IL 25	Signalized	E	58.4	Heavy eastbound and westbound approach volumes
Empire Rd. & IL 47	Unsignalized	E	49.2	Heavy northbound and southbound approach volumes
Big Timber Rd. & Manning Rd.	Unsignalized	E	45.0	Heavy eastbound and westbound approach volumes
La Fox Rd. & Campton Hills Rd.	Unsignalized	E	43.9	Heavy northbound and westbound approach volumes
La Fox Rd. & Keslinger Rd.	Unsignalized	E	42.5	Heavy westbound approach volumes; heavy southbound turning movement volumes
Plato Rd. & IL 47	Unsignalized	E	42.4	Heavy northbound and southbound approach volumes

Intersecting Roadways	Intersection Type	LOS	Average Delay (Seconds)*	Primary Cause of Deficiency
IL 47 & Harter Rd	Unsignalized	E	37.4	Heavy eastbound right turn volumes
IL 47 & Beith Rd	Unsignalized	E	36.8	Heavy eastbound and westbound approach volumes
Big Timber Rd. & Damisch Rd.	Unsignalized	E	35.3	Heavy westbound approach volumes

*Average Delay (seconds) represents average intersection control delay for signalized intersections and all-way stop controlled intersections. Delay for other unsignalized intersections represents the average approach delay of the worst performing stop controlled approach. "Out of range" indicates that average delay under forecast traffic conditions were beyond the computational range of valid values determined using HCM 2000 methodology.

Table 7-2: Forecast 2013 Segment Deficiencies on KCDOT Highways

Roadway	From	To	Roadway Type	Free Flow Speed (mph)	Average Speed (mph)	LOS
Mooseheart Rd.	Randall Rd.	IL 31	Urban Class I	50	7	F
Randall Rd.	Highland Ave.	Royal Blvd.	Urban Class II	45	11	F
Randall Rd.	US 20 Ramps/Weld Rd.	US 20 Ramps/Foothill Dr.	Urban Class II	40	10	F
Huntley Rd.	Randall Rd	Boyer Rd	Two-Lane Highway	55	39	E
Galligan Rd.	IL 72	Huntley Rd.	Two-Lane Highway	55	36	E
Bliss Rd.	IL 47	Healy Rd.	Two-Lane Highway	55	35	E
Bunker Rd.	Main St.	Hughes Rd.	Two-Lane Highway	55	32	E
Keslinger Rd.	Peck Rd.	Randall Rd.	Two-Lane Highway	55	26	E
Big Timber Rd.	IL 47	Manning Rd.	Two-Lane Highway	55	17	E
Corron Rd.	Burlington Rd.	Silver Glen Rd.	Two-Lane Highway	55	15	E
Plank Rd.	Russell Rd.	US 20	Two-Lane Highway	55	8	E
Big Timber Rd.	Manning Rd.	IL 72	Two-Lane Highway	55	6	E
Big Timber Rd.	IL 72	Damisch Rd.	Two-Lane Highway	55	6	E
Big Timber Rd.	Brier Hill Rd.	IL 47	Two-Lane Highway	55	2	E
Fabyan Pkwy.	N. Raddant Rd.	Kirk Rd.	Urban Class I	50	20	E
Randall Rd.	Joy Ln.	IL 72	Urban Class I	55	19	E
Fabyan Pkwy.	Kirk Rd.	Paramount Pkwy.	Urban Class I	50	19	E
Kirk Rd.	Hubbard Ave.	Fabyan Pkwy.	Urban Class II	45	17	E
Randall Rd.	US 20 Ramps/Foothill Dr.	Highland Ave.	Urban Class II	40	17	E
Kaneville Rd	Fabyan Pkwy	Peck Rd	Two-Lane Highway	55	Out of range	E



Year 2013	Signalized Intersections	Unsignalized Intersections	County Road Segments
Acceptable LOS			
Deficient LOS			

See Table 7-1 and 7-2 for 2013 deficiencies list

Service Area Boundary

Kane County Comprehensive Road Improvement Plan

Figure 7-1
Kane County Forecast 2013 Deficiencies

Section 8 - FY 2004-2013 Comprehensive Road Improvement Plan

Table 8-1 presents the proposed Kane County Comprehensive Road Improvement Plan for FY 2004-2013. Section 5/5-910(7) of the state statutes regarding the Comprehensive Road Improvement Plan recommends that a schedule setting forth the anticipated date of construction be included in the plan. This information is included in Table 8-1. Projects are generally separated into two groups:

- 1) Projects where engineering and right-of-way acquisition is underway and are on schedule for letting in the FY 2004-2008 period.
- 2) Projects where engineering is just getting started but no design engineering or right-of-way acquisition is in progress.

