

**Section 2**  
**Prior and On-Going Studies**

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## SECTION 2

# Prior and On-Going Studies

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This section of the report presents an overview of prior and on-going studies that are relevant to the 2030 Transportation Plan. Synopses of these documents including plan maps where available are contained in Appendix A.

## 2.1 2020 Transportation Plan

The *Kane County 2020 Transportation Plan* was prepared by Bucher, Willis, & Ratliff and commissioned by Kane County Division of Transportation (KCDOT) in July 1996 to indicate the transportation infrastructure needs to support future land development. The Plan identified Transportation Control Measures (TCMs) that can be useful in achieving planning objectives, identified long-range transportation needs, and recommended feasible strategies which address these needs.

Travel forecasts indicated that the Existing plus Committed transportation facilities in Kane County were not sufficient to support future land use development. Recommended transportation strategies and projects, comprised of TCMs, transit enhancements and roadway improvements, were developed to satisfy projected future demand. However, even after the additional strategies and projects were tested, congestion was predicted to continue on small segments of north-south routes and on Fox River Bridge crossings. The plan suggests that this remaining congestion be addressed by additional capacity projects, higher use of public transportation, or the acceptance of congestion.

Six transportation revenue scenarios were estimated providing a range of resources between \$247 million and \$510 million over a 25-year planning period. The report concluded that this level of financial resources would not cover all of the needs identified in the plan. As such, the County needed to prioritize plans and programs.

In the area of public transit, the plan supported and encouraged commuter rail system extensions, new express transit service, increased fixed route system service, and countywide paratransit service. Pace and Metra public transit systems were funded separately, primarily from transit fares and sales tax assessed within the RTA region.

Maps of the 2020 Transportation Plan including the roadway, transit, and bikeway elements are included in Appendix A.

## 2.2 Public Transit Studies

Three important studies in the area of public transit were completed recently. They are described below briefly in chronological order.

### **2.2.1 Metra Suburban Transit Access Route (STAR) Line**

The Metra STAR Line was planned to be a commuter rail line in northeastern Illinois designated to address suburb-to-suburb commutes. The STAR Line combines the commuter rail studies of the Northwest Corridor Study and the Outer Circumferential Commuter Rail Feasibility Study (OCS) by connecting the northwest and western suburbs. The OCS commissioned by Metra and prepared by T.Y. Lin International Bascor in April 1999 was initiated by Metra to examine the feasibility of an OCS along the Elgin, Joliet and Eastern Railway (EJ&E) corridor. In contrast to Metra’s suburb-to-downtown Chicago market, this rail line would most likely serve suburb-to-suburb market, as well as, some of the traditional downtown Chicago market via transfer to existing Metra lines. The purpose of the study was to determine if commuter rail service is physically and operationally feasible along the rail line, and the likely cost of such service. Although the rail line, itself, would not be located in Kane County, the 6-mile wide corridor spills over into Kane County along the county’s eastern border. A map of the corridor and proposed stations is shown in Appendix A.

Considering the data currently available, it would appear that there is some potential for OCS to be viable. In general, there were no “fatal flaws” revealed which would preclude commuter service from being implemented along the EJ&E Railway. However, because the EJ&E stretches for over 100 miles through northeastern Illinois and the costs of initiating operations along the entire length all at once would be prohibitive, part of this effort would be to determine which “core segment” would be the first to begin operations. The Metra STAR Line identifies an initial operations segment running from Joliet north to Hoffman Estates, where it connects along the Northwest Tollway to O’Hare Airport.

### **2.2.2 West Suburban Commuter Rail Feasibility Study**

Metra, the Commuter Rail Division of the Regional Transportation Authority (RTA), initiated this feasibility study to determine whether it could run a viable commuter rail service from Burlington (in Kane County) to Chicago using Illinois Central (IC) tracks and portions of existing Metra routes. This study commissioned by Metra and prepared by T.Y. Lin International Bascor in June 2000 broadly evaluated the line’s physical and operational feasibility, and estimated order-of-magnitude costs for potentially providing commuter rail service along the study corridor. There were no estimates of commuter railroad patronage.

