

Section 4: Regional Land Use Influences

The municipalities will be primarily responsible for land use planning and regulation in the Corridor. However, municipal land use actions and decisions may be affected by other local, state and federal agencies. This section reviews how other agencies influence the Corridor through agricultural protection, facility planning areas (FPA), floodplain regulation, groundwater protection zones, parkland acquisition, and wetland regulation. This Section presents the challenges that the municipalities have in working with these other agencies in planning for the future of the Corridor.

Municipal representatives in meetings and workshops have stated that their municipalities want to protect agricultural land, floodplains, groundwater protection areas, land for parks and wetlands. However, based on the development context zones shown in **Section 3: Land Use**, it appears that much of the Corridor is planned for development. The protection of agricultural land and environmentally sensitive and natural areas can improve Corridor character, improve economic development, and minimize traffic congestion on IL 47.

Facility Planning Areas

An objective of a FPA is to set boundaries for wastewater treatment collection systems that will prevent wastewater treatment capacity from being duplicated in neighboring facilities and the overextension of sanitary sewer service beyond the facilities planning horizon. The Illinois Environmental Protection Agency (IEPA) defines and approves FPA boundaries that are supposed to allow for orderly growth over a 20-year planning horizon. FPA boundaries are determined by the IEPA in conjunction with the wastewater treatment bodies. The Chicago Metropolitan Agency for Planning (CMAP) also is involved with coordinating the FPA program in the Chicago area. The facility planning areas identify where growth should occur and, thus, proscribe where development will not occur.

Figure 4.1: Facility Planning Areas illustrates the current FPA boundaries in the Corridor. The FPA are either coterminous with the municipal planning areas (e.g., Lakewood), somewhat coterminous with the municipal planning areas (e.g., Elgin), or involve a private company that serve only part of a municipality (e.g., Wasco FPA in Campton Hills).

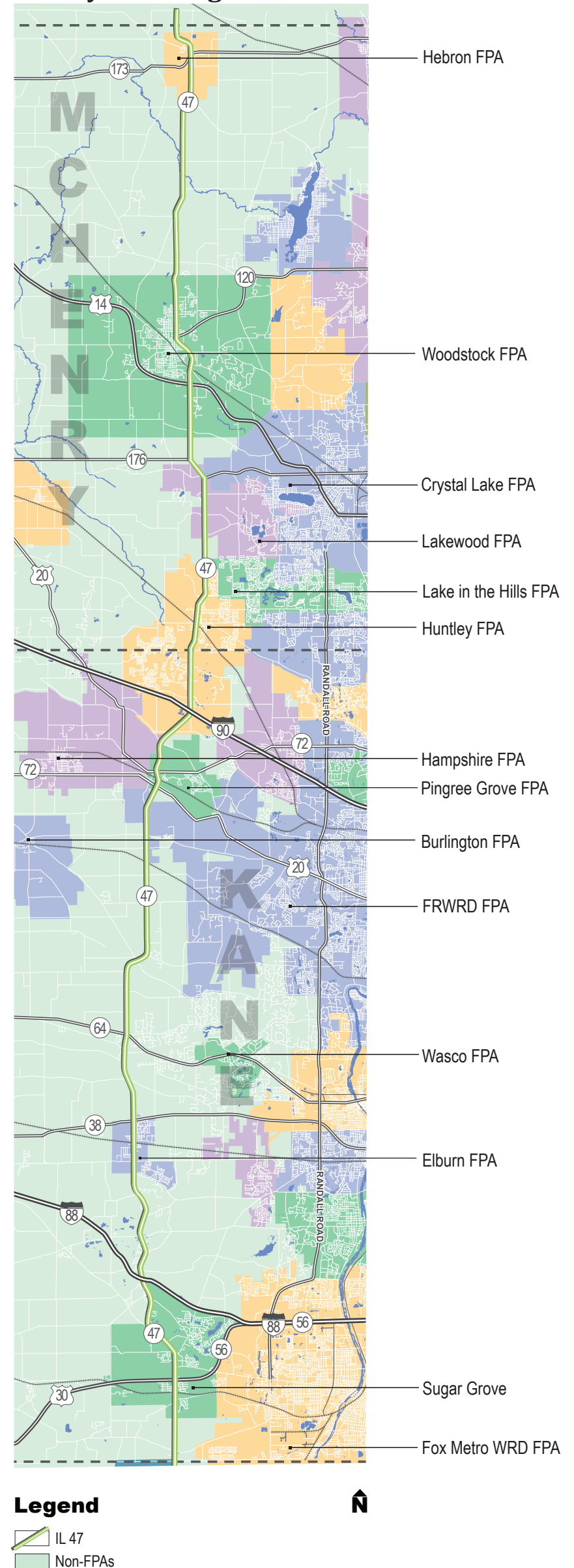
The FPA process was developed under the Clean Water Act as a means of improving water quality. The FPA approval process involves the review of water quality standards, consistency with population projections, nonpoint source pollution control, wastewater treatment alternatives analysis, intergovernmental cooperation, comprehensive planning, and agricultural preservation.