This plan in no way guarantees that the projects included in this document will be undertaken or completed in the years shown. Many of the projects require environmental and engineering studies prior to project construction as well as right-of-way acquisition. In addition, some of the more intensive projects will require public hearings and inter-governmental agreements prior to project approval by the County Board.

Table 8-1 also indicated the impact fee service area(s) in which the projects is located. Project locations are also shown in Figure 8-1. Projects numbers in Table 8-1 correspond to project locations shown in Figure 8-1.

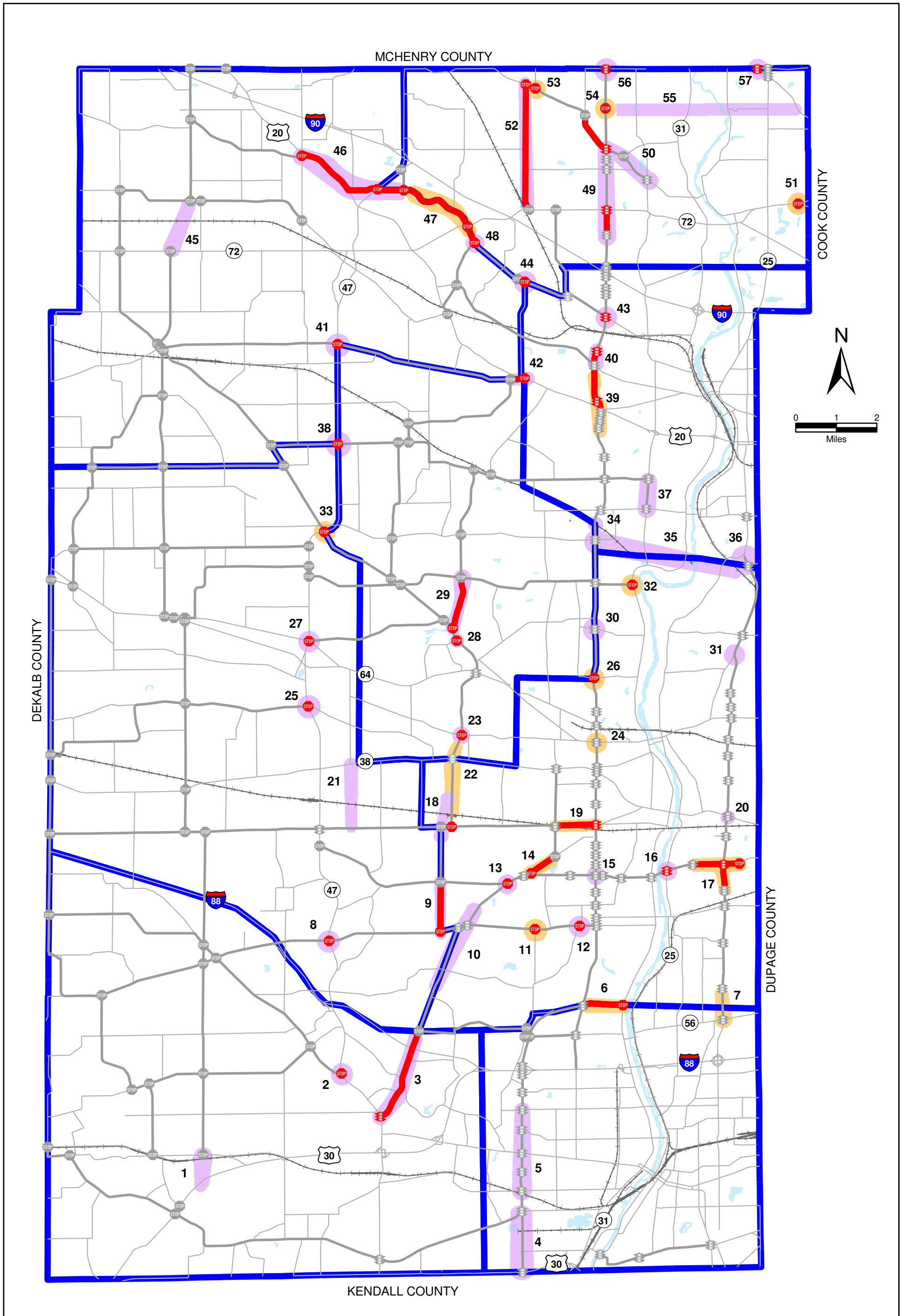
Table 8-1: Kane County FY 2004-2013 Comprehensive Road Improvement Plan