Based on this report’s summary evaluations, the study recommended that no further analysis of the West Suburban Service be pursued at this time (2000). Metra concluded that, given the significant and potential obstacles, no further study of the potential West Suburban Service would be pursued, unless either some significant circumstances along the corridor change or alternative solutions were found to address the issues raised in this study. A map of the corridor and the proposed stations is shown in Appendix A.

### **2.2.3 Pace Vision 2020—Moving into the Future**

Pace’s Vision 2020 prepared in July 2002 represents a blueprint on how to provide efficient suburban mobility in the future, and describes how Pace intends to achieve this objective.

The plan presented express routes on major roadways connecting with smaller, community-based services at regional and community transportation centers. Along with the ability to

move quickly throughout the region, the plan envisioned a network of services to move people to their specific destinations—workplaces, homes, entertainment, or community events. It called for a network of new services, infrastructure improvements, and a decrease in travel times.

### **2.2.4 Kane County Transit Opportunity Assessment Study**

This report prepared in October 2002 by a consortium of consultants headed by Land Strategies, Inc. and commissioned by KCDOT defined niche markets for transit use in the urban, suburban, and rural environment, typically dominated by the automobile.

There was an extensive discussion of land use and travel characteristics, as well as public transportation services already available in Kane County. The report also described current Pace and Chicago Area Transportation System (CATS) paratransit, vanpool, and ridesharing programs and presented a priority listing (County priorities) of potential Metra commuter rail service extensions. A map of the potential Metra extensions is shown in Appendix A.

Transit Supportive Programs (Employer Sponsored Programs and Transportation Management Associations (TMAs)) were discussed as was Transit Supportive Land Planning.

Transit recommendations were made based on a comprehensive system of transit opportunities required to provide transportation options for the citizens. These options can be realized by requiring government agencies and employers to cooperate with CATS and Pace in their carpool and vanpool efforts; encouraging and supporting communities to adopt land use planning policies to support walking, biking and transit; and establishing a comprehensive county-wide system of transit opportunities. This would include establishing Transportation Hubs, Transportation Centers, and park-n-ride lots strategically placed throughout the county to support the multi-modal transit system that includes walkers, bicyclists, taxi service, carpool, vanpool, a variety of bus service, light rail, and commuter rail.

### **2.2.5 Kane/Kendall Commuter Rail Extension Feasibility Study – Phase One and Two**

These reports commissioned by Kendall County Board and prepared by Parsons Brinkerhoff in August 2001 and August 2002 investigated the feasibility of extending the existing Metra-Burlington Northern Sante Fe (BNSF) commuter rail line through Kane County and into Kendall County. Phase One was a feasibility study of two alternatives, and Phase Two was a refinement and expansion of the feasibility study.

The Phase One study concluded that extension of commuter service beyond the current stop at the Aurora Transportation Center (ATC) would be feasible, but that expected daily ridership west of Oswego would fall off sharply. Financial feasibility of the proposed extension would be in the intermediate range of projects in terms of cost effectiveness.

Only the “Minimum Operable Segment” (MOS) was carried forward for refinement in Phase Two. The Phase Two ridership forecasts developed by CATS were about double those developed in Phase One using a sketch planning technique. Although the Phase Two refinements also resulted in an approximate 40 percent increase in the MOS capital cost

when compared to Phase One, the project would still have a lower cost per mile than other comparable projects in the Chicago metropolitan area.

The study concluded that, by all measures, the MOS extension appears to be a feasible project, and should proceed into the next phase of study. A map of the proposed extension and stations is shown in Appendix A.

## 2.3 Kane County Bicycle and Pedestrian Plan

The broad objectives of the *Kane County Bicycle and Pedestrian Plan*, which was commissioned by Kane County Forest Preserve, Kane County, and Kane County Council of Mayors and prepared by Edwards and Kelcey (adopted in December 2002) were to collect all previous bicycle and pedestrian planning studies, comprehensively identify all existing, proposed, and conceptual bikeways, and strategically plan for bikeway projects to create a countywide network. This network would improve public safety, encourage alternative modes of transportation, and increase recreational opportunities in the county. A map of the proposed bikeways is shown in Appendix A.

