McHENRY COUNTY 2020 UNIFIED PLAN

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McHenry County 2020 Unified Plan
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2020 UNIFIED PLAN SUMMARY

"… one prime way to encourage contacts between neighbors is to put them on a common pathway."

Kevin Lynch
Site Planning, MIT Press, Cambridge, Mass., 1971

The *McHenry County 2020 Unified Plan* describes the long-range vision and imparts direction for future land use and transportation decisions. Section 5-14001 of the *Counties Code of the Statutes of the State of Illinois*, as well as the 23 U.S.C. 134(b)(1)/*Federal Transit Act of 1991* Sec. 8(b)(1), and 23 CFR 450C Subchapter E – Part 450 Subpart C, provides the legal foundation that allows counties to plan and ultimately receive state and federal funding. McHenry County has long recognized that land use and the transportation network are interdependent. The qualities and values of one cannot be measured or changed without influencing the other.

The **mission of the *2020 Unified Plan*** is to build on previously adopted planning principles and recommit itself to ensuring that McHenry County continues to be a safe, healthy and vital community through the integration of land use and transportation guidelines incorporated into a cohesive document providing decision makers with the strategies critical for governing growth.

This *Plan* is consistent with and adds to the "nodal" concept of land development found throughout previous plans, namely the *1979 McHenry County Comprehensive Land Use Plan*, the *2005 Update* and the *2010 Update*. The *2020 Unified Plan*, however, attempts to influence the role of municipal planning in a much more proactive fashion than previous County planning efforts. A "planning partnership" between all government entities must occur if the vision of the *Plan* can be realized. The ultimate question is: "Do McHenry County citizens wish to simply react to trends, or do they wish to be proactive and, to the greatest extent possible, shape the destiny of their communities and ultimately the entire County?"

The distinguishing characteristic of the *2020 Unified Plan* is the nature, detail and focus on the integration of land use and transportation planning. Three alternative land use scenarios were considered based upon different land use assumptions. The *Trend of Development Scenario* depicts growth and development in the County if there were no municipal or county plans. The *Aggregated Municipal Plans Scenario* sums the growth projections of all municipalities based upon the planning documents available for review. The

Managed Growth Scenario attempts to reflect optimum growth given the goals and objectives expressed during the public input portion of this planning effort. The transportation component of the *Plan* modeled six different scenarios reflecting different assumptions regarding roadway improvements, traffic flow and impacts on projected land use.

The *Managed Growth Scenario* fared best of the three land-use alternatives and, thus was used as the basis for an extensive series of transportation modeling and analysis steps conducted in partnership between the County's Highway Department, the Chicago Area Transportation Study and the project consultant.

The most significant result of transportation modeling and analysis was that given realistic expectations regarding transportation projects, which may be funded, McHenry County can expect to obtain only 25% to 33% of the funding required for the transportation improvements necessary to support the *Managed Growth Scenario*. The sensitivity to inadequate funding for transportation projects is intensified as the *Managed Growth Scenario* reflects the lowest increase in population and development of any of the three-land use scenarios considered. In an era of increasing competition and scarce funds, it is necessary that McHenry County speak with a unified voice about transportation issues and priorities to aid in the acquisition of project funding, which in turn supports a managed pattern of growth.

This document is intended to guide the County from 2010 to 2020. Chapters one through four tell the story of how the County has become what it is today and defines the issues which the County faces. The fifth chapter is the *2020 Unified Plan*. Lastly, chapters six through eight explore planning tools and strategies as well as implementation strategies. A checklist, which is recommended within this document, identifies the approach, available means, future plans and studies necessary to make this *Plan* a reality. Those strategies and performance guidelines underscore two fundamentals:

- alone, a plan does not cause or direct the future; only through programs, regulation, decisions, investments, and direct actions will the plan become reality; and,
- ultimately, the County cannot solely implement the plan; only through a partnership between the County, municipalities, townships, and other governmental and non-governmental agencies, and with the support of private investors, decision-makers and most importantly, the citizens of McHenry County can the *Plan* become reality.

The *2020 Unified Plan and Map* does reflect, to the greatest extent possible, the values, goals and objectives expressed by residents. It takes a pro-active, as opposed to a reactive approach and demonstrates probable outcomes through

modeled scenarios. Moreover, it is the first step in marrying long-range land use and transportation planning, and most notably, it sets the stage for future updates to continue and to build upon this union.

As a result of this collaborative planning effort, a reasonable and attainable *Plan* has been created, thus providing a practical tool for decision-makers, at all levels of government. The *2020 Unified Plan and Map* is a vision for the future and McHenry County is its unifying element.

CHAPTER ONE
HISTORY OF LAND USE and TRANSPORTATION PLANNING

McHENRY COUNTY'S PAST

McHenry County, named in honor of Major William McHenry, an officer in the Blackhawk War, is located in Northeastern Illinois. Formed in 1836, McHenry was originally part of Cook County, which, at that time, also encompassed land that included present-day Lake County.

The 1840 Census estimated the County's population at 2,578 residents. Ever since the 1800s, the population of McHenry County has continued to increase steadily. Over the last three decades, growth pressure, primarily from Chicago and adjacent suburbs, has caused a dramatic influx of new residents. The southeastern portion of the County has experienced the greatest impacts of urbanization; however, the effects of development are happening more or less countywide.

McHenry County has enjoyed a long agricultural history, in particular, dairy. A large percentage of the soils within the County are "prime" for agricultural purposes. Although farmland is slowly diminishing, agriculture still remains a viable and important economic industry.

McHenry County also benefits from a wealth of natural resources and features. Early glacial activity left gravel deposits, in sufficient quantity and quality, which today support a viable mining industry. Glaciation also carved topography into hills, moraines, outwash plains and kettles. This geography provides an environmental diversity that is unique to McHenry County. Additionally, streams, lakes, wetlands, fens, and other natural conditions provide habitat for numerous species of plants and animals.

These natural features, along with being a part of a large metro area, create a quality of life that many people find attractive. Hence, McHenry County's population continues to increase along with development pressures. In order to protect the resources of the County and to maintain the County's unique character, the McHenry County Board has been and continues to remain committed to a long-range planning effort.

Countywide planning is the vital first step to a healthy county. Historically, land use planning and transportation planning were separate processes. Through the practical experience gained over the years throughout the region by agencies creating and implementing plans, it has been learned that the coordination of

transportation and land use plans amongst the County, municipalities and townships is necessary in developing and implementing countywide plans.

HISTORY OF COUNTYWIDE LAND USE PLANNING

In Illinois, counties may adopt regional land use plans for the general purpose of guiding and accomplishing a coordinated, adjusted and harmonious development for the region. A county's authority to plan is granted by statute (55 ILCS 5/5-12001, et.seq.) however, the decision to plan rests in the hands of the governing county board.

In McHenry County, the land use planning process began on December 10, 1963, with the creation of the McHenry County Regional Planning Commission, a nine-member panel. In the beginning, the Commission identified various issues throughout the County and compiled pertinent data. Soil map interpretations, a generalized land-use inventory, and township-by-township field trips were early activities. In January of 1967, the Commission retained the part-time services of a professional planner and hired a part-time secretary. Organization of new staff duties, creation and evaluation of a countywide geologic inventory, development of a *Statement of Policy*, and some simple cartographic exhibits were additional accomplishments.

Throughout those early years, the Commission continued to assemble data and in due course developed:

- a preliminary natural resource and conservation plan,
- a countywide sewer and water facilities inventory,
- a community service inventory,
- a soils guide for both agricultural and urbanizing areas, and
- township base maps for the entire County, including a complete parcel-by-parcel land use inventory for incorporated and unincorporated areas.

In 1971, McHenry County created its first *Land Use Plan Map*. Unfortunately, this *Map* did not include explanatory text and, as such, distinctions between land use categories were not defined (e.g. agricultural, residential, commercial, industrial, etc.). In addition, the *1971 Map* did not identify any of the County's goals and objectives. Consequently, the *Plan Map* suffered from differing interpretations. Because of those shortcomings, the McHenry County Board did not adopt its first comprehensive plan until 1979.

The *McHenry County Year 2000 Land Use Plan*, which was adopted on October 4, 1979, was the first countywide plan to include text, a plan map, and a technical appendix. In short, the year *2000 Land Use Plan* presented the first

comprehensive guide for converting land to commercial, industrial and residential land uses while attempting to ensure balanced growth within the County.

As with any land use plan, the *Year 2000 Land Use Plan* served as a general guide for development at that time. Purely advisory in function, as prescribed by state statute, and as intended by the County Board, the Plan, nonetheless, promoted the preservation of agricultural land as a primary goal along with the concept of "nodal" development.

Implementing the goals of the *Plan* was supported by the adoption of the *1979 Comprehensive Amendment* to the County's zoning ordinance. Two agricultural designations, the "A-1" district, a 160-acre minimum lot size, and the "A-2" district, a one-acre minimum lot size, significantly helped carry out the objectives of the *1979 Plan*. The "A-2" district, which allowed individual single-family residences on land unsuitable for farming, as long as such residences were compatible with surrounding agricultural uses, did not permit residential subdivision of land. It is interesting to note that during the early 1980s, the County's "A-1" agricultural zoning district was challenged in court on two occasions (Wilson vs. McHenry County and Voss vs. McHenry County). In both cases, the zoning district's constitutionality was upheld in the Circuit Court and again when the cases were heard at the Appellate level.

In November of 1985, the McHenry County Board approved the *Land Use Plan: Year 2005 Update*. Growth trends had slowed and the population of the County was well below previously projected estimates. Municipalities were also expanding in directions not recommended in the *Year 2000 Land Use Plan*. In addition to newly created federal and state farmland-protection programs, the County also recognized a need to increase its emphasis on farmland preservation/protection. The *Land Use Plan: Year 2005 Update* also introduced the differentiation between "Agriculture" and "Agriculture-Rural" as separate land uses.

Another tool to assist in the protection of farmland was introduced on November 14, 1989, when the McHenry County Board adopted the Land Evaluation and Site Assessment System (LESA). The LESA system helps policy-makers in making decisions regarding land-use in agricultural areas. Using a point system, LESA helps to differentiate between lands that are prime for farming and agricultural uses and those that are better suited for other uses.

Once again, development forces, especially in the southeast portion of the County, were the compelling impetus that fostered adopting the *2010 Plan* on October 20, 1993. The purpose of the *2010 Plan* was unchanged from the previous planning efforts, which guided development activities and land conversion in the County. However, this *Plan*, more regional in its approach, placed a greater focus on land use management, environmental concerns,

capital improvements, jobs and housing, agriculture, greenways, and diverse regional centers.

To accomplish its regional mission, the *2010 Land Use Plan* continued to respect and build upon criteria set forth in previously adopted plans. The "Centralized Node Concept", which classifies growth areas based upon planning principles such as accessibility, proximity to urban areas, environmental constraints (poor soils for septic disposal, floodplains, etc.) and prime farmland, was a key strategy. In order to encourage compact development around existing urbanized nodes, the *2010 Update*, once again continued to classify areas as Primary Urban Centers, Primary Rural Centers, Secondary Nodes and Unique Areas. The anticipated result of this policy was to impart efficient levels of service, while providing the greatest opportunities to preserve farmland, open space, old growth and mature hardwood trees, natural resources, and environmentally sensitive areas.

One of the most significant land use decisions to impact the County came not from an updated land use plan, but rather from the 1994 update to the *McHenry County Zoning Ordinance*. With the adoption of the 1994 ordinance, the County Board modified the acreage needed to build a home from 160 acres to 40 acres in the A-1 zoning district. This amendment was perceived, by some, as a "softened" policy regarding agricultural protection and preservation, historically a major focus of land use planning in the County.

Growth forces once again fostered the development of an updated McHenry County land use plan. As the County's population grew from an estimated 207,749 in 1993 (the date of the last land use plan update) to 260,077 an increase of 20%, the County decided to update its land use plan. Since the County also needed to begin work on updating the transportation plan, the time was finally right for the two plans to be done in tandem, thus providing McHenry County with a truly comprehensive plan which would address both land use and transportation needs within the County.

HISTORY OF REGIONAL TRANSPORTATION PLANNING

The rapid rate of growth and urbanization of the areas surrounding Chicago, after World War II, created a constant need for civic improvements. In 1955, the Chicago Area Transportation Study (CATS), comprised of the CATS Policy Committee and CATS staff, was established with the purpose of providing transportation plans to address the growing demands of the region. The first comprehensive long-range transportation plan for northeastern Illinois was completed by CATS in 1962 with a planning horizon of 1980. Many of the recommendations in the first plan have since become part of today's highway and transit network in Chicago and the inner suburbs.

In 1974, the CATS Policy Committee was designated by the state and local officials as the Metropolitan Planning Organization (MPO) for the northeastern Illinois region (originally Cook, DuPage, Kane, Lake, McHenry and Will counties, and has expanded today to include Kendall County and Aux Sable Township in Grundy County). Metropolitan Planning Organizations are required in urbanized areas over 50,000 in population in order to receive federal funding for transportation as part of a federal process to conduct local transportation planning in urbanized areas. The federal government requires urbanized areas to establish a planning process that is "Comprehensive, Continuing, and Cooperative" (the three Cs of transportation planning). CATS and the State of Illinois are together responsible for administering federal funding for transportation projects and carrying out the urban transportation planning process for the region, including McHenry County.

Northeastern Illinois is an urbanized area that exceeds a population of 200,000 and therefore is classified as a Transportation Management Area (TMA) in addition to being an MPO. The designation as a TMA simply means that there are additional federal planning requirements that need to be met. Most of the MPO processes do not change. As a TMA, CATS must prepare a congestion management plan and undergo a review by the Federal Highway Administration every three years.

Congestion management has been mainstreamed into the region's transportation development processes. Planning, programming and project development efforts by the region's highway and planning agencies have standardized process components. These either directly investigate congestion reduction strategies or address other issues, such as air quality, that result in congestion mitigation. The Congestion Management System (CMS) that was initiated in the *1991 Intermodal Surface Transportation Efficiency Act* is integrated into the region's transportation culture.

In the late 1970's, McHenry County initiated a coordinated county-specific multi-community approach to confront transportation problems associated with the significant population and employment growth that had occurred throughout the 1970's in McHenry County. Studies were conducted, problems were documented and a list of transportation objectives was developed using the forecasts for future traffic conditions provided by the MPO (CATS) and population estimates and employment trends presented in the *McHenry County 2000 Land Use Plan*.

Countywide transportation planning began in 1981 when the McHenry County Board adopted the *Year 2000 Long-Range Transportation Plan.* Congestion and access issues were now formally addressed both regionally and countywide as opposed to past endeavors in which individual communities tended to solve their

own transportation problems. While it presented a single-system network for the entire County, the *2000 Transportation Plan*, nonetheless, provided the framework necessary for decisions concerning immediate and short-range transportation and related land-use actions.

In 1995, the County updated its transportation plan when the Board officially adopted the *McHenry County 2010 Transportation Plan*. Like it predecessor, the *2010 Transportation Plan* incorporated many technical activities performed in conjunction with the McHenry County Highway Department (now known as the McHenry County Division of Transportation), the McHenry County Department of Planning & Development, CATS, and the Northeastern Illinois Planning Commission (NIPC). NIPC is the comprehensive planning agency created in 1957 that provides projected future population and employment statistics for the region.

In order to find viable solutions to transportation challenges, the *2010 Plan* also incorporated a multifaceted approach. Key again was the relationship between land-use and the transportation system. As a planning document, the *2010 Plan's* major purpose was to serve as a means to communicate local, regional and state recommendations to all citizens and to provide once again, input for decision-making affecting implementation of highway improvements and land use policy throughout McHenry County.

FUTURE OF LAND USE and TRANSPORTATION PLANNING

It has been the stated approach of the McHenry County Board to respect the history and traditions of the County, to be observant of the changes that have occurred in and outside the county, to learn from the failures and successes of its predecessors and of other communities, and to seek to identify the direction, strategy and tools necessary to implement the Counties goals and objectives through this *Plan*.

As a set of principles, the County seeks, through this planning process, to address the following:

- increase the ability of citizens to help shape the future of their communities,
- create stronger, healthier communities,
- reduce the amount of sprawl,
- protect rural areas, green spaces, and natural resources,
- recognize that transportation, land use and water management decisions are interrelated and regional in nature,
- establish a foundation for intergovernmental cooperation, and
- promote economic development throughout the County.

As detailed through the County's history, planning has always been an integral policy tool for McHenry County elected officials. Even as far back as 1981, decision makers have recognized the significance of the transportation/land-use relationship. Therefore, it is no surprise that this *2020 Unified Plan* brings land-use and transportation issues into one document and keeps alive the long-standing commitment to comprehensive planning in McHenry County.

McHenry County's decision, in 1998, to combine both land use and transportation planning seemed to foreshadow a decision at the state level. At the MPO (Metropolitan Planning Organization) level, the *Regional Planning Act* passed by the Illinois House and Senate in May 2005 mandated a Regional Planning Board to develop a regional comprehensive plan that integrates land use and transportation. In the future, the regional comprehensive plan and any modifications to it shall be developed cooperatively by the Board, the CATS Policy Committee, and NIPC. This will also include the involvement of citizens, units of local government, business and labor organizations, environmental organizations, transportation and planning agencies, state agencies, private and civic organizations, public and private providers of transportation and land preservation agencies. Units of local government shall continue to maintain control over land use and zoning decisions occurring within their jurisdictions.

This *2020 Unified Plan* is McHenry County's first combined comprehensive land use plan and long-range transportation plan. It uses population and employment projections from NIPC and incorporates the *2020 Regional Transportation Plan* created by CATS.

CHAPTER TWO
SETTINGS AND ISSUES: THE LAND USE - TRANSPORTATION CONNECTION

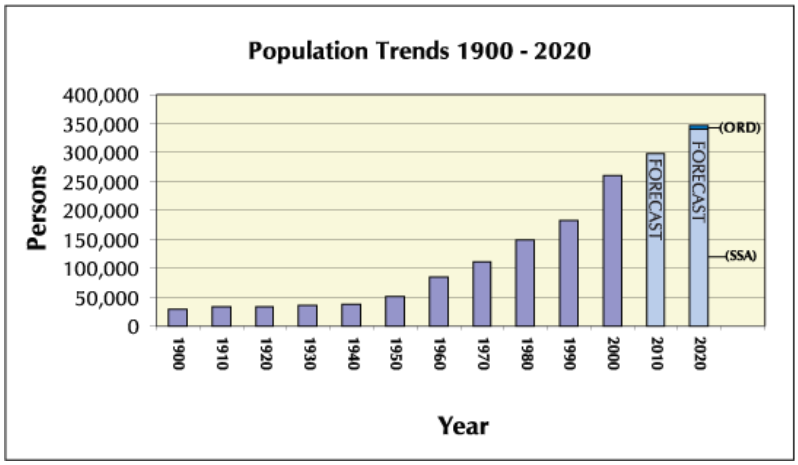
This chapter sets the stage, describing existing conditions and trends that relate to land use and transportation planning. Each of these attributes has a collection of issues that feed into the discussion of alternatives and the choices relating to planning the future of McHenry County.

McHenry County, located in northeastern Illinois, is one of six metro-counties that make up the Chicagoland region. Consisting of seventeen townships and thirty municipalities, the County encompasses 611 square miles. The County is represented by two federal congressional districts and two state legislative districts. On the local level, McHenry County is governed by twenty-four county board officials elected from six districts.

Year 2000 Census Bureau figures indicate that over nine million people live in the Chicago metropolitan area, accounting for approximately 62% of Illinois' total population. In 2000, the population of McHenry County was 260,077, which is a 42% increase from the 1990 census figure of 183,241. The southeastern quadrant of the County is the most densely populated area. By the year 2020, forecasters are predicting that Algonquin, McHenry, Nunda, and Grafton Townships, will house nearly 72% of the population. From 2000 to 2020 the County's population is projected to increase to 347,159, an increase of 33%. Exhibit TBD: *Population Trends 1900 – 2020* shows population by decade. The County's rapid growth is largely due to such factors as its proximity to Chicago, the availability of land, and its closeness to large employment bases in Chicago and its suburbs, Rockford and Milwaukee, and proximity to O'Hare airport. (Additional demographic information is presented in Appendix B.)

Exhibit TBD:
Population Trends 1900-2020

Sources:
U.S. Census Bureau (1990-2000)
Northeastern Illinois Planning Commission (Year 2020 Forecasts)



Of McHenry County's total population, in 2000, nearly 54% of its residents were employed. In the 1990's the County's population increased by 42% and its employment rate increased nearly 23%. Daily vehicle hours traveled increased by 128% and daily vehicle miles traveled increased by 91%. The forecasts indicated steady growth for the next two decades at an overall rate slower than the 1990s.

Municipal and Township Roads, and County, State and U. S. Highways traverse the County. Interstate-90 crosses the southwest corner of the County with interchanges located just south of the County line. Commuter rail services 6 municipalities; bus routes serve 10 communities.

The existing and projected state of the transportation system in McHenry County can be illustrated by data on population, employment, vehicle hours of travel, and miles of travel in the table below.

Table TBD: General Population, Employment and Transportation for 1990, 2000 and 2020

	1990	2000*	2020	Increase 1990-2000	Estimated Increase 2000-2020
Population	183,241	260,077	347,159	42%	33%
Employment	74,308	96,025	113,984	23%	16%
Daily Vehicle Hours Traveled	96,500	219,698	319,817	128%	46%
Daily Vehicle Miles Traveled	3,745,600	7,153,352	9,604,289	91%	34%

*1999 modeled values for VHT and VMT

Sources: Population and employment from 1900 and 2000 census values and 2020 Northeastern Illinois Planning Commission forecasts. VHT and VMT figures derived from 1999, 2000 and 2020 CATS modeling results.

NATURAL RESOURCES

Land use and transportation planning both depend on a sound knowledge of natural resources. Informed decisions conserve limited resources and limit negative environmental impacts.

- **TOPOGRAPHY**

  The glaciers receded over 12,000 years ago, leaving behind till and outwash deposits that formed three general types of terrain: *uplands, plains,* and *lowlands*. The plains and the lowlands are generally level, and many areas are extremely suitable for agriculture and, conversely, highly desirable for development. Uplands, many remaining wooded, are common throughout McHenry County and exhibit "rolling" characteristics, typically having slopes that range from 4 to 7% with some 15 to 30% slopes at the high end.

The topography of McHenry County is varied and promotes a range of logical uses. Issues, related to the lay of the land, surface when, for example, it is necessary to construct roads on steep slopes presenting dangerous winter driving conditions or when development occurs in low, wet areas or on highly erodible soils.

- **AGGREGATE RESOURCES**

McHenry County has a generous supply of sand and gravel that was deposited by the glaciers. These resources are used locally and throughout the region to support the building industry and road construction. The mining of aggregate resources is an important industry; however a range of issues present planning challenges such as, noise and dust from the mining process as well as truck traffic and concerns about lowering the ground water. After an area has been mined, reclamation plans filed with the County ensure that all work done will return the land to a productive state.

- **SOILS**

McHenry County has some of the best farming soils in the world. Prime soils comprise 57% of McHenry County and another 20% are prime for agriculture when drained, including Drummer, Illinois' state soil. If best agricultural practices are used, the land helps to filter water, recharge groundwater, and store floodwaters. Agriculture also serves as a habitat for wildlife, preserves the rural quality of life and offers the scenic beauty and community character so highly valued in McHenry County.

According to the American Farmland Trust document "Farming on the Edge", the land between Chicago and Milwaukee is the third most threatened farming area in the United States. Land that is flat, well drained and cleared of trees is excellent for farming. It is also excellent for development. Once farmland is developed, it is permanently lost for agricultural use.

Farmland that is developed can be very costly to a community. For instance, the American Farmland Trust has found that extending public services to farmland is more expensive than serving the areas immediately adjacent to existing communities, some of which already have sewer and water utilities. By directing new housing and population growth to municipalities as identified in this *Plan*, it will be possible to preserve the greatest amount of farmland while also meeting the needs of the new forecasted population. As world population continues to grow, so will the need for food and other products produced from agricultural commodities. Preserving farmland is necessary to meet the needs of our growing county, the United States and around the world.

In 1981, McHenry County was chosen (one of twelve counties in the United States) to participate in the formation of a *Land Evaluation and Site Assessment (LESA)*

System in conjunction with the United States Department of Agriculture, to help evaluate requests for changes in land use. The system, developed under the pilot program in McHenry County over several years, became a model which many other counties followed. In 1989, McHenry County adopted the LESA System, because it was consistent, comprehensive and supported the County's goals and policies. In 2004, LESA was updated and once again endorsed by the County Board. It continues to serve as a viable planning tool and like its predecessor, it too continues to support the goals and objectives of the *2020 Unified Plan* as well as the County's current zoning ordinance.

In 2002 the U.S. Department of Agriculture, the Natural Resources Conservation Service and the Illinois Cooperative Soil Survey released a new soil survey for McHenry County. (For further details, copies of the survey are available on a CD disk from the McHenry County Soil and Water Conservation District.)

- **SURFACE and GROUND WATER**

There are two primary watersheds in McHenry County, each responsible for the drainage of approximately one half of the County's area, both have substantial agricultural components. In eastern McHenry County, the Fox River Watershed (302 square miles) includes the Nippersink Creek, the Upper Fox River, and the Lower Fox River. The Kishwaukee River and its tributaries, Piscasaw, Coon, Rush, and Mokeler Creeks, drain the western portion of the County (309 square miles).

Wetlands are relatively uniformly located throughout the region. The southern portion of the County (Lower Fox River and Coon Creek) has the lowest percentage and the Upper Fox has the highest percentage of wetlands.

Reviewing the *Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM)* shows that most of McHenry County's designated floodplains are found in agricultural, open space, vacant, wetland and water related areas including some residential areas.

With respect to water quality, aquatic life, and recreational use, McHenry County has some of the highest quality rivers and streams in the northeastern Illinois metro-region. In contrast to most other counties in northeastern Illinois, McHenry County's streams and rivers are still classified as "unique" or "highly valued" based upon the biotic integrity of their fish and other aquatic communities. Based on the *1992-1993 Illinois Water Quality Assessment Report,* the lakes in McHenry County are reported to be in generally good condition.

Groundwater is one of McHenry County's most valued natural resources. Most of the water used by homes, businesses and industry comes from wells that draw from groundwater. Groundwater also sustains lake levels and provides base flow for many streams. McHenry County recently completed a groundwater study that

emphasizes the importance of planning in protecting groundwater recharge areas and reinforces the benefits of the *Unified Plan*.

Unincorporated McHenry County is presently serviced by septic systems. Municipalities typically provide wastewater collection and treatment systems and storm water collection.

Water quality is a great concern for both surface water and ground water. Issues about water resources are complex and wide spread, encompassing the rural, developing, and established urban areas. In order to maintain the high quality lakes and streams in McHenry County, areas that allow infiltration and filtering are needed to off-set the impact of impervious surfaces. Soil erosion and sedimentation contributes to the degradation of water quality and aquatic environments.

- **NATURAL AREAS**

McHenry County possesses an abundance of natural areas and resources in a variety of physical settings. Native vegetation includes forests, prairies and wetlands and offers considerable benefits to residents and wildlife. These areas comprise a substantial percentage of the public open space within the County and offer recreational opportunities such as hiking, cross-country skiing, hunting, fishing and nature study.

The McHenry County Conservation District (MCCD) was established in 1971 with a mission to acquire and preserve open land, scenic areas and pathways. By 2002, MCCD acquired and preserved, either through purchase, lease, or gift, over 17,000 acres dotted throughout the County.

Many natural areas, although privately owned, are listed on a statewide inventory because they are known to be of high quality. In some cases, the natural area is protected by a conservation easement.

Several issues are associated with the acquisition of natural areas. As the price of land increases, purchases are more expensive. Competition from other land users may exist when trying to purchase key properties. Also the ability to protect a natural area is often linked to the use of the surrounding area. Many natural areas transcend jurisdictional boundaries making intergovernmental cooperation an issue.

- **CULTURAL FEATURES**

In the late 1980s, McHenry County appointed a Historic Preservation Commission to identify, survey and recommend historic landmarks throughout the unincorporated areas of the County. As a result of the Commission's early efforts, the County adopted a *Historic Preservation Ordinance* in 1991. Since then, 18 sites have been designated local McHenry County landmarks and 4 scenic roads have been

acknowledged and honored.

Schools, museums and cemeteries are examples of institutional land uses, features built by the people of the County to serve common needs. As land uses change, the special needs and unique qualities of each cultural feature becomes part of the development equation. Safe ingress and egress is important when planning for transportation needs near schools. Cemeteries are land uses that have permanent locations. Museums have the potential of drawing large groups of people for special events and for bringing tourism to the area.

EXISTING LAND USE

Successful planning starts with a realistic understanding of land use patterns that exist in today's environment. McHenry County has mapped current land use for planning purposes since 1963. A map, Exhibit TBD: *Existing Land Use in McHenry County*, graphically presents the geographic distribution of each of the land use categories.

It is important to recognize significant changes that have occurred as well as consequences that resulted. A total of 23,741 acres of land were annexed by municipalities (including three areas that incorporated) between 1991 and 2000. Although this did not affect land use, it did change who had jurisdiction over land use changes.

In 2000, the U.S. Department of Agriculture (USDA) reported Illinois farmland, to be approximately 80% of the total land area in the state. More than $9 billion a year is generated from agricultural products in Illinois. Moreover, approximately one and a half million of the state's labor force is employed in the food and fiber industry, ranking Illinois as one of the areas most reliant on agriculture for employment. Food processing is the state's number one manufacturing activity (it ranks second in the nation) and adds $13.4 billion a year to the value of Illinois' raw agricultural products. Most of these processors are located in the Chicago metropolitan area, which contains one of the largest concentrations of food related business in the world. The close proximity to these markets adds value to the County's raw ag products, as well as making available to livestock farmers cheap byproducts from the processing industry as feed. According to the USDA Crop Production Report, Illinois leads the nation in soybean production, and ranks number two in corn production.

The single largest land use in McHenry County is **agriculture**, accounting for 58% of the County's land area. Since 1992, McHenry County's acres in farms decreased by 15,800 acres, a negative 6.3%.

The market value of agricultural products sold in McHenry County in 2002 was $91 million. Of this number 42% of sales were from grains such as corn and soybeans, 27% from nurseries and greenhouses, 25% from livestock products, 4% from vegetables and

fruits, and 2% from other crops such as hay. In future years, some agriculture may change within the County from large field crops to more intense small field produce.

There are several food-processing plants located in McHenry County. Dean Foods has plants in Chemung and Huntley that together process over 2.3 million gallons of milk per week. The Chemung plant is the largest fluid bottling plant in the Midwest. Other plants include Marengo Packing and Claussen Pickle.

Northeast Illinois Planning Commission (NIPC) has recognized the value of the County's soils and has designated much of the west half of McHenry County as an agricultural area. According to NIPC, protecting agriculture is strongly linked to the principals of strengthening centers and corridors. By focusing growth in activity centers, there is less pressure on farmland to convert to urban uses. Practices promoted in centers such as infill, redevelopment, and transit-oriented development can increase the market attractiveness of established communities and decrease the pressure of growth on agricultural areas.

According to the American Farmland trust, the greatest influence on a decision by a farmer to continue to farm or to sell for development, with the exception of federal farm programs and tax policy, are zoning ordinances. Keeping large tracts of land relatively free of non-farm development can reduce the likelihood of conflicts between farmers and their non-farm neighbors. In an effort to have agricultural pursuits recognized, landowners have voluntarily established 16,000 acres of land in McHenry County as Agricultural Protection Areas, (Agricultural Areas Conservation and Protection Act, 505 ILCS 5/1 et. seq.) whereby agreeing to keep land in agricultural uses for an initial ten year period and subsequent eight-year renewal timeframes.

A Farmland Preservation Alliance has been formed with the support of the McHenry County Board to explore ways to preserve McHenry County's valued industry and its rich soils. Representatives from the Farm Bureau, McHenry County Soil and Water Conservation District, environmental groups, townships, Mchenry County Conservation District, County Board members, and individual farmers are working to develop an ordinance to purchase conservation easements, one of several tools to preserve and protect agriculture.

Table TBD: Farms, Acreage and Market Value of Ag Products in McHenry County

Year	Number of Farms	Acres in Farming	Average Farm Size (Acres)	Market Value of Ag Products Sold
1987	1,136	265,908	234	$95,834,000
1992	985	249,240	253	$95,340,000
1997	921	242,484	263	$109,147,000
2002	870	233,458	268	$91,616,000

Source: Census of Agriculture

The second largest land category is **residential use**, accounting for approximately 17% of the County's land area. This is demonstrated by the number of residential building permits issued during the 1991-2000 period. During this time span, 3,447 single-family residential building permits were issued just in the unincorporated areas of the County. The total, countywide number of housing units (municipalities plus the County) authorized by permits equaled 29,779 units which includes not only single family but two-family and multi-family units. As noted above, the migration of new residents into the County continues to require significant numbers of new housing starts. This trend is expected to continue well into future decades.

Commercial areas comprise just under one percent of the County's total land use. The majority of commercial development is located within municipalities with future commercial use anticipated to continue occurring within municipal boundaries. Large-scale commercial development that occurs within unincorporated McHenry County, but adjacent to municipal boundaries, is likely to be annexed due to taxes generated.

During the 1990-2000 time period, land area devoted to **industrial** uses accounted for just over three percent of land area in the County. The majority of that percentage can be attributed to the mining industry with manufacturing, as opposed to warehousing, which accounted for the remaining figures. New industrial development occurred primarily in cities and villages with accessible public services.

The **open space** land use category represents just over 6% of the total land area in McHenry County. This category includes public/private lands dedicated to both active and passive recreational uses. The majority of this percentage was and continues to be owned and operated by park districts, conservation districts and the state.

Exhibit: TBD
2000 Existing Land Use

Land Use Categories

- Agriculture
- Residential
- Commercial
- Industrial
- Transportation/Utilities
- Institutional
  (Schools, cemeteries, public buildings, etc.)
- Open Space
  (Parks, MCCD, IDOC, golf courses, recreation areas, etc.)

Natural Features

- Lakes (Greater than 20 acres)
- Rivers and Streams

Transportation Features

- Interstate 90
- U.S. and State Routes
- Railroads
- Major Roads
- Local Roads
- Bike Paths/Trails

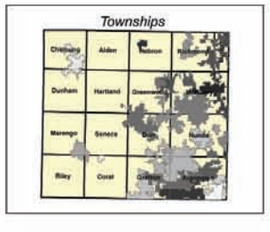
Boundaries

- Cities and Villages
- Townships

July 2005

0 1 Mi. 2 Mi.

McHenry County, Illinois



THE EXISTING TRANSPORTATION NETWORK

The first step in planning for a future transportation network is to identify the various components and their roles as part of the existing network. In McHenry County, the transportation network includes the existing roadway network, existing transit services, and other modes of transportation such as navigable waterways, bike paths and three municipal airports. In this section:

- the existing roadway network is detailed and evaluated using a travel model;
- existing transit services are detailed and evaluated using ridership statistics;
- private transit providers are summarized; and
- other modes of transportation are recapped.

THE ROADWAY NETWORK

A regional roadway system is commonly defined using jurisdiction and functional classification and bridge structure locations. Jurisdiction defines who pays for construction and maintenance of the facilities within the right-of-way (ROW). Functional classification is the process of grouping roads into classes according to the type of traffic services they provide. Bridge structures typically include bridges over water, elevated roadway over irregular terrain, interchanges, and grade-separations of railroads.

JURISDICTION OF McHENRY COUNTY ROADS

Maintenance and improvement of existing roads, as well as funding for new roads is provided from a variety of institutional sources. Each of these sources has a different mandate or purpose for funding roadways. There are five different government jurisdictions with roadways in McHenry County:

- US and state highways are the responsibility of District One of the Illinois Department of Transportation (IDOT);
- Interstate 90 is under the jurisdiction of the Illinois State Toll Highway Authority;
- County highways are the responsibility of the McHenry County Highway Department (now known as the McHenry County Division of Transportation;
- township roads are the responsibility of the 17 individual townships; and
- local roads are the responsibility of the 30 individual municipalities and incorporated areas.

FUNCTIONAL CLASS

Functional classification defines the intended use, capacity, travel speed, and the number of access points provided along the roads within the County (See Exhibit TBD: *Functional Classes of McHenry County Roadways*). The two general classifications of roads are primary and secondary. All primary routes are eligible for supplemental

funding from federal and state sources. Primary roads are further broken into arterials and collectors. Secondary roads are local, residential or farm-access roads. The established hierarchy of expressways, arterials, collectors, and local roads in McHenry County is designed to allow for a variety of movements throughout the County.

As a vehicle enters the County, the operator may need to gain access to a specific community by linking to another arterial or into the system of collectors. As the operator approaches a local community, he or she may need to enter the system of local roads to find their ultimate destination. In this way, individual segments of the system create a network of options from one point to another, whether the travel route requires speed, efficient travel, or local access.

- **EXPRESSWAYS in McHENRY COUNTY**

  Expressways are high speed, high volume, and grade separated facilities (accessed by on and off ramps) that form the backbone of the nations Interstate Highway System. The Northwest Tollway (I-90) passes through the southwestern quarter of McHenry County, but no interchanges exist in the County that offer direct access to the tollway. Access is provided most directly to the County via interchanges in Kane County, (the US 20 interchange, the Illinois Route 47 interchange, the Randall Road interchange, and the Illinois Route 31 interchange).

- **ARTERIALS in McHENRY COUNTY**

  Arterials are designed to allow for fast automotive travel across McHenry County, or from one municipality to another. They are laid out in a sparse grid that connects multiple urban centers in the County. Generally, they are designed to handle high volumes of traffic at a high rate of speed. Also, they may be configured to bypass denser areas of local municipalities in order to maintain their volume and speed integrity. All this is done to satisfy their fundamental goals of faster, longer distance of travel than their collector and local road counterparts. Arterials in the County include interstate facilities such as US 20, US 14, and US 12 as well as regional facilities such as Illinois Route 31, Randall Road, and Illinois Route 47.

  The Chicago Area Transportation Study (CATS) has designated an evenly spaced system of arterials as *Strategic Regional Arterials* (SRAs). These routes were designed to supplement the expressway system for regional travel and to relieve congestion on the expressway/tollway system. As stated before, McHenry County is not directly served by an expressway or interstate, therefore the SRAs form the backbone of the roadway network in McHenry County.

  Currently, many arterial corridors in McHenry County are undeveloped, especially in the western half of the County. It is extremely important that the number of access points along the arterials within the County be strictly controlled. Retail or service developments may be proposed along these routes because of the higher volumes of traffic passing along them. While development along the arterials is promoted,

allowing direct, driveway access, off of these arterials is expressly discouraged. The *McHenry County Access Management Ordinance* includes guidelines for all jurisdictions to follow concerning arterials within McHenry County.

- **COLLECTORS in McHENRY COUNTY**

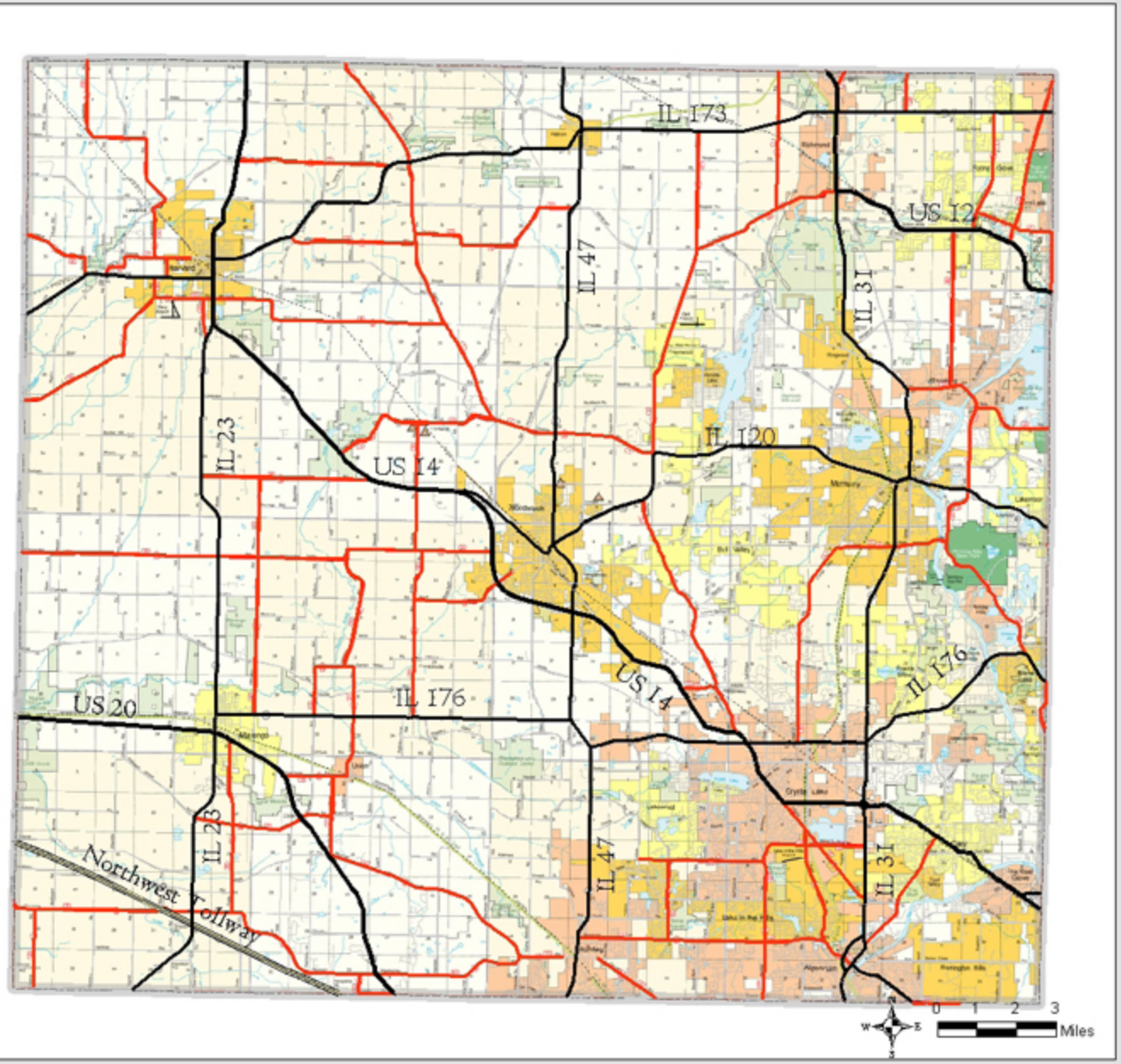
  Collectors may be used to bring motorists closer to local communities, and provide more access to adjacent properties than arterials. Collectors strive to find a balance between one goal of moving vehicles into and throughout a medium scale service area, and another of providing access to commercial developments and local streets.

  In McHenry County, collectors such as Ackman Road in the Village of Crystal Lake and Dean Street in the City of Woodstock are generally located in urban areas. They are designed to act as a transition between high-speed regional arterials and local roads serving residential centers and community amenities. However, some collectors act as connectors between communities where the municipalities are close enough and have adequate development between them such as Country Club Road through the unincorporated Ridgefield area. In these cases, collectors tend to become highly traveled corridors, due to their value as a means of movement and their ability to provide access for a large number of vehicles to retail services along the route.

- **LOCAL ROADS in McHENRY COUNTY**

  Local streets are the streets that most people live along. They are typified by many residential driveways, on-street parking is generally permitted, and the posted speed limits rarely exceed 25 miles per hour. These streets offer a very high level of property access but are poor routes for fast long-distance travel. Local roads are designed to provide a low-speed, high-access alternative. Much of the residential and higher-density commercial development within McHenry County is found adjacent to local roads. These roads provide a safe and comfortable pace of travel, many points of access, and connections to individual residential units, or small-scale retail and office developments. Such roadways also co-exist successfully with local pedestrian and bikeway networks, making them attractive places for any type of tourist or ‘small-town’ services.

Jurisdiction of McHenry County Roadways



LEGEND

McHenry County
State Roads
Tollway
McHenry County Roads
Federal Roads
Township Roads

Federal Roads

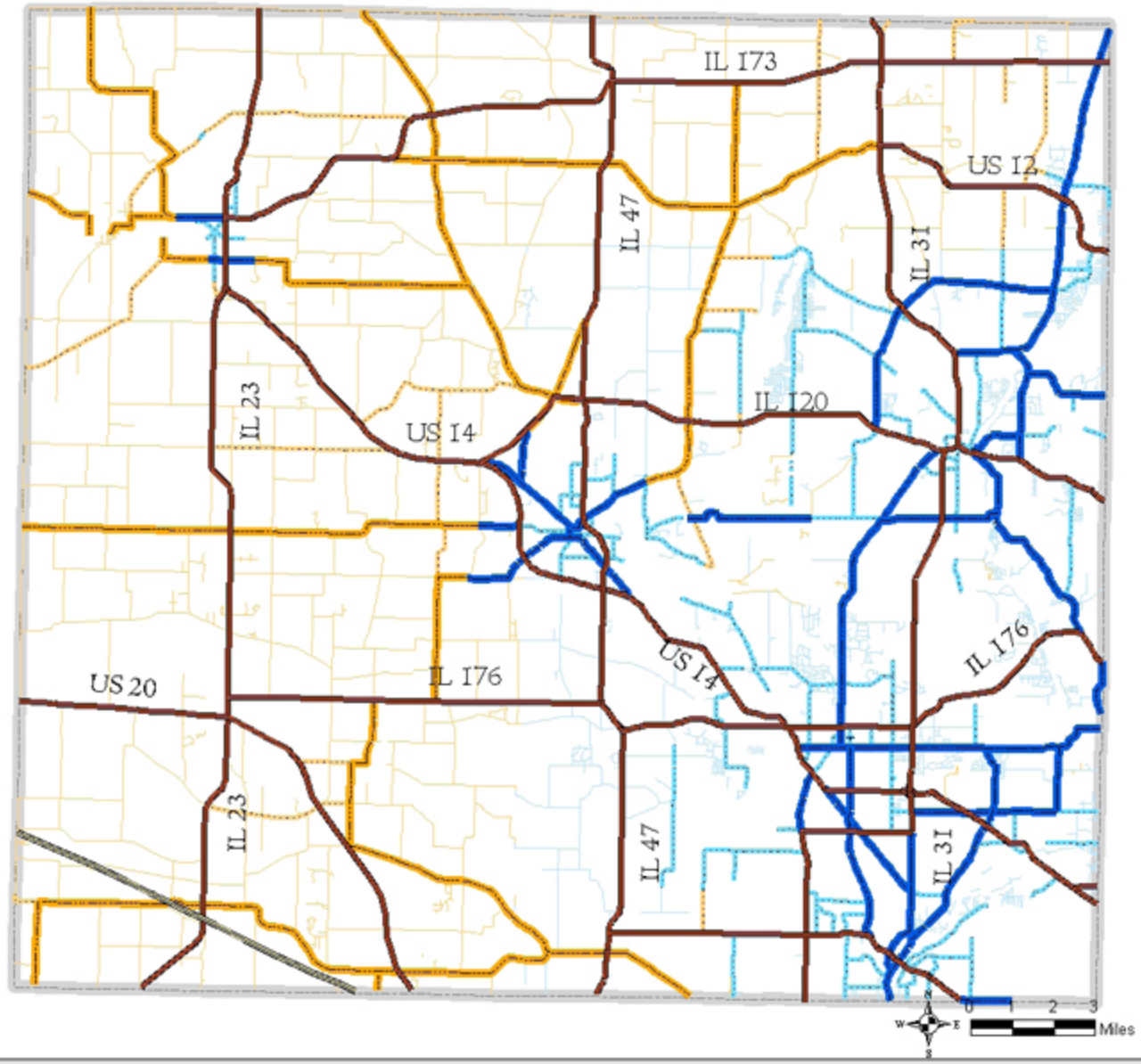
State Roads

McHenry County Roads

Township Roads

Chicago Metropolitan Planning Area

Functional Class of McHenry County Roadways



LEGEND

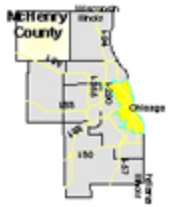
- McHenry County
- Tollway/Expressway
- Strategic Regional Arterial
- Rural Arterial
- Urban Arterial
- Major Rural Collector
- Major Urban Collector
- Local Rural Road
- Local Urban Road

Expressways & SRA

Arterials

Collectors

Local Roads

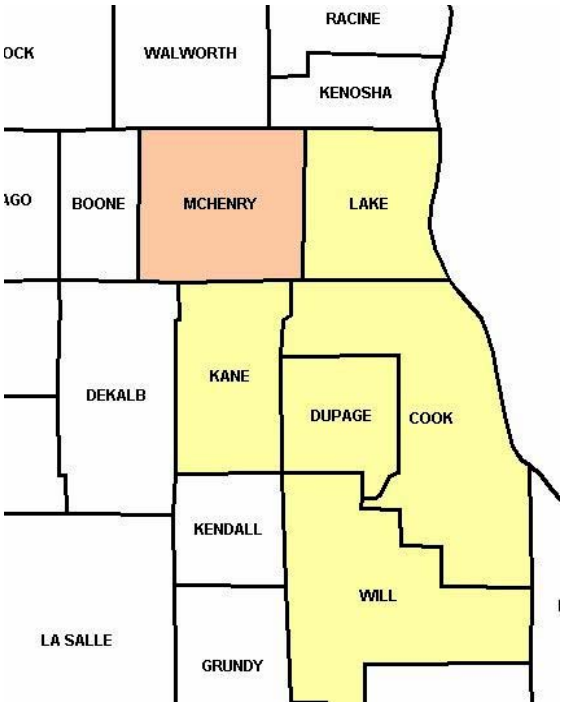


Chicago Metropolitan Planning Area

McHENRY COUNTY BRIDGES

There are 125 bridges under jurisdiction of the McHenry County Division of Transportation (McDOT). Of these, 52 are less than 30 years old, 50 are between 50 and 30 years old, and 5 are more than 100 years old. Evaluating their structural condition reveals that 11 bridges have sufficiency ratings less than 50 and an additional 19 have sufficiency ratings between 70 and 50. (A rating of 100 means a bridge is in perfect condition. A rating less than 70 signifies a bridge qualifies for federal rehabilitation funding; and, a rating less than 50 indicates a bridge qualifies for federal replacement funding.) The County Division of Transportation utilizes a regular inspection and maintenance routine for these assets. During the life of this *Plan*, it is assumed that approximately 8 bridges, or roughly 1 every other year, will need major rehabilitation or reconstruction.

EXISTING ROADWAY NETWORK EVALUATION



Regional travel forecasts were conducted by the Chicago Area Transportation Study (CATS), using their model for the Chicago region. This model, and its many components, has two important inputs, socioeconomic forecasts and transportation networks. The Northeastern Illinois Planning Commission (NIPC) developed the regional forecasts of future population, household, and employment growth for the six-county region, including McHenry County. These regional growth forecasts were developed with input on potential development patterns and the feasibility of differing land uses; their horizon year was 2020. The travel demand process also requires transportation networks. These highway and transit networks represent the characteristics of the regional transportation system including travel opportunities, frequency of service, and the costs of travel within the region. In all, over 18,000 “zones”, about a ½ mile by ½ mile area, are used by CATS to replicate travel in the six-county Northeastern Illinois region. The model uses EMME/2 software with auxiliary processes performed in a variety of other geographic information systems and statistical packages.

The CATS travel demand models represent a classical ‘four-step’ process of trip generation, distribution, mode choice, and assignment. The trip generation step estimates total trips using the NIPC socioeconomic data. Trip distribution distributes the trip ends to produce person trips between each traffic analysis zone (TAZ) and the destinations. The mode choice step reallocates the person trips into auto trips or transit

trips based on a multinomial logit model. And last, the assignment step, which is performed for eight unique time periods of an average day including the two-hour AM peak and the two-hour PM peak, is performed. Travel to and from counties and states outside the six-county region are estimated using an external trip sub-model.

While the CATS travel demand model performs accurately on a regional level, there is some evidence that this model performs less well in areas, such as McHenry County, that lie on the periphery of the region. McHenry County is on the northwest limits of the CATS model extent and is influenced by households, employment, personal and commercial traffic from Boone and DeKalb Counties (IL), and from Walworth and Kenosha Counties (WI). These four counties are not directly included in the Chicago metropolitan area traffic model. Other issues influenced the outcome of model application in McHenry County: (1) The difficulty of capturing new home creation in McHenry, growth that has in some cases outpaced in a few years what had been forecast for twenty years hence; (2) the differing scale of TAZ and network components required for regional and for county models, and (3) the need for a custom modeling approach to capture 'external' traffic related to the areas adjoining McHenry County.

Because model output from CATS could not be consistently validated against observed traffic in some locations within McHenry County, it was felt that Level-of-Service measures should not be used in the analysis. Instead, the number of travel lanes needed, on average, to accommodate the estimated volumes of travel was developed. The assumed acceptable daily travel capacities of the roads are: two-lane up to 13,120; four-lane up to 27,880; and six-lane up to 44,280. This measure is a more useful estimate of potential need for long range planning purposes. The collective performance measures used to illustrate the relative operational characteristics of the scenarios are:

- **VMT – VEHICLE MILES of TRAVEL:** The total daily amount of vehicle miles traveled in McHenry County was forecasted. This projection reflects changes commuters would be expected to make to other routes to avoid congestion. This is also one factor in monitoring air quality.