Figure 3.1: Potential Future Municipal Boundaries suggests that much of the Corridor will be developed. However, the FPA boundaries as shown in **Figure 4.1** would indicate that much of the Corridor will not be served by sanitary sewers in the 20-year planning horizon, and thus may remain undeveloped.

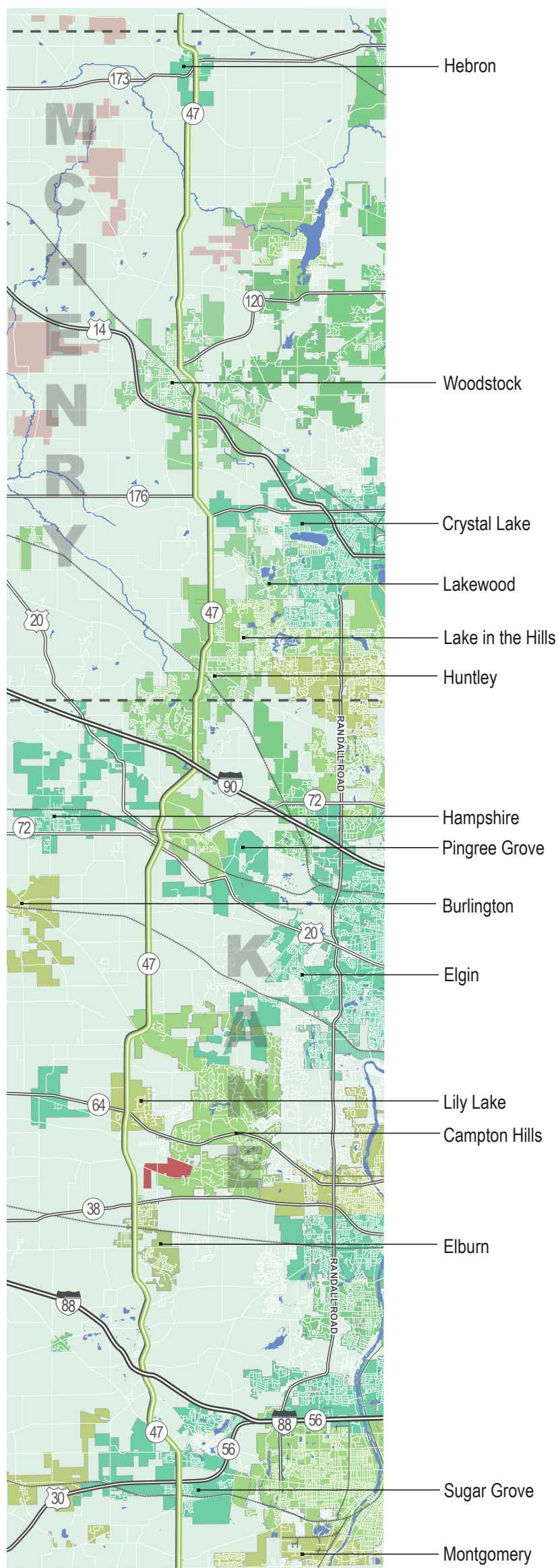
Agricultural Protection

A significant portion of the Corridor is agricultural land use. Farming has a long and rich history within McHenry and Kane Counties, and currently defines much of the character of the Corridor. Efforts have been initiated to preserve agricultural land in both Counties. Agricultural land in Kane and McHenry Counties is some of the most productive farm land in the world, provides a viable economy and a source of food close to the urban area.




