

2.3 PLANNING ISSUES – MOBILITY AND CONNECTIVITY

Objectives:

1. To develop and implement transportation objectives and strategies in coordination with land use and community health objectives.
2. To coordinate local and regional strategies for transit-supportive land use investments, policies, and programs that increase the propensity to use transit in Kane County communities, increase overall demand for transit service, and reduce barriers to using public transportation.
3. To advocate transportation mobility and connectivity programs or planning projects that will encourage greater physical activity among children and adults in Kane County.
4. Support the objectives of the 2040 Transportation Plan.

2040 Transportation Plan Objectives

Safety Objective

1. Provide a multi-modal transportation system that is safe for all users.

Personal Mobility Objective

2. Develop a balanced multi-modal transportation system that adds to the available travel options, increases personal mobility and offers alternatives to the Single Occupancy Vehicle (SOV).

Cooperative Planning Objective

3. Coordinate local and regional transportation planning to provide a transportation system that accommodates both existing and future travel demands and supports County and regional land use plans and policies.

Quality of the Environment Objective

4. Maintain and improve the quality of the environment while providing transportation services and facilities.

System Efficiency Objective

5. Reduce the growth in congestion and vehicle miles traveled, while preserving the County's transportation system and its carrying efficiency.
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Chapter Focus

The Mobility and Connectivity planning issue in the 2040 Plan emphasizes the importance of providing more opportunities for Kane County residents to use health promoting travel options, such as transit, walking, and biking. Kane County already has an extensive transportation system, including bicycle and pedestrian facilities, local roads and highways, bus and rail networks, and interstate highways. By integrating land use, transportation, and community health planning, Kane County can more effectively develop a multi-modal transportation system that adds to the available travel options, increases personal mobility and offers alternatives to driving.

Kane County will focus on improving mobility and connectivity by preserving the existing transportation system and its carrying capacity while also developing needed infrastructure to increase travel options that provide safe access to land uses for all users. The projected population and employment growth in Kane County will challenge this transportation system unless there are changes to our land use decisions and a decrease in our current automobile dependency. Minimizing traffic congestion, supporting a variety of transportation options, and strategically planning for transit supportive land uses will not only increase mobility choices and improve the health and quality of life for residents, but will also play a vital role in the region's economic vitality.

This chapter examines:

- Regional and Local Mobility
- Kane County 2040 Transportation Plan
- Corridor Planning
- Reducing the Growth in Congestion through Land Use Decisions

Regional and Local Mobility

Our region's economic prosperity depends on inter-governmental collaboration and strategic investment in a modern, world-class transportation system for a new century. All the jurisdictions within the Chicago region – the federal, state, regional agencies, counties, townships, and municipalities – play a role in providing and maintaining transportation facilities and services, and also share the cost. Transportation networks are interconnected and traffic impacts go beyond jurisdictional boundaries. Long-range planning for regional transportation helps provide the coordination needed to achieve the efficient movement of people and goods, while prioritizing environmental stewardship (Figure 21). Kane County's transportation system includes an extensive network of regional multi-use trails, local roads, bridges, highways, tollways, and bus and rail networks. The continued enhancement and expansion of this existing multi-

modal system will play a key role in obtaining regional mobility, a high priority recommendation in the Go To 2040 Plan.¹

Kane County's primary transportation planning goal focuses on improving mobility and connectivity. The County plans on attaining this through constructing needed infrastructure and increasing travel options that provide safe access to land uses for motorists, pedestrians, cyclists and public transportation patrons, while enhancing the environment and improving the health of the population. To ensure success and endorsement in its planning efforts, the County collaborates

Figure 21

Stearns Road Bridge Corridor

The Stearns Road Bridge Corridor is the largest infrastructure project in Kane County's history. This 4.6-mile new road and bridge corridor connects DuPage and Kane Counties, providing an east-west corridor across the Fox River. The bridge corridor opened to the public on December 15, 2010, and is the culmination of over 20 years of planning, coordination, design and construction. In total, eight highway bridges, four pedestrian bridges including a much needed new bike/pedestrian crossing over the Fox River, interconnects to three regional bike trails, and nearly three miles of a new multi-use path were built as part of this project.