- **VHT – VEHICLE HOURS of TRAVEL:** The total amount of forecasted daily time drivers spend traveling in a given area based on distance and average travel speeds.

- **CVMT – CONGESTED VEHICLE MILES of TRAVEL:** The number of vehicles attempting to use a roadway at any given time exceeds the ability of the roadway to carry the load at generally acceptable service levels. This is one factor to help monitor air quality.

- **VHD – VEHICLE HOURS of DELAY:** Excess volumes of traffic on roads slow traffic below posted speed limits. This is a measurement of the difference between free flow speeds and the speeds during peak travel times. If one route is too congested, the model determines faster routes and alters traffic flow to avoid delays due to congestion. These delays DO NOT reflect delays at intersections.

In Table TBD: *1999 Roadway Evaluation by Jurisdiction*, the model evaluation performance measures for the 1999 Roadway Network are summarized by roadway jurisdiction. The estimated number of miles and lane miles are presented for each jurisdiction. Lane miles are the length of the road facility multiplied by the number of lanes (A five mile section of road with one lane in each direction equals ten lane miles).

The performance measures for the CATS *Regional Travel Model for Year 1999* show that of the miles traveled in McHenry County roughly 10% are on roadways exceeding capacity (CVMT). The model also indicates that approximately 7% of all the time spent on roadways in McHenry County is spent in delayed traffic (VHD).

Table TBD: 1999 Roadway Evaluation by Jurisdiction

Jurisdiction	Route Miles (%)	Lane Miles (%)	VMT (%)	VHT	VHD	CVMT
Federal (tollway)	9 *0.44%*	36 *0.87%*	410,334 *5.74%*	5,887 ***2.67%***	278 ***1.85%***	0 ***0.00%***
Federal highways	55 *2.70%*	141 *3.41%*	1,097,335 *15.34%*	31,701 ***14.43%***	4,662 ***31.09%***	31,848 ***4.53%***
State highways	139 *6.82%*	301 *7.29%*	1,882,550 *26.32%*	50,790 ***23.12%***	4,487 ***29.92%***	144,380 ***20.55%***
County highways	230 *11.29%*	455 *11.01%*	1,057,968 *14.79%*	32,505 ***14.80%***	1,904 ***12.70%***	64,279 ***9.15%***
Township roads	824 *40.43%*	1,463 *35.42%*	2,705,150 *37.82%*	98,801 ***44.97%***	3,665 ***24.44%***	462,054 ***67.77%***
Municipal roads	781 *38.32%*	1,735 *42.00%*	Not included in Model	N/A	N/A	N/A
TOTAL	**2,038** ***(100%)***	**4,131** ***(100%)***	**7,153,337** ***(100%)***	**219,684** ***(100%)***	**14,996** ***(100%)***	**702,561** ***(100%)***

Source: CATS Regional Travel Model

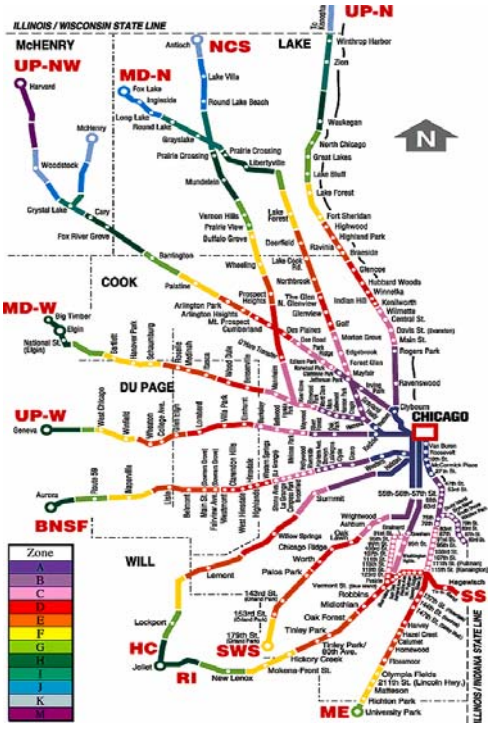
EXISTING TRANSIT and COMMUTER RAIL NETWORK

Public transit and private transit suppliers provide needed mobility and transportation choices for all residents in McHenry County, especially for those without access to an automobile. An effective transit system is an integral component of the total transportation system because appropriately designed transit and paratransit services can assist the County in addressing many issues, including access to jobs, mobility for the elderly, disabled, or disadvantaged, air quality, and more efficient land development. McHenry County contains two general categories of public transit, Pace (suburban bus), and Metra (heavy rail).

Within McHenry County, there are several public and private roadway-based transit services that have been established to enhance mobility. While there is no formal coordination between the individual public and private services, they all function as part of the McHenry County Transit System, providing the opportunity for greatly enhanced mobility for users. This analysis focuses on the public services provided by Pace Suburban Bus and Metra Commuter Rail. The private taxi, shuttle, and employer shuttle services that connect employment and retail centers with other modal services are evaluated along with Metra Rail and Pace Bus and Demand Response services in the *McHenry County Transit Plan* which will be completed in 2005.

There are a variety of services making up the existing transit network in McHenry County (Exhibit TBD: *Existing Bus and Commuter Rail Services*). These include six stations along the Union Pacific Northwest Line, three Pace fixed routes, and other non-fixed services such as demand response bus. The residents of McHenry County also utilize some services outside of the County, specifically, the Fox Lake Metra station in Lake County and Big Timber station in Kane County.

EXISTING METRA RAIL SERVICE

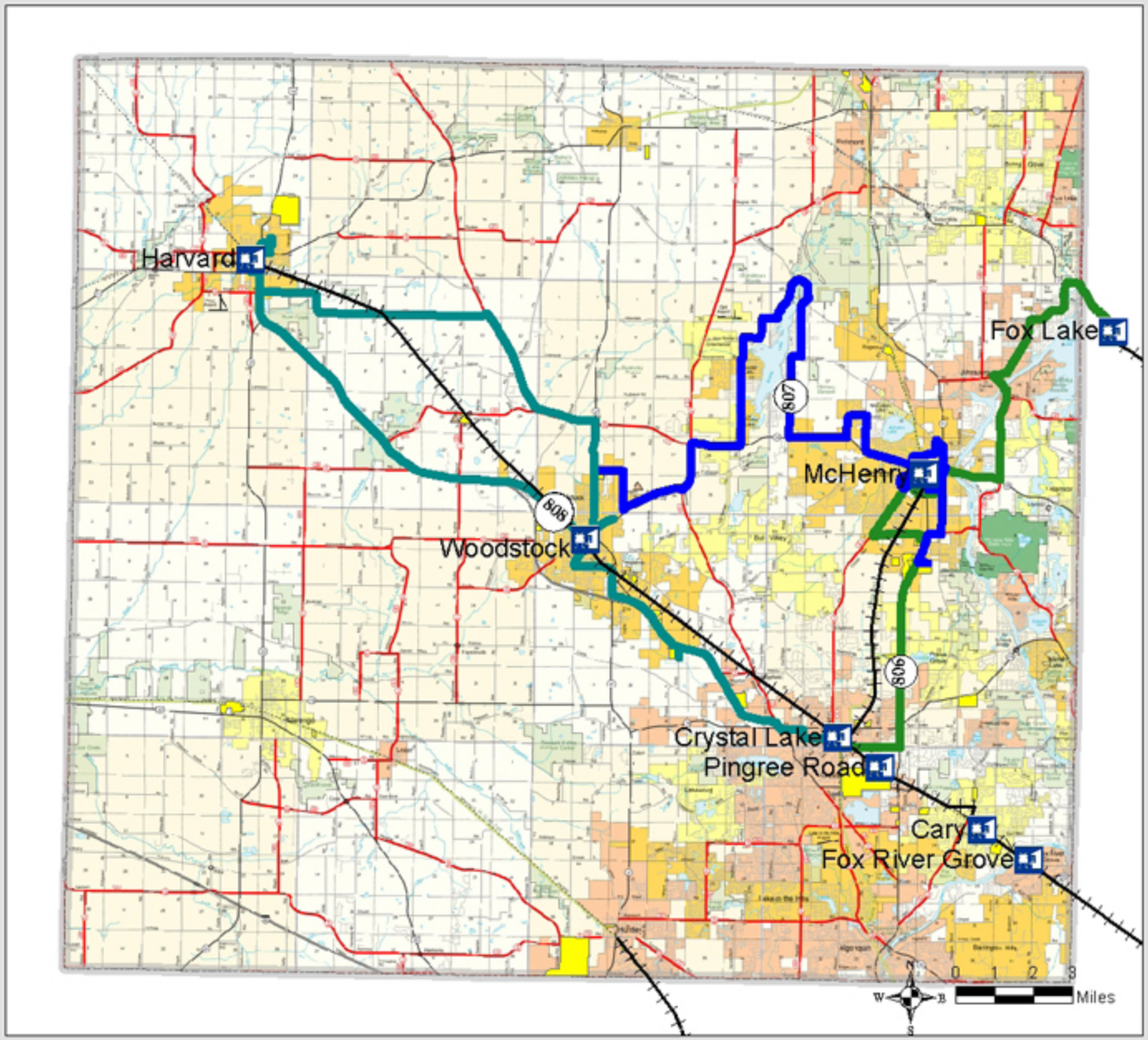


Metra operates a 495-mile "spoke" system of commuter rail routes in Cook, DuPage, Lake, Will, McHenry and Kane counties. Within McHenry County, the Union Pacific-Northwestern (UP-NW) Line has six station locations. They are Harvard, Woodstock, Crystal Lake, Cary and Fox River Grove on the main UP-NW Line, and McHenry on the north branch of the UP-NW Line.

Every day, 31 inbound Metra trains make 85 stops in the County, and terminate at the Ogilvie Transportation Center (Ogilvie) in the Chicago Loop; while 32 outbound Metra trains depart Ogilvie and make 99 stops in the County. This is a weekday total of 63 runs and 184 stops in McHenry County.

The UP-NW Line provides service to a total of 22 stations between Ogilvie and Harvard, with a rush-hour mix of local and express runs. Generally, travel time between downtown Chicago and Fox River Grove, the easternmost station in McHenry County, is approximately 1 hour 10 minutes. To reach the service's terminal station at Harvard (63.1 miles from downtown Chicago) requires an additional 20 to 30 minutes. However, not all runs end in Harvard. The stations in the southeastern corner of the County (Crystal Lake, Cary, and Fox River Grove) experience roughly twice the frequency of service as the rest of the County (Harvard, McHenry, and Woodstock) which are generally provided with morning and evening rush hour service.

Existing Bus and Commuter Rail Services



LEGEND

- Existing and Committed Metra Stops
- Existing and Committed Metra Lines

Existing Pace Routes

- 806
- 807
- 808
- Major Traffic Generators

Chicago Metropolitan Planning Area

EXISTING METRA RAIL SERVICE EVALUATION

Commuter rail ridership in McHenry County had great increases between 1989 and 1999, as shown in the Table TBD: *Metra UP-NW Weekday Ridership from 1999*. In that time, new stations, increased growth, and an expansion of service have all provided a more transit-conducive environment. In total, an increase in ridership of 40% has been observed during combined morning and evening peak periods for boarding and alightings taking place in McHenry County. As of 1999, the County's share of UP-NW riders was just over 20%. This implies that the County serves as a point of origin or destination for significantly more trips than it did ten years earlier, a trend likely to continue given the Chicago region's continued growth in fringe counties.

Table TBD: Metra UP-NW Weekday Ridership from 1999

Station		1999 Boardings			1999 Alightings			Percent Change (1989-99)		Total % AM Reverse Commuters
		AM-Pk	PM-Pk	Total	AM-Pk	PM-Pk	Total	B	A	
Harvard	Inbound	136	9	222	0	0	0	+59	+53	19.5
	Outbound	0	0	0	33	148	226			
Woodstock	Inbound	254	10	336	6	2	14	+21	+21	4.2
	Outbound	3	6	13	11	284	338			
McHenry	Inbound	159	0	159	0	0	0	+59	+59	6.5
	Outbound	0	0	0	11	153	164			
Crystal Lk	Inbound	1,181	45	1,468	10	1	33	+36	+38	3.2
	Outbound	4	24	33	39	1,146	1,460			
Cary	Inbound	785	17	926	8	9	33	+55	+58	2.0
	Outbound	4	17	25	16	773	932			
Fox River Grove	Inbound	330	12	408	1	3	8	+33	+43	3.8
	Outbound	11	5	20	13	326	416			
UP-NW Totals:										
McHenry County										
	Inbound	2,845	93	3,519	25	15	88	+40	+43	4.1
	Outbound	22	52	91	123	2,830	3,536			
UP-NW less McHenry County										
	Inbound	11,667	728	14,051	14,487	806	17,482	-2	-2	6.5
	Outbound	912	13,613	17,369	811	10,835	13,924			

Source: 1999 Metra OnBoard Survey

Within McHenry County there is a great range of ridership between the existing stations. Crystal Lake absorbs the greatest share of the boardings each weekday with approximately 1,470 (or almost 42% of the total County boardings). The next closest is Cary, with 926, or 26%. This is a likely result of both the amount of existing development in these areas and the frequency of service in the southeast quadrant of the County. A 1999 on-board Metra survey reported that over 92% of the riders boarding in McHenry County are going to Ogilvie Transportation Center or another destination in Chicago, and over 65% of passengers going to some location in McHenry County began their trip at Ogilvie Transportation Center.

Metra services are reliant on access in order to be successful, since they may not necessarily pick a rider up drop them off at their trip origin destination. McHenry County has a primarily auto-oriented transportation network. Consequently, much of the opportunity for ridership at the Metra stations in McHenry County relies on auto access for its passengers. An on-board Metra Survey conducted in 1999 showed that approximately 92% of its riders arrived at the train by car, whether it was by driving themselves or arriving with another person. Of that, 72% drove alone, while 14% were dropped off by someone else. Notably, less than 1% of Metra riders in McHenry County arrived at the station via Pace Bus service. Given the heavy reliance on automotive access, parking is a constant issue throughout the Metra system. Table TBD: *Metra Parking Lot Usage in McHenry County in 1999*, presents parking statistics for Metra parking in McHenry County. Of the stations in McHenry County, two, Crystal Lake and Cary, experience near full parking lots each weekday, with occupancy rates of 99.9% and 99.0%, respectively. The remaining locations are meeting their current parking demands.

Table TBD: Metra Parking Lot Usage in McHenry County (in 1999)

	Fare	1999 total				Number of Parking Facilities by Type		
Station	**Zone**	**Capacity**	**Use**	**EUse**	**%EUse**	**Lot**	**Dedicated R-O-W**	**Total**
Harvard	M	137	118	118	86.1%	3		3
Woodstock	K	424	200	200	47.2%	4		4
McHenry	K	109	73	73	67.0%	2		2
Crystal Lake	I	954	895	953	99.9%	9	3	12
Cary	H	606	600	600	99.0%	4		4
Fox River Gr.	H	307	176	176	57.3%	2	2	4

Use=observed parking use
EUse=effective parking use (permits sold are assumed as used)
Source: 1999 Metra OnBoard Survey

The Pingree Road station, a second station located in Crystal Lake, is scheduled to open in late 2005. The 26-acre station site will feature a 2,000 square foot depot that will include a pedestrian tunnel under the tracks and two 820 square foot platforms. Initially, 400 commuter parking spaces will be provided. The station area has the capacity to expand to around 1,700 spaces in the future.

Metra operates a relatively efficient commuter rail service in McHenry County. By capturing large amounts of riders at a few of its stations, especially those with sizeable parking lots, and limiting service to peripheral stations that may not capture as much ridership outside of the morning and evening rush hour periods, Metra responds well to the highest points of demand for regional rail movement in McHenry County.

The efficiency of Metra services in McHenry County were not calculated separately from

the rest of the Union Pacific Northwest Line or from the rest of Metra's operations in the development of this *Plan*. The following is a summary of some vital statistics regarding Metra services to which proposed changes to Metra services in McHenry County would be compared. Cost assumptions for Metra operating expenses are taken from selected sections of the Regional Transportation Authority (RTA) 2000 Annual Budget and Five-Year Program.

- **PASSENGERS per REVENUE CAR MILE:** Metra ridership in the year 2000 was estimated to be approximately 76 million passengers. During 2000, roughly 26.7 million revenue car miles were estimated to have run. This means that for every 100 miles of service, there were 285 passengers.
- **COST per REVENUE CAR MILE:** Total operating expenses were estimated to be around $404 million dollars for the year 2000. Divide these expenses by the revenue car miles for the year (26.7 million); and, the cost per revenue car mile is approximately $15.13.
- **COST per PASSENGER:** Divide the total operating expenses ($404 million dollars) by the number of passengers (76 million) and the cost per passenger is roughly $5.30.

EXISTING PACE SUBURBAN BUS

Pace is the suburban bus division of the Chicago Regional Transportation Authority. Pace has 240 fixed bus routes serving 3,500 square miles in six counties and 210 municipalities. Pace also operates extensive Paratransit and vanpool operations. Over 130,000 people utilize Pace on a daily basis.

In McHenry County, on an average weekday in 2000, buses on three fixed routes made thirty-five trips driving 1,100 miles and carried 218 passengers. The three routes are Pace Routes 806, 807, and 808 (Exhibit TBD: *Existing Transit and Commuter Rail Services*). All three routes are wheelchair accessible. While Pace installs signs at designated stops, its bus service operates under a "flag-down" policy in which a rider may be picked up or dropped off at any safe location along the route. The average number of passengers per mile of service is 1 passenger for every 4 miles. In other words, for every four miles of bus service in McHenry County, one passenger is likely to board. This is reflective of the average density of population along the current Pace routes.

- **PACE ROUTE 806:** Connects the Crystal Lake, McHenry, and Fox Lake Metra stations on a 22.5 mile route. Each weekday, five buses run from Crystal Lake to Fox Lake, and seven buses run in the opposite direction. The route provides access to several local and regional amenities, including schools, civic institutions, medical centers, and commercial areas. In 2000, this route carried an average of 58 passengers per day, running from the beginning of the morning peak period to the

end of the evening peak periods. Headways vary anywhere from 25 minutes to 1 hour 27 minutes, depending on direction and time of day, and while the route physically links up to three Metra stations, scheduling of connection times between travel modes is not well coordinated. The lag time between a Pace bus to Metra rail transfer may be as little as one minute, and as great as two hours, due to the infrequent service provided by both carriers.

- **PACE ROUTE 807:** Does not provide service parallel to the Metra rail service. In this way, it differs from the other Pace routes in McHenry County. Route 807 provides an east-west connector between the Woodstock and McHenry Metra rail stations. Each weekday, four runs are made heading east from Woodstock to McHenry. Five runs are made each day in the westbound direction. Along the way, the route provides access to civic and community amenities and commercial centers. Also, the alignment is designed to serve the Wonder Lake residential development, an important opportunity for ridership between the Metra stations. Route 807 carries an average of 82 passengers per day, requiring 50 minutes to one hour to complete one run. Headways on this route vary from 1 hour to 1 hour and 41 minutes. As is the case with Route 806, this route shows a wide range of lag times in providing transfer opportunities with Metra Rail. Times vary from 2 minutes to 1 hour and 51 minutes.

- **PACE ROUTE 808:** Parallels the UP-NW's main line, connecting the Crystal Lake, Woodstock, and Harvard Metra rail stations. There are seven runs made in each direction each weekday, carrying an average daily total of 78 passengers along a 26-mile route. In addition to the three Metra stations, Route 808 provides access to McHenry County College, Marian Central High School, Valley Hi Nursing Home, Memorial Hospital in Woodstock, and Northern Illinois Medical Center (NIMC) located in the City of McHenry, along with several other community amenities. Generally, the route has nine designated stops, and a run takes approximately one hour. However, due to some of the destinations it serves, Route 808 has school year deviations and Valley Hi Nursing Home deviations built into its schedule. These smaller sub-routes have five stops and may take anywhere from 23 minutes to 51 minutes to complete. The connectivity to Metra varies greatly for Route 808. Lag time for a bus-to-rail transfer may generally range from 1 minute to 2 hours and 25 minutes. However, in one case, it may be 3 hours and 5 minutes, due to the infrequent rail service in Woodstock and Harvard.

In addition to the fixed-route services, Pace works with local ridership generators to provide demand-response shuttle services. This is done to provide access to residential or commercial centers that are difficult to serve with traditional bus transit.

EXISTING PACE SUBURBAN BUS EVALUATION

Operating a bus service in an environment as sparsely populated as McHenry County is difficult and inefficient. Land use patterns, a spread out population, and a general

reliance on personal automotive travel are all factors that make it difficult to provide a transit service that can be competitive with private transportation. As a result Pace Routes 806, 807, and 808 register an overall lower measure of efficiency when compared to the rest of the Pace system.

However, spending money to operate Pace buses in McHenry County has direct benefits such as daily ridership and enhanced mobility. The relative benefits to costs can be calculated in order to better understand the overall system effectiveness and cost efficiency of Pace operations in the County. Operational efficiency refers to the number of passengers for the amount of service provided. The measurement of operational efficiency typically used for transit is a ratio with the number of route miles as the numerator and the number of passengers as the denominator. The measurements of cost efficiency typically used are the capture rate of total operational costs with fare-box revenue, the average cost of operations per rider, and the average cost of operations per mile of service. The following table summarizes the costs and benefits associated with Pace bus service in McHenry County.

Table TBD: McHenry County Pace Service Cost Summary

Route	Total Annual Operating Expenses*	Total Annual Ridership	Total Annual Farebox Revenue	Farebox Recovery Rate
806	$ 204,559	14,790	$ 22,185	11%
807	$ 186,846	20,910	$ 31,365	17%
808	$ 231,051	19,890	$ 29,835	13%
Total	$ 622,456	55,590	$ 83,385	13%
Pace Total**	$ 115,100,000	40,500,000	$ 36,000,000	32%

*This equals the sum of direct, maintenance, and administrative costs estimated for McHenry County based on the RTA 2000 Annual Budget and Fiver-Year Program.

**Pace total data is from the RTA 2000 Annual Budget and Five-Year Program.

The goal for Pace is to recover 40% of all operating expenses from ridership fares. According to the RTA 2000 Annual Budget and Five-Year Program report, Pace recovered 32% of its operating expenses for the farebox. It was estimated for this *Plan* that fares helped recover 13% of total operating expenses in McHenry County.

Table TBD: *McHenry County Demand Response Statistics,* shown below, offers a summary of the demand-response services in McHenry County.

Table TBD: McHenry County Demand Response Statistics				
Project	**Service Type**	**Trips/ Hour**	**Trips/Day**	**Wheelchair Lift Use %**
Woodstock	GP/DAR	6.88	130.5	2.93%
Pioneer Ctr. Of McHenry	Subscription	8.67	241.5	5.31%
Marengo	GP/DAR	2.86	13.5	3.08%
McHenry County ADA (Fixed Route Deviation)	ADA			0.00%
Lake in the Hills	GP/DAR	1.85	1.3	0.00%
Harvard	GP/DAR	4.87	50.5	2.12%
Eastern McHenry County	GP/DAR	5.13	365.3	2.36%
Midday DAR		4.95	82.0	1.63%
SE McHenry		2.17	17.9	12.52%
Crystal Lake		5.54	180.4	1.31%
McHenry TWP (City) DAR		5.66	89.1	3.24%
McHenry TWP (Rural) DAR		5.66	15.6	3.23%

Source: Pace 2002; For the year 2002 through August.
ADA= American with Disabilities Act Service, Fixed Route Deviation
GP/DAR = Dial-a-Ride open to the general public
Subscription= Other Special Service

On an average weekday, over 2,800 trips are provided through demand response services. The largest ridership generator, the Pioneer Center, accounts for over 2,000 of these. Demand-response service is provided using a call center which receives requests, and dispatches smaller shuttle buses for door-to-door service. This service is entirely handicapped accessible, allowing retirement and nursing homes to use it for accessibility to local amenities.

PRIVATE TRANSIT PROVIDERS

In addition to the Metra and Pace public transit services, there are a number of taxi, limousine and private coach companies operating in McHenry County. These businesses play an important role offering service between Rockford, O'Hare Airport, Midway Airport, downtown Chicago and the cities of McHenry and Crystal Lake.

OTHER MODES of TRANSPORTATION

Bicycle and pedestrian travel have many of the same constraints and so are often grouped together as Non-motorized transportation. McHenry County is predominantly an auto-dependent transportation environment, and the great majority of the routes identified by the Chicagoland Bicycle Federation are on-street routes. However, the number and length of off-road multi-use facilities in McHenry County are increasing. An exact estimate is difficult because many municipalities are undertaking these efforts within their own boundaries. The McHenry County Conservation District is the primary agency responsible for county-wide facilities.

As a general policy, bicycles are accommodated on all primary roads, although it is

acknowledged that some routes are more suitable than others. The single largest hindrance to good accommodation of bicycles on existing routes is deficient width of paved shoulders. Bicycles are now accommodated on all Pace buses and Metra is investigating accommodation of bicycles on limited numbers of trains.

The Prairie Trail is the longest existing off-road path. It begins at the McHenry County/Kane County boundary and runs north, connecting Algonquin, Lake in the Hills, Crystal Lake, McHenry, Ringwood, and Richmond. Currently, an extension of the path is being developed along the Union Pacific-McHenry Branch right-of-way that would extend through McHenry township. This piece of the trail would connect with an existing but unpaved segment going north from Ringwood Road, through the Glacial Park Conservation Area, and terminating at the Illinois/Wisconsin state border. Once the central segment of this trail is complete, it will provide a continuous 25.9-mile dedicated bikeway connecting municipalities, commercial areas, and natural assets in eastern McHenry County.

The McHenry County Bicycle Club hosts a 100-mile long race known as the “Udder Century”. This race utilizes several county and township routes as it “zig-zags” through McHenry, Boone, and Walworth counties.

TRANSPORTATION ISSUES

This section highlights transportation safety issues taken into account during the formation of the *Plan*. Three sources of automobile crash data were reviewed to identify roadway safety problems within McHenry County:

- Illinois Department of Transportation Division of Traffic Safety Crash Report Database (Years 1994-1999). The 1996 data in this reporting system contains only a portion of the traffic crash records for that year. Only traffic crashes and crash fatalities occurring on roads under the jurisdiction of the Illinois Department of Transportation for the 1996 calendar year are represented in this reporting system. All other years include the crashes and crash fatalities occurring on roads under all jurisdictions.
- Illinois State Police Fatal Crash Reporting System (Years 1997-2000)
- McHenry County Crash Report Records (Year 2000)

The following is a summary of the existing safety information for the McHenry County roadway system.

- **CRASH TRENDS:** The IDOT Traffic Safety Crash Report Database shows that, between 1994 and 1999, the amount of collisions per quarter varies between 1,300 and 2,000 crashes. The most accidents recorded, 2,017, occurred in the fourth quarter of 1995. Within each one-year period, the highest number of crashes tended

to occur in the fourth quarter, with the first quarter registering the second highest crash totals. This is generally attributable to weather conditions.

- **CRASH SEVERITY:** IDOT also reports on the severity of crashes, categorizing them into three primary categories; crashes with property damage only, crashes with injuries, and crashes with fatalities. In McHenry County, between 1994 and 1999, there were a total of 33,797 crashes. Of these, 24,796, or 73.4% of them, resulted in property damage only. 8,845 of the crashes, or approximately 26.2%, were injury crashes, while the remaining 156 (0.5%) of the crashes involved a fatality. These rates are comparable to the statewide percentages of 77.1%, 22.6%, and 0.4%, respectively. McHenry County falls below the State of Illinois' share of property damage only crashes, but has a higher percentage of injury and fatal crashes.

- **CRASH TYPE:** Crash type data in McHenry County from 1994-1999 is broken up into thirteen categories by the IDOT Division of Traffic Safety Crash Report Database. Of these, the most frequent type of crash is the rear end collision. These crashes account for 31.6% of the County's total accidents, compared to a statewide rate of 27.7%. Fixed object and Animal crashes were also above the state's rate, at 11.1% and 9.7%, respectively. These three types account for the greatest difference above the statewide rates. Sideswipe crashes, 6.3% of the accidents in McHenry County, account for the greatest difference (6.3% compared to 10.2%) below the statewide rates for each crash type.

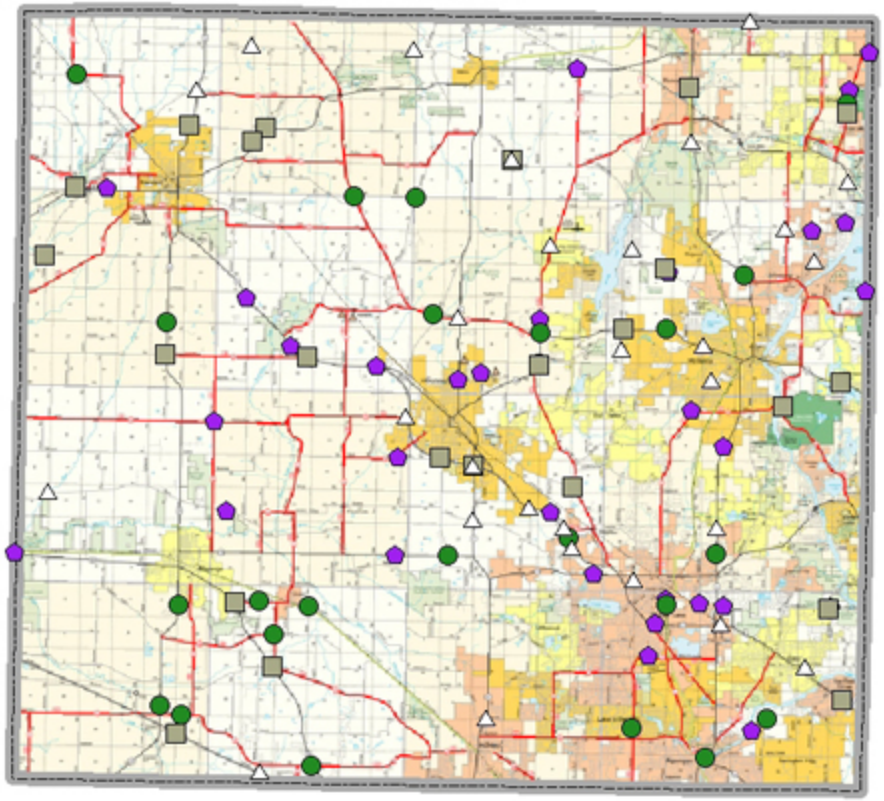
- **WEATHER CONDITIONS:** The impact of weather conditions can be great in an area as physically diverse as McHenry County. However, IDOT's Crash Report Database shows that between 1994 and 1999, the frequency rate of accidents during different types of weather conditions generally mirrored those of the entire State of Illinois. In each case, just over three fourths of the crashes occurred during clear weather. Rain persisted during just under 13% of the crashes, and snow was reported during 6.9% of McHenry County's accidents.

- **DAY of the WEEK:** When compared with the state, the distribution of accident rates based on the day of the week in McHenry County is virtually identical. The greatest difference in only 0.7%, occurring on Monday. In both the State of Illinois and McHenry County, Friday is the day during which the greatest share of accidents takes place (18%). This is compared to the least frequent period, Sunday, accounting for 10.2% of the County's accidents and 10.4% of the state's.

- **LIGHTING CONDITIONS:** The lighting conditions were compared during the crashes that occurred in McHenry County with those that occurred in the rest of the State of Illinois. Proportionately, 8% more crashes occurred in McHenry County on dark unlit roads than in the rest of the state. However, during periods of darkness on lit roads, the state had proportionately 7% more crashes than the County. The proportional percentages of crashes are essentially equal between the County and the state during all other lighting conditions.

Crash History Evaluation

1997 - 2000 Fatal Crash Locations



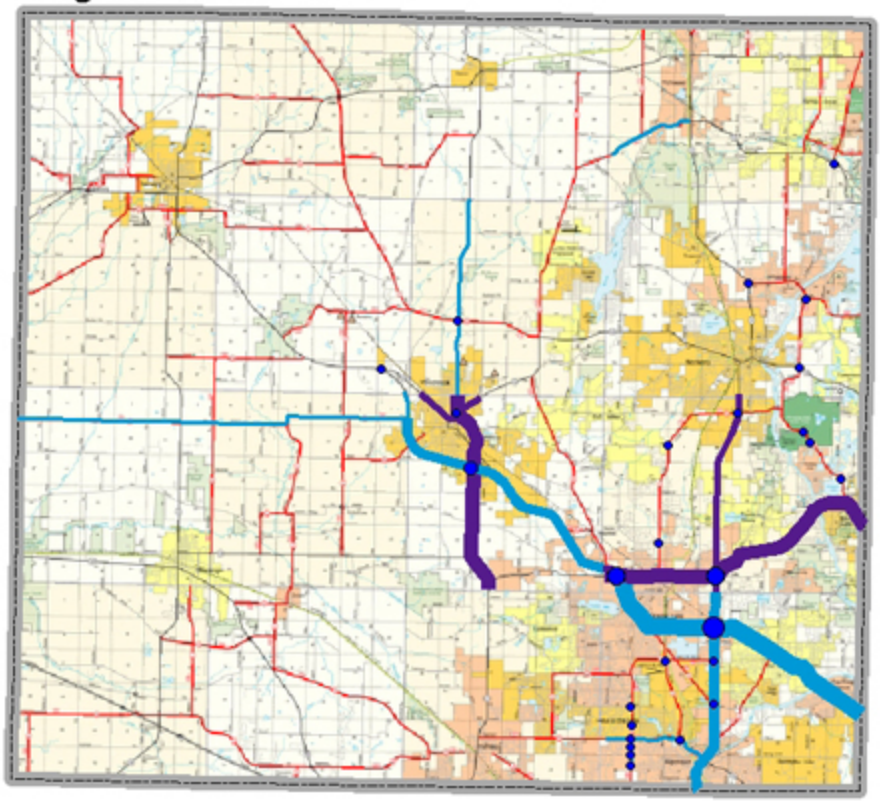
LEGEND

- Year 1997 Fatality Locations
- Year 1998 Fatality Locations
- Year 1999 Fatality Locations
- Year 2000 Fatality Locations
- McHenry County

N W E S 0 1 2 3 Miles

Chicago Metropolitan Planning Area

Average Annual Crashes



LEGEND

N W E S 0 1 2 3 Miles

At Intersections	Individual Road Segment by Township
0 - 5	0 - 10
6 - 11	11 - 29
12 - 16	30 - 51
17 - 31	52 - 125
	126 - 270

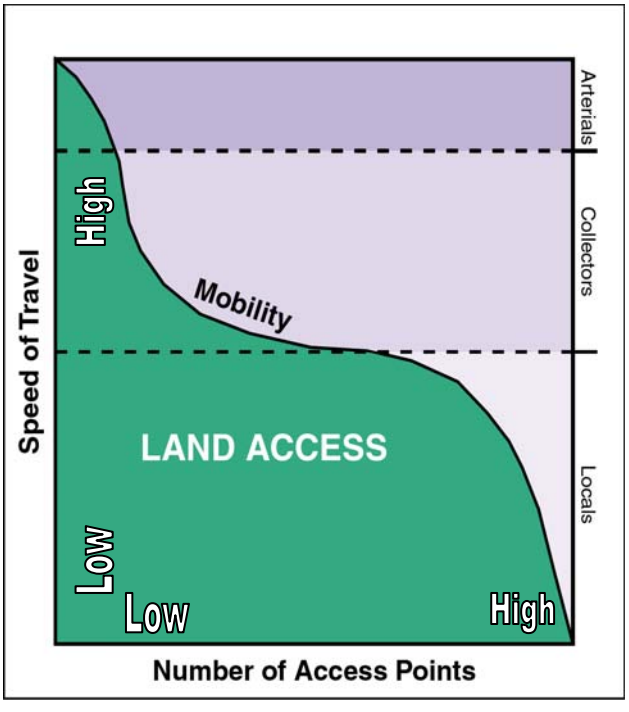
McHenry County

Note: These are total numbers of crashes not crash rates. (Years 1994-1999)

- **ALCOHOL RELATED FATALITIES:** The percentage of alcohol related fatal crashes in the McHenry County was compared with the percentage of those in the rest of the State of Illinois. On average, between 1997 and 2000, 35% of the fatalities occurring in Illinois were alcohol related (blood alcohol concentrations of 0.08 grams per deciliter or higher, as of 1997). In McHenry County during that same period, 38% of the fatalities were alcohol related. However, the percentage fluctuated considerably through the four-year period between a low of 25% in 2000 and a high of 52% in 1999.
- **FATALITY LOCATIONS:** The locations of all fatalities in McHenry County between 1997 and 2000 have been identified to assist in illustrating dangerous locations in the road network. There were few locations with more than one fatality occurring during this time period. See Exhibit TBD: *Crash History Evaluation*.
- **OTHER HAZARDOUS LOCATIONS:** Summaries of the data provided by IDOT, the Illinois State Police and the County Sheriff's Department identified areas where accidents occurred with greater frequency throughout the year. Data indicates the roadways and intersections where accidents occur in relatively high numbers each year. (Note: These statistics are simply a count of accidents and do not account for varying traffic volumes on different parts of the road network.)

ACCESS MANAGEMENT

Roadways directly and significantly influence the everyday lives of people living and traveling in McHenry County. The two most common functions that roads perform are to provide access to property and to accommodate the movement of traffic. The better they perform one function, the worse they perform the other. The relationship between mobility and property access is key in planning and designing roadways and is depicted on the accompanying graphic.



McHenry County adopted an ordinance in 1997 that controls access to adjacent properties in a manner that preserves and enhances the safety and efficiency of the roadway system. This ordinance covers all County roads.

Access management reduces the number of points that opposing traffic flows will conflict with each other. A direct correlation exists between the numbers of entrances

(driveways + cross-streets) and the rate of accidents (accidents per million vehicle miles traveled) along a road. A summary of this relationship is provided in Table TBD: Relationship between Entrances and Accident Rates.

Table TBD: Relationship between Entrances and Accident Rates	
Entrances per mile	**Accident Rate (per million vehicle miles traveled)**
10	1.0
20	1.3
30	1.7
40	2.1
50	2.8
60	4.1

Source: National Cooperative Highway Research Program 1999 Report 420

ROADWAY FEASIBILITY and CORRIDOR PRESERVATION

The process for determining whether or not a roadway is feasible, (reasonable or physically possible to be built), has, like roadways themselves, evolved over the years. It resulted from a process of pure engineering efficiency in the early 20th century, into a hybrid process by the end of the 20th century where balancing engineering efficiency with environmental and social concerns of various alternatives was evaluated. Today, the process involves balancing engineering efficiency with environmental and social concerns as well as designing the facility appropriately for its overall context.

ENGINEERING CONSIDERATIONS

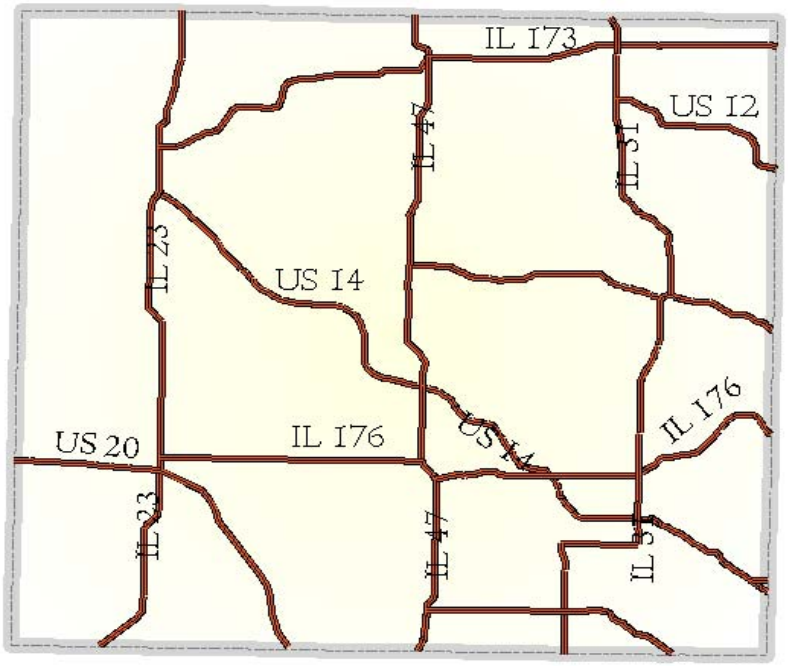
The foremost goal for all engineering activities associated with roadways is safety. There are basic physical parameters that must be met in order to receive federal and state funding to build a road and to avoid liabilities associated with poor design. In Illinois, the *Bureau of Design and Environment Guidelines* are the standard by which all roads are built. These guidelines are detailed and have changed over the years as needed to account for updated science and legislation. To ensure safe design practices, all persons designing roadway facilities in Illinois must be licensed professional engineers (P.E.).

Maintenance accounts for one fifth of McHenry County Department of Transportation spending, based on the *2002-2006 Highway Improvement Spending Plan*. The failure to meet the short-term and long-term maintenance needs of a roadway network can increase these costs, result in hazardous conditions, and by requiring more than its current share of funds, impede the provision of needed network additions (i.e. additional

lanes, traffic signals, bridges). Elements of a roadway that require perpetual maintenance such as a stormwater pumping station for an underpass, median landscaping, guardrails, and lighting are therefore typically added only when specifically needed or specially funded.

Thirdly, in McHenry County, where population growth is projected to accelerate and where the built environment to support this population consumes more land, the identification of future roadway needs along with coordinating construction of the built environment, is essential to the management of growth in the County. The process of land acquisition, after properties have had structures built, can be a lengthy process with a great amount of public debate. Americans invest heavily in their properties which is often their sole investment. Needed changes to a roadway must be communicated early and made known to the public at-large. Government can take additional measures to protect property owners from avoidable harm. For example, government can establish access management guidelines, buy needed right-of-way, and require hard surface setbacks from the roadway.

The Illinois Department of Transportation has been working to identify and preserve needed right-of-way in McHenry County. In the late-1980's in an effort to address congestion in the Chicago metropolitan area, the Illinois Department of Transportation (IDOT) with the Chicago Area Transportation Study (CATS) embarked on identifying Strategic Regional Arterial (SRA) roadways that would supplement the region's expressway and tollway network. Portions of all the state and federal highways in McHenry County have been identified as part of this SRA network. See figure below.



Strategic Regional Arterials in McHenry County

Eleven SRA preliminary engineering studies have been conducted over the last decade in McHenry County. The results of these studies are summarized in Table TBD: *SRA Studies in McHenry County*. Currently, IL Route 176 is under a preliminary engineering study. The scope of this study is listed under the summary of recommendations.

Table TBD: SRA Studies in McHenry County

Route	Final Report Date	Summary of Recommendations
US 14	July 1993	4 lanes with varying median type ranging from 40" in rural areas to flush in urban areas
IL 22	August 1993	4 lane in McHenry County
US 12 (Rand Road)	March 1996	4 lanes north of IL 59 to IL 31
IL 47	May 1996	4 lanes in McHenry County
IL 173	March 1998	4 lanes in McHenry County east of US 14
IL 23	June 1997	4 lanes south of US 14, bypass of Marengo recommended to the east of town
IL120/ Charles Road	July 2000	4 lanes in McHenry County
US 20	Mid-2001	4 lanes in McHenry County, bypass of Marengo recommended to the south of town
Algonquin Road/ IL 62	September 1998	4 lanes in McHenry County
Orchard Road /Randall Road/IL 31	April 1998	4 lanes in McHenry County
IL 176	On-Going	Investigating 4 lanes west of Dean Street, 6 lanes between Dean Street and Mt. Thabor Road, and 5 lanes east of Mt. Thabor Road
Woodstock SRA	On-going	Investigating a 4 lane roadway northwest of Woodstock linking US 14 to Charles Road/IL 47

CORRIDOR PRESERVATION and ESTIMATING NEEDED RIGHT-of-WAY

In the case of roads, the amount of land required to meet the design criteria of a new roadway depends largely on the number of lanes in each direction, dedicated turning lanes at intersections, special dedications such as bus lanes or bike lanes, and treatment of the center of the road median (i.e. painted lines, landscaped median, raised curb). Other key considerations are topography, stormwater drainage, telephone, fiber optic, and electrical lines, sewer and water lines, railroad crossings, pedestrian and bicycle accommodation, the ability to mitigate/avoid impacts to historically and culturally significant land uses and the environment, as well as the overall community context in which the road is placed.

In addition to referring to what land is physically required to construct a roadway as determined by engineering design, needed right-of-way also commonly takes into account what land may be needed to build the anticipated future needs of a roadway network thereby preserving a corridor. Future needs for a roadway network include "new links" which can be entirely new roadways or the extension of an existing roadway and "capacity additions" which can be adding lanes or reconfiguring intersections. This type of needed right-of-way is met not only by land purchase, but most effectively met in the early stages of development though collaborative planning that preserves sufficient right-of-way for these future roadway needs. By successfully anticipating future right-of-way needs, property may be developed in a way that future acquisitions and disruptions of the development pattern or operations can be minimized, saving both the public and the property owners' money.

Ultimately, the final design of a roadway will determine the amount of right-of-way required. However, prior to final design, the amount of right-of-way needed to preserve the corridor is a subject of continual debate. IDOT recognizes that for the SRA system to successfully accomplish its objectives, planning must be coordinated with each local jurisdiction regarding the arrangement of land uses and alignment of the SRAs. For roadways identified as SRAs, guidelines regarding required right-of-way were developed by IDOT and CATS taking into account efficient geometric design, the number of lanes, and the general context of the roadway. See Table TBD: *Strategic Regional Arterial Right-of-Way Needs Guidelines*. These guidelines are meant to be considered by local jurisdictions in order to better coordinate land uses and estimate needed right-of-way to preserve the corridors along SRA routes.

Table TBD: Strategic Regional Arterial Right-of-Way Needs Guidelines

Highway Type	Speed Limit	Special Geometric Features	Summary of Right-of-Way Guidelines
4 lane urban highway	35 mph	Painted Median or Continuous Dual Left Turn Lane, Closed Drainage, Sidewalks	83 to 86 feet is needed for recommended roadway features
6 lane suburban highway	45 mph	30 foot median at least to provide for dual left turn capability, Closed Drainage, Sidewalks	120 to 150 feet is needed for recommended roadway features
4 lane rural highway	60 mph	60 foot median at least to help prevent cross-over head on collisions, 10 foot shoulders, Open Drainage	188-212 feet; 284 feet with frontage roads is needed for recommended roadway features

Source: SRA Design Concept Report, IDOT, February 1994

The guidelines listed above and defined for SRAs, do not take into account stormwater drainage, topography, and utilities. The guidelines therefore are applicable for planning purposes but preliminary in nature (rough estimates) from an engineering point of view. For example, the decision to have open (ditch), or closed drainage system (curb and gutter), greatly changes the cost of construction, the mobility of pedestrians and

bicyclists, as well as the amount of right-of-way needed. Curb and gutter costs more than grading a ditch; however, a ditch requires more right-of-way. Typically, closed drainage systems are applied in urban and suburban areas where pedestrian and bicycle activity is higher and/or where the need to control runoff from the roadway is stricter.

Most of the County's roads have open drainage and are located in areas with low pedestrian and bicycle activity. It has been the experience of the McHenry County Highway Department (now know as the Division of Transportation), that 180 feet would therefore be a more applicable guideline for the right-of-way required for a 6 lane highway. It has also been the experience of the McHenry County Highway Department, that 150 feet of right-of-way is sufficient for its 4 lane 35-55 mph highway facilities. See Table TBD: *McHenry County Division of Highways Right-of-Way Needs Experience.*

Table TBD: McHenry County Highway Department Right-of-Way Needs Experience

Highway Type	Speed Limit	Special Geometric Features	Summary of Right-of-Way Experience
4 lane highway	35-55 mph	Painted Median or Continuous Dual Left Turn Lane, Open Drainage	150 feet is needed for corridor preservation this accounts for geometry, drainage, topography, and utilities
6 lane highway	35-55 mph	30 foot median at least to provide for dual left turn capability, Open Drainage	180 feet is needed for corridor preservation this accounts for drainage, geometry, topography, and utilities

The guidelines set, by IDOT for designated SRAs and the experience of the McHenry County Division of Transportation, do not define the amount of right-of-way needed. The actual definition of right-of-way needed will depend on a case by case engineering feasibility study; however, the SRA guidelines and County Highway Department experience are the best indicators for roadway corridor preservation needs. These guidelines are applicable for County and State Highway recommendations to identify gross highway corridor preservation right-of-way needs. These preservation needs are useful in the coordination of land use planning and roadway recommendations and critical to the provision of identified roadway needs. Environmental and context sensitivity considerations, although not used to identify the gross corridor preservation right-of-way needs, are integral to the design process of each highway.

SOCIAL, ECONOMIC and ENVIRONMENTAL CONSIDERATIONS

The *National Environmental Policy Act*, (NEPA) 42 U.S.C. 4321 et seq., was signed into law on January 1, 1970. The *Act* establishes national environmental policy and goals for the protection, maintenance, and enhancement of the environment, and it provides a

process for implementing these goals within the federal agencies. The *Act* also establishes the Council on Environmental Quality (CEQ) which interpreted the law and addressed NEPA's action forcing provisions in the form of regulations and guidance.

Title I of NEPA contains a *Declaration of National Environmental Policy* which requires the federal government to use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony. Section 102 requires all federal agencies to prepare detailed statements assessing the environmental impact of and alternatives to major federal actions significantly affecting the environment. These statements are commonly referred to as environmental impact statements (EISs). Section 102 also requires federal agencies to lend appropriate support to initiatives and programs designed to anticipate and prevent a decline in the quality of mankind's world environment.

For transportation projects receiving funding from the federal government, NEPA requires the Federal Highway Administration (FHWA) and other transportation agencies to examine and avoid potential impacts to the social, economic, and natural environment when considering approval of proposed transportation projects. In addition to evaluating the potential social, economic, and environmental effects, FHWA must take into account the transportation needs of the public in reaching a decision that is in the best overall public interest.

CONTEXT SENSITIVITY CONSIDERATIONS

In addition to providing a means of transport, roads may serve several other roles. Roads allow access to surrounding land-uses; roads also function as public space. In this manner, they are subject to the same qualitative design standards as parks, private properties, or any other spaces that enhance the experience of a community. Lastly, roads serve as barriers, dividing land uses.

Issues such as traffic congestion, suburban sprawl, preservation of scenic landscapes and historic neighborhoods, and the ability to use our transportation system to walk, bike, and access public transit are now much higher priorities then they were when the County last updated its transportation plan. In 2003, the State of Illinois passed Public Act 93-0545 which mandates that IDOT,

> *"…shall embrace principles of context sensitive design and context sensitive solutions in its policies and procedures for the planning, design, construction, and operation of its projects for new construction, reconstruction, or major expansion of existing transportation facilities. A hallmark of context sensitive design and context sensitive solutions principles for the Department of Transportation shall be early and ongoing collaboration with affected citizens, elected officials, interest groups, and other stakeholders to ensure that the values and needs of the affected communities are identified and carefully considered in the*

development of transportation projects. Context sensitive design and context sensitive solutions principles shall promote the exploration of innovative solutions, commensurate with the scope of each project that can effectively balance safety, mobility, community, and environmental objectives in a manner that will enhance the relationship of the transportation facility with its setting."

Context sensitive solutions focus on supplementing traditional engineering standards while ascertaining balances between conventional engineering guidelines and community interests. Engineers and planners must still concentrate on historically common themes such as safety, mobility, environmental resource preservation and community development. However, with a stronger emphasis on public involvement through early and meaningful communications with stakeholders, and a flexible and creative approach to design, the resulting projects should improve safety and mobility for the traveling public, while preserving and enhancing the scenic, economic, historic, and natural qualities of the settings through which they pass.

Conceptual context sensitive road cross-section designs have been developed as part of the *2020 Unified Plan* to begin addressing the context sensitive design issues facing McHenry County. A discussion and graphics regarding these cross-sections is included in Appendix TBD.

LIFE-CYCLE COST ANALYSIS and INFRASTRUCTURE MAINTENANCE

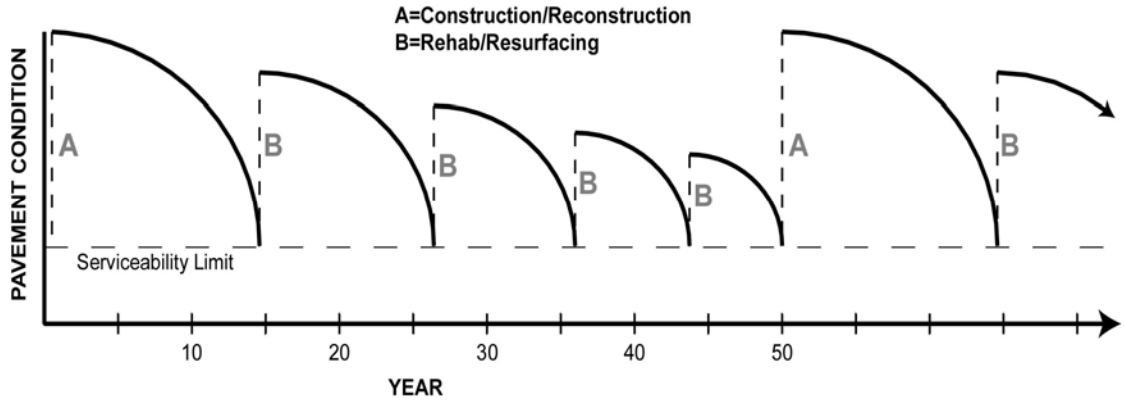
As part of determining a financially constrained transportation plan, McHenry County is and will continually look for more efficient systems and strategies to manage physical assets. The largest and most valuable of these assets is the transportation infrastructure that supports the economic vitality and competitiveness of the area. Nationwide since 1973, average daily traffic load on roads has increased 550%. In comparison, the number of miles of roads has increased only three percent. With limited funds available and increasing scrutiny from taxpayers and legislators, transportation agencies are under pressure to manage roadways in the most cost-effective way, while still providing a high level of service to the public.

