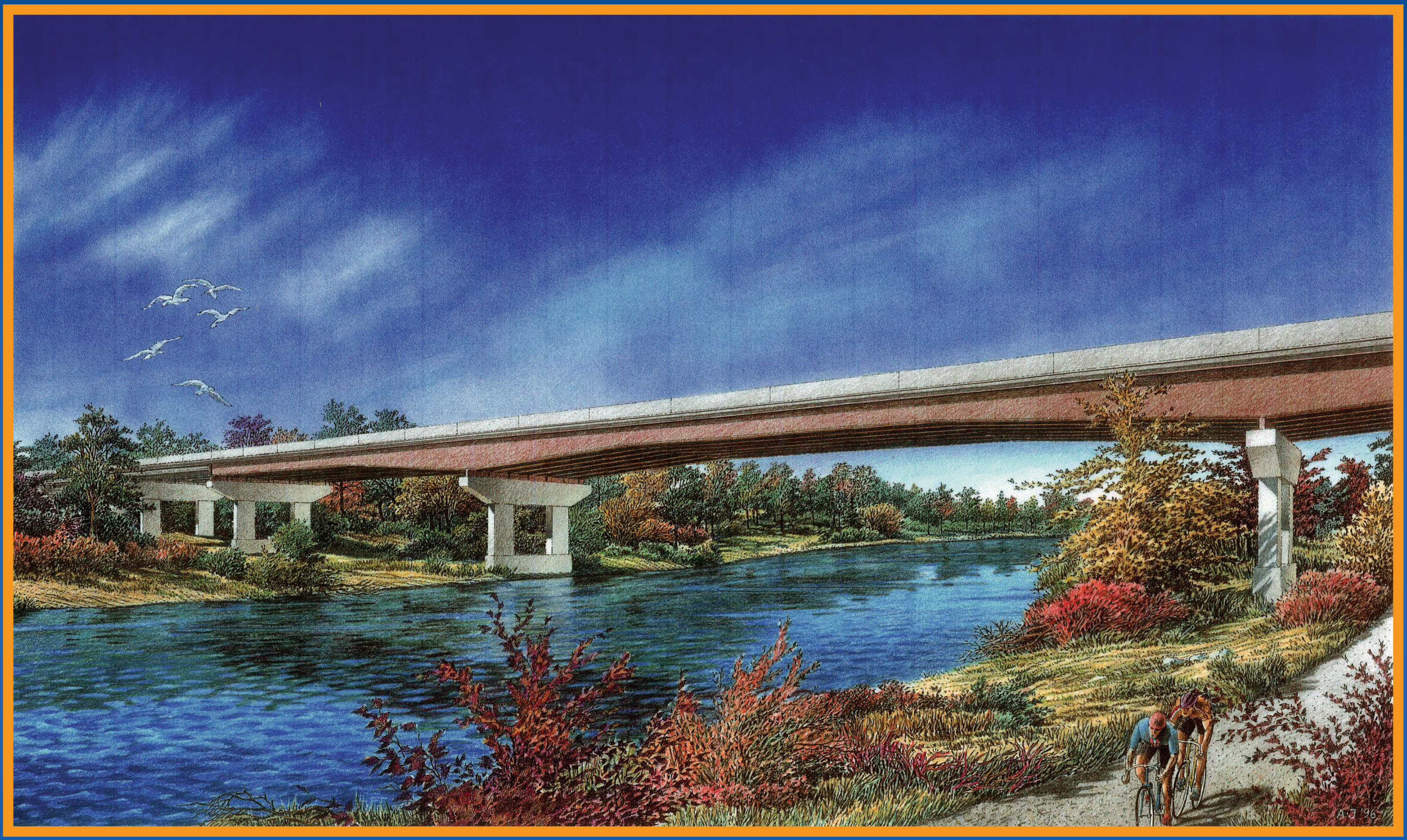
Longmeadow Parkway Bridge Corridor

Traffic Projections and Financial Feasibility Study

Final Report of Findings



August 2009

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V3 Companies of Illinois

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EXECUTIVE SUMMARY

The Longmeadow Parkway Bridge Corridor was proposed to alleviate traffic congestion on the existing bridges in the northern Fox Valley area in northeastern Illinois. As shown in **Figure ES.1**, the project corridor would extend approximately 5.6 miles from Huntley Road to the west and to Illinois Route 62 to the east, serving east-west traffic across the Fox River. Ten local communities and McHenry County passed resolutions requesting Kane County to consider a toll bridge as a funding option for the proposed Longmeadow Parkway.

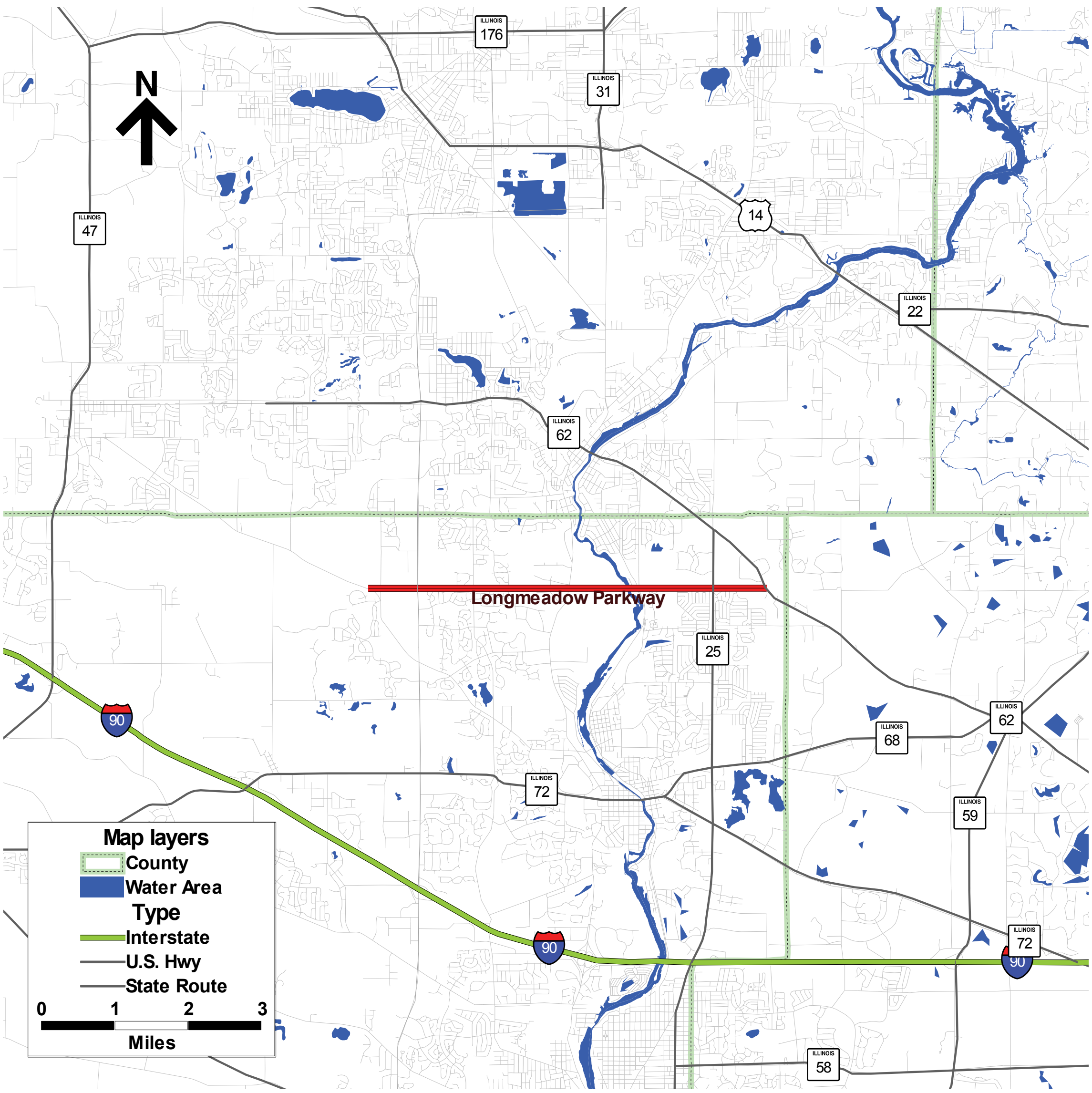


Figure ES.1 The Project

The purpose of this feasibility study is to determine the potential of toll financing for the Longmeadow Parkway by developing revenue forecasts and a preliminary financing plan. The study is not an investment grade study and as such is not intended to be the basis for project financing.

This study proposes that tolls be collected on the Longmeadow Parkway Toll Bridge by the Illinois Tollway's electronic toll collection system, I-PASS, supplemented with video tolling. Coordination meetings have occurred with the Illinois Tollway. Tollway officials have indicated that they are willing to help make this project a reality. In the proposed system, tolls are collected primarily through the use of I-PASS, and the users without I-PASS accounts are handled through video tolling. **Figure ES.2** illustrates the proposed toll collection system.

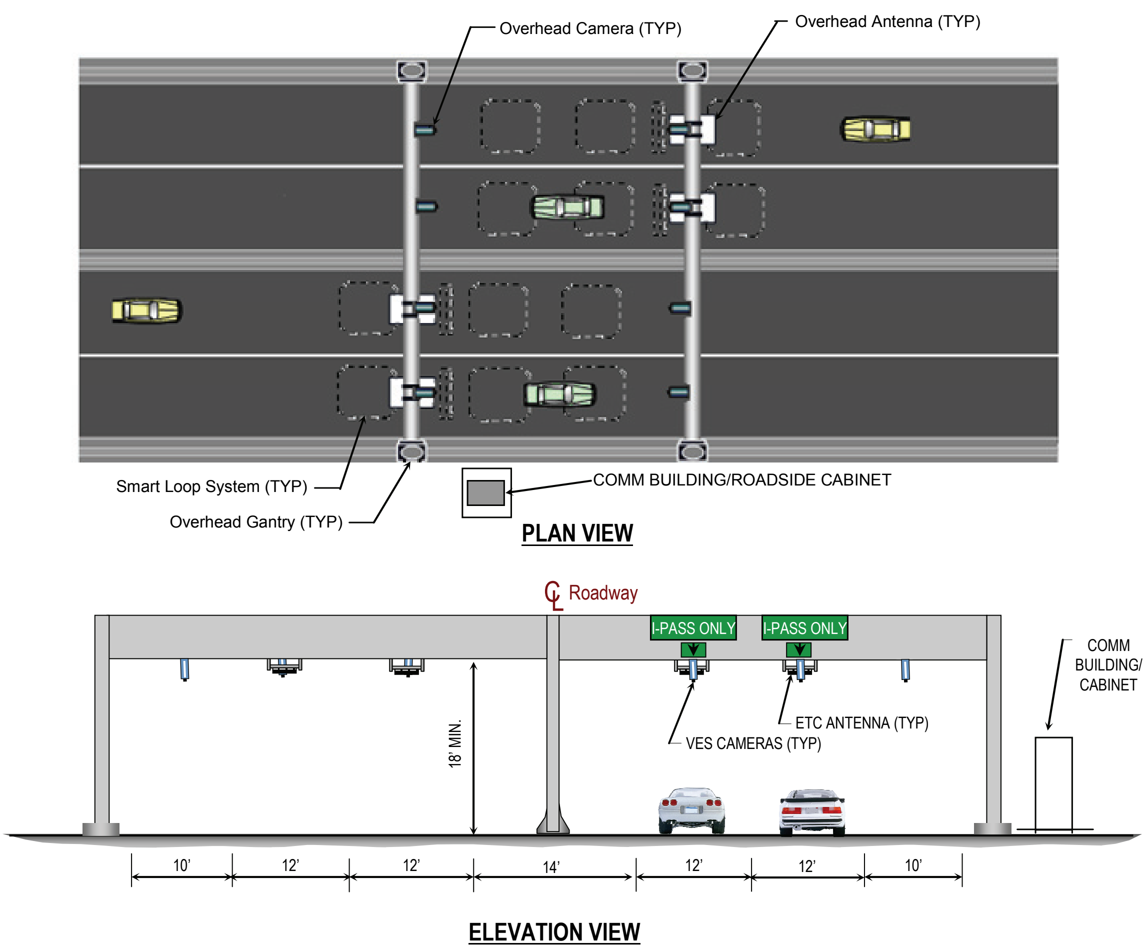


Figure ES.2 Proposed Toll Collection System

A travel demand modeling application was used to develop traffic and revenue forecasts. At the toll collection location, annual toll transactions were estimated based on traffic forecasts derived from a travel demand model. Toll operations and maintenance costs were estimated based on the toll transactions. Annual gross and net toll revenues were estimated from the toll transactions and the toll operations and maintenance costs.

Traffic and toll revenue forecasts were prepared for two build options of the Longmeadow Parkway. The first scenario, Full-Build Option, assumes that the parkway would be built from Huntley Road to the west to Illinois Route 62 to the east (**Figure ES.3a**). The second scenario, Partial-Build Option, assumes that the western terminus would be Randall Road and the eastern terminus Illinois Route 25 (**Figure ES.3b**).

Figure ES.3a Full-Build Option

Figure ES.3b Partial-Build Option

Toll sensitivity analysis was conducted for the assumed opening year 2013 for the Full-Build Option under varying toll schedules. The toll schedules were characterized by the peak period passenger car rate which was varied between $0.50 and $2.50. Lower off-peak passenger car tolls and higher commercial vehicle tolls were included in each schedule. As a result of the toll rate sensitivity analysis, it was determined that a schedule with a passenger car peak period rate of $1.50 would be optimal. WSA prepared traffic and revenue forecasts for three toll scenarios where passenger car tolls for peak period were assumed to be $0.50 (Toll Scenario 1), $1.00 (Toll Scenario 2), and $1.50 (Toll Scenario 3).

For the two build options and the three toll scenarios, toll transaction, gross revenue, O&M costs, and net revenue forecasts were prepared annually for the 40-year projection period beginning in the opening year. **Figures ES.4a** through **ES.4c** present the annual net revenue forecasts for the project period for the three toll scenarios. As shown in **Figure ES.4a**, for Toll Scenario 1 with the Longmeadow Parkway fully built, the annual toll net revenue would increase from about $1.1 million in 2013 to roughly $7.2 million in 2052 with an average annual net revenue of approximately $4 million. The Partial-Build Option in the same toll scenario would generate an annual average net revenue of about $2.5 million.

Of these scenarios the highest revenue would be obtained in Toll Scenario 3 with the Full-Build Option as shown in **Figure ES.4c**. The net revenue for this scenario would grow from approximately $2.1 million to about $13.9 million. In this scenario, the net revenues expected from the Longmeadow Parkway over the 40-year period average approximately $7.2 million annually.

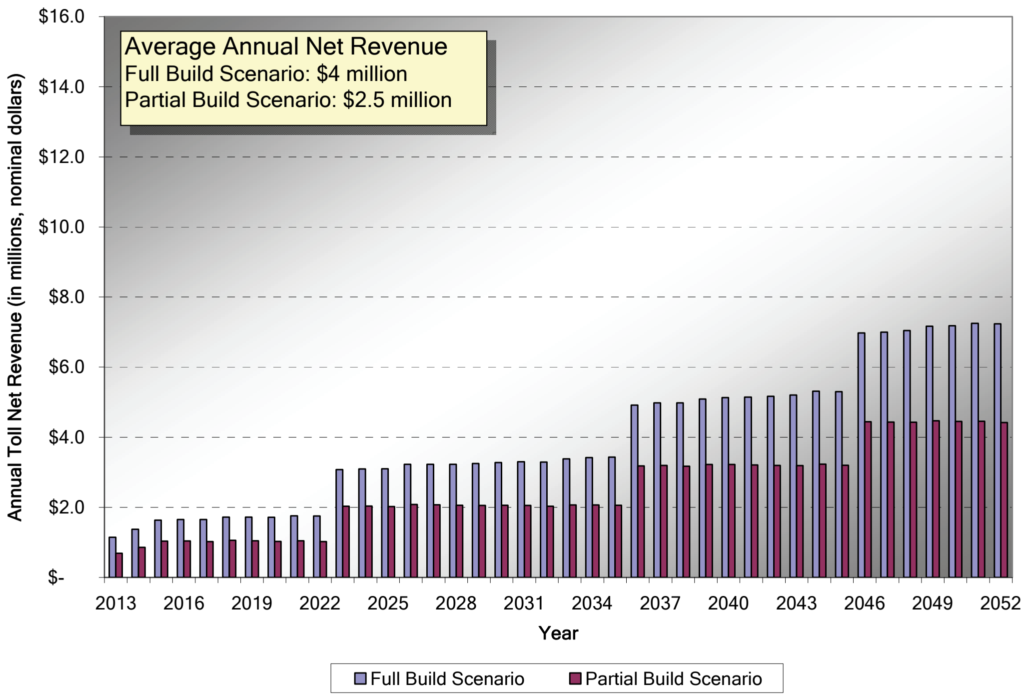


Figure ES.4a Annual Toll Net Revenue Forecast by Build Option (Toll Scenario 1*)
* Toll Scenario 1: $0.50 (2013) passenger car toll in the peak period

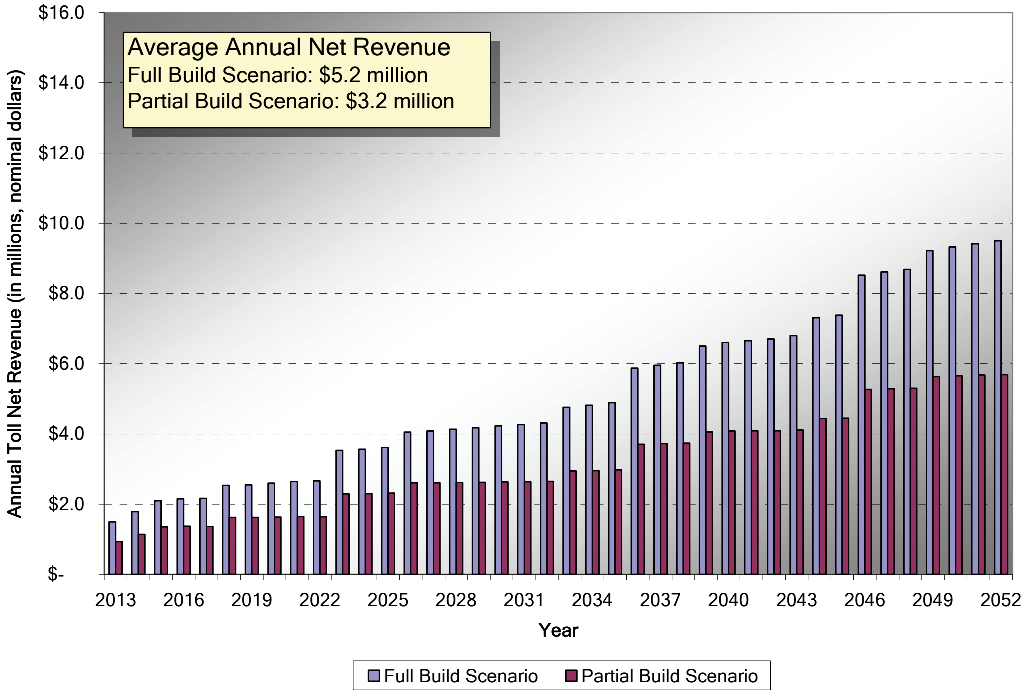


Figure ES.4b Annual Toll Net Revenue Forecast by Build Option (Toll Scenario 2*)

* Toll Scenario 2: $1.00 (2013) passenger car toll in the peak period

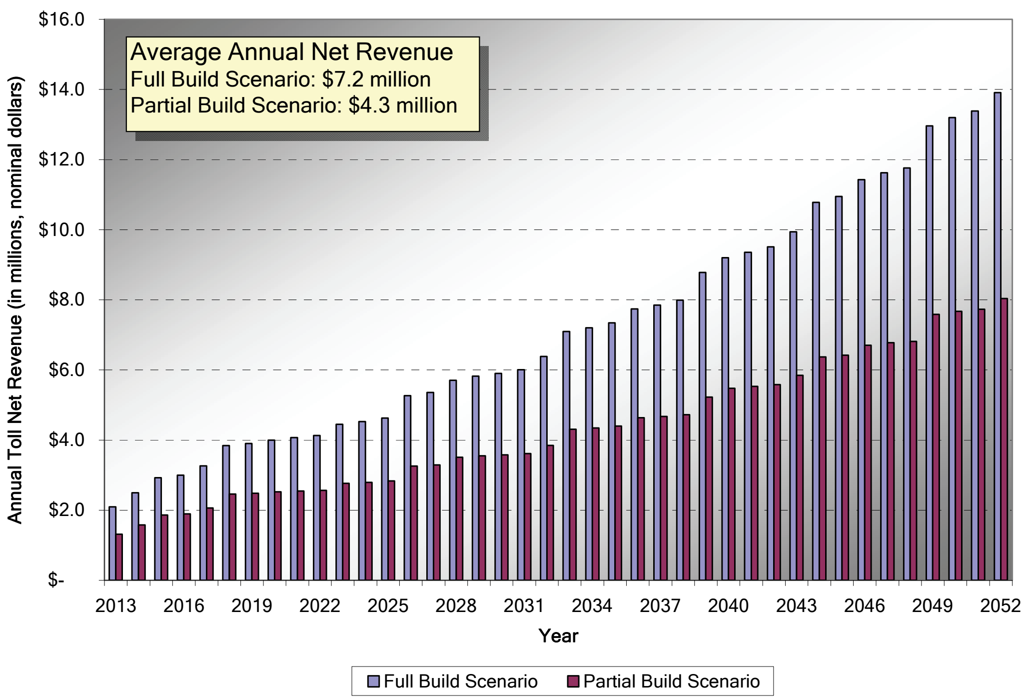


Figure ES.4c Annual Toll Net Revenue Forecast by Build Option (Toll Scenario 3*)

* Toll Scenario 3: $1.50 (2013) passenger car toll in the peak period

Cost information was developed to analyze the financial feasibility of various improvement alternatives for each roadway segment as follows:

- Alternative 1: Four-lane roadway section with four-lane bridge
- Alternative 2: Two-lane roadway section with four-lane bridge
- Alternative 3: Two-lane roadway section with two-lane bridge
- Alternative 4: Two-lane roadway section with a two-lane bridge deck and a four-lane bridge substructure

Based upon the traffic forecast, it is apparent that eventual construction of the Full-Build Option, from Huntley Road to Illinois Route 62 (Algonquin Road), is crucial to the overall viability of the toll facility. As was discussed Toll Scenario 3 is recommended, which is a $1.50 passenger car toll during peak periods, and $1.00 passenger call toll during off-peak periods. For Longmeadow Parkway, the opening year 2013 daily traffic forecast for the Full-Build Option using Toll Scenario 3 is 8,780 vehicles.

A 2-lane roadway corridor, along with intersections constructed with adequate channelization, can in some cases accommodate approximately 15,000 to 20,000 daily vehicles. Since the 10-year traffic projection is less than 15,000 vehicles per day, initial construction of Longmeadow Parkway to a 2-lane cross-section, 1-lane in each direction, is anticipated to be adequate to accommodate travel demand for the next 10-20 years. Based upon these projections, staff recommends that initial construction be a 2-lane roadway cross-section with a 4-lane bridge substructure (Alternative 4). Initial construction of the 4-lane bridge substructure would allow for Longmeadow Parkway to be widened to a continuous 4-lane roadway and bridge section, once the future traffic volumes warrant expansion and funding were available.

The cost estimate for engineering, land acquisition and construction of Alternative 4 for the entire corridor from Huntley Road to Illinois Route 62 is approximately $117 million. The cost estimate for engineering, land acquisition and construction of Alternative 4 for the toll-eligible section between Illinois Route 31 and Illinois Route 62 is approximately $82 million. The cost estimate for engineering, land acquisition and construction of Alternative 4 for the remaining portion of the corridor from Huntley Road to Illinois Route 31 is approximately $35 million, with this portion locally funded.

The Kane County Special Assistant State's Attorney confirmed that the Illinois Compiled Statutes in 605 ILCS 5/Article 10 Division 3 of the Highway Code (County Toll Bridges) authorizes the County to issue bonds for the purpose of constructing and operating a toll bridge and the corresponding approaches.

The cost estimate for engineering, land acquisition and construction of Alternative 4 of the toll-eligible section between Illinois Route 31 and Illinois Route 62, is approximately $82 million. Results of the Traffic Projections and Financial Feasibility Study indicate that construction and operation of a toll bridge is a viable option for consideration. Projected toll revenues would allow the County to utilize a General Obligation Alternate Bonds financing vehicle with 30 years to maturity to generate bond proceeds with a principal amount between approximately $70 million to $75 million. With $4 million of Federal funds, $9 million of State funds, County impact fees, along with construction by (or recapture from) developers would allow for future engineering, land acquisition, and initial construction of the 2-lane roadway cross-section with a 4-lane bridge substructure to occur.

It is proposed, that the toll collection facilities remain on the bridge until the initial construction bonds are fully repaid and future widening and maintenance endowment funds are established. At that time, the tolls will be removed from the bridge.

In order to make the Longmeadow Parkway Toll Bridge a viable alternative for consideration, staff recommends the following items need to occur (not necessarily in order):

- Secure additional Federal, State, and other fund sources when available
- Expend the available SAFETEA-LU HPP dollars on right-of-way acquisition
- Complete the remainder of Phase I Engineering
- Execute the Federal Section 120 Agreement
- Demonstrate through the Final Technical Memorandum that a supplement to the previously approved and signed FEIS and Section 4(f) Evaluation is not required
- Execute a Letter of Intent and, ultimately, a Letter of Understanding with the Tollway
- Further coordination with the County's financial advisor regarding financing alternatives, given the current financial market

1 INTRODUCTION

1.1 BACKGROUND AND OBJECTIVES

The Chicago metropolitan area housed more than 9.7 million people in 2006 and has seen steady growth over the past decade. Kane County has been one of the highest growth areas in the Chicago metropolitan area, experiencing an average annual growth rate of population of approximately 3.2 percent between 2000 and 2006. In particular, the northern Kane County and the southern McHenry County west of the Fox River represented by seven townships are populated with more than 200,000 residents, according to current U.S. Census Bureau estimates.

This rapid growth contributed to an increase in travel demand and, in turn, traffic congestion in the area. Currently, the northern Fox Valley area near Algonquin and West Dundee is only served by three regional bridges, the I-90, Illinois Route 72, and Illinois Route 62 bridges, and a local Main Street Bridge in Carpentersville. The Main Street Bridge carries regional traffic, causing negative impacts on local neighborhoods.

The Longmeadow Parkway was proposed to alleviate traffic congestion on the existing Fox River bridges. The Longmeadow Parkway would serve east-west traffic across the Fox River between the Illinois Route 62 and the Carpentersville's Main Street bridges. The Longmeadow Parkway Bridge Corridor was studied as part of the Fox River Bride Crossings Environmental Impact Statement in 1990s.

In 2001, the Final Environmental Impact Statement was completed for three Fox River Bridge Corridors at the Longmeadow Parkway, Stearns Road, and Illinois Route 56/Oak Street, and a Record of Decision was made by the Federal Highway Administration in 2002. The FEIS stated the following purposes of the Fox River Bridge Crossings (*Source: Final Environmental Impact Statement and Section 4(f) Evaluation - Fox River Crossings, Kane County, Illinois, November, 2001*):

- enhance Kane County's transportation network by reducing congestion and providing alternate and more direct routes
- serve existing land use through efficient access to central business districts, public services, and employment and commercial centers
- serve proposed land use in conformance to Kane County's 2020 Land Resource Management Plan, which encourages compact, contiguous growth in the eastern portion of the county and preserves the rural qualities of the western portion

10 communities with a total population of approximately 150,000 and McHenry County passed resolutions requesting Kane County to consider a toll bridge as a funding option for the proposed Longmeadow Parkway Bridge Corridor. The 10 communities include villages of Algonquin,

Barrington Hills, Carpentersville, East Dundee, Gilberts, Hampshire, Huntley, Lake in the Hills, Sleepy Hollow, and West Dundee.

Kane County established a Longmeadow Parkway Toll Bridge Task Force, which consists of area municipal mayors, village managers, County Board members, and County staff, to coordinate the required activities needed to consider a toll bridge across the Fox River on the Longmeadow Parkway. The Task Force would lead efforts to the followings (*Source: Longmeadow Parkway Fox River Bridge Corridor Presentation, Kane County Board, Committee of the Whole, July 25, 2007*):

- Determine legal requirements for a toll bridge
- Coordinate with the Federal Highway Administration and determine impacts to the Environment Impact Statement and other federal requirements
- Develop work items, estimated costs, and timeline to accomplish Task Force work items
- Determine cost share of local efforts not eligible for federal funding
- Coordinate the implementation of I-PASS
- Determine and begin studies needed to implement a toll bridge
- Develop a financial plan and traffic projections to determine feeds and bonding capabilities
- Begin process of bond revenue issuance

Subsequently, Kane County requested that Wilbur Smith Associates conduct a traffic projections and financial feasibility study for the Longmeadow Parkway Bridge Corridor. The purpose of this study is to show the toll revenue potential of the Longmeadow Parkway Toll Bridge by presenting revenue forecasts and a preliminary financing plan. The study is not an investment grade study and as such is not intended to be the basis for project financing.

1.2 PROJECT DESCRIPTION

Figure 1.1 depicts the location of the Longmeadow Parkway. The project is located in the northeastern corner of Kane County, approximately five miles north of I-90. Currently, Illinois Route 62, Illinois Route 72, and I-90 are the major facilities that serve east-west traffic across the Fox River. The Longmeadow Parkway Bridge Corridor would be a new east-west traffic carrier across the Fox River.

The project would extend approximately 5.6 miles with the western terminus at Huntley Road and the eastern terminus at Illinois Route 62 (or Algonquin Road). The Longmeadow Parkway intersects with Randall Road, Sleepy Hollow Road, Illinois Route 31, Bolz Road connector, and Illinois Route 25.

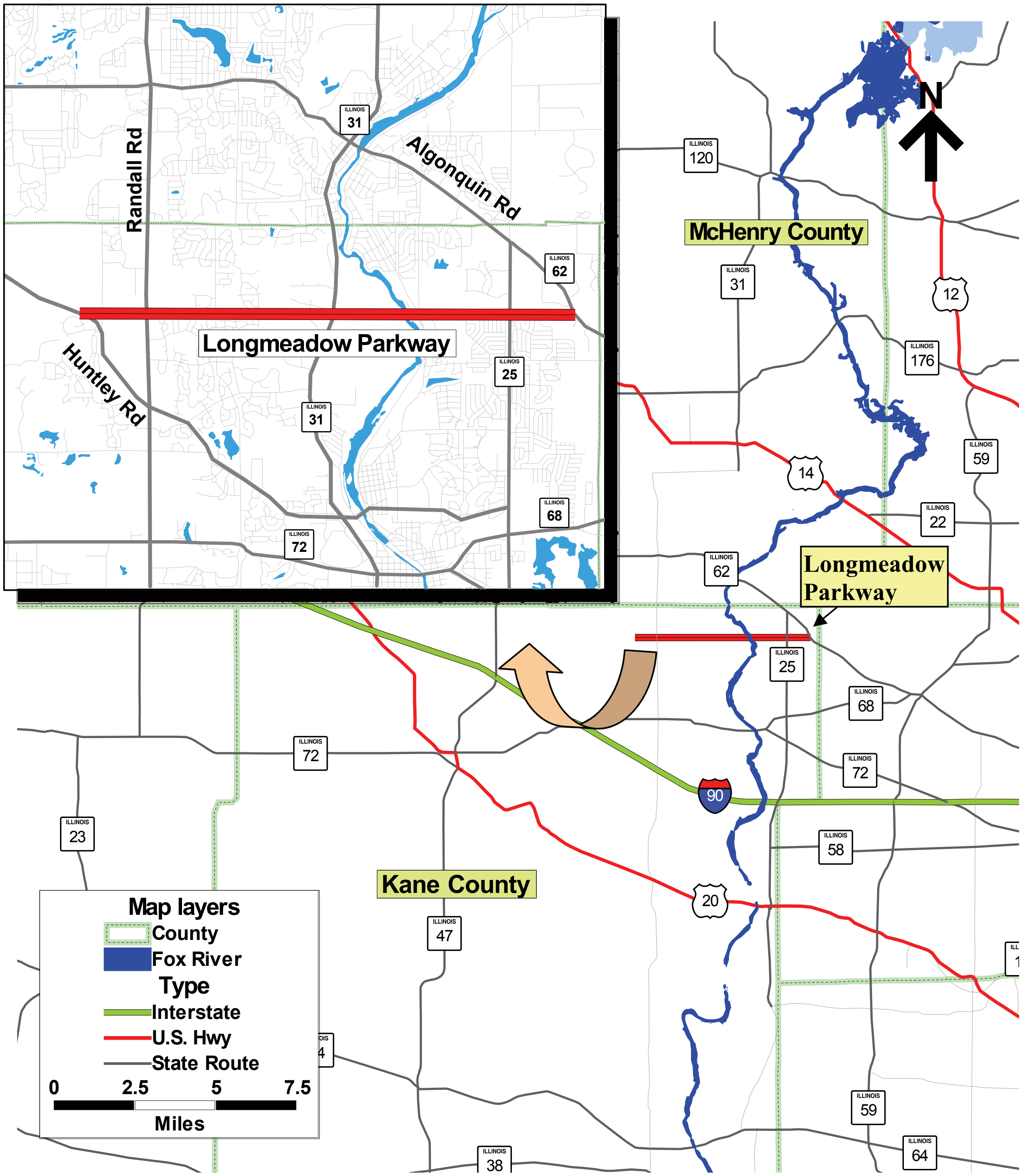


Figure 1.1 Project Location

2 TRAFFIC CHARACTERISTICS AND TRENDS

This chapter provides an analysis of traffic trends in the major corridors near the proposed Longmeadow Parkway Bridge Corridor. Historic traffic trends and patterns on the existing bridges are included, along with measurements of current travel times in the bridge corridor.

2.1 FOX RIVER CROSSINGS

Figure 2.1 shows the location of the existing Fox River crossings in the area near the Longmeadow Parkway. Because the river is a natural barrier to traffic, it may be used as a screenline for evaluating potential toll traffic. The presence of existing bridges further aids the toll evaluation effort, as the baseline demand for cross-river vehicle travel can be measured with traffic counts across those bridges.

Four crossings currently carry traffic across the Fox River in the immediate area of the Longmeadow Parkway Bridge. At the south end of the area, Interstate 90 crosses the Fox River just east of the Elgin toll plaza in Kane County. Also known as the Jane Addams Memorial Tollway, I-90 links the city of Chicago to Wisconsin, Minnesota, and the western United States. I-90 forms the only limited access crossing of the Fox River, and is also the only tolled crossing.

Two Illinois state highway routes, Illinois Route 62 and Illinois Route 72, also cross the river. These routes generally follow radial routes to the northwest from the city of Chicago, serving as suburban arterials in Kane and McHenry counties. Illinois Route 62, also known as Algonquin Road, crosses the river with four lanes near Fox River Grove in McHenry County. Illinois Route 72 crosses the river with four lanes in Kane County, about three miles north of I-90, and is the nearest free crossing to I-90. Located at one mile north of the Illinois Route 72 Bridge, Main Street in Carpentersville crosses the river with two lanes.

Being relatively close to each other, the crossings can be useable as alternates to each other. The largest gap between crossings is approximately five miles between Carpentersville's Main Street Bridge and the Illinois Route 62 Bridge.