This award winning corridor is located in an environmentally sensitive area of the region and required extensive collaboration among many agencies and stakeholders. The Stearns Road Bridge Corridor is a true innovation in the area of integrating environmental concerns into regional planning and meeting challenges creatively. Additional property, 216 acres, was acquired as part of the project to protect precious groundwater recharge areas from development, restore former native savannahs that had been nearly destroyed back to their original grandeur, build 65 acres of wetlands and natural storm water treatment areas to protect the environmentally sensitive Fox River and Brewster Creek watersheds, and create additional green space and trails throughout the corridor.

with local, state, and federal agencies on regional transportation initiatives through the Chicago Metropolitan Agency for Planning and the Kane/Kendall Council of Mayors. To address the goals on a finer scale, the County has also coordinated planning efforts that include the consideration for *local* collector roads, which serve a dual function of providing mobility and access to abutting land uses. Collector road improvements are components in sub-regional planning area studies conducted in the West Upper Fox, Elgin Far West, Sugar Grove- Aurora-Montgomery, and North West Kane County areas.

One of the County's three main challenges, identified in the 2030 Plan and now reaffirmed in the 2040 Plan is the traffic congestion challenge. In order to continue to provide a high quality of life in Kane County, we need to **minimize the growth in traffic congestion by supporting a variety of transportation options, thereby improving air quality**. Based on current traffic volumes, high levels of congestion are evident on over half of the County's roads. By 2040, congestion is projected to spread west into the northern area of Kane County, the village of Sugar Grove, and west of the Tri-Cities to

¹ Chicago Metropolitan Agency for Planning. 2010. GO TO 2040 Plan.

Elburn. Approximately three quarters of the County's transportation system will experience congestion by the year 2040, with extreme congestion virtually throughout the Sustainable Urban Area (source: 2040 Transportation Plan) (Figure 24).

The relationship between land use and transportation planning in Kane County is of fundamental importance in meeting our traffic congestion challenge. In October 2004, by concurrently preparing and adopting the County's 2030 Land Resource Management Plan and the 2030 Transportation Plan, the County Board formalized the collaboration of land use and transportation planning in Kane County. Building on that effort, the 2040 Transportation Plan identified opportunities to expand transit systems, improve walkability, reduce vehicle miles traveled, focus on maintaining and improving the highway system and improve energy efficiency and conservation. While multiple travel options are available, most of Kane County residents are currently dependent on the automobile for travel. Furthermore, land use densities and patterns in the western and central parts of the County predominantly do not support fixed route transit service and in the urbanized areas of the County there are not adequate opportunities for transit use. Reducing automobile dependence and fostering land use patterns that support 'active' forms of transportation like walking, bicycling, and transit are now increasingly recognized as key elements of healthy living and sustainability, and support efforts to mitigate the growth in congestion.

The County has promoted healthy living through its transportation, bike/pedestrian and transit planning efforts. The County's bicycle and planning efforts have been recognized by the American Planning Association with honorable mention in 2002 for the Bicycle and Pedestrian Plan. Through the coordination on land use decisions, and improvements to the transportation system that promote the concept of complete streets (Figure

Figure 22

Randall Road Pace Route 529 Plan

Pace Route 529 serves Randall Road and five growing communities in Kane County: Aurora, North Aurora, Batavia, Geneva, and St Charles. Recognizing the transit potential of the Randall Road corridor, the Randall Road Pace Route 529 Plan was prepared to improve bus access and ridership along the corridor from Sullivan Road to IL 38. The plan identifies improvements associated with access to transit and provides a set of recommendations to:

- Optimize transit operations
- Support transit-oriented land use within the corridor
- Improve ridership
- Implement cost-effective measures

Short and long-term recommendations include installation of bus shelters, waiting pads, connecting walkways, crosswalks, and access ramps at bus stop locations that have high ridership. Additional stops are recommended at strategic locations to enhance transit service without major impacts to existing roadway operations. Future land use guidelines were developed in an effort to encourage long term transit oriented development and capture future riders. These guidelines encourage mixed-use development; connect residences to the corridor; orient buildings to the street; create public and open spaces; recreate the parking environment; and design for the pedestrian experience. Short-term and a long-term strategies were identified in the implementation plan and included potential funding sources. Through partnerships with Pace and the RTA, Kane County is ready to take the first steps in improving transit and pedestrian access to the Randall Road corridor and seize the opportunity to promote transit service along a major corridor connecting the northern and southern parts of the County. Many of the recommended infrastructure improvements are programmed for implementation in 2012.