**Figure 4.1:
Facility Planning Areas**



**Figure 4.2:
Agricultural Land Protection Areas**



Legend

-  IL 47
-  Unincorporated Areas
-  Agricultural Area Protection Program Land
-  Kane County Conservation Easements

Agricultural areas are addressed under the Illinois Agricultural Areas Conservation and Protection Act. The Illinois Department of Agriculture is involved in an agricultural area (ag area) protection program that protects farming operations through the following benefits:

- Protection from local laws or ordinances that would unreasonably restrict or regulate normal farming operations
- Protection from special benefit assessments unless the property owner benefits (i.e.: sewer and water assessments)
- Protection from locally initiated projects that would lead to the conversion of property from agriculture to another use
- The State of Illinois may take the existence of an ag area into account when selecting sites for a new project

As shown on **Figure 4.2: Agricultural Land Protection Areas**, there are five (5) ag areas near IL 47 totaling approximately 2,000 acres. These ag areas are mostly located in McHenry County, west of IL 47. McHenry County has nine (9) ag areas totaling 20,796 acres. One (1) ag area exists within Kane County with an acreage of 600 acres.

Kane County has a program to protect agricultural land through the purchase of conservation easements from being developed. The land near IL 47 that is protected by Kane County agricultural easements is illustrated on **Figure 4.2**. Kane County currently holds agricultural conservation easements on 28 farms totaling over 4,000 acres. Within the corridor there is one farm (270 acres) east of IL 47 and south of Lily Lake’s municipal boundaries that has an agricultural conservation easement. The Village of Lily Lake has expressed a specific interest in agricultural preservation.

Despite the fact that most municipalities claim a commitment to preserving open space and farmland adjacent to their boundaries, it is important to note that these future municipal boundaries indicate that the majority of the Corridor could be fully developed within 20 years. However, in collaboration with the Kane County 2030 Plan to preserve farmland and open space along the Corridor, at least one municipality has plans to maintain farmland within its boundaries (Lily Lake).

For some municipalities there appears to be a contrast between the desire to protect open space and agriculture and what is indicated in their comprehensive plans. During the meetings and workshops held for this study, many municipal officials expressed a desire to not only provide land uses for economic development, but they also want to protect open space. However, many have comprehensive plans that may not designate the amount of open space they envision. A challenge will be to not only identify areas of open space, but to develop tools municipalities can use to acquire and preserve open space, while providing a balance of land uses that also includes appropriate development.

Floodplains, Wetlands and Stormwater Management

Floodplains and wetlands in the Corridor are regulated by federal, state and local agencies. There are numerous regulations that affect the development of these areas. **Figure 4.3: Wetland/Floodplain Areas** illustrates the wetlands and floodplains in the Corridor. Floodplain regulations are primarily intended to prevent flood damages that can occur due to development. Wetland regulations are primarily intended to protect the environment, wildlife habitat, flood control and water quality. Wetland and floodplain management are most appropriately addressed on a watershed basis.

As shown on **Figure 4.3**, the Corridor is divided by two major watersheds. In the eastern and southern part of the Corridor surface water flows into tributaries that flow east towards the Fox River. The Fox River flows south and connects with the Illinois River at Ottawa, Illinois. Surface water in the northwestern part of the Corridor flows into tributaries that flow west

to the Kishwaukee River. The Kishwaukee River flows west and connects to the Rock River south of Rockford, Illinois.

The regulation of floodplains and floodways are federal and state mandates. The U.S. Federal Emergency Management Agency (FEMA) is the agency that is primarily responsible for requiring local agencies to adopt floodplain regulations. Floodplain areas are designated based upon analysis and mapping that is primarily undertaken by state and federal agencies. The official floodplain and floodway maps are published by FEMA. The floodplain is an area inundated by the regulatory or one hundred year flood, which is generally determined by hydrology and hydraulic modeling. The one hundred year flood has a 1% chance of occurrence in any given year. It is a statistically based designation. The floodway is the area of moving water under flood conditions, and can only be modified if flood heights are not increased in the floodplain.

The local agencies in the Corridor are required to adopt floodplain regulations as a condition of participation in the FEMA National Flood Insurance Program. This program provides federal subsidized flood insurance in municipalities that have agreed to regulate floodplain development. FEMA, the Illinois Department of Natural Resources/Office of Water Resources and local agencies are responsible for, respectively, federal and state regulations and permitting involving development in the floodplain. These other agencies also may undertake hydraulic studies that are used to prepare floodplain and floodway mapping.