Figure 2.1 Existing Bridge Locations

2.2 COLLECTION OF TRAFFIC COUNTS

As part of traffic data collection, field traffic counts were conducted on the Fox River crossings at Illinois Route 62, Main Street of Carpentersville, and Illinois Route 72. In addition to these locations, traffic data on Illinois Route 25, Illinois Route 31, and Randall Road were collected. Tube-based traffic counters were used to collect vehicle classification data from traffic passing each location. The field traffic counts were conducted in 2008 in the periods of May 13-15 and May 20-22. Data obtained from this effort were reviewed for their completeness and reasonableness. Following the review, additional traffic counts were performed on June 3-5, 2008.

To supplement and verify the traffic counts collected from tube counters at the bridge locations, WSA staff was dispatched to the river crossings at Illinois Route 62, Main Street of Carpentersville, and Illinois Route 72 to manually record traffic volumes by vehicle class. The manual counting was performed on July 16-17 and July 23-24, for the 12-hour period from 6:00 a.m. to 6:00 p.m. During this period, the video capturing morning peak traffic approaching the Illinois Route 62 and Illinois Route 72 bridges was recorded.

Later, current average daily traffic volumes on the river crossings were estimated based on the 12-hour manual counts and the 48-hour count data obtained from the tube counters.

2.3 HISTORICAL TRAFFIC GROWTH ON RIVER CROSSINGS

Figure 2.2 shows traffic trends since 1981 for the four Fox River bridges. The I-90 Bridge carries more traffic than other bridges and continues to show traffic growth. Traffic volumes on the interstate highway bridge grew at an average annual growth rate of approximately 4.6 percent between 1981 and 2007. From 1981 to 2008, Illinois Route 62 and Illinois Route 72 have experienced annual traffic growth rates of approximately 3.4 percent and 3.0 percent, respectively. Carpentersville's Main Street Bridge carried the lowest traffic volumes among the four bridges. The traffic growth on this bridge was also the lowest, showing an annual growth rate of about 1.6 percent since 1991.

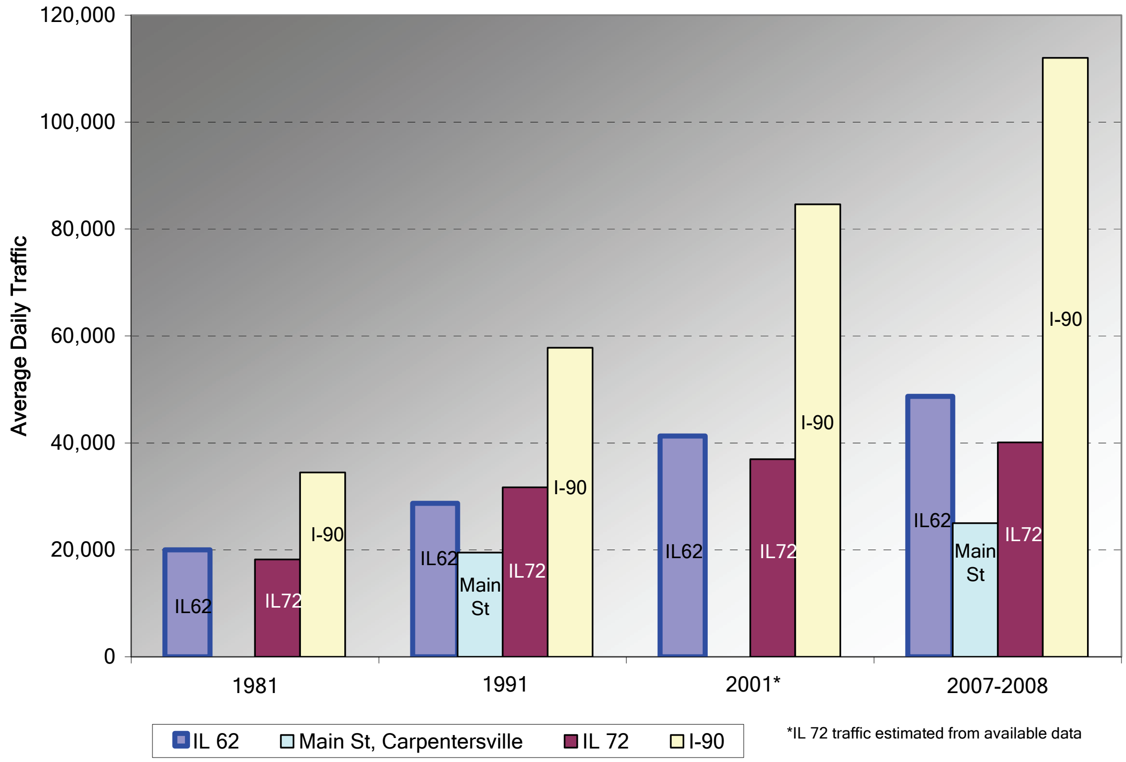


Figure 2.2 Historical Traffic on Fox River Crossings
Sources: Illinois Department of Transportation, Illinois Tollway, Manual Counts

2.4 MONTHLY TRAFFIC VARIATION

Figure 2.3 illustrates estimated seasonal traffic variation on the Fox River crossings. The monthly ADT estimates for arterials were estimated using the Illinois Department of Transportation seasonal variation factors. I-90 monthly figures were calculated using monthly factors derived from 2006 traffic counts at the Elgin toll plaza.

The figure indicates that there was little seasonal variation in traffic on the Illinois Route 62 and Illinois Route 72 bridges. These two facilities demonstrated that the difference between the highest and the lowest volumes was approximately 9 percent. Monthly traffic variation of I-90 shows modest seasonal fluctuation during the peak summer travel season, showing the difference between the highest and the lowest volumes was approximately 16 percent.

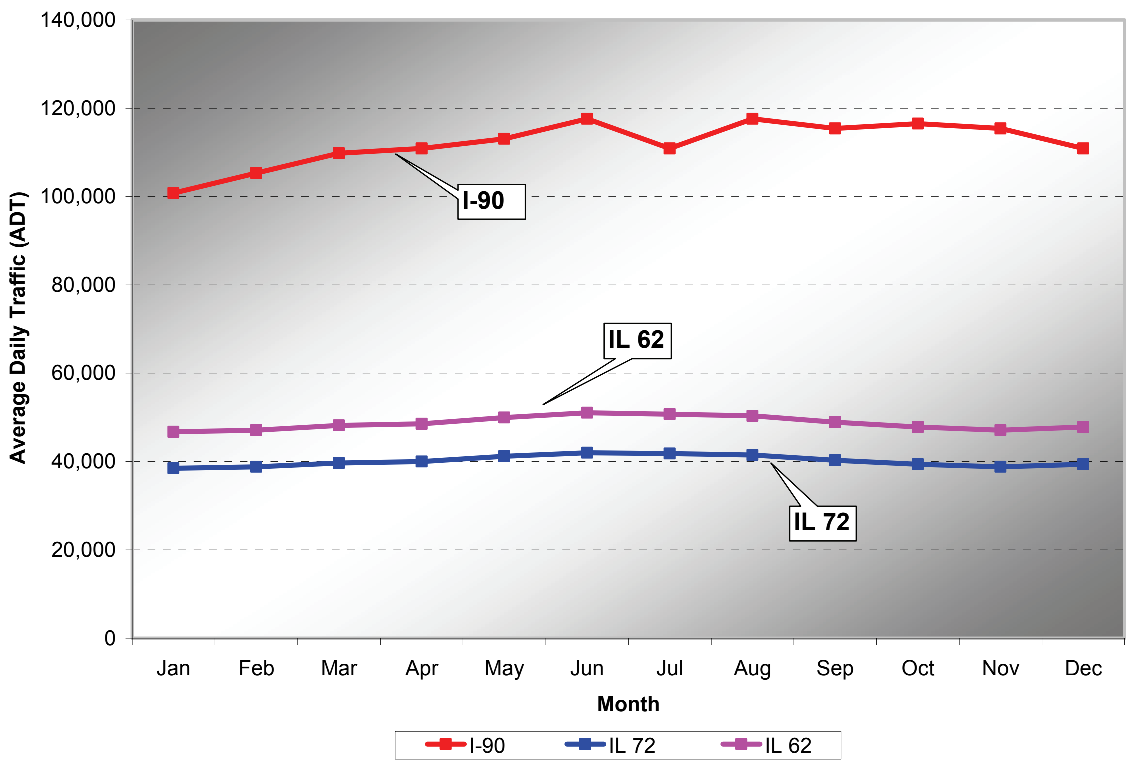


Figure 2.3 Monthly Traffic Variation on Fox River Crossings

2.5 HOURLY TRAFFIC VARIATION

This section summarizes hourly traffic variation observed on the Fox River crossings from the 12-hour manual traffic counts from 6:00 a.m. to 6:00 p.m.

Figure 2.4 illustrates an hourly traffic profile of the Illinois Route 62 Bridge the 12-hour period. Strong peaking was observed from 6:00 a.m. to 8:00 a.m. eastbound and from 3:00 p.m. to 6:00 p.m. westbound, with no obvious peak during the midday hours.

Figure 2.5 demonstrates an hourly traffic profile of the Carpentersville's Main Street Bridge. Similar to the Illinois Route 62 Bridge, the Main Street Bridge experienced peaking between 6:00 a.m. and 8:00 a.m. for the eastbound traffic and between 3:00 p.m. and 6:00 p.m. for the westbound traffic. A noticeable midday peak was observed between 11:00 a.m. and 1:00 p.m.

Traffic crossing the Illinois Route 72 Bridge demonstrated similar hourly profile to that of the Illinois Route 62 Bridge, as shown in **Figure 2.6**. The figure shows the morning and evening peak hours with no obvious midday peaking.

The hourly profile of the I-90 river-crossing traffic was obtained from the hourly counts observed in the Elgin mainline plaza (Plaza 9). As shown in **Figure 2.7**, peaking occurred from 6:00 a.m. to 9:00 a.m. in the morning and from 3:00 p.m. to 6:00 p.m. in the afternoon. However, strong peaking shown on the I-62, I-72, and Main Street bridges was less visible on I-90; instead it carried consistently high traffic throughout the day.

For all four bridges investigated, eastbound travel is heaviest in the morning peak hours and westbound travel is heaviest in the afternoon peak period.

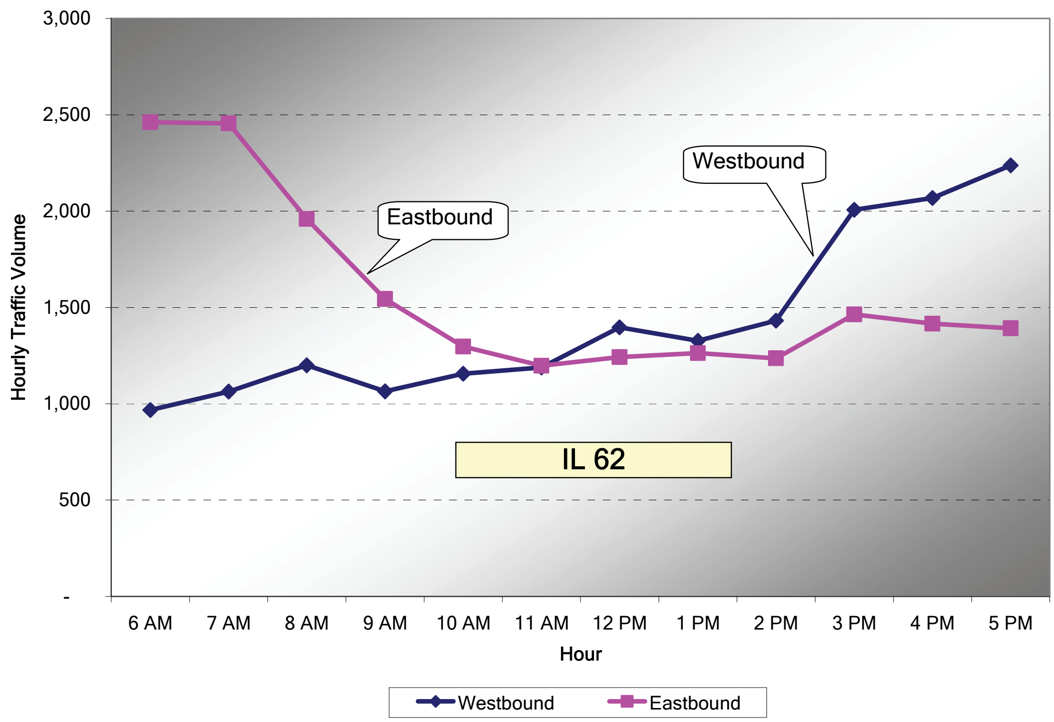


Figure 2.4 Hourly Traffic Variation on Fox River Crossing at Illinois Route 62

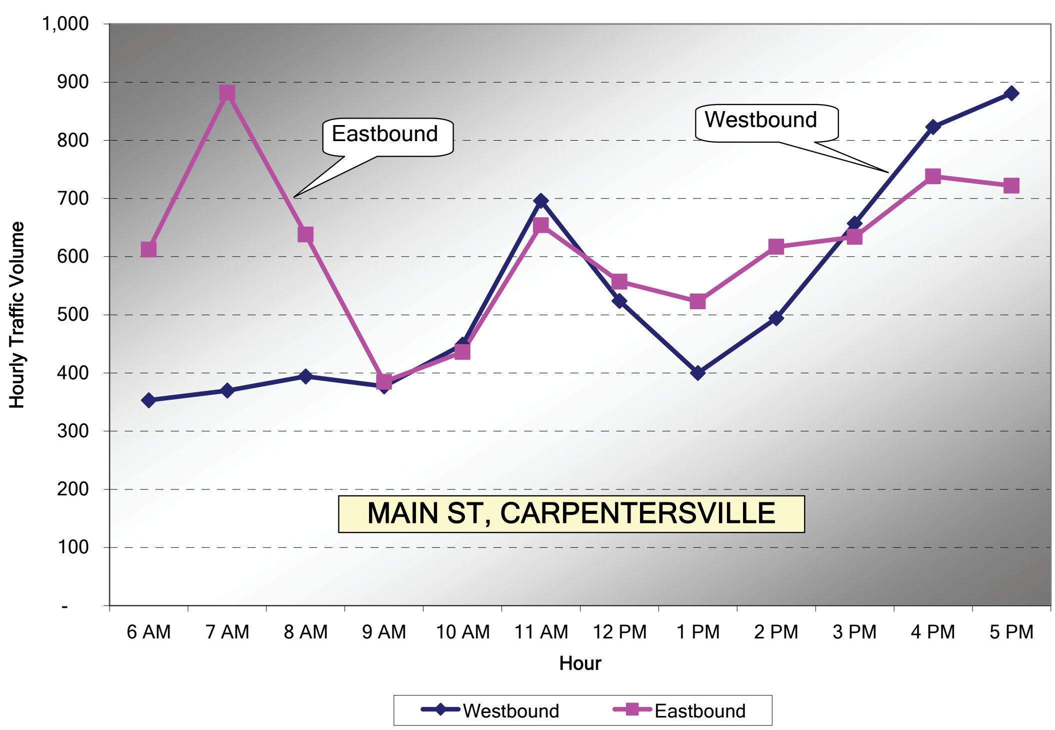


Figure 2.5 Hourly Traffic Variation on Fox River Crossing at Main Street, Carpentersville

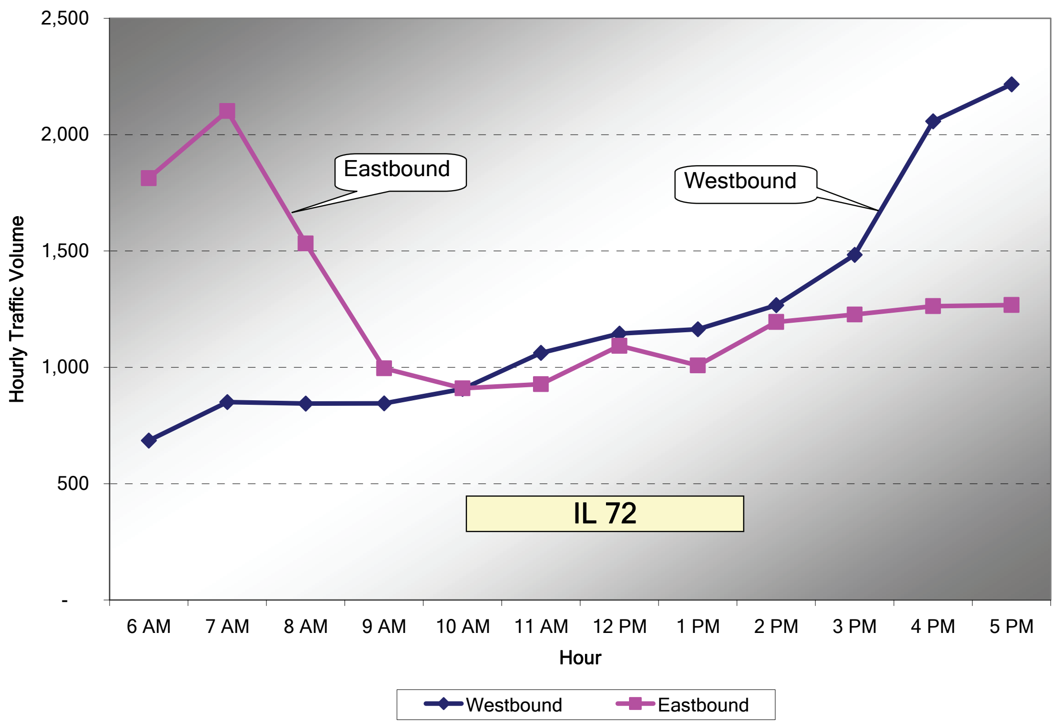


Figure 2.6 Hourly Traffic Variation on Fox River Crossing at Illinois Route 72

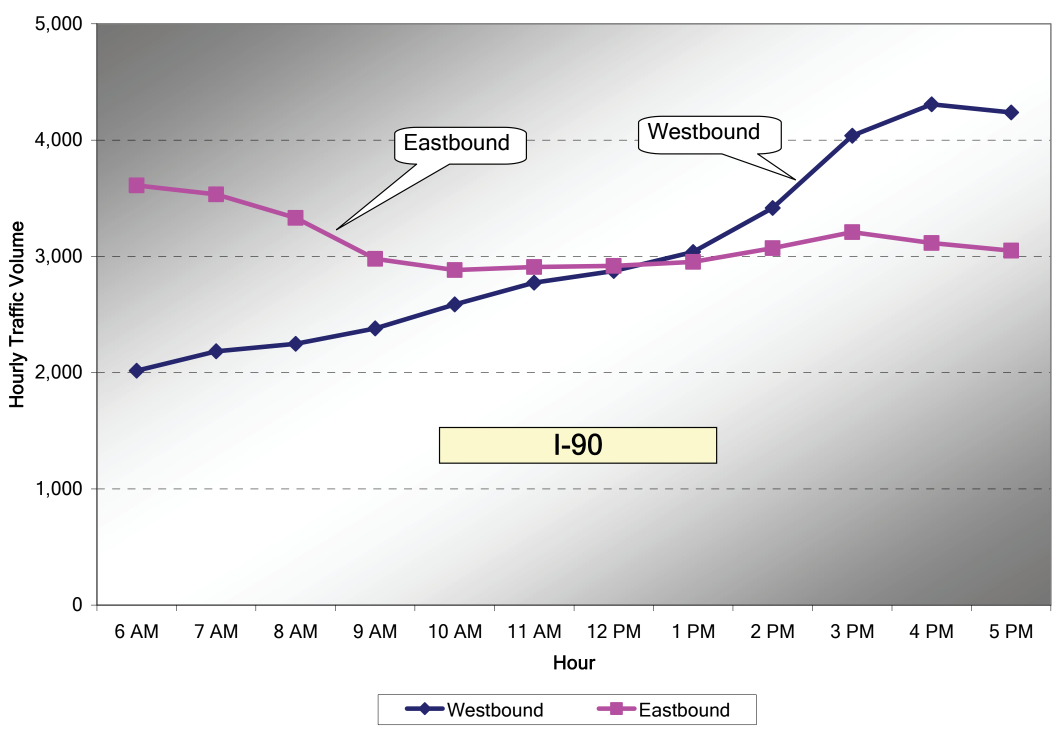


Figure 2.7 Hourly Traffic Variation on Fox River Crossing at I-90

2.6 VEHICLE CLASSIFICATION

The vehicle classification data was obtained from the manual counting conducted on three Fox River crossings and the vehicle counts observed at the Elgin mainline toll plaza on I-90.

Figure 2.8 graphically presents vehicle classification data summarized for the Fox River crossings at Illinois Route 62, Carpentersville's Main Street, Illinois Route 72, and I-90. The figure indicates high percentages of passenger cars on the four bridges, especially on the non-interstate system bridge on Illinois Route 62, Main Street, and Illinois Route 72. Passenger cars account for approximately 95 percent of total traffic on the Illinois Route 62 and Illinois Route 72 bridges. The Main Street Bridge in Carpentersville is primarily used by passenger cars which accounts for about 98 percent of the total river-crossing traffic. On I-90, the proportion of passenger cars is higher than that on the non-interstate system bridges. The interstate highway consists of about 87 percent of passenger cars and roughly 10 percent of heavy trucks.

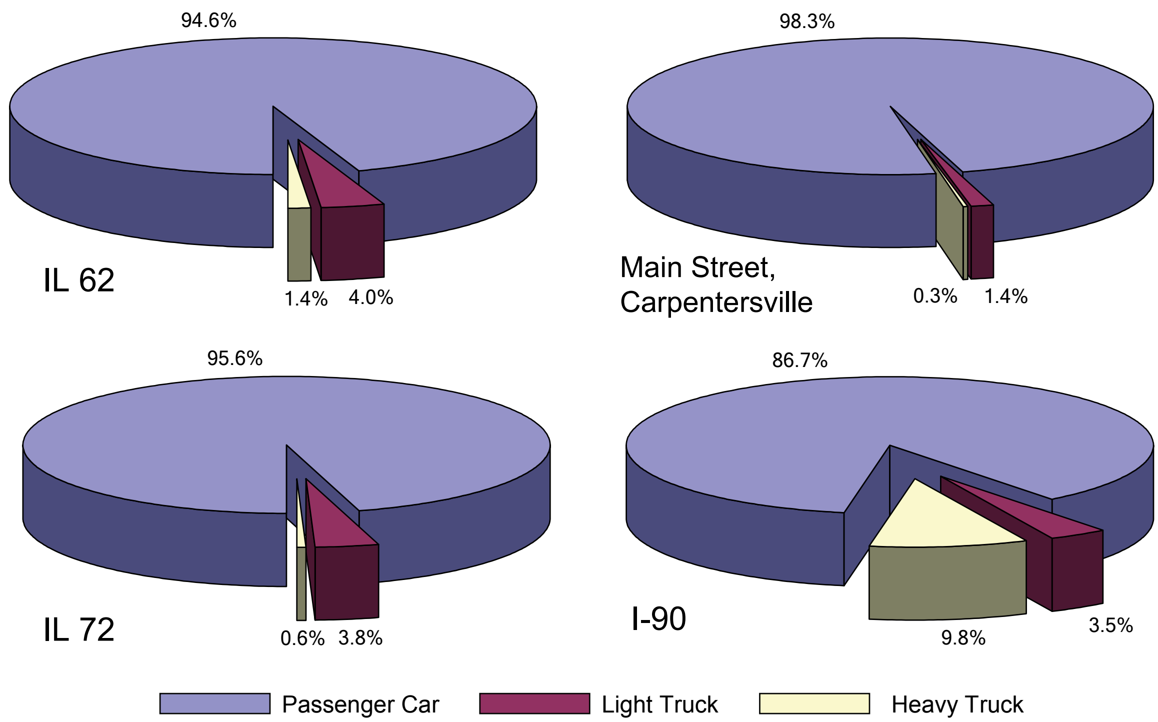


Figure 2.8 Vehicle Classification on Fox River Crossings
Source: Manual Counts, Illinois Tollway

2.7 SPEED RUNS

The primary purpose of speed runs is to better understand the congestion levels on major routes in the area by collecting actual speeds of traffic. For speed runs, a person drives on the routes at the speed of traffic while collecting the real time speed data. The data is usually collected by a global positioning system device, which records vehicle direction, coordinates, distance traveled, local time, and vehicle speed.

The speed runs were conducted in the morning peak, midday and evening peak periods on June 4 (Wednesday) and June 5 (Thursday) in 2008. Major corridors including the Fox River crossings near the proposed Longmeadow Parkway were run multiple times to obtain as much data as possible during the peak and off-peak hours.

The maps in **Figures 2.9** and **2.10** illustrate the results of the speed runs for the east-west corridors including the Fox River crossings. Green zones in the maps indicate free flow travel conditions, while red shows areas with the slowest travel speeds and greatest degree of congestion. In nearly all the peak hour maps, some amount of congestion can be found at the Fox River bridges, as well as at intersections with major north-south arterials. Congestion was generally more prevalent for eastbound traffic in the AM peak period and for westbound traffic in the PM peak period.

Figures 2.11 and **2.12** show travel speeds on the north-south arterials that intersect the cross-river routes, including Illinois Route 25, Illinois Route 31, and Randall Road. Congestion was generally more prevalent in the afternoon traffic for these routes and was particularly noticeable on the Randall Road approach to the I-90 interchange. Congestion was observed along Illinois Route 25 between Illinois Route 72 and Illinois Route 68. Southbound congestion was more common in the AM peak period. The PM peak congestion was primarily observed in the northbound traffic.

Speed data on I-90 were not obtained from speed runs but from the data collected by the Illinois Tollway through the Remote Traffic Microwave Sensor (RTMS) devices installed on the interstate highway. The RTMS speed data were obtained for both directions at the Fox River crossing on June 4 (Wednesday) and June 5 (Thursday) in 2008. The data show minimal variation over the course of the day. The average speed during the AM and PM peak periods was 55.6 mph. Traffic maintained 56.4 mph on average during the off-peak period.

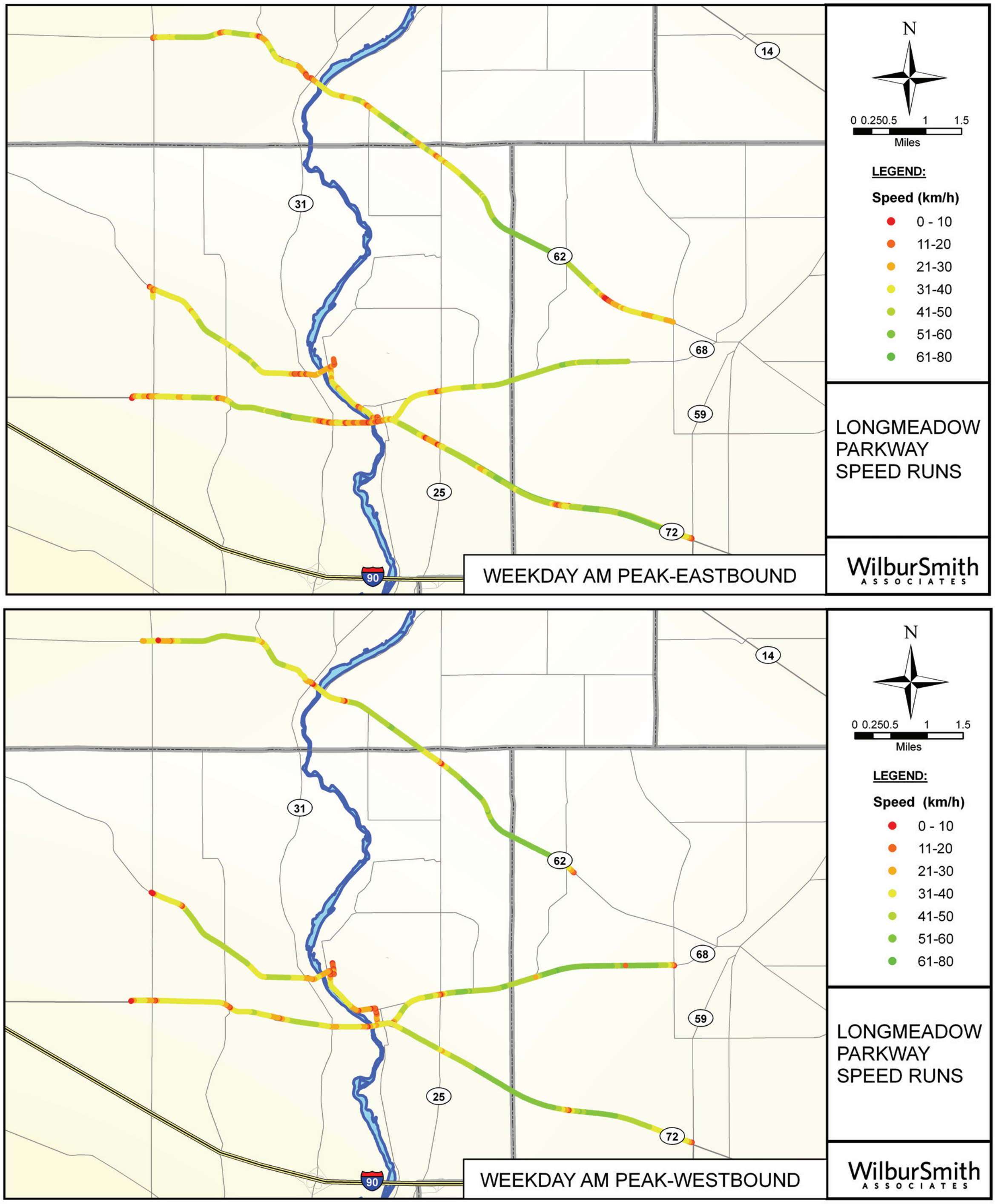
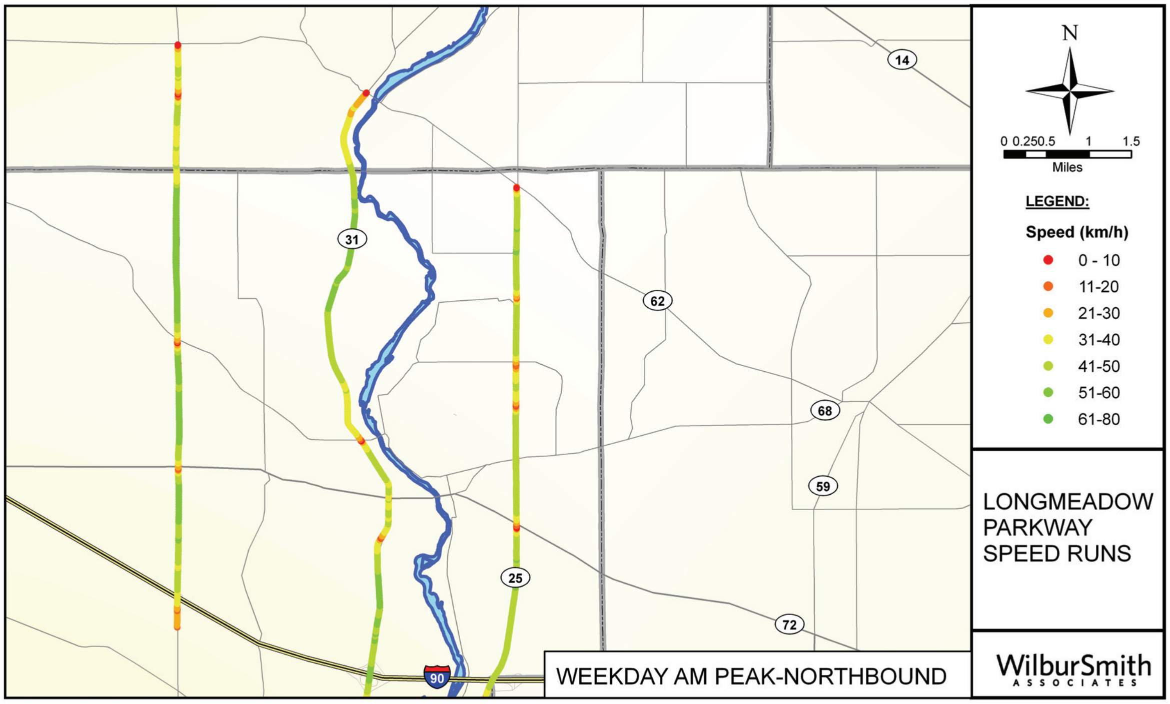


Figure 2.9 Speed Run Maps – AM Peak Eastbound and Westbound

Figure 2.10 Speed Run Maps – PM Peak Eastbound and Westbound



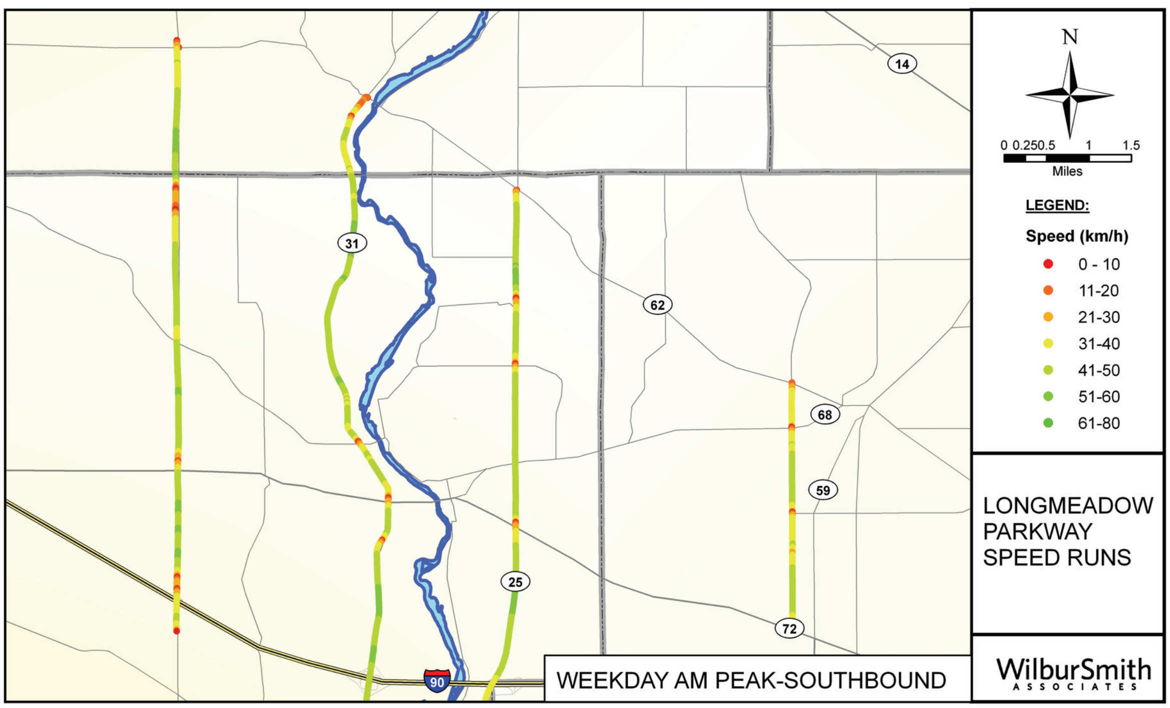


Figure 2.11 Speed Run Maps – AM Peak Northbound and Southbound

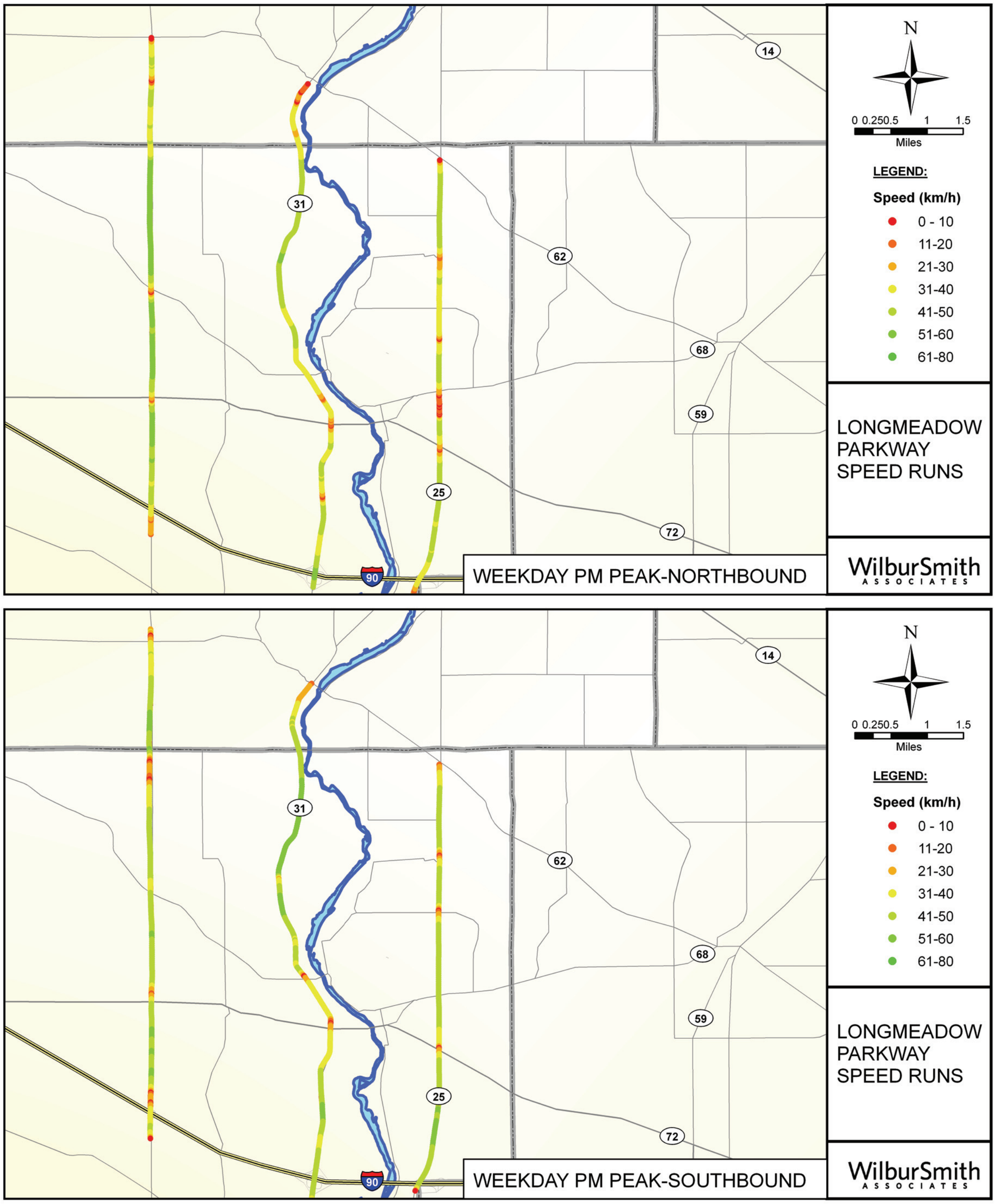


Figure 2.12 Speed Run Maps – PM Peak Northbound and Southbound

3 REGIONAL DEMOGRAPHICS AND ECONOMIC CHARACTERISTICS

Growth in the demand for travel is correlated to the underlying economic and demographic trends of a region. Understanding these trends is critical to forecasting traffic and toll facility revenue. This chapter provides a review of the economic and demographic factors in the area surrounding the proposed Longmeadow Parkway, including existing land uses and population and economic trends.