Project Number	Road	Location	Project Length (MI)	Estimated Engineering & Construction Cost (mil)	Estimated ROW Cost (mil)	Total Estimated Cost (mil)	Estimated County Portion of Cost (mil)	Type of Project	Project Year of Construction	Impact Fee Eligible	Service Area	Jurisdiction
22	La Fox Rd.	North of Keslinger Rd. to South of Campton Hills Dr.	NA	\$1.28	\$0.05	\$1.33	\$0.33	CH, SI	2004	No	Campton Hills/Tri - Cities	KC, IDOT
37	McLean Rd.	Hopps Rd. to Bowes Rd.	0.76	\$8.40	\$0.50	\$8.90	\$8.90	CH, WI	2004	Yes	Greater Elgin	KC
2004 Cost				\$9.68	\$0.55	\$10.23	\$9.23					
5	Orchard Rd.	Prairie St. to Indian Trail Rd.	1.89	\$13.21	\$0.05	\$13.26	\$13.26	CH, WI	2005	Yes	Aurora	KC
7	Kirk Rd.	IL 56 to Wind Energy Pass Rd.	NA	\$6.10	\$2.15	\$8.25	\$2.06	CH, WI	2005	No	Aurora	KC, IDOT
36	Dunham Rd.	at Stearns Rd./IL 25	NA	\$16.40	\$6.00	\$22.40	\$11.20	IN, RA	2005	Yes	Tri - Cities/Greater Elgin	KC, IDOT
21	Anderson Rd.	Extension		\$13.00	\$0.00	\$13.00	\$1.50	NR	2005	Yes	West Central	KC
24	Randall Rd.	at IL 64	NA	\$11.72	\$9.00	\$20.72	\$5.00	CH, WI	2005	No	Tri - Cities	KC, IDOT
4	Orchard Rd.	U.S. 30 to Jericho Rd.	1.3	\$17.29	\$1.20	\$18.49	\$18.49	CH, WI	2005	Yes	Aurora	KC
2005 Cost				\$77.72	\$18.40	\$96.12	\$51.51					
11	Main St.	at Nelson Lake Rd.	NA	\$0.66	\$0.04	\$0.70	\$0.70	CH, SI, RS	2006	No	Tri - Cities	KC, Local
12	Main St.	at Deerpath Rd.	NA	\$0.97	\$0.04	\$1.00	\$1.00	CH, SI, RS	2006	Yes	Tri - Cities	KC, Local
42	Plank Rd.	Russell Rd. to U.S. 20	0.35	\$0.66	\$0.07	\$0.73	\$0.24	CH, SI, RS	2006	Yes	Northwest/Campton Hills/Greater Elgin	KC, IDOT
18	Bunker Rd.	Extension		\$12.35	\$0.00	\$12.35	\$5.00	IN, RA	2006	Yes	Tri - Cities	KC
10	Bliss Rd.	Realignment to Fabyan Pkwy.		\$0.30	\$0.00	\$0.30	\$0.30	CH, RA	2006	Yes	West Central/Tri - Cities	KC
20	Kirk Rd.	at IL 38	NA	\$6.07	\$2.00	\$8.07	\$4.04	CH	2006	Yes	Tri - Cities	KC, IDOT
3	Bliss Rd.	IL 47 to Healey Rd.	2.38	\$0.82	\$0.00	\$0.82	\$0.41	CH, RS	2006	Yes	Southwest	KC, IDOT
15	Randall Rd.	at Fabyan Pkwy.	NA	\$7.25	\$0.00	\$7.25	\$2.00	CH, WI	2006	Yes	Tri - Cities	KC
2006 Cost				\$29.08	\$2.14	\$31.23	\$13.69					
30	Randall Rd.	at Red Gate Rd.	NA	\$0.75	\$0.00	\$0.75	\$0.75	CH	2007	Yes	Campton Hills/Tri - Cities	KC
19	Keslinger Rd.	Peck Rd. to Randall Rd.	1.00	\$0.50	\$0.00	\$0.50	\$0.50	CH, RS	2007	No	Tri - Cities	KC
52	Galligan Rd.	IL 72 to Huntley Rd.	3.13	\$0.44	\$0.11	\$0.55	\$0.55	CH, RS	2007	Yes	Upper Fox	KC
53	Huntley Rd.	East of Galligan Rd. to Square Barn.	1.67	\$0.66	\$0.11	\$0.77	\$0.77	CH, SI, RS	2007	No	Upper Fox	KC, Local
23	La Fox Rd.	at Campton Hills Dr.	NA	\$4.30	\$0.06	\$4.36	\$4.36	CH, RS	2007	Yes	Campton Hills	KC, Local
33	Burlington Rd.	at IL 47	NA	\$1.63	\$0.07	\$1.71	\$0.85	CH, SI, RS	2007	No	West Central/Campton Hills	KC, IDOT
48	Big Timber Rd.	at Damisch Rd.	NA	\$0.44	\$0.05	\$0.49	\$0.49	CH, RS	2007	Yes	Northwest/Upper Fox	KC
9	Bunker Rd.	Main St. to Hughes Rd.	1.22	\$0.66	\$0.08	\$0.74	\$0.74	SI, CH, RS	2007	Yes	West Central/Tri - Cities	KC
14	Kaneville Rd.	Fabyan Pkwy. To Peck Rd.	NA	\$0.30	\$0.00	\$0.30	\$0.30	CH, SI	2007	No	Tri - Cities	KC
47	Big Timber Rd.	East of Manning Rd. to West of Damisch Rd.	2.43	\$1.63	\$0.14	\$1.78	\$0.89	CH, SI, RS	2007	No	Northwest/Upper Fox	KC, IDOT
54	Randall Rd.	at Longmeadow Pkwy.	NA	\$0.26	\$0.04	\$0.30	\$0.30	CH, SI	2007	No	Upper Fox	KC
35	Stearns Rd.	Bridge Corridor		\$65.00	\$20.00	\$85.00	\$8.50	BC	2007	Yes	Tri - Cities	KC
2007 Cost				\$76.59	\$20.66	\$97.25	\$19.01					