The U.S. Fish and Wildlife Service, the Natural Resource Conservation Service and the Counties undertake mapping efforts on the extent and status of wetlands. The U.S. Army Corps of Engineers (USACE) and the counties have regulations regarding development in and adjacent to wetlands and the water in streams, rivers and natural lakes and ponds. USACE and the Counties have permit programs to modify, relocate or eliminate wetlands, but only with proper plant, wildlife and groundwater assessment and analysis.

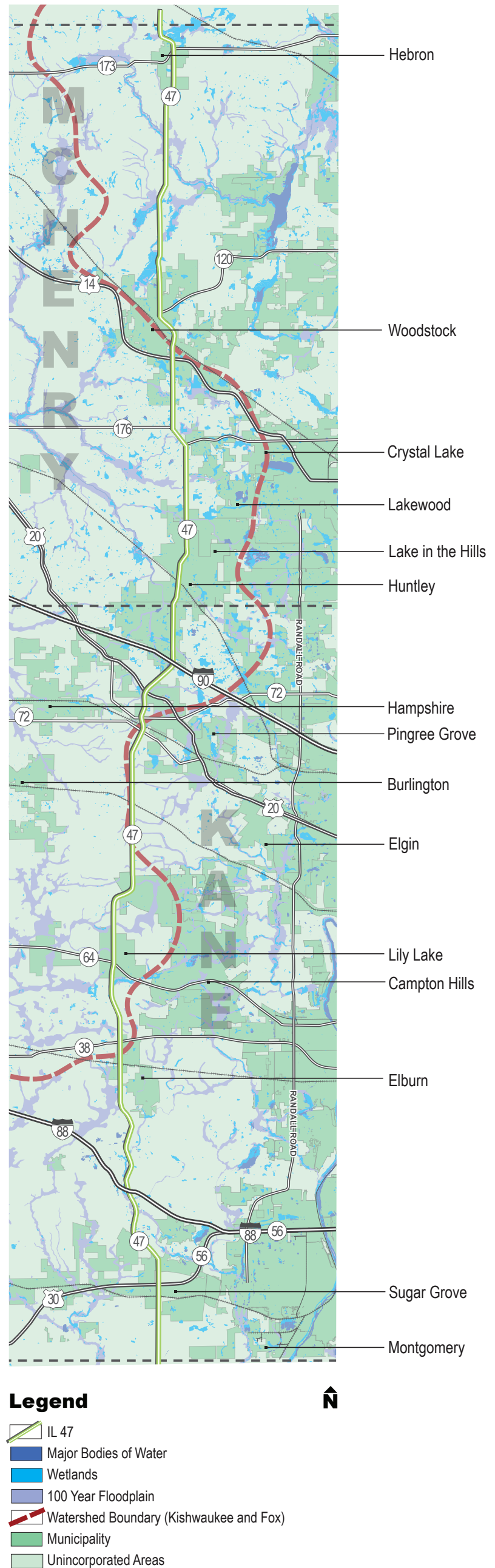
The municipalities and Counties also regulate the stormwater runoff that occurs from development in an effort to prevent downstream flooding and protect water quality. These regulations require the detention of stormwater when development occurs. The impervious surfaces that result from development can cause greater amounts and volume of stormwater and water pollutants to run off the land. Thus it needs to be controlled and cleaned before it is released downstream. Large amounts of land can be used for stormwater management. Stormwater management is often accomplished on a development by development basis. Most municipalities do not prepare comprehensive stormwater management plans. Each municipality must adopt its own stormwater management regulations. Under the counties' umbrella stormwater management regulations, there is general uniformity with regulations. However, there can be slight regulatory differences from community to community.

Floodplain, wetland and stormwater management regulations are inter-related. A primary purpose of all these regulations is to prevent flooding. The regulations are complex and overlapping due to the numerous government agencies involved in regulation. Floodplain, wetland and stormwater regulations also can be used in conjunction with other government purposes, such as efforts to protect groundwater recharge areas and encourage open space. Also to be considered are federal National Pollutant Discharge Elimination System regulations that affect the water quality of stormwater runoff. A comprehensive approach to these regulations on a watershed basis is important.