Historically, transportation agencies were reactive, fixing the worst pavement first, relying on the experience and preferences of individual engineers to make investment decisions on a project-by-project basis. Often only considering initial cost, not overall lifetime system costs the "fix as much as you can now" approach is understandable given limited resources, but may not be the best choice for taxpayers over the long-term.

Some proactive agencies are utilizing asset management procedures such as Life-Cycle Cost Analysis (LCCA) to optimize use of increasingly limited resources. This system helps preserve the pavement network and ensure safety and serviceability of the road system. Looking at the entire lifespan of infrastructure to systematically

maintain, upgrade, and operate McHenry County's roadways and bridges requires combining engineering, business management, economics and computer-aided technology to conduct an economic comparison of all competing alternatives.

TYPICAL PAVEMENT LIFE-CYCLE



Incorporating all long-life pavements into the system is not life-cycle costing. The idea is to choose the construction type and rehabilitation strategies that benefit the overall network as a whole over a long time-frame. The County or township highway departments must space renewal projects evenly over the years and develop a strategy for filling in the "structural holes." Structural holes are years where little or no renewal activities are either possible due to financial constraints or necessary because none is needed. Choosing to spread out repairs and their costs more evenly over the future years allows projects to fit into the bigger picture of cost effectiveness. This mathematical procedure takes into account the time value of money, maximizing taxpayer dollars by indicating the most effective option for each project. This maximizes return on investment and maintains the pavement in an acceptable condition. A successful pavement network does not need all its pavements to have a 40 or 60-year design life. It requires a mix of life spans so pavements come of age at different times, allowing a consistent and predictable flow of expenditures.

The timing and type of technique depends on the condition of the existing pavement, the existing and future financial resources, the traffic requirements, the design life required, and the effect of a procedure on network functioning. It is unwise to limit capacity on neighboring roads at the same time. The groups of techniques that most economically manage a roadway network are preventive maintenance, restoration, resurfacing, and reconstruction.

- ✓ **Preventive maintenance** preserves roadway serviceability and keeps the pavement at its current condition with low user impact and low cost. Preventive maintenance plays a large role in any asset management program. Deferring maintenance of infrastructure assets, such as highways, is much more expensive over the long term than investing in an ongoing program of preventive maintenance and renewal. In short, having to prematurely replace a road will cost more than preserving it. Recent

studies by the Transportation Research Board indicate that every dollar spent on preventive maintenance at the appropriate time in the life of a pavement saves three to four dollars in future rehabilitation costs.

- ✓ **Restoration** is used on good pavement with little deterioration. Ideally, it is applied when there is only slight deterioration and is used to replace isolated sections, to prevent or slow overall deterioration, and to do it quickly with minimal disruption to traffic. These techniques are full- and partial-depth repair, diamond grinding, joint and crack resealing, slab stabilization, retrofitting dowels, retrofitting concrete shoulders and edge drains, cross-stitching and grooving.

- ✓ **Resurfacing** is used when pavement has medium to high levels of distress and restoration is no longer effective. To rehabilitate an existing road, bonded and unbonded overlays can extend the life of the pavement by decades. This can include standard or ultra-thin whitetopping or other quick and cost-effective ways to eliminate the rutting and wear.

- ✓ **Reconstruction**, or total removal and replacement of worn-out or insufficient pavement, is used when the pavement has high levels of distress, when overlays won't solve the problem or when there are serious outdated design features.

CONCLUSIONS

Since 1990, McHenry County has witnessed the largest percentage of growth in relation to total population growth within the northeastern Illinois region.

As with other counties located in this region, development is occurring at a rapid rate, consuming much of the agricultural landscape and replacing it with a suburban setting. Recognizing that most residential subdivisions do not pay their way in taxes collected for services rendered, many municipalities adopt aggressive annexation policies in order to gain control over strategic commercial locations. Others negotiate boundary agreements with neighboring villages, allowing for phased annexation in order to balance residential and commercial land uses.

A majority of the development that occurs in McHenry County takes place within the mile and a half planning radius of municipal borders. Large-scale development is commonly planned in conjunction with annexation agreements, because municipalities typically are able to provide water and sanitary services.

Recognized throughout this planning effort is the fact that land use and transportation planning are inextricably linked. While the relationship between transit and structuring new growth near existing transit has been emphasized in municipal plans and regional policy statements, new development often continues to create sprawling low-density suburban neighborhoods. Such areas are often distant from existing centers, are highly auto dependent, and in many cases, create a street and block pattern that make it

physically and financially difficult to provide even basic transit service.

In contrast, combining compatible land uses in areas within a variety of transportation opportunities requires fewer trips and vehicle miles traveled. Areas that develop without providing connections to adjacent developments or neighborhoods create a greater dependency on vehicular use. Developments that integrate opportunities for other modes of travel decrease reliance on automobiles.

McHenry County contains a multi-modal transportation system comprised of roadways, bus transit, heavy rail, and non-motorized facilities. This network which was established over the years to serve a largely agrarian community and an economy with a much smaller population, has changed very little in the last forty years. However, travel habits of the population that it serves have and are continuing to change dramatically.

The County has traditionally emphasized maintenance of its existing roadway system because excess capacity existed on most County roads. This is no longer the case, especially in the southern and eastern portions of McHenry County, where development continues at a faster pace. Consequently, many roadways and intersections are at or over capacity, resulting in traffic gridlock and congestion.

Increased density tends to increase the number of transportation options available in an area due to economies of scale. Also, as residential densities increase, transit usage also increases. The only way to achieve sufficiency is with densities higher than those commonly found in conventional suburban settings. Increased residential density not only complements and supports efficient land development, but also typically results in the overall reduction of automobile dependency, which in turn decreases traffic congestion and air pollution. Moreover, efficient use of infrastructure furthers a community's tax dollars.

A proactive approach to encouraging development along transit corridors requires a multi-faceted approach. It is important to establish a framework for determining appropriate levels of development at new and/or existing transit stations to achieve a functional, high quality development. Municipal and regional levels of government and the transit owner/operator must be effectively organized to pursue transit supportive development policies and an aggressive property development perspective to capitalize on the value brought about by transit infrastructure.

The demand for transportation in McHenry County rises in proportion to increases in population, employment, and improved economic conditions. The combination of sprawling growth and changing travel patterns means that the number and length of trips will continue to increase unless land use and transportation decisions are jointly agreed upon.

CHAPTER THREE
PLANNING FRAMEWORK

The planning process encompasses a combination of personal and collective decision-making, beginning with values and culminating with policies. The resulting planning framework unites and supports both the individual elements of the *Unified Plan* and the County's planning and decision-making effort.

The components of the process can be characterized as follows:

Value:	Something perceived to be intrinsically desirable by an individual or group; often evidenced by feelings and actions rather than words.
Goal:	The stated end toward which effort is to be directed; the expression of values.
Objective:	A specific target by which to achieve a goal.
Policy:	A definite course of action selected from alternatives in light of given conditions, to guide and determine present and future decisions.

Plans identify the direction in which an entity wishes to head and outlines the steps necessary, both now and in the future, to obtain the desired outcome. A successful plan provides attainable goals, which clearly identify future directions. A plan is also the foundation for implementation tools that influence change. Short-term changes may be slight; however, a commitment to a long-term planning process permits the cumulative effect of short-term changes to, over time, achieve the goals identified in the plan document.

VALUES

In preparing the 2020 Unified Plan, an extensive effort was made to gain input from a broad cross-section of municipal and township officials and non-profit agencies. In addition, the Regional Planning Commission (RPC) invited business leaders and citizens to four listening sessions, held throughout the County. See Appendix H for

key person interviews and notes. The Commission collected the information and identified the following values most commonly expressed during those meetings:

- Residents value the County for its environment, quality of life, and existing character.

- Agriculture plays a critical and desirable role in the County as a land use and as an economic engine.

- Residents prefer to see agricultural lands remain intact and protected from urbanization.

- Open space, scenic views, passive recreation, and natural features (especially lakes, rivers, woodlands and glacial topography) are important elements of the County's character and livable environment.

- Water quality and quantity are universally held measures of the County's health and livability.

- Residents feel that the quality of education is of critical concern.

- Traffic congestion is the most uniformly undesirable quality that growth has caused, followed closely by the loss of rural character, and stress on the school systems.

- The ability to travel on roadways uninhibited by traffic to a chosen destination is desired; but the cost, maintenance and impacts to communities caused by high volume roads are burdensome.

- Future highways, transit facilities, and alternative non-motorized transportation modes should be adequately planned for now; corridors should be protected for future use.

- Residents believe there should be a balance between the desire to maintain the existing character of McHenry County and the desire to increase business development and employment opportunities.

Social responsibility entails protecting unique, vulnerable and valuable cultural and ecological resources. With that responsibility always in mind, the Regional Planning Commission's next step assimilated the values expressed during those public meetings and then ultimately formulated goals and objectives to guide the County over the next decades.

GOALS and OBJECTIVES

The following goals and objectives were developed in response to those concerns most often heard during the listening sessions.

QUALITY of LIFE

Goal:

Development, redevelopment, conservation, environmental protection, and public improvements, which support the highest quality of life in existing and future communities

Objectives:

- Work with municipalities and school officials to promote balanced growth that sustains the long-term financial health of schools.

- Advocate the importance and function of existing central business districts.

- Promote the preservation of the County's unique rural environment.

- Encourage future developments to incorporate desirable qualities that create a sense of place in McHenry County.

- Coordinate planning efforts between units of local government and transportation officials to provide for a variety of transportation options and increase mobility throughout the County.

- Conserve historically significant structures, areas, historic sites, landscapes, and open spaces, and integrate the Historic Preservation Ordinance into land use decisions.

- Emulate the desirable aspects of the County's natural and built environments.

- Promote creative reuse of existing structures found throughout the County.

- Encourage the expansion of conservation areas.

AGRICULTURE

Goal:

Continuation of agriculture as a permanent, productive land use and an economic engine, that provides viable agricultural activities and rural character

Objectives:

- Maintain and protect the most productive agricultural lands for agricultural purposes.

- Recognize the cultural, social, economic, environmental and aesthetic amenities provided by agricultural land use.

- Protect viable farm operations from premature encroachment of non-agricultural uses by careful land use regulation and buffering requirements.

- Discourage residential growth in rural areas of the County.

- Support enactment of state enabling legislation to provide additional incentives to retain farmland for agricultural purposes.

- Encourage soil conservation practices, which reduce soil erosion, improve water quality, and increase farmland productivity.

RESIDENTIAL

Goal:

Quality housing that meets the diverse needs of citizens

Objectives:

- Encourage a variety of affordable housing types, consistent with demands created by current needs and future growth.

- Improve deteriorating residential areas; assure safe, healthy, and attractive communities through preventative maintenance and appropriate reinvestment.

- Encourage residential development that is affordable to the County's population and workforce.

- Promote a variety of designs and styles in housing development to avoid monotony.

- Provide opportunities for housing the elderly and the disabled.

- Incorporate conservation design principals into future developments.

- Encourage the infill of existing residential and residentially subdivided areas.

ECONOMIC

Goal:

A strong, diverse base of agriculture, commerce, and industry that provides a broad range of job opportunities, a healthy tax base, and high levels of service for residents

Objectives:

- Protect and encourage agriculture and agribusiness.

- Encourage the attraction, retention, and expansion of industry and business to provide a sound tax base in McHenry County.

- Foster diversity in employment opportunities close to the existing work force.

- Support the location of commercial and industrial development in proximity to key transportation corridors and population centers.

- Encourage business and industrial planned developments in appropriate locations which incorporate high design qualities, site amenities, common open space and environmental protection.

- Promote the revitalization of existing retail and commercial areas.

OPEN SPACE, ENVIRONMENTAL & NATURAL RESOURCES

Goal:

Wise land use decisions that recognize the limitations of the natural environment and provide aesthetically pleasing places to live

Objectives:

- Protect McHenry County's natural resources, historic and cultural heritage, and sensitive environments.

- Convert land to urban uses only where it:
  - maintains the integrity of local and regional natural systems,
  - preserves natural features,
  - minimizes the impact on land, water, energy, and other natural resources.

- Promote regional bikeway-trail systems that enhance recreational opportunities while providing links between communities and important open space resources.

- Promote the retention and management of open space for recreation, wildlife habitat, historical and archaeological preservation and conservation.

- Promote the designation and management of environmental corridors to:
  - link open space areas, particularly waterways within the County,
  - permit wildlife movement between areas,
  - encourage the preservation of environmentally sensitive corridors, and
  - connect existing trails and public open space.

- Maintain and enhance the chemical, physical, and biological integrity of the County's surface and ground waters.

- Encourage alternatives to septic systems and high chemical input soil uses.

- Encourage land use practices that minimize soil erosion.

- Improve air quality and reduce offensive noise and light levels.

- Support environmentally sensible recreational uses of land in floodplains and areas adjacent to waterways and other natural open space.

- Ensure mining occurs with minimal environmental impact and encourage reclamation plans that maximize benefits for the County.

- Discourage development in flood prone areas.

- Protect floodplains, wetlands, and natural drainage systems; support watershed management practices.

- Protect and conserve high quality groundwater recharge areas; protect and improve surface water quality.

- Maintain a balance between withdrawal and recharge of groundwater and surface water resources.

- Integrate stormwater ordinance into land use and transportation decisions.

INTERGOVERNMENTAL COOPERATION

Goal:

Recognition by governing bodies that strong communities comprised of diverse neighborhoods and business centers provide countywide benefits

Objectives:

- Promote planning cooperation between governmental bodies to regulate the use and development of land.

- Encourage agreements and holistic planning strategies between municipalities and other public agencies to lower the cost of services and promote responsible development.

- Facilitate dialogue on projects of regional importance.

- Promote communication between governmental bodies to encourage meaningful discourse on important issues.

- Conduct annual meetings between county, township, and municipal planning commissions.

COMMUNITY FORM

Goal:

Further the pattern of compact, contiguous development; concentrate growth near urban centers; limit rural growth in secondary nodes and "unique" areas in an effort to guide the orderly and efficient development of McHenry County

Objectives:

- Establish a pattern of urban and rural land use that considers transportation systems, is environmentally sensitive and encourages compatible land uses.

- Support a diverse framework of industry and business to provide a healthy economic base with a range of employment opportunities.

- Encourage development within or adjacent to existing population centers to provide efficient public service and transportation options.

- Support development that fosters a sense of community.

- Support infill development and urban revitalization first.

- Enhance historic and architectural contributions to achieve a sense of place.

- Build neighborhoods, not subdivisions, that are strengthened through:
  - strong public school systems,
  - neighborhood and community open spaces,
  - streets that work for people and transit as well as for cars,
  - quality housing affordable to the County's population and workforce.
  - accessible jobs and services in a diverse and stable economy

PUBLIC FACILITIES and SERVICES

Goal:

Recognize that land-use and transportation issues are inseparable

Objectives:

- Maintain a level of public utilities, roadway and other facilities that imparts a long-term healthy and safe environment.
- Advocate high community standards within fiscal constraints.
- Choose public improvements, which promote compact development.
- Require public facilities as a prerequisite to development.
- Provide provisions for cultural amenities.
- Fund educational facilities to serve the needs of residents and the business community.
- Ensure that solid waste disposal alternatives meet countywide needs.
- Encourage coordinated planning and development for efficient, safe, and environmentally sound utility systems compatible with surrounding land uses and with the rural character of the County.

TRANSPORTATION

Goal:

Promote cost-effective transportation systems which support safe, efficient, and reliable movement of persons and goods, throughout the region

Objectives:

- Integrate transportation and land use planning to support orderly growth.
- Cooperate with federal, state and regional agencies to develop a safe, effective, diversified and economically feasible multi-modal transportation network.
- Design transportation infrastructure incorporating context sensitive guidelines that recognize and respect the existing character and quality of life in McHenry County.
- Construct a thoroughfare system based on a functional hierarchy. Identify key future roadway corridors and bridge crossings before development limits alternatives.

- Develop practical options, which consider the construction of new arterials and collectors but emphasize the improvement and expansion of existing roads.

- Establish a consistent standard of setbacks, easements, access limitations, and rights-of-way to address future widening, alignment and road extensions.

- Allocate specific arterial roads as limited access.

- Unify development regulations regarding road standards and functional classifications.

- Support land use patterns and transportation options, including mass transit, that reduce single-occupant auto dependency.

- Expand commuter rail service.

- Encourage transportation services for those who, by virtue of age, disability, and/or income are unable to drive.

- Develop the use of alternative transportation options, including trails and bikeways as a countywide system.

- Utilize accident analyses to aid in prioritizing transportation investments.

- Prioritize a preventive maintenance, resurfacing, rehabilitation, and reconstruction schedule for transportation infrastructure to obtain a maximum return on investment.

- Implement realignment of traffic routes to ensure safe and efficient movement of traffic throughout the County.

- Develop and adopt a formal transportation investment process to determine location, type, and priority of transportation expenditures.

CHAPTER FOUR
MODELING ALTERNATIVES

The foundation for the *2020 Unified Plan* focuses on three alternative development patterns in conjunction with transportation modeling:

TREND OF DEVELOPMENT SCENARIO
AGGREGATED MUNICIPAL PLAN SCENARIO
MANAGED GROWTH SCENARIO

Each scenario was evaluated against a host of factors:

- desirability from a physical and economic standpoint,
- impacts to the natural environment,
- utilization of existing infrastructure,
- implications with respect to preserving and enhancing quality of life,
- compatibility with the working policy elements of the goals and objectives; and most importantly,
- the effects on the County's transportation network.

The *Managed Growth Scenario* fared the best, and this was chosen and then used for modeling purposes. Ultimately, the *Managed Growth Scenario* became the basis for the *2020 Unified Plan*.

Prior to explaining the *Managed Growth Scenario*, it is, necessary to understand what the other scenarios proposed and why they proved less suitable as guides for future development and planning policy. Nevertheless, looking closely at all three development patterns reveals that some commonalities and notable qualities exist in each, and when feasible were ultimately incorporated into the *Unified Plan*.

A year 2000 land use map, shown as Exhibit TBD: *Existing 2000 Land Use in McHenry County* was generated using Arc View GIS software. This base map overlaid 1995 land use data, prepared by the Northeastern Illinois Planning Commission (NIPC), onto 2000 aerial photographs. Growth and land use changes that occurred since 1995 were digitally recorded providing a creditable foundation for land use analysis. The map was also used to calibrate residential densities in modeling traffic impacts and, ultimately, it too became the foundation for assessing transportation issues.

Looking closely at all three development patterns reveals that some commonalities and notable qualities exist in each. At the same time, much was also learned from the negative aspects and related impacts.

Trend of Development Scenario	**This option examines the probability of what McHenry County would look like if there were no county or municipal plans.**

While the majority of McHenry County's land continues to be devoted to agricultural uses, increased development pressures, over the past two decades, have resulted in accelerated land consumption. Whereas residential land use has escalated, an increase of nearly 25%, commercial and industrial land uses have failed to keep pace. Even though the County benefits from the strength of its strong municipal centers, without a balanced tax base, the County will be hard pressed to financially provide needed services for existing citizens as well as for new residents.

With an anticipated additional 33% population increase over the next fifteen years, development patterns represented by *non-regulated growth* reflect a plausible extension of where new development will occur, as determined by the McHenry County Regional Planning Commission and Planning Department staff. Using the digitally created *2000 Land Use Map* as a base, the following factors were applied, again assuming no long-range plans existed:

- **An increase in land consumption due to low residential densities**

  Future population projections provided by NIPC were used to calculate the amount of growth each municipality is projected to absorb. Densities for residential land use classifications were factored to determine the amount of needed acreage. In this scenario, low density single-family residential, ½ acre lots or parcels per each dwelling unit, was considered to likely be the "most pervasive" residential type, and therefore occurs throughout most of the scenario as the dominant form of growth (both within municipalities and in the unincorporated areas of McHenry County). Additional infill-type growth is shown where higher density development is already beginning to occur, particularly within the southeastern region of the County.

- **Increased sporadic development along major corridors**

  As populations increase, demand for convenient services also intensifies. Major and even minor road corridors offer increased visibility for businesses and are in close proximity to residential growth areas. Additionally, "stripping out" commercial uses utilizing existing infrastructure, is in the short-term, the least expensive means to develop property. However, in the long-term, the

impact of this type of development pattern particularly to the transportation network may be the most costly in terms of increased travel times, the need for additional vehicular lanes, and access restrictions to address safety concerns.

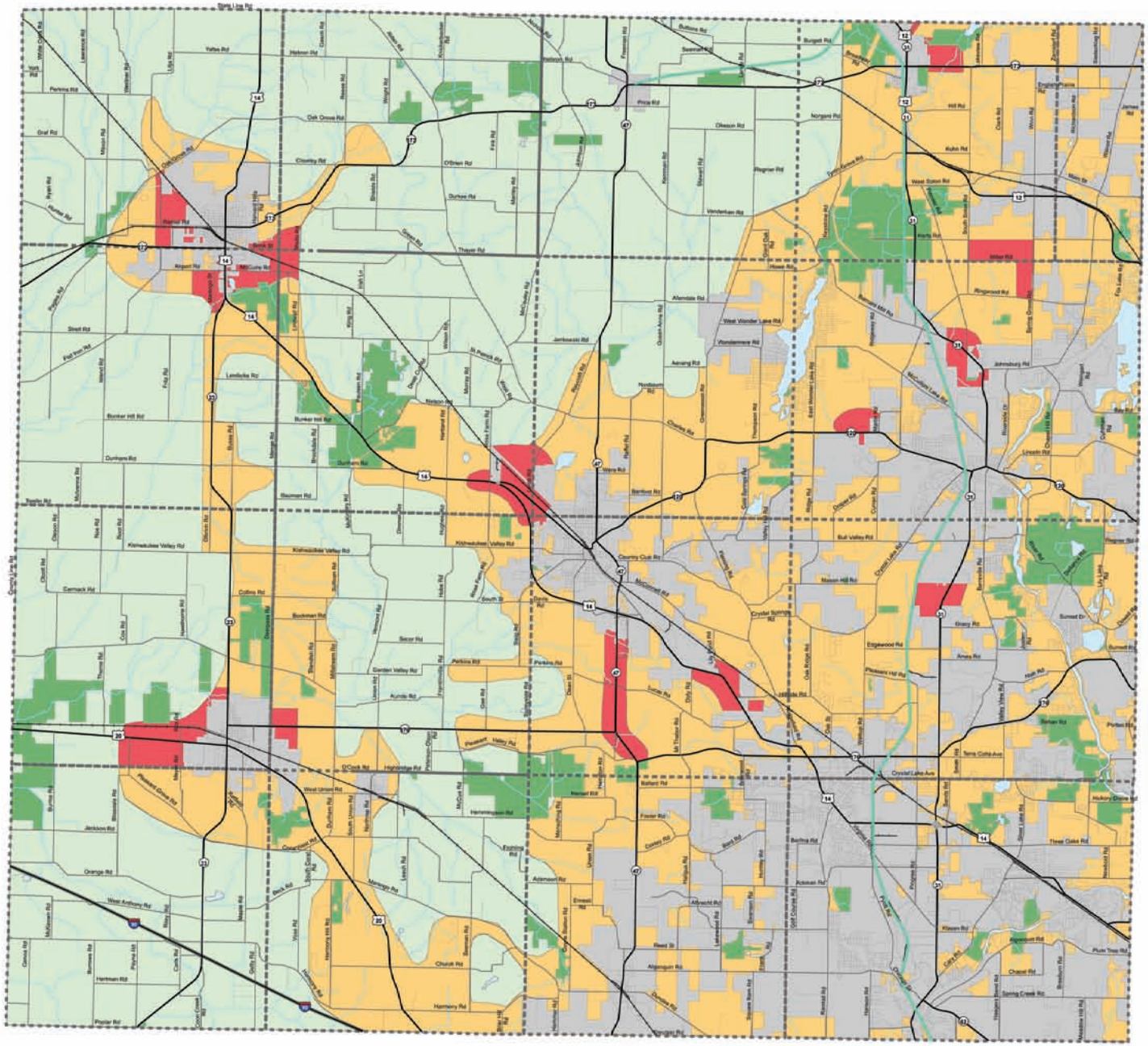
- **Limited protection of farmlands**

  Large tracts of active and prime farmland may, ultimately, be parceled for scattered subdivisions to absorb the projected increases in population. As this continues to occur, active agricultural uses will disappear either through conversion of use, isolation and/or economic obsolescence.

- **Limited protection of environmental resources and open space**

  In the *Trend of Development Scenario*, there is limited emphasis on the protection of wetlands and stream corridors. Future development is permitted to occur along delineated wetland edges. Large-scale open space acquisition is not planned; the preservation of forest cover, steep slopes and other environmental resources is not considered.

Exhibit TBD: *Trend of Development Scenario* graphically demonstrates why the lack of long-range planning presents an overwhelmingly dangerous precedent for future development.



Data Source: Northern Illinois University, NIPC, Teska Associates, Inc.

Exhibit TBD : Trend of Development Scenario

Land Use Categories

- Agriculture
- Residential
- Commercial/Industrial
- Open Space (Parks, MCCD, IDOC, golf courses, recreation areas, etc.)

Natural Features

- Lakes (Greater than 20 acres)
- Rivers and Streams

Transportation Features

- Interstate 90
- U.S. and State Routes
- Railroads
- Major Roads
- Local Roads
- Bike Paths/ Trails

Boundaries

- Cities and Villages
- Townships

October 11, 2005

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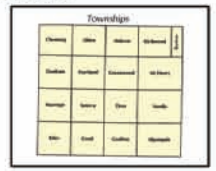
McHenry County, Illinois



Aggregated Municipal Plans	**Looking at municipal plans provided a look at what was proposed by each municipality within their 1½ mile planning area.**

Data was provided through interpretation of the most currently available land use plans for each municipality located within McHenry County as well as from information gathered from interviews between the Regional Planning Commission and municipal representatives early in the planning process.

Note: Planning data incorporated into this *Plan* reflects adopted municipal plans updated through 1998. (See Appendix G for key person interviews.)

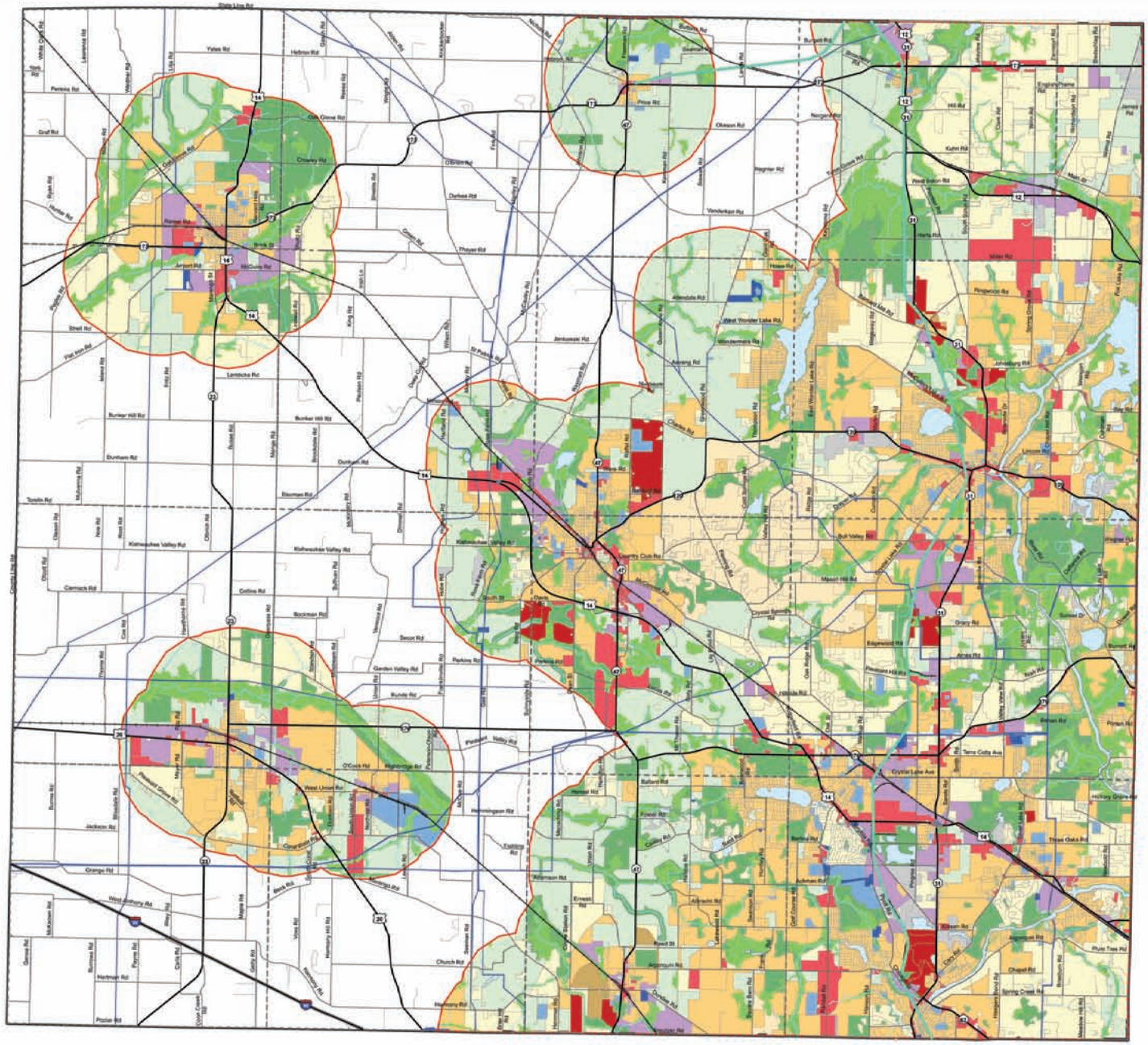
Where land use conflicts existed between neighboring municipalities, efforts were made to accurately represent the most logical development pattern based on existing and planned adjacent uses. Recognizing that not all municipalities use the same land use classifications, those represented on this map have been simplified into categories that best represent a commonality across the County. This is particularly true for lands categorized as "Mixed Use" as this type of development can vary drastically with respect to densities and the nature and mix of uses. (See Exhibit TBD: *Aggregated Municipal Plans Map.)*

The benefit to this option includes an implicit buy-in, because each community has approved their own plan(s). In addition, this option also encourages growth be restrained within municipal boundaries or at least within established planning areas, which minimizes significant scattered development in regions too distant for future annexation.

Aside from inconsistencies in the future plans for sites that fall within more than one municipality's 1½ mile planning area, the most significant drawback to this option is that individual municipal plans are not projecting development within the "planning period" or, more simply stated, municipalities plan for how it should look at total build out. While useful at a municipal level, this method does not work as well at a county level. This is primarily due to the timeline assumed to reach maturity for each individual municipality.

For a county to develop policies that will effectively manage and respond to future growth, it must have a strong sense of where it will be, particularly with respect to population, over a given period-of-time. McHenry County's best gauge for future growth comes from the 2020 population forecast figures prepared by the Northeastern Illinois

Planning Commission (NIPC). By applying the density variables in calibrating the 2000 base map to the land uses presented in this option, it is possible to calculate the population that this arrangement anticipates. This test finds that the *Aggregated Municipal Plans Scenario* foresees a population of nearly 580,000, over 230,000 more residents than NIPC projects for 2020. This "full build-out" projection is incompatible with rational land use and transportation facilities planning on a countywide level.



Data Source: Northern Illinois University, NIPC, Teska Associates, Inc.

Exhibit TBD : Aggregated Municipal Plans Scenario

Future Land Use Categories

- Agriculture
- Countryside Residential
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Commercial
- Mixed Use
- Industrial
- Transportation/Utilities
- Institutional (Schools, cemeteries, public buildings, etc.)
- Open Space (Parks, MCCD, IDOC, golf courses, recreation areas, etc.)
- Earth Extraction

Natural Features

- Environmentally Sensative Areas (Floodplains and Wetlands greater than 20 acres)
- Lakes (Greater than 20 acres)
- Rivers and Streams

Transportation Features

- Interstate 90
- U.S. and State Routes
- Railroads
- Major Roads
- Local Roads
- Prairie Trail Bike Path

Boundaries

- Municipal Planning Areas
- Townships

October 11, 2005

0 1 Mi. 2 Mi.

McHenry County, Illinois

Managed Growth Scenario	**This scenario represents the strengths of the Aggregated Municipal Plans, the desires of the citizens, and good planning practices.**

The *Managed Growth Scenario* represents an effort to borrow from and build on the strengths of the *Aggregated Municipal Plans Scenario*. It also incorporates the rational, sustainable, and sensible elements stated previously in the chapter cataloging the *Plan's* goals and objectives.

Development patterns presented in the *Managed Growth Scenario* represent a recommended pattern for future land uses. *Managed Growth* attempts to preserve the existing character of the County while protecting and sustaining agriculture, natural resources and the environment. It encourages logical relations between residential development, employment and transportation facilities; typical concepts associated with "Smart Growth". The following principles are addressed in this scenario.

- **Minimized land consumption for residential uses**

  In this scenario, projected population growth is absorbed by increasing residential densities by encouraging the clustering of homes, neighborhoods and by identifying more in-fill development. As compared to the *Trend of Development Scenario,* a greater proportion of the County would remain in agriculture with more areas potentially devoted to open space. Residential development within the unincorporated areas would be absorbed by allowing housing in areas that would not negatively impact agricultural uses or in areas with good access to municipal services. The negative impacts on rural roads, active agriculture and larger tracts of farmland typically associated with development, would also be reduced.

- **Protection of wetlands and stream corridors**

  Protection and enhancement of wetlands, floodplains and stream corridors would create natural buffers between adjacent land uses, and in some cases between adjacent communities. These corridors would serve as ideal locations to establish a network of passive recreational opportunities. Through tight regulation, easements or acquisition, development is not permitted to infringe on these "environmental areas." These properties do not need to be within public ownership. Some may remain as private open space, or be governed by private conservation practices and appropriate agricultural management.

- **Environmental sensitivity**

  In an effort to identify the lands most capable of supporting development without harming the natural environment, existing soil and aquifer conditions were mapped and used to steer growth toward lower impact areas.

- **Establishment, enhancement and preservation of open space**

  As residential densities are increased, the demand for open space and recreational facilities intensifies. This option planned for increased active and passive open space by integrating attractive natural areas with land sensitive to development. Other objectives, such as community identity, buffering along with the interconnection of resources through trail networks were likewise addressed.

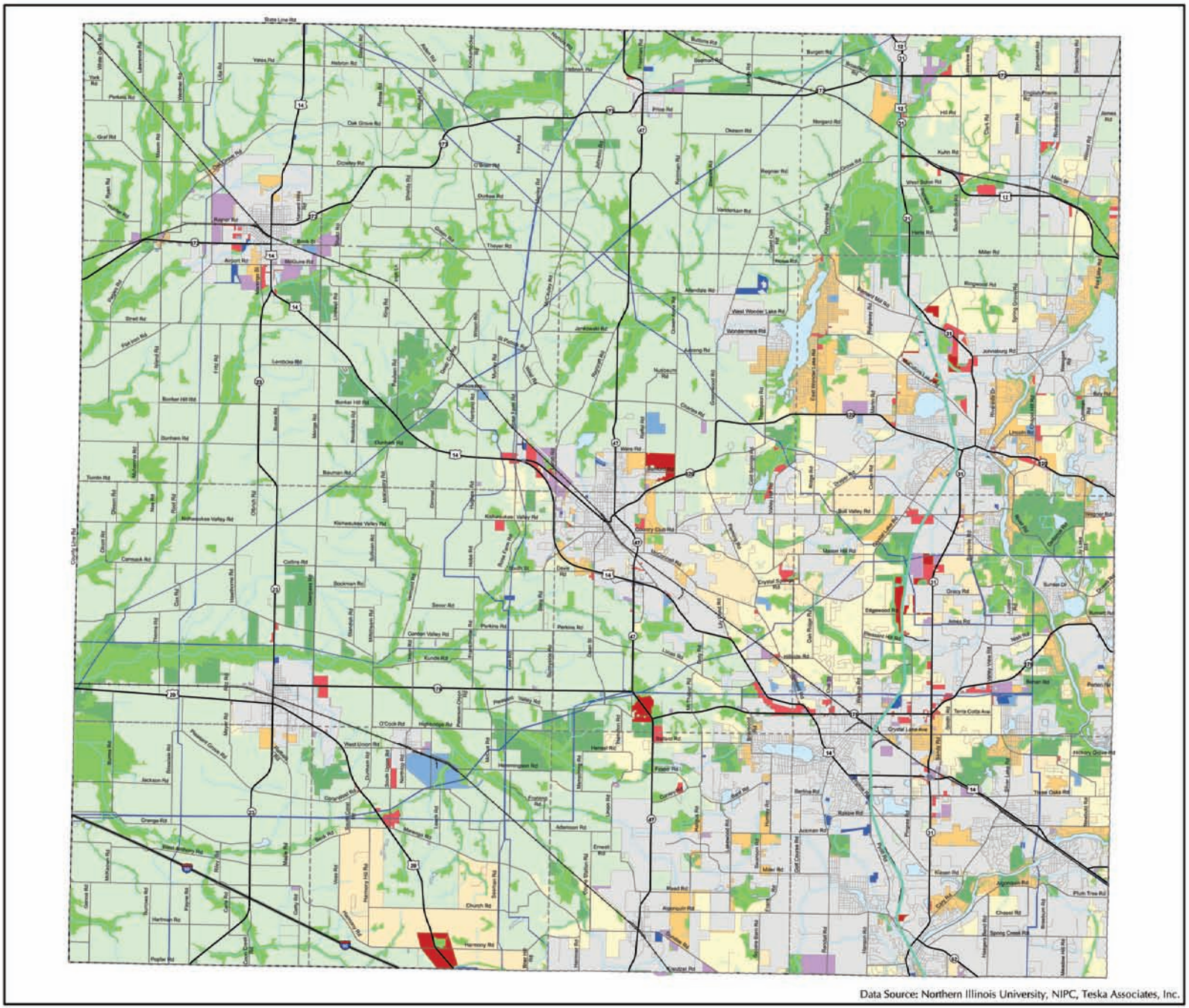
- **Heightened intergovernmental cooperation**

  To encourage increased cooperation between units of government the *Managed Growth Scenario* builds on the concept of the *Aggregated Municipal Plans Scenario* by replicating individual municipal land use recommendations within their corporate limits.

After analyzing each development option, the *Managed Growth Scenario* was ultimately chosen as the basis for the *2020 Unified Plan* because it presents comprehensive and logical alternatives for land use planning and transportation modeling. *Managed Growth* incorporates the best features of the *Trend of Development* and the *Aggregated Municipal Plans Scenarios* while offering insight concerning development pressures. Overall, it provides tools best suited to meet the goals and objectives expressed by McHenry County's citizens as well as the mechanics necessary for developing policy guidelines.

Managed Growth protects prime farmland, surface and groundwater, and other natural resources, by strengthening the nodal concept used in previous land use plans adopted by the County. It recognizes what is planned within municipalities and encourages forming planning partnerships and on-going communication with municipalities.

By concentrating growth within municipalities and promoting increased densities, *Managed Growth* provides more options for transportation and encourages economic development. *Managed Growth* adds significantly more jobs, while locating them in areas where they can be reached more efficiently. By combining *Managed Growth* with the *Preferred Roadways* in the *Financially Constrained Traffic Scenario*, traffic congestion will lessen.



Data Source: Northern Illinois University, NIPC, Teska Associates, Inc.

Exhibit TBD : Managed Growth Scenario

Future Land Use Categories

- Agriculture
- Countryside Residential
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Commercial
- Mixed Use
- Industrial
- Transportation/Utilities
- Institutional (Schools, cemeteries, public buildings, etc.)
- Open Space (Parks, MCCD, IDOC, golf courses, recreation areas, etc.)

Natural Features

- Environmentally Sensative Areas (Floodplains and Wetlands greater than 20 acres)
- Lakes (Greater than 20 acres)
- Rivers and Streams

Transportation Features

- Interstate 90
- U.S. and State Routes
- Railroads
- Major Roads
- Local Roads
- Prairie Trail Bike Path

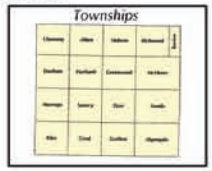
Boundaries

- Municipal Boundaries
- Townships

October 11, 2005

0 1 Mi. 2 Mi.

McHenry County, Illinois



TRANSPORTATION MODELING SCENARIOS

To plan McHenry County's future roadway network, an analysis of forecasted traffic conditions for 2020 was conducted using CATS's modified travel-demand model. The model output summary tables are included in Appendix E.

Initially, the roadway capacity needs for the *2020 Base Case Scenario*, in terms of additional lane requirements on existing and planned roads, were identified. Three additional road scenarios were then established representing different approaches to meet capacity needs. Each was evaluated based upon the collective performance and the differences in performance of individual improvements between scenarios. Differences were exposed between the three scenarios that were easily attributable to individual projects. In order to highlight contrasting conditions, most projects were part of only one scenario; and, no individual project appeared in more than two of the first three road network scenarios.

The next step was to combine the best performing individual projects into a *Preferred 2020 Roadway Network*. The *Preferred 2020 Roadway Network* was then modeled and evaluated. Because financial constraints and other development goals limit the actual implementation of preferred projects, the final step in modeling the future road network constrained this plan to realistically attainable fiscal resources.

Projects were prioritized based on their ability to meet the stated goals and objectives[5], to be consistent with the modeled land use (a.k.a. *Managed Growth*) and to be supported by likely funding levels. The end product resulted in a set of road improvements that prepares the County to accommodate forecasted 2020 growth within the *Financially Constrained 2020 Roadway Network* model.

MODELING EVALUATIONS

In the development of the Preferred Roadway Plan, four scenarios (modeling strategies) were developed and tested[6]. The first strategy, *Base case Scenario,* was based on the existing roadway network with the roadway projects already committed to be built. This is essentially a "do nothing" strategy that acts as the base by which the other strategies are compared. The second strategy, *Scenario* 1, was based on input from existing municipal and township plans as well as input from the McHenry County Transportation and Planning & Development Committees.[7] The third strategy, *Scenario 2,* did not

[5] Refer to Chapter 3: *Planning Framework* for more information

[6] All three modeling strategies compared output between the *2020 Base Case Scenario*, the *Tightly Managed Growth* (land use) *Scenario*, and *NIPC's Projected Growth Scenario.*

[7] Transportation Committee and the Planning & Development Committee are elected County Board members

allow any road to be widened more than four lanes plus a median. *Scenario 3,* the fourth strategy, was designed to accommodate forecasted need for capacity, and focused on investments by adding capacity to roadways in the existing population centers and areas of planned growth in support of the *Managed Growth* (land use) *Scenario*.

For consistency, all three strategies were evaluated keeping the following regional considerations and assumptions in mind.

- The Chicagoland area is growing at an increasingly rapid rate. Population forecasts, more recent than those used for this planning effort, indicate that McHenry County's population could double over the next 20 years. In addition, between 1990 and 1998 approximately 6,000 additional vehicles (per year) were registered in the County. Between 1999 and 2003, the number of newly registered vehicles increased an average of 9,600 per year.

- The *Managed Growth Scenario* and NIPC Growth forecasts for future land use were used for modeling and ultimately evaluating the *2020 Roadway Network*.

- McHenry County does not have direct access to a freeway or expressway. It is the second most populous county in the United States with this distinction. Illinois Routes 31 and 47, as well as Randall Road are heavily traveled primarily because they access I-90 (in Kane County).

- There are three major travel corridors in McHenry County: the southeasterly flow into downtown Chicago, O'Hare Airport, Schaumburg and Hoffman Estates; the north-south flow along the Fox River; and an east-west flow to Rockford /Lake County.

- Growth in Lake County, combined with the planned extension of I-53 north to Illinois Route 120, will increase the already robust east-west trips between McHenry and Lake Counties.

- Longmeadow Parkway Bridge across the Fox River was assumed completed and in service for purposes of this study.

- Level of Service "D", a measurement of roadway conditions[8], was used as the threshold for capacity recommendations. Travel speed is reduced by increased volumes. Only minor disruptions can be absorbed without

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appointed to these committees by the County Board Chairman.

[8] Under Level of Service "D", the ability to maneuver is severely restricted due to traffic congestion.

extensive queues deteriorating levels of service.

- Assumptions for capacity recommendations, based on a range of traffic volumes for highway lane configurations, operate at Level of Service "D" or better. These ranges are:

Two Lanes	up to 13,120 vehicles per day
Four Lanes	up to 27,880 vehicles per day
Six Lanes	up to 44,280 vehicles per day

- Travel times to the I-90 & I-290 Interchanges were used as an indicator of changes in travel flow throughout the County's roadway network. This location was assumed to be a major regional through point for McHenry County traffic.

Measures of effectiveness provided by CATS' *Regional Travel Model* include Vehicle Miles Traveled (VMT), Congested Vehicle Miles Traveled (CVMT), Vehicle Hours Traveled (VHT), and Congested Vehicle Hours Traveled (CVHT). Values for those measurements were provided by the local tollway authority, and state, county and township jurisdictions. In addition, travel times to the I-90 and the I-290 interchanges were evaluated as indicators of network efficiency.

The CATS model, however, did not take into account congestion occurring at intersections. Even though fifty percent of perceived congestion results from intersection capacity constraints, those limitations were not part of the modeling process. Field investigations conducted during peak travel hours revealed that nearly all intersections need improvements in conjunction with ongoing maintenance. These improvements include new traffic signals, interconnecting traffic signals, relocating driveways (away from intersections), dedicating left- right turn lanes, and in one particular case, installing a grade-separated intersection.

Base Case Scenario Evaluation

The Base Case Scenario includes the existing and committed (E + C) roadway network, based on the 1999 verified road network anticipated projects that are fiscally committed to being built between 1999 and 2020.

CATS' modeling results were provided in two sets, for the *Base Case Scenario,* using population and employment forecasts for the *Managed Growth Scenario (MGS)* and *NIPC's Projected Growth Scenario (PGS)*. This basis compared *Managed Growth's* effect on the roadway network with those impacts identified using NIPC's projections. A complete description of the assumed to be completed projects and modeling results is detailed in Appendix TBD.

NIPC has forecasted McHenry County's population to increase by 33% between 1999 and 2020 with the number of corresponding jobs increasing by 32% as well. These rises, combined with ongoing changes in travel habits and the committed 2% increase in lane miles countywide leads to:

- a 34% increase in vehicle miles traveled,
- a 45% increase in vehicle hours traveled,
- a 97% increase in the amount of general traffic congestion (congested vehicle miles traveled), and
- a 180% increase in the amount of time spent in slow or stalled traffic delays. See Table 4-9 below.

Table 4-9: Measures of Effectiveness for the *Base Case Scenario*

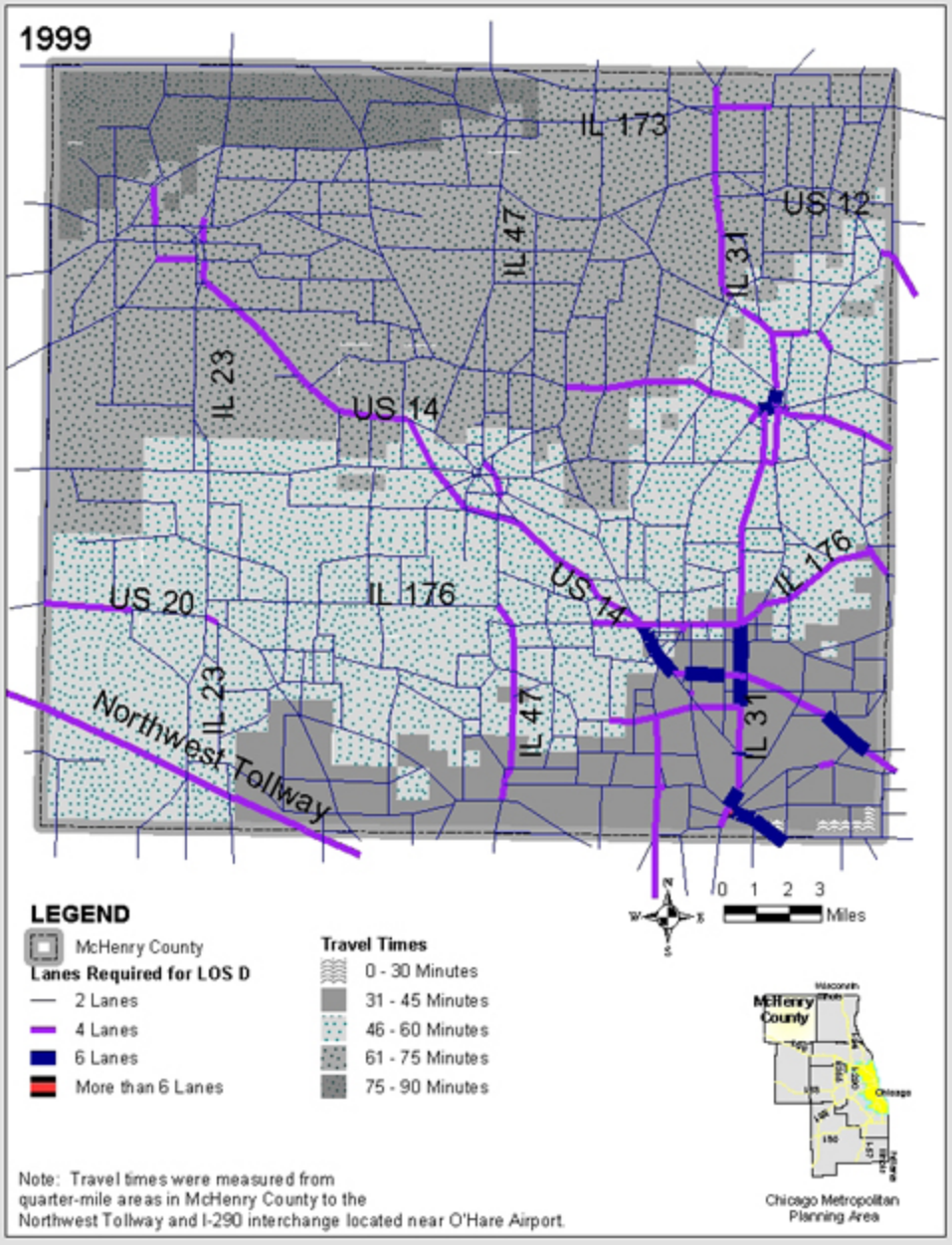
Year	Vehicle Miles Traveled	Vehicle Hours Traveled	Congested Vehicle Miles Traveled	Vehicle Hours of Delay
1999	7,153,352	219,698	702,574	15,012
2020 - Managed Growth Scenario	9,805,983	317,998	1,282,628	34,197
2020- NIPC Projected GrowthScenario	9,604,289	319,817	1,390,607	42,106

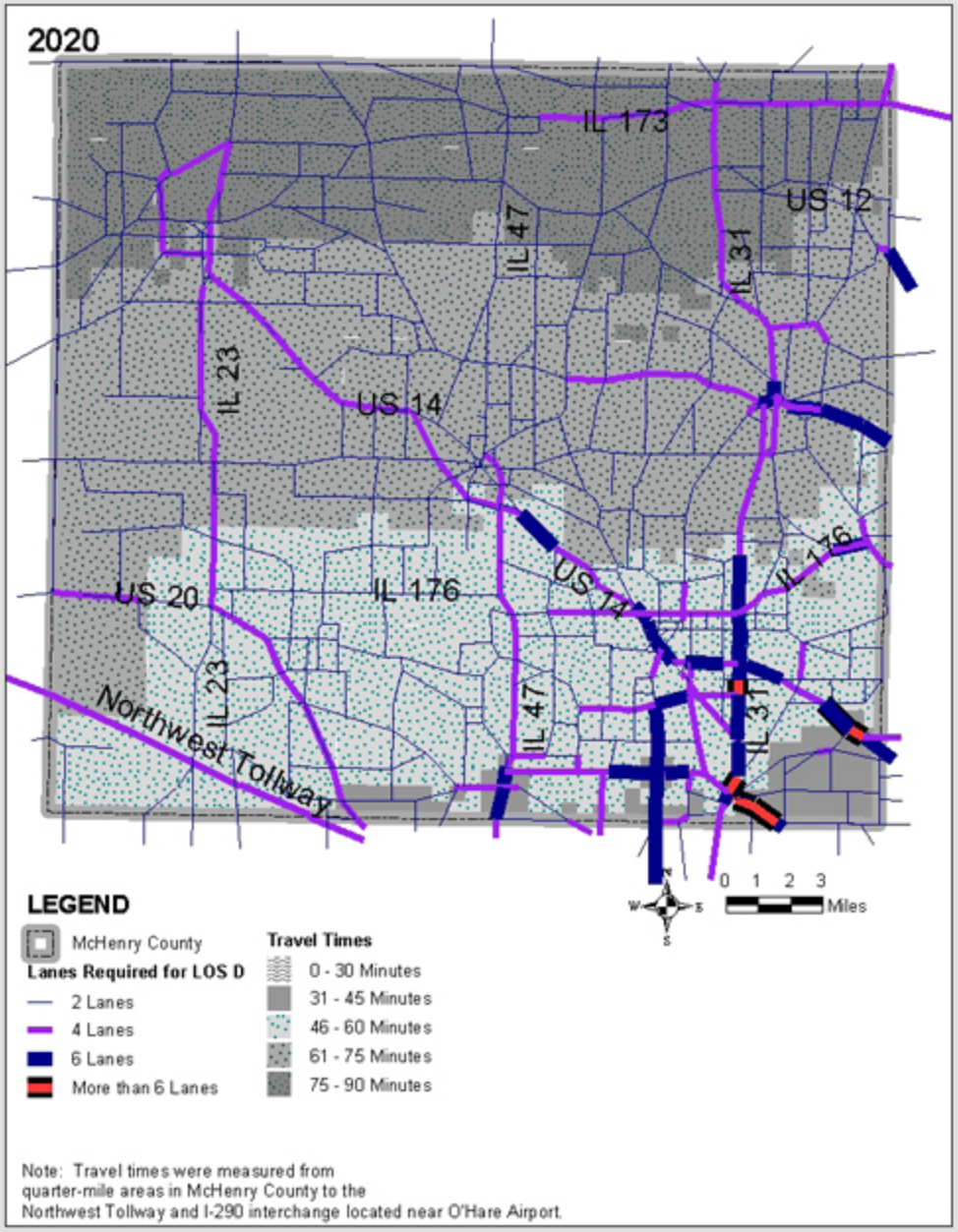
Refer to Exhibit TBD, *Base Case Scenario 1999 to 2020 Evaluation* to compare the existing roadway network performance with the forecasted conditions in 2020 and refer to Exhibit TBD: *2020 Base Case Scenario Evaluation* to compare the NIPC Growth Projections and the Managed Growth Projections impacts on the roadway network.