Figure 23

Complete Streets

As the County continues to move forward with roadway improvements, safety and access for all users is considered. Commonly known as *Complete Streets*, this movement results in roadways and infrastructure improvements that enable safe, attractive and comfortable access and travel for all users, including motorists, pedestrians, bicyclists, public transit riders, and people of all ages and abilities. Complete Streets improvements provide a variety of transportation options and reduce reliance on the single occupancy vehicle, thereby improving the efficiency and capacity of existing roads.

The characteristics of a complete street depend on the context of the roadway. For instance, a complete street in a rural area will look quite different from one in a highly urban area, but both are designed to balance safety and convenience for every traveler. Complete Streets can include one or more of the following elements: sidewalks, bike lanes (or wide paved shoulders), special bus lanes, comfortable and accessible public transit stops, frequent and safe crossing opportunities, median islands, accessible pedestrian signals, curb extensions, roundabouts, traffic calming measures such as narrower travel lanes, and more.

Complete Streets also promote a healthy population by encouraging walking, bicycling, and transit use (transit users are typically pedestrians or cyclists for a portion of their trip). They also contribute to strong walkable and livable communities, provide opportunities for increased social interactions, and lower transportation costs for users who don't travel by automobile.

23), the County continues to integrate public health into land use and transportation planning (Figure 22). These decisions more effectively and efficiently improve the quality of life in Kane County, including reducing the epidemic of obesity in the County. The Quality of Kane initiative, in 2010, formalized the integration of land use, transportation, and public health planning in the County. One of the first projects that supported this integrated approach is the Making Kane County Fit for Kids campaign and Fit Kids 2020 Plan. The Mobility Workgroup, one of nine workgroups for the Plan, provided strategy recommendations for providing options that allow children, including those with disabilities, to walk and bicycle throughout the community. These recommendations can be implemented by individuals, neighborhoods, schools, and communities.

Strategy 1: Implement Safe Routes to School programs in all schools throughout Kane County.

Strategy 2: Create a countywide bicycle recycling program

Strategy 3: Create/implement walking and bicycling incentive programs in schools and communities in the County

Strategy 4: Create child-friendly mobility maps for communities

Strategy 5: Implement complete streets throughout the County

Strategy 6: Address school policies that prohibit or discourage students from walking or biking to school

Kane County 2040 Transportation Plan

The 2040 Transportation Plan is the long term vision for Kane County that guides transportation infrastructure development through the year 2040. Mandated by Illinois State Statute, a long range transportation plan is imperative for the safety of Kane County residents and visitors, and an essential planning and implementation tool to support viable economic development. The plan is based on projections of growth and travel demand and seeks solutions on how to accommodate an additional 270,000 new residents and 144,00 new jobs by the year 2040. The plan addresses existing deficiencies, projected countywide development trends, and personal mobility needs for all users of the transportation system. Accordingly, the plan is multi-modal and provides a comprehensive suite of improvement recommendations contained in the roadway, bicycle, pedestrian and transit elements of the plan.

The 2040 Transportation Plan was developed for the forecast year 2040 in concert with Kane County's 2040 Plan. In support of the County's goal of *Healthy People, Healthy Living and Healthy Communities*, the Transportation Plan incorporates a variety of past and recent planning initiatives to formulate a transportation framework capable of supporting future development in Kane County. The plan also includes revenue and expenditures forecasts to assist with the determination of roadway improvement projects that are to be incorporated in the transportation improvement program.

The 2040 Transportation Plan recognizes the role of the Smart Growth and Livability Principles, in providing more transportation choices, and creating active and convenient communities that link people to jobs as well as to commercial, retail and entertainment centers. Communities are taking innovative approaches to land use and transportation planning, such as planning for land uses and densities that support higher quality transit service; creating connectivity within the transportation networks and between pedestrian, bike, transit and road facilities. The County encourages communities to embrace the Smart Growth and Livability Principles to support and create more livable communities, and to reduce the growth in congestion.