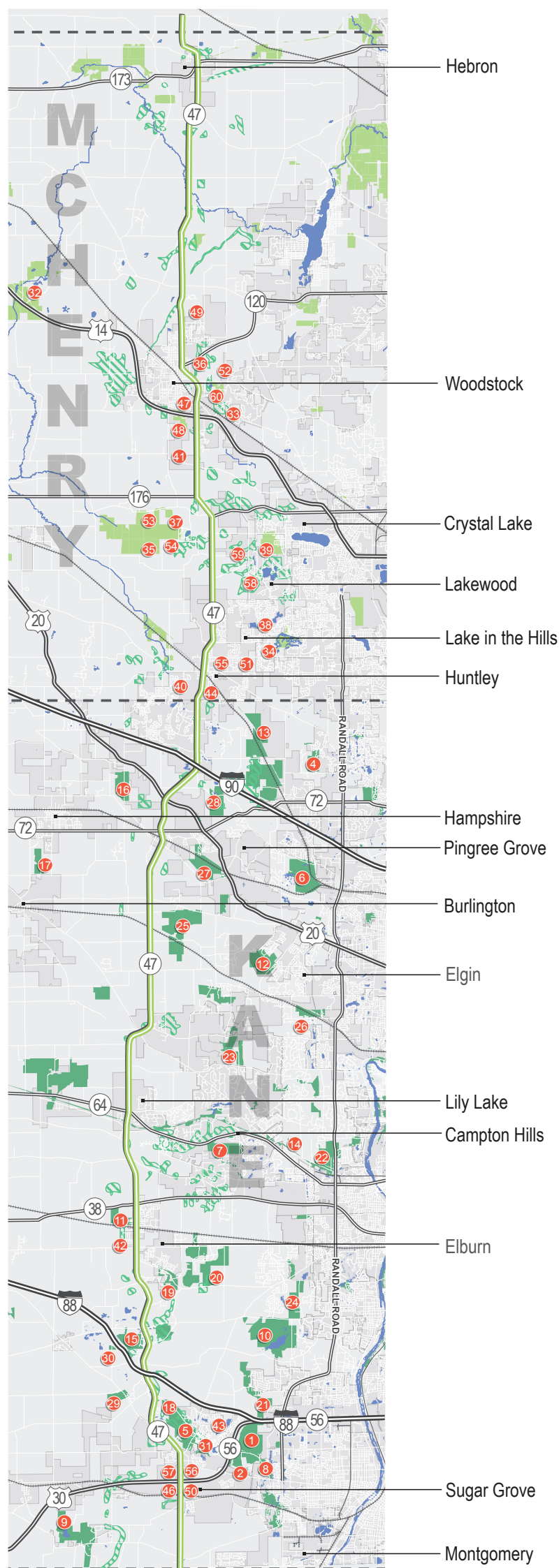
Parkland Acquisition

The existing open space within the Corridor adds significantly to its overall character. Both public and private open space defines the character of the Corridor, and is illustrated on **Figure 4.4: Open Space**. An inventory of this open space is provided in the **Appendix C – Inventory of Open**

Figure 4.3: Wetland/Floodplain Areas



**Figure 4.4:
Open Space**



Space. The two agencies that hold the largest amount of open space in the Corridor are the Forest Preserve District of Kane County and the McHenry County Conservation District.

The Forest Preserve District of Kane County owns and manages 36 preserves totaling 18,262 acres near IL 47. These land holdings consist primarily of undeveloped open space that is designed for preservation and passive recreation such as hiking. McHenry County Conservation District manages a total of 22,600 acres of open space amongst 27 conservation areas, 6 of which are located near IL47 totaling 3,162 acres.

Groundwater Protection Zones

Many of the municipalities withdraw water from unconfined aquifers that are sensitive to pollution from land use. Protecting the land surface areas overlying sensitive unconfined aquifer wells, also known as recharge areas, can minimize groundwater contamination. The State of Illinois, the Counties and municipalities are engaged in various groundwater protection programs.

The State of Illinois' *Groundwater Protection Act* was adopted in 1987 as a state-wide approach to groundwater protection. The law provides local agencies with the resources, tools, and authority to create recharge area protection policies. It also encourages partnerships between the state, regional authorities, and local entities.

In 2001, CMAP (then operating as the Northeastern Illinois Planning Commission) developed a *Strategic Plan for Water Resource Management*. Within that plan, CMAP presented an analysis of the relative estimate of surplus or shortage of groundwater supply within their six-county jurisdiction by township in the year 2020. The document identifies that there will be potential water surplus areas such as the Kishwaukee Valley area. The area that is expected to have a potential shortage of groundwater supply straddles the McHenry County and Kane County border. Several municipalities such as Huntley, Lake in the Hills, Lakewood, Crystal Lake, Hampshire, and Pingree Grove are located within this area of potential shortage.