As discussed in detail in the *McHenry County 2010 Transportation Plan*, traffic primarily moves south and east to exit the County. The Fox River presents a natural barrier to this movement adding to the south/east traffic congestion. The *2010 Transportation Plan* called for additional lanes of traffic in order to cross the river more efficiently, especially near Illinois Route 62.

The eastern third of the County suffers the greatest increase in congestion, shown by changes in travel times to the I-90 & I-290 interchanges as well as in the number of lanes required for Level of Service "D". Refer to Exhibit TBD, *2020 Base Scenario Evaluation*. This is due to the increases in population in this area and the amount of people who live in McHenry County but work or shop south/east of the County and the bottlenecks associated with the Fox River bridge crossings that must be traversed for these trips.

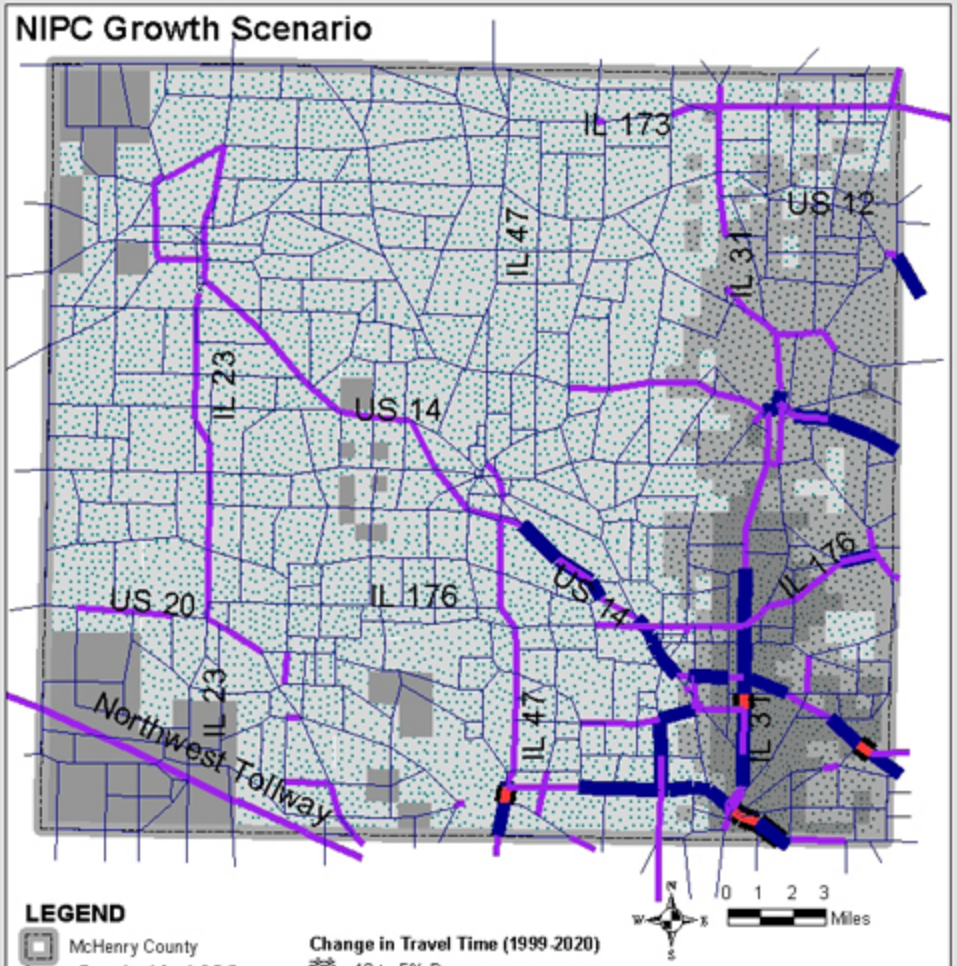
Base Case Scenario 1999 to 2020 Evaluation





2020 Base Case Scenario Evaluation

NIPC Growth Scenario



LEGEND

McHenry County

Lanes Required for LOS D

- 2 Lanes
- 4 Lanes
- 6 Lanes
- More than 6 Lanes

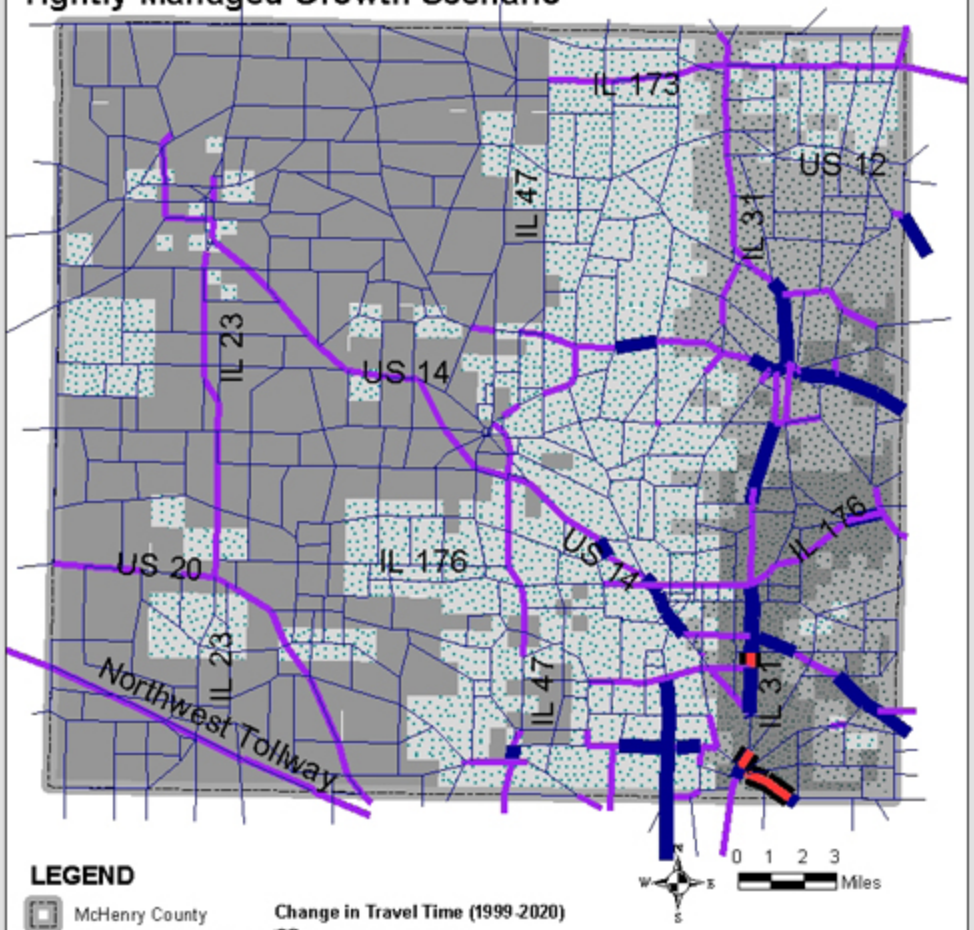
Change in Travel Time (1999-2020)

- 10 to 5% Decrease
- 4 to 1% Decrease
- No Change
- 1 to 5% Increase
- 6 to 20% Increase
- 21 to 25% Increase
- 26 to 40% Increase

Note: Changes in travel times were measured from quarter-mile areas in McHenry County to the Northwest Tollway and I-290 interchange located near O'Hare Airport.

Chicago Metropolitan Planning Area

Tightly Managed Growth Scenario



LEGEND

McHenry County

Lanes Required for LOS D

- 2 Lanes
- 4 Lanes
- 6 Lanes
- More than 6 Lanes

Change in Travel Time (1999-2020)

- 10 to 5% Decrease
- 4 to 1% Decrease
- No Change
- 1 to 5% Increase
- 6 to 20% Increase
- 21 to 25% Increase
- 26 to 40% Increase

Note: Changes in travel times were measured from quarter-mile areas in McHenry County to the Northwest Tollway and I-290 interchange located near O'Hare Airport.

TRANSPORTATION SCENARIO 1 (Existing Plans) EVALUATION

This scenario, based upon input from existing municipal and township plans, combines and tests concepts already adopted by communities in the County. A complete description of individual projects included in this scenario are discussed in AppendixC.

Primary aspects of *Scenario 1* are:

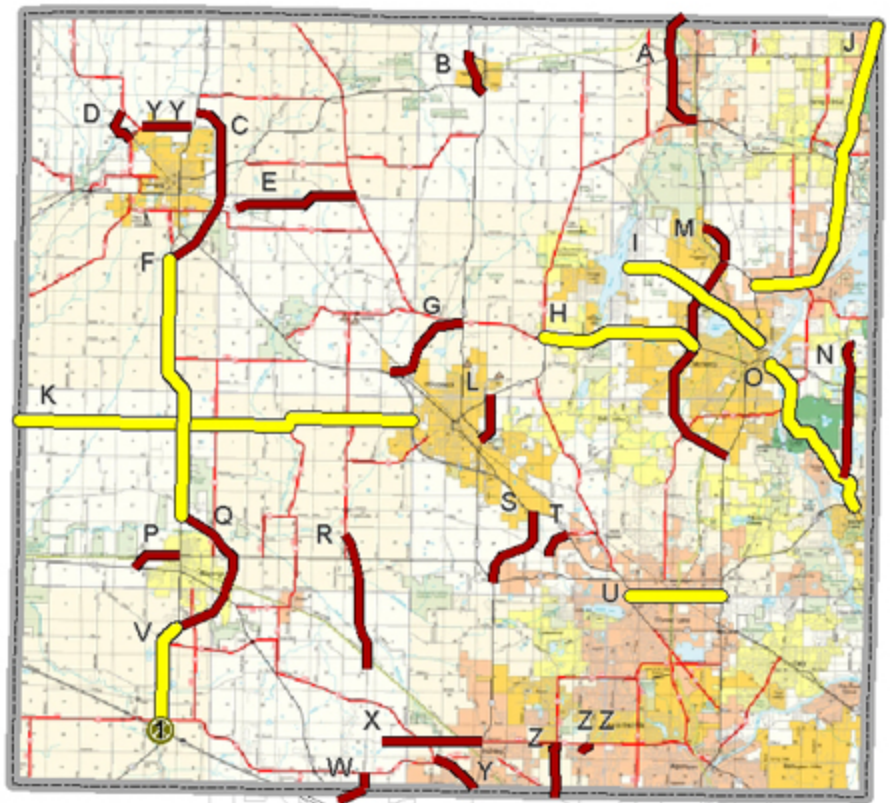
- a full interchange at Illinois Route 23 and Interstate 90, and
- new bypasses around the communities of McHenry, Richmond, Marengo, Harvard, and Hebron. See Exhibit TBD: *Transportation Scenario 1 (Existing Plans) Evaluation.*

This scenario calls for approximately 185 lane miles and estimates costs to run between $282 million (Year 2003) and $466 million (Year 2020). The majority of new roads add 78 lane miles to state highways and 57 lane miles to County routes.

While overall congestion is somewhat reduced, most of the improvements are not in the highly populated/congested (south and east) areas of the County. Refer again to Exhibit TBD: *Transportation Scenario 1 (Existing Plans) Evaluation*.
A summary of the measures of effectiveness provided by CATS' *Regional Travel Model* for *Scenario 1* is shown in Table 4-10.

Scenario 1 Evaluation

Alternatives



Legend

- McHenry County
- Kane County Roads
- Interstate 90 (Northwest Tollway)

Scenario 1 Road Alternatives

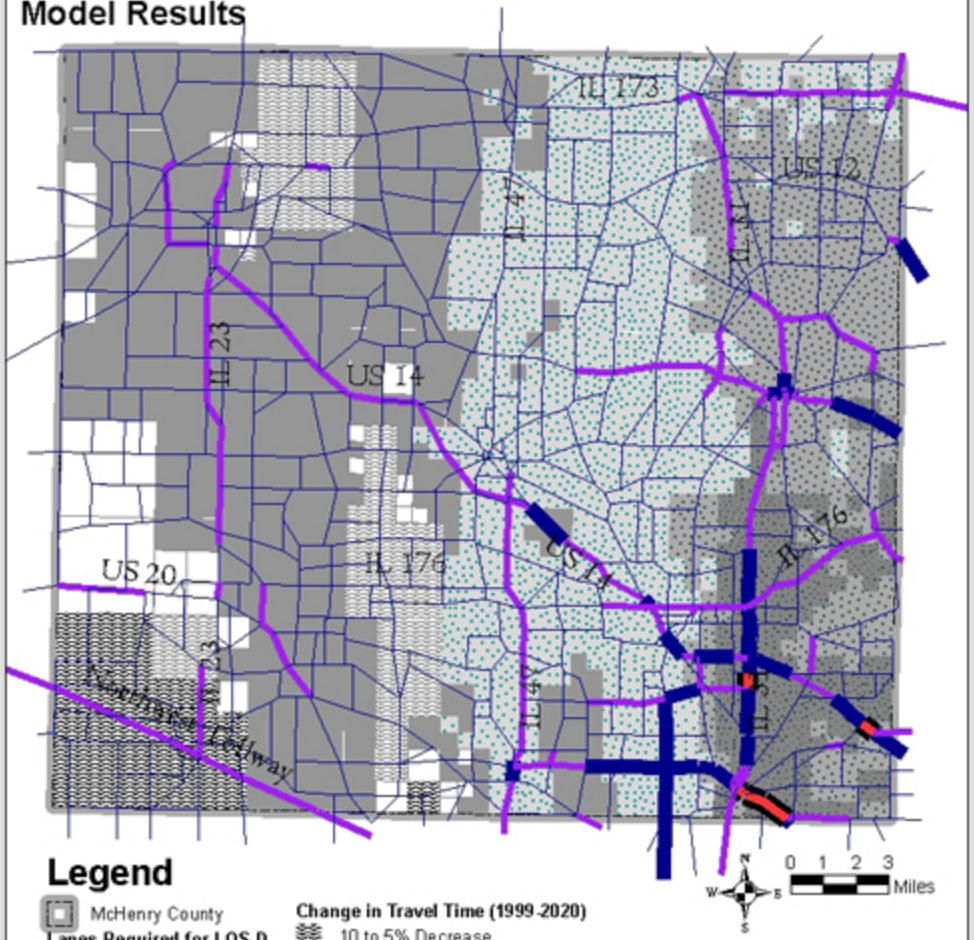
- 2 Lanes (New Link or Improved)
- 4 Lanes (Add 2 Lanes to Existing Road)
- New Full Interchange

0 1 2 3 Miles

Chicago Metropolitan Planning Area

Note: Definitions for each alternative labeled above are included in the appendix of this document.

Model Results



Legend

- McHenry County

Lanes Required for LOS D

- 2 Lanes
- 4 Lanes
- 6 Lanes
- More than 6 Lanes

Change in Travel Time (1999-2020)

- 10 to 5% Decrease
- 4 to 1% Decrease
- No Change
- 1 to 5% Increase
- 6 to 20% Increase
- 21 to 25% Increase
- 26 to 40% Increase

0 1 2 3 Miles

Note: Changes in travel times were measured from quarter-mile areas in McHenry County to the Northwest Tollway and I-290 interchange located near O'Hare Airport.

TRANSPORTATION SCENARIO 2 (Four Lane Maximum) EVALUATION

This strategy constrains all roads to a maximum of four lanes plus a median and all roads that showed a need for additional capacity in the base-case were widened to meet the criteria. A complete description of individual projects included in this scenario and modeling results can be found in Appendix C.

Primary aspects of *Scenario 2* include:

- the new Fox River bridge crossing located between Algonquin Road and U.S. Route 14,

- widening Illinois Route 47, Illinois Route 31, and Algonquin Road. Refer to Exhibit TBD: *Transportation Scenario 2 (Four-Lane Maximum) Evaluation*.

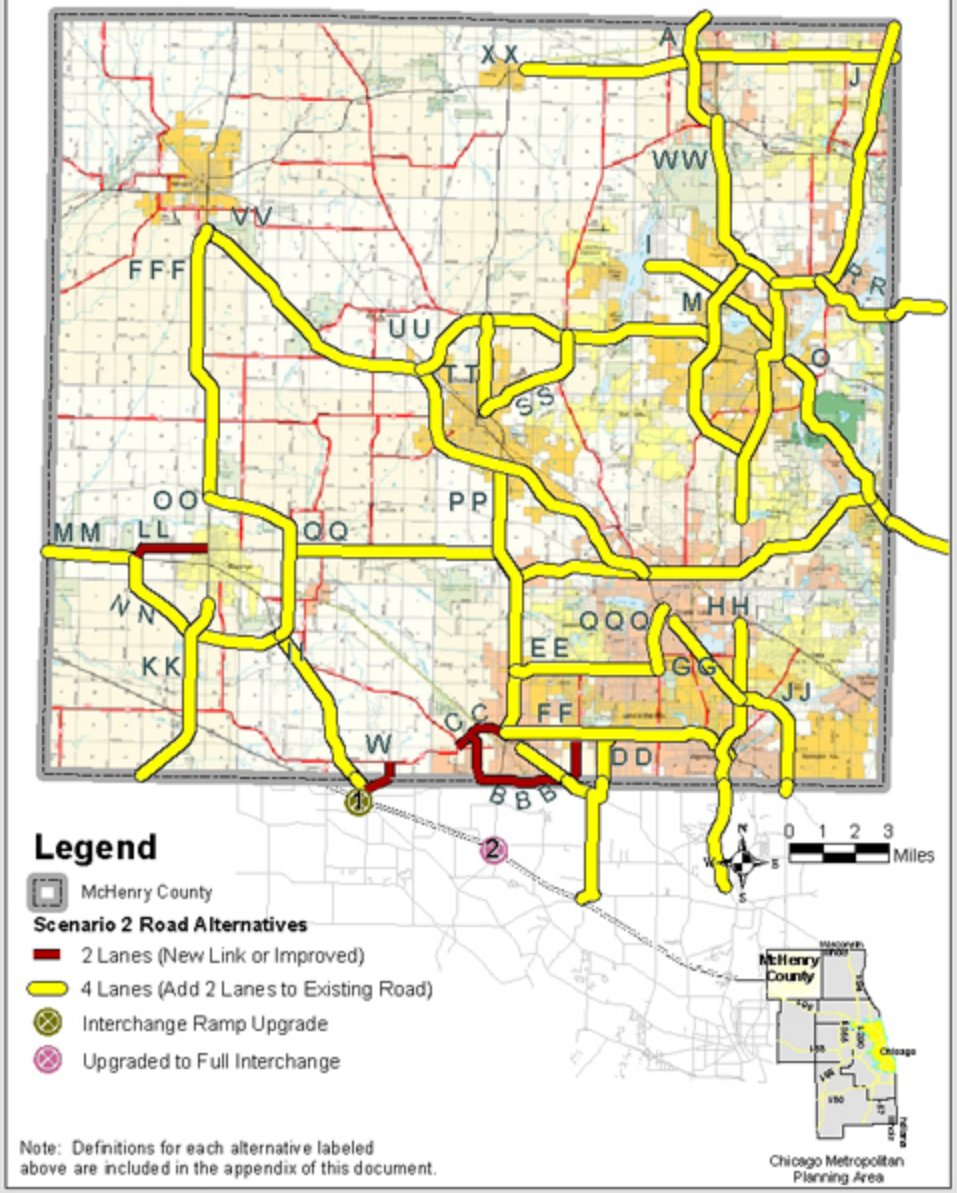
This scenario adds approximately 394 lane miles of roads and is estimated to cost between $670 million (Year 2003) and $1,107 million (Year 2020). Additional mileage for this model is split between federal (69 miles), state (213 lane miles) and County (60 lane miles).

While there is an increase in total vehicle miles traveled, there is also a 25% reduction in congested vehicle miles traveled. The likely reason is because people drive longer distances to avoid congested areas, especially those associated with crossing the Fox River.

A summary of the measures of effectiveness provided by the CATS' *Regional Travel Model* for *Scenario 2* is shown in Table 4-10.

Scenario 2 Evaluation

Alternatives



Legend

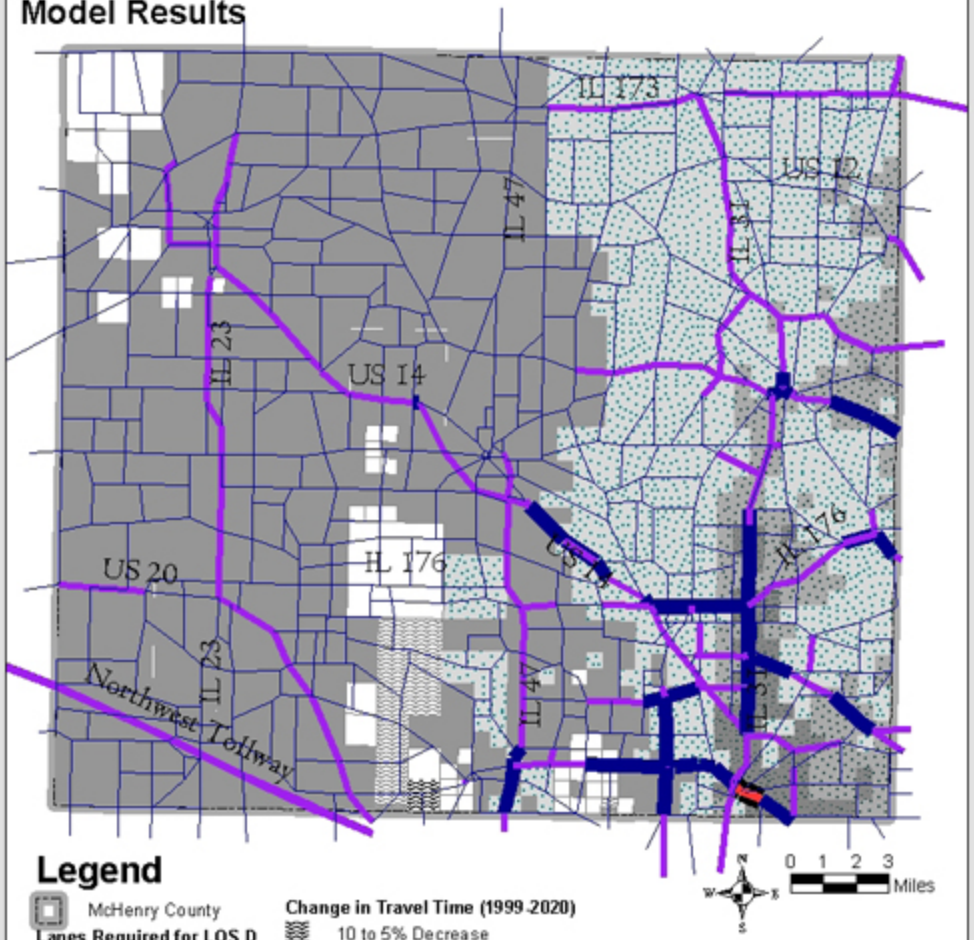
- McHenry County

Scenario 2 Road Alternatives

- 2 Lanes (New Link or Improved)
- 4 Lanes (Add 2 Lanes to Existing Road)
- Interchange Ramp Upgrade
- Upgraded to Full Interchange

Note: Definitions for each alternative labeled above are included in the appendix of this document.

Model Results



Legend

- McHenry County

Lanes Required for LOS D

- 2 Lanes
- 4 Lanes
- 6 Lanes
- More than 6 Lanes

Change in Travel Time (1999-2020)

- 10 to 5% Decrease
- 4 to 1% Decrease
- No Change
- 1 to 5% Increase
- 6 to 20% Increase
- 21 to 25% Increase
- 26 to 40% Increase

Note: Changes in travel times were measured from quarter-mile areas in McHenry County to the Northwest Tollway and I-290 interchange located near O'Hare Airport.

TRANSPORTATION SCENARIO 3 EVALUATION (Tightly Managed Land Use)

This scenario, designed to accommodate the forecasted need for capacity, also focuses investment to support the land-use component of the *Unified Plan*. A complete description of individual projects included in this scenario as well as modeling results are detailed in Appendix C.

The primary aspects of this scenario are:

- the new Fox River Bridge between Algonquin Road and US Route 14, and
- 6-lane sections for Randall Road, Rakow Road, Illinois Route 31, Illinois Route 176, and Illinois Route 120.

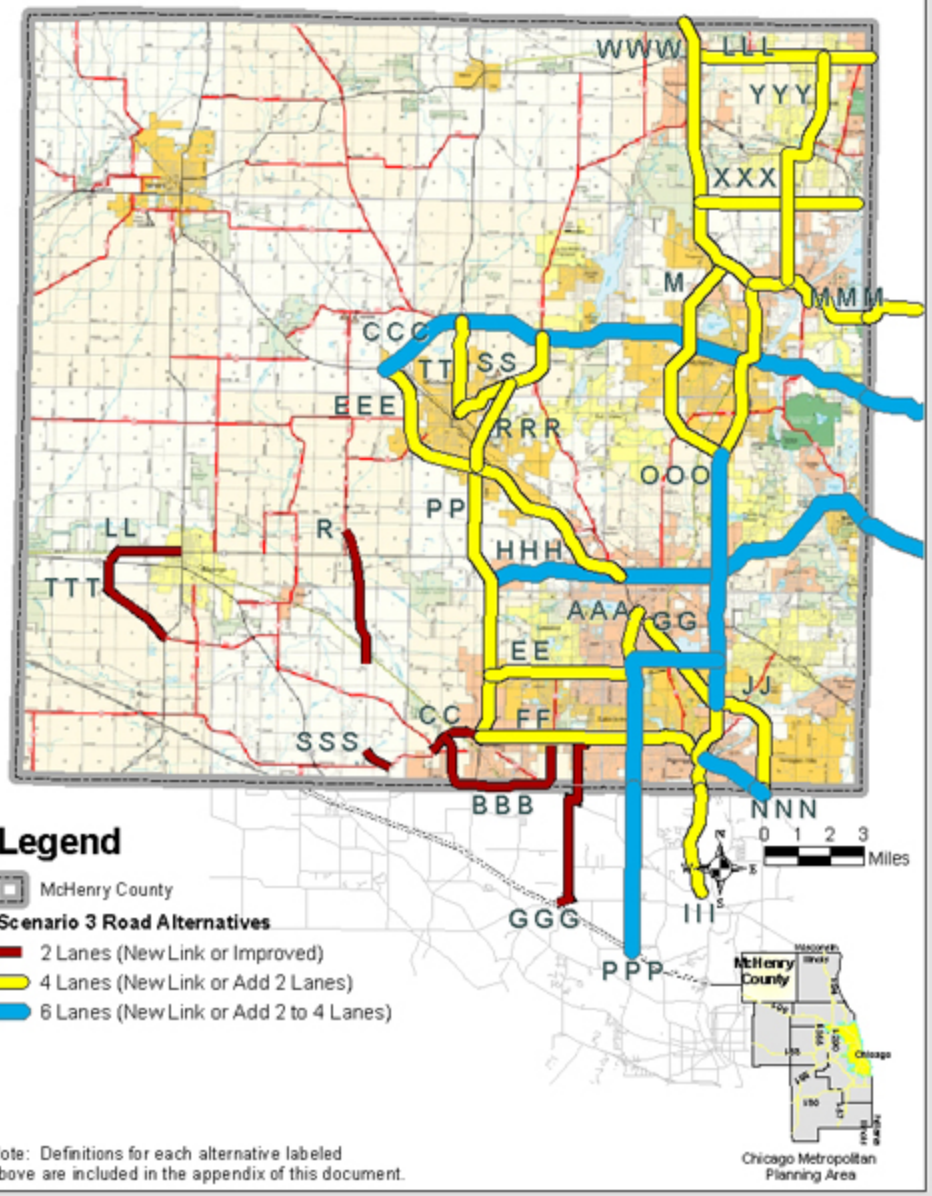
This scenario requires approximately 348 new lane miles of roads and is estimated to cost between $763 million (Year 2003) and $1,261 million (Year 2020). The majority of this added mileage is divided between state (243 lane miles) and McHenry County (49 lane miles) routes.

This scenario has the most vehicle miles of travel of the first three scenarios tested. However, it also shows the greatest improvement over the other measures of effectiveness. The increase in traffic volumes on Illinois Route 31 between Algonquin Road and US 14 indicate that there is pent-up demand, which is currently constrained by its relatively low existing capacity. See Exhibit TBD: *Transportation Scenario 3 (Managed Growth) Evaluation*. Removing this constraint allows people to use a more direct route.

A summary of the measures of effectiveness provided by CATS' *Regional Travel Model* for *Scenario 3* is shown in Table 4-10.

Scenario 3 Evaluation

Alternatives



Legend

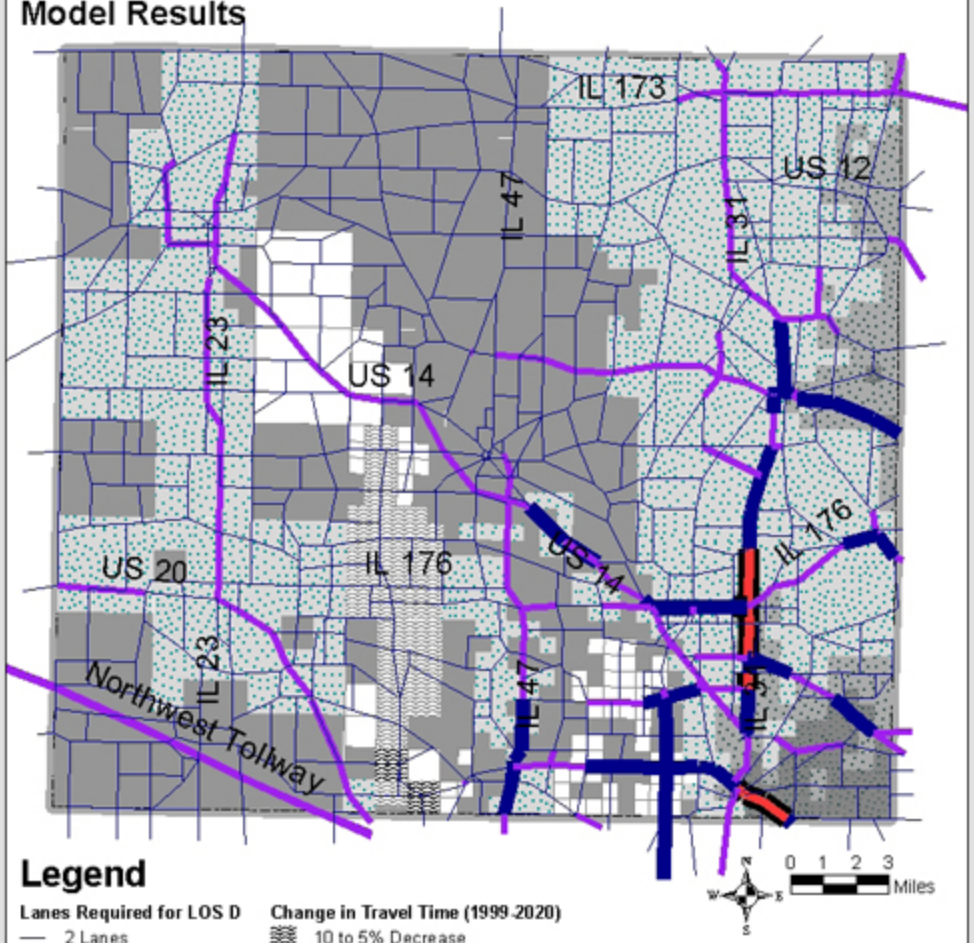
- McHenry County

Scenario 3 Road Alternatives

- 2 Lanes (New Link or Improved)
- 4 Lanes (New Link or Add 2 Lanes)
- 6 Lanes (New Link or Add 2 to 4 Lanes)

Note: Definitions for each alternative labeled above are included in the appendix of this document.

Model Results



Legend

Lanes Required for LOS D

- 2 Lanes
- 4 Lanes
- 6 Lanes
- More than 6 Lanes
- McHenry County

Change in Travel Time (1999-2020)

- 10 to 5% Decrease
- 4 to 1% Decrease
- No Change
- 1 to 5% Increase
- 6 to 20% Increase
- 21 to 25% Increase
- 26 to 40% Increase

Note: Changes in travel times were measured from quarter-mile areas in McHenry County to the Northwest Tollway and I-290 interchange located near O'Hare Airport.

PREFERRED 2020 ROADWAY PLAN EVALUATION

The *Preferred Roadway Plan* represents roadway facilities needed to accommodate future traffic within the County as determined through the evaluation of the previous traffic modeling results. It is a composite of the most needed and effective individual transportation improvements identified following the analysis of the first three scenarios. See Exhibit TBD: *Preferred 2020 Roadway Plan Evaluation*. A complete description of individual projects included in this scenario and modeling results are located in Appendix C.

Primary aspects of the *Preferred 2020 Roadway Plan* are:

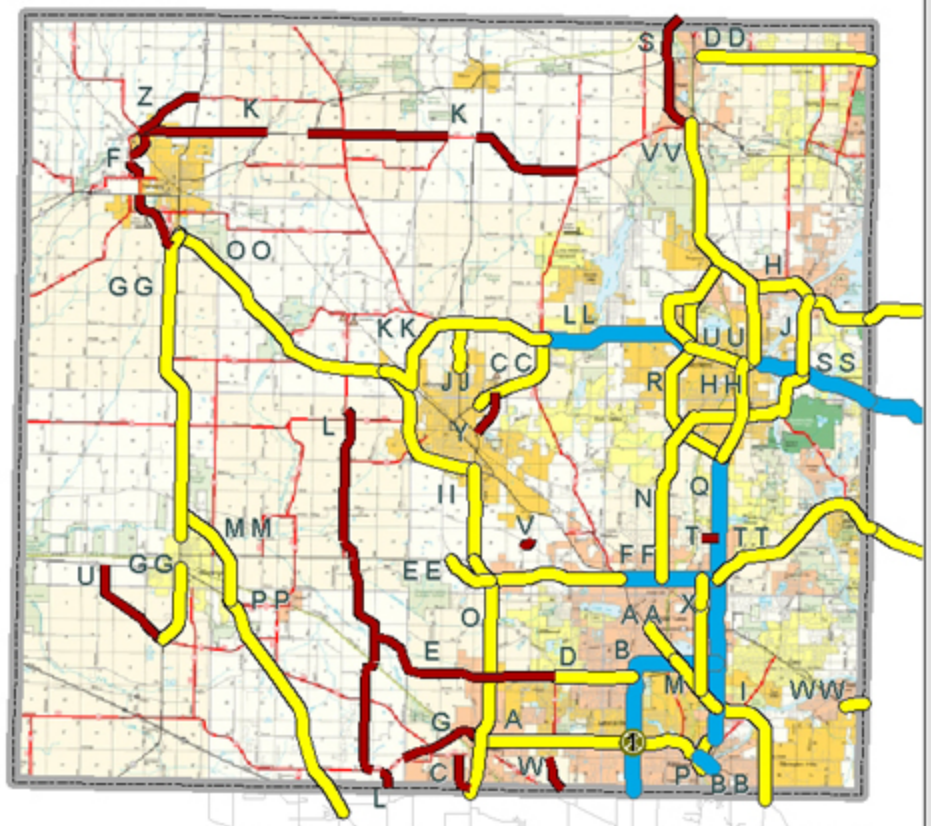
- the West McHenry Bypass,
- new Fox River Bridge crossing between Algonquin Road and US Route 14, and
- 6-lane sections for Randall Road, Rakow Road, Illinois Route 31, Illinois Route 176, and Illinois Route 120.

The *Preferred Roadway Plan* adds approximately 389 new lane miles of roads and is estimated to cost between $785 million and $1,297 million. The majority of this additional mileage is distributed between the state (238 lane miles) and McHenry County (80 lane miles) routes.

A summary of the measures of effectiveness provided by the CATS' *Regional Travel Model* for the *Preferred 2020 Roadway Plan* is shown in Table 4-10. The *Preferred 2020 Roadway Plan* is modeled to keep the amount of delay in the road network close to current levels (15,012 to 16,589) while reducing the amount of future congested vehicle miles traveled by roughly a third.

2020 Preferred Roadway Plan

Alternatives



0 1 2 3 Miles

Legend

McHenry County

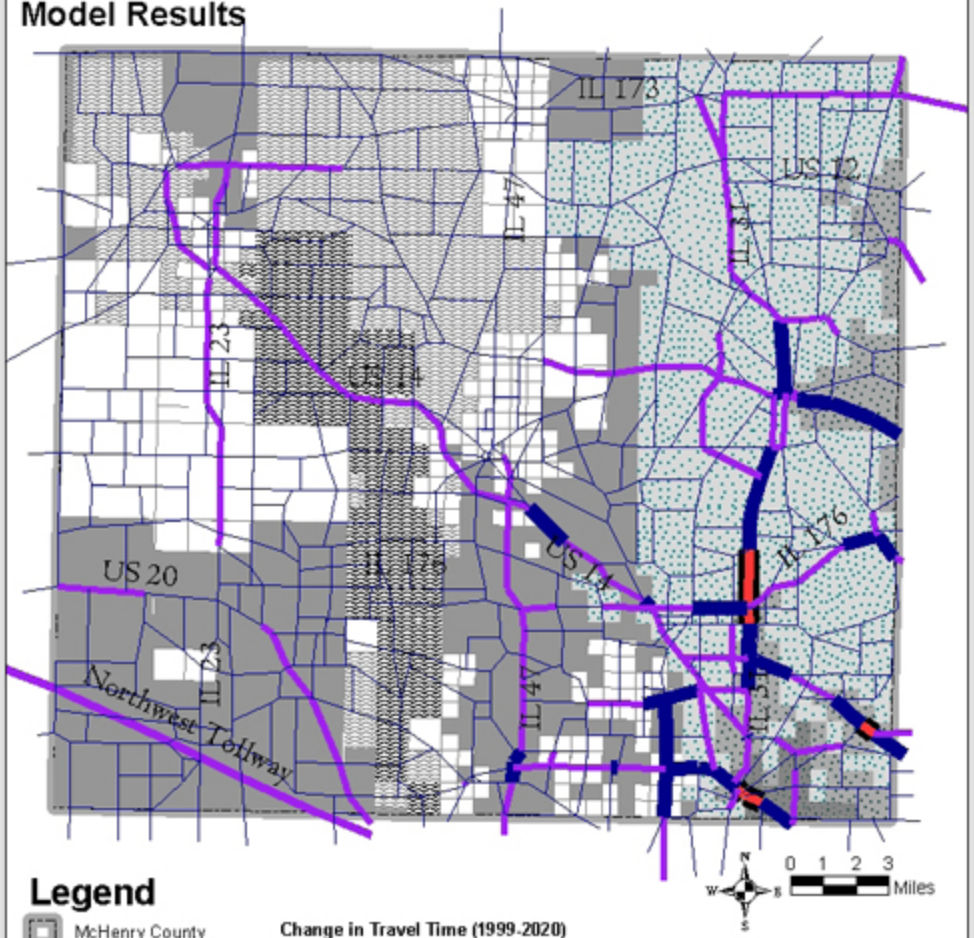
Preferred Roadway Plan Road Alternatives

- 2 Lanes (New Link or Improved)
- 4 Lanes (New Link or Add 2 Lanes)
- 6 Lanes (New Link or Add 2 to 4 Lanes)
- Upgraded to Full Interchange
- New Full Interchange

Note: Definitions for each alternative labeled above are included in the appendix of this document.

Chicago Metropolitan Planning Area

Model Results



0 1 2 3 Miles

Legend

McHenry County

Lanes Required for LOS D

- 2 Lanes
- 4 Lanes
- 6 Lanes
- More than 6 Lanes

Change in Travel Time (1999-2020)

- 10 to 5% Decrease
- 4 to 1% Decrease
- No Change
- 1 to 5% Increase
- 6 to 20% Increase
- 21 to 25% Increase
- 26 to 40% Increase

Note: Changes in travel times were measured from quarter-mile areas in McHenry County to the Northwest Tollway and I-290 interchange located near O'Hare Airport.

COMPARISON of MODELING RESULTS

The results for the *Preferred 2020 Roadway Plan* suggest that this scenario provides the highest level of congestion relief in terms of congested vehicle miles (CVMT) and vehicle hours of delay (VHD) reductions. See Table 4-10. The *Preferred 2020 Roadway Plan* is the most expensive of the tested scenarios. In order to determine what degree benefits were a function of greater overall project costs, network benefits per project costs were calculated by dividing the total projected estimates by the amount of vehicle miles traveled, congested vehicle miles traveled, vehicle hours traveled, and vehicle hours of delay.

For example, Scenario 1 has the lowest project costs, vehicle miles traveled, and vehicle hours traveled. However, when *Scenario 1* project costs are divided by amount of congestion reduced (CVMT and VHD reductions), the project costs per hour or mile reduced are greater than the other scenarios.

Table 4-10: Model Results Summary for McHenry County Roadway Scenarios

	1999	Base Case Scenario	Scenario 1	Scenario 2	Scenario 3	Preferred 2020 Plan
Current Project Costs*	N/A	N/A	$282	$670	$763	$785
Project Costs in 2020*	N/A	N/A	$466	$1,107	$1,261	$1,297
Lane Miles	2,360	2,415	2,600	2,809	2,763	2,804
Daily Vehicle Miles Traveled (VMT)	7,153,352	9,590,146	9,425,944	9,593,925	9,628,939	9,581,077
VMT per capita	27.63	27.62	27.15	27.64	27.74	27.60
Cost of Each Mile of Travel Reduced	N/A	N/A	$1,717	($177,296)	($19,668)	$86,559
Daily Vehicle Hours Traveled (VHT)	219,698	313,588	286,262	301,000	299,007	293,462
Daily VHT per capita	0.85	0.90	0.82	0.87	0.86	0.85
Cost of Each Hour of Travel Reduced	N/A	N/A	$10,320	$53,225	$52,328	$39,004
Daily Congested Vehicle Miles Traveled (CVMT)	702,574	1,244,369	1,139,182	964,040	894,966	849,903
CVMT per capita	2.71	3.58	3.28	2.78	2.58	2.45
Cost of Each Mile of Congestion Reduced	N/A	N/A	$2,681	$2,390	$2,184	$1,990
Vehicle Hours of Delay (VHD)	15,012	35,905	31,791	23,355	21,603	18,587
VHD per capita	0.06	0.10	0.09	0.07	0.06	0.05
Cost of Each Hour of Delay Reduced	N/A	N/A	$68,546	$53,386	$53,349	$45,329

*Construction cost is in Year 2003 and Year 2020 millions of dollars assuming a 3% increase

A second set of numbers was computed by dividing the measures of effectiveness by forecasted population projections. These indicators also show the *Preferred 2020 Roadway Plan* as the most efficient of all scenarios in terms of lessening congestion per person. Under the *Preferred 2020 Roadway Plan*, modeling indicates that the amount of congested miles traveled and vehicle hours of delay on federal and state highways in 2020 are likely to be less than 1999 levels (See Tables 4-11 and Table 4-12).

Table 4-11: Model Results Summary for Federal Highways – Including the Tollway

	1999 Model	Base Case Scenario	Scenario 1	Scenario 2	Scenario 3	Preferred 2020 Roadway Plan
Lane Miles	141	151	166	212	168	199
Daily Vehicle Miles Traveled (VMT)	1,507,334	1,960,447	1,820,017	2,038,771	1,921,180	1,879,984
Daily Vehicle Hours Traveled (VHT)	37,588	52,493	48,082	50,021	47,946	45,410
Daily Congested Vehicle Miles Traveled (CVMT)	31,848	79,168	46,611	40,613	37,842	25,478
Daily Vehicle Hours of Delay (VHD)	4,940	10,939	8,197	6,274	6,726	4,936

Table 4-12: Model Results Summary for State Highways

	1999 Model	Base Case Scenario	Scenario 1	Scenario 2	Scenario 3	Preferred 2020 Roadway Plan
Lane Miles	301	318	396	531	561	556
Daily Vehicle Miles Traveled (VMT)	1,882,550	2,379,742	2,582,634	2,560,338	2,816,380	2,746,069
Daily Vehicle Hours Traveled (VHT)	50,790	68,577	73,622	68,393	73,036	71,240
Daily Congested Vehicle Miles Traveled (CVMT)	144,380	326,094	279,419	116,531	79,971	86,864
Daily Vehicle Hours of Delay (VHD)	4,487	9,951	9,717	4,868	3,725	3,644

Under the *Preferred 2020 Roadway Plan*, the vehicle hours of delay on County roads are likely to be one-half of the delay predicted for 2020 under the *Base Case Scenario* (See Table 4-13). The addition of 22 lane miles (1.5% increase) to the township and municipal road network, results in a nearly 40% decrease in VHD (See Table 4-14).

Table 4-13: Model Results Summary for County Highways

	1999 Model	Base Case Scenario	Scenario 1	Scenario 2	Scenario 3	Preferred 2020 Roadway Plan
Lane Miles	455	480	537	540	529	560
Daily Vehicle Miles Traveled (VMT)	1,057,968	1,582,444	1,491,326	1,499,419	1,500,954	1,522,256
Daily Vehicle Hours Traveled (VHT)	32,505	50,884	47,257	47,326	46,717	46,627
Daily Congested Vehicle Miles Traveled (CVMT)	64,279	163,897	126,574	124,715	108,530	85,584
Daily Vehicle Hours of Delay (VHD)	1,904	5,110	4,020	3,530	3,393	3,154

Table 4-13: Model Results Summary for Township Roads

	1999 Model	Base Case Scenario	Scenario 1	Scenario 2	Scenario 3	Preferred 2020 Roadway Plan
Lane Miles	1,463	1,466	1,501	1,526	1,505	1,488
Daily Vehicle Miles Traveled (VMT)	2,705,150	3,662,490	3,531,947	3,495,385	3,390,411	3,432,751
Daily Vehicle Hours Traveled (VHT)	98,801	141,992	117,288	135,244	131,292	130,166
Daily Congested Vehicle Miles Traveled (CVMT)	462,054	699,720	686,536	682,170	668,612	651,969
Daily Vehicle Hours of Delay (VHD)	3,665	11,129	9,842	8,671	7,745	6,841

WHAT DID WE LEARN?

This chapter of the 2020 Plan played the "what if" challenge by quantifying facts and numbers with land use decisions through the modeling process. What we learned is obvious, land use choice and road congestion **are not** separate entities, but more a catch-22 dilemma. Regrettably, congestion already exists and poor land use decisions will only compound an existing problem, proliferating travel delays and traffic jams elsewhere.

At the same time, converting the least amount of land for future growth is the acknowledged target. While it is acceptable to assume that three-quarters of the projected population growth will be absorbed in cities and villages that can develop at high densities, it is still important that the County provide growth areas in order to keep a positive economic base. The task and challenge for McHenry County's decision makers is to guide growth while safeguarding agriculturally productive lands to maintain an economically viable County. In other words, implement smart growth policies that are far-sighted yet pragmatic and obtainable for less urbanized areas, like McHenry County.

After analyzing each development option, the *Managed Growth Scenario* was ultimately chosen as the basis for the *2020 Unified Plan* because it presents a comprehensive and logical starting point for land use planning and transportation modeling. *Managed Growth* incorporates the best features of the *Trend of Development* and the *Aggregated Municipal Plans Scenarios* while offering insight concerning development pressures. Overall, it provides tools to meet the goals and objectives expressed by McHenry County's citizens as well as the mechanics necessary for developing policy guidelines.

Managed Growth protects and preserves prime farmland, surface and groundwater, and other natural resources, by utilizing the nodal concept used in previous land use plans adopted by the County. It recognizes what is planned within municipalities and encourages forming planning partnerships and on-going communication with municipalities.

Chapter Four calculated impacts to the transportation network by modeling the *Managed Growth Scenario* over the next fifteen years with the luxury of unlimited financial resources. In a perfect world everything is possible. Nevertheless, economic cycles are a reality and transportation funding is directly related to the fiscal health of the County, the State of Illinois and the federal government. Chapter Five incorporates these scenarios and modeling data and modifies this information so that decision-makers have the flexibility to accommodate the expected growth and expand opportunities for economic opportunities.

CHAPTER FIVE
THE 2020 UNIFIED PLAN

> *If you plan for a year, plant a seed. If you plan for ten years, plant a tree. If for a hundred years, teach the people. When you sow a seed once, you will reap a single harvest. When you teach the people, you will reap a hundred harvests.*
>
> -Kuan Chung

The six-counties of northeastern Illinois, (Cook, DuPage, Kane, Lake, McHenry and Will), all maintain county-level planning programs. As authorized by the State of Illinois (55 ILCS 5/5-12001, et. seq.), and as stated before, the Regional Planning Commission, the McHenry County Department of Planning & Development, the McHenry County Department of Transportation, consultants, municipalities, townships, governmental agencies and residents have all worked to create this *2020 Unified Plan.*

The purpose of the *Plan* is consistent with previous County planning efforts. *The 2020 Unified Plan*, however, attempts to influence the role of municipal planning in a much more proactive fashion. A "partnership" between municipal and county planning efforts must occur if the vision of the *Plan* is to be realized. The ultimate question is: "Does the citizenry of McHenry County wish to simply react to trends, or do they wish to be proactive and, to the greatest extent possible, shape the destinies of their communities and ultimately the County in total?"

The planning road, though long, was a collaborative effort that employed a proactive bottom-up approach, incorporating numerous points of view. Through the modeling process, the County was able to study probable outcomes (scenarios) and ultimately chose a course of action that best addresses the type, intensity, quality and timing of changes in land use in order to achieve a balance between the human, the natural and our manmade environments.

Although advisory in function, the *2020 Unified Plan* is McHenry County's statement of policy and adopted guidelines for development. The *Unified Plan* endeavors to meet community-wide needs in an environmentally-sensitive and cost-efficient manner. Negative effects of unplanned growth resulting from new residential, commercial and industrial projects produce traffic congestion, water and air pollution, and irreversible loss of open space, community character, and identity. Only through long-term planning and wise decision-making can those negative effects be mitigated.

Just as its predecessors, the *2020 Unified Plan* strives to:

- maintain diversity and balance in land uses,
- recognize patterns of compatibility that meet future needs,
- preserve and protect prime agricultural lands, important environmental resources, and the rural character of McHenry County,
- identify areas most appropriate for new residential growth, and to

- set aside land best suited for new commercial and industrial growth that will increase job opportunities and provide a stable tax base.

After analyzing each development option, the *Managed Growth Scenario* was chosen as basis for the *2020 Unified Plan*. McHenry County is not an island but rather a partner with thirty individual communities and seventeen townships who all share a vision for the future.

The Regional Planning Commission and staff recognized early on that only by focusing on smart growth guidelines while keeping close sound planning policies adopted by the County's forefathers, could an effective plan be adopted that offers both insight and workable alternatives concerning development

THE 2020 UNIFIED PLAN'S LAND USE CATEGORIES

The following section provides a description and explanations of land use designations in the *2020 Unified Plan.* Categorized to address residential and non-residential land uses, these classifications encompass development that may occur in unincorporated areas of the County, or in some cases within municipalities.