The 2040 Transportation Plan includes a Recommended Roadway Plan, Transit Plan, Bike and Pedestrian Plan, and special planning projects, such as the IL Route 47 Corridor Plan and the Bus Rapid Transit Plan. The following is a brief description the elements of the transportation plan (see link to the full 2040 Transportation Plan).

- **Recommended Roadway Plan**

The Recommended Roadway Plan includes a list of highway improvements identified from the transportation modeling effort that focuses on expanding the highway system and includes improvements to the Tollways, Strategic Regional Arterials (SRAs), other arterials, new

bridge and road corridors, and new roadway alignments. The resulting roadway improvement list incorporates recommendations from CMAP's *GOTO 2040 Plan*, Kane County's 2015 Impact Fee Comprehensive Road Improvement Plan (CRIP) and most of the recommendations from the 2030 Transportation Plan. Given limited revenues projected for capital improvements, priorities have been established as follows:

- Improvements that address public safety
- Capacity enhancements on the Randall/Orchard Corridor
- Anderson Road Overpass
- Longmeadow Parkway Bridge Corridor
- IL 47 / I-90 Interchange
- Various Intersection Improvements

- **Long Range Transit Plan**

The Kane County Long Range Transit Plan (LRTP) is the transit element of Kane County's long-range comprehensive planning efforts, building upon previous plans that addressed transit, including the County's 2030 Transportation and Land Resource Management Plans, and 2002 Transit Opportunity Assessment. Today, most Kane County residents who have access to a car depend on it for travel. The LRTP identifies the need to address automobile dependence in Kane County in order to accommodate projected population and employment growth while mitigating increased traffic congestion and its adverse impacts on air quality and quality of life. It also recognizes the relationship between existing land use patterns in the County and the challenge of providing efficient transit service.

In the public outreach conducted for the LRTP, numerous stakeholders articulated the importance of providing quality transit service for people who depend on it by making transit a more convenient, reliable travel option for County residents. Current economic conditions make it hard for private and public entities to invest in new services and sustain existing ones. Pace, along with other public transit providers, has struggled to maintain existing bus routes and has had to cut some services in the past or realign routes. Strategies to make transit a viable travel option for County residents must recognize these fiscal constraints in the short term.

With this in mind, the short and medium term strategies in the LRTP focus on:

- Implementing non-traditional transit services sponsored by municipalities and employers
- Improving transit marketing and information
- Creating local transportation demand management programs to reduce automobile dependency and change travel behavior
- Integrating transit with land use planning by:

1. Enacting a Primary Transit Network (PTN) policy that identifies corridors with the highest potential ridership and where the County and municipalities aspire to have the highest level of transit service over time
2. Developing a model transit overlay zoning ordinance for adoption around transit nodes and PTN corridors

Longer term recommendations address the need for increased fix route transit services, including Bus Rapid Transit for the Randall/Orchard Road Corridor.

- **Bicycle and Pedestrian Plan**

The broad objectives of the *Kane County Bicycle and Pedestrian Plan* are to collect all previous bicycle and pedestrian planning studies, comprehensively identify all existing, proposed, regional and conceptual bikeways, and strategically plan for bikeway projects to expand the countywide network. This network will improve public safety, encourage alternative modes of transportation, and increase recreational opportunities in the County. The recommended plan recognizes that no single type of bicycle facility accommodates all types of bicyclists and therefore recommends design standards for various types of facilities. The plan also contains design recommendations for pedestrian facilities. Additionally, it investigates various design options to reduce conflict and improve safety both at intersections and mid-block crossing locations.

- **Corridor Planning**

IL Route 47 Corridor Planning Study

IL Route 47 travels through agricultural areas as well as connecting the regional centers of Woodstock, Huntley, and Sugar Grove. The *IL 47 Corridor Planning Study* provides economic, land use and transportation strategies and tools to address the planning challenges associated with growth and development. The goal of the study is to encourage a healthy population and economy through the promotion of sustainable land use practices, complete streets, and smart growth principles.