3.1 EXISTING CORRIDOR CHARACTERISTICS

Figure 3.1 presents a map of the area surrounding the proposed Longmeadow Parkway. The map shows the boundary of townships and counties, Fox River, and major routes, relative to the location of the project. The demographic and economic analyses focused on this area and several alternative routes, including the existing Fox River crossings from I-90 to the south and Illinois Route 62 to the north.

The Fox River arterial crossings are toll-free crossings, while a toll is charged for access to I-90. The nearest alternative crossings to the Longmeadow Parkway crossing are Illinois Route 62, which is located approximately three miles north of the proposed bridge, and the Main Street bridge in Carpentersville, approximately three miles to the south.

There are three major north-south routes in the immediate vicinity of the Fox River. Illinois Route 25, located in the east of the river, serves north-south traffic with major intersections at Illinois Route 62, Illinois Route 68, and Illinois Route 72. This Illinois route provides access to and from I-90. Illinois Route 31 to the west of the river is a major arterial passing through the village of Algonquin, the village of West Dundee, and the city of Elgin. Randall Road, located approximately two miles west of Illinois Route 31, provides north-south connection between Illinois Route 62 and I-90 and beyond.

Demographic variables were generally analyzed at the township level to incorporate variables that are not available at the tract level, while still providing as much detail as possible. Some desired data were not available at the township level; for these, county level data for Kane and McHenry counties were provided. Economic variables were generally analyzed at the county level.

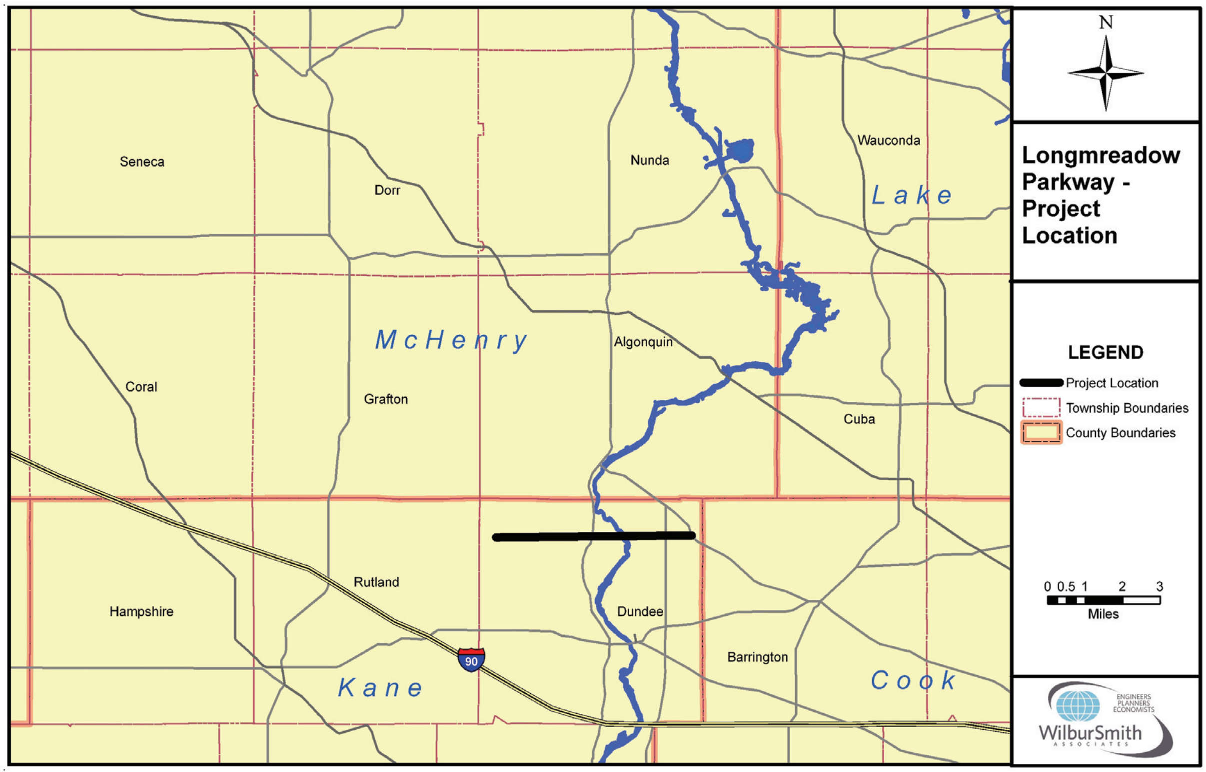


Figure 3.1 Map of Project Area

3.2 POPULATION TRENDS

The proposed facility would serve some of the fastest growing residential populations in Illinois. Located at the suburban fringe of the Chicago metro area, seven townships near the project and west of the Fox River (Dundee, Hampshire, and Rutland townships in Kane County and Algonquin, Coral, Grafton, and Nunda townships in McHenry County) are home to more than 200,000 people, according to current U.S. Census Bureau estimates.

Table 3.1 shows U.S. Census Bureau population figures and annualized rates of change for the area townships and for Kane and McHenry counties, the Chicago metro area, Illinois and neighboring states, and the entire United States. A number of townships in the area show faster growth rates than Kane and McHenry counties, each of which has been growing at approximately 3 percent annually, and each of which is among the fastest growing counties in Illinois.

By contrast, the Chicago metro area as a whole grew at an annual rate of about 1 percent since year 2000, and the state of Illinois grew at an annual rate of approximately a half percent. Illinois' annual average population growth was higher than Iowa's but less than the growth rates of Wisconsin and Indiana.

Table 3.1 Area Population Trends

Locality		1990 Census	2000 Census	Change 1990-2000	Avg. Annual Change	2006 Estimate	Change 2000-2006	Avg. Annual Change
Town-ship	Dundee	39,070	53,207	14,137	3.1%	65,875	12,668	3.6%
	Hampshire	3,398	4,793	1,395	3.5%	7,016	2,223	6.6%
	Rutland	2,549	3,959	1,410	4.5%	12,044	8,085	20.4%
	Algonquin	57,746	86,219	28,473	4.1%	100,313	14,094	2.6%
	Coral	2,549	3,020	471	1.7%	3,291	271	1.4%
	Grafton	9,946	27,547	17,601	10.7%	43,831	16,284	8.0%
	Nunda	24,759	35,104	10,345	3.6%	39,264	4,160	1.9%
County	Kane	317,471	404,119	86,648	2.4%	489,188	85,069	3.2%
	McHenry	183,241	260,077	76,836	3.6%	309,779	49,702	3.0%
Chicago CMSA		8,239,820	9,157,540	917,720	1.1%	9,725,317	567,777	1.0%
Illinois		11,430,602	12,419,293	988,691	0.8%	12,777,042	357,749	0.5%
Wisconsin		4,891,769	5,363,675	471,906	0.9%	5,556,506	192,831	0.6%
Indiana		5,544,159	6,080,485	536,326	0.9%	6,313,520	233,035	0.6%
Iowa		2,776,755	2,926,324	149,569	0.5%	2,982,085	55,761	0.3%
United States		248,709,873	281,421,906	32,712,033	1.2%	299,398,484	17,976,578	1.0%

Source: U.S. Census Bureau

Since the 1990 census, the area west of the Fox River has seen some of the fastest growth rates in Illinois, as new residential development greatly increases the populations in formerly areas. Of the net growth of 76,455 residents in the seven townships between 1990 and 2000, more than one third of the net new residents were in Algonquin Township. Dundee and Grafton townships each accounted for approximately one fifth of the total increase. Since 2000, growth rates in those townships slowed. However, Rutland Township, which has already had grown at more than 4 percent between 1990 and 2000, doubled in population between 2000 and 2006.

By 2006, the area had already added approximately 60,000 new residents since the 2000 Census. Growth in the current decade has been less concentrated than the 1990 to 2000 period. Algonquin Township added only half as many residents as it had added in the previous decade. Grafton Township added the most new residents.

Figure 3.2 shows changes in population distribution between the 1990 and 2000 censuses. In the intervening decade, partially developed areas in the eastern portion of the maps have generally filled in. To the west, population densities have greatly increased as formerly rural land has grown with suburban housing development. The figure indicates that the population in the areas along and west of the Fox River grew significantly from 1990 to 2000.

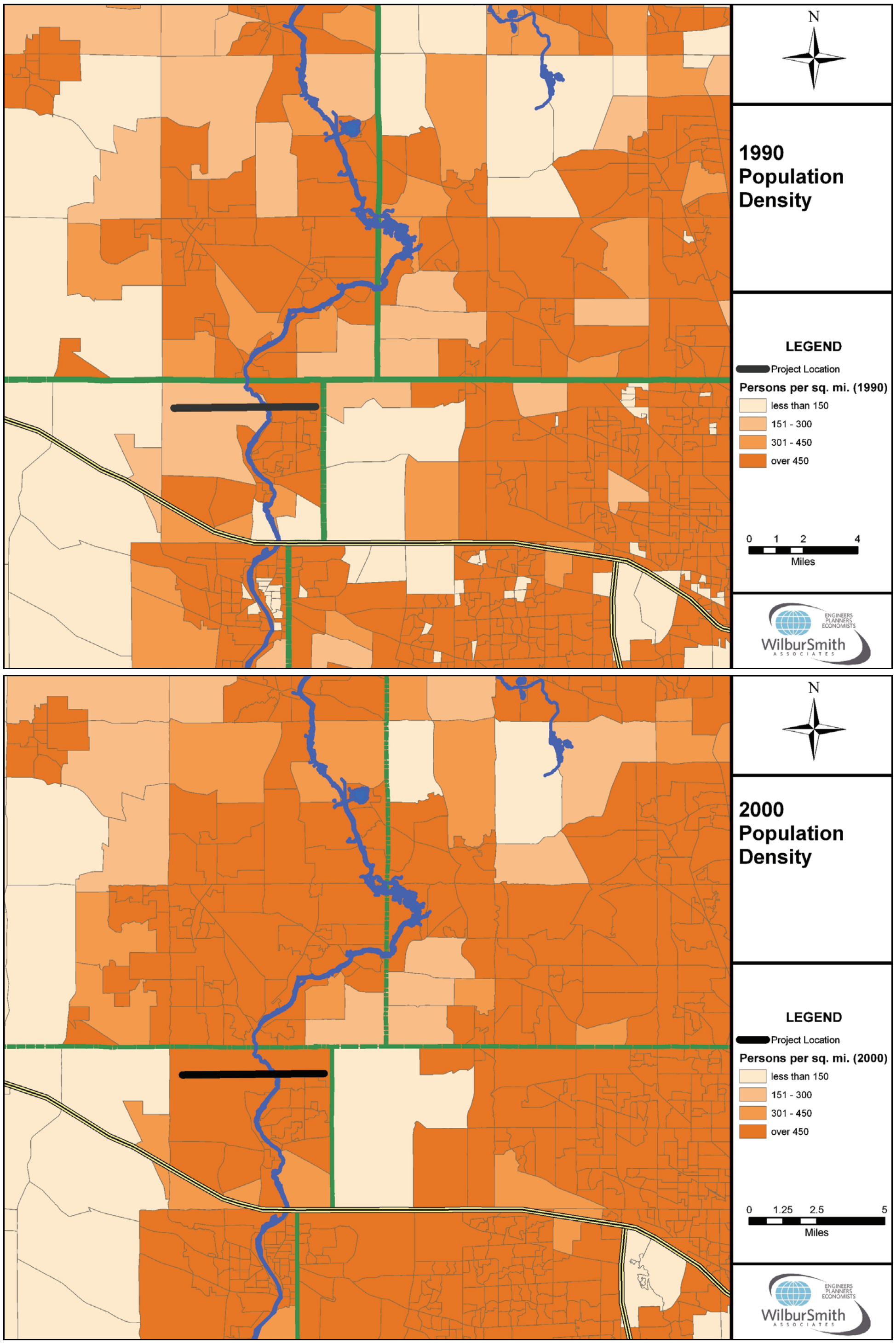


Figure 3.2 Population Density Change (1990-2000)
Source: U.S. Census Bureau

Table 3.2 shows changes in population distribution by age group for the seven townships between 1990 and 2000. The greatest growth rate was observed in the baby boomer cohort of the 45-59-year-old group. Seniors 75 and older were the next fastest growing group, followed by school-aged children 5 to 17 years old. **Figure 3.3** presents a graphic illustration of these changes.

Table 3.2 Population by Age Group in Area Townships

Age Group	Population *		Change 1990-2000		
	1990	2000	Number of persons	Percent	Annual Avg. Percent
Younger than 5 years	12,654	19,104	6,450	51.0%	2.8%
5 to 17 years	30,099	48,239	18,140	60.3%	3.2%
18 to 24 years	11,843	14,713	2,870	24.2%	1.5%
25 to 44 years	51,079	74,047	22,968	45.0%	2.5%
45 to 59 years	19,892	37,105	17,213	86.5%	4.2%
60 to 74 years	10,789	14,613	3,824	35.4%	2.0%
75 years and older	3,661	6,028	2,367	64.7%	3.4%
Total	**140,017**	**213,849**	**73,832**	**52.7%**	**2.9%**

* includes Dundee, Hampshire, Rutland townships in Kane County, and Algonquin, Coral, Grafton, Nunda townships in McHenry county
Source: U.S. Census Bureau

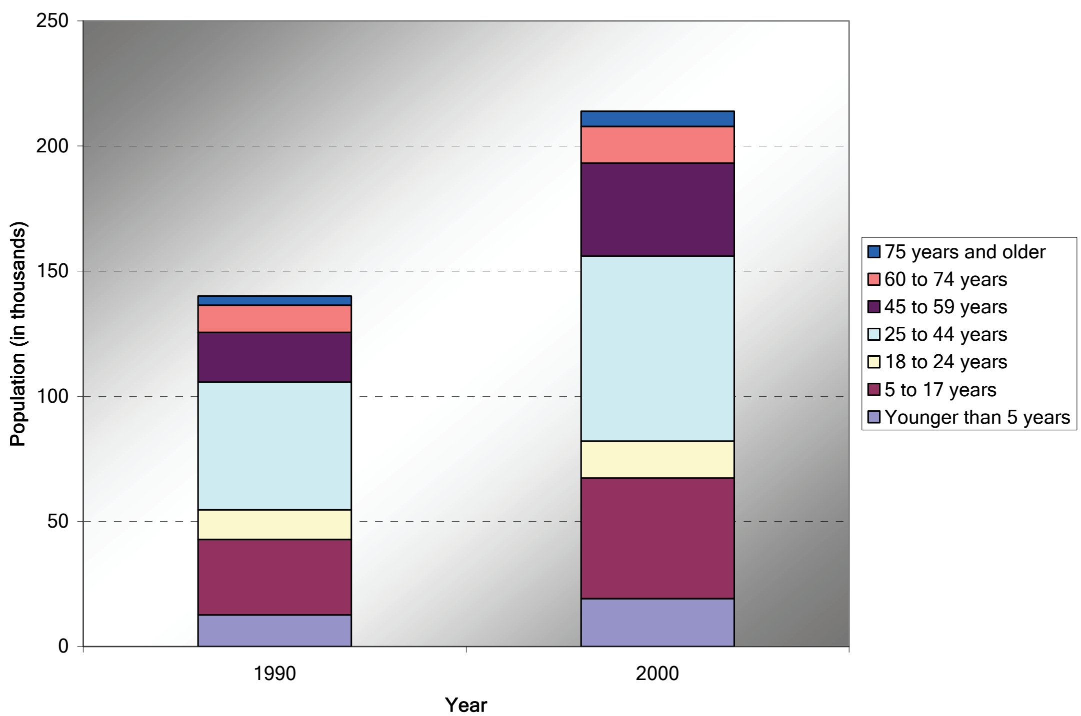


Figure 3.3 Age Distribution in Area Townships
Source: U.S. Census Bureau

3.3 HOUSEHOLDS

Table 3.3 shows changes in the number and average size of households in the seven townships west of the Fox River and the two counties, as well as in Illinois and the United States as a whole. The area townships showed far faster growth in households than either county, suggesting a rapid rate of housing development in that decade.

Average household size in the seven townships was relatively unchanged during the decade but remained larger than either of the counties, the state, or the nation. Household size also did not change in McHenry County, but it increased in Kane County. Between 1990 and 2000, average household size decreased slightly in Illinois and the United States.

Table 3.3 Household Characteristics

Area	Number of Households			Average Household Size		
	1990	2000	Avg. Annual Growth	1990	2000	Avg. Annual Growth
Area Townships *	46,264	101,427	8.17%	3.00	3.01	0.03%
Kane County	107,176	133,901	2.25%	2.89	2.97	0.27%
McHenry County	62,940	89,403	3.57%	2.89	2.89	0.00%
Illinois	4,202,240	4,591,779	0.89%	2.64	2.63	-0.04%
United States	91,947,410	105,480,101	1.38%	2.62	2.59	-0.12%

* includes Dundee, Hampshire, and Rutland townships in Kane County, and Algonquin, Coral, Grafton, and Nunda townships in McHenry County
Source: US Census Bureau

Table 3.4 presents a more detailed look at households by age group for the larger geographic areas in both 1990 and 2000. For all geographies, the largest annual growth rate was observed in the 45-54-year-old group, reflecting the tail end of the postwar baby boom. However, both Kane and McHenry also showed relatively high growth in the 35-44-year-old group. McHenry showed high growth in the 55-64-year-old group.

At each geographical level presented, the number of senior householders (age 65 years and older) increased between 1990 and 2000. However, the share of seniors declined at all geographic levels, most significantly in McHenry. Both counties continued to show lower shares of senior householders than either the state or the nation.

Table 3.4 Households by Age Group

Area		Householder Age Range							% Senior House-holds [1]
		15-24	25-34	35-44	45-54	55-64	65-74	75+	
Kane County	1990	4,775	25,491	26,910	18,480	12,873	10,591	7,794	17.2%
	2000	4,891	25,900	36,126	29,837	16,339	10,725	9,915	15.4%
	Avg. Annual Change	0.2%	0.2%	3.0%	4.9%	2.4%	0.1%	2.4%	-1.1%
McHenry County	1990	1,909	14,815	16,867	11,297	7,383	6,455	4,321	17.1%
	2000	2,368	16,233	26,505	19,786	11,514	7,250	5,721	14.5%
	Avg. Annual Change	2.2%	0.9%	4.6%	5.8%	4.5%	1.2%	2.8%	-1.6%
Illinois [2]	1990	196	913	921	666	574	533	394	22.1%
	2000	219	823	1,063	916	610	488	474	20.9%
	Avg. Annual Change	1.1%	-1.0%	1.4%	3.2%	0.6%	-0.9%	1.9%	-0.5%
United States [2]	1990	5,049	19,850	20,393	14,303	12,379	11,517	8,456	21.7%
	2000	5,534	18,298	23,968	21,293	14,247	11,508	10,633	21.0%
	Avg. Annual Change	0.9%	-0.8%	1.6%	4.1%	1.4%	0.0%	2.3%	-0.3%

[1] Senior householders classified as householders' age 65 or greater
[2] Householders in thousand
Source: U.S. Census Bureau

3.4 HOUSING MARKET TRENDS

Kane and McHenry counties include fast-growing communities, but their housing prices have been generally consistent with state and national trends. **Table 3.5** shows changes in the prices of owner-occupied housing units from 1990-2006. During this period, Kane and McHenry counties' median housing values increased at rates only slightly below those of Illinois and the United States as a whole.

Table 3.5 Median Values of Owner Occupied Housing Units

Area	1990	2000	2006	Change 2000-2006
Kane County	$101,700	$160,400	$244,400	52%
McHenry County	$110,600	$168,100	$252,700	50%
Illinois	$80,100	$130,800	$200,200	53%
United States	$78,500	$119,600	$185,200	55%

Source: U.S. Census Bureau

Table 3.6 shows the changes in the number of housing units between 1990 and 2006. Both Kane and McHenry counties experienced an increase in the number of housing units by approximately 21 percent between 2000 and 2006. During the same period, the number housing units in the United States increased by approximately 9 percent and in Illinois by only 6 percent.

It should be noted that the data presented here reflect the market conditions prior to the occurrence of a nationwide housing slump. The more recent data, which were not available when this study was performed, may indicate different housing market trends.

Table 3.6 Housing Units

Area	1990	2000	2006	Change 2000-2006
Kane County	111,496	138,998	168,207	21%
McHenry County	65,985	92,908	112,426	21%
Illinois	4,506,275	4,885,615	5,199,743	6%
United States	102,263,678	115,904,641	126,311,823	9%

Source: U.S. Census Bureau

3.5 INCOME TRENDS

Personal and household income in the area has generally grown along with the population. Household income in the area townships is shown in **Table 3.7**. As measured in 2006 dollars, income grew in all townships except Rutland, where it declined by less than a half percent. In three other townships, the inflation-adjusted income growth rate was less than 1 percent annually. Coral and Grafton townships showed the highest income growth rates. Income growth for the two counties slightly exceeded the statewide household income growth rate of 0.8 percent. Statewide income growth grew at twice the national rate of 0.4 percent.

Table 3.7 Median Household Income

Area		Nominal Dollars			2006 Dollars		
		1989	1999	Average Annual Growth	1989	1999	Average Annual Growth
Townships	Dundee (Kane)	$41,819	$60,982	3.8%	$66,342	$71,810	0.8%
	Hampshire (Kane)	$42,177	$63,071	4.1%	$66,910	$74,269	1.0%
	Rutland (Kane)	$52,252	$67,416	2.6%	$82,893	$79,386	-0.4%
	Algonquin (McHenry)	$49,449	$70,988	3.7%	$78,446	$83,592	0.6%
	Coral (McHenry)	$44,625	$72,266	4.9%	$70,793	$85,097	1.9%
	Grafton (McHenry)	$49,363	$76,214	4.4%	$78,309	$89,746	1.4%
	Nunda (McHenry)	$48,471	$68,223	3.5%	$76,894	$80,336	0.4%
Kane County		$40,080	$59,351	4.0%	$63,583	$69,889	1.0%
McHenry County		$43,471	$64,826	4.1%	$68,962	$76,336	1.0%
Illinois		$32,252	$46,590	3.7%	$51,232	$55,267	0.8%
United States		$30,056	$41,994	3.4%	$48,865	$50,816	0.4%

Notes: 2006 dollars for U.S. calculated using BLS consumer price indices for all urban areas
Midwest urban regional CPI-U used to compute 2006 dollars for Illinois
Chicago MSA CPI-U used to compute 2006 dollars for counties and townships
Source: U.S. Census Bureau, U.S. Bureau of Labor Statistics

Table 3.8 shows changes in per capital income from 1994-2006 in Kane and McHenry counties, in Illinois, and in the United States as a whole. During this period, per capita income in Kane County grew from $33,000-$34,500 in 2006 dollars at an average annual growth rate of approximately 0.4 percent. McHenry County demonstrated a higher increase in capita income at an annual growth rate of approximately 1.1 percent from 1994-2006.

Table 3.8 Per Capita Income

Year	Kane County			McHenry County		
	Nominal Dollars	2006 Dollars	% of U.S. Avg.	Nominal Dollars	2006 Dollars	% of U.S. Avg.
1994	$24,732	$33,004	109.4	$24,924	$33,260	110.3
1995	$25,324	$32,758	107.3	$25,978	$33,604	110.1
1996	$26,116	$32,902	105.9	$27,037	$34,062	109.7
1997	$27,290	$33,467	105.2	$28,465	$34,908	109.7
1998	$28,096	$33,766	101.6	$29,343	$35,265	106.1
1999	$28,996	$34,144	101.0	$30,772	$36,236	107.2
2000	$30,685	$35,011	100.2	$33,340	$38,040	108.9
2001	$30,895	$34,361	98.7	$33,396	$37,142	106.7
2002	$30,315	$33,176	96.1	$33,335	$36,481	105.6
2003	$30,605	$32,894	95.3	$33,661	$36,179	104.8
2004	$31,655	$33,283	94.2	$34,383	$36,151	102.3
2005	$33,048	$33,728	94.0	$35,582	$36,315	101.2
2006	$34,458	$34,458	93.9	$37,720	$37,720	102.7
Year	Illinois			United States		
	Nominal Dollars	2006 Dollars	% of U.S. Avg.	Nominal Dollars	2006 Dollars	
1994	$23,969	$32,125	106.5	$22,172	$30,161	
1995	$25,123	$32,673	107.0	$23,076	$30,526	
1996	$26,449	$33,364	107.4	$24,175	$31,062	
1997	$27,729	$34,153	107.3	$25,334	$31,821	
1998	$29,343	$35,551	106.9	$26,883	$33,249	
1999	$30,212	$35,838	106.0	$27,939	$33,809	
2000	$32,186	$36,910	105.6	$29,845	$34,940	
2001	$32,537	$36,341	104.4	$30,574	$34,804	
2002	$32,891	$36,295	105.1	$30,821	$34,539	
2003	$33,811	$36,599	106.0	$31,504	$34,517	
2004	$35,106	$37,105	105.0	$33,123	$35,350	
2005	$36,489	$37,380	104.2	$34,757	$35,878	
2006	$38,409	$38,409	104.6	$36,714	$36,714	

Notes: 2006 dollars for U.S. calculated using BLS consumer price indices for all urban areas
Midwest urban regional CPI-U used to compute 2006 dollars for Illinois
Kane and McHenry used Chicago-Gary-Kenosha MSA indices

Source: Regional Economic Information System, Bureau of Economic Analysis, and US Department of Commerce

Table 3.9 shows 1990 and 2000 census counts and percentages of people living at or below the federally defined poverty level in the area townships, the two counties, the state of Illinois, and the entire United States. Poverty levels are locally defined according to household size and local living costs. In Kane and McHenry counties, the number of residents living in poverty increased slightly. In the area townships, the percentage of population living below the poverty level stayed at about 3.7 percent. In comparison, the percentages of population under the poverty level in Illinois and the United States were approximately 11 percent and 12 percent, respectively, in 2000, which were significantly higher than that of the area townships.

Table 3.9 Poverty Level

Area		Total Population	Population Below Poverty Level	% Below Poverty Level
Area Townships *	1990	140,017	5,128	3.7%
	2000	213,849	7,826	3.7%
	change	**73,832**	**2,698**	**0.0%**
Kane County	1990	317,471	21,736	6.8%
	2000	404,119	27,668	6.8%
	change	**86,648**	**5,932**	**0.0%**
McHenry County	1990	183,241	6,398	3.5%
	2000	260,077	9,514	3.7%
	change	**76,836**	**3,116**	**0.2%**
Illinois	1990	11,430,602	1,360,870	11.9%
	2000	12,095,961	1,291,958	10.7%
	change	**665,359**	**-68,912**	**-1.2%**
United States	1990	248,709,873	31,742,864	12.8%
	2000	273,882,232	33,899,812	12.4%
	change	**25,172,359**	**2,156,948**	**-0.4%**

* includes Dundee, Hampshire, and Rutland townships in Kane County; and Algonquin, Coral, Grafton, and Nunda townships in McHenry County
Source: US Census Bureau

3.6 EMPLOYMENT TRENDS

A search of county and local governments and economic development agencies resulted in a list of large employers in and near the project area. Because of the size and number of employers in northwest Cook County, efforts were made to identify large employers in this area also. **Table 3.10** lists employers identified in and near the project area with 300 or more full-time employees. Motorola, the largest single employer, has approximately 7,000 employees at its Schaumburg location, nearly twice as many as the next largest employer. Technology and telecommunications were prominent employers, as were manufacturing and education. These employers are also shown on a map in **Figure 3.4** indicating the number and location of employees. A large concentration of employees and employers can be observed in the areas east of the Fox River and near the junction of Interstates 290 and 90.

Table 3.10 Large Employers Near Longmeadow Parkway

Employer	Sector	Employees [1]
Motorola	Technology, telecommunications	7,000
Woodfield Shopping Center	Retail	3,800
School District 54	Education	2,000
Zurich American Insurance Group	Financial	1,600
Experian	Media/marketing	1,400
Cingular	Telecommunications	1,200
IBM	Technology	1,150
Nation Pizza Products	Food	1,000
G.E. Financial Assurance	Financial	800
Village of Schaumburg	Government	610
A.C. Nielsen	Media/marketing	600
Illinois Department of Transportation	Government	600
Verizon Wireless	Telecommunications	600
Macy's	Retail	600
Snap-On Tools Co.	Distribution and service	450
Revcor Inc	Manufacturing	350
Lake Zurich Community Unit District #95	Public Education	766
Echo, Inc.	Manufacturing	700
Smalley Steel Ring Co.	Manufacturing	328
CM Products, Inc.	Manufacturing	320

[1] Total employees in northern Kane, southern McHenry, southwest Lake, and northwest Cook counties
Source: Village of Schaumburg, Kane County, McHenry County, Village of Hoffman Estates, Illinois Department of Commerce and Economic Opportunity

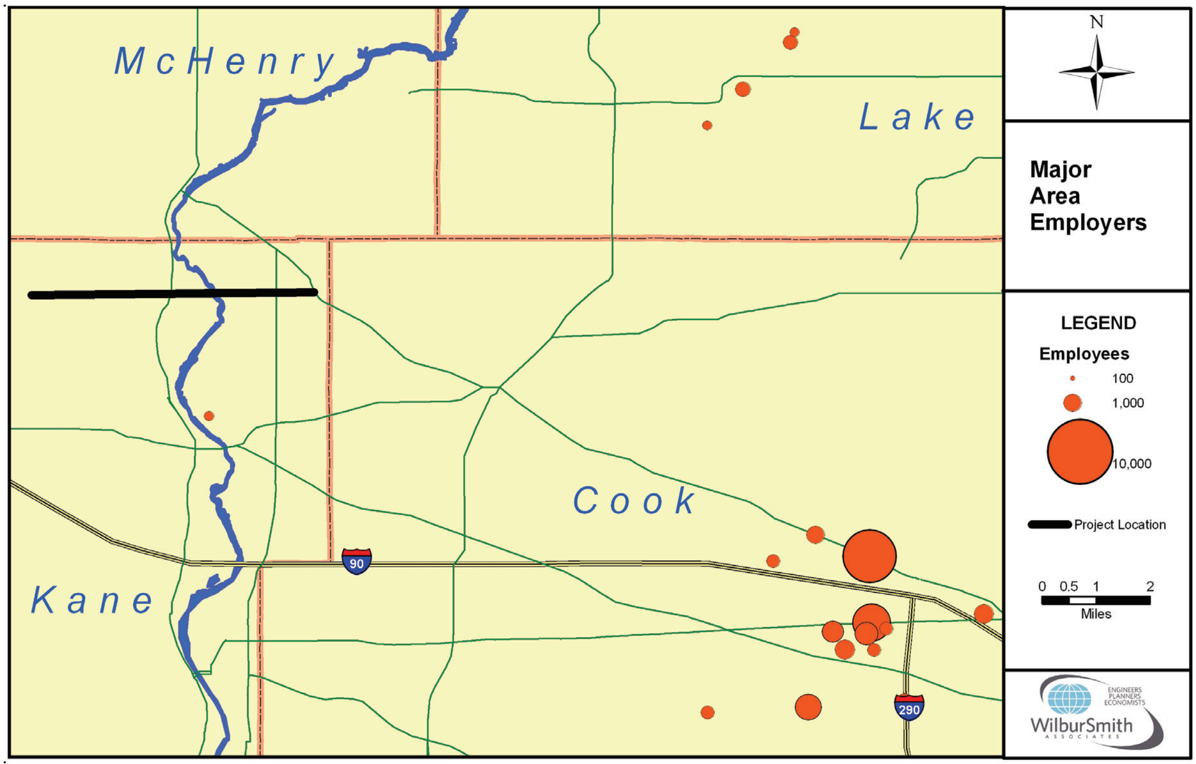


Figure 3.4 Location of Large Employers

Table 3.11 presents trends in total employment over the past 12 years. The net changes in total employment in Kane and McHenry counties were approximately 28 percent and about 35 percent, respectively, during the 12-year period. In comparison, total employment in Illinois and the United States grew approximately 8 percent and 15 percent, respectively, during the same period. The growth shown in two counties surpassed the state and national levels, corresponding to the fast rate of population growth in the two counties.

In 2007, total employment in Kane County was approximately 47 percent higher than that in McHenry County. Both counties generally experienced sustained employment growth between 2000 and 2005, when overall Illinois employment did not grow significantly.