The McHenry County *Groundwater Resources Management Plan (GRMP)*, June 2007, documented the extent of groundwater contamination and areas of probable groundwater shortages within the county. It also highlighted that water does not abide by jurisdictional boundaries. Additionally, the GRMP recommended the coordination of local governments in addressing and protecting the County's water resources, including the creation of a comprehensive groundwater protection program addressing both groundwater quantity and quality.

The plan's groundwater protection recommendations relate to the creation of a county-wide water conservation ordinance and the protection of groundwater recharge areas. Recommendations to improve regional groundwater quality center on a wellhead management program that identifies and eliminates local contamination sources impacting drinking water sources. The County's GRMP also includes zoning and land use recommendations for managing wellhead protection areas (WHPA) in the County. The plan recommends that the county apply zoning restrictions that regulate land usage within the WHPA. A county-wide zoning ordinance would only apply to the WHPA in the unincorporated areas of the county. However, it could provide a general framework for municipalities to follow.

The Plan recommends that pertinent sections of the City of Crystal Lake's zoning ordinance (for protecting both the quality and quantity of water that recharges Crystal Lake) could be used as an example for the development of a county-wide zoning ordinance. As stated within the plan, "zoning restrictions and land acquisition are not only important for protecting the groundwater in recharge areas from potentially hazardous materials and substances, but also for maintaining proper aquifer recharge from precipitation and surface drainage."

Additionally, McHenry County Water Resources recently completed the development of a comprehensive Water Resources Plan titled the "Groundwater Protection Action Plan". This plan contains Best Management Practices and Policy Recommendations for the protection of both water quantity and quality throughout McHenry County. The Groundwater Protection Action Plan can be viewed at www.mchenryh2o.com.

In an effort to prevent contamination of groundwater, the Village of Lake in the Hills adopted its *Groundwater Protection Area* ordinance in 2004. The ordinance establishes an area of focus and defines uses and activities prohibited within the applicable area. The ordinance also establishes an operating permit program for all regulated facilities located within the groundwater protection area. It places regulations on businesses storing or handling any one of 53 regulated substances. The Lake in the Hills ordinance requires continuous monitoring and inspection of containment devices and areas where hazardous chemicals are stored.

State, regional and county policies need to be more fully developed before local municipalities can take efforts to protect groundwater recharge areas. However, if development occurs too rapidly, the opportunity to protect groundwater recharge areas may be lost.

Groundwater Quantity

Kane County contracted with the ISWS and ISGS in 2002 to perform scientific investigations and created groundwater and surface water models to find adequate water supplies for the county's growing population. Lake Michigan water will most likely not be available to Kane County residents because of the cost and international agreements with Canada and a U.S. Supreme court decree limiting the water withdrawal from Lake Michigan. Therefore the county will need to find additional water from the deep aquifer, shallow aquifer, or from inland surface water supplies. However, there are limitations with each of these three water sources available to Kane County.

The Kane County Water Resources Investigations were completed by the ISWS and ISGS in September 2009. Results from these investigations show that the deep aquifer system has been over-pumped since the first deep aquifer wells were constructed in the area. The recharge area for the deep aquifer is west of Kane County in western DeKalb and Ogle Counties. Nevertheless, it is estimated that the water that enters the aquifer out west does not reach Kane County for several thousand years. Therefore pumping levels in deep aquifer wells have steadily declined and the upper portions of the aquifer have been dewatered in the eastern portions of Kane County and in counties to the east. Although there are substantial quantities of water available from the deep aquifer in the short term or for emergencies, the deep aquifer is not a sustainable source of water for the long term in the northeastern Illinois region. Within the last 30 years many communities discontinued pumping from the deep aquifer closer to Lake Michigan in order to begin using lake water.

The ISGS delivered their final maps of Major Quaternary (Shallow) Aquifers and Aquifer Sensitivity to Contamination to Kane County in 2007. In the IL 47 corridor area the maps show two distinctive shallow groundwater scenarios due primarily to the selective distribution of glacial deposits of sands and gravels. In Kane County there are sufficient shallow aquifers in the northerly portion of the Corridor from the McHenry County Line south to about Big Timber Road for development along the Corridor. Also in the southern end of the Corridor from the Kane County line north to about IL 38 on the north side of Elburn, there appears to be sufficient supplies of shallow aquifer water for development in the corridor. However, in between these two areas, the surficial glacial till materials in the Marengo Moraine, which runs beneath and parallel to the corridor from Lily Lake north into McHenry County, are comprised of virtually impermeable Tiskilwa clay till, which precludes the development of high capacity shallow groundwater wells in this portion of the corridor. In this moraine, sand and gravel materials are either not present between the surface

and bedrock, or the aquifers are confined and do not receive sufficient recharge from the surface. Therefore, water for the corridor development in these areas will need to be from the deep aquifer, which is not sustainable in the long term, or imported from elsewhere.