The inventory revealed that Kane County has an extensive trail system along abandoned railroad rights-of-way (rails to trails) and the Fox River. To a much lesser extent, there are on-street facilities, such as paved shoulders and curb lanes, used by experienced cyclists.

This plan recognized that no single type of bicycle facility accommodates all types of bicyclists, and therefore recommends design standards for various types of facilities. The plan described design guidelines extracted from leading technical sources.

The public generally recognizes pedestrian facilities to be limited to sidewalks; however, they encompass a much broader scope of services and facilities. They include, but are not limited to, traffic control devices, curb ramps, grade separations (overpasses and underpasses), crosswalks, and traffic calming features intended to encourage pedestrian travel.

The first strategy was the construction of physical improvements to the bikeway and sidewalk network to connect people with popular destinations and origins. The second strategy was to have municipalities adopt policies and programs to encourage the development of bicycle and pedestrian facilities during roadway design and construction, and to encourage bikeway connectivity to the existing trail system.

The expanding bikeway network allows the use of bicycles as a safe transportation option. Also, a safer environment with connections between origins and destinations encourages walking for short errands and improves access to transit. Bicycles and walking are considered integral parts of the transportation system and can be used in place of automobiles to meet air quality improvement goals. Bicycle and pedestrian facilities have many positive effects on the community; they are environmentally sound, reduce congestion and associated air pollution, and provide health benefits.

## 2.4 Paratransit Coordination Study

The Kane County Division of Transportation commissioned a study on paratransit prepared by Multisystems (adopted in January 2003) to learn about the paratransit needs in Kane County and to develop recommended approaches to coordinate the existing services to best meet those needs.

Some paratransit service is currently provided in the county, primarily through local dial-a-rides and service agencies. Major client groups include seniors, individuals with developmental disabilities or mental illness, and patients or residents of specific facilities. Transportation services are available primarily on weekdays, during typical business hours, to those who qualify.

Unmet transportation needs were identified through the analysis of existing services and discussions with users and stakeholders. The lack of transportation options in certain areas and during off-peak hours especially affects paratransit users' ability to make work trips.

Key findings of the study were as follows:

- There is a gap between what transit and paratransit services are available and what people are aware of.
- There are areas of the County without any paratransit services, especially the six townships in the southwest part of the County.
- Where paratransit services are available, the hours are often too short or there is not enough service to be able to get a ride when needed.
- County and municipal borders defining services are not always consistent with the travel needs of residents.

Recommendations of the study represent a range – or a continuum – of options as follows:

- Establishment of a Kane County Paratransit Coordinating Council (KCPCC) (October 2003)
- Development of a Coordinated Marketing Program (September 2004)
- Implementation of a User-Side Taxi Subsidy Program
- Eastern Kane Regional Dial-A-Ride Service

Based on all of the information gathered in the project, a set of potential coordination strategies was formulated.

## 2.5 Transportation Planning Area Study

### 2.5.1 Existing Transportation Conditions and Forecasts of Future Travel Demand

CH2M HILL prepared this report for the KCDOT in May 2001. The purpose of the report was to bring together the background data and forecasts that will guide development of transportation recommendations in Kane County.

The report presents a summary of existing transportation facilities in Kane County including public transit and non-motorized along with streets and highways. In 1990, approximately 2.8 percent of total work trips made by Kane County residents were made using rail or bus.

A traffic forecasting model was developed and calibrated by the KCDOT with assistance from CH2M HILL. The work closely followed modeling efforts completed by CATS in 1996 for the *Kane Country Sub-Area Study* (2020 Transportation Plan). Examination of present travel desires showed the heaviest concentration of travel is in a north/south direction in the eastern portion of the county. In general, travel demand in Kane County drops off considerably toward the western parts of the County.

Existing highway travel performance was analyzed based on traffic service, congestion and safety. Only six to seven percent of the county highways were rated as “congested,” all in the easternmost portion of the county. In terms of traffic safety, 15 of the 307 miles of county highway exhibited crash experience that was classified in the “actual greatly exceeds expected” category.