Table 3.11 Historical Employment (in thousands)

Year	Kane County	McHenry County	Illinois	U.S.
1996	196	126	5,907	126,708
1997	201	128	5,988	129,558
1998	206	131	6,047	131,463
1999	215	136	6,143	133,488
2000	212	146	6,177	136,891
2001	217	148	6,114	136,933
2002	218	147	5,969	136,485
2003	223	151	5,917	137,736
2004	231	155	5,980	139,252
2005	236	159	6,076	141,730
2006	248	168	6,273	144,427
2007	252	171	6,362	146,047
Net change 1996-2007	28.4%	35.3%	7.7%	15.3%

Source: Bureau of Labor Statistics

Table 3.12 shows median hourly wages and total employment by occupational groups for the Illinois portion of the Chicago metropolitan area in 2007. The largest wage group is office and administrative support, followed by sales and related occupations. Combined, these groups account for nearly 30 percent of metropolitan area employment. Both groups show a median hourly wage below the regional median wage of $16.79. However, the area also shows significant populations of higher paying wage groups, such as management, legal, and technical sectors including computer, engineering, and engineering-related employment.

Table 3.12 Chicago MSA Employment Sectors and Hourly Wages (2007)

Occupation	Employment	Percent	Median Hourly Wage
Management	185,860	4.9%	$43.98
Business and financial operations	227,390	6.0%	$28.29
Computer and mathematical	106,340	2.8%	$35.13
Architecture and engineering	54,760	1.4%	$32.24
Life, physical, and social science	30,440	0.8%	$27.76
Community and social services	40,900	1.1%	$19.64
Legal	38,830	1.0%	$42.62
Education, training, and library	228,930	6.0%	$24.61
Arts, design, entertainment, sports, and media	49,720	1.3%	$20.68
Health care practitioners and technical	188,120	4.9%	$27.31
Healthcare support	85,230	2.2%	$11.83
Protective service	96,890	2.5%	$17.68
Food preparation and serving related	275,160	7.2%	$8.33
Building and grounds cleaning and maintenance	122,740	3.2%	$11.06
Personal care and service	96,960	2.5%	$10.11
Sales and related	414,130	10.9%	$12.86
Office and administrative support	661,610	17.4%	$14.99
Farming, fishing, and forestry	3070	0.1%	$9.74
Construction and extraction	156,920	4.1%	$30.31
Installation, maintenance, and repair	119,760	3.1%	$21.17
Production	324,270	8.5%	$12.86
Transportation and material moving	301,420	7.9%	$13.27
Total	**3,809,450**		**$16.79**

Source: Bureau of Labor Statistics, May 2007 estimates for Chicago-Naperville-Joliet, IL Metropolitan Division

3.7 JOURNEY TO WORK CHARACTERISTICS

Table 3.13 shows the average commuting times for the seven area townships and for the entire United States. Compared to the country as a whole, the townships had a larger percentage of at-home workers, as well as larger percentages in segments with longer commute times. Approximately 16 percent of workers in the townships commuted for 60 or more minutes in 2000. Nationally, the share of the 60 or more minute commute was only about 3 percent. Approximately 15 percent of workers in the United States had a 15-19 minute commute in 2000, while approximately 10 percent of the workers in the townships had the same commuting time.

Table 3.13 Average Commute Times

Travel Time	Townships			United States		
	1990	2000	2000 Share	1990	2000	2000 Share
Work at Home	2,231	4,159	3.9%	3,406,025	4,184,223	3.3%
Commuters	70,043	103,365	96.1%	89,559,935	113,900,591	88.8%
Under 10 min.	9,645	11,223	10.4%	4,314,682	18,257,921	14.2%
10-14 min.	9,400	12,326	11.5%	17,954,128	18,618,305	14.5%
15-19 min.	8,251	11,305	10.5%	19,026,053	19,634,328	15.3%
20-24 min.	7,537	10,549	9.8%	16,243,343	17,981,756	14.0%
25-29 min.	3,578	5,142	4.8%	6,193,587	7,190,540	5.6%
30-34 min.	7,541	11,713	10.9%	14,237,947	16,369,097	12.8%
35-44 min.	5,988	9,768	9.1%	2,634,749	3,212,387	2.5%
45-59 min.	8,412	14,487	13.5%	7,191,455	9,200,414	7.2%
60 or more min.	9,691	16,852	15.7%	1,763,991	3,435,843	2.7%

Source: U.S. Census Bureau

Table 3.14 shows the reported commute departure times from the 1990 and 2000 censuses and the 2006 American Community Survey for the two counties and for the United States as a whole. The two counties showed the greatest growth in the early morning commute segments between midnight and 5:30 a.m. McHenry also showed moderate growth in departure times between 9:00 a.m. and 11:59 p.m., which were the fastest growing segment for the United States.

In 2006, the majority of commuters in Kane County left home to travel to work between 6:00 a.m. and 7:59 a.m. These commuters traveling in this morning peak period accounted for approximately 48 percent of total commuters. In the same year, McHenry County saw AM peaking between 6:00 a.m. and 8:29 a.m. The commuters traveling in this period accounted for about 57 percent of all commuters.

Table 3.14 Commuting Departure Time Distributions *

Time Leaving Home	Kane County				McHenry County				United States			
	1990	2000	2006	Annual Growth 1990-2006	1990	2000	2006	Annual Growth 1990-2006	1990	2000	2006	Annual Growth 1990-2006
12:00-4:59 am	4.0	7.0	8.7	5.8%	2.8	5.8	5.9	7.6%	2,747	4,238	5,337	4.4%
5:00-5:29 am	4.5	7.7	12.4	5.6%	3.3	5.8	7.9	5.8%	2,724	3,763	4,790	3.3%
5:30-5:59 am	7.7	11.0	14.6	3.5%	5.6	8.3	11.0	3.9%	4,422	5,677	6,555	2.5%
6:00-6:29 am	16.9	20.0	29.2	1.7%	10.9	15.5	17.5	3.6%	9,807	10,810	12,099	1.0%
6:30-6:59 am	20.8	22.6	24.8	0.8%	12.8	15.1	15.7	1.7%	13,014	13,386	14,020	0.3%
7:00-7:29 am	23.1	27.3	29.2	1.7%	14.4	19.2	21.8	2.9%	17,745	18,640	19,687	0.5%
7:30-7:59 am	22.0	25.8	27.2	1.6%	11.9	16.1	15.3	3.1%	17,601	19,666	17,651	1.1%
8:00-8:29 am	15.1	17.3	22.4	1.3%	8.6	12.0	16.9	3.4%	12,834	13,410	14,313	0.4%
8:30-8:59 am	6.8	8.2	8.6	1.9%	4.3	5.8	7.5	3.1%	6,034	6,528	7,206	0.8%
9:00-11:59 pm	32.8	39.6	52.9	1.9%	15.9	24.7	31.9	4.5%	24,785	52,729	31,196	7.8%

* Workers in thousands
Source: U.S. Census Bureau

4 PROPOSED TOLL COLLECTION SYSTEM

4.1 OVERVIEW OF TOLL COLLECTION SYSTEM

Tolling systems throughout the U.S., and worldwide as well, have been implemented under a variety of scenarios and configurations. Until the early 1990's, the vast majority of toll collections systems were comprised of cash collection by way of paying a toll collector and/or depositing coins or tokens in an Automatic Coin Machine (ACM). Since then, the toll industry has seen a significant shift towards the use of Electronic Toll Collection (ETC), allowing users to pay tolls without the need to stop for a toll transaction. This collection method commonly involves deployment of an automated Violation Enforcement System (VES) to capture the license plate number and jurisdiction of vehicles not recording a valid ETC transaction in a toll lane.

Implementation of ETC at new and reconstructed toll plazas has often been combination of both ETC express lanes and a conventional plaza, providing toll booths for cash payment and possibly dedicated ETC lanes to supplement the express lanes. The express lanes and conventional plaza are physically separated and resemble a condensed bypass configuration with the express lanes following the mainline alignment. More recently, the trend is shifting to what is commonly referred to as Open Road Tolling (ORT). ORT tolling is equivalent to an all-electronic implementation where the number of non-stop ETC lanes through the tolling zones exactly equals the number of mainline lanes. This configuration may be supplemented by a small conventional plaza for cash located to the outside of the tolling zones in each direction of travel. In an ORT system, the tolling zone is essentially an overhead gantry system comprised of ETC and VES equipment. If there are provisions for cash payment, the tolling is often higher than the toll paid by customers who register with the ETC program. The Illinois Tollways utilize I-PASS as the ETC system.

4.2 LONGMEADOW PARKWAY TOLLING OPTIONS

The following sections describe potential tolling systems applicable to the Longmeadow Parkway. Each of the tolling systems is outlined with its features and advantages and disadvantages of implementing the system.

4.2.1 CASH (ATTENDED) / ETC (I-PASS) COLLECTION

In this tolling configuration, a toll is collected by the following methods:

1. An attendant stationed in a tollbooth mounted on a 6-foot wide toll island and protected from the elements by a canopy.

2. An account that is debited when an electronic toll collection transaction associated with the account is recorded in the lane. This type of transaction requires a vehicle mounted transponder to identify the account using radio frequency signals.

This system provides the following advantages:

1. There are no constraints or restrictions to use, particularly those seeking privacy, assuming sufficient cash to pay the toll.
2. A plaza layout clearly conveys a location where a toll is assessed and collected, which eliminates user confusion with other un-tolled roadways. This advantage is of particular importance during ramp-up period for a new facility.
3. Attendants can immediately contact emergency and maintenance services for incidents/lane blockage and equipment malfunctions, respectively, through on-site monitoring.
4. Attendants can provide user services such as directions, ETC enrollment information, and violation policy information. They can also collect and disburse incident and weather information conveyed by users.
5. The system provides less reliance on DMV vehicle registration database to identify and process vehicles without an active ETC account.
6. Plaza administration buildings can be used for spare parts storage, thereby reducing the mean time to repair metric and increasing system availability. Roadway maintenance materials can also be stored at these locations.

Disadvantages of implementing this system are as follows:

1. The system incurs higher capital costs for right-of-way and plaza facility construction, including plaza administration buildings, parking areas, overhead walkway or tunnel (unless two buildings for each direction of travel constructed), canopies, toll islands and booths, impact attenuators, signs and displays, and cash collection equipment.
2. The system involves higher roadway maintenance operating costs attributable to additional pavement, barrier, pavement markings, storm drainage, and roadway lighting associated with a conventional plaza.
3. The system requires higher operating costs for maintenance of plaza administration building(s), parking area(s), canopies, plaza lighting, toll islands and booths, impact attenuators, signs and displays, and cash collection equipment.
4. Courier service is needed to transport attendant deposits to the bank.
5. Capital and service costs are required for delivery of water, sewer, and possibly natural gas utilities to the building.
6. To eliminate unnecessary operating and maintenance costs, the plaza administration buildings will need to be removed in the future when the demand for cash services is very low while the cost to collect a cash transaction is significantly higher than for an ETC transaction.
7. Users experience a higher average travel time through the tolling zone/plaza relative to an all-electronic collection because of longer processing times for cash transactions. The delay impacts I-PASS users in the following vehicles.
8. Toll islands, canopy supports, and additional barrier represent safety hazards that must be protected, in conjunction with lowering speeds through the plaza.
9. Plaza design and construction must assure the safety of toll attendants who must walk to and from the plaza administration buildings and their assigned tollbooth carrying a cash drawer.

4.2.2 CASH (UNATTENDED) / ETC (I-PASS) COLLECTION

In this tolling system, a toll is collected by the following methods:

1. A toll payment machine accepting cash and cards (e.g., credit, debit, agency) and providing change and receipts.
2. An account that is debited when an ETC transaction associated with the account is recorded in the lane.

Major advantages of implementing this tolling option are:

1. The system provides no constraints or restrictions to use, particularly those seeking privacy, assuming sufficient cash to pay the toll.
2. A plaza layout clearly conveys a location where a toll is assessed and collected.
3. The system provides less reliance on DMV vehicle registration database to identify and process vehicles without an active ETC account.
4. The system eliminates capital cost of plaza administration building including delivery of water, sewer, and possibly natural gas services.
5. The system eliminates utility costs (excluding power and communications), physical security, and building cleaning and maintenance costs.

This tolling system presents the following disadvantages:

1. The system incurs higher capital costs for right-of-way and plaza facility construction, including canopies, toll islands, and installation of impact attenuators, lane signs, lane displays, and cash collection equipment.
2. The system requires higher roadway maintenance operating costs attributable to additional pavement, barrier, pavement markings, storm drainage, and roadway lighting associated with a conventional plaza.
3. The system includes higher operating costs for maintenance of canopies, plaza lighting, toll islands, impact attenuators, lane signs and displays, and cash collection equipment.
4. Money handling service is needed to transport collected cash, charge receipts, change, and paper rolls between the toll payment machine and the bank.
5. Users experience a higher average travel time through the tolling zone/plaza relative to an all-electronic collection because of longer processing times for cash transactions.
6. Toll islands, canopy supports, and additional barrier represent safety hazards that must be protected, in conjunction with lowering speeds through the plaza.

Figure 4.1 illustrates the mainline conventional toll plaza with the combination of cash (unattended) and I-PASS collections. The figure also shows the minimum right-of-way required for the toll collection system.

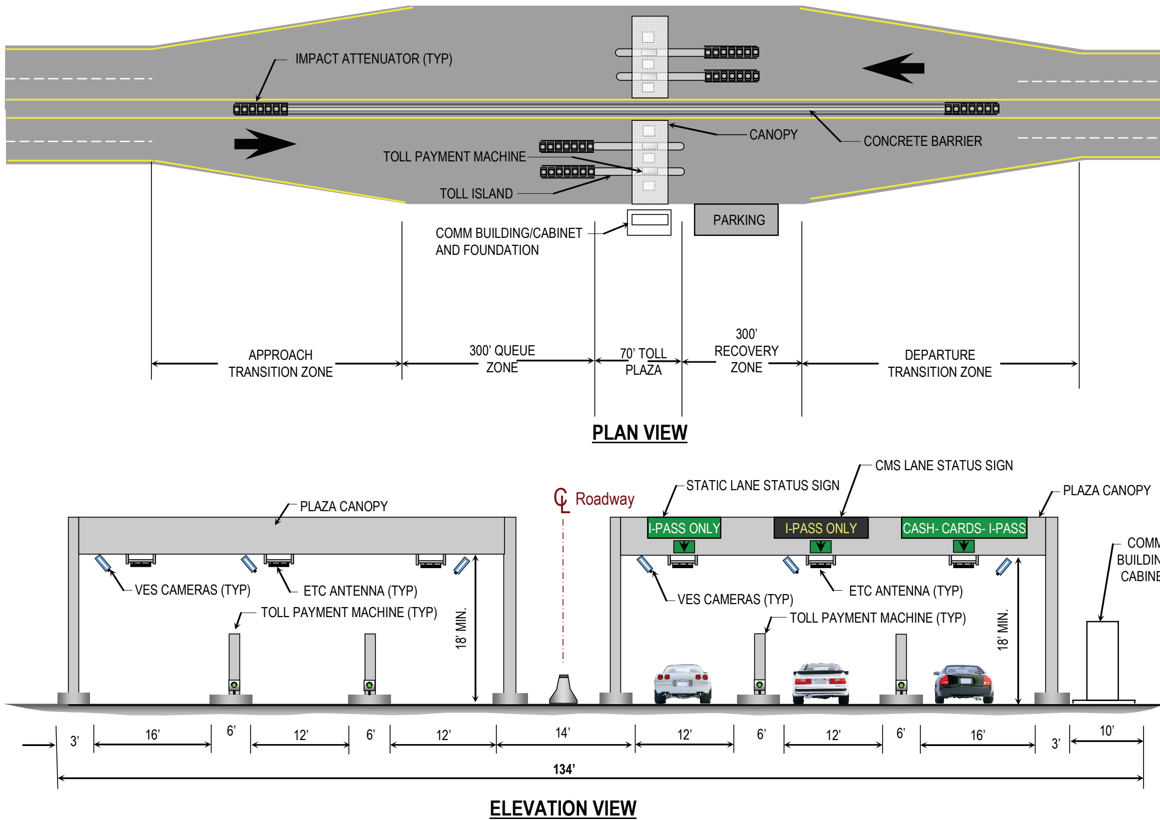


Figure 4.1 Mainline Conventional Toll Plaza (Cash and I-PASS)

4.2.3 ALL ETC (I-PASS) / VIDEO TOLLING

A toll is collected from an account that is debited when an ETC transaction associated with the account is recorded in the lane. This type of transaction requires a vehicle-mounted transponder to identify the account using radio frequency signals. Pre-payment with automatic replenishment when the account balance reaches an established low balance threshold offers the maximum convenience to the user and requires the least amount of account maintenance to service. Post-payment of ETC transactions is commonly limited to commercial vehicles with reliable credit histories.

Users without a transponder properly mounted to their vehicle or without an active I-PASS account can be handled through video tolling. The later section explains three viable alternatives of video tolling.

Advantages of implementing the all ETC system are:

1. The system provides lowest capital cost for right-of-way and facility construction.

2. The system eliminates reason for sudden lane changes (i.e., to enter toll lane with smaller queue) and merging and diverging movements inherent with conventional plaza cash lanes, resulting in enhanced safety.
3. The system reduces roadway capital and maintenance costs attributable to the additional pavement, barrier, pavement markings, storm drainage, and roadway lighting associated with a conventional plaza.
4. The system eliminates maintenance costs for plaza administration buildings, parking areas, canopies, plaza lighting, toll islands and booths, impact attenuators, lane signs and displays, and cash collection equipment.
5. A conventional toll plaza causes safety concern with differential speeds between slowly accelerating trucks and higher speed I-PASS users downstream of the plaza. The all ETC system reduces the safety concern.
6. The system eliminates travel time delays that are commonly encountered at a conventional plaza supporting cash collection, particularly charge card payments at a toll payment machine.
7. Large existing ETC user base significantly reduces ramp up period for facility usage.

The all ETC system presents the following disadvantages:

1. Lower transactions are expected, primarily caused by infrequent users and both in-state and out-of-state visitors to the area. Three viable alternatives of video tolling described in the later section can significantly mitigate this condition.
2. The system depends on the reliability and accuracy of the secretary of state (DMV) registered vehicle database and timely response of their staff.
3. The system presents higher potential revenue leakage from out-of-state users whose vehicle is registered in a state for which there is no cooperative agreement with a secretary of state's office for obtaining registered vehicle ownership information.
4. Full lane blockage incident within the tolling zone can result in significant delays and potential revenue loss.
5. Longer response times to incidents/lane blockage and equipment malfunctions are expected because of reliance on remote monitoring and possible user notification by mobile telephone.
6. Common use of roadside cabinets for equipment installation provides less environmental protection and security than a plaza administration building or small communication building.

Video Tolling

WSA has identified below, three alternatives for accommodating users without I-PASS outside of handling these transactions as violations.

The first alternative is to take advantage of the Illinois Tollway's existing 5-day grace period for making an online, mail or drop-off toll payment. The payment would include an added premium to encourage enrolling in the I-PASS program.

This alternative provides the following advantages:

1. Given the functionality that currently exists, the only modification is an addition of a surcharge pertaining only to the Longmeadow Parkway to discourage continued use of this method of payment.

2. Some existing Tollway users who are also likely to use the Longmeadow Parkway may already be familiar with this Tollway courtesy, which provides a means for users to avoid a violation they were not intending to commit.

Disadvantages of this alternative are:

1. Out-of-state users and in-state users outside the Chicago metro area are unlikely to be familiar with the Tollway's grace period courtesy. Conveyance of this information may be problematic.
2. This alternative could generate additional customer service phone calls (labor man-hours) from users who miss the grace period expiration date.
3. Assessment of a surcharge for the Longmeadow Parkway may cause user confusion relative to the Tollway's policy.

The second alternative is video tolling whereby a prospective user registers their license plate number and jurisdiction and either provides a credit card for deposit and automatic replenishment or makes a recurring account deposit by cash, check, credit card, or debit card. It is envisioned that an account equivalent to an I-PASS account would be built involving a distinguishable account number. Using the same process currently used to handle I-PASS customer transactions without a tag identification number, the license plate number associated with the account will be used to match the violation transaction to the account, and the customer will be charged the toll plus a premium.

Advantages of the second alternative are:

1. This alternative provides an ideal solution for extended-stay visitors and users with an aversion to a transponder mounted to their vehicle or vehicle tracking concerns.
2. This alternative provides the same convenience as an I-PASS account but at a higher cost for those willing to pay.
3. Extensive software modifications are not required. The Tollway's existing I-PASS business center and violation processing software provides the core functionality required to perform the intended processes.

Disadvantages of the second alternative are:

1. It is challenging to forecast demand for this alternative means of payment, making assessment of Tollway's charges and fees for servicing more difficult.
2. It is difficult to determine appropriate surcharge that provides an incentive to select I-PASS by the majority of users but does not discourage use by users with no intent of enrolling in the I-PASS program.

The third alternative is video tolling involving use of the Tollway's violation processing subsystem to identify the owner of a vehicle from a license plate image captured in the toll zone and the existing interface with the secretary of state (i.e., DMV). Users are not required to pre-register. The existing VPS functionality of either opening a new violation account or posting transactions to an existing account will be used to accumulate transaction over a designated period (e.g., one month) before sending an invoice to the registered vehicle owner. Each transaction will include a surcharge to encourage enrollment in the I-PASS program. Unpaid invoices result in violation notices if unpaid after a specified time period. Unpaid violation notices are collected when the owner renews their vehicle registration.

This alternative provides the following advantages:

1. Provides an opportunity for all users without a transponder and active I-PASS account to avoid a violation and associated higher fees and fines.
2. Maximum convenience is offered to all users that are tempered by the assessment of a surcharge.
3. Extensive software modifications are not required.

Disadvantages of using this alternative are:

1. Deferred revenue and identification of "true" violators, which is of particular concern because current legislation requires issuance of a violation citation within a limited time after the violation event.
2. Agency assumes considerably greater risk of non-payment. Collection of unpaid tolls at the time a user renews their vehicle registration may not flow back to agency.
3. It is challenging to forecast demand for this alternative means of payment, making assessment of Tollway's charges and fees for servicing more difficult.
4. It is difficult to determine appropriate surcharge that provides an incentive to select I-PASS by the majority of users but does not discourage use by users with no intent of enrolling in the I-PASS program.
5. It is difficult to distinguish between a violation on one system (e.g., Kane County system) versus a violation on another system (e.g., Illinois Tollway system).

4.3 LOCAL I-PASS USERS

As part of determining a tolling system suitable to the Longmeadow Parkway, the number of existing I-PASS holders in the area near the project was investigated. **Figure 4.2** depicts the number of I-PASS accounts per 100 households by zip code for part of the Chicago metropolitan area. The proposed Longmeadow Parkway is shown as a blue line in the center of the map. The figure indicates that the Longmeadow Parkway is located in an area highly concentrated with I-PASS users. Most areas in the vicinity of the parkway show I-PASS account holder rates of at least 50 I-PASS accounts per 100 households.

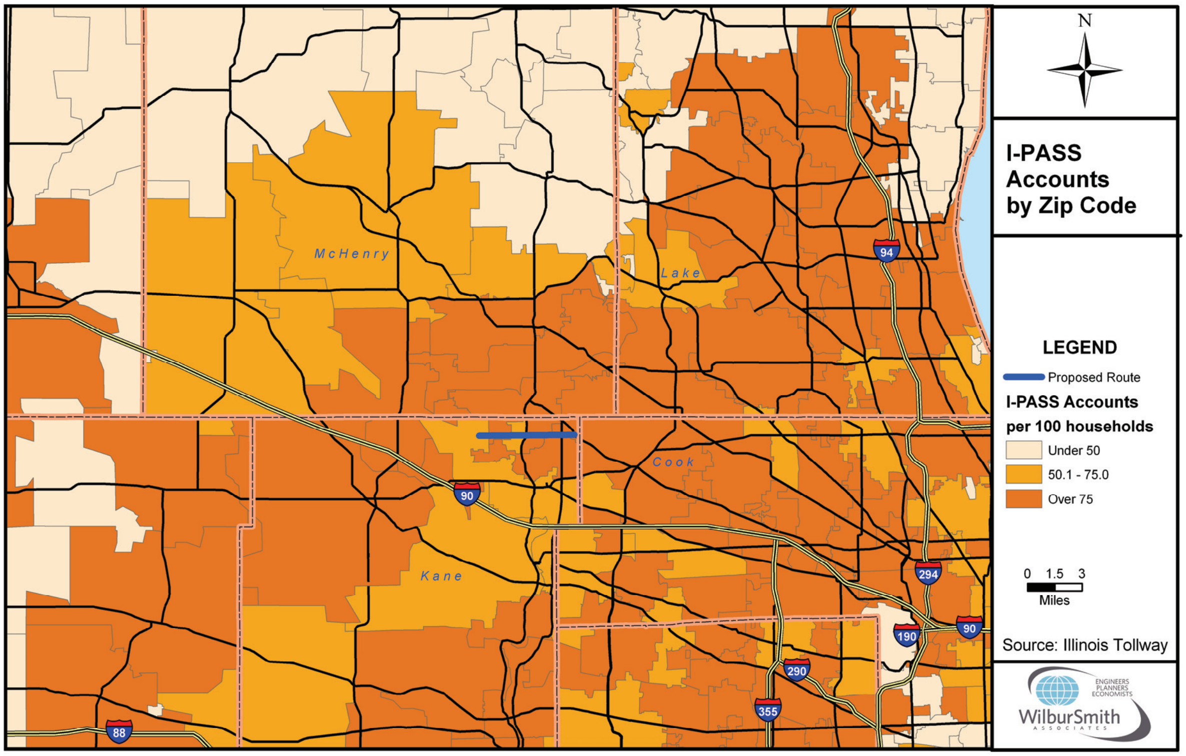


Figure 4.2 I-PASS Accounts per Household
Source: Illinois Tollway

4.4 PROPOSED TOLL COLLECTION SYSTEM

The preferred implementation for the Longmeadow Parkway toll facility is a combination of I-PASS and video tolling. The large number of existing I-PASS customers in the area as described in the previous section would warrant a toll collection system that maximizes I-PASS use. The users without I-PASS accounts would be handled through video tolling. In this proposed system, any cash collection methods are eliminated. The proposed system is shown in **Figure 4.3**. This toll collection system is based on 4-lane configurations.

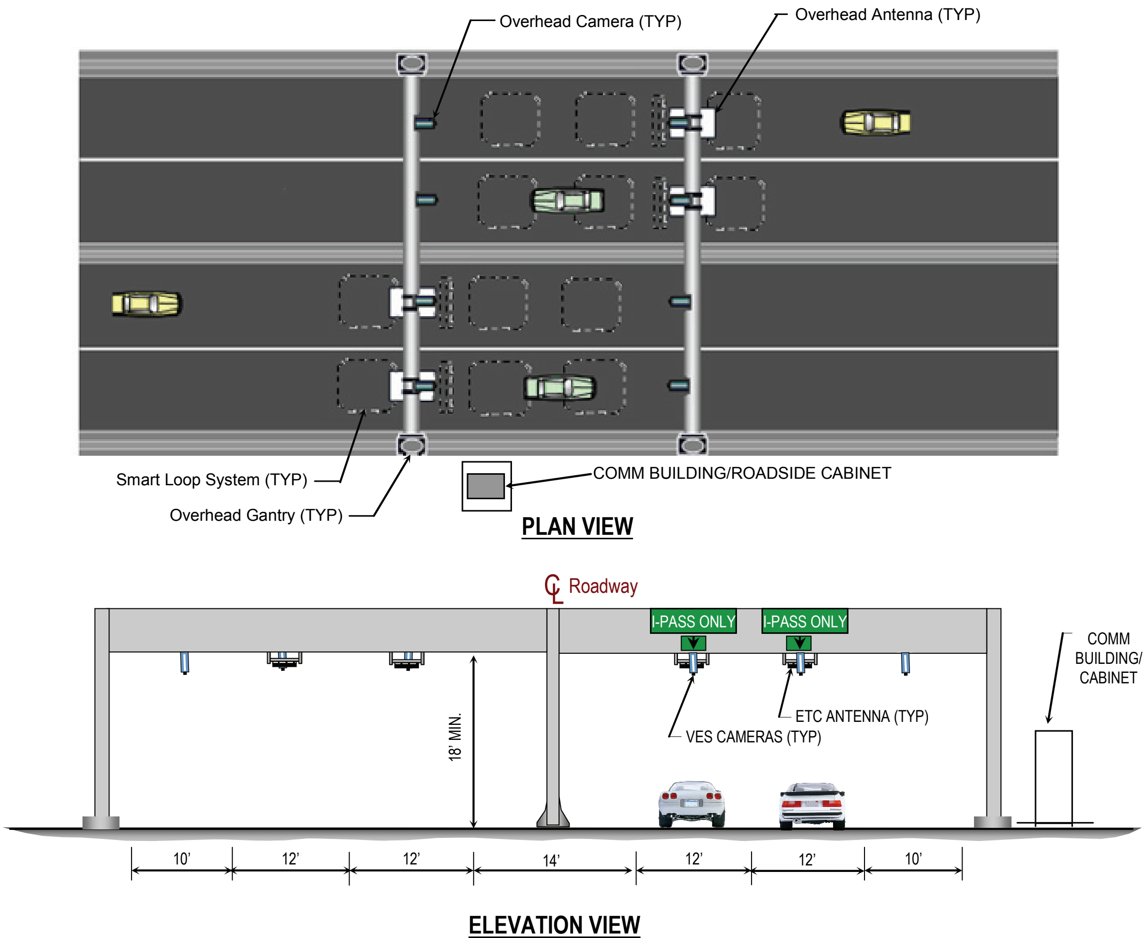


Figure 4.3 Proposed Toll Collection System

4.5 TOLL SYSTEM COSTS

Tables 4.1 and **4.2** provide capital cost and annual maintenance costs, respectively, required for the proposed system. The costs were prepared for the assumed opening year 2013 of the Longmeadow Parkway. Each of the capital and maintenance costs was presented by cost category and associated description. The annual maintenance costs presented in **Table 4.2** does not include the cost required for customer service center operation for ETC processing.

Table 4.1 Capital Cost of the Proposed Toll Collection System

Cost Category	Item Description	Cost
Structures	Dual gantry structures installed to east of bridge spanning lanes, shoulders, and median	$ 181,000
Communications	Multimode and single-mode fiber optics, transmission equipment	$ 27,600
Power	UPS, bypass, disconnect, electrical panels, utility company service connection	$ 35,300
Electronic Toll Collection	Lane kit, badger reader, cable, certification	$ 76,600
Vehicle Detection and Violation Trigger	Smart loop license and support, interface software, documentation, loop installation	$ 51,500
Violation Enforcement System	Field equipment, mounting hardware, image processors, OCR software and interface	$ 142,100
Lane Processing	Lane controller hardware and software, lane electronics, roadside environmental cabinet	$ 646,000
Advance Signing	Fixed panel signs and support structures	$ 75,100
Illinois Tollway Processing	Host and VPS software modifications, network interconnections	$ 345,100
Project Delivery	Project management, project documentation, system testing	$ 367,700
Total Toll System Capital Cost		**$ 1,948,100**

Table 4.2 Annual Maintenance and Administration Costs of the Proposed Toll Collection System

Cost Category	Item Description	Cost
Administration	Office lease	$ 71,300
	Staff	$ 316,800
	Utilities	$ 8,100
	Communications (T1 service)	$ 27,200
	Vendor field service support	$ 17,000
	Supplies	$ 13,600
	Equipment and furnishings	$ 40,700
Maintenance	Technicians	$ 147,100
	Test equipment and tools	$ 11,300
	Vehicles	$ 8,100
	Communications (phone/radios)	$ 1,600
	Inventory	$ 17,000
Total Toll System Administration and Maintenance Costs		**$ 679,800 ***

* Does not include the cost for customer service center operation

5 TRAFFIC AND REVENUE ANALYSIS

5.1 TRAFFIC AND REVENUE FORECASTING PROCESS

WSA used a travel demand modeling application to develop traffic and revenue forecasts. **Figure 5.1** depicts a flow chart of the overall traffic and revenue forecasting process. WSA acquired the latest Kane County model developed by Regina Webster & Associates (hereafter referred to as the "county model"). The county model forecasts traffic for the horizon year of 2015 for roadways within and immediately outside Kane County. This model was compared with the travel demand model WSA developed based on the latest datasets from the Chicago Metropolitan Agency for Planning (hereafter referred to as the "CMAP model"). The CMAP model covers the Chicago metropolitan area in the northeastern Illinois and the area in the northwestern Indiana. After the comparison, WSA decided to use the CMAP model as a basis for modeling because of the following advantages:

1. The CMAP model's roadway network extends to include all of Kane and McHenry counties with reasonable details.
2. The CMAP model consists of four time-of-day models, which allows modeling of peak and off-peak periods.
3. The CMAP model is the most current model representing the Chicago metropolitan area, which uses 2007 as the base year and projects traffic to 2030. In comparison, the county model's base year is 2005, forecasting traffic to 2015.

For the entire model network of the CMAP model, a subarea analysis was performed to extract an area that would see most of traffic impact of the Longmeadow Parkway. The extraction resulted in a modeling area of about 1,600 square miles with the parkway located in the center of the area. Trip tables in the CMAP model were resized to fit into the subarea network. Both the subarea network and trip tables constituted a new travel demand model that was used throughout this study. Hereafter, the new model is referred to as the "Longmeadow travel demand model" or simply "Longmeadow model."

The Longmeadow travel demand model was validated for the base year of 2007. After validation, tolling algorithms were added to the validated model to produce a toll diversion model. Future year assignments were conducted for the assumed opening year 2013 and horizon year 2030 by evaluating no-build, toll-free, and varying toll scenarios. Model networks and trip tables were developed for future years of 2013 and 2030. For each toll scenario, the network and trip table were then input to the toll diversion model to produce traffic forecasts for the years 2013 and 2030. Based on these forecasts, the forecasts for interim and out years were interpolated and extrapolated, respectively.

Annual toll transactions for future years were extracted from the model runs for toll scenarios. Toll operations and maintenance costs were estimated based on the toll transactions. Annual gross and net toll revenues were estimated from the toll transactions and the toll operations and maintenance costs.

Presented on the following pages is a brief discussion on the major elements of the forecasting process.