Project Number	Road	Location	Project Length (MI)	Estimated Engineering & Construction Cost (mil)	Estimated ROW Cost (mil)	Total Estimated Cost (mil)	Estimated County Portion of Cost (mil)	Type of Project	Project Year of Construction	Impact Fee Eligible	Service Area	Jurisdiction
13	Fabyan Pkwy.	at Hughes Rd.	NA	\$0.75	\$0.18	\$0.93	\$0.93	CH, SI, RS	2008	Yes	Tri - Cities	KC
50	Huntley Rd.	Randall Rd. to Sleepy Hallow Rd.	1.31	\$3.06	\$0.25	\$3.31	\$3.31	IN, WI	2008	Yes	Upper Fox	KC
8	Main St.	at IL 47	NA	\$1.42	\$0.07	\$1.49	\$0.74	CH, RS	2008	Yes	West Central	KC, IDOT
28	Burlington Rd.	at Old LaFox Rd.	NA	\$0.66	\$0.11	\$0.77	\$0.77	CH, SI, RS	2008	Yes	Campton Hills	KC
29	Corron Rd.	Burlington Rd. to Silver Glen Rd.	1.29	\$1.49	\$0.07	\$1.56	\$1.56	CH, SI, RS	2008	Yes	Campton Hills	KC
43	Randall Rd.	at Big Timber Rd.	NA	\$0.42	\$0.04	\$0.46	\$0.46	CH	2008	Yes	Greater Elgin	KC
55	Longmeadow Pkwy.	Bridge Corridor		\$64.00	\$10.00	\$74.00	\$7.40	BC	2008	Yes	Upper Fox	KC
34	Randall Rd.	at IC RR	NA	\$16.20	\$0.20	\$16.40	\$16.40	GS	2008	Yes	Greater Elgin	KC
2008 Cost				\$87.99	\$10.92	\$98.91	\$31.57					
31	Dunham Rd.	at Kirk Rd.	NA	\$0.22	\$0.00	\$0.22	\$0.22	SI	2009-2013	Yes	Tri - Cities	KC
26	Randall Rd.	at Crane Rd.	NA	\$1.05	\$0.07	\$1.12	\$1.12	CH, RS	2009-2013	No	Campton Hills/Tri - Cities	KC, Local
1	Dauberman/Granart	Realignment		\$9.23	\$1.50	\$10.73	\$10.73	RA	2009-2013	Yes	Southwest	KC
17	Fabyan Pkwy.	Fabyan Pkwy./Kirk Rd. Area	1.80	\$0.47	\$0.14	\$0.61	\$0.61	CH	2009-2013	No	Tri - Cities	KC
6	Mooseheart Rd.	Randall Rd. to IL 31	0.99	\$0.71	\$0.06	\$0.77	\$0.26	CH, SI, RS	2009-2013	No	Aurora	KC, IDOT
16	Fabyan Pkwy.	at IL 25	NA	\$0.25	\$0.07	\$0.33	\$0.16	CH	2009-2013	Yes	Tri - Cities	KC, IDOT