Travel forecasts to the year 2020 were developed based on projections of population and employment growth provided by the Northeastern Illinois Planning Commission (NIPC). The data predict an overall increase in county population from approximately 317,000 in 1990 to 552,000 in 2020. Households are projected to increase from 107,000 to 199,000, and employment from 174,000 to 211,000 over the same time period. The largest growth in population is projected for the Gilberts and Huntley areas. Large growth in employment is forecast to occur in northern Kane County, mainly concentrated in the areas near US 20 and I-90.

The travel forecast indicated that daily vehicle miles of travel (VMT) in Kane County would grow by 93 percent. For all highways, 56 percent of the route miles and 61 percent of the lane-miles would be congested in 2020. For county roads alone, 41 percent of the route miles and 47 percent of the lane-miles would be congested. Congestion would spread west into the critical growth area of the county. While only about one-quarter of Kane County experienced congestion in 1996, the area would expand to cover three-quarters of the county in 2020.

## **2.5.2 Delineation and Prioritization of Planning Areas**

This report, commissioned by KCDOT and prepared by CH2M HILL in July 2001, describes the process used and the findings to delineate and prioritize areas designated for further study in Kane County.

At the county level, performance was evaluated by Planning Partnership Area (PPA) to classify the relative priority of transportation need of each area. This assessment served as a guide to identifying locations of concern, but was not sufficient to delineate and prioritize the planning areas. Therefore, a more detailed assessment was made by bounding the areas of influence of the individual performance measures and then layering each of the measures to highlight concentrations of performance issues. Areas that had a clustering of performance problems were delineated to define the planning areas and then compared to one another to prioritize the order of study. Those areas classified as having immediate

needs would be studied first and those areas designated to have longer-term needs would be studied at a later date.

Performance of the existing and future transportation system was described using measures of traffic service, congestion, and safety. The individual performance measures were summarized independently by areas of poor performance. This was done for six performance measures capturing the existing conditions, future conditions, and changes in performance between the base year and forecast year.

Areas where each individual performance measure exhibited poor performance were then layered together. When two independent layers overlapped the overlapping area darkened. The darkest areas in Kane County would be those areas with the highest concentration of poorly performing roadways.

The primary areas of concern in the Kane County Planning Area Study are those areas where rapid development is expected to occur. To identify these growth areas another layering was accomplished highlighting only future performance measures and changes in performance between existing and future.

Once the areas of poor performance had been identified through the PPA and layering techniques, areas warranting further study were delineated.

### **2.5.3 West Upper Fox (WUF) Planning Area**

In August 2002, CH2M HILL prepared a study for the KCDOT that included transportation issues within the WUF planning area bounded roughly by the Kane-McHenry county line on the north, Sleepy Hollow Road on the east, Big Timber Road on the south and Illinois Route 47 on the west.

Projected traffic increases in the WUF area would be among the greatest in Kane County. Performance of transportation facilities under future (2020) conditions was measured to identify roadways that would operate poorly. Considering all roadways in the WUF area, including the tollway, 88 percent of lane-miles would be congested in 2020.

Two basic strategies were explored to improve transportation service in the WUF area. One strategy, referred to as the *arterial-based strategy*, would rely primarily on arterial improvements to upgrade transportation service. The second strategy, referred to as the *collector-based strategy*, would rely primarily on a collector roadway network to distribute local trips in the area.

With the collector-based plan, delay would be reduced and congestion would be lessened to approximately the same extent as with arterial-based plan. The proposed collector-based plan would also assist in establishing roads to connect future developments, and may even be partially or fully constructed by the developers.

Either the arterial-based or collector-based strategies would ease congestion on arterial highways in the WUF area. Both strategies also would be effective in accomplishing the project objectives.

The recommended plan for the WUF area would include improvements to both the collector and arterial systems to create a complete roadway network. The cost of the improvements



would be distributed among the state, county and municipal agencies, as well as, to future development creating a joint effort to improve transportation performance. Transit and pedestrian/bike trail improvements are also planned for the area. Additionally, the recommended plan would incorporate access management. The plan would recognize the importance of regional connectivity by incorporating improvements that are more regional in scope. A map of the recommended plan is shown in Appendix A.