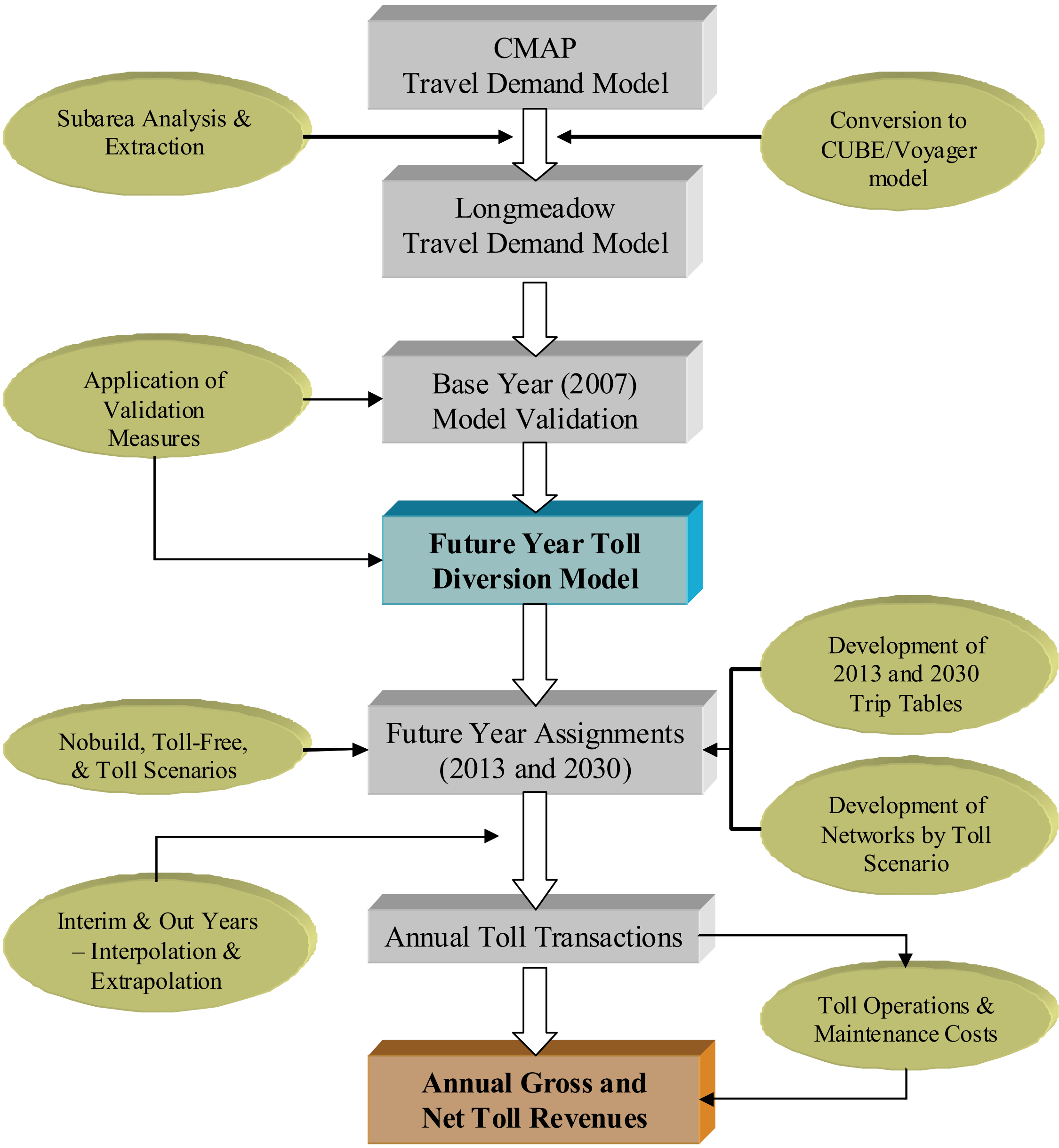


Figure 5.1 Traffic and Revenue Forecasting Process

5.1.1 TRAVEL DEMAND MODEL

The Longmeadow model was built in a CUBE/VOYAGER platform. The model network consists of approximately 5,800 links that includes the Northwest Tollway, portions of I-355, I-294 and I-94, principal arterials, minor arterials, and collectors in the modeling area. The network covers about 4,100 roadway miles in total. The model is represented by 595 traffic analysis zones and 75 external stations.

The model estimates trips for four time periods: AM peak, midday, PM peak, and night periods. Daily trips are obtained by aggregating trips for the four time periods. The model estimates are separated into passenger cars, small trucks, medium trucks, and heavy trucks.

WSA developed networks and trip tables for the following years based on the latest CMAP data sets:

- base year 2007
- opening year 2013
- horizon year 2030

Trip tables for years 2013 and 2030 were developed based on the trip tables for 2007, 2010, 2020, and 2030 of the CMAP model.

5.1.2 MODEL VALIDATION

Model validation tests the ability of the model to closely replicate the existing travel patterns before it can be used to produce reliable forecasts. Model validation was performed for year 2007 as the base year by comparing observed counts with model estimated traffic volumes. In this study, model validation was limited to network-based adjustments that included verification of counts, correction of speeds and capacities, and application of volume-delay functions.

Before validation, a major effort was made to collect and code ground counts on major and minor highways from the Illinois Department of Transportation web site. For the river-crossing locations at Illinois Route 62 and Illinois Route 72, the counts estimated based on the 12-hour manual counts were used for validation. Chapter 2 of this report explains the traffic count collection effort in detail. The count on the river crossing at I-90 was obtained from the 2007 Traffic Data Report produced by the Illinois Tollway.

The model networks were reviewed for their correct representation of speeds and number of lanes and corrected where necessary. Any unreasonable speeds and capacities were corrected to reflect actual roadway conditions. For the network review and corrections, field data obtained from the highway reconnaissance was used.

On the river crossings at Illinois Route 62, Main Street of Carpentersville, Illinois Route 72, and I-90, the model produced reasonable replication of the observed counts. **Table 5.1** presents validation statistics for these locations. As indicated in the table, the model's loading errors were limited to less than ±10 percent for all four bridges. The model loading error at the Illinois Route 62 Bridge was limited to negative 7 percent. The model errors at the Carpentersville's Main Street and Illinois Route 72 bridges were 8 percent and 9 percent, respectively. The model estimates on the I-90 Bridge over the Fox River were approximately 4 percent less than the counts. For all four bridges, the model error was limited to negative 1 percent in total.

Table 5.1 Base Year Validation Statistics on Fox River Crossings

Fox River Crossings	Counts	Model Estimates	Difference
Illinois Route 62	48,700	45,300	-7%
Main Street, Carpentersville	25,000	27,000	8%
Illinois Route 72	40,100	43,900	9%
I-90 (Northwest Tollway)	112,000	107,300	-4%
Total	**225,800**	**223,500**	**-1%**

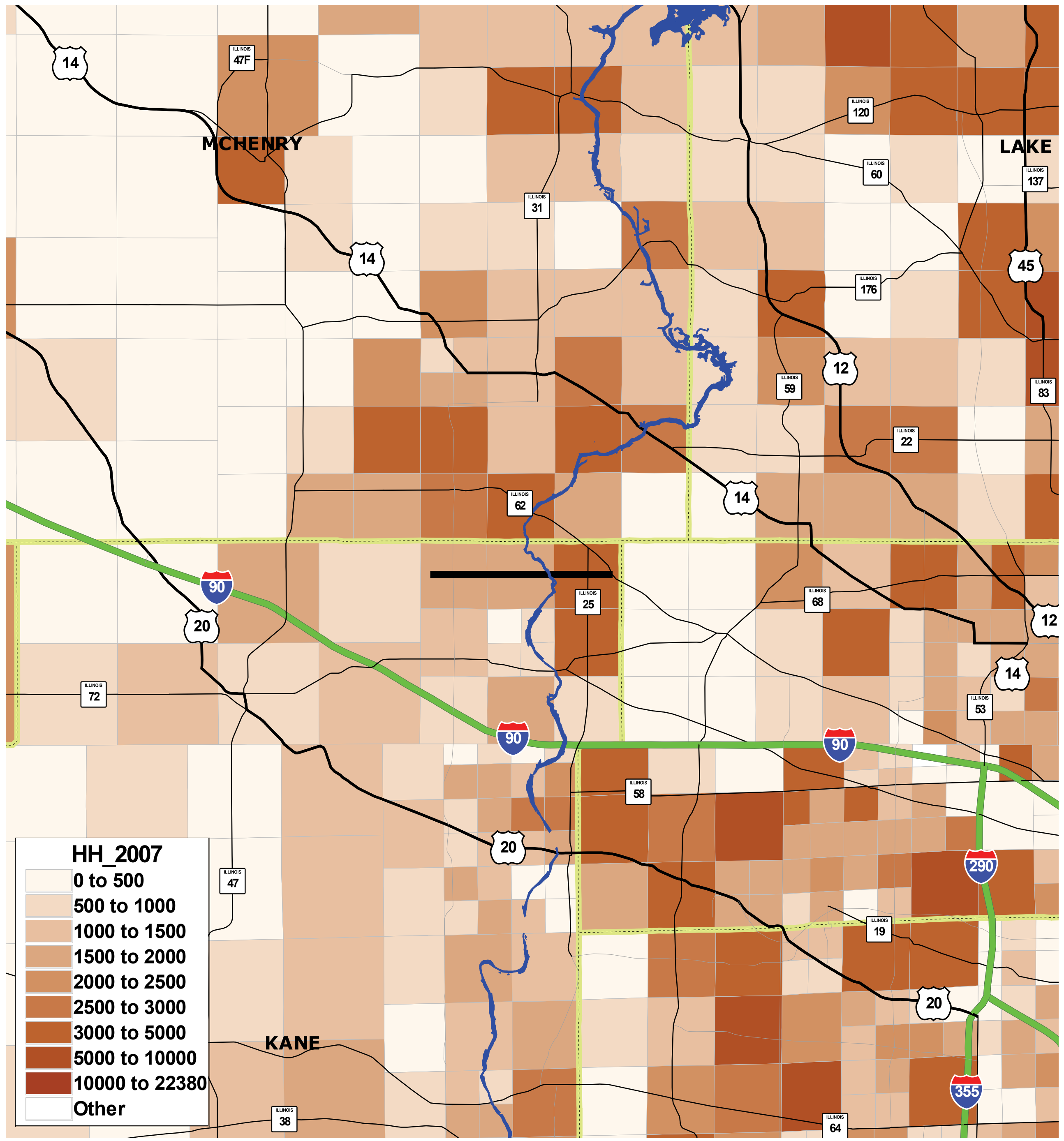
Note: The counts and model estimates are in vehicles per day

5.1.3 SOCIO-ECONOMIC FORECASTS

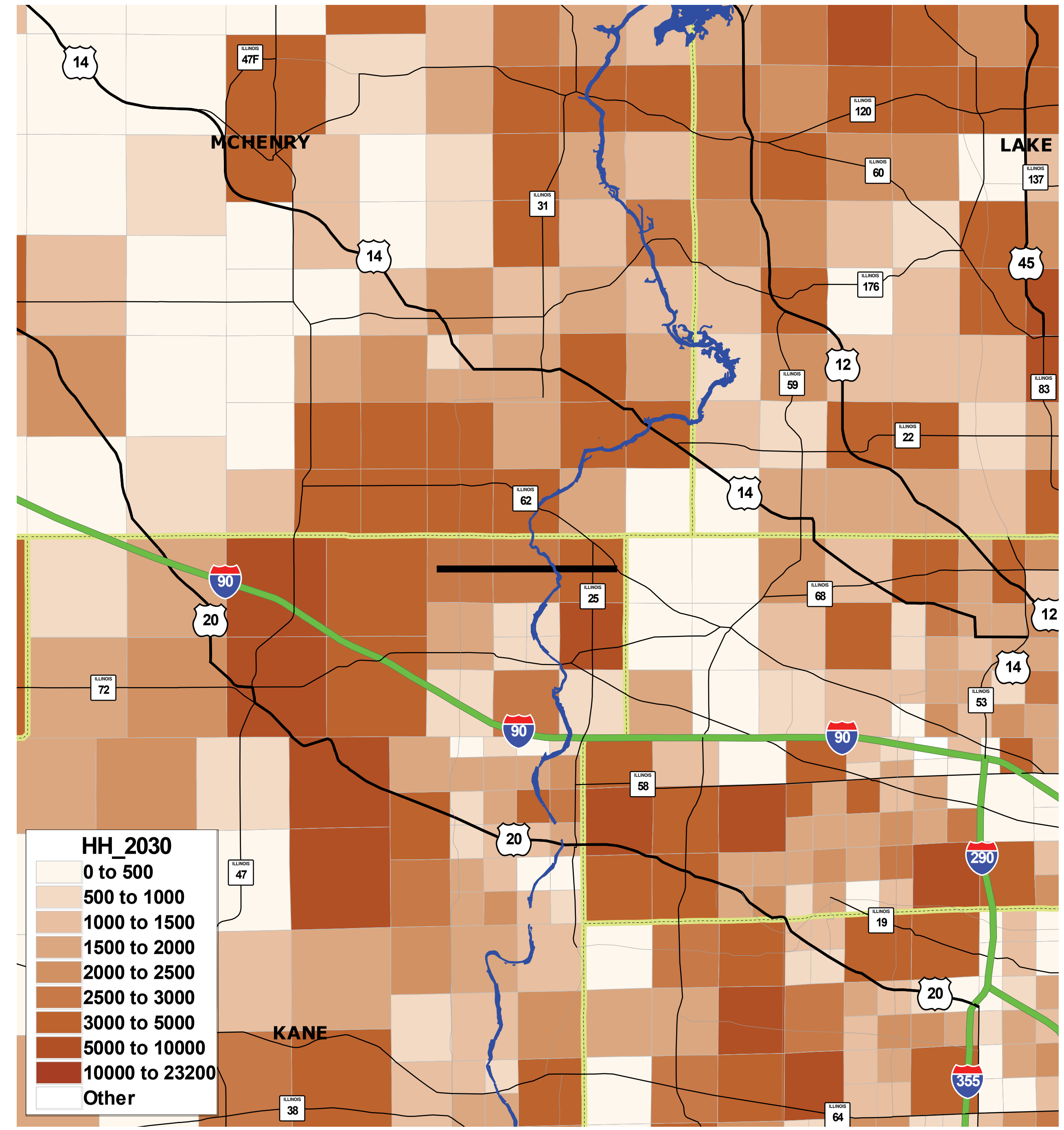
The travel demand model used for the revenue estimation process is based on forecasts of socio-economic variables such as population, households, and employment. The socio-economic forecasts are used to generate vehicular trips that are, in turn, assigned on the highway network. This study investigated the latest forecasts available from CMAP. The CMAP data contained the socio-economic forecasts for base year 2007 and horizon year 2030. **Figures 5.2** through **5.5** illustrate the CMAP's socio-economic forecasts.

Figure 5.2 depicts the 2007 and 2030 household distributions for the area in the vicinity of the proposed Longmeadow Parkway. The 2007 household distribution shows household concentrations in Algonquin and Carpentersville. In year 2030, high growth is forecasted to occur on the west side of the Fox River in the northern Kane County and the southern McHenry County. **Figure 5.3** shows the number of new households forecasted for the area from 2007 through 2030. The Longmeadow Parkway is located in the high-growth area.

Figure 5.4 presents the total employment forecast for the area from the CMAP data. Most of the employment is currently concentrated in Carpentersville, West Dundee, and Elgin, including the area along I-90. The southern McHenry County has high concentration in employment, including Algonquin and the area along U.S. 14 that passes through Crystal Lake and Woodstock. Similar to the household forecasts, the 2030 employment projections are concentrated in the northern Kane County west of the Fox River. The overall growth pattern can be seen more clearly in **Figure 5.5**, which presents the forecasted change in employment between 2007 and 2030.



Year 2007



Year 2030

Figure 5.2 Households Forecasts
Source: Chicago Metropolitan Agency for Planning

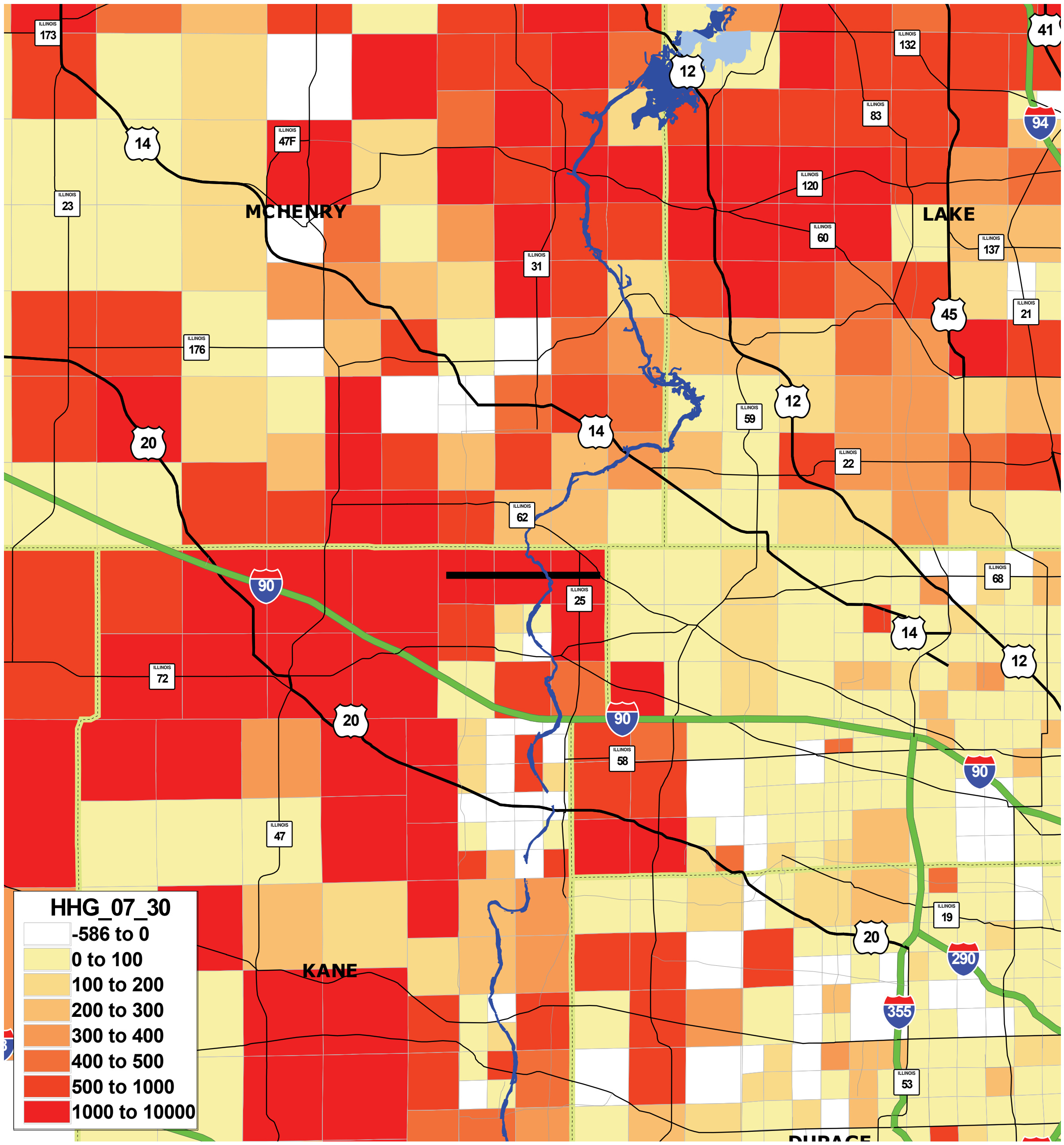
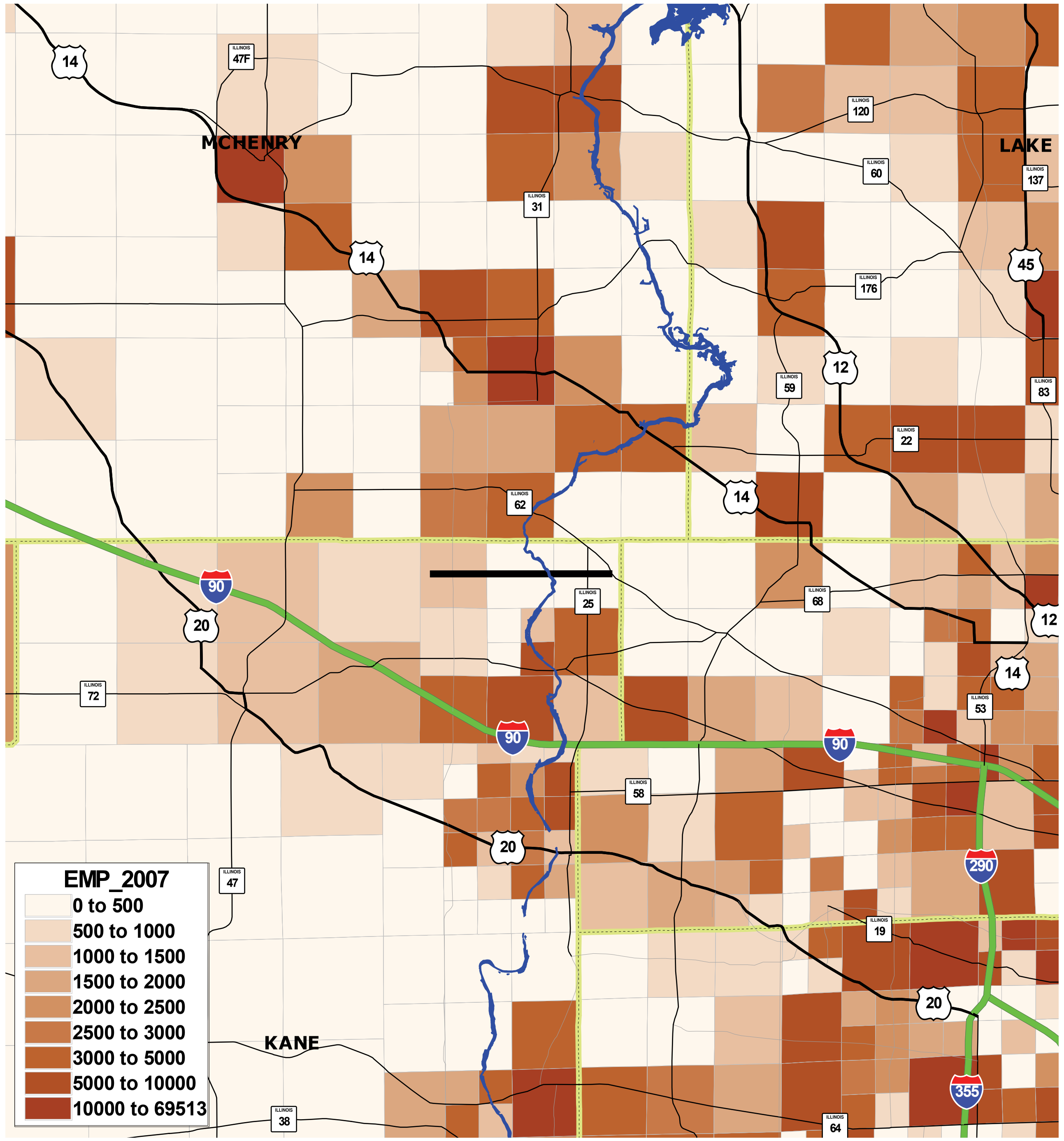
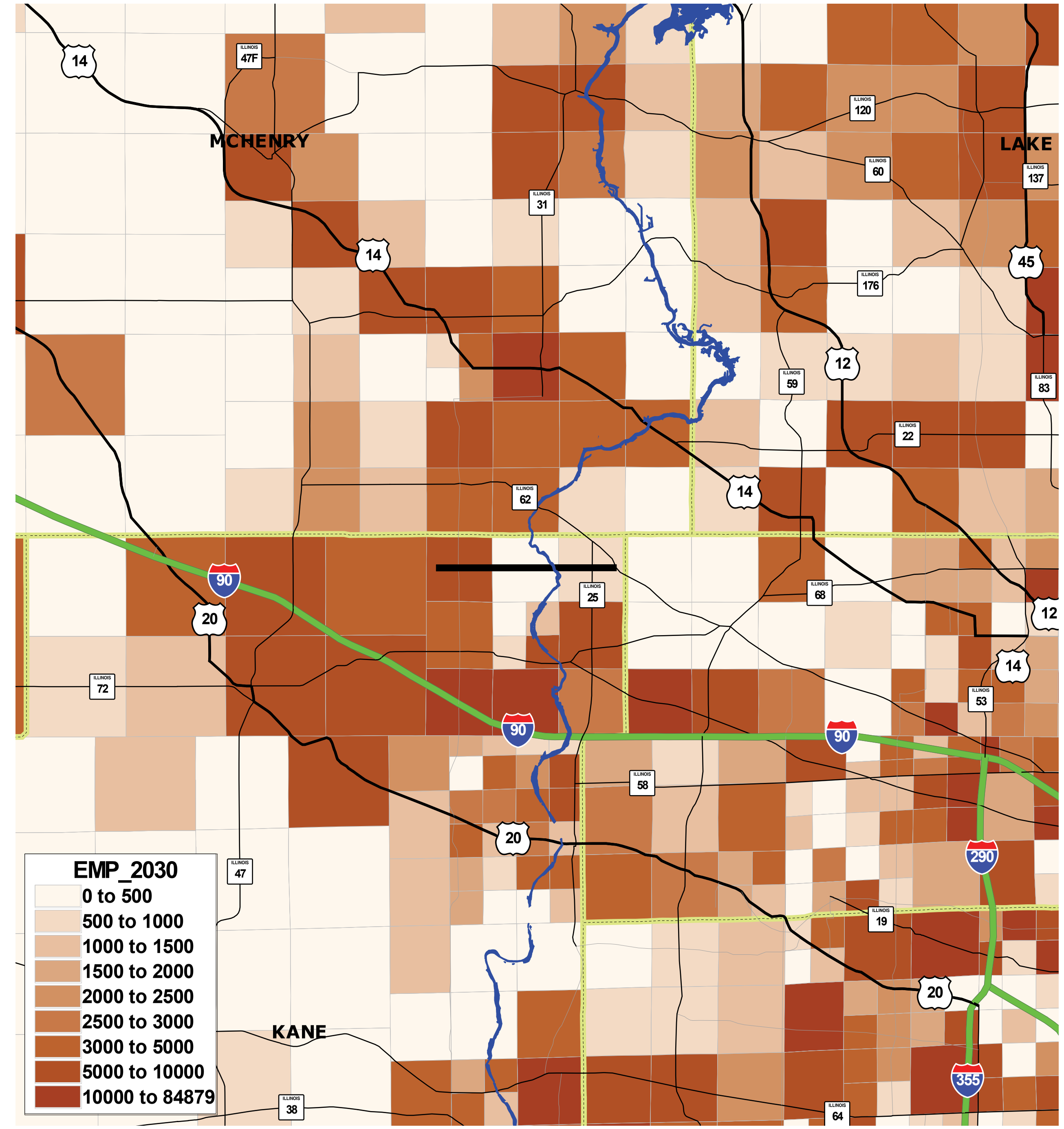


Figure 5.3 Households Growth (2007-2030)
Source: Chicago Metropolitan Agency for Planning



Year 2007



Year 2030

Figure 5.4 Employment Forecasts
Source: Chicago Metropolitan Agency for Planning

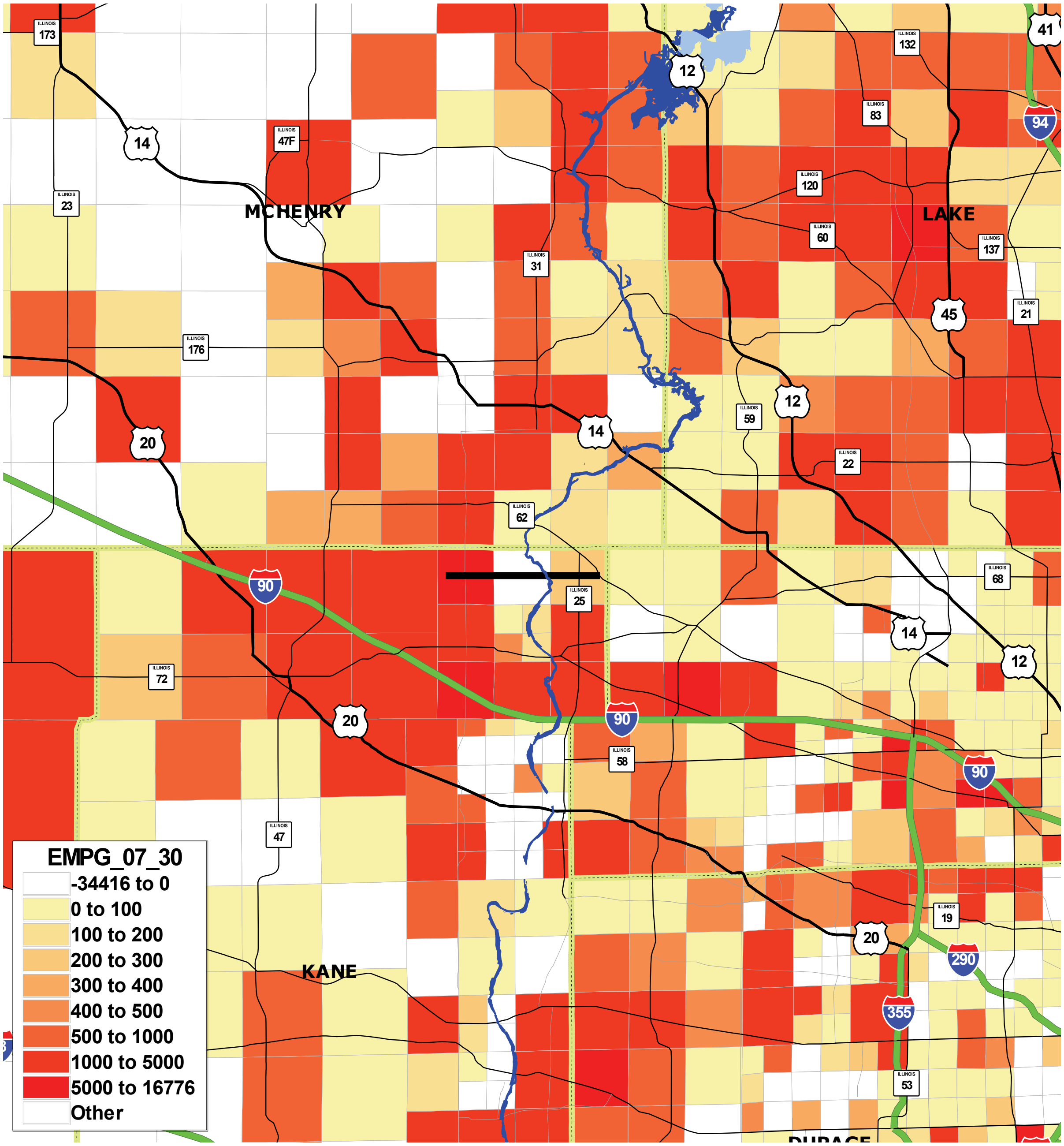


Figure 5.5 Employment Growth (2007-2030)
Source: Chicago Metropolitan Agency for Planning

5.1.4 TRIP-END GROWTH ANALYSIS

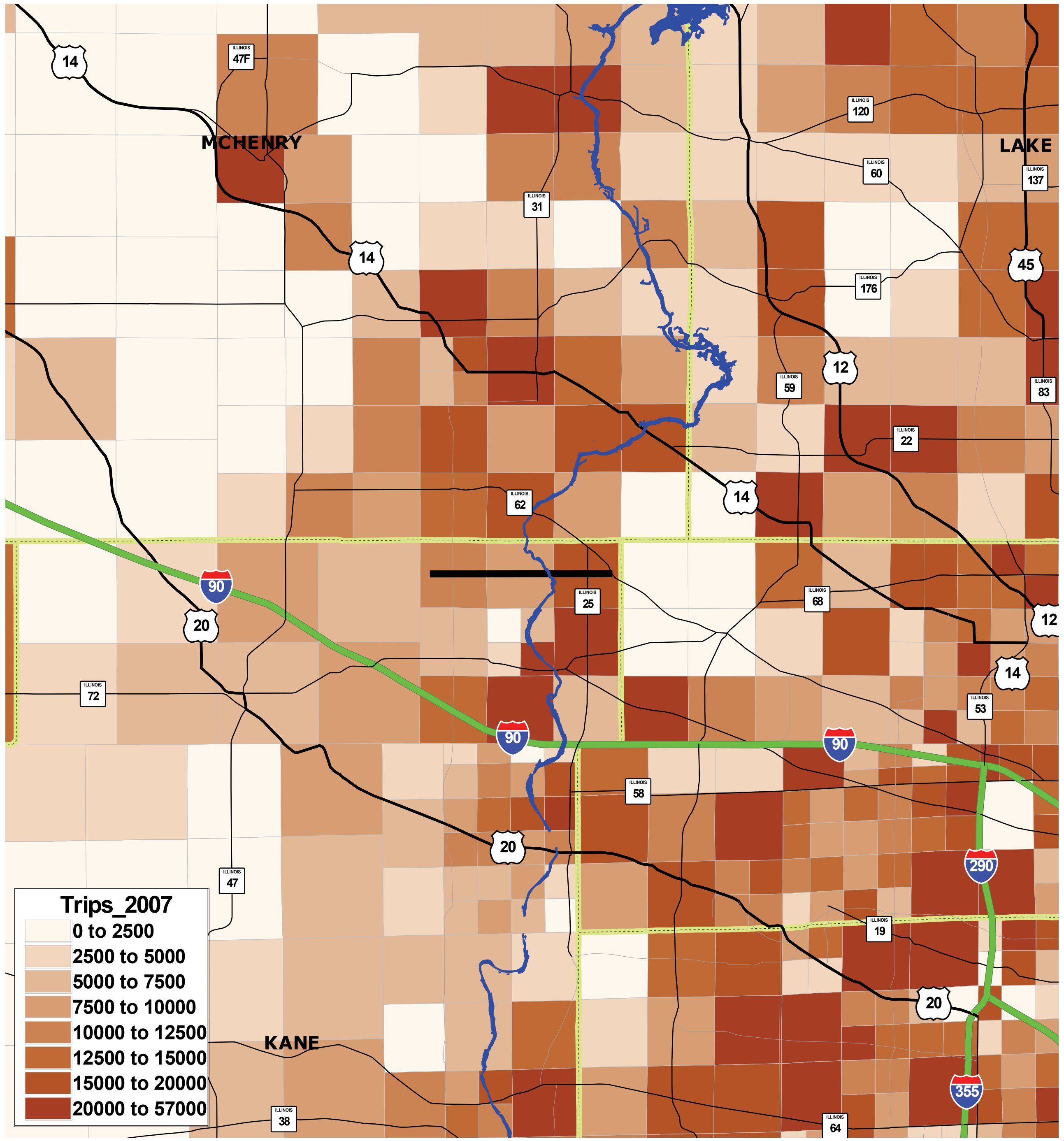
The growth forecasted in the CMAP 2030 trip table was analyzed by reviewing the trip-end distribution forecasts. Trip-ends were directly correlated to household and employment forecasts described earlier in this report and followed similar trends. **Figure 5.6** illustrates trip-end forecasts for years 2007 and 2030 shown in the CMAP model datasets. **Figure 5.7** exhibits the change in trip-ends from year 2007 to year 2030.

As indicated in these figures, high growth is forecasted for the area west of the Fox River along the Northwest Tollway. The Longmeadow Parkway is located in this high growth area. The Longmeadow Parkway Bridge would serve cross-river traffic generated in the high growth area.