The study recognized that more than a boundary agreement is needed to address the challenges associated with growth, and demonstrated how municipalities and other agencies need to work collectively to mitigate the impacts of growth and work towards commonly defined objectives. A regional vision can also help to mitigate congestion, which can be achieved in part by the local land use practices addressed in the study. The formation of a corridor planning council, consisting of the governmental agencies that influence the corridor, was seen as an important strategy to promote regional coordination. The study focused on the planning challenges that the municipalities will face as the corridor develops. A significant challenge being that public sector roadway

expansion likely will not keep pace with private sector land use growth. Multiple agencies with overlapping jurisdiction of economic development, land use, infrastructure, and transportation in the corridor creates unique challenges. The study promoted regional thought and coordination in improving and reducing the growth in traffic congestion along the corridor.

The intent of the study was to identify challenges associated with planning and accommodating corridor growth. The study aimed at addressing the following objectives, established by stakeholders:

- Keep Traffic Moving
- Coordinate Local, Regional, and State Decision-Making
- Improve Economic Development
- Encouraging Growth Nodes that Promote Transit and Walking
- Protect Natural Areas
- Promote Placemaking
- Strengthen Existing Developed Areas

The study includes a toolbox of resources, best practices, and strategies to help municipalities address the identified planning challenges, and a valuable market analysis which provided data to suggest the type of industry that could be supported in the corridor (The IL Route 47 Toolbox can be viewed by linking to www.qualityofkane.org).

- **Bus Rapid Transit for the Randall/Orchard Road Corridor**

The Randall/Orchard BRT Feasibility Study focuses on an examination of the land use conditions required to support a higher level of transit service and the potential benefits in terms of traffic congestion, air quality improvements, increased land values, job creation and economic development. Today, the Randall Road corridor has difficulty supporting fixed route transit services, but our vision is that over the next 30 years redevelopment along the corridor could include mixed-use, higher density, transit supportive land use patterns with improved pedestrian linkages and access to the corridor. These conditions, along with the major medical and employment centers would have the ability to accommodate an enhanced transit service that offers many of the same attributes as rail transit, such as fast, frequent, and reliable service, specialized vehicles and high-amenity stations.

While it is anticipated that new land uses and redeveloped areas at future station areas and stops would be approved through municipal decisions, Kane County will have a major role in coordinating station area access improvements to the County highway right-of-way in order to accomplish a BRT system (Figure 25).

Figure 25

Bus Rapid Transit

Bus Rapid Transit (BRT) is a roadway-based rapid transit system offering the fast operating speeds and service reliability of a rail system while providing the flexibility of automobiles. BRT systems can range from a low-cost, mixed traffic BRT system running on arterial streets to a fully developed system operating on its own exclusive right-of-way and include attractive stations, high-frequency service, convenient routes, variety of vehicle options, opportunities for economic development, and Intelligent Transportation Systems.

The County's BRT study focuses on creating a regional vision for transit, changing the current mindset regarding land use along Randall Road, and constructing incremental infrastructure improvements to ultimately support a proposed future BRT. The Randall/Orchard BRT Study examines the land use conditions required to support a higher level of transit service and the potential benefits in terms of traffic congestion and air quality improvements, increased land values, job creation, and economic development.

Today, the Randall Road corridor has difficulty supporting fixed route transit services, but the County's vision is, that over the next 30 years, (re) development along the corridor could include mixed-use, higher density, transit supportive land use patterns with improved pedestrian linkages and access to the corridor. These conditions, along with major medical and employment centers, would have the ability to accommodate an enhanced transit service that offers many of the same attributes as rail transit, such as fast, frequent, and reliable service, specialized vehicles and high-amenity stations. While municipalities will have jurisdiction over new land uses and redevelopment at future station areas and stops, Kane County will have a major role in accommodating BRT service throughout the corridor and coordinating station area access improvements to the highway right of way in order to accomplish a BRT system.

Reducing the Growth in Congestion through Land Use Decisions

The shape, density, and design of developments play an important role in how much people travel by car. When neighborhoods are compact and many of a person's daily needs can be accommodated by transit, bicycle, or within a few minutes' walk, vehicle trips per household decline rapidly. Supportive land use patterns and site design can result in:

- Reductions in the growth of Vehicle Miles Traveled (VMT), pollutant emissions, and energy consumption;
- Increased transit use and productivity; and
- Walkability of activity centers²

At higher densities the use of alternative modes of transportation, particularly transit and pedestrian travel, is higher, and per capita passenger vehicle trips and Vehicle Miles Travelled (VMT) are lower.