The estimated cost for the recommended transportation improvements would be approximately \$290 million. This includes \$160 million for development of the collector road and \$130 million to reconstruct arterials. The cost estimate excludes the cost of the regional connectors, transit improvements, and bike/pedestrian facilities.

#### **2.5.4 Elgin Far West Planning Area**

CH2M HILL reported on the Elgin Far West Area in January 2003; the report was prepared for the KCDOT. The Elgin Far West Area is expected to grow rapidly over the next 10 to 20 years with full build out expected by approximately 2020. The ultimate build out of proposed developments by 2020 would add approximately 17,600 weekday PM peak hour trips to the area's roadways. Developments anticipated for completion by 2010 will generate approximately 8,200 additional vehicle trips in the PM peak hour on a weekday.

The general transportation planning process used in the Elgin Far West area was similar to that developed and used earlier in the WUF Planning Area (above). The analysis method combined background traffic with site generated traffic from planned developments for two future time periods -- 2010 and 2020. The traffic from each of the developments was traced through the network, so that the impact of improvements could be apportioned back to the developer based on its relative impact on the roadway system.

Assignment of 2010 traffic to the existing roadway system showed that almost one-half of the study area intersections would operate at LOS F.

The 2010 (interim plan) incorporated approximately 16-route miles of new roads, made up of collector roads and the Corron Road extension, signalization of three intersections, two all-stop intersections, seven intersections with only geometric improvements, and 7.4 lane-miles of roadway widening.

The process used in developing the 2020 ultimate plan was generally the same as that utilized for the 2010 plan. The proposed improvements incorporated into the 2020 transportation plan include those described earlier for the 2010 interim plan along with signalization and geometric improvement of 11 intersections, all-way stop control at one intersection, further geometric improvements to 15 intersections, and widening of 7.7 lane-miles of roadway. With implementation of these projects, there would be just five intersections in the study area still operating at LOS F. A map of the ultimate plan is shown in Appendix A. Total cost of all projects included in the 2020 plan would amount to approximately \$143 million at 2001 price levels.

A method was also developed to allocate attributable project implementation costs to proposed land developments in the Elgin Far West area. Costs were allocated by first determining the percentage of total traffic generated by each development at a particular location and applying this percentage to the total project improvement cost for that location.

The City, County, and State would be responsible for approximately thirty six percent of the improvement cost. This is directly proportional to the volume of background traffic on the future network. The planning process calls for incrementally improving the network to reach an acceptable Level of Service (LOS). The 2020 Plan was used to determine the appropriate allocation of costs to land developments. The 2010 Interim Plan helped to identify projects that should be completed first.

### **2.5.5 Sugar Grove, Aurora, Montgomery (SAM) Planning Area**

In April 2004, CH2M HILL prepared a study for KCDOT including transportation issues within the SAM planning area bounded roughly by the Kane-Kendall county line on the south, Edgewater Drive on the east, the Illinois Tollway (I-88) on the north and Dugan Road on the west.

Performance of transportation facilities in the SAM area under future conditions (2020) was measured to identify roadways that would operate poorly. Considering all roadways including the tollway, 70 percent of lane-miles would be congested.

The process followed in developing a transportation plan in the SAM area was to first address a system of collector roads and then augment this with improved arterials.

The collector-based plan which would account for 54 percent of the area's lane-miles, would improve local connectivity by adding an in-fill network to link land uses throughout the area, but the addition of collector roads alone would do little to improve the regional connectivity. Daily system-wide delay and congestion would be reduced.

Once the collector road network had been established, modeled arterial improvements were added to create a network having sufficient capacity to meet anticipated traffic demand. The candidate roadway improvements were stratified into categories of major, secondary, or regional significance and cost estimates were determined for each of the individual improvements.