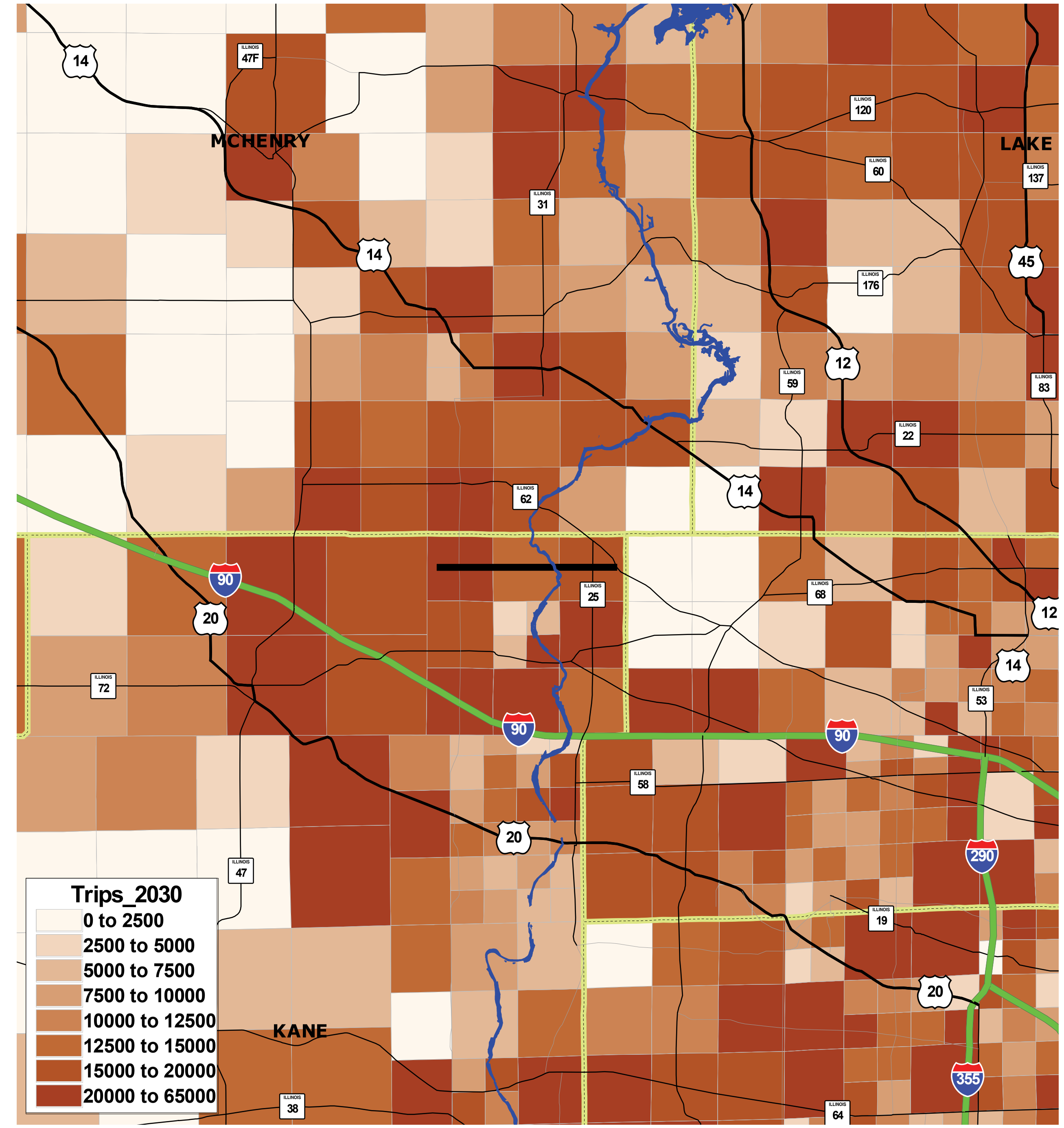
5.1.5 TOLL DIVERSION METHODOLOGY

A toll diversion model was used to estimate the market share of toll and non-toll facilities based on factors such as value of time, operating cost, toll cost, and congestion. An algorithm was used to determine the minimum time path between each zone pair. The minimum time path may or may not include the use of the proposed toll facility.

For the trips that may potentially use the toll facility, travel time of the toll facility routing was compared with that of the best alternative route not involving a toll payment. A share of the total traffic moving between each pair of zones is then assigned to the toll facility routing, while the remaining portion is assigned to the best toll-free alternative route. The model's estimate of the toll facility's market share is a function of time savings, toll rate, and estimates of perceived value of time and operating costs by the motorists.



Year 2007



Year 2030

Figure 5.6 Trip-Ends Forecasts
Source: Chicago Metropolitan Agency for Planning

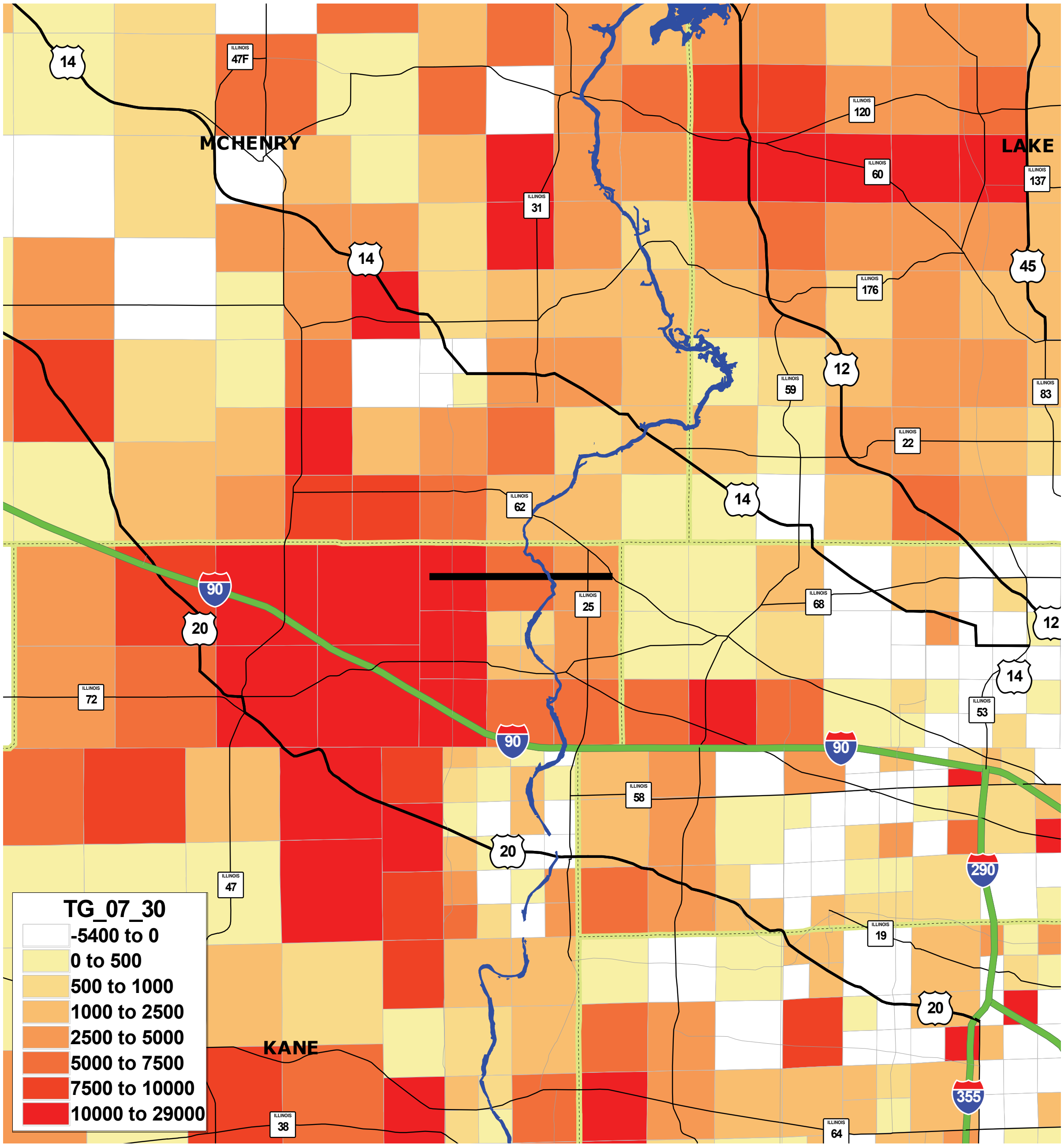


Figure 5.7 Trip-Ends Growth (2007-2030)
Source: Chicago Metropolitan Agency for Planning

5.2 LONGMEADOW PARKWAY BUILD OPTIONS

In this study, traffic and toll revenue forecasts were prepared for two build options of the Longmeadow Parkway. The first scenario, Full-Build Option, assumes that the parkway would be built from Huntley Road to the west to Algonquin Road to the east with intersections at Randall Road, Sleepy Hollow Road, Illinois Route 31, Bolz Road connector, and Illinois Route 25. With these termini, the parkway would extend approximately 5.6 miles with a bridge crossing the Fox River. The second scenario, Partial-Build Option, assumes that the western terminus would be Randall Road and the eastern terminus Illinois Route 25. In this option, the parkway would extend about four miles across the Fox River with intersections at Sleepy Hollow Road, Illinois Route 31, and Bolz Road connector. In both build options, the Longmeadow Parkway was assumed to be a 4-lane facility. Traffic forecasts under this assumption would provide the level of utilization on the Longmeadow Parkway and, thus, indicate the potential of a 2-lane facility if warranted. **Figures 5.8** and **5.9** depict the Full-Build and Partial-Build Options, respectively.

It was assumed in this study that the Longmeadow Parkway would be built in 2011 and 2012 and opened in 2013. Annual traffic and toll revenue forecasts were prepared for a 40-year projection period beginning in 2013.

Figure 5.8 Longmeadow Parkway – Full-Build Option

Figure 5.9 Longmeadow Parkway – Partial-Build Option

5.3 TOLL SENSITIVITY ANALYSIS

The primary purpose of performing toll sensitivity analysis is to test the impact of increasingly higher tolls on toll revenue generation. As tolls are increased, the toll facility becomes relatively less attractive compared to alternative toll-free routes. At some threshold level, a patron will shift to what he or she feels is the less costly alternative routing.

Toll rate sensitivity was conducted for the assumed opening year 2013 for the Full-Build Option that extends from Huntley Road to Illinois Route 62. In this study, the tolls levied on the river-crossing traffic were differentiated by time period (i.e., peak and off-peak periods) and by vehicle type (i.e., passenger cars, small trucks, medium trucks, and heavy trucks). In this tolling scheme, a higher toll is charged during the peak period. Also, a heavier vehicle is charged with a higher toll than a lighter vehicle.

For toll sensitivity analysis, five progressively higher tolls ranging from passenger car peak period tolls of $0.50 to $2.50 in the opening year were tested. **Table 5.2** summarizes the toll charges used for the toll sensitivity analysis.

Table 5.2 Toll Charges Tested for Toll Sensitivity Analysis

Time Period	Passenger Car Tolls for Year 2013				
AM and PM peak periods	$0.50	$1.00	$1.50	$2.00	$2.50
Midday and Night periods	$0.50	$0.50	$1.00	$1.50	$2.00

* The Full-Build Option that extends from Huntley to Illinois Route 62 was tested
* Tolls for small, medium, and heavy trucks are proportionately higher than the passenger car tolls

To account for proportionately higher pavement wear and tear and maintenance costs associated with trucks as compared to passenger cars, the tolls for all small, medium, and heavy trucks were assumed to be 2, 3.5, and 6 times the passenger car toll, respectively.

Figure 5.10 depicts the sensitivity of daily toll transactions and daily toll revenues in the opening year 2013 to varying tolls. All revenue numbers are presented in nominal dollars. The analysis results show that total toll transactions fall by approximately 70 percent, going from the lowest to the highest tolls. At the same time, total daily toll revenues increase by roughly 30 percent. However, the revenues actually peak at the passenger car toll of $2.00. Beyond this toll, revenues decline due to high traffic diversion off the Longmeadow Parkway.

Although the $2.00 toll achieves the maximum revenue, that revenue realization is just 1.7 percent more than the revenue obtained from the $1.50 toll. Therefore, prudence would suggest not selecting the $2.00 toll, but rather, the $1.50 toll that achieves approximately 98.3 percent of the maximum revenue. Also, this would provide some rate adjustment flexibility in case the initial revenue realization turns out below expected levels.

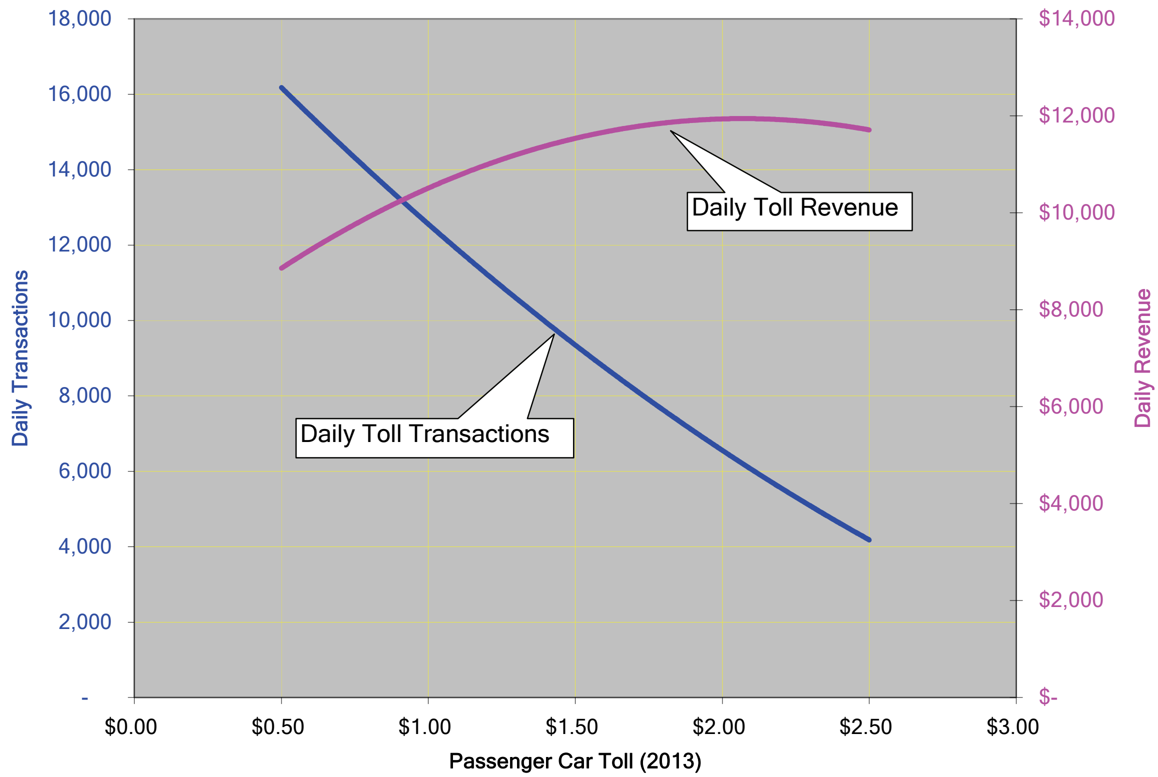


Figure 5.10 Toll Sensitivity (Full-Build Option, Opening Year 2013)

5.4 COMPARATIVE TOLL ANALYSIS

To compare with the tolls tested for this study, tolls levied on existing toll facilities in the United States were reviewed. Passenger car toll charges were assembled from a representative sample of non-interstate system toll bridges across the country. **Figure 5.11** depicts effective one-way tolls currently charged on toll bridges. The figure also displays the opening year of each bridge and the number of lanes.

For the toll bridges investigated, one-way tolls range from $0.50 to $2.00. The Frank E. Bauer Bridge in Winnebago County in Illinois, opened in 1993 as a 4-lane bridge, currently operates with a $0.50 toll in each direction. The New Harmony Bridge across Wabash River in the southern Illinois and Indiana was opened in 1932 and recently rehabilitated. A one-way toll of $1.00 is charged to traffic using this bridge. A one-way toll of $2.00 is currently charged on the San Luis-Vacek Pass Bridge in Galveston County, Texas.

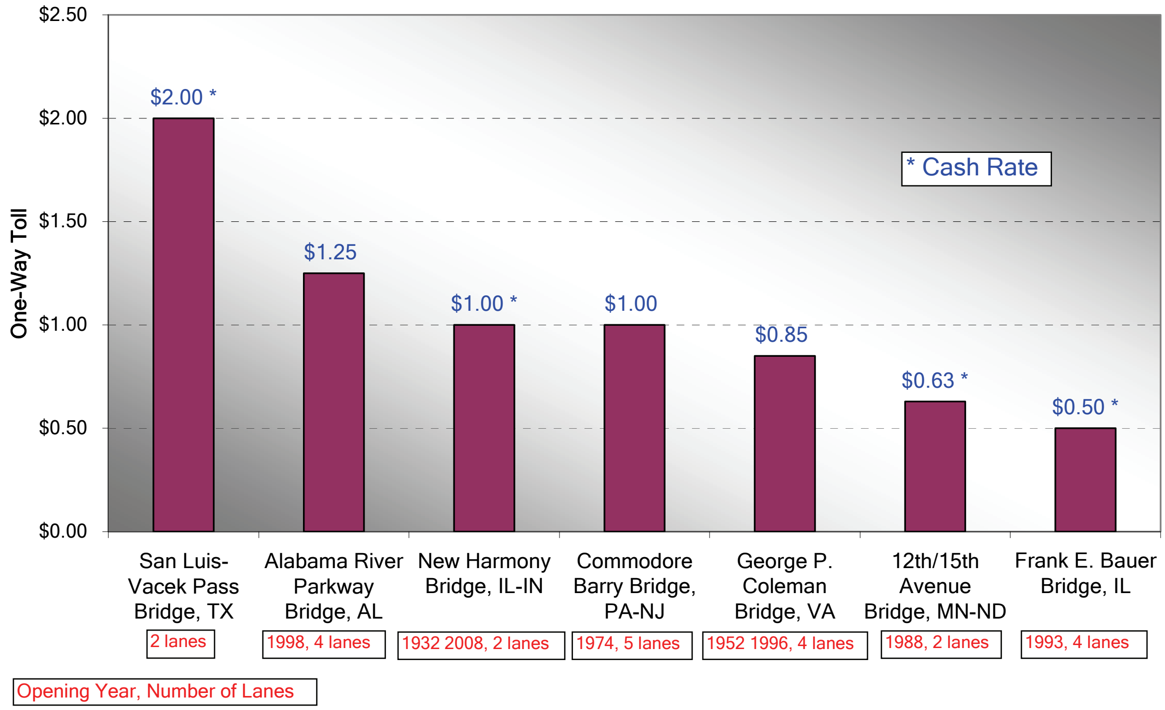


Figure 5.11 Comparison of Non-Interstate System Toll Bridges
Note: Passenger car one-way tolls are shown

5.5 TOLL SCENARIOS

Based on the results obtained from the toll sensitivity analysis, WSA prepared traffic and toll revenue forecasts for passenger car tolls of $0.50, $1.00, and $1.50 for the peak period for the opening year. Tolls for future years were inflated using a nominal Consumer Price Index of 2.5 percent annually and then rounded to the nearest quarter. The future tolls were prepared for the assumed 40-year projection period with the opening year 2013. **Table 5.3** summarizes the toll scenarios evaluated in this study.

Table 5.3 Toll Scenarios (2013)

Time Period	Vehicle Type	Toll Scenario		
		Toll Scenario 1	Toll Scenario 2	Toll Scenario 3
Peak Period (AM and PM)	**Passenger cars**	**$0.50**	**$1.00**	**$1.50**
	Small trucks	$1.00	$2.00	$3.00
	Medium trucks	$1.75	$3.50	$5.25
	Heavy trucks	$3.00	$6.00	$9.00
Off-Peak Period (Midday and Night)	**Passenger cars**	**$0.50**	**$0.50**	**$1.00**
	Small trucks	$1.00	$1.00	$2.00
	Medium trucks	$1.75	$1.75	$3.50
	Heavy trucks	$3.00	$3.00	$6.00

5.6 TOLL TRANSACTION AND REVENUE FORECASTS

The forecasted toll transactions and revenues were derived based on the CMAP model data sets, including socio-economic and vehicle trip forecasts. The toll diversion model was built on the data sets to produce future toll transaction and revenue forecasts.

5.6.1 TRAVEL DEMAND MODEL RUNS

As part of deriving the forecasts, WSA conducted traffic assignments for the no-build and toll scenarios. The no-build assignment was performed for years 2013 and 2030 by assuming absence of the proposed Longmeadow Parkway. The purpose of running the no-build scenario was to test the impact of growing demand on the network and to estimate the level of congestion assuming the Longmeadow Parkway would not be built in the future.

The toll scenarios included three different passenger car tolls, $0.50, $1.00, and $1.50 for the peak period, as described in the previous section. For each of the three toll scenarios, traffic assignments were run for years 2013 and 2030. The forecasts for interim and out years were interpolated and extrapolated, respectively, based on these assignments. The forecasts were prepared for the 40-year projection period from 2013 through 2052.

5.6.2 TRAFFIC FORECASTS FOR NO-BUILD AND TOLL SCENARIOS

After each of the travel demand model runs, the results of the model assignment were tabulated and reviewed for their reasonableness relative to the model run scenario. The reasonableness check included a comparison of the river-crossing traffic by run scenario. **Tables 5.4** and **5.5** summarize the 2013 river-crossing traffic estimates for the Full-Build and Partial-Build Options, respectively. Each of these tables includes the model estimates for the no-build and three toll scenarios.

Table 5.4 indicates that the Longmeadow Parkway Bridge would carry approximately 15,700 vehicles per day in 2013 when a $0.50 toll is charged for passenger cars during peak and off-peak periods. With existence of the new bridge, alternative toll-free bridges at Illinois Route 62, Main Street, Illinois Route 72, and I-90 would carry less traffic than that in the no-build condition.

The Longmeadow Parkway Bridge would carry less traffic as the toll charged to the river-crossing traffic increases. In Toll Scenario 2, in which a $1.00 toll is charged to passenger cars during peak hours and $.50 in the off-peak, the river-crossing traffic would drop to about 13,800 vehicles. With a higher toll in Toll Scenario 3 of $1.50 in the peak period and $1.00 in the off-peak, the traffic volume on the Longmeadow Parkway Bridge would be approximately 8,800 vehicles per day in 2013.

Table 5.5 summarizes the impact of the three toll scenarios on the river-crossing traffic for the Partial-Build Option. With the shorter length of the parkway, the Longmeadow Parkway Bridge would carry less traffic than that in the Full-Build Option for each of the toll scenarios. Traffic volumes on the Longmeadow Parkway Bridge would range from approximately 12,000 vehicles per day in Toll Scenario 1 to about 6,500 vehicles per day in Toll Scenario 3.

Table 5.4 Traffic Estimates on River Crossings for Full-Build Option [1] (2013)

Facility	No-Build	Toll Scenario [2]		
		Toll Scenario 1	Toll Scenario 2	Toll Scenario 3
Illinois Route 62	49,500	43,230	44,250	46,890
Longmeadow Parkway	-	15,680	13,750	8,780
Main Street	30,500	28,790	29,070	29,810
Illinois Route 72	46,600	44,760	45,150	46,330
I-90	130,700	121,970	122,040	122,160

[1] Longmeadow Parkway from Huntley Road to Illinois Route 62
[2] Toll Scenario 1: $0.50 passenger car toll in the peak period (2013)
Toll Scenario 2: $1.00 passenger car toll in the peak period (2013)
Toll Scenario 3: $1.50 passenger car toll in the peak period (2013)

Table 5.5 Traffic Estimates on River Crossings for Partial-Build Option [1] (2013)

Facility	No-Build	Toll Scenario [2]		
		Toll Scenario 1	Toll Scenario 2	Toll Scenario 3
Illinois Route 62	49,500	44,840	45,570	47,580
Longmeadow Parkway	-	12,000	10,480	6,460
Main Street	30,500	29,420	29,600	30,090
Illinois Route 72	46,600	45,420	45,820	46,880
I-90	130,700	122,650	122,730	122,850

[1] Longmeadow Parkway from Randall Road to Illinois Route 25
[2] Toll Scenario 1: $0.50 passenger car toll in the peak period (2013)
Toll Scenario 2: $1.00 passenger car toll in the peak period (2013)
Toll Scenario 3: $1.50 passenger car toll in the peak period (2013)

Figure 5.12 compares the model estimates for the river-crossing traffic for the no-build, Full-Build, and Partial-Build Options for Toll Scenario 1. The figure illustrates the impact of each build option on the river-crossing traffic on Illinois Route 62, Longmeadow Parkway, Main Street, Illinois Route 72, and I-90. The figure indicates that, with addition of the Longmeadow Parkway Bridge, some of the traffic on alternative bridges would be diverted to the new bridge.

Figures 5.13 and **5.14** show similar comparisons for Toll Scenario 2 and Toll Scenario 3, respectively.

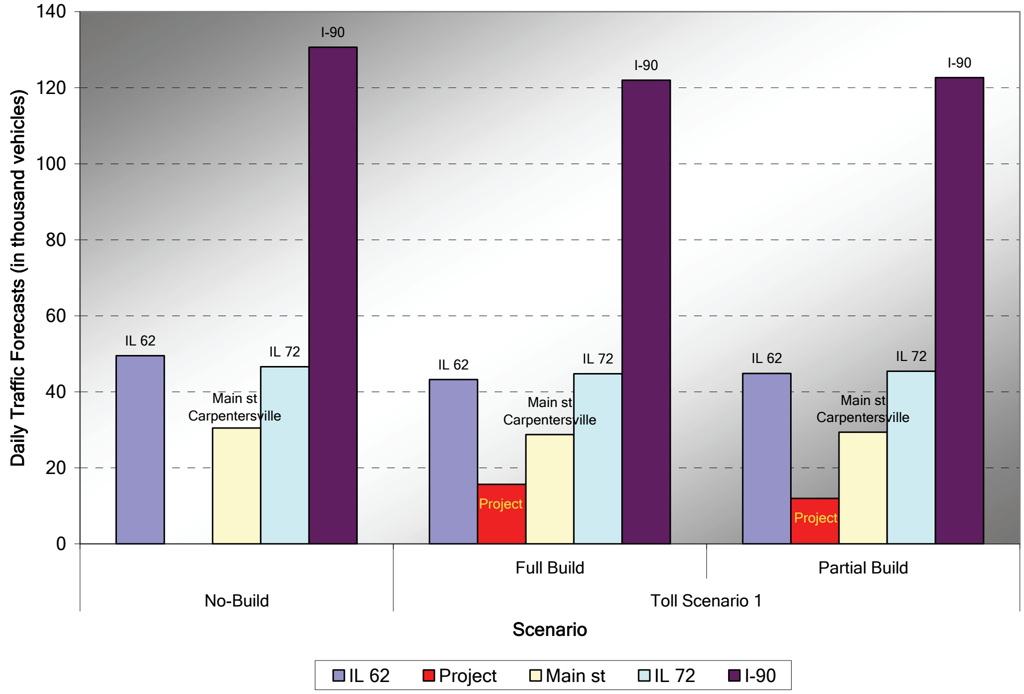


Figure 5.12 Opening Year Traffic Forecasts (Toll Scenario 1)

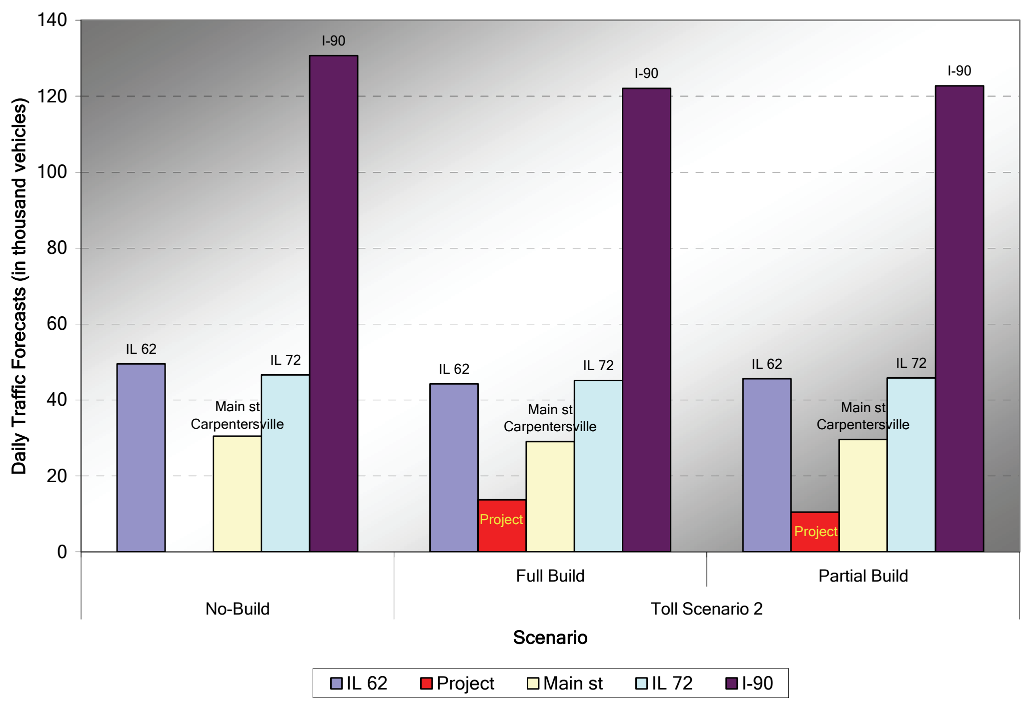


Figure 5.13 Opening Year Traffic Forecasts (Toll Scenario 2)

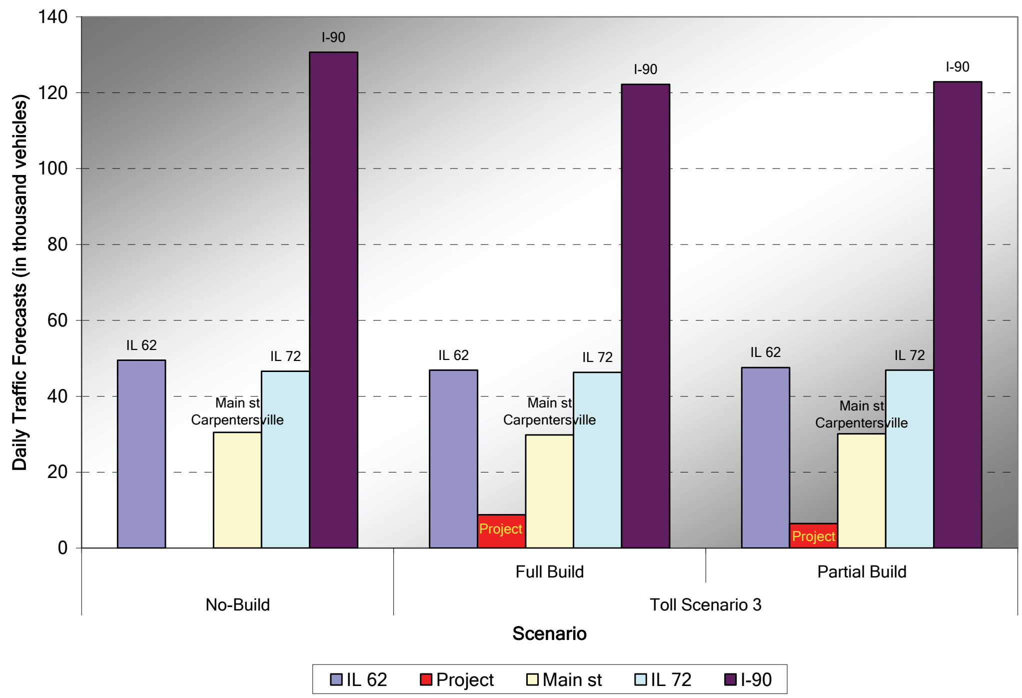


Figure 5.14 Opening Year Traffic Forecasts (Toll Scenario 3)

5.6.3 ANNUAL TOLL TRANSACTION FORECASTS

Annual toll transaction forecasts were estimated based on the travel demand runs and the assignment results presented in the prior sections. The forecasts were prepared for the 40-year projection period beginning in the assumed opening year of 2013. The forecasts were derived for the three toll scenarios for the Full-Build and Partial-Build Options.

Table 5.6 presents annual toll transaction forecasts by toll scenarios for the two build options from 2013 through 2052. The annual transactions were estimated by multiplying daily transactions at toll plazas by an annualization factor. The annualization factor is used to convert weekday traffic forecasts to equivalent annual traffic projections. The factor ranges from approximately 330 to 350 depending on local weekly traffic profiles. In this study, the annualization factor of 330 was used after reviewing the factors commonly used in other toll studies. The factor of 330 is conservative.

The first two years after the opening of the Longmeadow Parkway were defined as a ramp-up period, which is the time it would take for motorists to become familiar with a newly constructed toll facility. It was assumed that in the first year, 80 percent of the forecasted toll transactions would be realized. The ramp-up was assumed at 90 percent for the second year and 100 percent for the third and the following years.

Table 5.6 shows that Toll Scenario 1 would have more toll transactions than Toll Scenario 2 and Toll Scenario 3. In the Full-Build Option, the 40-year total transactions for Toll Scenario 1 would be approximately 253 million transactions, while Toll Scenario 2 would have roughly 227 million transactions and Toll Scenario 3 approximately 152 million transactions for the same build scenario. For all toll scenarios, the Full-Build Option would generate more transactions than the Partial-Build Option.

Figures 5.15 through **5.17** graphically present growth of annual transactions over the 40-year period for toll scenarios 1 through 3, respectively. The figures also show annual average transactions for toll scenarios 1 through 3 would be 6.3 million, 5.7 million, 3.8 million transactions, respectively, for the Full-Build Option. The Partial-Build Option would generate 4.8 million, 4.2 million, 2.6 million transactions, respectively, for toll scenarios 1 through 3.