32	Silver Glenn Rd.	at IL 31	NA	\$0.68	\$0.04	\$0.72	\$0.36	CH, SI, RS	2009-2013	No	Tri - Cities	KC, IDOT
27	Empire Rd.	at IL 47	NA	\$1.42	\$0.14	\$1.56	\$0.78	CH, RS	2009-2013	Yes	West Central	KC, IDOT
38	Plato Rd.	at IL 47	NA	\$1.49	\$0.14	\$1.63	\$0.82	CH, AWS, RS	2009-2013	Yes	West Central/Campton Hills/Northwest	KC, IDOT
41	Plank Rd.	at IL 47	NA	\$1.01	\$0.14	\$1.15	\$0.58	CH, SI, RS	2009-2013	Yes	Campton Hills/Northwest	KC, IDOT
40	Randall Rd.	Highland Ave. to North of Royal Blvd.	0.64	\$2.37	\$0.42	\$2.80	\$2.80	CH, RS	2009-2013	Yes	Greater Elgin	KC
39	Randall Rd.	South of South St. to South of Highland Ave.	1.4	\$38.56	\$1.12	\$39.68	\$7.94	IC, CH, WI, RS	2009-2013	No	Greater Elgin	KC, IDOT
44	Big Timber Rd.	at Coombs Rd.	NA	\$0.22	\$0.04	\$0.25	\$0.25	CH, SI	2009-2013	Yes	Northwest/Greater Elgin/Upper Fox	KC, Local
46	Big Timber Rd.	Brier Hill Rd. to Manning Rd.	3.16	\$2.87	\$0.18	\$3.05	\$1.80	CH, SI, RS	2009-2013	Yes	Northwest	KC, IDOT
49	Randall Rd.	Joy Ln. to Huntley Rd.	2.84	\$10.34	\$1.13	\$11.47	\$11.47	CH, WI, RS	2009-2013	Yes	Upper Fox	KC
56	Randall Rd.	at N. County Line Rd.	NA	\$0.25	\$0.14	\$0.40	\$0.40	CH	2009-2013	Yes	Upper Fox	KC
51	Penny Rd.	at IL 68	NA	\$0.68	\$0.04	\$0.72	\$0.24	CH, SI, RS	2009-2013	No	Upper Fox	KC, IDOT
57	Lake Cook Rd.	at Algonquin Rd.	NA	\$0.16	\$0.04	\$0.20	\$0.07	CH	2009-2013	Yes	Upper Fox	KC, IDOT
2	Harter Rd.	at IL 47	NA	\$0.09	\$0.00	\$0.09	\$0.03	CH	2009-2013	Yes	Southwest	KC, IDOT
25	Beith Rd.	at IL 47	NA	\$1.42	\$0.05	\$1.47	\$0.73	CH	2009-2013	Yes	West Central	KC, IDOT
45	French/Harmony	Realignment		\$9.70	\$1.50	\$11.20	\$11.20	RA	2009-2013	Yes	Northwest	KC
2009 - 2013 Cost				\$83.19	\$6.96	\$90.15	\$52.55					
Total				\$364.25	\$59.63	\$423.88	\$177.56				41 Impact Fee Eligible Projects	