Please note that land use designations that are provided are still subject to evaluation based on individual requests. Other laws, statutes, ordinances and regulations at the federal, state and county level may preclude an area from being zoned, or used, in the manner which is reflected on the *2020 Unified Plan Map*.

RESIDENTIAL LAND USE CATEGORIES

Agriculture/Rural (Ag/Rural)

There is a recognizable difference in the physical attributes, which distinguish rural areas from an environment of very low-density development. This category differentiates land forms comprised of scattered, clustered farmhouses and farm buildings scattered among hundreds of acres of farmland, from development made up of homes, small farms and occasional businesses described here as *Ag/Rural*.

Residential development on individual parcels may be permitted in areas designated as *Ag/Rural* on sites where agricultural activities are limited due to poor soils, slope, or mature tree cover. Residential conversion in the *Ag/Rural* area should be compatible with surrounding agricultural land uses.

This category provides a blend of uses that best include:

- low-density residential development (1 acre minimum parcel size);
- planned developments (PDs) that are designed to conserve natural features; and,

- protection of agriculturally productive areas, agricultural related services, and similar ag related activities.

The intent of the *Ag/Rural* category is to allow very limited development within areas that still accommodate agriculture while buffering uses as well as preserving the character of the County. The *Ag/Rural* category is not intended to allow the subdivision of land but rather supports rural residences on land that is clearly unsuitable for agricultural purposes. Further development or premature conversion of valuable agricultural land is strongly discouraged.

Table 4-1: *2020 Unified Plan - Ag/Rural* Estimated 2020 countywide population: 340,159 residents	
Density	1 acre minimum parcel size
Proposed *Ag/Rural* acreage	41,755 acres
Percent of unincorporated acres (*Ag/Rural*)	14%
Estimated population in unincorporated *Ag/Rural* areas	53,446

Sources: McHenry County Department of Planning & Development
Northeastern Illinois Planning Commission

Low-Density Residential

This category describes areas best suited for the development of single-family residential land use having a minimum density of 2.5 acres per dwelling unit. Dwellings, in this category, are often not served by public sanitary systems. Scattered residential development in rural areas is strongly discouraged.

Planned developments that incorporate clustering and preservation of open space are encouraged in low-density residential areas. Where possible, natural features such as streams or woodlands are used as buffers between new homes, between more intense developments and/or agricultural uses.

Table 4-2: *2020 Unified Plan - Low-Density Residential* Estimated 2020 countywide population: 340,159 residents	
Density	Minimum 2.5 acres per dwelling unit
Existing and proposed *Low-Density Residential* acreage	7,427 acres
Percent of unincorporated acres (Low-Density Residential)	3%
Estimated population unincorporated *Low-Density Residential* areas	9,507

Sources: McHenry County Department of Planning & Development
Northeastern Illinois Planning Commission

Medium-Density Residential

This category describes areas best suited for the development of single-family residential land use having a maximum density of 2.49 acres per dwelling unit. This category encompasses the greatest majority of development that has occurred within the last decade and is the most common land use within the County's suburban and exurban communities.

Table 4-3: *2020 Unified Plan - Medium-Density Residential* Estimated 2020 countywide population: 340,159 residents	
Density	Maximum 2.49 acres per dwelling unit
Existing and proposed *Medium Density Residential* acreage	26,525 acres
Percent of unincorporated acres (Medium-Density Residential)	9%
Estimated population in unincorporated *Medium-Density Residential* areas	56,586

Sources: McHenry County Department of Planning & Development
Northeastern Illinois Planning Commission

High-Density Residential

This category is not depicted on the *2020 Unified Land Use Map.* However, *High Density Residential* development consisting of single-family homes, townhomes and/or apartment-type units which utilize municipal water, sewer, non-conventional multi-unit wastewater treatment systems and/or other similar services may be allowed only as a Planned Development in designated areas.

High-density uses accommodate the greatest variety of building types and lifestyles, allowing individuals and families to live in close proximity to commercial services, transit, schools and other cultural and recreational amenities that form the backbone of communities. Population densities differ widely based on building type and dwelling unit size, as related to the number of bedrooms. Building costs from the affordable "garden apartment" to the luxury, multi-story condominium vary. Key to the balance of land uses and the stability of a community's economics is the distribution of high-density residential areas, which does not aggregate vast areas to a single building type or density.

Planned Developments (PDs)

The intent of this category is to provide alternative design, density and creative approaches to safeguard sensitive site amenities and to offer flexible regulations in a manner not always possible under conventional rules. This category encourages a holistic method for siting residential development which, may or may not include a mix of commercial uses.

Planned developments ensure functional and beneficial use of common open space, protection of natural features and may also preserve prime agricultural lands. At the same time, *Planned Developments* are rational and economical in relation to public infrastructure, services and most importantly are designed to promote efficient traffic circulation both within and in the vicinity of the proposed site.

The County strongly encourages PD type of development in all growth areas in order to provide and promote permanent open space, character and distinction not only between parcels but more importantly, between communities.

NON-RESIDENTIAL USE CATEGORIES

Agriculture

The *Agriculture* category covers an extensive portion of land in McHenry County. Traditionally one of the County's principal industries, agriculture remains a primary use, not simply land waiting for development to occur.

This designation defines areas best utilized for the production of food, plants and the keeping of animals. Agricultural areas must remain protected from intrusion by urban development because the agricultural industry is an irreplaceable resource for the County, the region and the nation. As stated in the *Unified Plan's* goals and objectives, the protection of the County's agricultural heritage and economic base while preventing untimely conversion of prime farmland to non-agricultural uses, is one major concern.

This category includes farmsteads and very low-density residential development on lands with clear impediments to agricultural activities. Numerous isolated subdivisions exist, however, within the *Agriculture* category. These subdivisions, approved before adoption of stronger County agricultural preservation policies and prior to the County's land use planning beginnings, may continue to develop until "build out" of the subdivisions occur. Nevertheless, expanding the boundaries of existing isolated subdivisions, or development of new or adjacent subdivisions are strongly discouraged. Intense agricultural uses are typically incompatible with residential environments, and are severely degraded by the intrusion of even limited amounts of development and associated vehicular traffic on rural roads. Adequate opportunities presently exist for development and employment to take place adjacent to municipalities outside of and away from agricultural areas and uses.

Commercial

This land use category includes retail, service and typical office uses, which provide goods and services to residents and businesses. The expansion of commercial uses is needed as residential growth increases to keep pace with the demand for goods, services and employment opportunities throughout the County. The *Plan* encourages

appropriate commercial development to support and supplement the existing businesses in the County while providing additional jobs, as well as a more balanced tax base. Areas identified for commercial use are located near or within a roadway network that can support this level of development. It is understood that this is not feasible in every case, but for safety, convenience, accessibility and energy conservation, new development should, in general, follow the cluster concept.

Table 4-5: *2020 Unified Plan - Commercial* [1] **Estimated 2020 countywide population: 340,159 residents**	
Existing and proposed *Commercial* acreage	2,670
Percent of unincorporated acres (*Commercial*)	1%

Sources: McHenry County Department of Planning & Development
McHenry County Economic Development Corporation
Northeastern Illinois Planning Commission

Industrial

Industrial land use includes non-agricultural manufacturing, assembly, warehousing, wholesale operations, and distribution facilities that provide jobs and products. Typically, this type of development occurs in business or industrial "parks" or clusters, rather than in scattered sites. Due to increased traffic as well as issues related to noise, vibrations and visual impacts, *Industrial* uses need to be located near or adjacent to compatible land uses. Likewise, industrial development is best sited when coordinated with transportation facilities in conjunction with capital improvement programs that help defray costs associated with this use.

Table 4-6: *2020 Unified Plan - Industrial* [2] **Estimated 2020 countywide population: 340,159 residents**	
Existing and proposed *Industrial* acreage in unincorporated McHenry County	1,820
Percent of unincorporated acres (*Industrial*)	0.6%

Sources: McHenry County Department of Planning & Development
McHenry County Economic Development Corporation
Northeastern Illinois Planning Commission

Commercial, Office, Research, Light Industrial District (CORI)

This category provides for the development or redevelopment of large parcels of land utilizing a planned approach. These areas are a diverse blend of commercial, office,

[1] The Department of Planning & Development and the McHenry County Economic Development Corporation are grateful to Mr. Richard Kaye, Chicago Labor Market Economist and Mr. Mark Thomas, Information Service Manager for the Northeastern Illinois Planning Commission for their help with labor statistics.

[2] Ibid.

research and light industrial uses. Under the *CORI* district, creativity in site planning is fostered through flexibility in lot and building arrangements where mixing various uses on any one parcel is permissible.

While density, design, and the mix of uses are assessed on a site-by-site basis, it is important that these projects respect, reinforce, and/or enhance the character and quality of the area that supports them.

Institutional

The *Institutional* category defines properties owned and operated by federal, state, or local government, which include municipal facilities, places of assembly, schools, public cemeteries, public airports or governmental administration and similar activities. Institutional uses are private or not-for-profit uses, which generally serve the public and include, but not limited to, religious facilities, museums, cultural centers, hospitals, residential health care, private cemeteries and private schools.

Public -- Private Open Space

The *Public Open Space* defines land owned by public organizations, which are utilized as open space for public active or passive recreation. Areas operated by the McHenry County Conservation District (MCCD), federal/state parks, municipal/township parks and public golf courses are considered typical public open space uses. This land use category is allowed anywhere in the County. The acquisition of particular scenic areas and/or areas of environmental quality or sensitivity should be protected and considered for future public open space.

Private Open Space refers to individually held land that either has been designated open space for stormwater management, or is designed for active and passive recreational purposes such as private golf courses or sportsmen/hunt clubs. Private open lands are generally welcomed in all areas of the County because they conserve natural features and bring community activities to the County. However, these properties may still require public involvement through conservation easements or regulations to avoid harm to environmental resources and/or to minimize impacts to surrounding neighbors.

Open space is shown mainly along rivers, creeks and densely wooded areas in an attempt to buffer these resources from negative effects of intense agriculture or future development. Although some development may already exist in these areas, further land conversion should generally be limited to recreational or low impact agricultural uses.

The long-term economic and physical health of the land and the residents depends on the preservation of these open space areas. To protect these areas, private property owners are encouraged to consider placing sensitive or unique areas of their property (woodlands, wetlands, native prairies) in conservation easements.

Environmentally Sensitive

Protection of environmentally sensitive lands is encouraged. A system of environmental corridors is planned to connect to sensitive environmental areas and allowing movement of wildlife populations. Criteria were established to determine "environmental corridors" (linear areas in the landscape containing concentrations of natural resources, cultural features, and open space) as well as "isolated environmental areas". It was determined that environmental corridors would be a minimum average width of 300 feet and a minimum length of 2 miles. These areas could contain any number of resources and were only limited by the length and width of the flood hazard area. Isolated environmental areas include wetlands and natural areas recognized by the Illinois Department of Conservation at least 40 acres in size, and areas rated as very severe for septic disposal at least 200 acres in size. The *Plan* recognizes the importance of interconnecting these environmentally sensitive areas to improve recreational opportunities, and to allow for the movement of wildlife population. These ecological networks should be preserved throughout the County.

This land use category and its representation on the *Plan Map* should be considered generalized, not site-specific, and is in no way intended to show all flood hazard areas of resources in the County. It should also be noted that the protection of floodplains and other sensitive fragile lands from incompatible uses is recommended whether or not each site is designated on the *Plan* as an environmentally sensitive area. Each parcel of land must be viewed individually to determine what impact development might have on it or the surrounding area.

Transportation, Communication, Utilities

Future growth and development and the quality of life in McHenry County will be greatly influenced by transportation accessibility and the availability of public utilities such as potable water and wastewater treatment facilities. Priority is given to maintaining and upgrading the existing infrastructure, in a timely manner.

The *Plan* assumes continued emphasis on energy conservation and encourages development patterns which minimize distances traveled, and maximize the availability of services. The *Plan* also recognizes an obligation to the environment and specific legislation such as the *Clean Air Act*. Compact development, adjacent to existing municipalities will help provide for the efficient use of utilities and transportation options throughout the County while keeping the costs to residents down.

Roads as a Use of Land

Within municipalities, roads may account for as much as fifteen percent of land used. The common perception of roadways, merely as a conduit for travel, is a mistake. While there is no denying that their primary purpose is to serve mobility and access

needs, roads also determine the look and character of communities and neighborhoods. Historically, roads served as a place for social interaction.

With the advent of the automobile, this social function has almost disappeared. Today, roads are a conventional mechanism for moving vehicles throughout a transportation network. However, this definition must be expanded in order to create functional facilities that enhance other aspects of their environs.

In addition to providing a means of transport, roads allow access to surrounding land-uses and function as public space. In this manner, they are subject to the same qualitative design standards as parks, private properties, or any other spaces that enhance the experience of a community. Lastly, roads serve as barriers, dividing land-uses. Today there are programs in existence, such as the Federal Highway's *Context Sensitive Solutions*, which bring these important land use elements back into the forefront of roadway planning.

Preferred Roadways

The *Preferred Roadways* are facilities identified during the analysis of the transportation network as needed to accommodate future traffic. The County looks to work with other government agencies as well as private entities to coordinate the planning and funding of these needed facilities. Individual engineering studies will be necessary to determine the right-of-way needs and alignment of each corridor identified in the Plan.

THE 2020 FINANCIALLY CONSTRAINED ROADWAY PLAN

The *Financially Constrained Plan* is distilled from the *Preferred Roadway Plan* by selecting projects with costs likely to be met by anticipated future funding levels. Constraining the *Preferred Roadway Plan* based on likely funding levels to create the *Financially Constrained Plan* is an important part of the planning process for two major reasons; it gives priority to certain projects and demonstrates an ability to finance these projects before the year 2020.

Modeling results suggest that implementation of the *Financially Constrained 2020 Roadway Plan* reduces the amount of congested miles traveled by 21% and decreases the amount of vehicle hours of delay by 28%. In addition, the implementation of the *Unified Plan* land-use component in conjunction with the *Financially Constrained 2020 Roadway Plan* is likely to have positive effects on the efficiency of the roadway network especially in comparison to the growth assumptions projected by the Northeastern Illinois Planning Commission. In terms of travel times to the I-90 and I-290 Interchanges, the *Unified Plan* produces reductions in travel times; whereas, the *NIPC Projected Growth Scenario* produces increased travel times.

Table TBD: Measures of Effectiveness for Financially Constrained Roadway Plan				
	Vehicle Miles Traveled	**Vehicle Hours Traveled**	**Congested Vehicle Miles Traveled**	**Vehicle Hours of Delay**
Year 1999	7,153,352	219,698	702,574	15,012
2020 Base Case	9,805,983	317,998	1,282,628	34,197
NIPC Projected Growth	9,643,578	303,767	998,657	26,893
Unified Plan	9,861,784	307,461	1,002,957	24,618

For the *Financially Constrained 2020 Roadway Plan*, accessibility to employment as measure in terms of the number of households that can access 60,000 jobs within a given time is illustrated in the table below. Job totals number roughly half of the employment projected by the other scenarios, 113,960 for *NIPC's Projected Growth Scenario* and 131,348 for the *Unified Plan*. In all categories, a greater number of McHenry County households are able to access 60,000 jobs.

Table TBD: Household Accessibility to Employment		
Household Accessibility	***NIPC Projected Growth***	***Unified Plan***
30 minutes	107,872	116,010
20 minutes	55,361	72,265
15 minutes	8,018	9,454

Projects not presented as part of the *Financially Constrained Plan* remain identified roadway needs for the County and are not dropped from the planning process. These projects are important but are of lesser priority than those included in the *Financially Constrained Plan*. Over a period of time, priorities change and new funding opportunities arise. The County will look to work with other government agencies as well as private entities to coordinate the planning and funding of all the projects in the *Preferred Roadway Plan* not just those that make up the *Financially Constrained Plan*. Individual engineering studies will be necessary to determine the right-of-way needs and alignment of each corridor identified in the *Plan*.

FINANCIAL CONSTRAINTS and FUNDING SOURCES

This section identifies existing and proposed financial resources available for funding major roadway or intersection improvements. For McHenry County, monetary sources

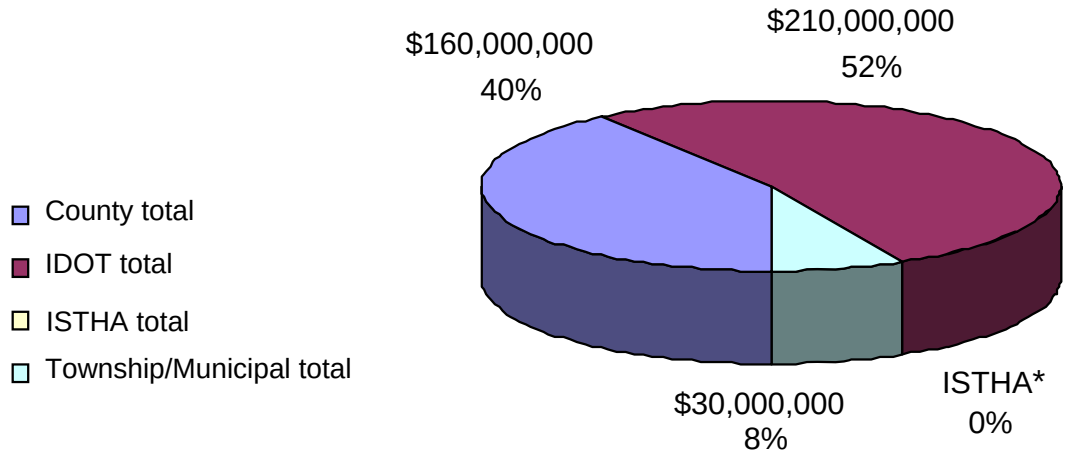
come from a wide variety of venues, a list of which is included in Appendix D.

Financial planning is intended to demonstrate consistency of proposed investments with known sources and projected levels of funding. Estimated revenues from existing and proposed funding sources reasonably expected to be available for transportation uses are compared against the costs of maintaining and operating the existing system and the prioritized list of new projects.

There is a recognized value in illustrating the gap between McHenry County's transportation needs and estimated financial resources available to meet those needs. An important purpose of highlighting this fiscal constraint is to demonstrate the significance in attaining new and additional financial resources for system maintenance, improvements and expansions. Roadway network needs for McHenry County, demonstrated in the *Preferred Roadway Plan*, are estimated to cost between $785 million and $1,290 million.

Funding, reasonably expected from the Illinois Department of Transportation, McHenry County, and townships, is approximately $350 to $400 million in Year 2003 dollars; roughly only half of the estimated costs of the *Preferred Roadway Plan*. See Exhibit TBD: *Financially Constrained 2020 Roadway Plan*. This financial constraint allows for limited capital expansion to meet forecasted traffic growth.

Exhibit TBD: Available Funding Assumptions by Jurisdiction



* IDOT funding is assumed available for tollway interchanges

At the same time, potential increases in vehicle efficiency and the corresponding drop in tax revenues is an important issue. Over 91% of McHenry County's road funds come from *Motor Fuel Tax* and *County Option Motor Fuel Tax* dollars. Monies collected from these taxes are gallon based, not cost based. When gasoline prices rise, there is not a corresponding dollar rise. Revenues only increase when more gasoline is bought.

The Ford Motor Company set a goal of 20% overall improvement in fleet efficiency by 2010. To accomplish this change, Ford licensed Japanese hybrid technology, which makes this goal achievable if vehicles are purchased in moderate numbers. Assuming that other auto manufacturers follow suit, this could conceivably drop highway revenues below even the existing funding levels, especially if the federal tax deduction for owning a hybrid car is maintained.

The reauthorization of TEA-21 (SAFETEA or TEA-3) appears to be set at adjusted amounts. Dispersion types, levels, and locations of this funding will not be known until after completion of this plan. Therefore, for planning purposes, the revenue stream was assumed to be similar to TEA-21.

- **FUNDING from the ILLINOIS DEPARTMENT of TRANSPORTATION**

  District One of the Illinois Department of Transportation corresponds geographically with the Chicago Metropolitan Area. To develop the *Transportation Improvement Program (TIP)* for northeastern Illinois, numerous agencies engage in long-range planning, project generation, program integration, review, and approval. This process is directed by CATS' Policy Committee (the Metropolitan Planning Organization).

  Projects added to the TIP generally receive federal funding through several sources administered by the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA). Current federal funding sources are based on the federal transportation funding act, known as TEA-21. Upon implementation of the next federal act, funding will be modified to accommodate federal budgetary changes.

  In IDOT's *FY 2005-2011 Proposed Highway Improvement Program*, approximately $105 million is appropriated for new construction/ reconstruction of state highway projects in McHenry County. Assuming this level of funding will continue through FY 2020, the County can expect an estimated $210 million from IDOT.

- **FUNDING from McHENRY COUNTY**

  Funding for the Highway Department Budget comes from a variety of sources. Those identified in the approved budget report include the general County Highway Fund, the Motor Fuel Tax Fund (MFT Fund), the Matching Fund, the County Bridge Fund, and the County Option Motor Fuel Tax Fund. Each of these sources is subject to regulations defining specific types of maintenance or construction projects that the funds can be used for. Approximately $160 million is expected to be available for new construction projects under McHenry County jurisdiction.

- **FUNDING from TOWNSHIP ROAD DISTRICTS**

  There are seventeen townships in McHenry County that have varying mileage and

funding for roads. For example, Chemung Township has thirty-two miles of roads, while McHenry Township has one hundred and one roadway miles. Alden Township has a yearly budget of $113,000, while Nunda Township funds approximately $2,500,000 for roads. There are several townships that are, and will continue to maintain gravel roads. Estimating available funding for these agencies in the long-term showed that they may have difficulty properly maintaining their system. Road expansion is unlikely without new sources of revenue.

THE ROADWAY PLAN and PROJECT PHASING

Given the anticipated funding levels, only half of the *Preferred Roadway Plan* costs could be met. In order to determine which of the *Preferred Roadway Plan* projects should be included in the *Financially Constrained Plan*, projects were prioritized by their ability to address current congestion problems, to meet the most pressing needs indicated throughout the modeling process, or would otherwise form an important link in the transportation network. They were then selected using a $400 million dollar cap and divided into three different phases for implementation; Short-term phasing is zero to 5 years, mid-term is 5 to 10 years, and long-term is 10 to 20 years. The total costs of the projects selected for the *Financially Constrained Plan* exceeded the $400 million dollar cap by $6 million dollars. See Exhibit: TBD: *Financially Constrained 2020 Roadway Plan*. These costs were distributed in roughly equal portions (approximately $100 million dollars every 5 years) throughout the three phases.

Short-term roadway projects identified in the *Financially Constrained 2020 Roadway Plan* are all located in the congested southern and eastern portion of the County. Projects include construction of a full interchange at Illinois Route 47 and the Northwest Tollway (I-90), the western Algonquin bypass, three road widening projects, and three road extensions. Although the Illinois Route 47/tollway interchange project lies outside of McHenry County's borders, it is high on the County's priority list. North-south movement through central McHenry County will be greatly enhanced with a full-directional interchange. The total cost estimate for the short-term projects is $105 million.

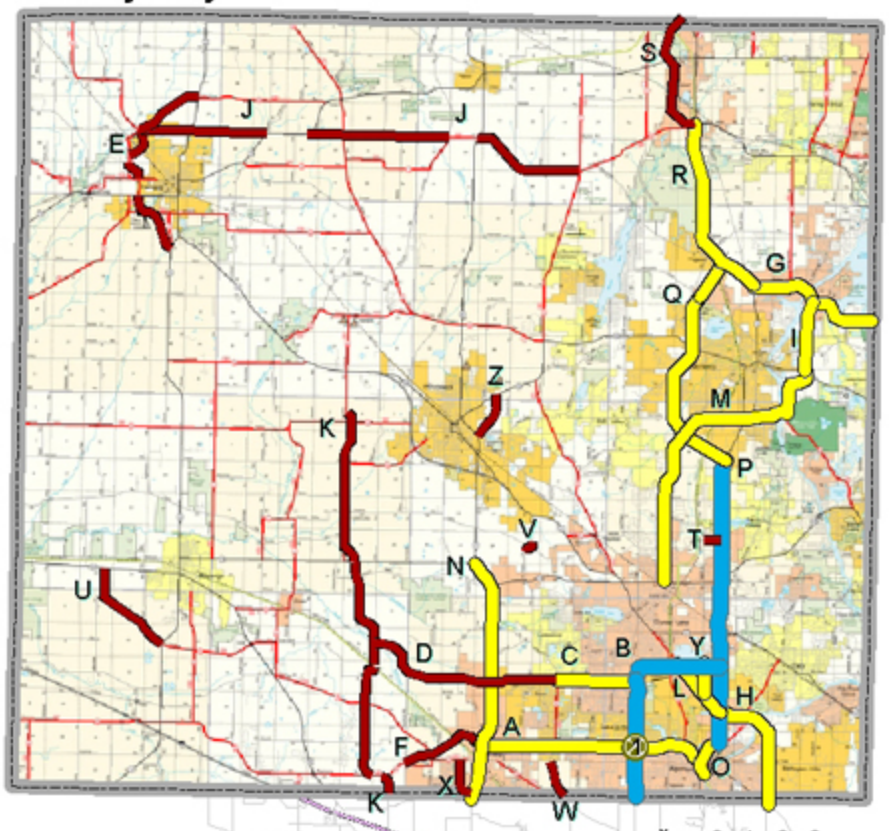
Mid-term roadway projects include plans to widen three roadways, to realign and improve a County Road, and to extend two roads eastward. Total cost for mid-term projects is $106 million.

Long-term roadway projects include a new Fox River crossing, an interchange at Algonquin and Randall roads, new arterials in the northern and western agricultural areas of the County, a bypass around the City of McHenry, four road widening projects, three realignment and improved highway projects, and a north-south municipal road through the City of Woodstock. Total cost for long-term projects is $195 million.

Table TBD: Measures of Effectiveness for Financially Constrained Roadway Plan				
	Vehicle Miles Traveled	**Vehicle Hours Traveled**	**Congested Vehicle Miles Traveled**	**Vehicle Hours of Delay**
Year 1999	7,153,352	219,698	702,574	15,012
2020 Base Case	9,805,983	317,998	1,282,628	34,197
NIPC Projected Growth	9,643,578	303,767	998,657	26,893
Unified Plan	9,861,784	307,461	1,002,957	24,618

2020 Financially Constrained Roadway Plan

Roadway Projects



LEGEND

- McHenry County
- **Financially Constrained Roadway Projects**
- 2 Lanes (New Link or Improved)
- 4 Lanes (New Link or Add 2 Lanes)
- 6 Lanes (New Link or Add 2 to 4 Lanes)
- Upgrade to Full Interchange at IL 47 and Interstate 90
- New Interchange at Algonquin Road and Randall Road

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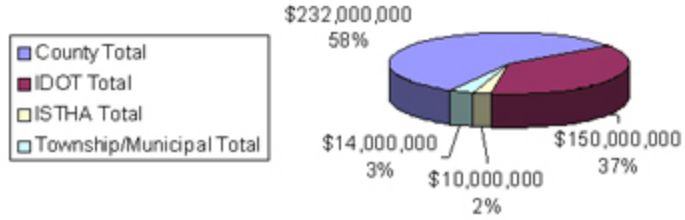
Project Cost Estimates

LABEL	FACILITY	LANES	MILES	CURRENT JURISDICTION	UNIT COST/MILE	PHASING	COST ESTIMATE
A	Algonquin Road	4	6.93	County	$3,500,000	0-5 YEARS	$24,000,000
B	Randall Road and Rakow Road	6	6.39	County	$8,500,000	0-5 YEARS	$54,000,000
C	Ackman Road	4	2.36	County	$3,500,000	5-10 YEARS	$8,000,000
D	Ackman Road Extension	2	6.09	County	$1,500,000	5-10 YEARS	$9,000,000
E	Lawrence Road and Oak Grove Road	2	3.60	County	$1,500,000	5-10 YEARS	$7,000,000 *
F	Algonquin Road Extension to Harmony Road	2	2.72	County	$1,500,000	5-10 YEARS	$4,000,000
G	Bay Road	4	4.18	County	$3,500,000	5-10 YEARS	$15,000,000
H	New Fox River Crossing	4	3.95	County	$3,500,000	10-20 YEARS	$34,000,000
I	Chapel Hill Road	4	2.14	County	$3,500,000	10-20 YEARS	$7,000,000 *
J	Northern East-West Arterial	2	10.15	County	$1,500,000	10-20 YEARS	$4,000,000
K	Western North-South Arterial	2	12.41	County	$1,500,000	10-20 YEARS	$5,000,000 *
L	Virginia Road	4	1.95	County	$3,500,000	10-20 YEARS	$7,000,000 *
M	Walkup Road	4	9.76	County	$3,500,000	10-20 YEARS	$34,000,000
1	Algonquin and Randall Road	Full		County	$20,000,000	10-20 YEARS	$20,000,000
	County Total						**$232,000,000**
N	IL 47 SRA	4	7.45	IDOT	$3,500,000	0-5 YEARS	$14,000,000 *
O	IL 31 Algonquin Bypass	4	1.25	IDOT	$3,500,000	0-5 YEARS	No New Funding Needed
P	IL 31 SRA	6	8.64	IDOT	$8,500,000	5-10 YEARS	$60,000,000 *
Q	McHenry Bypass	4	7.34	IDOT	$3,500,000	10-20 YEARS	$50,000,000 *
R	IL 31 SRA North of McHenry	4	5.72	IDOT	$3,500,000	10-20 YEARS	$20,000,000
S	Richmond Bypass	2	3.93	IDOT	$1,500,000	10-20 YEARS	$6,000,000
	IDOT Total						**$150,000,000**
2	Northwest Tollway and IL 47	Full		ISTHA	$10,000,000	0-5 YEARS	$10,000,000
	ISTHA Total						**$10,000,000**
T	Hillside Road	2	0.52	Township	$1,500,000	0-5 YEARS	$1,000,000
U	Pleasant Grove Road	2	3.14	Township	$1,500,000	10-20 YEARS	$5,000,000
V	Doty Road	2	0.44	Township	$1,500,000	10-20 YEARS	$1,000,000
W	Lakewood Road Extension	2	1.15	Municipal	$1,500,000	0-5 YEARS	Privately Funded
X	Kruetzer Road Extension	2	1.18	Municipal	$1,500,000	0-5 YEARS	$2,000,000
Y	Pingree Road	4	0.94	Municipal	$3,500,000	5-10 YEARS	$3,000,000
Z	West Woodstock Road	2	1.43	Municipal	$1,500,000	10-20 YEARS	$2,000,000
	Township/Municipal Total						**$14,000,000**
	Total Project Costs (2003$)						**$406,000,000**
	Total Project Costs (2020$)						**$671,000,000**

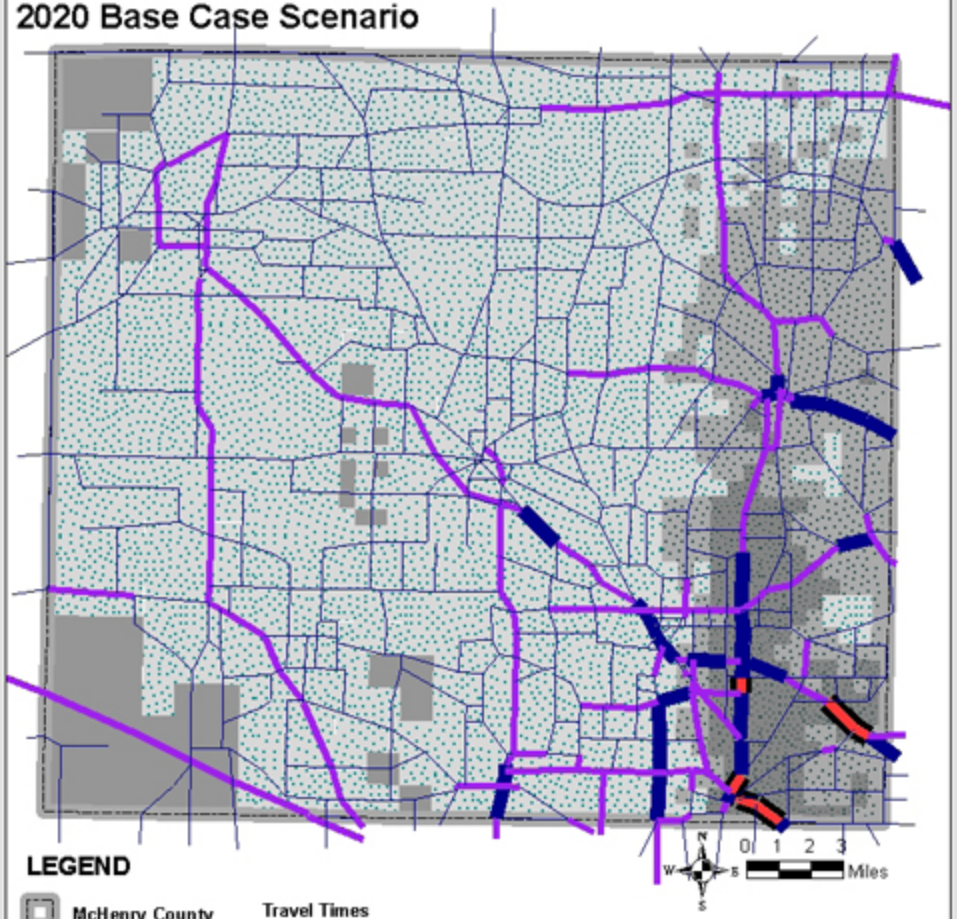
* Note: Cost Estimates for these projects have been adjusted based on cost estimates for similar projects.

Financially Constrained Roadway Plan Project Costs by Roadway Jurisdiction



Base Case Scenario Compared to Financially Constrained Plan

2020 Base Case Scenario



LEGEND

McHenry County

Lanes Required for LOS D

- 2 Lanes
- 4 Lanes
- 6 Lanes
- More than 6 Lanes

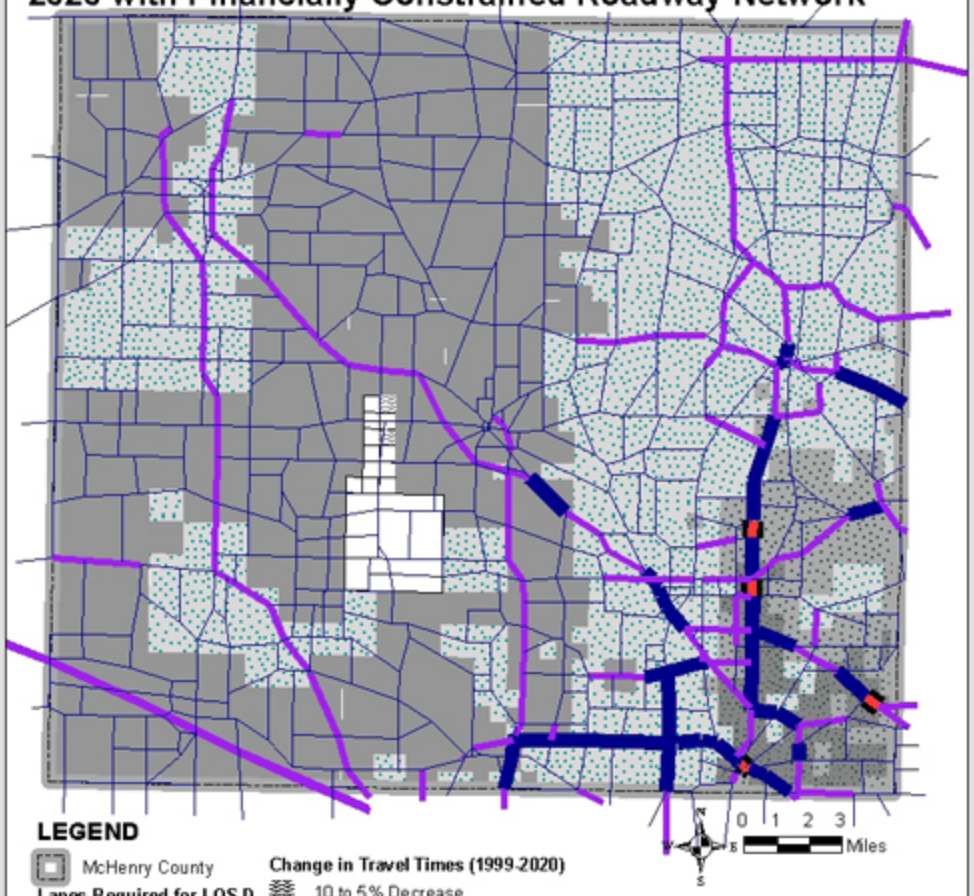
Travel Times

- 10 to 5% Decrease
- 4 to 1% Decrease
- No Change
- 1 to 5% Increase
- 6 to 20% Increase
- 21 to 25% Increase
- 26 to 40% Increase

Chicago Metropolitan Planning Area

Note: Changes in travel times were measured from quarter-mile areas in McHenry County to the Northwest Tollway and I-290 interchange located near O'Hare Airport.
The Base Scenario uses NIPC population and employment projections and assumes the existing plus committed roadway projects are in place.

2020 with Financially Constrained Roadway Network



LEGEND

McHenry County

Lanes Required for LOS D

- 2 Lanes
- 4 Lanes
- 6 Lanes
- More than 6 Lanes

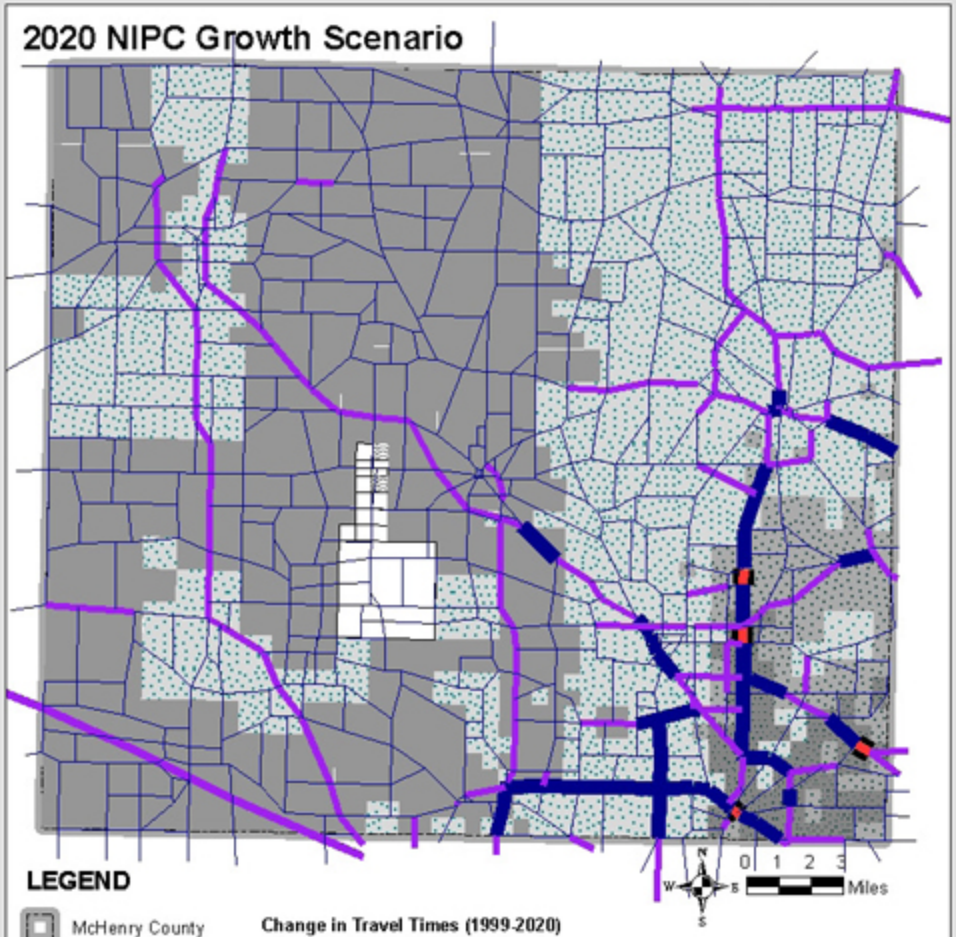
Change in Travel Times (1999-2020)

- 10 to 5% Decrease
- 4 to 1% Decrease
- No Change
- 1 to 5% Increase
- 6 to 20% Increase
- 21 to 25% Increase
- 26 to 40% Increase

Note: Changes in travel times were measured from quarter-mile areas in McHenry County to the Northwest Tollway and I-290 interchange located near O'Hare Airport.

NIPC Growth Scenario Compared to Managed Growth Scenario

2020 NIPC Growth Scenario



LEGEND

McHenry County

Lanes Required for LOS D

- 2 Lanes
- 4 Lanes
- 6 Lanes
- More than 6 Lanes

Change in Travel Times (1999-2020)

- 10 to 5% Decrease
- 4 to 1% Decrease
- No Change
- 1 to 5% Increase
- 6 to 20% Increase
- 21 to 25% Increase
- 26 to 40% Increase

Note: Changes in travel times were measured from quarter-mile areas in McHenry County to the Northwest Tollway and I-290 interchange located near O'Hare Airport.
The Base Scenario uses NIPC population and employment projections and assumes the existing plus committed roadway projects are in place.

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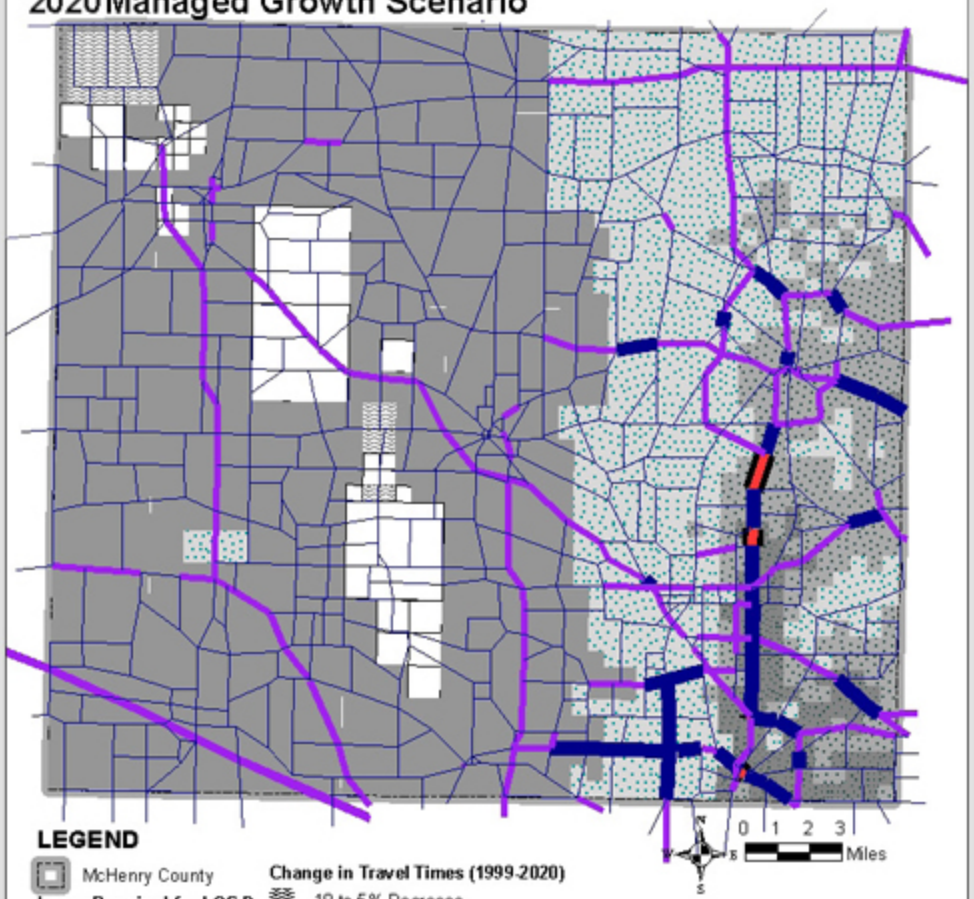
2020 Managed Growth Scenario



LEGEND

McHenry County

Lanes Required for LOS D

- 2 Lanes
- 4 Lanes
- 6 Lanes
- More than 6 Lanes

Change in Travel Times (1999-2020)

- 10 to 5% Decrease
- 4 to 1% Decrease
- No Change
- 1 to 5% Increase
- 6 to 20% Increase
- 21 to 25% Increase
- 26 to 40% Increase

Note: Changes in travel times were measured from quarter-mile areas in McHenry County to the Northwest Tollway and I-290 interchange located near O'Hare Airport.

2020 TRANSIT, COMMUTER RAIL and NON-MOTORIZED TRANSPORTATION NETWORK

The *2020 Transit, Commuter Rail and Non-motorized Transportation Network* was developed from community, municipal, County, Metra, Pace, and Regional Transportation Authority (RTA) input. Route and service recommendations in this network are based on providing basic transit service supporting nodal development patterns recommended throughout the *2020 Unified Plan*. Non-motorized transportation considerations, specifically bicycle and pedestrian alternatives, were also taken into account.

In Exhibit TBD: *2020 Transit and Commuter Rail Network*, six new Metra station locations, three modified Pace fixed bus routes, three new Pace fixed bus routes and two bus rapid transit concepts are identified as desirable and consistent with the goals and objectives previously stated. In Exhibit TBD: *Non-Motorized Transportation Network in McHenry County*, non-motorized facets of the transportation network are identified.

2020 METRA SERVICE

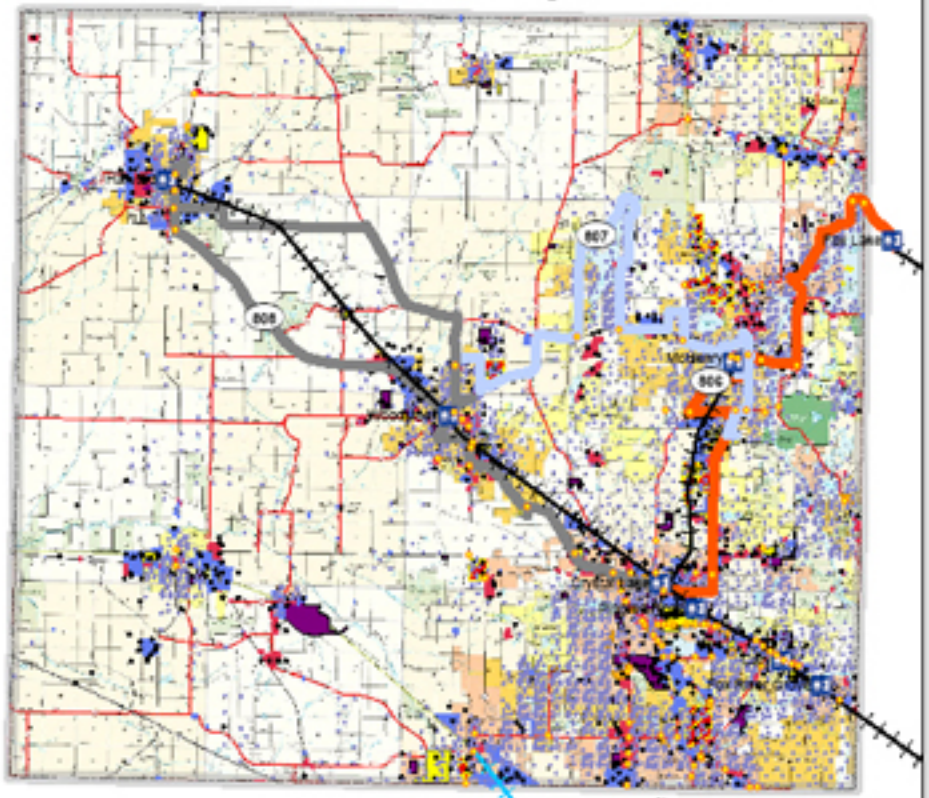
Metra operates a relatively efficient commuter rail service in McHenry County. By capturing large numbers of riders at a few of its stations, especially those with sizeable parking lots and limiting service to peripheral stations that may not capture as many riders outside of the morning and evening rush hour periods, Metra responds well to the highest points of demand for regional rail movement in the County.

Recommended service additions include six new Metra stations, higher frequency of trains, express service, longer boarding and alighting platforms, additional parking, and increased station amenities. The highest project priority is the Milwaukee District West Line extension to Huntley and Marengo.

Desired new station locations are conceptual only. At the present time, Metra is working with individual communities to finalize station locations. Stations are assumed to be at least 20 acres in size with platforms capable of servicing 10-car boarding and alighting (roughly 810’ to 850’) areas. New extensions to Metra’s line service require new rail yards occupying approximately 60 acres, located past the last stop on the line.

2020 Transit and Commuter Rail Network

Transit and Commuter Rail Coverage Evaluation



LEGEND

- Metra Stops
- Existing Metra Lines
- Committed Metra Lines

Existing Pace Routes

- 806
- 807
- 808

2020 Households

- 1 Dot = 25
- 25 Households

2020 Employment

- 1 Dot = 150

- 2020 Institutional
- 2020 Commercial
- 2020 Industrial
- 2020 High Density Residential
- 2020 Mixed Use
- Major Traffic Generators
- Traffic Signals
- McHenry County

Chicago Metropolitan Planning Area

2020 Metra Service Lines and Stations

LEGEND

- Existing Metra Stops
- Existing Metra Lines
- Committed Metra Lines
- Alternative Metra Stops
- Proposed Metra Lines
- McHenry County

- Line Haul Arterial Bus Route
- Harvard to McHenry Fixed Route
- Richmond to Fox Lake Fixed Route
- Marengo to Island Lake Fixed Route
- Woodstock to Algonquin Fixed Route
- Woodstock to Fox River Grove Fixed Route
- Huntley to Crystal Lake Fixed Route

- Primary Transit Corridor
- Secondary Transit Corridor
- Tertiary Transit Corridor

DESIRED METRA SERVICE

Frequency of service, availability of parking, and speed of service are the three primary factors that affect Metra's ridership. County citizens want express trains that travel to downtown Chicago in less than one hour from Crystal Lake and/or the Pingree stations.

The desired number of inbound and outbound stops was determined based on the level of transit services identified at stations located near existing rail yards. Locating new rail yards is essential to increasing service in the County. Building a rail station in Johnsburg/Ringwood allows for increased service at the McHenry Station, the Bull Valley Road Station in addition to the Johnsburg/Ringwood Station, and eventually equal the level currently provided in Crystal Lake. Constructing a new rail yard west of the Marengo Station facilitates service levels to Marengo and Huntley on par with Elgin and Big Timber Stations.

If service to Richmond is provided on the McHenry branch of the Union Pacific Northwest Line, the existing bike and pedestrian path on this alignment would be removed and new track added. If service to Richmond is provided on the Milwaukee District North Line, the relocation of the rail yard from Fox Lake to an approximately 60 acre site further west or north of the Richmond Station enables roughly the same amount of service currently provided to Fox Lake.

Increasing the number of trains serving Woodstock requires the same number of trains to leave Harvard. Therefore, the same number of trains would likewise provide service to Harvard.

METRA STATION IMPROVEMENTS

- **Milwaukee District-West Line**

  The Milwaukee District West Line currently runs from downtown Chicago's Ogilvie Transportation Center and Elgin. However, expanding service into McHenry County on existing rail infrastructure could enhance commuter rail and overall transit service in the County. If expansion occurs, a new rail yard would likely be required west of Marengo to fully accommodate services proposed in this plan. Potential new station sites have already been identified in Huntley and Marengo.

- **Union Pacific-Northwest Line**

  The Union Pacific Northwest (UP-NW) Line is McHenry County's primary commuter rail corridor. Serving stations from Fox River Grove to Harvard, it provides accessibility to a great many riders. However, this plan identifies proposed station locations, in addition to already planned or committed facilities, that may enhance Metra's countywide operation. A potential new station site has been identified near

unincorporated Ridgefield.

- **Union Pacific-Northwest Line North Branch**

  The North Branch of the UP-NW line currently provides service to McHenry by spurring off the main line just south of the Crystal Lake Station. While Metra has already addressed issues of transferring and accessibility by constructing the Pingree Road station between Crystal Lake and Cary, this plan calls for an additional station on the North Branch line to enhance commuter mobility in northeastern McHenry County. Potential new station sites have been identified near Bull Valley Road and in the Ringwood/ Johnsburg area.

- **Richmond Station**

  In the future, the Richmond station area may be served in one of two ways. Either the UP-NW North Branch, extended to terminate at Richmond, which requires reconstructing the rail line, or service extended from Fox Lake on the MD-N (Milwaukee District North) line on existing rail right-of-way. Strong sentiment from the County prefers service on the MD-N line. Some financial arrangements for usage of these tracks have been forwarded to Metra. However, if service to Richmond is provided from the MD-N line then a new rail yard (60 acre) is necessary northwest of the Richmond Station.

STATION AMENITIES and TYPES

In general, a community is responsible for constructing a Metra station, the cost of which depends greatly on amenities provided at each station. Cost estimate for new construction varies between $2 million and $7 million. The types of amenities provided are, in general, appropriate for each station's context within the community and greater transit network. For example, a station located in a historic downtown may have different services and treatments than a park-and-ride facility in a more rural environment. In addition, a regional transportation center may provide more waiting or retail space than a minor transit station in a less traveled part of the transit network.