Table 5.6 Annual Toll Transaction Forecasts (in thousands)

Year	Toll Scenario 1 [1]		Toll Scenario 2 [1]		Toll Scenario 3 [1]	
	Full-Build [2]	Partial-Build [2]	Full-Build [2]	Partial-Build [2]	Full-Build [2]	Partial-Build [2]
2013	4,139	3,167	3,630	2,766	2,318	1,704
2014	4,712	3,601	4,138	3,147	2,650	1,941
2015	5,297	4,044	4,658	3,536	2,992	2,184
2016	5,358	4,087	4,719	3,575	3,040	2,211
2017	5,419	4,129	4,779	3,614	3,088	2,238
2018	5,481	4,172	4,839	3,653	3,135	2,265
2019	5,542	4,215	4,899	3,692	3,183	2,292
2020	5,604	4,257	4,960	3,731	3,230	2,319
2021	5,665	4,300	5,020	3,771	3,278	2,346
2022	5,727	4,343	5,080	3,810	3,326	2,373
2023	5,788	4,386	5,140	3,849	3,373	2,400
2024	5,850	4,428	5,201	3,888	3,421	2,427
2025	5,911	4,471	5,261	3,927	3,468	2,455
2026	5,972	4,514	5,321	3,966	3,516	2,482
2027	6,034	4,556	5,381	4,006	3,564	2,509
2028	6,095	4,599	5,442	4,045	3,611	2,536
2029	6,157	4,642	5,502	4,084	3,659	2,563
2030	6,218	4,684	5,562	4,123	3,707	2,590
2031	6,280	4,727	5,622	4,162	3,754	2,617
2032	6,341	4,770	5,683	4,201	3,802	2,644
2033	6,403	4,812	5,743	4,240	3,849	2,671
2034	6,464	4,855	5,803	4,280	3,897	2,698
2035	6,525	4,898	5,863	4,319	3,945	2,725
2036	6,587	4,940	5,924	4,358	3,992	2,752
2037	6,648	4,983	5,984	4,397	4,040	2,779
2038	6,710	5,026	6,044	4,436	4,087	2,806
2039	6,771	5,069	6,104	4,475	4,135	2,833
2040	6,833	5,111	6,165	4,515	4,183	2,860
2041	6,894	5,154	6,225	4,554	4,230	2,888
2042	6,955	5,197	6,285	4,593	4,278	2,915
2043	7,017	5,239	6,345	4,632	4,326	2,942
2044	7,078	5,282	6,406	4,671	4,373	2,969
2045	7,140	5,325	6,466	4,710	4,421	2,996
2046	7,201	5,367	6,526	4,749	4,468	3,023
2047	7,263	5,410	6,586	4,789	4,516	3,050
2048	7,324	5,453	6,647	4,828	4,564	3,077
2049	7,386	5,495	6,707	4,867	4,611	3,104
2050	7,447	5,538	6,767	4,906	4,659	3,131
2051	7,508	5,581	6,827	4,945	4,707	3,158
2052	7,570	5,623	6,888	4,984	4,754	3,185
Total	**253,313.2**	**190,450.8**	**227,144.0**	**167,795.0**	**152,150.2**	**105,657.9**

[1] Toll Scenario 1: $0.50 (2013) passenger car toll in the peak period
Toll Scenario 2: $1.00 (2013) passenger car toll in the peak period
Toll Scenario 3: $1.50 (2013) passenger car toll in the peak period

[2] Full-Build: Longmeadow Parkway from Huntley Road to Illinois Route 62
Partial-Build: Longmeadow Parkway from Randall Road to Illinois Route 25

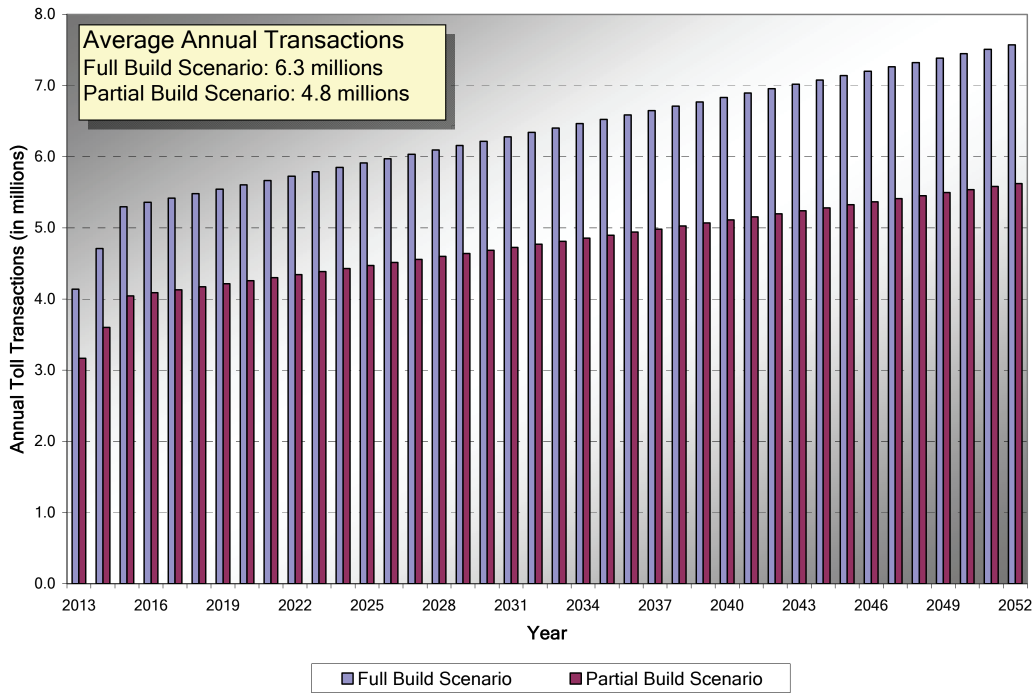


Figure 5.15 Annual Toll Transaction Forecasts for Toll Scenario 1*

* Toll Scenario 1: $0.50 (2013) passenger car toll in the peak period

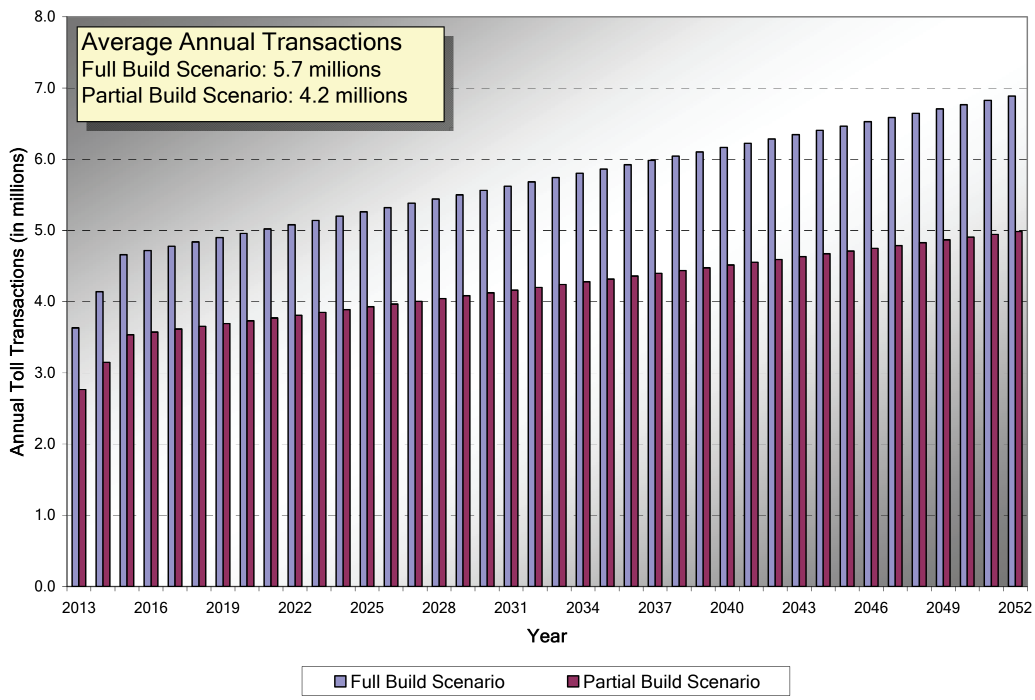


Figure 5.16 Annual Toll Transaction Forecasts for Toll Scenario 2*

* Toll Scenario 2: $1.00 (2013) passenger car toll in the peak period

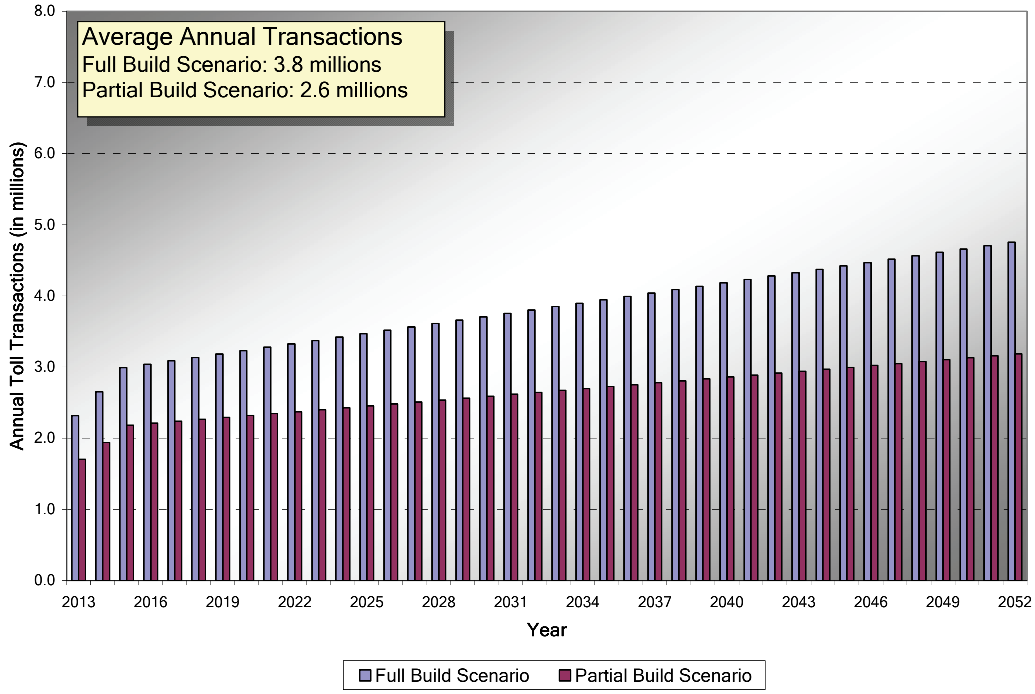


Figure 5.17 Annual Toll Transaction Forecasts for Toll Scenario 3*

* Toll Scenario 3: $1.50 (2013) passenger car toll in the peak period

5.6.4 ANNUAL TOLL GROSS REVENUE FORECASTS

Annual toll gross revenue forecasts were prepared by toll scenario, based on the transaction forecasts presented in the previous section and the toll schedule described in Section 5.5. The toll charges were assumed to increase periodically after the opening of the Longmeadow Parkway.

The gross revenues increase with an increase in toll transactions at toll plaza and toll charges. **Table 5.7** indicates that annual toll gross revenues for Toll Scenario 1 are forecasted to increase from approximately $2.4 million in the opening year to about $11.5 million in 40 years with the Full-Build Option. These forecasts are summed to about $262.3 million. For the same toll scenario, the Partial-Build Option would generate less revenue over the 40-year span, summed to approximately $188.1 million.

In Toll Scenario 3, gross revenues would be the highest with the Full-Build Option. In this scenario, the total gross revenue over the 40-year projection period would be approximately $371.7 million, approximately 42 percent higher than the total for the same build option in Toll Scenario 1. The Partial-Build Option for Toll Scenario 3 is forecasted to generate about $2.2 million in 2013 and roughly $10.9 million in 2052.

Figures 5.18 through **5.20** graphically show the annual growth in toll gross revenues for toll scenarios 1 through 3, respectively. The figures distinctively show the effects of the periodical increase in toll charges on revenue generation. Toll Scenario 1, as shown in **Figure 5.18**, would generate annual average gross revenue of approximately $6.5 million with the Full-Build Option. For the same build option, Toll Scenario 3 shown in **Figure 5.20** would realize the highest gross revenues with annual average gross revenue of about $9.3 million.

Table 5.7 Annual Toll Gross Revenue Forecasts (in thousands, nominal dollars)

Year	Toll Scenario 1 [1]		Toll Scenario 2 [1]		Toll Scenario 3 [1]	
	Full-Build [2]	Partial-Build [2]	Full-Build [2]	Partial-Build [2]	Full-Build [2]	Partial-Build [2]
2013	$2,379	$1,791	$2,670	$1,987	$3,113	$2,239
2014	$2,714	$2,038	$3,054	$2,264	$3,580	$2,560
2015	$3,075	$2,301	$3,463	$2,556	$4,079	$2,899
2016	$3,143	$2,343	$3,560	$2,613	$4,184	$2,956
2017	$3,186	$2,369	$3,614	$2,643	$4,488	$3,157
2018	$3,303	$2,442	$4,029	$2,935	$5,103	$3,588
2019	$3,348	$2,469	$4,092	$2,971	$5,202	$3,640
2020	$3,393	$2,495	$4,183	$3,022	$5,337	$3,712
2021	$3,488	$2,552	$4,282	$3,079	$5,450	$3,771
2022	$3,534	$2,579	$4,347	$3,115	$5,552	$3,823
2023	$4,910	$3,631	$5,268	$3,809	$5,916	$4,061
2024	$4,990	$3,679	$5,354	$3,858	$6,036	$4,123
2025	$5,049	$3,715	$5,461	$3,918	$6,182	$4,199
2026	$5,233	$3,827	$5,953	$4,258	$6,867	$4,666
2027	$5,295	$3,864	$6,040	$4,306	$7,005	$4,736
2028	$5,356	$3,902	$6,151	$4,368	$7,405	$4,996
2029	$5,440	$3,952	$6,256	$4,426	$7,572	$5,082
2030	$5,541	$4,011	$6,368	$4,489	$7,704	$5,148
2031	$5,627	$4,061	$6,471	$4,546	$7,865	$5,230
2032	$5,690	$4,099	$6,587	$4,609	$8,295	$5,506
2033	$5,858	$4,198	$7,102	$4,962	$9,066	$6,019
2034	$5,966	$4,261	$7,231	$5,032	$9,230	$6,101
2035	$6,056	$4,312	$7,374	$5,110	$9,433	$6,204
2036	$7,614	$5,498	$8,437	$5,900	$9,887	$6,493
2037	$7,763	$5,584	$8,590	$5,984	$10,065	$6,583
2038	$7,843	$5,633	$8,737	$6,064	$10,273	$6,688
2039	$8,039	$5,749	$9,303	$6,447	$11,129	$7,242
2040	$8,169	$5,824	$9,486	$6,547	$11,620	$7,553
2041	$8,278	$5,887	$9,623	$6,620	$11,845	$7,665
2042	$8,388	$5,950	$9,761	$6,694	$12,074	$7,778
2043	$8,522	$6,027	$9,951	$6,797	$12,584	$8,100
2044	$8,733	$6,148	$10,551	$7,199	$13,501	$8,686
2045	$8,819	$6,200	$10,720	$7,289	$13,748	$8,809
2046	$10,603	$7,533	$11,958	$8,186	$14,310	$9,157
2047	$10,731	$7,607	$12,156	$8,291	$14,595	$9,297
2048	$10,886	$7,697	$12,336	$8,388	$14,819	$9,406
2049	$11,124	$7,834	$12,974	$8,814	$16,110	$10,252
2050	$11,256	$7,910	$13,192	$8,928	$16,436	$10,411
2051	$11,446	$8,015	$13,404	$9,040	$16,721	$10,549
2052	$11,551	$8,078	$13,605	$9,146	$17,348	$10,931
Total	**$262,340**	**$188,069**	**$303,693**	**$211,212**	**$371,729**	**$244,018**

[1] Toll Scenario 1: $0.50 (2013) passenger car toll in the peak period
Toll Scenario 2: $1.00 (2013) passenger car toll in the peak period
Toll Scenario 3: $1.50 (2013) passenger car toll in the peak period

[2] Full-Build: Longmeadow Parkway from Huntley Road to Illinois Route 62
Partial-Build: Longmeadow Parkway from Randall Road to Illinois Route 25

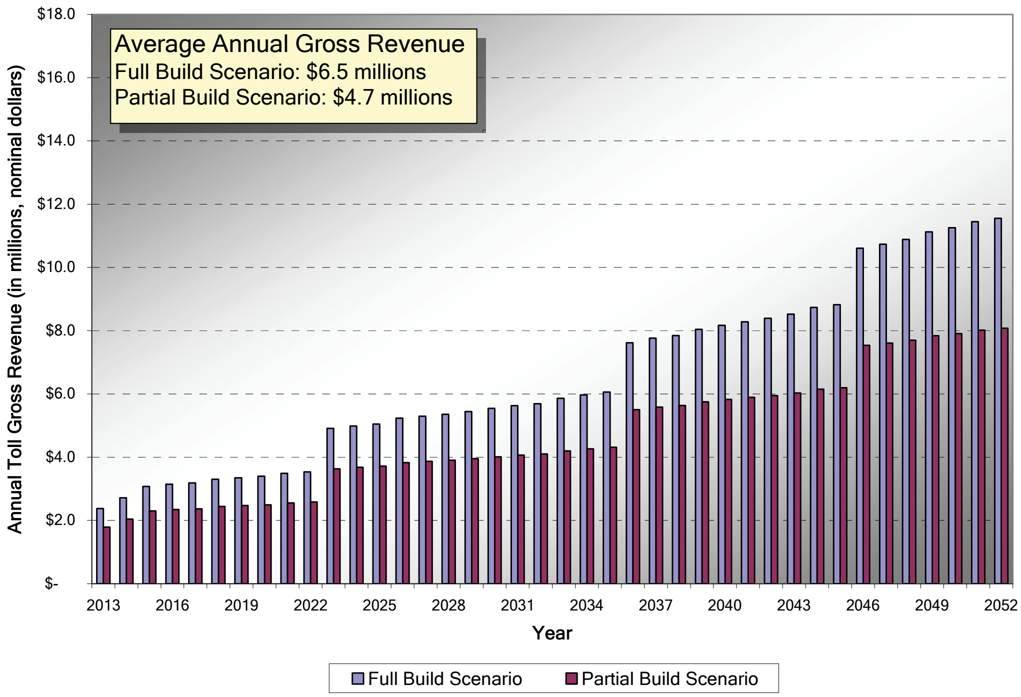


Figure 5.18 Annual Toll Gross Revenue Forecasts for Toll Scenario 1*

* Toll Scenario 1: $0.50 (2013) passenger car toll in the peak period

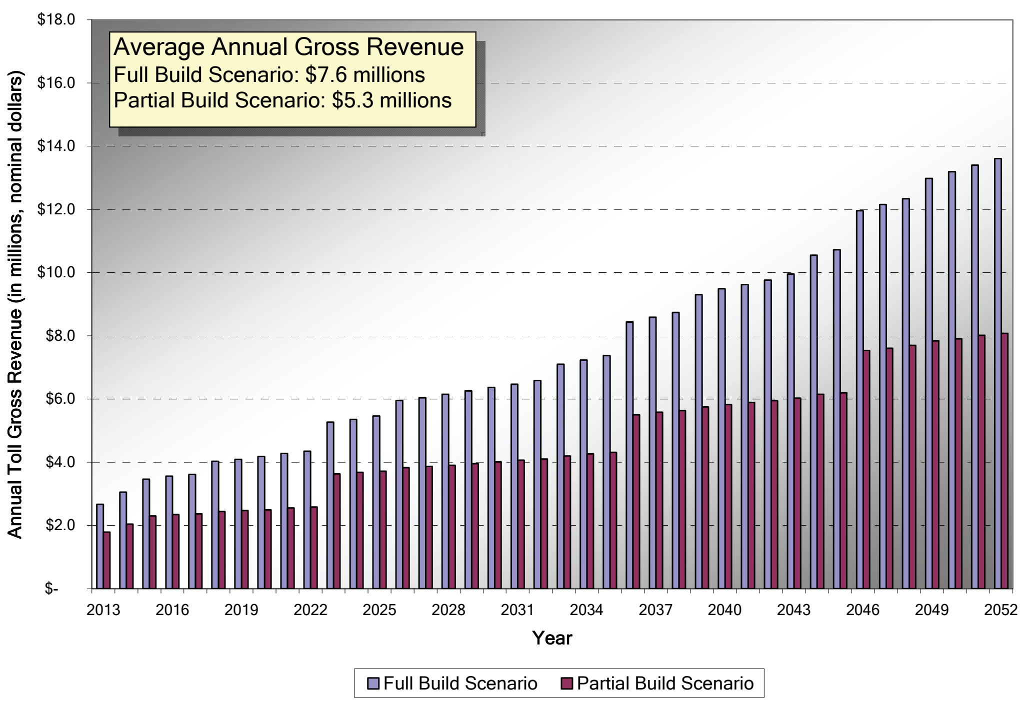


Figure 5.19 Annual Toll Gross Revenue Forecasts for Toll Scenario 2*

* Toll Scenario 2: $1.00 (2013) passenger car toll in the peak period

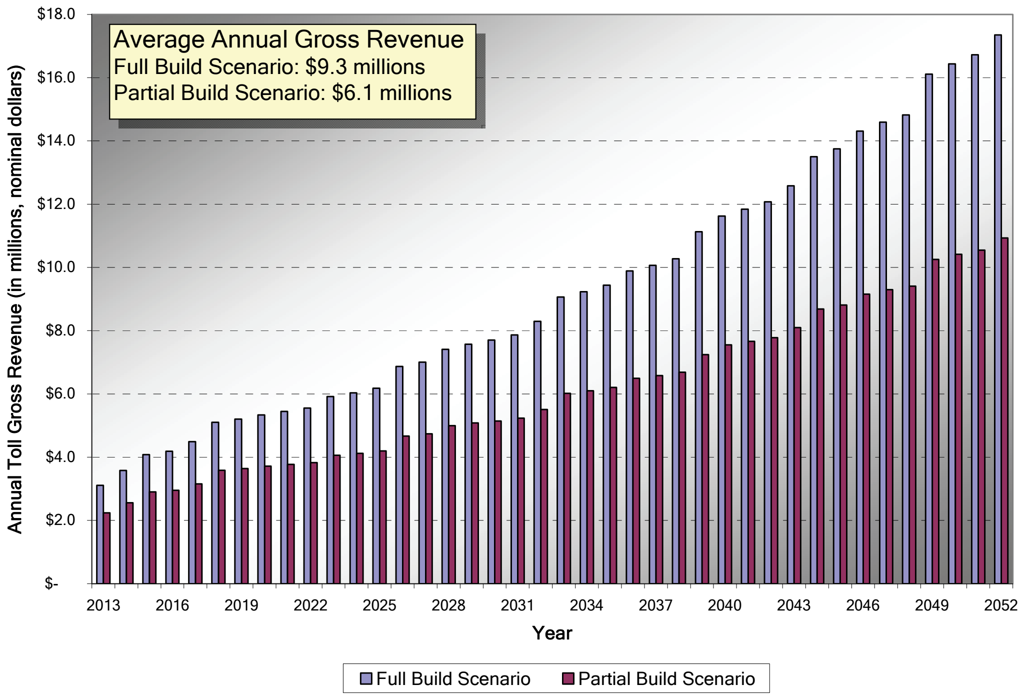


Figure 5.20 Annual Toll Gross Revenue Forecasts for Toll Scenario 3*

* Toll Scenario 3: $1.50 (2013) passenger car toll in the peak period

5.6.5 TOLL SYSTEM OPERATIONS AND MAINTENANCE COSTS

The capital costs of setting up the proposed tolling configuration for the Longmeadow Parkway Bridge are presented in Chapter 4 of this report. The major capital expenditures include the costs associated with structures, communications, power, electronic toll collection, violation enforcement, and Illinois Tollway processing.

The toll system maintenance costs estimated for toll collection equipment and services are also presented in Chapter 4, except the costs required for customer service center operation. Major items of the maintenance costs included administration staff, communication, technicians, and equipment. The customer service center operation costs were later estimated based on the annual toll transaction forecasts.

In addition to the toll system's operations and maintenance costs, the roadway maintenance cost for the Longmeadow Parkway was estimated based on the unit cost, $2,700 per lane-mile, provided by Kane County.

Table 5.8 presents the toll system O&M costs for the three toll scenarios. The forecasts include the toll system maintenance costs, customer service center operation costs, and roadway maintenance costs. The forecasts were prepared in nominal dollars by inflating to the respective year using a nominal CPI of 2.5 percent per annum. Toll Scenario 1 would require more O&M costs because it would generate the highest toll transactions. For Toll Scenario 1, the Full-Build and Partial-Build Options would require approximately $102.8 million and about $88.4 million for O&M of the Longmeadow Parkway over the 40-year projection period. The total O&M costs for Toll Scenario 3 with the Partial-Build Option would be the lowest, roughly $70.9 million for the same projection period.

Figures 5.21 through **5.23** graphically present the annual O&M forecasts for toll scenarios 1 through 3. The graphics indicate that the annual average O&M costs would range from approximately $1.8 million to about $2.6 million.

Table 5.8 Annual Toll Operations and Maintenance Costs (in thousands, nominal dollars)

Year	Toll Scenario 1 [1]		Toll Scenario 2 [1]		Toll Scenario 3 [1]	
	Full-Build [2]	Partial-Build [2]	Full-Build [2]	Partial-Build [2]	Full-Build [2]	Partial-Build [2]
2013	$1,237	$1,103	$1,176	$1,055	$1,018	$927
2014	$1,338	$1,184	$1,268	$1,128	$1,085	$980
2015	$1,446	$1,269	$1,365	$1,205	$1,155	$1,035
2016	$1,490	$1,307	$1,407	$1,241	$1,190	$1,064
2017	$1,535	$1,345	$1,450	$1,277	$1,226	$1,094
2018	$1,582	$1,384	$1,495	$1,314	$1,263	$1,126
2019	$1,630	$1,425	$1,540	$1,352	$1,301	$1,157
2020	$1,679	$1,467	$1,587	$1,392	$1,341	$1,190
2021	$1,730	$1,510	$1,636	$1,432	$1,381	$1,224
2022	$1,783	$1,554	$1,686	$1,474	$1,423	$1,259
2023	$1,837	$1,599	$1,737	$1,517	$1,466	$1,294
2024	$1,892	$1,646	$1,790	$1,561	$1,510	$1,331
2025	$1,950	$1,694	$1,845	$1,606	$1,555	$1,368
2026	$2,008	$1,743	$1,901	$1,653	$1,602	$1,407
2027	$2,069	$1,794	$1,958	$1,701	$1,650	$1,447
2028	$2,131	$1,846	$2,018	$1,750	$1,700	$1,488
2029	$2,196	$1,900	$2,079	$1,801	$1,751	$1,530
2030	$2,262	$1,955	$2,142	$1,853	$1,803	$1,573
2031	$2,330	$2,012	$2,207	$1,907	$1,857	$1,617
2032	$2,400	$2,071	$2,274	$1,962	$1,913	$1,663
2033	$2,472	$2,131	$2,342	$2,019	$1,970	$1,710
2034	$2,546	$2,193	$2,413	$2,077	$2,029	$1,758
2035	$2,623	$2,257	$2,486	$2,137	$2,089	$1,808
2036	$2,701	$2,322	$2,561	$2,199	$2,152	$1,859
2037	$2,782	$2,389	$2,638	$2,262	$2,216	$1,911
2038	$2,865	$2,459	$2,717	$2,327	$2,282	$1,965
2039	$2,951	$2,530	$2,799	$2,394	$2,350	$2,020
2040	$3,039	$2,603	$2,883	$2,463	$2,420	$2,077
2041	$3,130	$2,678	$2,969	$2,534	$2,491	$2,135
2042	$3,223	$2,756	$3,058	$2,607	$2,565	$2,195
2043	$3,319	$2,835	$3,150	$2,682	$2,642	$2,257
2044	$3,418	$2,917	$3,244	$2,760	$2,720	$2,320
2045	$3,520	$3,001	$3,341	$2,839	$2,800	$2,386
2046	$3,624	$3,088	$3,441	$2,921	$2,883	$2,453
2047	$3,732	$3,177	$3,544	$3,004	$2,969	$2,521
2048	$3,843	$3,269	$3,650	$3,091	$3,056	$2,592
2049	$3,957	$3,363	$3,759	$3,179	$3,147	$2,665
2050	$4,074	$3,460	$3,871	$3,271	$3,240	$2,739
2051	$4,195	$3,559	$3,986	$3,364	$3,335	$2,816
2052	$4,319	$3,662	$4,104	$3,461	$3,434	$2,895
Total	**$102,854**	**$88,457**	**$97,516**	**$83,771**	**$81,980**	**$70,857**

[1] Toll Scenario 1: $0.50 (2013) passenger car toll in the peak period
Toll Scenario 2: $1.00 (2013) passenger car toll in the peak period
Toll Scenario 3: $1.50 (2013) passenger car toll in the peak period

[2] Full-Build: Longmeadow Parkway from Huntley Road to Illinois Route 62
Partial-Build: Longmeadow Parkway from Randall Road to Illinois Route 25

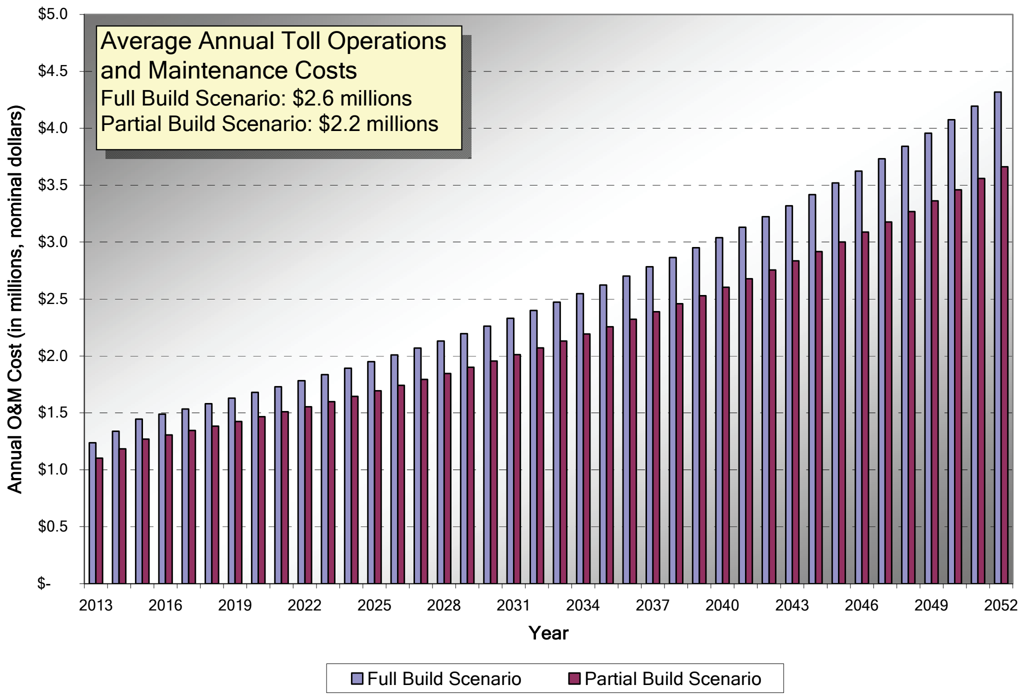


Figure 5.21 Annual Toll Operations and Maintenance Costs for Toll Scenario 1*

* Toll Scenario 1: $0.50 (2013) passenger car toll in the peak period

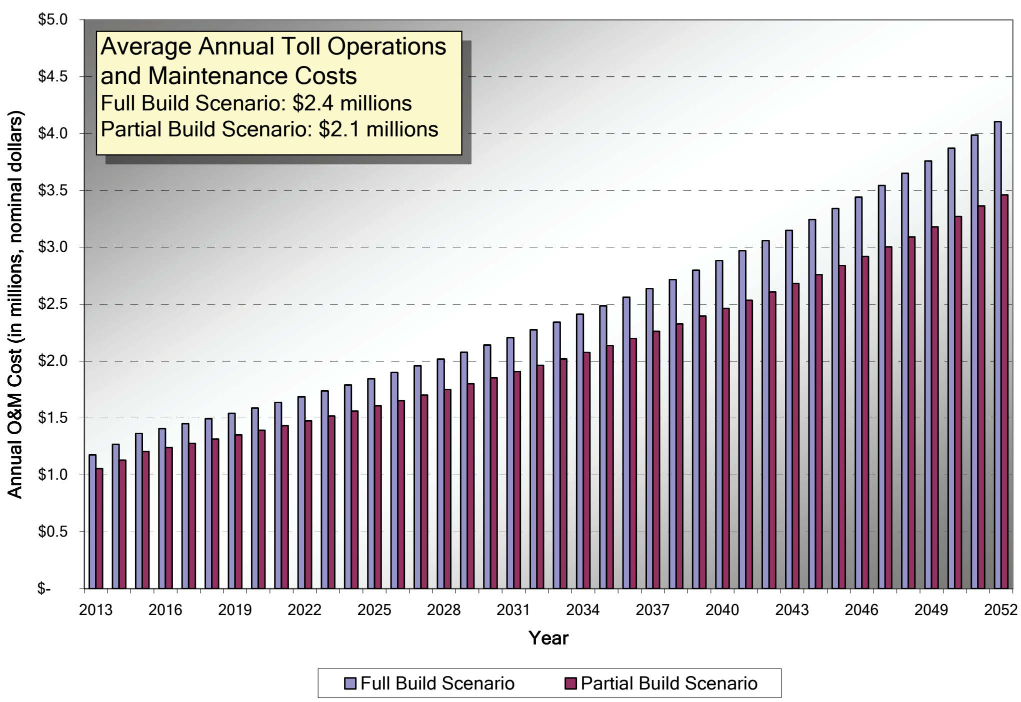


Figure 5.22 Annual Toll Operations and Maintenance Costs for Toll Scenario 2*

* Toll Scenario 2: $1.00 (2013) passenger car toll in the peak period

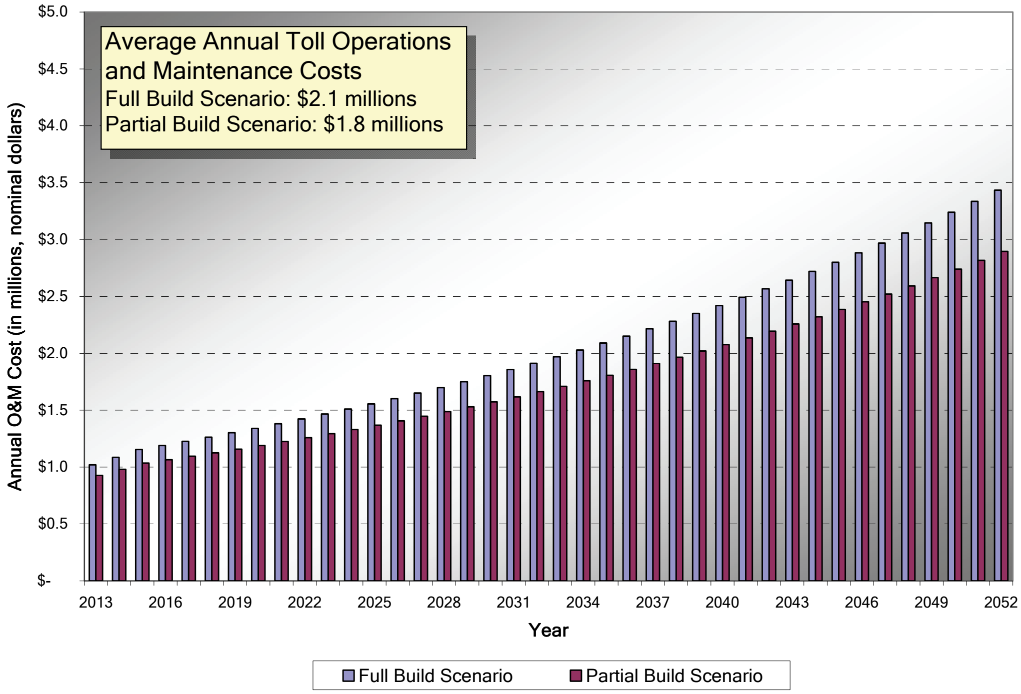


Figure 5.23 Annual Toll Operations and Maintenance Costs for Toll Scenario 3*

* Toll Scenario 3: $1.50 (2013) passenger car toll in the peak period

5.6.6 ANNUAL TOLL NET REVENUE FORECASTS

The annual net toll revenues were calculated by subtracting the O&M costs from the gross toll revenues. **Table 5.9** presents the net revenues by toll scenario. For Toll Scenario 1 with the Longmeadow Parkway fully built, the annual toll net revenue would increase from about $1.1 million in 2013 to approximately $7.2 million in 2052. Over the 40-year period, Toll Scenario 3 in the same build option demonstrates that the net revenue would grow from approximately $2.1 million to about $13.9 million. In this scenario, the total net revenues expected from the Longmeadow Parkway over the 40-year period would be approximately $289.7 million. Comparing toll scenarios 1 and 3, the net revenue realization of Toll Scenario 3 is about 82 percent more than that of Toll Scenario 1.

Figures 5.24 through **5.26** graphically show the annual growth in toll net revenues for toll scenarios 1 through 3, respectively. Similar to the gross revenue streams over the projection period, the figures distinctively show the effects of the periodical increase in toll charges on net revenue generation. Toll Scenario 1, as shown in **Figure 5.24**, would generate annual average net revenue of approximately $4 million with the Full-Build Option. For the same build option, Toll Scenario 3 shown in **Figure 5.26** would realize the highest gross revenues with annual average gross revenue of about $7.2 million.