The recommended plan for the SAM area would encompass a full range of transportation solutions. Improvements would be made to both the collector and arterial systems to create a complete roadway network. The cost of the improvements would be distributed among the county and municipal agencies, as well as, to future development creating a joint effort to improve transportation performance. Transit and pedestrian/bike trail improvements are also planned for the area. Additionally, the recommended plan would incorporate access management. A map of the recommended plan is included in Appendix A.

The plan would also recognize the importance of regional connectivity by incorporating improvements with a more regional scope. The proposed Prairie Parkway was also identified as another potential regional improvement affecting the SAM area, but since the project was not yet finalized, the Prairie Parkway was not considered in the development of the area plan. When a preferred alignment of the Prairie Parkway has been selected, the SAM plan can be reevaluated to address changes in land use and traffic patterns.

Estimated total cost of the recommended transportation improvements (construction and right-of-way) in the SAM area would amount to approximately \$360 million. This includes approximately \$230 million for development of the collector road network. Widening the

arterials, as opposed to full reconstruction would save \$60 million, for a total construction cost of \$300 million. The cost estimate excludes the cost of regional connections, transit, and bike/pedestrian facilities.

### **2.5.6 Northwest Kane County Planning Area**

In September 2003, CH2M HILL initiated a study for the KCDOT including transportation issues within the Northwest Kane County (NWKC) planning area bounded roughly by the Kane-Dekalb county line on the west, the Kane-McHenry county line on the north, and Ellithorpe Road on the south. The eastern border of the planning area extends to IL 47 for most of the area, but extends to Coombs Road from Plank Road to Big Timber Road incorporating Pingree Grove.

Performance of transportation facilities in the NWKC planning area under future conditions (2030) was measured to identify roadways that would operate poorly. Considering all roadways including the tollway, 56 percent of lane-miles would be congested.

The process followed in developing a transportation plan in the NWKC area was to first address a system of collector roads and then augment this with improved arterials.

The collector-based plan would improve local connectivity by adding an in-fill network to link land uses throughout the area, but the addition of collector roads alone would do little to improve the regional connectivity. Daily system-wide delay and congestion would be reduced.

Once the collector road network had been established, modeled arterial improvements were added to create a network having sufficient capacity to meet anticipated traffic demand. The candidate roadway improvements were stratified based on level of improvement and cost estimates were determined for each of the individual improvements.

The recommended plan for the NWKC area would encompass a full range of transportation solutions. Improvements would be made to both the collector and arterial systems to create a complete roadway network. The cost of the improvements would be distributed among the state, county, and municipal agencies, as well as, to future development creating a joint effort to improve transportation performance. Transit and pedestrian/bike trail improvements are also planned for the area. Additionally, the recommended plan would incorporate access management. A map of the recommended plan is shown in Appendix A.

Estimated total cost of the recommended transportation improvements (construction and right-of-way) in the NWKC area would amount to approximately \$540 million. This includes approximately \$225 million for development of the collector road network. Widening the arterials, as opposed to full reconstruction would save \$115 million, for a total construction cost of \$425 million. The cost estimate excludes the cost of regional connections, transit, and bike/pedestrian facilities.

All performance and cost estimates are based on the draft NWKC plan. The NWKC plan will be finalized in the fall of 2004.

### **2.5.7 Kane County Impact Fee Program**

The Impact Fee Study performed by CH2M HILL in cooperation with the KCDOT was intended to fulfill the Illinois legislative requirements authorizing Kane County road improvement impact fee.

Peak period traffic counts for intersections on county highways were obtained and analyzed to determine LOS at each location. Intersections operating at LOS E or LOS F were deemed to be deficient. The enabling legislation precludes use of impact fees to correct these existing deficiencies.

Forecasts of land use, population and employment for 2013 and 2023, developed by the Kane County Development Department, were used to determine future travel growth. The indicated intersection and roadway improvements were assembled into a Comprehensive Roadway Improvement Plan (CRIP) and were submitted for public and governmental review. A map and list of the CRIP projects are included in Appendix A.

Trip generation and trip length characteristics by land use category were applied along with estimated roadway construction costs to determine the unit amount of impact fee to be assessed by type of development.

Projections of impact fee revenue and expenditure by PPA were developed.