The Fox River already provides drinking water to Kane County's two largest municipalities, Aurora and Elgin. Water from the Fox River, like shallow aquifer water, is generally renewable because of the runoff from 36-inches of average annual rainfall in the region. However, in drought times, this will not always be the case, and a certain amount of flow in the Fox River must be maintained for dilution ratios from existing waste water treatment facilities that discharge their effluent to the Fox River. Nevertheless, where Fox River water may be available in the IL 47 Corridor, it is generally considered to be sustainable if additional water supply planning moves forward in the region.

The Northeastern Illinois Regional Water Supply/Demand Plan was approved on January 26, 2010. This Plan is the result of a three year planning effort undertaken by the Northeastern Illinois Regional Water Supply Planning Group (RWSPG) facilitated by the Chicago Metropolitan Agency for Planning (CMAP). The eleven-county RWSPG was formed in 2006 as one of the two pilot water supply planning processes undertaken in response to the January 2006 Governor's Executive Order 2006-1 calling for regional and statewide water supply planning. The plan does not call for new legislation and relies on voluntary intergovernmental cooperation. Subsequent to the adoption of the regional plan, efforts are underway to form a sub-group by the Councils of Government (COG's) in the northwesterly five counties of the eleven-county northeastern Illinois region, which are dependent on groundwater or inland surface water for drinking water supply. Kane and McHenry are two of the counties in the proposed sub-group, and development in the corridor will be influenced by the future water supply planning done by the northwesterly COG's regional subgroup as well as the eleven-county RWSPG.

Planning Challenges and Tools

The previous discussion identified regional land use influences that will affect growth in the Corridor. The challenges associated with these regional land influences are presented below. Tools to address these planning challenges are listed below and detail on the tools is found in the **Toolbox for IL 47**.

Planning Challenge #8:

Municipal comprehensive plans indicate that the Corridor will be highly developed in the next 20 years. In contrast, the wastewater treatment facility planning areas suggest that much of the Corridor will not be served by sanitary sewer within the next 20 years. Municipal comprehensive plans should recognize wastewater treatment facility planning areas and the limitations on extending sanitary sewers outside the facility planning area.

Tool:

- Comprehensive Plan Update

Planning Challenge #9:

Many municipalities expressed a desire to protect open space and natural areas. Agricultural preservation, in addition to providing open space, can provide economic benefits for the Corridor. Agricultural preservation requires a coordinated effort on the part of county, regional and state government. State, regional and county policies need to be coordinated and more fully developed in regard to agricultural preservations. Prime agricultural areas that are desired for protection need to be identified.

Tools:

- Agricultural Preservation
- Agricultural Zoning
- Conservation Easements
- Tax Assessment Differentials
- Transfer of Development Rights

Planning Challenge #10:

Local, regional, state and federal agencies have developed extensive rules and regulations in regard to protecting floodplains and wetlands and storm water management. Still, flooding problems persist, especially in some areas that were developed prior to the adoption of these regulations. In addition, surface water quality can become a problem as development occurs. The coordination of floodplain, stormwater and wetland management along with stream water quality programs and natural areas protection should be further developed on a watershed basis.

Tools:

- Best Management Practices
- Support Regional Planning Efforts

Planning Challenge #11:

The forest preserve districts' primary purpose is to protect natural areas. The acquisition of land can sometimes interfere or conflict with planning efforts of municipalities. Open space acquisition and protection efforts should be coordinated with the municipalities and other regional land use protection efforts.

Tool:

- Support Regional Planning

Planning Challenge #12:

Lack of groundwater supply has the potential to cause shortages in water supply. For instance, the Huntley Regional Center has been identified as an area with potential future groundwater shortages. State, regional and county policies need to be coordinated and more fully developed in regard to protecting groundwater recharge areas. In addition, greater efforts need to be undertaken to determine the location of recharge areas that need protection.

Tools:

- Support Regional Planning Efforts
- Groundwater Protection Ordinance