Table 5.9 Annual Toll Net Revenue Forecasts (in thousands, nominal dollars)

Year	Toll Scenario 1 [1]		Toll Scenario 2 [1]		Toll Scenario 3 [1]	
	Full-Build [2]	Partial-Build [2]	Full-Build [2]	Partial-Build [2]	Full-Build [2]	Partial-Build [2]
2013	$1,142	$688	$1,494	$933	$2,094	$1,312
2014	$1,375	$854	$1,787	$1,136	$2,495	$1,580
2015	$1,629	$1,032	$2,098	$1,351	$2,924	$1,864
2016	$1,654	$1,037	$2,153	$1,373	$2,994	$1,892
2017	$1,651	$1,024	$2,164	$1,367	$3,261	$2,063
2018	$1,722	$1,058	$2,535	$1,621	$3,840	$2,463
2019	$1,718	$1,044	$2,552	$1,619	$3,901	$2,482
2020	$1,714	$1,029	$2,596	$1,630	$3,997	$2,522
2021	$1,758	$1,043	$2,646	$1,646	$4,069	$2,547
2022	$1,752	$1,025	$2,661	$1,641	$4,129	$2,564
2023	$3,074	$2,032	$3,531	$2,293	$4,450	$2,766
2024	$3,097	$2,033	$3,564	$2,297	$4,526	$2,792
2025	$3,099	$2,021	$3,616	$2,312	$4,626	$2,831
2026	$3,225	$2,084	$4,052	$2,605	$5,264	$3,259
2027	$3,226	$2,070	$4,082	$2,605	$5,355	$3,290
2028	$3,225	$2,056	$4,133	$2,618	$5,705	$3,508
2029	$3,245	$2,052	$4,176	$2,625	$5,822	$3,552
2030	$3,279	$2,056	$4,226	$2,636	$5,900	$3,575
2031	$3,297	$2,049	$4,264	$2,639	$6,008	$3,613
2032	$3,290	$2,028	$4,313	$2,648	$6,382	$3,843
2033	$3,386	$2,067	$4,759	$2,943	$7,096	$4,309
2034	$3,419	$2,068	$4,818	$2,956	$7,202	$4,343
2035	$3,433	$2,056	$4,888	$2,973	$7,344	$4,397
2036	$4,913	$3,177	$5,876	$3,701	$7,735	$4,635
2037	$4,981	$3,195	$5,952	$3,722	$7,850	$4,672
2038	$4,978	$3,175	$6,020	$3,737	$7,992	$4,723
2039	$5,089	$3,219	$6,505	$4,052	$8,779	$5,222
2040	$5,130	$3,221	$6,603	$4,083	$9,201	$5,477
2041	$5,149	$3,209	$6,654	$4,086	$9,354	$5,530
2042	$5,165	$3,194	$6,703	$4,087	$9,508	$5,583
2043	$5,203	$3,192	$6,801	$4,114	$9,942	$5,843
2044	$5,315	$3,231	$7,307	$4,439	$10,781	$6,366
2045	$5,300	$3,198	$7,379	$4,450	$10,948	$6,424
2046	$6,979	$4,445	$8,517	$5,265	$11,427	$6,704
2047	$6,999	$4,430	$8,612	$5,286	$11,626	$6,775
2048	$7,043	$4,429	$8,686	$5,297	$11,762	$6,814
2049	$7,167	$4,472	$9,215	$5,635	$12,963	$7,587
2050	$7,182	$4,450	$9,322	$5,658	$13,196	$7,671
2051	$7,252	$4,456	$9,418	$5,675	$13,386	$7,733
2052	$7,232	$4,416	$9,501	$5,685	$13,914	$8,036
Total	**$159,486**	**$99,612**	**$206,177**	**$127,441**	**$289,749**	**$173,161**

[1] Toll Scenario 1: $0.50 (2013) passenger car toll in the peak period
Toll Scenario 2: $1.00 (2013) passenger car toll in the peak period
Toll Scenario 3: $1.50 (2013) passenger car toll in the peak period

[2] Full-Build: Longmeadow Parkway from Huntley Road to Illinois Route 62
Partial-Build: Longmeadow Parkway from Randall Road to Illinois Route 25

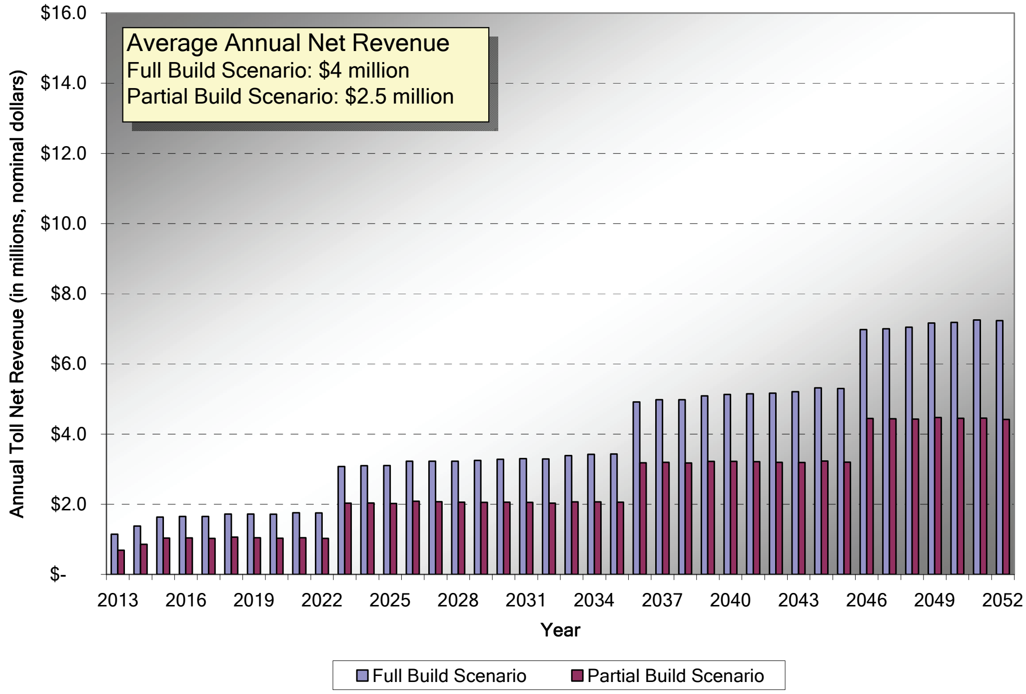


Figure 5.24 Annual Toll Net Revenue Forecasts for Toll Scenario 1*

* Toll Scenario 1: $0.50 (2013) passenger car toll in the peak period

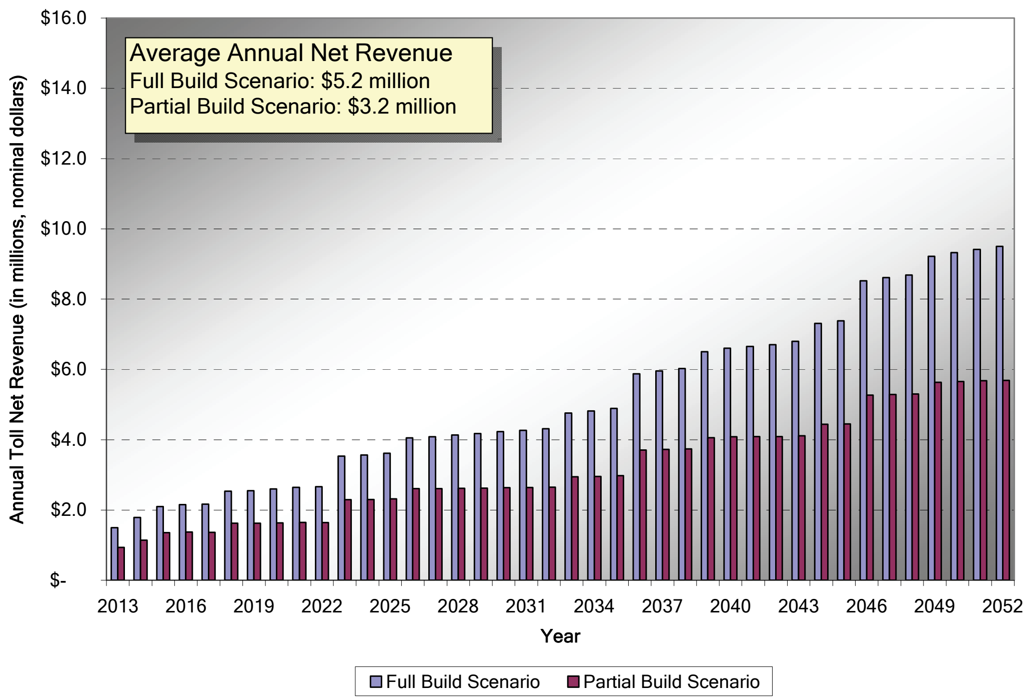


Figure 5.25 Annual Toll Net Revenue Forecasts for Toll Scenario 2*

* Toll Scenario 2: $1.00 (2013) passenger car toll in the peak period

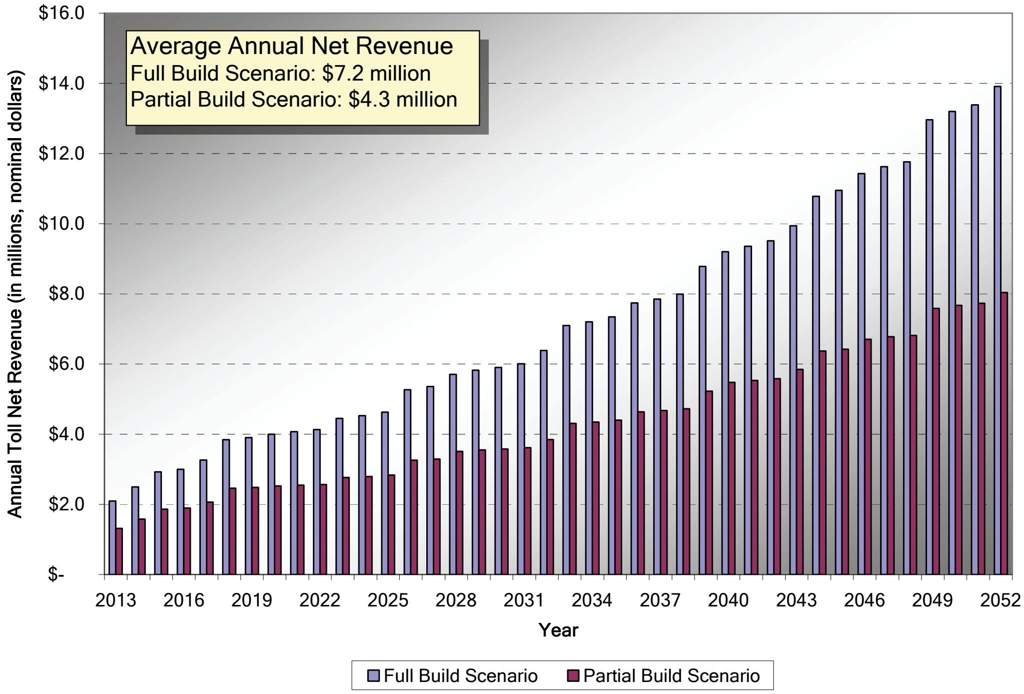


Figure 5.26 Annual Toll Net Revenue Forecasts for Toll Scenario 3*

* Toll Scenario 3: $1.50 (2013) passenger car toll in the peak period

6 CAPITAL AND MAINTENANCE COST ESTIMATES

This chapter provides the capital and roadway maintenance cost estimates for the Longmeadow Parkway. Capital and operations/maintenance costs associated with the proposed toll system are presented in Chapter 4.

6.1 BASIS FOR DEVELOPING COST ESTIMATES

The project cost estimate for Longmeadow Parkway was developed using conceptual plans prepared by the McDonough Associates project team and through assumptions of engineering and land acquisition costs. Plan information received included the following:

- Roadway plan and profile sheets from Huntley Road to Illinois Route 62 (from McDonough)
- Cross section sheets from Huntley Road to Illinois Route 62 (from McDonough)
- TS&L plans for the bridge over the Fox River (from McDonough)
- A table of cross road culvert information (from Christopher Burke)
- Storm sewer drainage system quantities on the west side of the Fox River from Huntley Road to the river (from Christopher Burke)

At the request of the County, costs for the Longmeadow Parkway project were estimated for five separate roadway segments. They included:

- Huntley Road to Illinois Route 62
- Randall Road to Illinois Route 25
- Illinois Route 31 to Illinois Route 25
- Randall Road to Illinois Route 62
- Illinois Route 31 to Illinois Route 62

Further cost information was also developed to analyze the financial feasibility of various improvement alternatives for each roadway segment as follows:

- Alternative 1: Four-lane roadway section with four-lane bridge
- Alternative 2: Two-lane roadway section with four-lane bridge
- Alternative 3: Two-lane roadway section with two-lane bridge
- Alternative 4: Two-lane roadway section with a two-lane bridge deck and a four-lane bridge substructure

Construction costs were estimated using cost data available for projects bid in 2008 using unit prices available from the Illinois Department of Transportation and the Illinois Tollway. Costs were developed based on eight general categories of construction work as follows:

- Roadway pavement
- Traffic signal system
- Landscaping, signing, and safety
- Earthwork
- Roadway drainage
- Cross road culverts
- Bridge structure
- Retaining walls

6.2 CONSTRUCTION COST ESTIMATES

Construction cost estimates for each of the twenty alternatives is presented on **Table 6.1**. For each roadway segment, quantities for the pavement, shoulder, curb and gutter, median surface, pavement marking, and sub base were calculated from the CAD files. The quantities were then used to calculate per square foot of improved roadway cost and a total roadway cost for each roadway segment. Because the CAD files only showed a 4-lane roadway section, an assumption was made that the 2-lane roadway section quantities for pavement, median surface, pavement marking, and sub base would be half of the 4-lane section. Traffic signal costs were estimated using the plan set and a cost per intersection considering typical signal costs and an interconnected signal system throughout the entire project. The cross road culvert cost was developed using quantities provided by Christopher Burke with unit prices from bid analyses reports.

McDonough Associates' cost estimate for this project had estimated the cost for roadway drainage and landscaping, signing, and safety to be 30 percent and 20 percent of the roadway cost, respectively. Due to a lack of plan information regarding these two categories of work on the project, the bid analysis reports from two similar Illinois Tollway projects were reviewed to determine if these percentages were representative of typical drainage costs. It was verified that the roadway drainage would cost roughly 30 percent of the roadway and that landscaping, signing, and safety would cost roughly 20 percent of the roadway.

McDonough's cost estimate included a quantity for earthwork. This quantity could not be confirmed since only roadway cross sections for Longmeadow Parkway were available for review without any information related to proposed detention basins or cross road improvements. The total quantity was assumed to be accurate and was then modified for each alternative depending upon the extent of cut and fill noted within each roadway segment. In reviewing the sections, it was noted that the roadway segment between Westbourne Parkway and Amarillo Drive required more extensive earthwork. Earthwork quantities were thus proportioned for each roadway segment in the same estimated manner.

The cost for the bridge deck and substructure were calculated based on quantities estimated from the McDonough's TS&L plans. A price per square foot of bridge deck, abutments and piers was determined for the two-lane and four lane bridge widths. Retaining wall quantities were taken from the cross sections and estimated per each wall section within a roadway segment. Granular backfill was included in the cost per square foot of wall for the lone MSE wall that is being proposed.

Table 6.1 Project Cost Estimates (in millions)

Scenario		Subtotal Construction	10% Contingency	Total For Construction Planning	Total For Construction Planning With Escalation**	Land Acquisition	Land Acquisition With Escalation*	Phase II Engineering (8%)	Phase II Engineering With Escalation*	Phase III Engineering (10%)	Phase III Engineering With Escalation**	PROJECT TOTAL
Huntley to Illinois Route 62	Alternative 1	$105.00	$10.50	$115.50	$141.69	$3.63	$3.96	$9.24	$10.09	$11.55	$14.17	$169.91
	Alternative 2	$84.57	$8.46	$93.03	$114.13	$3.63	$3.96	$7.44	$8.13	$9.30	$11.41	$137.62
	Alternative 3	$68.28	$6.83	$75.10	$92.13	$3.63	$3.96	$6.01	$6.56	$7.51	$9.21	$111.87
	Alternative 4	$71.67	$7.17	$78.84	$96.71	$3.63	$3.96	$6.31	$6.89	$7.88	$9.67	$117.23
Randall to Illinois Route 25	Alternative 1	$87.21	$8.72	$95.93	$117.68	$3.63	$3.96	$7.67	$8.38	$9.59	$11.77	$141.79
	Alternative 2	$73.16	$7.32	$80.48	$98.72	$3.63	$3.96	$6.44	$7.03	$8.05	$9.87	$119.59
	Alternative 3	$56.86	$5.69	$62.55	$76.73	$3.63	$3.96	$5.00	$5.46	$6.25	$7.67	$93.83
	Alternative 4	$60.26	$6.03	$66.28	$81.31	$3.63	$3.96	$5.30	$5.79	$6.63	$8.13	$99.19
Illinois Route 31 to Illinois Route 25	Alternative 1	$63.47	$6.35	$69.82	$85.65	$3.63	$3.96	$5.59	$6.10	$6.98	$8.57	$104.28
	Alternative 2	$55.37	$5.54	$60.90	$74.71	$3.63	$3.96	$4.87	$5.32	$6.09	$7.47	$91.46
	Alternative 3	$39.07	$3.91	$42.98	$52.72	$3.63	$3.96	$3.44	$3.75	$4.30	$5.27	$65.71
	Alternative 4	$42.46	$4.25	$46.71	$57.30	$3.63	$3.96	$3.74	$4.08	$4.67	$5.73	$71.07
Randall to Illinois Route 62	Alternative 1	$97.40	$9.74	$107.14	$131.43	$3.63	$3.96	$8.57	$9.36	$10.71	$13.14	$157.89
	Alternative 2	$80.19	$8.02	$88.21	$108.21	$3.63	$3.96	$7.06	$7.70	$8.82	$10.82	$130.69
	Alternative 3	$63.89	$6.39	$70.28	$86.21	$3.63	$3.96	$5.62	$6.14	$7.03	$8.62	$104.93
	Alternative 4	$67.28	$6.73	$74.01	$90.79	$3.63	$3.96	$5.92	$6.46	$7.40	$9.08	$110.29
Illinois Route 31 to Illinois Route 62	Alternative 1	$73.45	$7.35	$80.80	$99.12	$3.63	$3.96	$6.46	$7.06	$8.08	$9.91	$120.05
	Alternative 2	$62.26	$6.23	$68.49	$84.02	$3.63	$3.96	$5.48	$5.98	$6.85	$8.40	$102.36
	Alternative 3	$45.96	$4.60	$50.56	$62.03	$3.63	$3.96	$4.04	$4.42	$5.06	$6.20	$76.60
	Alternative 4	$49.36	$4.94	$54.29	$66.60	$3.63	$3.96	$4.34	$4.74	$5.43	$6.66	$81.96

Note 1: Alternative 1 - 4-Lane Section w/4-Lane Bridge
Alternative 2 - 2-Lane Section w/4-Lane Bridge
Alternative 3 - 2-Lane Section w/2-Lane Bridge
Alternative 4 - 2-Lane Section w/4-Lane Bridge Substructure

Note 2: Escalation Breakdowns
* Cost escalated at 6%/year, split 50% between years 2009 and 2010
** Cost escalated at 6%/year, split 50% between years 2011 and 2012

6.3 ENGINEERING AND LAND ACQUISITION COST ESTIMATES

After determining the total cost of construction for each roadway segment, a 10 percent contingency factor was applied to account for unknown factors that may be encountered in design. Design and construction engineering costs were assumed to be an average of 8 percent and 10 percent, respectively, of the total construction cost. The extent of land acquisition was estimated based on the County's reported progress in acquiring right of way. The same land acquisition cost was used for all alternatives under the assumption that the County would acquire all the land needed for the full 4-lane improvement between Huntley Road and Illinois Route 62.

6.4 PROJECTED FUTURE COSTS

Costs were escalated to account for the impact of inflation on when work will be performed and on projections of material and labor costs during the years that construction will be completed. Based on cost trends, a 6 percent rate of inflation has been assumed for each of the next four years. Design engineering and land acquisition will be accomplished in 2009 and 2010. Construction of the Longmeadow Parkway improvements and construction engineering services is projected for the 2011 and 2012 construction seasons.

6.5 ANNUAL ROADWAY MAINTENANCE COST ESTIMATES

Costs for maintaining Longmeadow Parkway were developed using information obtained provided by the County's maintenance superintendent. The County's budget for roadway maintenance for 2007 was divided by the 750 lane-miles of roadway within the County's jurisdiction. On this basis, the annual cost for roadway maintenance was estimated to be approximately $2,700 per lane-mile.

7 COORDINATION

This chapter provides a summary of State and Federal coordination efforts for Longmeadow Parkway.

7.1 ILLINOIS TOLLWAY COORDINATION

Several coordination meetings have occurred between representatives of the Longmeadow Parkway Toll Bridge Task Force and Illinois State Toll Highway Authority (Tollway) staff. The Task Force members expressed their desire to utilize the I-PASS transponder system and integrate the proposed Longmeadow Parkway electronic tolling system with the Tollway's existing system. Tollway officials indicated they are willing to assist the Task Force and local governments in making this project a reality. Tollway officials suggest that each agency work together to identify the business and technical challenges that must be addressed. Some of challenges to be addressed are:

- Determination of how to handle enforcement (in-house or 3rd-party violator firm)
- Determination of what would be considered a "violation"
- Segregation of Tollway violations vs. Longmeadow Parkway Toll Bridge violations
- Video tolling
- Use of administration adjudication, if necessary

A Letter of Understanding (LOU) would then be developed outlining key issues and the process by which each agency will work together to resolve them.

Once an operating authority is established that will operate the Longmeadow Parkway toll bridge, and the key issues identified in the LOU are closer to being resolved, an intergovernmental agreement (IGA) will be drafted. The IGA will specify how the parties have resolved the key issues, state that the County is moving ahead to implement a toll collection system for the bridge, and how the Longmeadow Parkway toll collection system will be integrated with the Tollway's existing system.

7.2 FEDERAL HIGHWAY ADMINISTRATION COORDINATION

Several coordination meetings have occurred between representatives of the Longmeadow Parkway Toll Bridge Task Force and Federal Highway Administration (FHWA) staff. A Technical Memorandum for the Fox River Bridge Crossings Final Environmental Impact Statement (FEIS) and Section 4(f) Evaluation was prepared which addresses all of the environmental consequences and demonstrates that a supplement to the previously approved and signed FEIS and Section 4(f) Evaluation is not required. The Technical Memorandum also considers the Longmeadow Parkway Bridge over the Fox River and approaches as being fully or primarily funded with user fees. The Technical Memorandum was submitted to the FHWA for review and comments were received. The Technical Memorandum is being revised to address these comments and it is anticipated to be submitted to the FHWA for final approval in the near future. The County will continue coordination with the FHWA in regards to this issue.

Discussion occurred between County and FHWA regarding the expenditure of past (Demo funds, STP-U, TEA-21 HPD funds, Section 115 earmarks) and future (SAFETEA HPP funds) Federal funds in consideration of the establishment of a toll facility. The FHWA indicated that land acquisition can proceed utilizing the available $4 million of Federal SAFETEA-LU funds. The FHWA provided guidance on the use of a Section 129 Agreement which documents the use of Federal funds in relation to the operation of a toll collection system. The FHWA stated that the Section 129 Agreement should be executed sometime prior to construction authorization and provided examples of previously executed Section 129 Agreements to the County.

By continuing to follow the Federal process through the remainder of Phase I Engineering, Phase II Engineering, and Land Acquisition, it is anticipated this project would remain eligible for any future Federal fund sources that may become available.

8 RECOMMENDATIONS AND CONCLUSION

This chapter provides the recommendations and conclusion for the proposed Longmeadow Parkway toll bridge.

8.1 LONGMEADOW PARKWAY CONSTRUCTION RECOMMENDATION

Based upon the traffic forecast, it is apparent that eventual construction of the Full-Build Option, from Huntley Road to Illinois Route 62 (Algonquin Road), is crucial to the overall viability of the toll facility. In order to maximize revenue generation for the Longmeadow Parkway corridor, Toll Scenario 3 is recommended, which is a $1.50 passenger car toll during peak periods, and $1.00 passenger car toll during off-peak periods. For Longmeadow Parkway, the opening year 2013 daily traffic forecast for the Full-Build Option using Toll Scenario 3 is 8,780 vehicles.

A 2-lane roadway corridor, along with intersections constructed with adequate channelization, can in some cases accommodate approximately 15,000 to 20,000 daily vehicles. Since the daily traffic forecast is less than 10,000 vehicles per day, initial construction of Longmeadow Parkway to a 2-lane cross-section, 1-lane in each direction, will be adequate to accommodate the opening day traffic projections. Based upon these projections, staff recommends that initial construction be a 2-lane roadway cross-section with a 4-lane bridge substructure (Alternative 4), which will be adequate to accommodate the anticipated 2013 traffic. Initial construction of the 4-lane bridge substructure would allow for Longmeadow Parkway to be widened to a continuous 4-lane roadway and bridge section, once the future traffic volumes warrant expansion and funding were available. The cost estimate for engineering, land acquisition and construction of Alternative 4 for the entire corridor from Huntley Road to Illinois Route 62, as shown in **Table 8.1**, is approximately $117 million. The cost estimate for engineering, land acquisition and construction of Alternative 4 for the toll-eligible section between Illinois Route 31 and Illinois Route 62, as shown below, is approximately $82 million. The cost estimate for engineering, land acquisition and construction of Alternative 4 for the remaining portion of the corridor from Huntley Road to Illinois Route 31 is approximately $35 million, with this portion locally funded.

Table 8.1 Project Cost Estimates for Alternative 4 (in millions)

Scenario	Phase II Engineering	Land Acquisition	Construction	Phase III Engineering	Project Total
Huntley Rd to IL 62 – Alternative 4	$6.89	$3.96	$96.71	$9.67	$117.23
IL 31 to IL 62 – Alternative 4	$4.74	$3.96	$66.60	$6.66	$81.96
Huntley Rd to IL 31 – Alternative 4	$2.15	$0.00	$30.11	$3.01	$35.27

8.2 BONDING CAPACITY

Three financing vehicles are available for the County to consider utilizing the projected toll revenues:

- **Revenue Bonds** – Security and debt service based solely on the tolls and thus, a more detailed "investment grade" study would be required. Single "A" bond rating would equate to a higher interest rate. Costs approximately 200 basis points more to use this financing vehicle over the General Obligation Alternate Bonds in the current market based upon investor risk. Given the current market, Revenue Bonds are nearly impossible to market on a proposed toll bridge that has therefore no actual revenue history to rely upon.

- **Debt Certificates** – Similar to the financing vehicle used for construction of the Kane County Justice Center and Sheriff's office. Financial security is provided by annually appropriating sufficient revenues, including the use of the toll revenues and other revenues, as required. Interest rates and rating may be indistinguishable between Debt Certificates and General Obligation Alternative Bonds, with sufficient pledged revenues, though debt capacity is utilized with Debt Certificates.

- **General Obligation Alternate Bonds** – Security is provided by the property tax levy on file, abated annually by toll revenues. The levy associated with General Obligation Alternate Bonds will provide added assurance to the investor. Tolls are anticipated to be the source of debt service. Double "A" bond rating would be anticipated, with a significantly reduced interest rate. Does not require a detailed "investment grade" study.

Toll Scenario 3 utilizes a $1.50 passenger car toll during the peak period, with a $1.00 off-peak passenger car toll. Revenue forecast for the Full-Build Option using Toll Scenario 3, would allow the County to utilize the General Obligation Alternate Bonds financing vehicle with 30 years to maturity to generate bond proceeds with a principal amount between $70 million to $75 million.

8.3 ADDITIONAL FUND SOURCES OPTIONS FOR CONSIDERATION

Longmeadow Parkway was earmarked for $4 million in Federal HPP funds in the Federal SAFETEA-LU Transportation Bill. In addition, the Kane/Kendall Council of Mayors have programmed $2.5 million of Federal STP funds towards the Longmeadow Parkway corridor. The Illinois Department of Transportation (IDOT) has previously committed to provide 50 percent of the local match towards any Federal funds secured by the County. IDOT would provide $500,000 towards 50 percent of the match of the Federal HPP funds, along with $416,667 towards 50 percent of the match of the Federal STP funds, for a total contribution of $916,667. Kane County would also be responsible for $916,667 towards 50 percent of the local match of both Federal fund sources.

IDOT has jurisdiction over Illinois Route 31, Illinois Route 25, and Illinois Route 62. Intersection improvements to provide adequate turning movements will be required along Longmeadow Parkway at each of these intersections. We would request that IDOT would participate towards at least half the cost towards construction of these intersection improvements, estimated at approximately $6 million each, for a total contribution of an additional $9 million.

Kane County requires developers of land adjacent to a County route to be responsible for any capital cost associated with the engineering, land acquisition, and construction of new or expanded highway improvements needed to accommodate the additional traffic generated by their new development. Significant highway improvements by developers have already occurred along portions of the Longmeadow Parkway corridor. It is anticipated that future highway improvements by developers would occur at several other locations along the corridor, or the cost recaptured from future developers, should construction of Longmeadow Parkway occur prior to development of adjacent land.

Kane County has the ability to utilize available impact fee revenues towards the Longmeadow Parkway corridor. Staff will continue to seek Federal, State, and other funds sources towards the remaining cost of this improvement.

8.4 CONCLUSION

The Kane County Special Assistant State's Attorney confirmed that the Illinois Compiled Statutes in 605 ILCS 5/Article 10 Division 3 of the Highway Code (County Toll Bridges) authorizes the County to issue bonds for the purpose of constructing and operating a toll bridge and the corresponding approaches.

The cost estimate for engineering, land acquisition and construction of Alternative 4 of the toll-eligible section between Illinois Route 31 and Illinois Route 62, is approximately $82 million. Results of the Traffic Projections and Financial Feasibility Study indicate that construction and operation of a toll bridge is a viable option for consideration. Projected toll revenues would allow the County to utilize a General Obligation Alternate Bonds financing vehicle with 30 years to maturity to generate bond proceeds with a principal amount between approximately $70 million to $75 million. With $4 million of Federal funds, $9 million of State funds, County impact fees, along with construction by (or recapture from) developers would allow for future engineering, land acquisition, and initial construction of the 2-lane roadway cross-section with a 4-lane bridge substructure to occur.

It is proposed, that the toll collection facilities remain on the bridge until the initial construction bonds are fully repaid and future widening and maintenance endowment funds are established. At that time, the tolls will be removed from the bridge.

In order to make the Longmeadow Parkway Toll Bridge a viable alternative for consideration, staff recommendations the following items need to occur (not necessarily in order):

- Secure additional Federal, State, and other fund sources when available
- Expend the available SAFETEA-LU HPP dollars on right-of-way acquisition
- Complete the remainder of Phase I Engineering
- Execute the Federal Section 129 Agreement
- Demonstrate through the Final Technical Memorandum that a supplement to the previously approved and signed FEIS and Section 4(f) Evaluation is not required
- Execute a Letter of Intent and, ultimately, a Letter of Understanding with the Tollway
- Further coordination with the County's financial advisor regarding financing alternatives, given the current financial market

DISCLAIMER

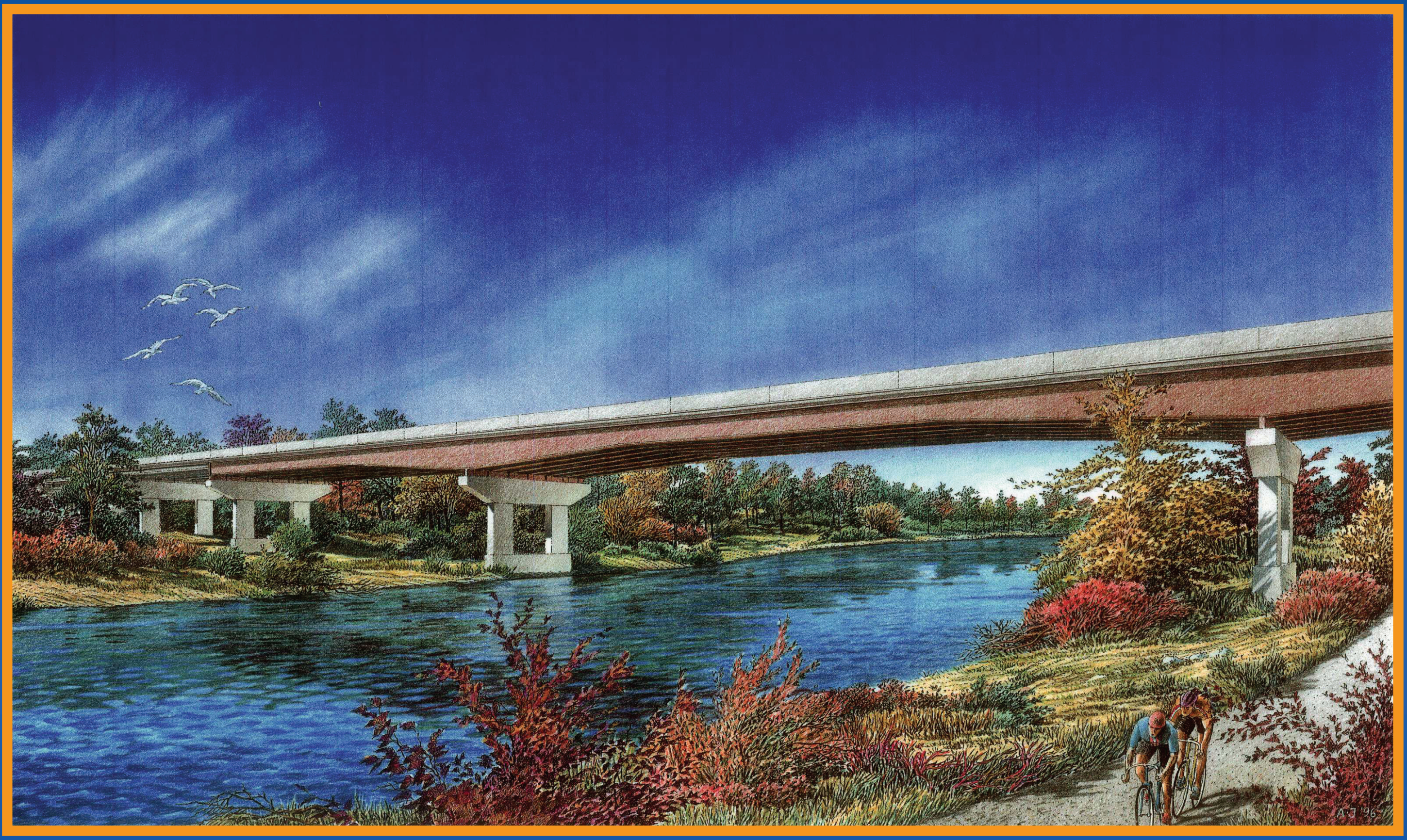
Current accepted professional practices and procedures were used in the development of these traffic and revenue forecasts. However, as with any forecast of the future, it should be understood that there may be differences between forecasted and actual results caused by events and circumstances beyond the control of the forecasters. In formulating its forecasts, WSA has reasonably relied upon the accuracy and completeness of all of the information provided (both written and oral) by Kane County and several local and state agencies. Publicly available and obtained material has neither been independently verified, nor does WSA assume responsibility for verifying such information. WSA has relied upon the reasonable assurances of the independent parties that they are not aware of any facts that would make such information misleading.

WSA has made qualitative judgments related to several key variables within the analysis used to develop the traffic and revenue forecasts that must be considered as a whole; therefore selecting portions of any individual results without consideration of the intent of the whole may create a misleading or incomplete view of the results and the underling methodologies used to obtain the results. WSA gives no opinion as to the value or merit to partial information extracted from the report.

All estimates and projections reported herein are based on WSA' experience and judgment and on a review of independent third party projections and information obtained from multiple state and local agencies including Kane County. These estimates and projections may not be indicative of actual or future values, and are therefore subject to substantial uncertainty. Future developments cannot be predicted with certainty, and may affect the estimates or projections expressed in the report, such that WSA does not specifically guarantee or warrant any estimate or projections contained within this report.

While WSA believes that some of the projections or other forward-looking statements contained within the report are based on reasonable assumptions as of the date in the report, such forward looking statements involve risks and uncertainties that may cause actual results to differ materially from the results predicted. Therefore, following the date of this report, WSA will take no responsibility or assume any obligation to advise of changes that may affect its assumptions contained within the report, as they pertain to: socioeconomic and demographic forecasts, proposed residential or commercial land use development projects and/or potential improvements to the regional transportation network.

The report and its content are confidential and intended solely for use by for the Longmeadow Parkway Bridge Corridor Traffic Projections and Financial Feasibility Study. Any use by third-parties, other than as noted above, is expressly prohibited. In addition, any publication of the report without the express written consent of WSA, is prohibited. The results contained in this report are not intended to be used to secure or obtain project financing therefore disclosure of the material in any official statement, prospectus, private placement memorandum or other document used to facilitate, offer, buy, or sell securities is strictly prohibited.



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