- Notes: 1 Type of Improvement
 AWS - All-Way Stop Controlled NR - New Road
 BC - Fox River Bridge Corridor RA - Realignment
 CH - Channelization RS - Resurfacing
 GS - Grade Separation SI - Signalization
 IN - Intersection Improvements WI - Widening
 IR - Intersection Reconstruction IC - Interchange

- 2 Project 39 cost estimate assumes no additional ROW will be required for the interchange.



Year 2013	Signalized Intersections	Unsignalized Intersections	County Road Segments	Projects
Acceptable LOS				Impact Fee Eligible
Deficient LOS				Not Impact Fee Eligible

See Table 8-1 for the Road Improvement Program

Kane County Comprehensive Road Improvement Plan
Figure 8-1
Kane County FY 2004-2013
Comprehensive Road Improvement
Plan Map

Section 9 - Revenues and Needs Analysis

Table 9-1 represents the Kane County Division of Transportation's projection of revenues and needs for the FY 2004-2013 ten-year period. Primary revenues are County Property Tax levies for transportation and Motor Fuel tax funds. The Kane County Division of Transportation intends to expend property tax levy funds for operations, payroll, bridge inspections, salt purchases, and maintenance. Motor Fuel tax funds are the primary funding mechanism for capital improvements that add capacity to the County highway system.

Revenue estimates are based upon historical revenue trends. Motor fuel tax and local gas tax revenue estimates are based on moderately increasing motor fuel consumption, and do not reflect future fluctuations in revenue due to consumption, gas prices, or new technology. Impact fee revenues are based on the updated land use assumptions from Section 4 and historic permit data used to stratify anticipated development by land use category. Need estimates are based upon project cost for capital improvements and right-of-way, and historical expenditures for the maintenance, personnel, operations, and contractual services.

Revenues for the ten year period are expected to approach \$268 million with approximately 17% coming from local option motor fuel tax revenues, 26% from the state allocation of motor fuel tax, and only about 10% coming from impact fee revenues.

During that same period, the Division of Transportation anticipates needs in excess of \$380 million, for a net funding deficit of over \$113 million. Almost half of the projected needs are for capital capacity improvements and property acquisition. About 49% of needs are comprised of obligatory expenditures such as personnel, operations, and maintenance.

Tables 8-1 indicates the projects eligible for impact fee funding in the ten year program. The total cost of projects programmed in FY 2004–2013 was estimated at \$424 million. Historically, the county is able to share costs with the state and federal governments. The estimated county share of project costs is \$177 million, \$155 million of which is eligible for impact fee funds. As indicated in previous section and in state statutes, the impact fee program is not designed to fund all of the needed projects. Rather, this funding source is designed to supplement other major funding sources.

Impact fee revenues are projected to approach \$26.67 million over the life of this plan. This funding level only covers about 17% of the estimated county share of impact fee eligible project costs. It is anticipated that impact fees will not be used on all of the capital improvement projects.

There are further restrictions placed on the use of impact fees according to state statute. As discussed in Section 3, impact fees expenditures are limited to the service area in which fees were collected. Additionally, money collected from impact fees within a specified service area must be expended within 5 years of collection.