DESIRED PLATFORM LENGTHS

The length of a Metra car is approximately 85 feet with a door well located in the middle of each. Roughly, 300 to 340 feet is needed to board and alight a four-car train, 640 to 680 feet to board and alight an eight-car train, and 810 to 850 feet for a ten-car train. From those dimensions, the ideal length for all Metra platforms figures to be 810 to 850 feet or as long as necessary to accommodate boarding and alighting for 10 cars.

DESIRED PARKING IMPROVEMENTS

Expanding desired parking, in a way that encourages transit-oriented development, can

be accomplished through the use of parking structures, or by providing bus service, in addition to approving adjacent areas for commercial and/or residential uses.

Parking currently constrains Metra usage in McHenry County. Over 90% of Metra riders in the County access Metra facilities by automobile. This too, is assumed to be the case well beyond the year 2020. However, if growth, as discussed in this *Plan* occurs and as McHenry County becomes more developed, the 90% ratio is likely to decrease and become more consistent with the rest of the Union Pacific Northwest Line's ridership (72%).

Presently, at the Crystal Lake and Cary stations, parking lots are 99% occupied on any given weekday. Constructing the Pingree Road Station mitigates, in the short term, some of the parking problems. However, in the long term, additional parking is needed for Cary and the Crystal Lake Station. Any additional parking mitigates impacts to pedestrian environment. By 2020, the Pingree Road Station should be expanded to its full capacity of 1,700 parking spaces.

2020 PACE SERVICE

Currently, Pace has not committed funding to alter or add to the existing fixed bus routes in McHenry County. However, Pace's *Vision 2020 Plan* outlines several new programs, including Bus Rapid Transit (BRT) and local demand-response shuttles.

- **Input from the Pace Vision 2020 Plan**

  The *2020 Vision Plan* recommends that Pace enhance its transit services to meet the needs of suburban development and travel markets. Enhanced mobility requires services that are cost- and time-competitive with the private automobile, and that contribute to community objectives of each county and municipality. One objective is to provide for that all-important "last mile" of service, which makes public transportation available to most of the region.

  Providing an efficient and effective mobility network includes an evaluation of the present fixed-route structure, the creation of community-based services, the implementation of line-haul routes, and the development of transportation centers and other passenger facilities. Community-based services include the full gamut ranging from demand-response in some markets to fixed routes in others, all with customized mixes of service types. Current connections such as fixed-routes, employer shuttles, historic trolleys, and community circulators will be expanded.

  Service enhancements, needed to address growth and new travel patterns, will be prevalent in the future. Over the next 20 years, the *Plan* provides McHenry County with a strategy to reshape its bus system using new technology and methods to meet market needs and demands.

- **Pace Service Recommendations**

  Pace's service recommendations consist of layering several types, which include line haul routes that offer regional express service between communities, fixed-route arterial service that provides local stop service along commercial, residential, or industrial corridors, and a variety of distributor services operated by local municipalities, major employers, or private demand-response companies.

  Service recommendations, developed to meet McHenry County's future transit needs, also support the goals of McHenry County's *2020 Unified Plan*. Each proposed service responds to Pace's *Vision 2020 Plan* as well as the needs of the County's transit users.

  Expansion and coordination of existing demand response transit services and the implementation of vanpool programs that assist areas of the County difficult to serve due to geographic location or irregular needs, are planned to provide greater level of service especially for transit users who require curb-side assistance.

  Bus rapid transit and fixed routes, identified to better connect larger community areas, are planned to link up major point sources for ridership, including industrial centers, commercial areas, and major residential developments.

  As seen previously in Exhibit TBD: *2020 Transit and Commute Rail Network*, routes were divided into three classes of transit corridors in order to prioritize implementing these services as coherent transit network. The classifications also define preferred land use patterns and recommend roadway improvements associated with the implementation of the transit network.

  - **Primary Transit Corridors**

    Primary transit corridors are high-level corridors that act as the backbone of the transit mobility network in McHenry County. High-density residential and mixed-use land uses are preferable as well as commercial, industrial, and institutional nodes.

    Bus rapid transit roadway and intersection improvement technologies are necessary along these primary corridors. Improvements include signal prioritization, queue jumper lanes, dedicated lanes, and off-board fare collection facilities. Development of these corridors including associated roadway and intersection improvements occurs during the initial implementation stages of the transit network.

  - **Secondary Transit Corridors**

    Secondary transit corridors are medium level corridors building off of primary corridors. Secondary corridors serve activity centers and higher density

developments outside the primary transit corridors.

Development is coordinated with development of the primary transit corridors during the initial implementation stages of the transit network. However, primary transit corridor development is given preference.

- **Tertiary Transit Corridors**

  Tertiary transit corridors are low-level corridors building off of the primary and secondary transit corridors. Tertiary corridors are to serve activity centers and low-density developments outside the primary and secondary transit corridors.

  Portions of existing routes are reconfigured during initial implementation stages of the transit network. Remaining tertiary transit corridors develop, as operational feasibility is determined.

EQUIPMENT RECOMMENDATIONS

Relatively low levels of ridership on each route do not correspond well with standard 40-foot low-floor buses. Using smaller 19 or 23-foot demand-response-type buses with increased service levels is more desirable. Smaller buses, equipped with bicycle racks to facilitate non-motorized transportation, create win-win benefits to communities. Use of hybrid powered or clean fleet is likewise desirable.

TRANSIT AND COMMUTER RAIL FUNDING

Funding for public transportation improvements come primarily from federal transit funds and RTA sales tax receipts and distributed locally to Metra and Pace. Additional funding is also available through IDOT. Proposals for new commuter rail stations, increased service, and commuter rail extensions are part of RTA's overall long-range planning process.

2020 NON-MOTORIZED TRANSPORTATION NETWORK

All of the stated goals and objectives of the *1996 McHenry County Regional Bicycle Plan* are incorporated within this *2020 Unified Plan*. McHenry County's Highway Department provides bicycle lanes on all roads during reconstruction projects if funds are available. The County likewise pursues supplemental funding sources such as CMAQ, Safety, and snow mobile trail grants, etc. to facilitate its non-motorized network.

Top priorities in bicycle planning that promote safer bike travel include paved shoulders and eliminating hazards to bicycle travel along shoulders in addition to adjusting the types and locations of rumble strips and drainage covers.

Along with the Central Prairie Trail, the McHenry County Conservation District (MCCD) in its *Five-Year Plan 2003-2008* proposes future multi-use paths that connect communities throughout the County while providing access to areas not easily assessable by other means of transit. While the MCCD identifies several minor segments to enhance connectivity of the entire system, its major recommendations for new trails include:

- *Harvard to Boone County Trail:* Trail connecting Harvard park areas to the 30-mile Long Prairie Trail that is part of Boone County's Conservation District.

- *Crystal Lake to Woodstock Trail*: Nine-mile trail linking Woodstock and Crystal Lake passing through McHenry County College's campus, and connecting with the existing Prairie Trail.

- *Huntley, Union, and Marengo (HUM) Trail:* An eight-mile trail running along the desired MD-W Metra rail line that would connect those three communities.

Because the majority of bicycle and pedestrian trips are less than 2 miles, local governments can ensure that developments are safe and attractive for pedestrians and cyclists. As stated in the *1996 Bicycle Plan*, planning considerations include:

- Non-motorized improvements whenever transportation improvements are designed.

- Non-motorized improvements that serve major destinations, shared by both commuting and recreational riders, completely separated from traffic and located along creeks, transit right-of-ways or abandoned rail corridors, whenever possible.

- Revised comprehensive plans, subdivision and PUD ordinances, transportation plans, site plan review requirements, parks and recreation planning, etc. that facilitate bicycle travel.

- Bicycle facilities and improvements designed in accordance with standard guidelines.

- Equitable enforcement of bicycle rights and responsibilities combined with good facilities.

- Motivational and educational programs as ongoing long-term efforts to increase bicycling.

- Monitoring and maintenance of facilities and roads used by bicyclists.

- Location, design and maintenance of bicycle facilities are critical to safe usage.

- Bicycle funding comes from a variety of sources. Local agencies need to identify important bicycle related projects, attempt to secure funding, and incorporate bicycle facilities into their own and other agency transportation projects.

- Encourage a pedestrian circulation plan in all site designs that encourages safe, convenient and direct pedestrian pathways within the project.

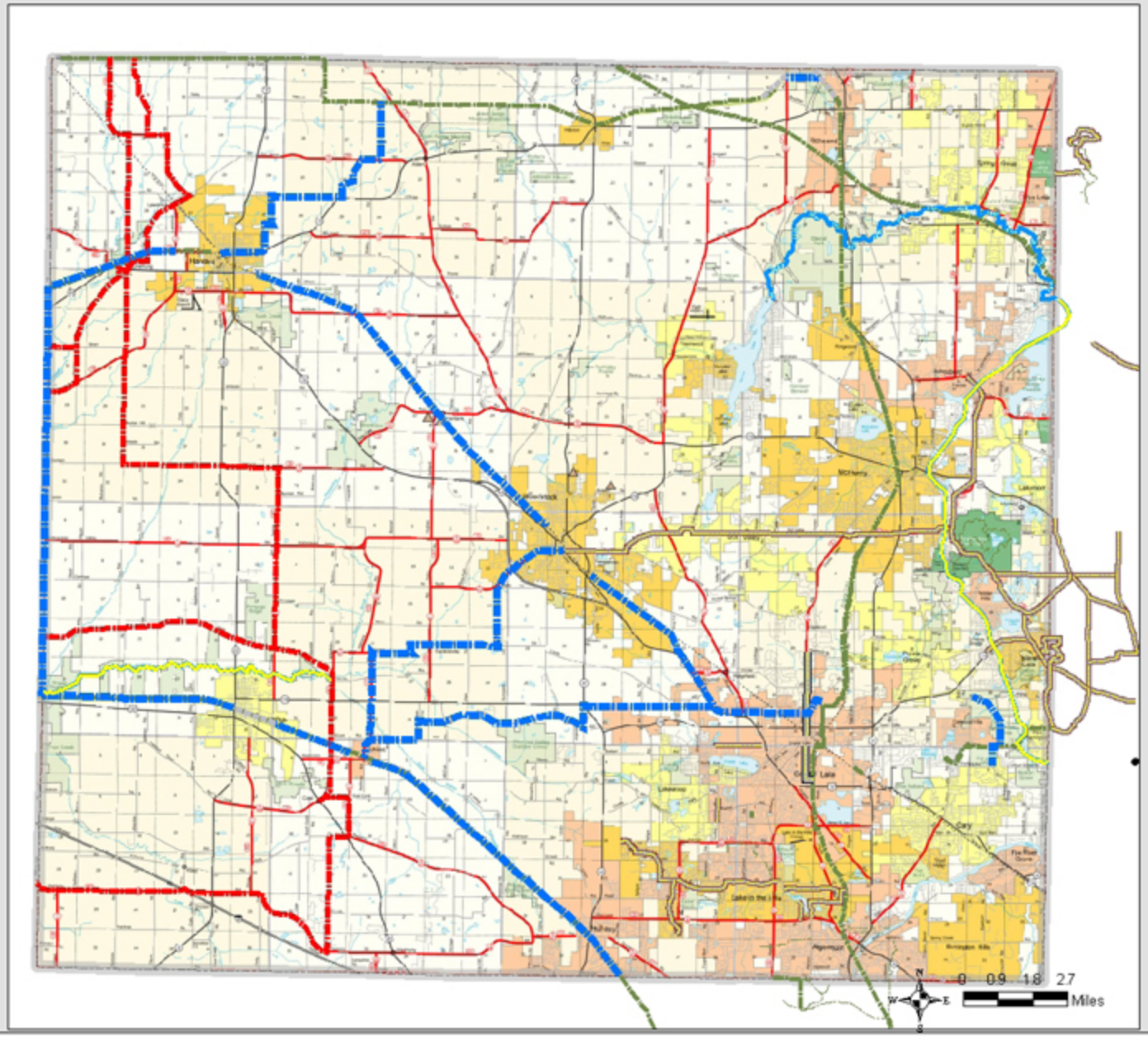
- Adopt design guidelines that promote an attractive pedestrian environment, including features such as sidewalks, lighting, landscaping, benches, as well as active programs promoting safe bicycle use.

- Encourage pedestrian amenities such as small parks, sidewalks, shelters, benches, and lighting near transit lines.

- Work with private, local, and regional agencies to include pedestrian crossings and bicycle ways along existing roads, and in new road plans, and road reconstruction, where appropriate.

- Provide crosswalks at cross-streets (not mid-blocks) for bicycles and pedestrians.

Non-Motorized Transportation Network in McHenry County



LEGEND

- Existing Open Space Trail
- Udder Century Route
- Proposed Trail
- Nippersink Canoe Trail
- Conceptual Canoe Trail
- McHenry County

Note: Bike trails are generally off-road facilities and Bike pats are generally on road facilities.

Chicago Metropolitan Planning Area

CHAPTER SIX
STRATEGIES and PLANNING STUDIES

The *2020 Unified Plan and Map* continues to respect and build upon sound planning principals set forth in previously adopted plans, namely the *1979 McHenry County Comprehensive Land Use Plan,* the *2005 Update*, and the *2010 Update*. The **"Centralized Node Concept"**, which classifies growth areas based upon planning principals such as accessibility, proximity to urban areas, availability of municipal services and utilities, environmental constraints (poor soils for septic disposal, floodplains, etc.) and prime farmland, still remains a key strategy.

In order to encourage compact development around existing urbanized nodes, this *2020 Plan* continues to look at municipalities as **Primary Centers, Secondary Nodes** or **Unique Areas**. (Refer to Exhibit TBD: *Centralized Node Concept*.) The anticipated result of this policy is to impart efficient "sensible growth" within the County, while providing opportunities to preserve farmland, open space, old growth and mature hardwood trees, natural resources, and environmentally sensitive areas.

Primary Centers, planned to accommodate the heaviest concentrations of growth and offer a complete mix of land uses, services and utilities, afford the most comprehensive strategy to provide an efficient transportation network and minimize urban sprawl. Growth in Primary Centers is generally targeted away from areas with prime soils, helping to minimize conversion of viable farmlands.

For the purpose of this *Plan*, **Primary Centers** are defined as areas that have:

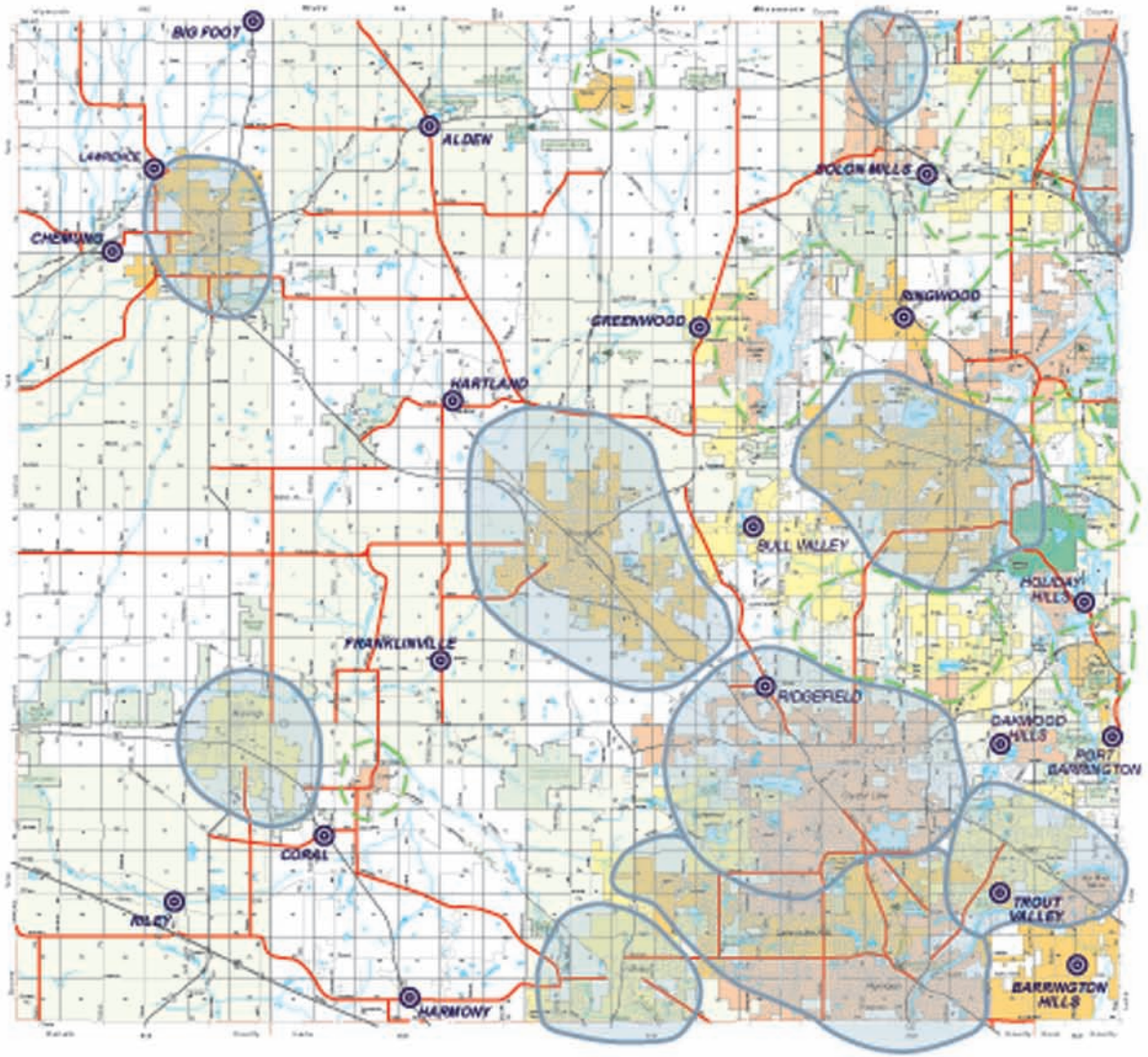
- a dense residential population,
- significant influence on surrounding growth,
- adequate access to more than one mode of transportation,
- a full range of municipal services and utilities,
- a diversity of employment opportunities, and
- an established commercial district.

Secondary Nodes, primarily residential in use with limited growth potential due to the lack of a full range of services, utilities, and multi-modal transportation accessibility, allows for additional commercial and industrial land use if those uses fulfill the criterion for convenience of travel for residents in surrounding areas. Secondary Nodes may also be transitional to a higher land use classification, with future additions of services, utilities and improved transportation accessibility.

For purposes of this *Plan*, **Secondary Nodes** are defined as areas that have:

- primarily residential land use,
- limited municipal services and utilities, and
- few or non-diverse employment opportunities.

Centralized Node Concept



LEGEND

- Primary Centers
- Secondary Nodes
- Unique Areas

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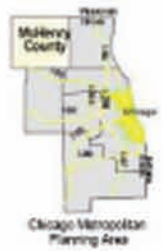


Unique Areas, due to their limited accessibility and limited services, such as wastewater treatment, or limited commercial and employment opportunities, are planned to maintain existing character and can range from a rural-crossroad community to an area with a homogeneous character of estate development.

For purposes of this *Plan*, criteria for **Unique Areas** are:

- residential in nature,
- generally poor accessibility,
- rural crossroads or an area with a specific homogeneous character, and
- few or no employment opportunities.

In addition to identifying growth areas, the County also has a number of tools and techniques available to actively implement the *2020 Unified Plan and Map*. The County must select and use the right tools to achieve the goals and objectives identified earlier in this document. Generally, the tools can be categorized as follows:

PLANNING STRATEGIES

Identifying needs, evaluating alternatives and adopting a course of action to achieve the County's vision for specific areas, corridors, districts or countywide

- Encourage planned growth of urban communities.

- Maintain the *Solid Waste Management Plan* to ensure and monitor adequate and safe capacity to meet the needs of County residents.

- Build area employment zones, which coordinate transportation and land use planning.

- Establish employment zones within existing or planned municipal boundaries.

- Encourage the growth of tourism by promoting the County's historic, open space, and recreation resources.

- Recognize the unique nature of agriculture's economy as well as its rural and complex characteristics.

- Recognize that agricultural related industries have significant value, which should be addressed as part of the County's economic development agenda.

- Promote enactment of agricultural conservation and protection areas as permitted by state law.

- Carefully examine proposals for primary highways, freeways and major arterials with respect to the impacts regarding conversion of agricultural lands to non-agricultural use.

- Conduct a joint annual meeting of the County Board, Planning Commission, and Zoning Board of Appeals to discuss past decisions, to explore current issues and to review the *Unified Plan*.

- Coordinate development with all affected governmental agencies to minimize jurisdictional conflicts.

- Work with municipalities and municipal coalitions to establish boundary agreements and other mutual planning actions that discourage premature, competitive or inappropriate annexation of land.

- Strongly discourage the annexation of land not anticipated in adopted municipal plans.

- Participate in groundwater protection planning efforts.

- Encourage compact development patterns that build communities, clustered neighborhoods, villages, and towns, rather than a pattern that scatters isolated buildings and subdivisions.

- Identify multi-use trail systems, which link major residential areas to employment centers, public facilities and recreational areas.

- Maximize the use of non-automotive modes of transportation.

- Transit planning, bicycle planning, roadway design, access limitations, and land use regulations should be designed toward long-term reduction of traffic congestion and enhanced quality of life.

- The McHenry County Division of Transportation will continue to work with other agencies to monitor and review traffic conditions. This process can include the review by the Division of Transportation of developer, township, and municipal plans upon request and continuous discussions regarding transportation projects through the Council of Mayors.

- Promote and encourage development of planned business parks where transportation can support commerce without placing stress on neighborhoods or generating traffic congestion.

- Promote a selected system of arterials, inclusive of the SRA system, that serves intra- and inter-county travel needs.

- Encourage energy efficiency in building design.

REGULATORY STRATEGIES and TECHNIQUES

Using regulatory powers to establish and enforce consistent standards governing the use of property and improvements to property

- Permit recreational activities that pose no threat to sensitive natural environments and that do not create a nuisance to surrounding uses.

- Work with all entities to adopt land use regulations that minimize erosion on construction sites, mining areas, and undeveloped lands.

- Ensure that new developments preserve significant natural features such as vegetation, wildlife, waterways, floodplains, wetlands, woodlands, and scenic vistas.

- Support countywide standards that promote recycling to reduce waste.

- Limit development, within areas not served by central water supply systems, to densities that do not pose a threat to ground water capacity.

- Adopt subdivision standards that encourage the preservation of trees and natural plant communities.

- Encourage siting employment centers where minimal off-site impacts including noise, odor, lighting, vibration, and vehicular traffic generation are limited.

- Promote land use regulations that provide a full range of housing types while maintaining the character of existing residential areas. Particular attention paid to providing housing opportunities that meet the needs of the elderly, low- and moderate-income households, and the disabled.

- Develop County programs to prevent blight and the deterioration of housing, particularly in areas where local enforcement procedures do not exist.

- Facilitate the establishment of attainable housing through regulation, development review, and where possible, financial support.

- Establish land use controls that preserve and enhance agricultural industries.

- Encourage the use of buffers designed to reduce potential conflicts arising from the proximity of agricultural related business to established urbanized areas and other incompatible land uses.

- Incorporate environmental design criteria and performance standards that minimize adverse impacts to natural, scenic, historic, and environmental areas.

- Adopt or enhance existing surface water, ground water, wetland and floodplain protection ordinances that prevent the degradation of water quality and habitat. Such ordinances should:

    - Discourage the channelization of streams,

    - Preserve natural vegetative buffers near open water and wetlands, and

    - Establish reasonable building and site improvement setbacks from streams and open water.

    - Enhance and maintain regional wetland-banking programs.

    - Insure compliance with the intent of the County' s *Unified Plan* as a prerequisite to development within the County's jurisdiction.

    - Encourage each municipality to adopt land use controls that support central business districts in each community.

    - Promote using conservation design procedures that allow the construction of dwellings in an arrangement that encourages permanent protection of open space.

    - Encourage sensitive and appropriate reuse of reclaimed mining areas.

TRANSIT ORIENTED DEVELOPMENT STRATEGIES

Encouraging new development and redevelopment efforts along transit corridors is important to the goal of a more compact, sustainable, and attractive urban structure

- Encourage highest land use densities within walking distance (generally ½ mile) of transit stops.

- Encourage new developments, served by transit, to provide safe and lighted bus shelters, bus pullouts, benches, and sidewalks.

- Create mixed-use areas at transit lines, such as housing, shopping, schools, employment, and other uses (in close proximity).

- Improve existing transit stops by adding such amenities as shelters, benches, and lighting, and maintaining the stops (e.g. snow and trash removal).

- Make developments more accessible for buses by siting bus stops closer to the front of a site, and by adding bus pullouts.

- Limit high-density residential, commercial, and office development in areas not served by transit.

- Encourage development proponents to work with transit authorities when planning new high-density projects.

- Provide adequate automobile and bicycle parking at transit stops, where appropriate.

- Provide sidewalks and crosswalks between transit stops and major destinations within approximately ¼ to ½-mile walking distance.

FINANCE and BUDGETING STRATEGIES

Ensure the financial health of the County and the equitable distribution of public costs between current and future residents and businesses

- Develop a plan coordinating County and municipal economic development initiatives into unified, mutually supportive countywide efforts.

- Use the fiscal power of the County to implement economic development initiatives. As examples, utilize facility construction, job training programs, block grants, tax abatements, special service areas, and regulatory relief.

- In order to increase the effectiveness of public expenditures, integrate planning and capital improvement programming.

- Evaluate fiscal impacts of proposed developments on County finances.

PUBLIC USE of LAND

Timely acquisition or public control of property needed for rights-of-way, facilities and open space

- Take an active role in conserving wetlands, prairies, highly productive agricultural soils, and other sensitive lands through strategic acquisition of land or development rights, and through land management practices, which recognize and balance the interests of existing agricultural communities and the needs of future generations.

- Encourage the Conservation District, IDOT, and other state and local agencies to acquire necessary rights-of-way, easements, and properties before development pressures occur, in order to reduce acquisition costs and promote rational County land use decisions.

- Work with agencies responsible for open space to assemble, acquire and develop open areas throughout the County in advance of development pressures to a standard acceptable to the County.

- Develop a greenway system linking open spaces and natural resource areas, particularly along waterways.

- Use utility rights-of-way and abandoned railroad corridors as part of the open space trail system.

PUBLIC WORKS

Construct and maintain public facilities that encourage growth when and where it can be supported, in a manner consistent with the 2020 Unified Plan

- Work with municipal and private water utilities to diversify water sources that do not create a dangerous dependence or excessive load on any one source.

- Maximize joint and interagency development potential (e.g. school/park sites; fire/police/community centers) to promote improved communication and efficient use of resources.

- Work with municipalities to limit the extension of corporate boundaries only to those areas contiguous to existing development, which can be served by public sewer and water.

- Encourage locating public schools, parks and libraries central to existing and recently developed areas so that automobile travel and the need for school bus facilities can be minimized.

- Avoid construction of transportation or utility improvements that encourage growth that is not compact and contiguous to existing communities.

- Design and construct public facilities, including bridges, roadways, transportation centers, and other infrastructure that set a standard of excellence, exemplifying context sensitive design.

- Establish a consistent approach to making development pay its fair share of the costs required to serve that development (i.e. public facilities and services).

- Employ roadway design that is consistent with its function and sensitive to surrounding community character.

- Design of roadways should always consider incorporating safe inviting sidewalks and bikeways into the improvement.

- Establish rights-of-way widths, easements, and road design standards based on projected roadway needs; encourage planting and maintenance of landscape vegetation adjoining the road to establish an attractive roadway character.

- Address the need to include landscaping in the right-of-way and encourage planting and maintenance of native plants where appropriate.

- Site new roadways that minimize adverse impacts on existing land use and encourage compact contiguous growth.

- Encourage the installation and maintenance of traffic control systems that reduce congestion and promote smooth traffic flow.

- Support the establishment and maintenance of scenic roads in the County.

PUBLIC /PRIVATE RELATIONS

A partnership of active, open participation in public decision-making and public support of private enterprise

- Promote public review and discussion throughout the development and implementation of future comprehensive planning efforts.

- Support the establishment of employer-assisted housing to help employees find and finance housing closer to their workplace.

- Encourage County and municipal economic development organizations to develop employment centers near concentrated population areas and transit centers.

- Encourage employers to promote car-pooling and transit use, and to utilize programs such as the RTA Transit Checks.

- Attract employers whose labor requirements match the need and skills of the existing County workforce.

EDUCATION and INVOLVEMENT

An informed population actively participating in public decisions regarding the use of land and the future of McHenry County

- Raise public awareness, and establish development guidelines about the best practices for implementing groundwater recharge programs that balance water extraction and replacement.

- Along with municipalities, raise awareness of the potential for recreation and tourism, compatible with historical or cultural sites, where such activities can be enjoyed without damaging the nature of these resources.

- Assist municipalities in their efforts to encourage infill development and redevelopment; encourage housing within one-mile of major transit facilities, job hubs or central business district/town centers.

- Promote legislation that assists in preserving the agricultural economy in McHenry County.

- Provide technical assistance to municipalities in establishing and maintaining landscape improvements, including urban forestry and street tree programs.

- Expand the McHenry County Regional Planning Commission's seminar/workshop series to disseminate information that enhances communication and planning capabilities. Such as:

    - informing County residents of their rights, responsibilities and opportunities for involvement within the planning/development processes;

- good planning and design standards for subdivision layout, site planning, landscaping, building and sign appearance, highway access, parking capacity and stormwater management;
- uniform standards and procedures for municipal management of urban growth and change;
- proper management techniques to reduce soil erosion, and the importance and methods of protecting floodplains, wetlands, groundwater recharge areas, productive agriculture land, and other environmentally sensitive areas; and
- threats and potential impacts to environmental surroundings within McHenry County.

- Utilize available technology to encourage municipal, township and county notification of pending development and development review.
- Publicize County plans to encourage their use in the decision-making process.
- The County, in conjunction with the Farm Bureau and municipalities should establish a system of notification related to growth areas adjacent to or near existing agricultural activities in order to notify prospective residents that late night/early morning operations, spraying, dust, noise, odors and agricultural runoff may occur.

INFORMATION

Access to data collected, maintained and managed as a central data base regarding property conditions and the environment of the County

- Acquire and maintain an inventory of natural resources with the goal of identifying and preserving all areas that include important or unique characteristics including wetlands, floodplains, prime aquifer recharge areas, surface water, woodland coverage of five acres or more, prairies, savannahs, and scenic areas.
- Maintain and enhance an historic preservation program, working with state and municipal agencies to identify, protect and enhance historic buildings and sites within incorporated and unincorporated areas of the County.
- Acquire and make available the inventory of known encampments, ceremonial areas, burial grounds, trading centers and other sites of Native Americans, French Traders, and pioneers for public education and enjoyment.

- Maintain up-to-date and easily accessible records regarding land-use and environmental conditions, jurisdictional boundaries, public facility capacities, and local and regional land-use plans.

- Make the McHenry County Regional Planning Commission and its staff the "first source" which anticipates change and provides decision-makers with insight on alternatives and consequences.

- Coordinate data collection and data sharing between municipalities, townships and County agencies to provide the most efficient and least expensive source of commonly used information.

- Continue to cooperate and exchange data and views with surrounding county and regional agencies regarding inter-county and region-wide issues.

- Monitor trends that may affect the need for public facilities or services.

COMMUNITY SERVICES

Planning for police, fire and ambulance services, public health services, roadway and public property maintenance, and other support services in advance of development to improve response times, reduce potential loss, and maximize the benefit of pubic expenditures

- Encourage locating facilities in places, which enhance community character but also minimize automobile driving and the need for school bus facilities. (Such facilities may include but are not limited to schools, cultural facilities, parks and libraries.)

- Maintain consistent County site plan review procedures that address uses permitted and conditionally permitted, dimensional regulation, building setback and bulk, scale, density, intensity, landscaping, parking, required public facilities, open space characteristics, site engineering, aesthetics, and off-site impacts; include public input in reviewing specific development proposals to help identify potential problems and coordinate resources that insure adequate coverage.

- Provide adequate County staff necessary to conduct programs that meet the objectives of the *2020 Unified Plan*.

- Maintain and implement the countywide *Solid Waste Management Plan* in a manner consistent with the *2020 Unified Plan*.

CHAPTER SEVEN
IMPLEMENTATION

Managing growth is both an end and a means since the "desired" effects of development are never in a "fixed state of harmony." Rather, growth management is always an ongoing process of evolution, in which a "partnership" takes actions leading to a finale that meets current needs without compromising the ability of future generations to meet their own needs.

No planning effort will satisfy everyone. Nevertheless, the *2020 Unified Plan* and *Map* reflects, to the greatest extent possible, the values, goals and objectives expressed by County citizens. It takes a pro-active, as opposed to a reactive approach and demonstrates probable outcomes through modeled scenarios. Moreover, it is the first step in marrying long-range land use and transportation planning and, most notably, it sets the stage for future updates to continue and to build upon this union.

The *2020 Unified Plan*[1] cannot create itself through natural market actions. In order to be guided, induced, encouraged, limited, revitalized and supported, the *Plan* must "partner" with local and regional governing bodies as well as property owners, developers, businesses, community leaders, and most importantly, McHenry County residents. Guidelines, outlined in the *2020 Unified Plan*, will help avoid an overall "piecemeal" development pattern. As a vision for the future, the *2020 Unified Plan and Map* is McHenry County's policy statement for imminent growth and development. The *2020 Plan Map* is attached with this document.

However, implementation of any plan, can only be accomplished through an integrated effort from County and municipal elected officials alike. Public awareness and input must be considered in any systematic review. Above all, solid reasons for any deviation from the policies and criteria outlined herein must be clearly stated to ensure the continued validity of the *Plan*. This will not only protect future growth and development, but will also respect the established character of McHenry County.

LAND USE TOOLS

- ### Community Form

  The *McHenry County 2020 Unified Plan* builds off of previous plans and continues to follow a nodal planning concept. The nodal planning concept encourages growth and development to occur in and around existing population centers where services and transportation options can be provided both effectively and efficiently. In

[1] All references to the *2020 Unified Plan* within this planning document shall include and reference the *Plan Map* as well.

unincorporated McHenry County, the rural encroachment of development places a significant strain on the cost and quality of services for schools, police protection and fire protection. In addition, rural encroachment increases roadway congestion and travel times. With this knowledge, a great deal of consideration was made in the development of the *2020 Unified Plan*. In order for the County to provide safe, efficient and desirable communities decision-makers must follow the guidelines set forth in the *McHenry County 2020 Unified Plan*.

- ## Development Regulations

The most widely recognized implementation tool for a land use plan is a zoning ordinance. Through the careful and the resolute enforcement of zoning regulations, the County has an opportunity to achieve the vision the *Plan* describes. It is critical the adopted zoning ordinance and other planning and enforcement standards compliment the recommendations of the *Plan*. In addition to the *Zoning Ordinance*, the *McHenry County Subdivision Ordinance*, *Stormwater Ordinance*, *Historic Preservation Ordinance*, *Sign Ordinance*, *Public Health Ordinances*, *Solid Waste Ordinance,* and *Access Management Ordinance* are also effective tools to create strong communities and carry out the vision of the *Plan*.

The *Groundwater Protection Ordinance* and *Farmland Protection Program Ordinance*, when adopted, will provide vital guidance in protecting the quality of life in McHenry County. In addition, the *Geologic Mapping for Environmental Planning, McHenry County, Illinois* and *Groundwater Studies for Environmental Planning, McHenry County, Illinois* are resources which are also useful implementation tools to help guide development in McHenry County.

- ## Intergovernmental Cooperation

The *McHenry County 2020 Unified Plan* recognizes the importance of intergovernmental cooperation. The *Plan* considers the planning goals of surrounding municipalities and counties because it is important to identify the regional effects local land use decisions have. Communities need to implement cooperative planning efforts to provide the most efficient and cost effective means for appropriate land use management.

The *Intergovernmental Cooperation Act of 1973 (5 ILCS, 220)* authorizes units of local government the power, privilege and authority to enter into contracts for the performance of governmental services and activities. The *Intergovernmental Cooperation Act* is a powerful tool for implementing this *Unified Plan*. The County's membership and support of McHenry County Council of Governments (McCOG) and Land Use Evolution and Impact Assessment Model (LEAM) also have great potential for intergovernmental cooperation, because it bring several layers of government together to address issues in a unified approach to problem solving.

The *2020 Unified Plan* encourages the establishment of **municipal boundary agreements**. Such agreements can lessen planning conflicts when municipalities compete for tax revenue, allowing development to occur in a more orderly and controlled manner.

Service agreements between units of local government can also provide much needed benefits such as solid waste management, stormwater management, and water and wastewater treatment. Local officials can improve the efficiency of services they provide to their citizens while reducing the costs associated with these efforts. Some costs associated with services and improvements are fixed and will not substantially increase should the range of services increase. Units of local government can share in the costs of programs which often times is substantially less than if they initiated the program themselves.

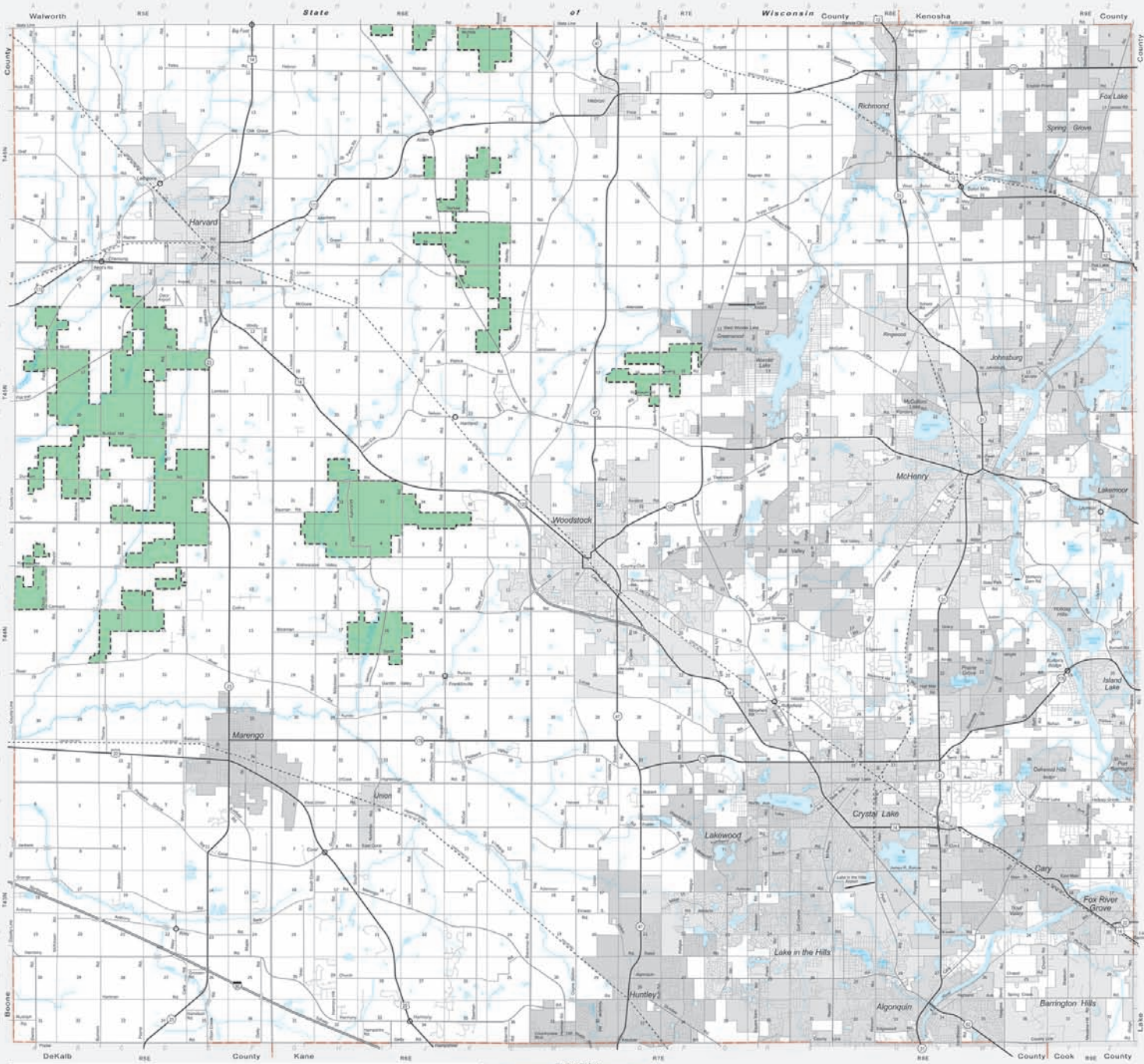
• Agriculture Protection

McHenry County has long acknowledged the historical, aesthetic and economic importance of agriculture. The County also recognizes the difficulty in preserving farmland given current development pressures.

In the 1980s, McHenry County established, by statute (Public Act 81-1173), **agricultural protection districts.** The *Act* created a tool to "conserve, protect and encourage" the use of agricultural lands for the protection of food and other agricultural products. The *Act* likewise established a vehicle to conserve and protect agricultural lands as a valued natural and ecological resource. Each district consisted of a minimum of 500 acres of farmland (later reduced to a 350 acre minimum) as compact and contiguous as feasible for an initial period of ten years with optional eight-year renewal periods. By July of 1991, McHenry County had a total of 24,022 acres in agricultural protection districts. Exhibit TBD: *Agricultural Protection Areas*, shows the districts that are still in existence today.

Another important tool to remove the economic incentive for selling today's farms for development is the **purchase of development rights (PDRs)**. A local not-for-profit organization or unit of local government establishes a farmland preservation program to purchase development rights from willing landowners. Landowners then agree to sell or donate their development rights, but maintain ownership of the land. In the event the land development rights are purchased, the landowner is given the difference between the value of the land as a potential development and the value as farmland. The property owner is not prohibited from selling their land, however the sale of land will be based on its value as an agricultural use and not as potentially developed land. Consequently, the PDR not only keeps the land in agricultural use, it also keeps the land affordable to those wishing to continue farming.

McHENRY COUNTY, ILLINOIS
Agricultural Protection Areas



MAJOR COUNTY ROADS

ELEVATION

Feet above Sea Level

Agricultural Protection Area

Source: McHenry County Soil & Water Conservation Service

www.mchenryswcd.org

Original Base Map compiled through the cooperative effort of Northern Illinois University, Department of Geography, Cartography Laboratory for Cartography and Spatial Analysis© - 1993

Base map features adapted from U.S.G.S. 1:24,000 scale series

0 1 2 3 Miles

0 1,000 2,000 3,000 4,000 5,000 Feet

N

TOWNSHIPS

43N 8E	43N 9E	43N 10E	43N 11E
42N 8E	42N 9E	42N 10E	42N 11E
41N 8E	41N 9E	41N 10E	41N 11E

Lettered Subdivisions

Northwest Quarter	NW	Northeast Quarter	NE
Southwest Quarter	SW	Southeast Quarter	SE

01/2006:cjm

Planning & Development

Agricultural conservation easements can also be a significant farmland protection tool. Much like PDRs, agricultural conservation easements (ACE) run in perpetuity with the deed to the land. By imposing and banning particular uses, an ACE restricts the development of land considered inconsistent with agricultural uses. A property with such an easement can be sold, deeded or transferred; however the easement stays with the land.

Transfer of development rights (TDR's) is another tool that can be used whereby increased densities are granted in developments in exchange for permanent protection of other farmland in the county.

The County supports efforts to develop ways of protecting agriculture as an industry.

- ## Economic Development

Having a strong commercial tax base is crucial to the welfare of a community. The *McHenry County 2020 Unified Plan* encourages the attraction, retention and expansion of commercial land uses that are compatible with surrounding land uses. It also promotes the revitalization of existing retail and commercial areas.

It is important to provide McHenry County residents with a range of local employment opportunities. It is also necessary to provide a healthy tax base to ensure quality services and amenities to a community. A healthy tax base can strengthen school and library districts. It can improve a police and fire district's ability to service a community. A strong tax base can also increase park and conservation district holdings. All of which contribute to a more desirable place to work and live.

Tax Increment Financing (TIF) is a tool to help depressed business districts and stimulate economic development. The proper use of a TIF district is as infill and in brownfield sites. Under tax increment financing, the assessed value of an area to be developed is "frozen" at its present level. Taxing bodies are allocated the same tax revenue throughout the life of the TIF district. The tax value increases, as a result of development within the TIF district, are captured to pay for the cost of development improvements incurred by the city. Tax increment financing encourages long term economic development by allowing a city to capture tax revenues as a result of development investments rather than simply increasing taxes.

Tax incentives are a means of fostering economic development. Incentives can be utilized to encourage development in blighted areas and retain a strong work force. There are many tax incentives a community can offer, property tax incentives are one of the most commonly used in Illinois. Property tax incentives provide tax relief based on a given use for a set term. Once the term expires, the taxing level is returned to current assessed levels. As a result, property tax incentives can

encourage the establishment and revitalization of McHenry County businesses.

In addition to the typical commercial and Industrial uses found in McHenry County, it is vital to recognize the importance of aggregate resources. Aggregate resources are a limited and valuable commodity to the County. Earth extraction provides materials essential to the improvements occurring within the County as well as the metropolitan area. It is a resource that cannot be determined viable until site specific studies are completed. Consequently, it is not possible to plan for gravel pits, rather recognize the demand for them and determine potential impacts on a site specific basis.

TRANSPORTATION TOOLS

- ### Access Control Policies

Access control policies outlined in the *McHenry County Access Control* O*rdinance* can be expanded to include all primary roads, especially those designated as arterials with a 'stepped down' version for routes designated as collectors. For those routes that are already developed with many access points (40+ per mile), efforts to consolidate driveways, especially along federal and state highways, should be undertaken. Specifically, roadway jurisdictions can actively pursue:

- limiting/reducing the number of access points to one (1) per property,
- moving access to side roads while maintaining the arterial frontage,
- requiring adjacent properties to consolidate their access so as to utilize a single shared driveway,
- promoting internal circulation between adjacent properties to avoid vehicles having to enter and exit a roadway to access nearby properties; and increasing the use of right-in /right-out access.

- ### Strategic Regional Arterial Studies

Twelve *SRA Preliminary Engineering Studies* have been conducted by the Illinois Department of Transportation over the last decade in McHenry County. Two of the studies are ongoing (Lamb Road/Charles Road and Illinois Route 176). These studies identify an ultimate roadway cross-section for a given segment of roadway through an Advisory Panel comprised of impacted communities and key stakeholders. The studies identify known environmental, social, and engineering constraints and estimate the amount of right-of-way to accommodate the roadway.

- **County-Specific Travel Model**

  The County can develop a *Travel Model* specific to McHenry County but consistent with the regional model. The advantages to this include the ability to evaluate continuously impacts of development upon the road system (including intersections) and aid in prioritization of funding investments.

- **Sub-area Traffic Circulation and Corridor Studies**

  Two traffic circulation and needs analysis studies in particular are needed: a southeast quadrant study and a Northwest Tollway study.

  The southeast quadrant of the County should be modeled and capacity needs should be identified in greater detail than what is presented in this *Plan*.

  The location of new interchanges with the Northwest Tollway in McHenry County should be studied in terms of land use, roadway network impacts, and traffic circulation needs.

- **Electronic Database for Crashes**

  The County will begin to maintain a database of traffic accidents. The information, available from the Sheriff's Department, would require data entry and database maintenance. One of the major advantages of the database is that advanced analysis of crash trends and identification of high accident locations can be studied and roadway improvements can be directed to improve safety.

- **Electronic Database for Roadway and Bridge Information**

  The County will continue to develop a database of information about rights-of-way and bridge information detailing pavement condition and maintenance schedules. Advantages include advanced analysis of the County's infrastructure, maintenance needs/costs, in order to maximize maintenance dollars through preventative maintenance measures.

- **Corridor Preservation/ROW Acquisition**

  An ongoing challenge faced by the Illinois Department of Transportation, the McHenry County Highway Department, as well as township and municipal public works/roadway departments is keeping up with the shifts in demand for different transportation routes. Given the extensive lead-time involved in roadway projects, these agencies have a special mandate to anticipate future demand and plan proactively. An increasingly valuable tool for dealing with this challenge is corridor preservation. Corridor preservation is an environmentally sound and cost-effective approach for avoiding and minimizing impacts associated with transportation *projects*

(Federal Highway Administration, Corridor Preservation Case Studies, May 2000).

Common goals of corridor preservation include avoiding conflicts in right-of-way and minimizing land acquisition costs. These goals are met through planning actions that control, reduce, or prohibit development where a future need for a transportation improvement has been identified. These areas include but are not limited to, land adjacent to existing roadways that requires capacity expansion, new routes for urban bypasses to serve new residential or commercial developments, and land needed for bicycle, transit and pedestrian facilities.

When transportation corridors are preserved, the severity of negative impacts and the costs of transportation improvements are mitigated and minimized. When land is not set aside for future needs, the cost to accommodate improvements is higher. Additionally, the ability to avoid negative environmental and social impacts while meeting future needs is considerably lower.

The *McHenry County 2020 Unified Plan* is a beginning and can be utilized to undertake corridor preservation. Additional or expanded transportation facilities needed to meet future demands were identified though an evaluation process and included in the *Preferred 2020 Roadway Plan*. For the roadway projects identified in the *Preferred 2020 Roadway Plan*, right-of-way should be preserved and land use should be coordinated with roadway design in a comprehensive planning process. For the *Financially Constrained 2020 Roadway Plan*, McHenry County and IDOT should coordinate current development with roadway needs and at the same time, purchase and preserve needed rights-of-way.

The right-of-way needs for both the immediate roadway projects indicated in the *Financially Constrained 2020 Roadway Plan* as well as the anticipated future roadway needs indicated in the *Preferred 2020 Roadway Plan* are based on factors including but not limited to engineering, social/economic, environmental, and context sensitivity considerations. The amount of right-of-way preserved is determined for each roadway project based on IDOT's *Strategic Regional Arterial Right-of-Way and Design Guidelines*, the McHenry County Highway Department's experience with what right-of-way is required for its facilities, as well as context sensitive concepts included in this *Plan*.

For designated SRAs in McHenry County, not identified in the *Preferred 2020 Transportation Plan*, right-of-way must be preserved to meet regional transportation needs beyond the year 2020. The amount of right-of-way for these SRA segments should be consistent with IDOT lane recommendations and SRA right-of-way guidelines.

In order to supplement the SRA network and to better plan right-of-way needs for McHenry County, consideration should be given to accessing/classifying roadways as *Primary County Routes* or *Secondary County Routes*. Primary routes are likely to

become high volume roadways connecting urban areas and have high levels of access management; secondary routes are not forecasted to carry as much traffic and would have lower levels of access management. Basic design guidelines could then be created for these routes, which like the SRA network, would aim at meeting the transportation needs for McHenry County beyond those identified for 2020.

- **Community Transit Needs Assessment Studies**

  The County's transit plan to be completed in 2005 is the first step in the process of understanding transit needs in McHenry County by community. As indicated in Pace's *Vision 2020 Plan*, the transit plan will evaluate the transit market and needs and develop mobility solutions appropriate to McHenry County. As part of the transit plan, as well as the continual practice of transportation planning in McHenry County, Pace services will be continuously monitored and adjusted to meet community transportation needs as effectively as possible while achieving maximum efficiency.

- **Bus Rapid Transit/Express Route Studies**

  For potential bus rapid transit and express route corridors from this *Plan* and refined in the transit plan, the County and Pace need to study travel patterns, identify activity centers, and ultimately develop service plans for new services. Along identified corridors, McHenry County should work with the Illinois Department of Transportation and Pace to study needed roadway right-of-way and construction improvements as well as needed intersection signal reconfigurations and upgrades.

- **Transportation Center Design Studies**

  Appropriate and efficient hubs for community-based and bus rapid transit services in McHenry County identified in this *Plan* and refined in the transit plan should be designed with close participation from the communities.

- **Metra Commuter Rail Corridor Studies**

  For additional stations and extensions of lines, Metra will study travel demand, identify with the communities appropriate station locations, and develop service plans for commuter rail services. It is important to note that Metra reserves the right, as done during the development of this *Plan*, to coordinate the designation of stations and station locations with community plans.

LAND USE GUIDELINES

The following includes, but is not limited to, criteria that should be used by decision makers to ensure a consistent evaluation of land use changes and an ongoing review of the goals and objectives set forth in the *Plan*.

- ★ Does the land use change fulfill a significant need in the area?
- ★ Will the land use change require additional costs to the transportation network?
- ★ Will the land use change be beneficial to the general welfare, safety and health of the residents of the immediate area and the general population of McHenry County?
- ★ Will the land use change constitute an “entering wedge” of incompatible use and be a detriment to adjacent property?
- ★ Will the land use change necessitate premature improvements to the transportation network?
- ★ Will the land use change create isolation of the specific land use?
- ★ Will the land use change require implementing unplanned improvements to the transportation network?
- ★ Will the land use change adversely influence living conditions due to a type of pollution?
- ★ Will the land use change adversely influence adjacent property values?
- ★ Will the land use change alter the population density pattern and increase the burden on public facilities?
- ★ Will the land use change adversely affect a valuable natural resource of the County?
- ★ Will the land use change conflict with existing commitments or planned transit improvements?
- ★ Will the land use change create additional environmental problems due to soils, vegetation, slope or floodplain?
- ★ Is the land use change consistent with municipal plans or planned municipal/ township road improvements (if applicable)?
- ★ Will the land use change result in private investment, which would be beneficial to the redevelopment of a deteriorated area?
- ★ Is the land use change located where needed services have been provided?
- ★ Is the subject property physically suitable for the purpose of the land use change?