² Transit Cooperative Research Program, Report 95. 2003. Transit Oriented Development. Traveler Response to Transportation System Changes.

There is general consensus regarding the positive relationship between land use density and transportation, and a number of studies have shown a relationship between population density and per-capita auto travel, with less per-capita vehicle travel at higher densities. Higher densities are associated with lower proportions of travel by single occupancy vehicle, lower VMT, and most strongly linked with higher use of transit and walking modes. However, the success of density in reducing vehicle trips is *also* dependent on the following factors:

1. **Distance to transit** – the location of a development relative to transit can result in an increase in transit ridership and therefore reduce the number of vehicle trips or VMT. Typically, Transit Oriented Developments (TODs) include residential and commercial centers designed around a rail or bus station and should consider the following design features to optimize vehicle trip reduction:
 - a. A transit station/stop located within a 5-10 minute walk (approximately ¼ mile); or
 - b. A rail station located within a 20 minute walk (approximately ½ mile)

Effects of TOD on Housing, Parking, and Travel (TCRP Report 128, 2008) reports that Transit Oriented Developments (TODs) have 47% lower vehicle trip rates and have 2 to 5 times higher transit mode share.

2. **Location** – the location of a development relative to urban/suburban contexts influences the amount of VMT. Density has a negligible impact on VMT reduction in a rural environment (or Greenfield site, unless it's a master planned community) because jobs and amenities may not be accessible without the use of a vehicle. *Growing Cooler*³ reviewed 10 studies that consider the affect of location on VMT and found that infill locations generate substantially lower VMT per capita than do Greenfield locations, ranging from 13-72% lower VMT.
3. **Mix of uses** – typically residential and commercial development and the degree to which they are balanced in an area (jobs-housing balance). A mixture of land uses reduces the number of vehicle trips by reducing travel distances and allowing more trips by alternative modes (i.e. cycling, walking and transit). Trip reduction is further reduced when affordable housing is located in job-rich areas.⁴

³ Ewing, Reid, Keith Bartholomew, Steve Winkelman, Jerry Walters, and Don Chen. *Growing Cooler*. 2008. *Growing Cooler*. The Evidence of Urban Development and Climate Change.

⁴ Moderres, 1993. Kuzmyak and Pratt, 2003; Ewing et al., 2010; Spears, Steven, Marlon G. Boarnet, and Susan Handy. 2010. *Draft Policy Brief on the Impacts of Land Use Mix Based on a Review of the Empirical Literature, for Research Impacts of Transportation and Land Use-Related Policies*, California Air Resources Board.

4. **Design and Walkability** – Neighborhood layout and street characteristics, particularly connectivity, block size, presence of sidewalks and other design features (e.g. shade, scenery, presence of attractive homes and stores) that enhance the pedestrian and bicycle friendliness of an area.

Figure 26

Impact Fee Discount Program

Kane County has had many policy challenges related to growth--one of which is current and future traffic congestion. The need to reduce travel demand and encourage land use decisions that support vehicle trip reduction and alternative forms of transportation (such as transit, biking and walking) is apparent.

As part of Kane County's Road Improvement Impact Fee Ordinance, the Discount Program allows for a reduced impact fee if smart growth principles are utilized to reduce traffic impacts. The Program is based on several LEED-ND (Leadership in Energy and Environmental Design – Neighborhood Development) smart growth principles, such as Smart Location and Linkage, and Neighborhood Pattern and Design, which reduce traffic impacts. When a new development meets 4 basic requirements--transit availability, proximity of multiple land uses, density, and walkability--a developer can receive an Impact Fee discount. Bonus discounts can be earned for new developments that meet additional location efficiency and/or density criteria. Specific requirements of the program can be found in the 2040 Transportation Plan or the Kane County Road Improvement Impact Fee Ordinance.

Policies:

1. Support the strategies in the Kane County 2040 Transportation Plan.
2. Kane County should take a leadership role and coordinate with municipalities and RTA, Metra, and Pace officials in order to develop a Primary Transit Network (PTN) Policy to coordinate transit and land uses.
3. To support the six Mobility Strategies as adopted in the Fit Kids 2020 Plan.