Table 9-1: Kane County Ten Year Revenues and Expenditures Forecast, FY 2004-2013

	2004	2005	2006	2007	2008	2009-2013	Total
Annual Projected Revenue							
County Highway Levy	\$5,050,700	\$5,202,200	\$5,358,300	\$5,519,000	\$5,684,600	\$31,085,500	\$57,900,300
County Bridge Levy	\$262,800	\$270,600	\$278,800	\$287,100	\$295,700	\$1,617,300	\$3,012,300
County Highway Matching Levy	\$54,600	\$56,200	\$57,900	\$59,700	\$61,400	\$336,100	\$625,900
Motor Fuel Tax - State	\$6,246,200	\$6,371,100	\$6,498,500	\$6,628,500	\$6,761,100	\$35,888,600	\$68,394,000
Motor Fuel Tax - Local Option	\$4,167,500	\$4,250,800	\$4,335,800	\$4,422,500	\$4,511,000	\$23,944,900	\$45,632,500
Impact Fee	\$2,667,000	\$2,667,000	\$2,667,000	\$2,667,000	\$2,667,000	\$13,335,000	\$26,670,000
Council of Mayors Planning Funds	\$48,400	\$49,800	\$51,300	\$52,900	\$54,400	\$297,700	\$554,500
Fees	\$440,000	\$440,000	\$440,000	\$440,000	\$440,000	\$2,200,000	\$4,400,000
Development Donation Accruals	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$250,000	\$500,000
Other	\$2,050,000	\$1,050,000	\$1,050,000	\$1,050,000	\$1,050,000	\$5,250,000	\$11,500,000
Interest (non federal only)	\$669,000	\$748,500	\$273,500	\$273,500	\$273,500	\$1,367,500	\$3,605,500
Reimbursements Federal , State, Local	\$29,608,100	\$9,144,000	\$5,120,000	\$120,000	\$120,000	\$600,000	\$44,712,100
Total Projected Revenue	\$51,314,300	\$30,300,200	\$26,181,100	\$21,570,200	\$21,968,700	\$116,172,600	\$267,507,100
Annual Projected Expenditures							
Bond Payment	\$3,467,500	\$3,499,100	\$3,495,400	\$3,499,700	\$3,497,500	\$17,482,600	\$34,941,800
Building & Grounds	\$1,009,000	\$569,200	\$591,200	\$615,000	\$640,900	\$3,680,800	\$7,106,100
Equipment	\$1,015,900	\$904,900	\$855,400	\$856,900	\$1,295,000	\$3,700,500	\$8,628,600
General Services	\$3,593,700	\$3,746,000	\$3,903,000	\$4,068,700	\$4,243,600	\$24,131,900	\$43,686,900
Maintenance - General	\$2,949,700	\$3,065,400	\$3,195,000	\$3,326,200	\$3,463,900	\$19,649,300	\$35,649,500
Maintenance - Highway (Resurfacing/Striping/Other)	\$4,100,000	\$4,220,000	\$4,352,000	\$4,497,200	\$4,656,900	\$26,298,800	\$48,124,900
Maintenance - Deicing Materials	\$630,000	\$669,900	\$703,800	\$750,400	\$791,300	\$4,813,000	\$8,358,400
Maintenance - Bridge	\$2,100,000	\$5,300,000	\$3,000,000	\$975,000	\$966,000	\$4,700,000	\$17,041,000
Capital Capacity Improvements*	\$9,231,000	\$51,508,000	\$13,693,000	\$19,010,000	\$31,566,000	\$52,549,000	\$177,557,000
Total Projected Expenditures	\$28,096,800	\$73,482,500	\$33,788,800	\$37,301,100	\$51,121,100	\$157,302,900	\$381,093,200

* - Anticipated county portion of project costs. ROW acquisition costs are included and assigned to the anticipated project year of construction.

Table 9-2 shows the distribution of impact fee eligible projects costs by service area (from Table 8-1). There are a total of 41 impact fee eligible projects in Kane County. For projects that fall on a service area boundary, the project costs were proportioned equally between all adjoining service areas for the purposes of the table below.

Table 9-2: Kane County Impact Fee Eligible Projects by Service Area

Impact Fee Service Area	Total Cost of Impact Fee Eligible Projects in Service Area (millions)	Estimated County Share of Costs of Impact Fee Eligible Projects in Service Area (millions)
Aurora	\$31.75	\$31.75
Campton Hills	\$8.43	\$7.70
Greater Elgin	\$40.08	\$34.32
Northwest	\$15.95	\$13.98
Southwest	\$11.63	\$11.17
Tri-Cities	\$127.24	\$28.34
Upper Fox	\$90.26	\$23.53
West Central	\$18.59	\$4.55
TOTAL	\$343.92	\$155.33

The strategy for funding allocations on each project cannot be determined at this point, but is an annual decision made by the County Engineer and staff that may be reviewed by the Impact Fee Advisory Committee.