- ★ Will the relief of a hardship for an individual property owner create a detriment to the public welfare?

- ★ Will the land use change pay its own way?

- ★ Is the land use change consistent with the *2020 Unified Plan?*

- ★ Overall, does the land use change comply with the goals and objectives stated by the residents of McHenry County through the *2020 Unified Plan*?

APPENDIX A: GLOSSARY

Access Management Ordinance — A set of rules and regulations to govern access to and from a County highway as adopted and amended by the McHenry County Board.

Agriculture — A land use category designated in the *Unified Plan,* which identifies lands best utilized for the production of food, plants and the keeping of animals. It is recognized that within this designation, individual sites may contain clear impediments to agricultural activities, which may warrant conversion to rural residential uses.

Agricultural Protection Area — Allowed by Illinois Statutes, Chapter 505 ILCS 5/1 et. seq., consisting of a minimum of 350 acres of farmland, which are contiguous and as compact as possible. Ag Protection Areas identify and put on notice that there exists a serious commitment to agriculture that may not be compatible with residential development.

Alluvium — Sediment deposited by flowing water, as in a riverbed, flood plain, or delta.

Arterial — A level of functional classification for a major thoroughfare used primarily for through traffic rather than access to adjacent land uses and is characterized by high vehicular capacity. Within the arterial class there are strategic regional arterials, other major arterials and minor arterials.

Bus Rapid Transit (BRT) — A system that combines the quality of rail transit and the flexibility of buses. It can operate on exclusive transitways, high-occupancy-vehicle lanes, expressways, or ordinary streets. A BRT system combines intelligent transportation systems technology, priority for transit, rapid and convenient fare collection, and integration with land use policy in order to substantially upgrade bus system performance.

Centralized Node Concept	A classification of growth areas, which promote compact and contiguous development patterns and that target areas for future growth.
Chicago Area Transportation Study (CATS)	The regional agency designated as the metropolitan planning organization for the region. CATS coordinates the *Surface Transportation Program* for northeastern Illinois.
Collector	A functional classification for a street serving neighborhood circulation and providing a balance between accessibility to land and the through movement of traffic.
Commercial	A land use category identified in the *Unified Plan* designed to accommodate retail, service, and office uses, which provide goods and services to residents and businesses, located near or within existing communities.
Congestion Mitigation Air Quality Program (CMAQ)	A source of funding contained in the *Intermodal Surface Transportation Efficiency Act* for transportation related projects which reduce traffic congestion or improve air quality to help the region meet the national ambient air quality standards.
Congested Vehicle Miles Traveled (CVMT)	The number of vehicles attempting to use a roadway, at any given time, versus the ability of the roadway to carry the vehicle load at generally acceptable levels of service.
Context Sensitive Roads	Roadways constructed in such a manner so that their physical attributes conform to the character of the area, neighborhood or general vicinity in which they are constructed.
Development	The act of bringing about growth; to construct or alter a structure, to make a change in use or appearance of land, to divide land into parcels or lots.

Enabling Act	A legislative act authorizing a governmental agency to do something that previously could not be done.
Entering Wedge	Introduces an unplanned and/or incompatible land use change, inconsistent with surrounding zoning and land uses and which promotes premature trends or other untimely development.
Facility	A structure or improvement, which is built, installed or established to serve a particular purpose.
Functional Classification	The categorization of street and roadways based on their intended use and design.
Environmentally Sensitive Areas	Include but are not limited to groundwater recharge areas, flood hazard areas, wetlands, natural areas, outstanding geologic features, soil rated severe or very severe for septic installation, public and privately owned parks.
FEMA	An acronym for the Federal Emergency Management Agency.
Greenway Area	Minimally developed area designed to buffer and delineate municipalities within the County. Open space, agriculture and environmentally sensitive areas are preferred land uses in greenway areas.
Hydric	Soils having or characterized as having excessive moisture.
Illinois Department of Transportation (IDOT)	The state agency which oversees and implements plans and programs to the Illinois transportation system.
Infill	Development of vacant, skipped-over parcels of land in otherwise built-up areas.
Infill-only	The process of building upon existing vacant lots within existing subdivisions in

	unincorporated areas. Infill-only does not promote further subdivision of land.
Lacustrine	Of or relating to lakes.
Landmark	Property or structure designated as such, pursuant to procedures prescribed by ordinance which is worthy of rehabilitation, restoration or preservation because of its historic, scenic or architectural significance. This definition encompasses National Register, municipal, and McHenry County local landmarks.
Level of Service	A way of grading the operation of a roadway's traffic flow. An "A" indicates excellent while an "F" is a failing grade.
Local Road	A road or street intended solely for access to properties contiguous to it.
Loess	A silty wind-blown deposit
Lot	A lot of record, which is part of a subdivision, the plat of which has duly been authorized and recorded in the office of the recorder of deeds of McHenry County, Illinois and is in conformance with the *McHenry County Subdivision Ordinance*.
MCCD	An acronym for the McHenry County Conservation District.
McHenry County Regional Planning Commission	An advisory body of County residents appointed by the McHenry County Board, who engage in county-wide comprehensive planning.
METRA	The regional agency responsible for commuter rail service in northeastern Illinois.
Mixed Use	A land use category identified in the modeling scenarios of the *Unified Plan,* which provides for the development or redevelopment of large

	parcels of land utilizing a planned development approach and which may contain a diverse blend of commercial, industrial, office and institutional uses or residential uses composed of differing densities.
NIPC	An acronym for the Northeastern Illinois Planning Commission, an agency charged with data collection and research, local government assistance and comprehensive planning and policy preparation.
ORD Development Scenario	An airport development alternative considered at the time this *Plan* was being written to expand O'Hare airport.
Outwash, Glacial	Drift, deposited by meltwater streams beyond active glaciers.
PACE	The suburban bus division of the Regional Transportation Authority created in 1983.
Paratransit	A form of public transportation characterized by flexible routing and scheduling of small vehicles (taxis, vans or mini buses) to provide shared occupancy, doorstep or curbside personalized transportation service.
Parcel	An area of land described by measures and directions (metes and bounds) which is not part of a recorded subdivision, which may make reference to the original government survey.
Primary Center	Growth area identified by the centralized node concept having diverse land uses, dense residential population, significant influence on surrounding growth, access to multiple transportation modes, complete municipal services and utilities, diverse employment opportunities and established commercial districts.
Public Improvement	Work done within dedicated rights-of-way or easements.

Public-Institutional	Properties owned and operated by federal, state, or local government, which include but are not necessarily limited to municipal facilities, places of assembly, schools, public cemeteries, public airports and similar facilities.
Public Open Space	Properties owned by public organizations, utilized as open space for active or passive recreation including but not necessarily limited to MCCD properties, federal and state parks, and/or public golf courses.
Private Open Space	Properties held privately by individuals, which remain undeveloped for stormwater management, passive recreational purposes, or active recreational purposes such as private golf courses or sportsman/hunt clubs.
Quality of Life	Attributes or amenities that combine to make an area a good place to live, specifically as related to McHenry County.
Railyard	An area for storing and switching of freight and passenger rolling stock.
Regional	Pertains to activities or economies at a scale greater than that of a single jurisdiction and affecting a broad geographic area.
Regional Transportation Authority (RTA)	The regional agency which oversees all public transportation in northeastern Illinois. It is comprised of three boards; Metra, Pace and the Chicago Transit Authority.
Road	All property dedicated or intended for public or private street, alley, highway, freeway, or roadway purposes or to public easements therefore.
Roadway	That portion of a highway improved, designed or ordinarily used for vehicular travel.
Right-of-way (ROW)	A strip of land acquired by reservation, dedication, prescription or condemnation

	intended to be occupied by a street, trail, waterline, sanitary sewer and/or other public utilities or facilities.
Rural Character	Those unique attributes found in the County including historic, environmental and aesthetic characteristics containing features such as agriculture, opens spaces and natural areas usually associated with the country as opposed to the city.
Rural Residences	Dwellings located on individual parcels not within subdivisions.
Secondary Nodes	Identified growth areas of the County composed primarily of residential land uses centered around a municipality but with limited services, utilities and few or non-diverse employment opportunities. Such areas may be reclassified with significant improvements municipal services, infrastructure, transportation and employment opportunities.
Scenic Road Designation	A recognition given by the McHenry County Board to honor a roadway corridor that, in addition to its transportation function, provides opportunities for the enjoyment of natural and/or man-made features or direct views to areas of historic and/or cultural interest.
Solid Waste Management Plan	Plan prepared pursuant to and in compliance with the *Illinois Solid Waste Planning and Recycling Act,* requiring each Illinois county to plan for and establish programs for solid waste management.
Sprawl	A land use pattern characterized by low density and/or uneven physical development occurring on the fringe of urbanized areas, as well as disinvestment and abandonment of older urbanized area.
SSA Development Scenario	A south suburban airport development alternative considered at the time this *Plan* was

	being written.
Strategic Regional Arterial (SRA)	See Arterial.
Till, Glacial	Non-sorted, non-stratified sediment carried or deposited by a glacier.
Traffic Calming	Road design strategies to reduce vehicle speeds and volumes.
Transit-oriented-development (TOD)	Concentrates the location, design, and mix of uses emphasizing pedestrian friendly environments, which encourage the use of public transportation.
Transportation Equity Act for the 21st Century (TEA-21)	Federal bill enacted in 1998 to provide over 217 billion dollars for transportation from 1998 to 2003.
Unified Plan	Planning document composed of a map and accompanying text, adopted by McHenry County which serves as a policy guide for land use change and transportation improvements in compliance with state and federal requirements.
Unique Areas	Identified areas of the County, which are residential in nature, have generally poor access and very limited growth, may be a rural crossroads or area with specific homogenous character, have few or no employment opportunities and are unique by site or situation.
Vehicle Hours of Delay (VHD)	A measurement of the difference between free flow speeds and the speeds during peak travel times.
Vehicle Hours Traveled (VHT)	The total amount of forecasted daily time drivers spend traveling in a given area based on distance and average travel speeds.
Vehicle Miles Traveled (VMT)	The number of vehicles multiplied by the number of miles in each vehicle trip.

APPENDIX B: DEMOGRAPHICS

POPULATION TRENDS

The *2000 Census* measures McHenry County's population at 260,077 residents, an increase of nearly 42% from the *1990 Census*. McHenry County's population is projected to reach 347,159 people in 2020, an increase of 33.5% from 2000. (An annual increase of 1.43% based on the expansion and improvement to O'Hare airport, known as the *ORD Scenario.*)

On the other hand, forecasters predict that development of a third airport in Chicago's south suburban area, called the *SSA Scenario*, will raise the County's population to 339,782, an increase of 23.5%. (This is an annual increase of 1.33%.)

What can be concluded from forecasted figures is that whatever airport scenario develops, McHenry County's population is rapidly rising and all indicators expect this trend to continue.

McHENRY COUNTY and the METRO REGION

Under both airport scenarios, the total population of the Northeastern Illinois Region is expected to reach 9,045,000 people. Of this total, McHenry County accounts for 3.8% under both scenarios. Table B-1: *Population Forecasts and Disbursements for 2020*, illustrates disbursement for both airport options.

Table B-1: Population Forecasts and Disbursements for 2020

Place Name	2020 Forecasts (ORD)	Percentage of Total	2020 Forecasts (SSA)	Percentage of Total
Cook County	5,615,278	62.1%	5,565,154	61.5%
DuPage County	985,704	10.9%	985,812	10.9%
Kane County	552,034	6.1%	548,965	6.1%
Lake County	806,779	8.9%	782,544	8.6%
McHenry County	347,159	3.8%	339,782	3.8%
Will County	738,046	8.2%	822,743	9.1%
Regional Total	9,045,000	100%	9,045,000	100%

Source: Northeastern Illinois Planning Commission

Per 2000 Census figures, Algonquin, McHenry, and Nunda were the most populated townships containing 86,219, 37,037, and 24,755 persons, respectively, or approximately 63% of McHenry County's total population. NIPC's estimates indicate that Algonquin, Grafton, McHenry, and Nunda Townships will comprise approximately 72% of McHenry County's total population in 2020 under both airport scenarios. All four townships are located within the southeastern region of McHenry County and include the County's largest municipalities.

Table B-2: *Township Population 1990-2020 and 2020 Forecasts*, tracks McHenry County's township populations from 1990 to year 2020 including percent changes from prior statistical years.

Table B-2: Township Population 1990-2000 and 2020 Forecasts

Place Name	1990	2000	% Change	2020 (ORD)	% Change	2020 (SSA)	% Change
Alden	1,464	1,534	4.6%	2,026	24.3%	2,025	24.3%
Algonquin	57,741	86,219	33.0%	102,604	16.0%	101,788	15.3%
Burton	2,146	3,997	46.3%	5,520	27.6%	4,844	17.5%
Chemung	6,665	8,761	23.9%	24,082	63.6%	23,983	63.5%
Coral	2,537	3,020	16.0%	3,812	20.8%	3,811	20.8%
Dorr	14,231	18,157	21.6%	19,206	5.5%	19,208	5.5%
Dunham	1,998	2,375	15.9%	2,526	6.0%	2,526	6.0%
Grafton	9,938	27,547	63.9%	50,386	45.3%	50,389	45.3%
Greenwood	8,308	10,677	22.2%	11,688	8.7%	10,741	0.6%
Hartland	1,904	2,063	7.7%	2,660	22.4%	2,659	22.4%
Hebron	1,827	2,166	15.7%	2,337	7.3%	2,337	7.3%
McHenry	37,037	41,740	11.3%	51,384	18.8%	49,920	16.4%
Marengo	5,730	7,239	20.9%	8,355	13.4%	8,354	13.4%
Nunda	24,755	35,104	29.5%	46,110	23.9%	43,761	19.8%
Richmond	3,275	4,934	33.6%	8,483	41.8%	7,459	33.9%
Riley	1,435	1,811	20.8%	2,583	29.9%	2,582	29.9%
Seneca	2,219	2,733	18.8%	3,397	19.6%	3,396	19.5%

Source: U.S. Bureau of the Census (Years 1990-2000); Northeastern Illinois Planning Commission (Year 2020 forecasts)

There are 30 municipalities, either entirely contained or partially located within McHenry County, all experiencing growth. The largest municipalities are Crystal Lake (38,000 residents), Algonquin (23,276), Lake in the Hills (23,152), McHenry (21,501), and Woodstock (20,151). However, the village limits of Algonquin extend south into Kane County, therefore all of the growth forecasted will not be absorbed by McHenry County alone.

AGE and COMPOSITION

Every age group has gained population. Notable changes between 1970 and 2000 include the following:

- The number of school-aged children (ages 5 to 19) increased from 35,400 in 1970 to 58,630 in 2000, adding an additional 23,230 children to the school system. Whereas the numbers have increased, when represented as a percentage of total, the values decreased from 32% to 23%.

- From 1970 through 2000, 25 to 54 year-old demographic have been relatively dominant, growing from 39,520 to 120,010 persons for a 204% increase. Based on 2000 figures, this age category comprised 47% of the population.

- Between 1970 and 2000, the retirement-age group (65 and over) experienced an increase of approximately 106%, from 10,190 to 21,010 persons.

- Age composition is anticipated to mirror changes occurring nation-wide including the aging of baby-boomers, countered by an increase in migration.

In comparison to Census Bureau figures for the Chicago Principal Metropolitan Statistical Area (PMSA), which includes Cook, DeKalb, DuPage, Grundy, Kane, Kendall, Lake, McHenry, and Will Counties, McHenry County is statistically similar. For 2000, the Chicago PMSA had the largest percentage of its total population, 16.6%, within the 35 to 44 age group. The number of school age children (5 to 19) increased to represent 22% of the total population, while the retirement age population (65 and over) represented approximately 10%.

According to data compiled by Woods & Poole Economics, Inc., the gender make-up of the County has remained relatively consistent. From 1970 to 1990, the female population was slightly dominant, comprising 51% of the total population. From 1990 to 2000, the male population, as a percentage, increased to 51%, becoming the dominant gender. The median age for the County has increased as well. From 1970 to 2000, the median age rose from 27.54 to 34.66.

Table B-3: *Age Demographic Data 1970-2000*, tracks age group data from 1970 through 2000, and represents each period as a percentage of the total for the given year.

Table B-3: Age Demographic Data 1970-2000

Age Group	1970	% of Total	1980	% of Total	1990	% of Total	2000	% of Total
0 to 5	10,060	9.0%	11,860	8.0%	16,110	8.7%	20,310	8.1%
5 to 9	12,360	11.1%	12,220	8.2%	15,560	8.4%	21,080	8.4%
10 to 14	13,040	11.7%	14,070	9.5%	14,220	7.7%	20,210	8.0%
15 to 19	10,000	9.0%	13,380	9.0%	12,240	6.6%	17,340	6.9%
20 to 24	6,660	6.0%	11,230	7.6%	10,990	5.9%	13,120	5.2%
25 to 34	14,170	12.7%	25,950	17.5%	33,430	18.1%	35,070	14.0%
35 to 44	12,380	11.5%	20,050	13.5%	32,310	17.4%	48,470	19.3%
45 to 54	12,520	11.2%	14,070	9.5%	20,080	10.8%	36,470	14.5%
55 to 59	5,250	4.7%	6,370	4.3%	6,680	3.6%	10,700	4.3%
60 to 64	4,590	4.1%	5,500	3.7%	6,190	3.3%	7,630	3.0%
65 to 74	6,420	5.8%	8,280	5.6%	9,990	5.4%	10,720	4.3%
75 to 84	3,130	2.8%	4,110	2.8%	5,710	3.1%	7,660	3.1%
85 +	640	0.6%	1,180	0.8%	1,730	0.9%	2,630	1.1%

Source: Woods & Poole Economics, Inc.

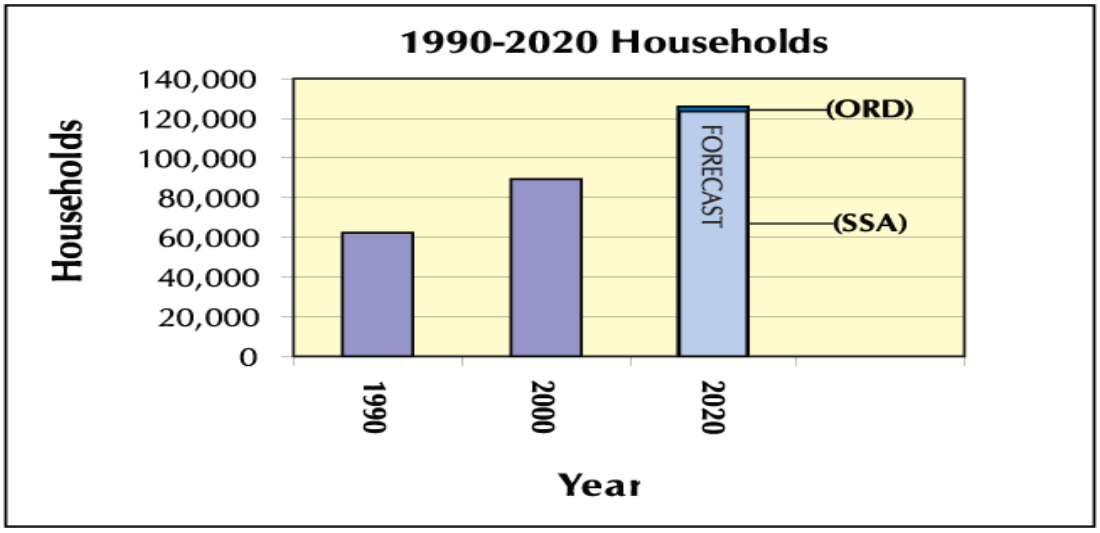
The ethnic make-up of McHenry County has remained relatively consistent. From 1970 to 2000, the Caucasian population remained numerically dominant, comprising 98-99% of the total population. Between 1970 and 2000, African-Americans experienced a small numerical change increasing from 38 to 559 persons. The “other” race category (including American Indian and Alaskan Native, Asian, Native Hawaiian and Other Pacific Islander, some other race, and two or more races), experienced similar growth between 1970 and 2000, increasing from 258 to 3,052 persons. Those identifying themselves as being of Hispanic or Latino origin increase between 1990 and 2000 from 6,066 to 19,602.

HOUSEHOLDS

From 1990 to 2000, the number of households in McHenry County grew by 30%, 62,940 to 89,403, respectively. From 2000 to 2020, the forecasted number of households is anticipated to grow by 28% (SSA) or 29% (ORD).

Table B-4: *1990-2020 Number of Households*, tracks the number of households in McHenry County from 1990 through 2020 forecasts, showing expected increases of 123,477 (SSA) or 126,155 (ORD) total households by 2020.

Table B-4: 1990-2020 Number of Households



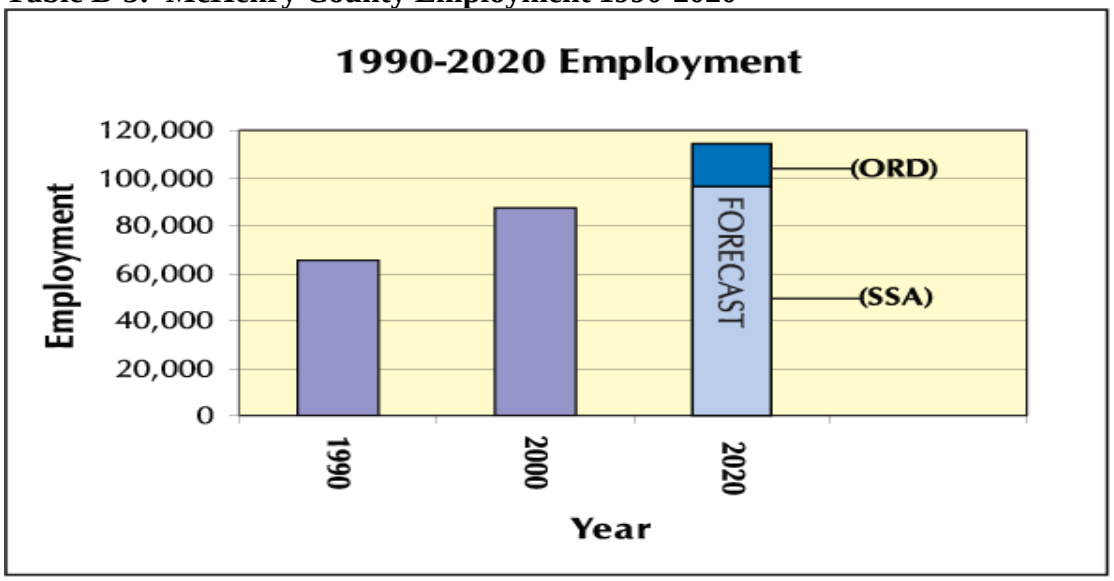
Source: U.S. Bureau of the Census (Years 1990-2000)
Northeastern Illinois Planning Commission (Year 2020 forecasts)

LABOR FORCE and EMPLOYMENT

The availability of jobs in a variety of industrial, manufacturing, retail, and service sectors provides stability for a growing population. Between 1990 and 2000, McHenry County added 21,717 local jobs, an increase of 24.9%. Forecasts for 2020 are dramatically different based upon the two airport scenarios, improvement of existing airports (ORD) or the south suburban alternative (SSA).

Under the SSA scenario, employment in McHenry County is forecasted at 96,389 jobs, a 9.5% increase from 2000. Under the ORD scenario, employment is forecasted at 113,984 jobs, a increase of 23.5%. If the State of Illinois supports the ORD alternative, the County stands to increase its employment base by 17,959 jobs. McHenry County's decision to support either alternative will have a large impact on the future employment for County residents. Table B-5: *1990-2020 Employment* tracks McHenry County's employment from 1990 to year 2020 forecasts.

Table B-5: McHenry County Employment 1990-2020



Source: U.S. Bureau of the Census (Year 1990); U.S. Department of Labor (Year 2000)
Northeastern Illinois Planning Commission (Year 2020 forecasts)

Between 1991 and 2000, the labor force in McHenry County increased by 22.9%, the number of unemployed decreased by 35% and the unemployment rate was cut in half to 3.2%. For comparison purposes, the unemployed rates for Illinois and the nation are 4.4% and 4.0% respectively. Of McHenry County's total population in 2000, 53.6% were employed.

Table B-6: *McHenry County and State of Illinois Labor Force and Unemployment Information 1991-2000* tracks labor force, unemployed numbers, and unemployed rate trends from 1991 to 2000. As depicted, McHenry County has exhibited stability in employment statistics.

Per the Illinois Department of Employment Security, labor force refers to all civilian institutionalized, working age individuals age 16+ who were employed or without employment but available and actively looking for work. Employed includes those working age individuals who worked at least one hour for pay or profit, were temporarily away from work due to reasons such as labor disputes, vacation, or illness or who worked at least fifteen hours in a family business. Unemployed includes those who lost their jobs involuntarily, quit, entered the labor market for the first time or re-entered the labor market after a period of absence, and those who been laid off but are expected to be recalled.

Table B-6: McHenry County and State of Illinois Labor Force and Unemployment Information 1991-2000

McHenry County	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Labor Force	107,487	111,838	115,202	119,257	125,156	129,274	131,052	133,340	138,148	139,396
Unemployed Number	6,824	7,316	7,018	5,491	4,973	5,095	4,672	4,651	4,443	4,503
Unemployed Rate	6.3%	6.5%	6.1%	4.6%	4.0%	3.9%	3.6%	3.5%	3.2%	3.2%
State of Illinois	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Labor Force (000s)	5,922.5	6,021.6	6,022.1	6,034.0	6,110.9	6,165.5	6,204.6	6,237.6	6,378.4	6,419.3
Unemployed Number	429,300	460,300	452,000	341,700	314,800	325,700	291,900	278,100	273,300	279,400
Unemployed Rate	7.2	7.6	7.5	5.7	5.2	5.3%	4.7%	4.5%	4.3%	4.4%

APPENDIX C:
MODELED SCENARIO ROADWAY PROJECT LISTS

BASE CASE SCENARIO – Existing Road Network with Planned and Committed Projects Added

PLANNED AND COMMITTED PROJECTS	TYPE	NOTES
I-53 Extension	Extension of the I-53 Tollway north to Illinois Route 120.	Assumed to be completed before 2020 for this plan and included in the Base Model.
Longmeadow Parkway Bridge	New crossing over the Fox River in Kane County.	This has completed engineering studies and is assumed built before 2020 and included in the Base Model.
Ackman Road Extension to IL Route 47	Extension of a 2-lane Ackman Road from Haligus Road to Illinois Route 47	This has completed engineering studies and is assumed built before 2020 and included in the Base Model.
US 14 Widening	Widening from 2 to 4 lanes between Lake Avenue in Woodstock to Lucas Road in Crystal Lake (approximately 2.6 miles)	Funding for these projects was committed for its construction in the State's proposed *Highway Improvement Program* for 2005-2011. The projects were not added to the Base Model but were assumed to be built as part of the model evaluation.
Lamb Road	New 2-lane roadway between Illinois Route 120 and US 14 (0.25 miles).	

SCENARIO 1: Base Case Scenario with Locally Generated Roadway Alternatives Added

ROADWAY ALTERNATIVE	TYPE	NOTES
1. Illinois Route 23 Interchange	A new interchange with the Northwest Tollway (I-90)	The interchange could provide more direct access to the Tollway system from the eastern half of McHenry County.
A. Richmond Bypass	2-lane bypass west of Richmond from the intersection of Illinois Route 31 and Kuhn Road to the Illinois Route 173/Broadway Road intersection, then continuing north to US 12 in Walworth County, Wisconsin.	Though the local plan outlines a 2-lane facility, right-of-way for a 4-lane road may be procured to ensure possible future expansion. In all, the bypass has a total length of approximately 4 miles, with 3.5 miles in McHenry County, and the remainder in Wisconsin.
B. Hebron Bypass	2-lane bypass west of Hebron branching off of Illinois Route 47 south of Illinois Route 173 crossing Illinois Route 173 and Hebron Road then reconnect with Illinois Route 47 north of Hebron.	The concept for the proposed Hebron Bypass project originated from a local plan. The total length of the proposal is approximately 1.5 miles.

C. Harvard Bypass	2-lane bypass east of Harvard from Illinois Route 23 and Streit Road to US 14 north of Harvard.	The 5.6 mile project could provide more efficient north-south movement in the Harvard area and reduce congestion in Harvard.
D. Graf to Lawrence Road	New 2-lane roadway from northwest on Oak Grove to Lawrence Road near Graf Road.	This new 1.25 mile segment could provide more efficient movement in the northwest Harvard area.
E. Thayer, Green, Lincoln	Realignment of Green Road approximately three miles east of Harvard so that it intersects Alden Road at the same point as Thayer Road.	The 3.9 mile project is designed to eliminate a dangerous right-angle turn on Lincoln Road and an awkward intersection at Green Road and Lincoln Road.
F. Illinois Route 23	Widening from 2 to 4 lanes between Marengo and Harvard.	The 8 mile project could provide more efficient travel between Harvard and Marengo.
G. Lamb Road SRA	New 2-lane roadway between US 14 and Charles Road on the western edge of Woodstock incorporating much of the existing Lamb Road which would be upgraded to meet IDOT's Strategic Regional Arterial (SRA) standards.	The project was added to the Base Case Scenario during the study when funding was committed for its construction. The project could relieve congestion on Illinois Route 47 by extending the US 14 bypass north to Illinois Route 47 thus creating a full western bypass of Woodstock.
H. Illinois Route 120 SRA	Widening from 2 to 4 lanes between Greenwood Road to Ringwood Road consistent with IDOT's Strategic Regional Arterial (SRA) standards.	The project could provide more efficient east-west movement between Woodstock and McHenry.
I. McCullom Lake Road	Widening from 2 to 4 lanes between the intersection of McCullom Lake Road and East Wonder Lake Road to Illinois Route 31.	The project4.8 mile project could enhance movement between the Village of Wonder Lake and the City of McHenry.
J. Johnsburg Wilmot Road	Road upgrade from the intersection of Johnsburg Road and Illinois Route 31 crossing Illinois Route 173 and continuing on Wilmot Road to the Wisconsin border.	The 10 mile project could enhance access to Lake County, Illinois and Kenosha County, Wisconsin from Johnsburg Township.
K. Kishwaukee Valley Road	Widening from a 2-lane facility to a 4-lane facility from the Boone County, IL border east to US 14 on the west side of Woodstock (approximately 12 Miles).	This is the longest proposed improvement for Scenario 1. The project could enhance east-west movement through the County, providing greater access to Boone County, IL.
L. East Woodstock Roadway	New 2-lane roadway to connect Illinois Route 47 and Illinois Route 120 on the east side of the Woodstock.	The 1.5-mile project, first identified by the City of Woodstock, bypasses the commercial area along Illinois Route 47 allowing for more efficient regional travel on two of McHenry County's primary routes.
M. McHenry Bypass	2-lane bypass west of the City of McHenry between just south of the intersection of Illinois Route 31 and Crystal Lake Road, to Illinois Route 31 near the Ringwood Road intersection.	The 7.5-mile project, first identified by the City of McHenry, could help relieve traffic congestion in the City of McHenry and preserve right-of-way for additional capacity.

N. Cuhlman Road Extension/Lily Lake Improvement	Extension beginning at the intersection of Cuhlman and Lincoln Roads, the Cuhlman Road through Lakemoor.	Improvements would result in a continuous north-south corridor that could enhance movement between the communities area east of the Fox River.
O. River Road	Widening from a 2-lane facility to a 4-lane facility from Illinois Route 176 to Illinois Route 120.	The 5.5 mile project could provide more efficient travel between the Village of Island Lake and the City of McHenry.
P. IL 176 Extension	2-lane extension of Illinois Route 176 west from Illinois Route 23 to Ritz Road where the alignment turns southwest to join US 20.	The 1.5 mile extension is intended to help alleviate traffic impacts in downtown Marengo by diverting a percentage of the semi-truck trailers away from the downtown area.
Q. Marengo East Bypass	2-lane bypass from US 23 and Coral West Road northeast to Illinois Route 176 the northwest to Illinois Route 23 just south of River Road.	The bypass could provide an alternative route for Illinois Route 23, IL Route 176, and US 20 travelers and could help alleviate traffic impacts in downtown Marengo by diverting a percentage of the semi-truck trailers.
R. Seeman to McCue Road	New or improved 2-lane corridor between Seaman Road and Franklinville Road.	The 4.25 mile long project could create a north-south route between Harmony Road and Kishwaukee Valley Road that could act as a reliever route for traffic on Illinois Route 23 and Illinois Route 47.
S. Doty Road to Illinois Route 47 Connector	Improved 2-lane corridor from the existing Doty Road, reconfigured to intersect with Lucas Road at the existing Mt. Thabor Road intersection then continues south on new roadway to the Illinois Route 47/Illinois Route 176 intersection.	The improvement is intended to improve north-south movement between Woodstock and Crystal Lake by using a combination of existing roadway and new infrastructure.
T. Ridgefield Road to Lucas Road	New 2-lane roadway from the intersection of Ridgefield Road and US 14 to Lucas Road east of Doty Road.	The connector runs through the very northwest corner of Crystal Lake's municipal boundary.
U. Crystal Lake Avenue	Improvements result in a 4-lane roadway from US 14 on the west to Illinois Route 31 on the east.	An improvement to the Crystal Lake Avenue corridor in Crystal Lake could enhance east-west movement through this rapidly growing area.
V. Illinois Route 23	Widening from 2 to 4 lanes between a new interchange at the Northwest Tollway (I-90) to the proposed Marengo East Bypass (**See Project Q**).	The 3.25-mile could provide more efficient travel between the City of Marengo and the Northwest Tollway (I-90).
W. Seeman to Tollway	Beginning at the Seeman Road/Harmony Road intersection, a new roadway would extend south toward the Northwest Tollway (I-90).	The one-mile long project (a 1/2 mile of which is in McHenry County) could provide greater access from Harmony road to the US 20 interchange with the Northwest Tollway (I-90).
X. Algonquin Extension	2-lane extension west from Illinois Route 47 to the existing east-west portion of Church Road.	The 3 mile project creates a direct east-west arterial Illinois Route 47 to Harmony Hill Road.

Y. Marengo to Kreutzer Extension	2-lane extension from the intersection of Marengo and Harmony Roads to Kreutzer Road.	The Marengo Road to Kreutzer Road extension could provide more efficient northwest-southeast movement in the southwest corner of Huntley.
Z. Lakewood Road Extension	2-lane extension from the intersection of Lakewood Road and Algonquin Road to Dundee Road in Huntley.	The 1.5-mile extension could provide more efficient north-south movement between Randall road and Illinois Route 47.
ZZ. Frank to Square Barn Extension	2-lane extension from Algonquin Road to Square Barn Road.	The ½-mile extension eliminates an awkward series of intersections along Algonquin Road.
YY. Crowley Road Extension	2-lane extension from US 14 to Lawrence Road	The extension could create a more efficient east-west route north of Harvard.

SCENARIO 2: Base Case Scenario with Projects Limited to 4-Lanes Maximum

ROADWAY ALTERNATIVE	TYPE	NOTES
1. US 20 Interchange	Improved ramps at the US 20 interchange to accommodate a 4 lane US 20	The project would accommodate a 4-lane US 20.
2. Illinois Route 47 Interchange	Improved to a full interchange.	The project would enable traffic to travel to and from the west on the Tollway from Illinois Route 47.
A. Richmond Bypass (Modeled in Scenario 1)	2-lane bypass west of Richmond from the intersection of Illinois Route 31 and Kuhn Road to the Illinois Route 173/Broadway Road intersection, then continuing north to US 12 in Walworth County, Wisconsin.	Though the local plan outlines a 2-lane facility, right-of-way for a 4-lane road may be procured to ensure possible future expansion. In all, the bypass has a total length of approximately 4 miles, with 3.5 miles in McHenry County, and the remainder in Wisconsin.
BB. Dundee Road	Widening from 2 to 4 lanes from Main Street to Square Bard Road.	The total project length is 2.75 miles, one mile of improvements would occur in neighboring Kane County.
BBB. Hemmer, Kreutzer, Lakewood Roads	New or improved 2-lane roadway extending Lakewood Road from Algonquin Road to Kreutzer Road, improving Kreutzer Road and extending it from Illinois Route 47 to Hemmer Road	The 5.5. mile project would create a bypass around the center of the Village of Huntley.
CC. Algonquin to Harmony Connector	2-lane extension from Illinois Route 47 to the intersection of Harmony Road and Marengo Road.	The 1.75 extension would utilize a residential roadway in the Village of Huntley.

DD. Square Barn Road	Widening from 2 to 4 lanes and extending the roadway to Illinois Route 72 in Kane County.	The first 1.75 miles of the 6 mile improvements falls in the County then continues approximately 4.25 miles in Kane County. The project could provide more efficient north-south travel between Randall Road and Illinois Route 47.
EE. Ackman Road	Widening from 2 to 4 lanes from Randall Road to Illinois Route 47. The extension from Haligus Road to Illinois Route 47 is assumed to be completed by 2020.	The 4.5 mile project would create an east-west arterial between Illinois Route 176 and Algonquin Road which are roughly 5 miles apart.
FF. Algonquin Road SRA	Widening from 2 to 4 lanes from the Algonquin Road/Pyott Road intersection to Illinois Route 47 consistent with IDOT's Strategic Regional Arterial (SRA) standards.	The 7.25 project could enhance east-west travel efficiency in southeastern McHenry County.
FFF. Illinois Route 23 North	Widening from 2 to 4 lanes from River Road to US 14	The 8.5 mile project could provide more efficient travel between the City of Harvard and City of Marengo.
GG. Virginia Road	Widening from 2 to 4 lanes from Illinois Route 31 to US 14.	The 3.25 mile project could provide more efficient northwest-southeast travel between the City of Crystal Lake and Village of Algonquin.
HH. Illinois Route 31	Widening from 2 to 4 lanes from Rakow to Illinois Route 72 in Kane County	The 8.5 mile project could help alleviate traffic on Randall Road.
I. McCullom Lake Road (Modeled in Scenario 1)	Widening from 2 to 4 lanes East Wonder Lake Road to Illinois Route 31.	The 4.8 mile project could enhances movement between the Village of Wonder Lake the City of McHenry
II. US 20	Widening from 2 to 4 lanes from Coral Road to the Northwest Tollway (I-90)	The 6 mile project could enhance travel efficiency to the Northwest Tollway (I-90) from the western half of the County.
J. Johnsburg Road/Wilmot Road (Modeled in Scenario 1)	Widening from 2 to 4 lanes from the intersection of Johnsburg Road and Illinois Route 31 northeast crossing Illinois Route 173 to Wisconsin.	The 10 mile corridor could enhance a route providing access to Lake County, Illinois and Kenosha County, Wisconsin from Johnsburg Township.
JJ. New Fox River Crossing	New 4-lane roadway from Illinois Route 62 to Illinois Route 31 over the Fox River.	The project creates a new arterial over the Fox River between Algonquin Road and US 14.
KK. Illinois Route 23 South	Widening from 2 to 4 lanes from south of Marengo to Hampshire in DeKalb County.	The 6.25 mile project could enhance travel efficiency between City of Marengo and DeKalb County.
LL. Illinois Route 176 Extension	2-lane extension of Illinois Route 176 to US 20 west of Ritz Road where the alignment would link to the southern bypass of the City of McHenry.	The 2.5 mile project could alleviate traffic impacts in downtown Marengo by diverting a percentage of the semi-truck trailers away from the downtown area.
M. McHenry Bypass (Modeled in Scenario 1)	2-lane bypass west of the City of McHenry between just south of the Illinois Route 31 and Crystal Lake Road intersection to Illinois Route 31 near the Ringwood Road intersection.	The 7.5 mile project, first identified by the City of McHenry, could help relieve traffic congestion in the City of McHenry and preserve right-of-way for additional capacity.

MM. US 20	Widening from 2 to 4 lanes from just west of Ritz Road to Boone County.	The 2.75 mile project could provide more efficient travel into Boone County and act as a reliever route for the Northwest Tollway (I-90)
NN. Pleasant Grove Road/Coral West Road	Widening from 2 to 4 lanes from Illinois Route 23 to Dunham Road	The 6 mile project could provide greater access between US 20 and Illinois Route 23 near the City of Marengo.
O. River Road (Modeled in Scenario 1)	Widening from 2 to 4 lanes from Illinois Route 176 to Illinois Route 120	The 5.5 mile project could provide more efficient travel between the Village of Island Lake and the City of McHenry.
OO. Marengo Bypass East	4-lane bypass east of the City of Marengo on Dunham road from Coral West Road to River Road, and River Road from Dunham Road to Illinois Route 23.	The 6.25 mile bypass could alleviate traffic congestion in Marengo by diverting traffic east of downtown.
OO. Marengo Bypass East	4-lane bypass east of the City of Marengo on Dunham road from Coral West Road to River Road, and River Road from Dunham Road to Illinois Route 23.	The 6.25 mile bypass could alleviate traffic congestion in Marengo by diverting traffic east of downtown.
PP. Illinois Route 47 SRA Woodstock	Widening from 2 to 4 lanes from the Algonquin Road to US 14 and from Illinois Route 120 to Charles Road consistent with IDOT's Strategic Regional Arterial (SRA) standards.	The 8.5 mile project could enhance north-south travel efficiency from central McHenry County to the Northeast Tollway (I-90).
QQ. Illinois Route 176 SRA	Widening from 2 to 4 lanes from Dunham Road to US 12 (Rand Road) in Lake County consistent with IDOT's Strategic Regional Arterial (SRA) standards.	The 23 mile project would create a major east-west arterial across the southern half of the County.
QQQ. McHenry Avenue	Widening from 2 to 4 travel lanes from James R. Rakow Road to US 14.	The 2 mile project would add an additional travel lane in each direction. Access from a two-way center left turn lane would need to be considered.
RR. Bay Road	Widening from 2 to 4 lanes from Chapel Hill Road to US 12 (Rand Road)	The 4.5 mile project could enhance east-west travel to US 12.
SS. Illinois Route 120	Adding an additional travel lane in each direction from Illinois Route 47 to Charles Road.	The 4 mile project could alleviate congestion within the City of Woodstock.
TT. Illinois Route 47 SRA Woodstock	Widening from 2 to 4 lanes from Illinois Route 120 to Charles Road consistent with IDOT's Strategic Regional Arterial (SRA) standards.	The 3 mile project could alleviate congestion within the City of Woodstock.
UU. Lamb, Charles Road, Illinois Route 120 SRA	Widening from 2 to 4 lanes from Illinois Route 120 to Charles Road via a realigned Lamb Road consistent with IDOT's Strategic Regional Arterial (SRA) standards.	The 10.25 project could alleviate congestion within the City of Woodstock by bypassing the center of the community to the north.

VV. US 14 SRA	Widening from 2 to 4 lanes from Illinois Route 23 to Lake Avenue consistent with the programmed widening between Lake Avenue and IL Route 176 and IDOT's Strategic Regional Arterial (SRA) standards.	The project could alleviate congestion between Harvard and Crystal Lake by creating a continuous 18.75 mile 4-lane highway across McHenry County.
W. Seeman to Tollway (Modeled in Scenario 1)	2-lane roadway extension from Harmony Road to the Northwest Tollway (I-90).	The 1 mile project would provide more direct access to the Northwest Tollway (I-90).
WW. Illinois Route 31 SRA	Widening from 2 to 4 lanes from US 12 (Rand Road) to Pleasant Hill Road consistent with IDOT's Strategic Regional Arterial (SRA) standards.	The 13.75 mile project could alleviate traffic congestion between the Village of Richmond and the City of Crystal Lake and provide more efficient north-south travel in eastern McHenry County.
XX. Illinois Route 173 SRA	Widening from 2 to 4 lanes from Seaman Road to Lake County consistent with IDOT's Strategic Regional Arterial (SRA) standards.	The 11.5 mile project could enhance access to and from northern Lake County.

SCENARIO 3: Base Case Scenario and Projects Supporting Tightly Managed Land-Use

ROADWAY ALTERNATIVE	TYPE	NOTES
AAA. McHenry Avenue	Adding an additional travel lane in each direction from James R. Rakow Road to Virginia Road	The 2 mile project could help alleviate traffic congestion on Rakow Road and create a more direct continuous route between Randall Road and US 14.
BBB. Hemmer, Kreutzer, Lakewood Roads	New or improved 2-lane roadway extending Lakewood Road from Algonquin Road to Kreutzer Road, improving Kreutzer Road and extending it from Illinois Route 47 to Hemmer Road	The 5.5. mile project would create a bypass around the center of the Village of Huntley and therefore alleviate congestion on Algonquin Road and Illinois Route 47 in the Village of Huntley.
CC. Algonquin to Harmony Connector (Modeled in Scenario 2)	2-lane extension from Illinois Route 47 to the intersection of Harmony Road and Marengo Road.	The 1.75 extension would utilize a residential roadway in the Village of Huntley.
CCC. Lamb, Charles Road, Illinois Route 120 SRA	Widening from to 6 lanes from Illinois Route 120 to US 12 (Rand Road) in Lake County via a realigned Lamb Road, Charles Road and Illinois Route 120 consistent with IDOT's Strategic Regional Arterial (SRA) standards.	The 20.75 mile project would create a facility that could supplement the I-53 Tollway Extension in Lake County.
EE. Ackman Road (Modeled in Scenario 2)	Widening from 2 to 4 lanes from Randall Road to Illinois Route 47. The extension from Haligus Road to Illinois Route 47 is assumed to be completed by 2020.	The 4.5 mile project would create an east-west arterial between Illinois Route 176 and Algonquin Road which are roughly 5 miles apart.

FF. Algonquin Road SRA (Modeled in Scenario 2)	Widening from 2 to 4 lanes from the Algonquin Road/Pyott Road intersection to Illinois Route 47 consistent with IDOT's Strategic Regional Arterial (SRA) standards.	The 7.25 project could enhance east-west travel efficiency in southeastern McHenry County.
GG. Virginia Road (Modeled in Scenario 2)	Widening from 2 to 4 lanes from Illinois Route 31 to US 14.	The 3.25 mile project could provide more efficient northwest-southeast travel between the City of Crystal Lake and Village of Algonquin.
GGG. Square Barn Road	New and improved 2-lane roadway extension from Algonquin Road to Illinois Route 72 in Kane County.	The first 1.75 miles of the 6 mile improvements falls in McHenry County then continues approximately 4.25 miles in Kane County. The project could provide more efficient north-south travel between Randall Road and Illinois Route 47.
HHH. Illinois Route 176 SRA	Widening from 2 to 6 lanes from Dunham Road to US 12 (Rand Road) in Lake County consistent with IDOT's Strategic Regional Arterial (SRA) standards.	The 15.5 mile project would create a major east-west arterial across the southeastern quarter of McHenry County.
III. Illinois Route 31 SRA	Widening from 2 to 6 lanes from Illinois Route 72 in Kane County to Virginia Road.	The 6.25 mile project incorporates the Algonquin bypass and could alleviate congestion in the City of Algonquin and on Illinois Route 62 to and from the Tollway.
JJ. New Fox River Crossing (Modeled in Scenario 2)	New 4-lane roadway from Illinois Route 62 to Illinois Route 31 over the Fox River.	The project creates a new arterial over the Fox River between Algonquin Road and US 14.
LL. Illinois Route 176 Extension (Modeled in Scenario 2)	2-lane extension of Illinois Route 176 to US 20 west of Ritz Road where the alignment would link to the southern bypass of the City of McHenry.	The 2.5 mile project could alleviate traffic impacts in downtown Marengo by diverting a percentage of the semi-truck trailers away from the downtown area.
LLL. IL 173 SRA	Widening from 2 to 4 lanes between Illinois Route 31/US 12 to Lake County	The 5.75 mile project could enhance access to and northern Lake County.
M. McHenry Bypass (Modeled in Scenario 1 and 2)	2-lane bypass west of the City of McHenry between just south of the Illinois Route 31 and Crystal Lake Road intersection to Illinois Route 31 near the Ringwood Road intersection.	The 7.5 mile project, first identified by the City of McHenry, could help relieve traffic congestion in the City of McHenry and preserve right-of-way for additional capacity.
MMM. Johnsburg Road/Bay Road	Widening from 2 to 4 lanes from Illinois Route 31 to US 12 (Rand Road) in Lake County.	The 6 mile project could alleviate traffic congestion on Illinois Route 120 east of the City of McHenry.
NNN. Illinois Route 62	Widening from 4 to 6 lanes from the Illinois Route 31 Algonquin bypass to Kane County.	The 1.85 mile project could alleviate traffic congestion on Illinois route 62 to and from the Northwest Tollway (I-90)
000. Illinois Route 31 SRA	Widening from 2 to 6 lanes from Virginia Road to Rakow Road from 4 to 6 lanes from Rakow Road to Pleasant Hill Road consistent with IDOT's Strategic Regional Arterial (SRA) standards.	The 7.75 mile project could enhance north-south travel in the southeastern quarter of McHenry County.

PP. Illinois Route 47 SRA Woodstock (Modeled in Scenario 2)	Widening from 2 to 4 lanes from the Algonquin Road to US 14 and from Illinois Route 120 to Charles Road consistent with IDOT's Strategic Regional Arterial (SRA) standards.	The 8.5 mile project could enhance north-south travel efficiency from central McHenry County to the Northeast Tollway (I-90).
PPP. Randall/Rakow Road SRA	Widening from 4 to 6 lanes from the Northwest Tollway (I-90) to McHenry Avenue and from 2 to 6 lanes from McHenry Avenue to Illinois Route 31.	The 6.5 mile project could enhance north-south travel efficiency from southeastern McHenry County to the Northeast Tollway (I-90).
R. Seeman to McCue Road (Modeled in Scenario 1)	New or improved 2-lane corridor between Seaman Road and Franklinville Road.	The 4.25 mile project could create a north-south route between Harmony Road and Kishwaukee Valley Road that could act as a reliever route for traffic on Illinois Route 23 and Illinois Route 47.
RRR. Illinois Route 47 to Illinois Route 120 Connector	4-lane bypass east of the City of Woodstock town center from the Illinois Route 47 and McConnell Road intersection northeast to Illinois Route 120.	The 2.75 project could alleviate congestion in the City of Woodstock along Illinois Route 47.
SS. Illinois Route 120 (Modeled in Scenario 2)	Adding an additional travel lane in each direction from Illinois Route 47 to Charles Road.	The 4 mile project could alleviate traffic congestion within the City of Woodstock.
SSS. Seeman to Brier Hill Road	Realignment to Brier Hill Road.	The 1 mile project could provide more direct north-south access in south-central McHenry County by forming a continuous north-south route when including Alternative "R" from Kane County to Kishwaukee River Road.
TT. Illinois Route 47 SRA Woodstock (Modeled in Scenario 2)	Widening from 2 to 4 lanes from Illinois Route 120 to Charles Road consistent with IDOT's Strategic Regional Arterial (SRA) standards.	The 3 mile project could alleviate traffic congestion within the City of Woodstock.
TTT. Pleasant Grove Road/Coral West Road	2-lane bypass west of the City of Marengo between Illinois Route 23 and Illinois Route 176.	The 3.25 project could alleviate traffic congestion by diverting south and west of the City of Marengo.
WWW. Illinois Route 31 SRA	Widening from 2 to 4 lanes from Crystal Lake Road to Wisconsin consistent with IDOT's Strategic Regional Arterial (SRA) standards.	The 14.75 mile project could alleviate traffic congestion between the Village of Richmond and the City of Crystal Lake and provide more efficient north-south travel in eastern McHenry County.
XXX. Miller Road Extension Improvement	Widening from 2 to 4 lanes from South Solon Road to US 12 (Rand Road) and 4-lane extension from Solon Road to Illinois Route 31.	The 4.85 mile project could alleviate traffic congestion and could provide more efficient east-west travel in northeastern McHenry County.
YYY. Richardson/US 12/Spring Grove	Widening from 2 to 4 lanes from W. Johnsburg Road to Illinois Route 173.	The 7.5 mile project could enhance travel efficiency between Village of Spring Grove and the Village of Johnsburg.

PREFERRED 2020 ROADWAY PLAN

ROADWAY ALTERNATIVE	MODELED IN PREVIOUS SCENARIOS	MODELING RESULTS	PHASING
1. Randall Road SRA/Algonquin Road SRA Interchange		The three Scenarios as well as the Preferred Roadway Plan modeling results indicated large volumes of traffic flowing through the intersection calling into question the ability to design an intersection to handle future traffic at this location.	5-10 Years
2. Illinois Route 47 SRA and Northwest Tollway Full Interchange	Scenario 2	The Base Case Scenario indicated the need to increase capacity on Marengo Road west of Huntley and on US 20. An full interchange at this location would divert eastbound traffic into McHenry County	0-5 Years
A. Algonquin Road SRA Widening from 2 to 4 Lanes	As "FF" in Scenario 2 and 3	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need for a four lane facility from Haligus Road to Pyott Road and the need for a 6 lane roadway between Pyott Road and Illinois Route 31.	0-5 Years
B. Randall Road/Rakow Road SRA Widening to 6 Lanes	As "PPP" in Scenario 3	Scenario 1 and 2 modeling results indicated a need for a six lane facility for Randall Road north and south of Algonquin Road. The Base Scenario, Scenario 3, and the Preferred Roadway Plan modeling results indicated the need for a six lane facility from Kane County to McHenry Avenue. All Scenarios and the Preferred Roadway Plan modeling results indicated the need for a 6 lane facility for Rakow Road from McHenry Avenue to Virginia Road.	0-5 Years
C. Kruetzer Road 2-Lane Road Extension	As part of "BBB" Scenario 2 and 3	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need for a reliever route for traffic traveling through the Village of Huntley on Illinois Route 47.	0-5 years
D. Ackman Road Widening to 4 Lanes	As part of "EE" in Scenario 2 and 3	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need for a four lane facility from Rakow Road to Haligus Road.	5-10 Years
E. Ackman Road 2-Lane Road Extension to Adamson Road		The extension from Haligus Road to Illinois Route 47 is assumed to be completed by 2020. Improvements west of Illinois Route 47 are included in the Preferred Roadway Plan for network connectivity purposes within an area of rapid household growth. The extension would connect Ackman Road to a new north-south arterial (**See Alternative L**)	5-10 Years

F. Lawrence Road 2-Lane Realignment and Connections	Incorporates "D" in Scenario 1	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need for 4 lane facility Graff Road to Illinois Route 23 along the western edge of the City of Harvard. The 2-lane extension of Lawrence Road and bypass tested in Scenario 1 (See Alternatives D and C) did not alleviate the need for the 4 lane facility. Therefore, this alternative was added to the Preferred Roadway Plan.	5-10 Years
G. Algonquin Road SRA to Harmony Connector	Incorporates "CC" in Scenario 2 and 3	Improvements west of Illinois Route 47 are included in the Preferred Roadway Plan for network connectivity purposes within an area of rapid household growth. The extension would connect Algonquin Road to a new north-south arterial (**See Alternative L**)	5-10 Years
H. W. Johnsburg Road and Bay Road Widening to 4 Lanes	As part of "J" in Scenario 1 and "RR" in Scenario 2 and all of "MMM" in Scenario 3	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need for 4 lane facility between Illinois Route 31 and Lake County through the Village of Johnsburg and the Village of Lakemoor.	5-10 Years
I. New 4-Lane Fox River Crossing	As "JJ" in Scenario 2 and 3	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of 6 or more lanes for Illinois Route 62 in the area near the Fox River Bridge. In Scenario 2 and 3 and the Preferred Roadway Plan, the modeling results do indicate a lessoning of this capacity need to 6 lanes in the area near Kane County and indicate the need for the new crossing to be 4 lanes.	5-10 Years
K. Northern 2-Lane East-West Arterial	Not included in the scenarios, need for the project was indicated for network connectivity.	Improvements west of Greenwood Road are included in the Preferred Roadway Plan for network connectivity purposes. Currently, the only major east-west arterial in McHenry County is Illinois Route 173. The project would result in a new east-west arterial running from the northwest corner of Harvard to the end of Vanderkarr Road at Greenwood Road. Improvements would be made on Crowley Road, O'Brien Road, and Vanderkarr Road segments.	10-20 Years

L. Western 2-Lane North-South Arterial	Incorporates "R" in Scenario 1 and Scenario 3 and "SSS" of Scenario 3	In Scenarios 1 and 3, and the Preferred Roadway Plan a reduction in travel time to the I-90 and the I-290 interchange occurred in the analysis zones likely impacted by a continuous western north-south arterial. In Scenario 2, similar results were noted with a connection added from Harmony Road to the Northwest Tollway (I-90) interchange at US 20 (**See Alternative "W"**). Currently, the only major north-south arterials in western McHenry County are Illinois Route 23 and Illinois Route 47 roughly 9 miles apart from each other. Improvements between Harmony Road and Kishwaukee Valley Road could act as a reliever route for traffic on Illinois Route 23 and Illinois Route 47.	10-20 Years
M. Virginia Road Widening to 4 Lanes between Illinois Route 31 SRA and Rakow Road SRA	As part of "GG" in Scenario 2 and 3	The Base Case Scenario, Scenario 2, Scenario 3 and the Preferred Roadway Plan modeling results indicated a need of 4 lanes for Virginia Road. The improvement is also included in the Preferred Roadway Plan for network connectivity purposes provide a vital link between a New Fox River Crossing (**See Alternative "I" and "AA"**) and Rakow Road.	10-20 Years
N. Walkup Road/Crystal Lake Road/River Road between Illinois Route 176 SRA and Illinois Route 120 SRA	Not included in the scenarios, need for the project was indicated by model.	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of six lanes for Illinois Route 31 between the City of McHenry and Illinois Route 176. The improvement is added to the Preferred Roadway Plan as a reliever route to Illinois Route 31. The improvement is the only north-south arterial between Illinois Route 47 and Illinois Route 31.	10-20 years
O. Illinois Route 47 SRA from Kreutzer Road to Illinois Route 176 SRA	As part of "PP" in Scenario 2 and 3	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of four lanes for Illinois Route 47 between Kreutzer Road and Illinois Route 176	0-5 Years
P. West Algonquin Bypass	As part of "HH" in Scenario 2, "III" in Scenario 3	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of 6 or more lanes for Illinois Route 62 and 6 lanes for Illinois Route 31 in the area near the Fox River Bridge. In Scenario 2 and 3 and the Preferred Roadway Plan, the modeling results indicate the need for the new bypass to be 4 lanes.	0-5 Years
Q. Illinois Route 31 SRA Widening to 6 Lanes	Incorporates "OOO" from Scenario 3	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of 6 lanes for Illinois Route 31 between the West Algonquin Bypass (**See Alternative "P")** and the McHenry Bypass (**See Alternative "Q"**).	5-10 Years

R. McHenry Bypass	As "M" in Scenario 1, 2, and 3.	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of 6 lanes for Illinois Route 31 in the City of McHenry. In Scenario 1, 2, and 3, and the Preferred Roadway Plan, the modeling results indicate the need for the new bypass to be 4 lanes.	10-20 Years
S. Richmond Bypass	As "A" in Scenario 1 and 2	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of 4 lanes for Illinois Route 31 through downtown Richmond. In Scenario 1, 2, and 3, and the Preferred Roadway Plan, the modeling results indicate the need for the new bypass to be 4 lanes south of Illinois Route 173 and 2 lanes north of Route 173. Therefore, this improvement would initially be a 2-lane facility with right-of-way preserved for a 4-lane facility.	10-20 Years
T. Hillside Road 2-Lane Extension to Illinois Route 31 SRA	Not included in the scenarios, need for the project was indicated by model.	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of 4 lanes for Illinois Route 176 from US 14 and Walkup Road. Scenarios 2 and 3 and the Preferred Roadway Plan modeling results indicated a need of 6 lanes for Illinois Route 176 from Walkup Roe to Illinois Route 31. A connection between Hillside Road and Illinois Route is added to the Preferred Roadway Plan for network connectivity to create a reliever route for traffic on Illinois Route 176.	0-5 Years
U. Pleasant Grove Road/Coral West Road	As "TTT" in Scenario 1 and 3 and part of "NN" in Scenario 2	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of 4 lanes for Illinois Route 23 north of downtown Marengo and for US 20 east and west of downtown Marengo. In Scenario 1, 2, and 3, and the Preferred Roadway Plan, the modeling results indicate the need 2 lanes for this improvement. However, given the projected number of households and employment in the area and possible interchange at Illinois Route 23 and the Northwest Tollway (I-90) the improvement would initially be a 2-lane facility with right-of-way preserved for a 4-lane facility.	10-20 Years
V. Doty Road Realignment	As part of "S" in Scenario 1	This improvement was added to the Preferred Roadway Plan for network connectivity. The improvement would improve a local route between US 14 and Illinois Route 176 by removing unnecessary turning movements and safety hazards creating a continuous north-south local road.	10-20 Years

W. Lakewood Road 2-Lane Extension	As part of "BBB" in Scenario 2 and part of "GGG" in Scenario 3	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need south of Illinois Route 176 of 4 lanes for Illinois Route 47 and 6 lanes for Illinois Route 31. An extension to connect Algonquin Road to Dundee-Huntley Road was added to the Preferred Roadway Plan for network connectivity to create a reliever route for traffic on Illinois Route 47 and Illinois Route 31.	0-5 Years
X. Pingree Road Widening to 4 Lanes between Virginia Road ad Illinois Route 176 SRA	Not included in the scenarios, need for the project was indicated by model.	The Base Case Scenario, Scenario 2, Scenario 3 and the Preferred Roadway Plan modeling results indicated a need of 6 lanes for Illinois Route 31 from Virginia Road to Illinois Route 176. The improvement is included in the Preferred Roadway Plan as a reliever route to Illinois Route 31 and to provide greater roadway capacity to serve the new Pingree Road Station to open in 2005.	10-20 Years
Y. East Woodstock Roadway	As "I" in Scenario 1	The Base Case Scenario, Scenario 2, Scenario 3 and the Preferred Roadway Plan modeling results indicated a need of 4 lanes for Illinois Route 47 south of Illinois Route 120. This improvement is included in the Preferred Roadway Plan as a reliever route for Illinois Route 47 and network connectivity by provide a north-south route for the City of Woodstock east of Illinois Route 47.	10-20 Years
Z. Oak Grove Road	Not included in the scenarios, need for the project was indicated by model.	Improvements west of US 14 are included in the Preferred Roadway Plan for network connectivity purposes. Currently, the only major east-west arterial in McHenry County is Illinois Route 173. The project would result in a new arterial to the north and west of the City of Harvard when connecting to the Lawrence Road improvement (**See Alternative "F"**)	10-20 Years
AA. Virginia Road Widening to 4 Lanes between US 14 SRA and Rakow Road SRA	As part of "GG" in Scenario 2 and 3	The Base Case Scenario, Scenario 2, Scenario 3 and the Preferred Roadway Plan modeling results indicated a need of 4 lanes for Virginia Road. The improvement is also included in the Preferred Roadway Plan for network connectivity purposes provide a vital link between a New Fox River Crossing (**See Alternative "I" and "M"**) and Rakow Road.	10-20 Years
BB. Illinois Route 62 SRA Widening to 6 Lanes between the West Algonquin Bypass and Illinois Route 25 SRA	As part of "NNN" in Scenario 3	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of 6 or more lanes for Illinois Route 62 in the area near the Fox River Bridge. Over time as downtown Algonquin continues to change, the ability to provide proper channelization at intersections and right-of-way to provide additional through lanes on Illinois Route 62 should be considered.	20+ Years

CC. Illinois Route 120 SRA via Charles Road and Lamb Road	Incorporates "G" in Scenario 1, as part of "UU" in Scenario 2 and "CCC" in Scenario 3	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of 4 lanes for Charles Road from Illinois Route 120 to Illinois Route 47. This improvement is added to the Preferred Roadway Plan to address this capacity need as well as to enhance the SRA network from Illinois Route 120 north of the City of Woodstock to US 14.	20+ Years
DD. Illinois Route 173 SRA Widening to 4 Lanes between US 12 SRA and Lake County.	As part of "XX" in Scenario 2 and part as "LLL" in Scenario 3	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of 4 lanes for Illinois Route 173 from US 12 (Rand Road) to Lake County. The improvement would likely terminate near the Village of Antioch in Lake County.	20+ Years
EE. Illinois Route 176 SRA Widening to 4 Lanes between Dean Street and US 14 SRA	As part of "QQ" in Scenario 2	The Base Case Scenario, Scenario 2, Scenario 3 and the Preferred Roadway Plan modeling results indicated a need of 4 lanes west of US 14 to Haligus Road. This improvement would meet this capacity need as well as continue the roadway to the west of Illinois Route 47 as part of the SRA network.	20+ Years
FF. Illinois Route 176 SRA Widening to 6 lanes between US 14 SRA and Illinois Route 31 SRA	As part of "HHH" in Scenario 3	Scenario 2, Scenario 3 and the Preferred Roadway Plan modeling results indicated a need of 6 lanes between Illinois Route 31 and US 14. Over time as central Crystal Lake continues to change, the ability to provide proper channelization at intersections, new grade separations of Metra lines, and right-of-way to provide additional through lanes on Illinois Route 176 should be considered.	20+ Years
GG. Illinois Route 23 SRA Widening to 4 Lanes between Harvard and Marengo	Incorporates "F" from Scenario 1 and as part "FFF" Scenario 2	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of 4 lanes between the City of Harvard and the City of Marengo.	20+ Years
HH. Illinois Route 31 SRA Widening to 4 Lanes between the McHenry Bypass and Illinois Route 120 SRA	As part "WW" Scenario 2 and as part of "WWW" in Scenario 3	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of 4 lanes between the Marengo Bypass (**See Alternative "R"**) and Illinois Route 120.	20+ Years
II. Illinois Route 47 SRA Widening between Illinois Route 176 SRA and US 14 SRA	As part of "PP" in Scenario 2 and 3	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of 4 lanes between Illinois Route 176 and US 14.	20+ Years

JJ. Illinois Route 47 SRA Widening to 4 Lanes between Ware Road and Charles Road (Illinois Route 120 SRA)	As part of "TT" in Scenario 2 and 3	This improvement is added to the Preferred Roadway Plan for network connectivity purposes as part of the SRA network.	10-20 Years
KK. Lamb, Charles Road, Illinois Route 120 SRA	As part of "UU" Scenario 2	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of 4 lanes west of the Illinois Route 120/Greenwood Road/Charles Road intersection on Charles Road to Lamb Road. The improvement includes an extension of the 4 lane SRA consistent roadway to Illinois Route 120 and US 14 via Lamb Road as part of the SRA network.	20+ Years
LL. Illinois Route 120 SRA between McHenry Bypass and Charles Road	As part of "CCC" in Scenario 3	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of 6 lanes west of the McHenry Bypass to the Illinois Route 120/Greenwood Road/Charles Road intersection.	20+ Years
MM. Marengo East Bypass between Illinois Route 23 SRA and US 20 SRA	As "Q" in Scenario 1 and as part of "OO" in Scenario 2	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of 4 lanes for Illinois Route 23 north of downtown Marengo and for US 20 east and west of downtown Marengo. In Scenarios 1 and 2, and the Preferred Roadway Plan, the modeling results indicate the need 2 lanes for this improvement. However, given the projected number of households and employment in the area and possible interchange at Illinois Route 23 and the Northwest Tollway (I-90) the improvement would be a 4-lane facility to be consistent with improvements on US 20 (**See Alternative "PP"**) and Illinois Route 23 (**See Alternative "MM"**).	20+ Years
OO. US 14 SRA Widening to 4 Lanes between Harvard and Illinois Route 47 SRA	As part of "VV" in Scenario 2 and as part of "EEE" in Scenario 3.	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of 4 lanes for US 14 between Harvard and Illinois Route 47.	20+ Years
PP. US 20 SRA Widening to 4 Lanes from the Northwest Tollway (I-90) and the Marengo East Bypass	As part of "II" of Scenario 2	The Base Case Scenario, Scenario 2, Scenario 3, and the Preferred Roadway Plan modeling results indicated a need of 4 lanes for US 20 from the Northwest Tollway (I-90) and the Marengo East Bypass (**See Alternative "MM").**	20+ Years

SS. Illinois Route 120 Widening to 6 lanes from Illinois Route 31 to US 12 (Rand Road)	As part of "CCC" in Scenario 3	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need of 6 lanes for Illinois Route 120 from Illinois Route 31 to US 12.	0-5 Years
UU. Illinois Route 120 Widening to 4 Lanes from the McHenry Bypass to Illinois Route 31	As part of "H" in Scenario 1 and as part of "UU" in Scenario 2	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated the need for a 4-lane facility on Illinois Route 120 from west of Illinois Route 31 west to the McHenry Bypass.	20+ Years
VV. Illinois Route 31 Widening to 4 Lanes from Illinois Route 120 to US 12	As part of "WW" in Scenario 2 and as part of "WWW" in Scenario 3	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated the need for a 4-lane facility north on Illinois Route 31 north of Illinois Route 120 to US 12. This roadway expansion project would provide a major north-south corridor between McHenry and Richmond.	10-20 Years
WW. Illinois Route 22 Widening to 4 Lanes from US 14 to County Border	Not included in the scenarios, need for the project was indicated by model.	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated the need for a 4-lane facility on Illinois Rote 22 from US 14 to the McHenry County/Lake County Border.	20+ Years

FINANCIALLY CONSTRAINED 2020 ROADWAY PLAN

ROADWAY ALTERNATIVE	NOTES	COST ESTIMATE	PHASING
1. Randall Road SRA/Algonquin Road SRA Interchange	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated large volumes of traffic flowing through the intersection calling into question the ability to design an intersection to handle future traffic at this location.	$20,000,000	10-20 Years
2. Illinois Route 47 SRA and Northwest Tollway Full Interchange	The Base Case Scenario indicated the need to increase capacity on Marengo Road west of Huntley and on US 20. An full interchange at this location would divert eastbound traffic into McHenry County. Kane County supports a full interchange with Illinois route 47 at I-90, as indicated in the Kane county 2030 Plan. Local road improvements, including County Highways, should be considered with any additional interchange. The counties with work with the Illinois Tollway as part of their proposed system-wide interchange corridor study.	$10,000,000	0 – 5 Years

A. Algonquin Road Widening to 4 Lanes between Illinois Route 47 and Algonquin Bypass	The three Scenarios as well as the Preferred Roadway Plan modeling results indicated a need for a 4-lane facility from Haligus Road to Pyott Road and Illinois Route 31.	$24,000,000	0-5 Years
B. Randall Road/Rakow Road Widening to 6 Lanes from Kane County line to Illinois Route 31	This corridor provides direct access from northern Kane County into Crystal Lake. The proposed expansion project would include all of Randall Road and James J. Rakow Road. The proposed project concurs with Kane County's plans to widen Randall road to 6 lanes from Orchard Road north to County Line Road by 2030.	$54,000,000	0-5 Years
C. Ackman Road Widening to 4 Lanes from Randall Road to Lakewood Road	This road widening project would provide a 4-lane facility on the existing Ackman Road alignment between the Lakewood Road and Randall Road.	$8,000,000	5-10 Years
D. Ackman Road Extension	This roadway extension project would provide a 2-lane facility connecting the western end of Ackman Road in Lakewood to a new north-south arterial west of Huntley. The new segment would also intersect Illinois Route 47.	$9,000,000	5-10 Years
E. Lawrence Road and Oak Grove Road Realignments and Connections	This project involves the reconstruction of the South Oak Grove railroad crossing in Lawrence, on the northwestern edge of Harvard. The result provides for continuous travel on Lawrence Road by bypassing unincorporated Lawrence to the west and forming a 4-way intersection with Oak Grove Road. Improvements would be made to Oak Grove Road bringing it up to County design standards connecting highway service between Lawrence Road and US 14. It would create a 2-lane bypass of Harvard to the west, and end at the intersection of Oak Grove Road and US 14 north of Harvard.	$7,000,000	5-10 Years
F. Algonquin Road Extension to Harmony Road	The Algonquin Road extension would provide better east-west access around Huntley by bypassing downtown to the north. The extension would intersect Marengo Road just east of Coyne Station Road and connect with Harmony Road just east of Brier Hill Road.	$4,000,000	5-10 Years
G. Bay Road Widening to 4 Lanes	This widening project provides a 4-lane roadway on Bay Road from Chapel Hill Road to Lake County.	$15,000,000	5-10 Years
H. New Fox River Crossing	This project would construct a new bridge over the Fox River between Algonquin Road and US 14. This improvement provides a new 4-lane connection over the Fox River in the southeast corner of McHenry County. Kane County supports the development of viable Fox River Crossings. It is important to not the cost of this	$34,000,000 to $90,000,000	10-20 Years

	project could be greater than $90 million as indicated in earlier studies of other Fox River Bridges in the area.		
I. Chapel Hill/Johnsburg Road Widening to 4 Lanes Including Wider Bridge	This project would provide a 4-lane corridor utilizing existing right-of-way on Johnsburg Road and Chapel Hill Road. Beginning at the intersection of Johnsburg Road and Illinois Route 31, Chapel Hill Road would be upgraded to a 4-lane facility, until Illinois Route 120.	$7,000,000	10-20 Years
J. Northern East-West Arterial	The only major east-west arterial in northern Mchenry County is Illinois Route 173. This project would result in a new east-west arterial running from the northeast corner of Harvard south of Hebron to Greenwood Road. The identification of this corridor in this plan is important so as to coordinate development with the construction of a needed link in the roadway network.	$4,000,000	10-20 Years
K. Western North-South Arterial	Currently, the only major north-south arterials in western McHenry County are Illinois Route 23 and Illinois Route 47 roughly 9 miles apart from each other. Improvements between Harmony Road and Kishwaukee Valley Road could act as a reliever route for traffic on Illinois Route 23 and Illinois Route 47. The identification of this corridor in this plan is important so as to coordinate development with the construction of a needed link in the roadway network.	$5,000,000	10-20 Years
L. Virginia Road Widening to 4 Lanes between Rakow and Illinois Route 31	This expansion project would result in a 4-lane facility on the existing Virginia Road right-of-way between James J. Rakow Road and Illinois Route 31 in Lake in the Hills.	$7,000,000	10-20 Years
M. Walkup Road/Crystal Lake Road/River Road Widening to 4 Lanes from Illinois Route 176 to Illinois Route 120	This project would widen the existing roadways to create a 4-lane corridor between the north side of Crystal Lake and the south and east sides of McHenry. Beginning at Illinois Route 176, Walkup Road would be widened to 4-lanes. This 4-lane facility would continue through the existing intersection of Bull Valley /Miller Roads and Illinois Route 31, cross the Fox River, to River Road. It would then go north on River Road until branching off on a new roadway segment to meet the existing intersection of Chapel Hill Road and Illinois Route 120.	$34,000,000	10-20 Years
N. Illinois Route 47 Widening to 4 Lanes from the Northwest Tollway (I-90) to Illinois Route 176	This proposed project would result in the widening of Illinois Route 47 to a 4-lane facility between the Northwest Tollway (I-90) and Illinois Route 176. The widening of Illinois Route 47 to 4 lanes and the preservation of right-of-way for 6 lanes is a logical extension of the proposed improvements in the Kane County 2030 Plan which recommends widening Illinois Route 47 to 6 lanes from I-90 north to Powers Road.	$14,000,000	0-5 Years

O. Algonquin Bypass	This new 4-lane roadway segment would provide more efficient north-south travel on Illinois Route 31 by bypassing downtown Algonquin to the west. Beginning to the north on Illinois Route 31 between Klasen Road and Cary-Algonquin Road, it would cross Algonquin Road west of Illinois Route 31, and reconnect to Illinois Route 31 near the existing McHenry County Prairie Trail.	No New Funding Needed	0-5 Years
P. Illinois Route 31 Widening to 6 Lanes from Algonquin Bypass to McHenry Bypass	This project involves the widening of Illinois Route 31 to a 6-lane roadway between the proposed Algonquin Bypass and the proposed McHenry Bypass. The result would be a new facility providing efficient north-south movement in southeast McHenry County.	$60,000,000	5-10 Years
Q. McHenry Bypass	This project primarily entails the installation of new roadway alignment from Illinois Route 31 and Ringwood, on the north side of McHenry, to Illinois Route 31 and Gracy Road on the south side of McHenry. The bypass would intersect Illinois Route 120 on the west side of McHenry at Ringwood Road, and would provide a 4-lane facility.	$50,000,000	10-20 Years
R. Illinois Route 31 Widening to 4 Lanes from Illinois Route 120 to US 12	This roadway expansion project would provide a major north-south corridor between McHenry and Richmond. Beginning at Illinois Route 120, Illinois Route 31 would be widened into a four-lane facility north to US 12.	$20,000,000	10-20 Years
S. Richmond Bypass	This new roadway segment would provide more efficient north-south travel on US 12 in northern McHenry County by bypassing Richmond to the west. Branching off of Illinois Route 31 near the Wisconsin border, the bypass would cross Illinois Route 173 at Broadway Road, and then continue south to Illinois Route 31 and Tryon Grove Road. This would initially be a 2-lane facility.	$6,000,000	10-20 Years
T. Hillside Road extension to Illinois Route 31	This new segment of roadway would connect the existing Hillside Road with Illinois Route 31, providing enhanced local east-west access on the north side of Crystal Lake.	$1,000,000	0-5 Years
U. Pleasant Grove Road	This series of improvements would create a unified 2-lane truck bypass to the southwest of Marengo. Upgrading the existing Johnson Road, Pleasant Grove Road, and Coral West Road alignments, better access would be provided to US 20 as it heads southeast from Marengo.	$5,000,000	10-20 Years
V. Doty Road	This intersection's realignment would allow for easier local access between US 14 and Illinois Route 176 by removing unnecessary turning movements and safety hazards. The result would be a 4-way intersection.	$1,000,000	10-20 Years

W. Lakewood Road Extension	This new roadway segment installation would provide enhanced access between Algonquin Road and Dundee Road. A new segment would extend south from the existing Lakewood Road terminus and intersect Dundee Road just north of the Kane County line.	Privately Funded	0-5 Years
X. Kruetzer Road Extension	This project enables more efficient travel from Illinois Route 47 to the western part of McHenry County by bypassing the southwest corner of Huntley. It would branch off of Illinois Route 47 at Kruetzer Road and intersect Marengo Road between Illinois Route 47 and Coyne Station Road. The Kane County 2030 Plan recommends extending Kreutzer Road west through Illinois Route 47 and north into McHenry County to intersect with Algonquin Road, providing for an additional bypass around downtown Huntley. The Kane County 2030 Plan also recommends widening Kreutzer Road to 4 lanes from Huntley Road to Illinois Route 62; therefore, right-of-way ought to be preserved for a 4-lane facility.	$2,000,000	0-5 Years
Y. Pingree Road Widening to 4 Lanes from Virginia north to Illinois Route 176	This reconstruction project would provide a new north south 4-lane corridor on Pingree Road between Virginia Road to Illinois Route 176, just north of Metra's Union Pacific-Northwest rail line.	$3,000,000	5-10 Years
Z. East Woodstock Roadway	This new segment of roadway provides direct access between Illinois Route 120 and Illinois Route 47 on the east side of Woodstock. Beginning at Illinois Route 120 between Raffel Road and Queen Anne Road, a 2-lane facility would extend southwest to Illinois Route 47 at Country Club Road.	$2,000,000	10-20 Years

APPENDIX D:
POSSIBLE SOURCES of FUNDING for TRANSPORTATION IMPROVEMENTS

Funding for major roadway or intersection improvements comes from a wide variety of sources which, are listed below in alphabetical order.

- ***Highway Bridge Replacement and Rehabilitation Program (HBRRP)***
  Funding authorized through the U.S. Department of Transportation and the Intermodal Surface Transportation Efficiency Act (ISTEA) for bridge improvements.

- ***Bridge Tax***
  Real estate tax providing funds for county highway bridges.

- ***Congestion Management Air Quality (CMAQ)***
  Funding authorized by the federal government to improve air quality through congestion management using traffic signal optimization and other roadway improvements.

- ***Community Development Block Grant (CDBG)***
  Authorized through the U.S. Department of Housing and Urban Development (HUD).

- ***General Obligation Bonds (GOB)***
  Bonds authorized through certain units of government with the capability for capital improvements.

- ***Illinois Commerce Commission (ICC)***
  Funds authorized for improvements at highway-railway crossings, including grade-separations and safety improvements at crossings. The source of these funds is local.

- ***Illinois State Toll Highway Authority (ISTHA)***
  Funding for improvements to I-90 and other tollways under the jurisdiction of ISTHA.

- ***Intelligent Transportation Systems (ITS)***
  This program funds IDOT programmed projects, which integrate operations and management to improve system performance. States compete for these federal funds.

- ***Interstate Discretionary Program***
  High cost projects with high traffic volumes in urban areas and high truck volumes in rural areas receive priority under this source. States compete for these federal funds.

- ***Impact Fees***
  Funds derived from private new development based on a formula relating to trip generation to road needs. Counties must reach 400,000 in population in order to charge direct impact fees.

- ***Job Access and Reverse Commute Grants (JARC)***
  Job Access and Reverse Commute grants provide funding for transportation services designed to transport low-income individuals to and from jobs. States compete for these federal funds, which also support development of transportation services between urban centers and suburban employment opportunities.

- ***Local***
  Funding from unspecified local funding sources, usually from the jurisdiction's general fund; also includes township road and bridge funds and other special funds of local origin.

- ***Matching Tax***
  Real estate based tax, providing funds for transportation improvements.

- ***Motor Fuel Tax (MFT)***
  Taxes on gasoline and fuel oil used by the state or local governments for roadway improvements. This is also the source for State Bridge Funds.

- ***MFT/County Option***
  Additional four-cent per gallon (maximum allowed) fuel tax authorized for McHenry County.

- ***National Highway System (NHS)***
  A special category of federal funding authorized through ISTEA for improvements on specially designated roadways of national significance.

- ***Operation Green-Light-Transit (OGL)***
  This local program finances comprehensive, innovative efforts to control and reduce urban congestion in the City of Chicago and surrounding suburbs and supplements the ongoing FTA Section 5309 (capital) programs. Examples of programmed projects include traffic signal preemption for transit vehicles, improved vehicular and bicycle access to rail stations, expanding parking at commuter stations, pedestrian access enhancements, and commuter rail grade crossing improvements.

- ***Private Sources***
  Funding committed toward a project from a private landowner or developer.

- ***Property Tax***
  Locally authorized property tax revenues.

- ***Safety Funds (STP-S)***
  Ten percent of the state's Surface Transportation Program (STP) allocation must be used for safety projects. IDOT submits projects for MPO review. While this fund source finances projects explicitly aimed at improving safety, safety benefits may be derived from projects funded through other sources.

- ***Snowmobile Grant Program***
  State-funded program for local governments, financed from registration fees of snowmobiles, which provides up to 50% reimbursement of approved facility development/rehabilitation costs and 90% of approved trail corridor land acquisition costs for public snowmobile trails in Illinois. This program is available to any unit of local government with sufficient snow cover having statutory authority to acquire and develop lands for public and recreation purposes. Eligible project costs include land acquisition for snowmobile areas/trail corridors, snowmobile trail construction and signage, trail grooming equipment, parking areas, security lighting, restroom facilities, and warming shelters, and snowmobiles and communication equipment for local agency patrol use.

- ***Special Assessment (SA)***
  Special property taxes assessed and assigned for a specific improvement.

- ***State***
  Funding from general funds of the State of Illinois.

- ***Special Purpose Authority***
  Authorized bonding for improvements.

- ***Surface Transportation Program (STP)***
  Funding authorized through ISTEA and administered by the U.S. Department of Transportation. These funds, distributed by formula, may be used for roads not classified as local or rural minor collectors, bridges on a public road, and transit capital projects. The state, counties, and CATS Council of Mayors submit STP programs for CATS review. Kane, Lake, McHenry and Will counties receive a total of $2,600,000 annually in STP funds, which are distributed based on local programming guidelines.

  - ***STP-Enhancement (STP-E)***
    STP funds earmarked for qualified projects that enhance the beauty of a roadway project, improve non-motorized transportation opportunities, mitigate adverse impacts of more traditional roadway projects, or for other qualified projects. Ten percent of the State's STP allocations must be used for enhancement projects. NIPC and CATS review and evaluate projects before they are submitted to and selected by IDOT (with participation by the Illinois Department of Natural Resources and the Illinois Historic Preservation Agency).

- ***STP Hazard Elimination and Safety Funds (STP-HES)***
  STP funds allocated specifically for qualified projects that improve safety.

- ***STP-Rural***
  STP funds allocated to counties for rural highways.

- ***STP-State***
  STP funds allocated to the State of Illinois for use on state marked or unmarked routes or other qualified projects at the state's discretion.

- ***STP-Urban***
  STP funds allocated for use on qualified projects at the discretion of the Metropolitan Planning Organization (MPO).

❖ ***Tax Increment Financing (TIF)***
Special bonding authority for designated TIF areas/projects.

APPENDIX E: CATS Modeling

Available upon request.

APPENDIX F:
DISCUSSION of CONTEXT SENSITIVE ROADWAY CROSS-SECTIONS

This appendix highlights comprehensive mechanisms that respond to different expectations and contexts of roadways. Each alternative is illustrated on a four-lane plus center median roadway; although this scenario may change depending on the various needs of an individual corridor. The fundamental treatments and concepts, however, are still applicable.

Each conceptual context sensitive configuration utilizes the same following characteristics:

- volume capacity,
- control of access points,
- appropriate adjacent land uses,
- aesthetic character, and
- appropriate peripheral devices.

For each configuration, an example is shown using a four-lane facility and median. This base arrangement provides a canvas for illustrating the differences in a median's configuration and the road's relationship to adjacent land uses. Upon completion, the street configuration (i.e. number of lanes, median width, etc.) may change, but the road's relationship to the context can still be evaluated based on the five factors listed above.

Volume capacity is simply a quantitative measure of the ability of the facility to move vehicular traffic. In most cases, this is determined prior to selecting a final street design. The desired capacity provides input regarding the number of lanes and appropriate intersection configurations. *Volume capacity*, however, should not be the lone factor in determining the functionality and aesthetic character of a roadway.

Control of access points is a way of managing traffic as it enters and exits a roadway. It is important to remember that providing access to bordering development, and not just moving cars, is a crucial function of roads. Therefore, the level of control directly relates to the types of land use and development that a road serves. Some areas require many points of access, while others do not. Inherently, there is a trade-off between high access and volume capacity. Typically, high levels of traffic entering and exiting a road make it difficult to maximize traffic volume capacity. Therefore, it must be clearly understood what roads are meant to move cars, and what roads are meant to provide access to surrounding amenities.

Different functional distinctions for roadway configurations can be associated with ***appropriate adjacent land uses***. When referring to a commercial or residential "district", it must be understood that land and roads make up the functional and spatial composition of the area. Consequently, a logical connection between the street and the type of service needs to be established. For example, it makes little sense to place a wide, high-speed roadway through a residential area. Consideration must be given to existing and future development in order to provide a facility that most likely facilitates the defined vision.

The ***aesthetic character*** of a street has a significant impact on both a traveler's and resident's experience. While sometimes considered an overly expensive investment, returning little to the community, design enhancements are nonetheless becoming more prevalent in new street designs and for existing street renovations. Because streetscaping reflects and enhances the character of surrounding developments, it is an invaluable tool in defining community areas and unifying neighborhoods.

In addition to enhancing the aesthetic character of the roadway, implementing ***appropriate peripheral devices*** further integrates a transportation facility with its surroundings. Essentially, this expands the definition of"streetscaping" to include spaces adjacent to the roadway itself. For example, it may include a furniture or landscaping strip between the curb and sidewalk, the sidewalk itself, and any enhancements to areas between the sidewalk and storefronts or property lines.

Taking all of these factors into account allows roadway designs to efficiently move vehicles while still responding to specific needs of a community. This framework aids in comprehensive decision-making by determining what is needed for a particular part of the transportation network based on what it is serving, or will be serving in the future.

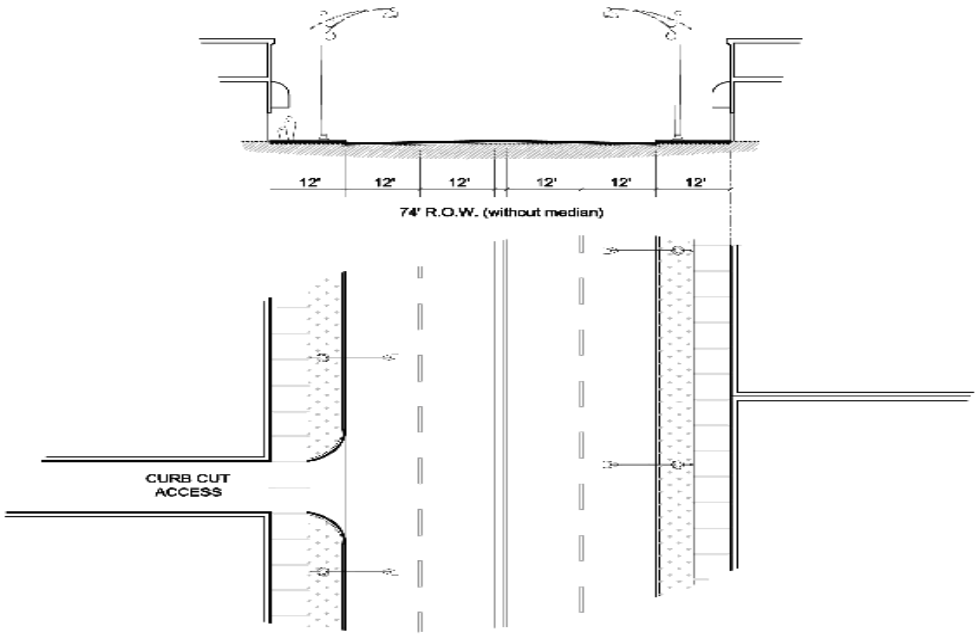
Urban Commercial/Mixed Use

Throughout McHenry County, there exist several established downtown areas, which are home to small or medium scaled commercial districts and developments. These areas are valued because of their quaint village-like environments and comfortable public spaces. In this respect, they are considered a "destination" and not areas that travelers quickly pass through.

Several characteristics, for this type of area, dictate appropriate types of street facilities. First, services and options are located in a relatively small area. Secondly, any given street may lie within a denser transportation grid, resulting in smaller blocks with greater stopping opportunities. Possible on-street parking is also an important factor adding to the success of a downtown area. Finally, due to the smaller scale and higher-density of commercial developments, pedestrian access is just as or even more important than automotive access. All of these factors demand a road facility that is low-speed and high access.

Providing a comfortable roadway in an urban commercial or mixed-use setting entails a trade-off with traffic volume capacity. However, because such an area can be thought of more as a destination than a means to get from one place to another, the street network only has to be able to serve the volume of vehicles using the services in that area. This includes residents, business patrons, and local visitors. Through-traffic to other destinations does not use such a corridor on a regular basis, so long-term travel efficiency is not a key issue.

On the other hand, controlling access into, around, and out of an *urban commercial /mixed-use* area is generally difficult. Traffic flow is usually unpredictable given the amount of choices there are to enter and exit the local road network. Therefore, a mountable or soft center median, if possible, is a recommended option.



Urban Commercial/Mixed-Use Roadway Context Concept

Access into lots and parking facilities may be provided from a primary roadway, although, traditionally, more substantial commercial and downtown areas rely on on-street parking or alley lots to satisfy the needs of shoppers and residents. This type of configuration generally is most effective with denser historic downtown districts where buildings, placed along the street-wall, allow easy pedestrian movement throughout the area.

Existing or planned *urban commercial mixed-use* areas would be well served using these design concepts. Since the aesthetic character of a roadway is primarily

dependent on its surroundings, the historic buildings located throughout those areas influence the general look of the road. However, opportunities do exist for sidewalk enhancements, such as furniture, pedestrian lighting, or landscaping.

Outlying Commercial

Outside of McHenry County's historic downtowns, a more traditional auto-dependent suburban setting exists, reflecting development patterns found in many other post-World War II areas located throughout the nation. Moreover, just as *outlying commercial* development differs in character and function, so does the role of its roadway system. ***Outlying commercial*** is more dependent on distance travel and automotive volume. However, where compact growth begins to occur as recommended in the Land Use Plan, especially in areas concerned with farmland preservation, accessibility and aesthetic concerns may become more important within these corridors.

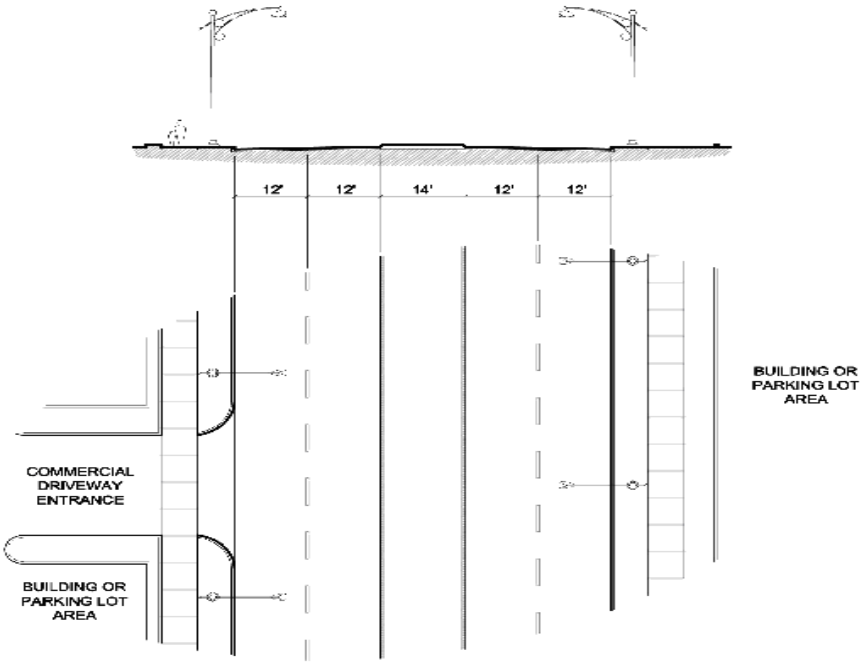
Volume capacity is essential to the success of commercial corridors in outlying areas because roadway systems must function for many types of trips, from local shopping excursions, to commuter traffic and longer distance travel. As a result, it is difficult to design one road for only one specific purpose. Under the "commercial corridor" umbrella, several minor design variations exist, mainly dealing with accessibility issues.

Frequent curb cuts and intersecting roads accommodate vehicle access into commercial parking lots so that the flow of higher speed and longer distance travel is undisturbed. Center median usage serves to limit left-hand turn access, or may allow turns depending on speed, safety factors and the need to access lots from both vehicular directions.

Median variations include painted medians, which allow left-hand turn movement at any point; mountable curbs, which allow turning movement but encourage access at controlled points; and, hard curb medians, which restricts turning movements at curb breaks or at intersections. These access points provide entry to medium to large-scale commercial developments, or to other roads leading to residential areas.

Because medium to large-scale residential developments exist along this type of corridor, pedestrian access is an important piece of the transportation picture, as are bicycle lanes, where possible. These non-motorized elements add another layer of balance to this roadway network; one of safety and accessibility as well as automobile speed and capacity.

Unlike the *urban commercial mixed-use* pattern of development, the *outlying commercial* roadway is autonomous in choosing its aesthetic character and streetscape design. It may not have adjacent buildings to define its limits and personality, and must therefore define its own look through sidewalk landscaping, decorative light fixtures, and property line plantings. For example, in areas that have hard curb medians, low-level ground cover landscaping is a feasible option to break up asphalt monotony, assuming visibility and safety are not compromised.



Outlying Commercial Corridor Cross-Section Concept

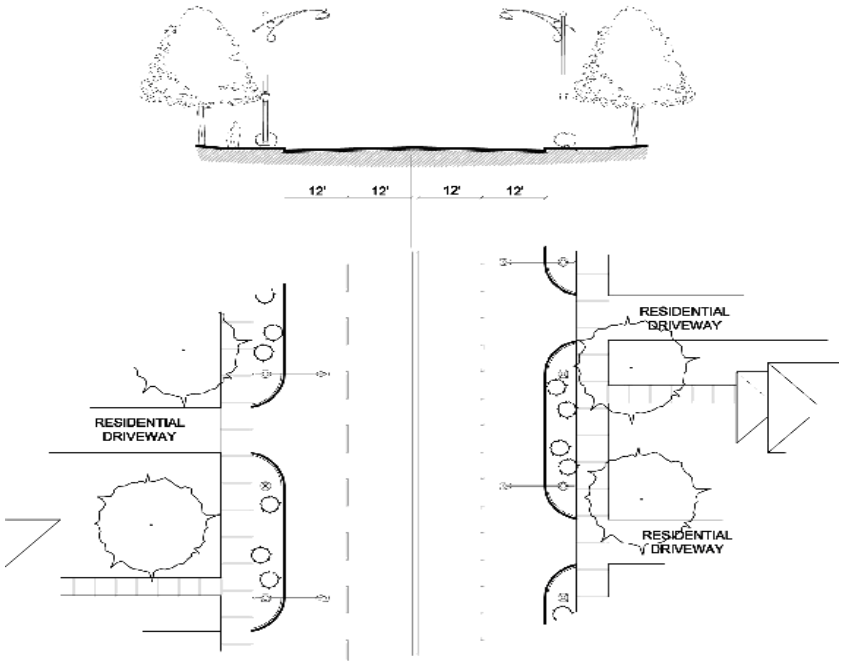
Residential

Except for densely developed urban areas, residential development is usually buffered from commercial and industrial land uses. While this may increase travel distances, both locally and regionally, the separation allows for roadway designs that respond to specific needs. These areas, similar to *urban commercial mixed-use* corridors, utilize roadways for destination-oriented trips, rather than simply using the road system for pass through purposes. Because of activities typically associated with residential neighborhoods (i.e. walking, children on bicycles, etc.) low speeds and narrow driving lanes and intersection crossings are valuable amenities.

Residential roads are generally, not measured based on volume capacity. The greater issue is whether *residential* roads provide frequent and safe access to residential parcels. This often leads to roadway configurations with no medians, and a roadway that is no wider than necessary to facilitate the functions of the road network. Often, each single family home has its own driveway access, although a shared curb cut for two houses cuts down on the amount of uncontrolled access points, preserves passive green space along the roadway, and provides a cleaner aesthetic for the neighborhood.

On-street parking is also a characteristic present in residential neighborhoods. It not only provides additional parking capacity, but also acts as a traffic-calmer safety enhancement for non-motorized modes of transportation. Depending on the given right-

of-way width, alternating curbside parking or parking on both sides of the street may be possible.



Residential Roadway Context Concept

Inherent safety issues associated with *residential* roadways provide opportunities for several aesthetic mechanisms. The landscaping strip between the curb and the sidewalk can be planted with large trees without compromising safety. In addition, pedestrian lighting can augment a neighborhood's environment while providing safety for sidewalk occupants

Rural/Preservation Corridor

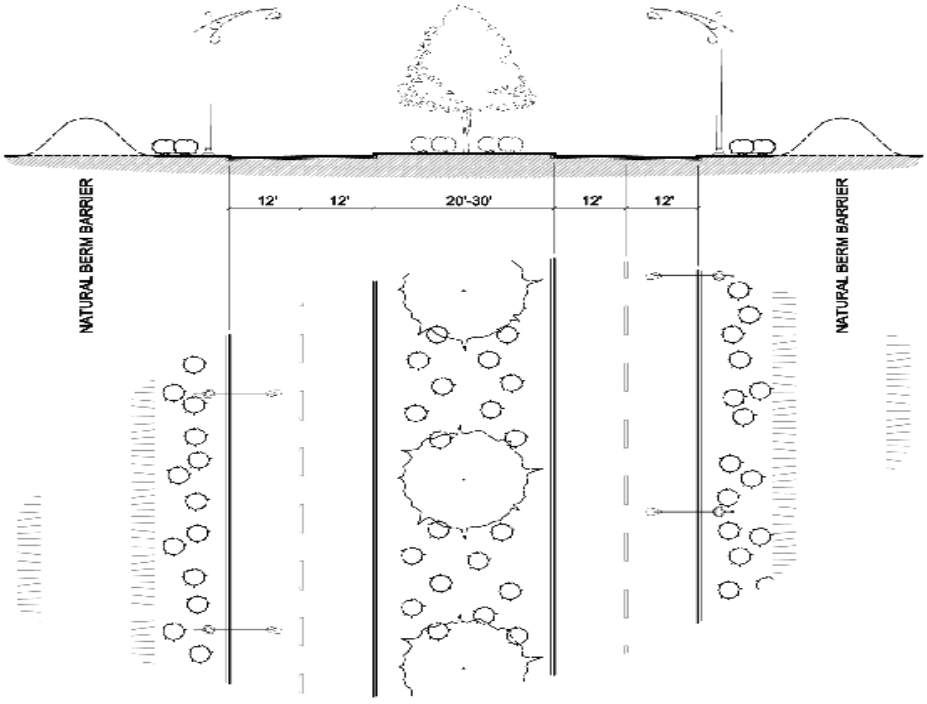
McHenry County contains a broad variety of development types. While there are several older rail suburbs, modeled after denser downtown development, there is a large portion of the County influenced by development fanning out from Chicago and Cook County. Even with that fierce development pressure, much of the County's land remains primarily in agriculture.

Throughout the public participation phase of this project, preserving the County's rural/ preservation corridors was identified as the driving force for developing a unified land use and transportation plan. As such, a rural/preservation corridor cross-section was created to help implement McHenry County's vision.

Typically, these roadways serve as travel corridors between communities with limited destination points; capacity and speed tend to be primary factors. In order to maximize a *rural/preservation corridor's* effectiveness, rural roads offer access at cross roads, major industrial or institutional centers (i.e. a manufacturing plant or hospital), and at designated points on segments with long distances between other natural breaking points.

Land uses that abut these travel roadways dictate treatment options for the road's periphery. For example, throughout McHenry County, farmland is a valuable asset and a driving force behind the character of an area. Therefore, in locations where rural roads bisect farmland, no visual barriers are necessary. However, if the roadway traverses manufacturing areas or other uses with a less appealing aesthetic, passive landscaping or natural berms may enhance a traveler's experience.

All of these design elements are of little consequence to safety issues, since limiting access eliminates much of the need for off-road visibility. Nonetheless, with minimized left-hand turn movements, a landscaped median may be useful to enhance the natural setting of an area and to provide an earthen surface that mitigates visual and environmental impacts of paved surfaces. However, it is necessary to assess each roadway network since the preservation of land on either side of the road may be as important as a green space within the right-of-way.



Rural/Preservation Corridor Cross-Section Concept

APPENDIX G: Key Speakers at RPC Meetings

- January 15, 1998 – Richard Fish, City Administrator for Marengo, was present to discuss future planning efforts and the *City of Marengo's Comprehensive Plan*.

- March 12, 1998 – Jim Kastner, Community Development Director of Woodstock, was present to discuss the *City of Woodstock's Master Plan*.

- April 9, 1998 – Jerry Sagona, City Manager of Lake in the Hills, discussed their future plans with the RPC.

- May 14, 1998 – Kevin Brusek, acting President, Village of Richmond, discussed forthcoming planning efforts with the Commission.

- June 11, 1998 - Ken Fiske, Chairman of the Bull Valley Planning Commission, presented the current comprehensive plan and planning efforts of the Village.

- July 9, 1998 – Bob Remsing, Chairman of the Prairie Grove Planning Commission, was present to share the Village's plans with the Commission.

- August 13, 1998 – Gary Barla, Chairman of the Planning Commission and Dave Dominquez, Village President, were present to discuss plans for the Village of Johnsburg.

- September 10, 1998 – Michael Friesen, Village of Lakewood Manager, presented plans to the RPC.

- September 30, 1998 – Art Osten, Village Administrator; Carl Ulrich, Building and Zoning Administrator; Mary Murren, Public Health and Safety Trustee and Robert Schaefer, Planning Commission Chairman were all present to share the planning efforts of the Village of Fox River Grove.

- October 8, 1998 – President Jack Motley of the Village of Fox River Valley Gardens shared the future vision of the Village.

- November 12, 1998 – Kerry Flynn, representing the Village of Hebron, attended the meeting to discuss future plans.

- February 11, 1999 - John Banghardt, Chairman – Riley Township Planning Commission, Jim Powers and Bob Dill of the Coral Township Planning Commission and Scott Middleton and John Schultz of Marengo Township were present to discuss their plans.

- March 11, 1999 – Dan Murphy of Seneca Township and Don Mason of Alden Township spoke with the Commission regarding the townships' future plans.

- April 8, 1999 –Jerry Paulson, a member of the Greenwood Township Planning Commission discussed the township's land use plan with the RPC.

MC HENRY COUNTY, ILLINOIS

Year 2020 Unified Plan

TOWNSHIPS

CHEMUNG	ALDEN	HEBRON	RICHMOND
DUNHAM	HARTLAND	SEECHERO	MC HENRY
MARENGO	SENECA	DORR	NUNDA
RILEY	COMLL	GRAFTON	ALGONQUIN

0 1 2 3 Miles
0 1 2 3 4 5 Kilometers
0 4000 8000 12000 16000 Feet

N

LEGEND

- Agriculture
- Agriculture\Rural
- Low Density Residential
- Medium Density Residential
- Planned Development
- CORI
- Commercial
- Industrial
- Transportation, Communication, Utilities
- Institutional
- Environmentally Sensitive Area
- Water
- Incorporated
- Conservation Area
- Preferred 2020: 2 Lane Improvement
- Preferred 2020: 4 Lane Improvement
- Preferred 2020: 6 Lane Improvement
- Preferred 2020: Upgrade to full Interchange (IL Route 47 and Interstate 90)
- Preferred 2020: New Interchange (Algonquin Road and Randall Road)

Published by: McHenry County Department of Planning and Development

This map illustrates recommended land uses as adopted by McHenry County Board on ____. In some cases, these recommended uses may be different from existing uses or zoning. Zoning information is available through the County's Planning & Development Department or the individual Municipalities.

Body ticks and internal marginal ticks refer to Illinois State Plane Coordinates (East Zone). Units are in thousands of feet.

Base map features adapted from U.S.G.S. 1:24,000 scale series. Municipal boundaries current as of December, 2005.

Original Base Map compiled through the cooperative effort of the McHenry County Geographic Information Systems Laboratory for Cartography and Spatial Analysis© 1995