

MOVING WILL COUNTY

Land Use Strategy



September 2021



Preface

The Land Use Strategy for the Moving Will County project was initiated in September 2019 with the goal to help the County and local municipalities develop a common strategy for locating new industrial and TDL uses, primarily in unincorporated areas in western Will County. At the start of the project, a major part of the Study Area, located to the east of IL 53 and north of Hoff Road, was unincorporated. County and local future land use plans for this area were generally over ten years old and there was a need for a cohesive approach to guide the future land uses for this area.

In December 2020, significant acreage in this area was incorporated into the City of Joliet and rezoned for industrial uses. As such, the Zoning Ordinance for the City of Joliet now regulates the land use and development of a significant part of this area. However, these incorporated parcels currently are not directly served by a truck route as recommended by the Moving Will County Truck Routing and Community Plan and Implementation Strategy, and as such, the Land Use strategy and criteria cannot be directly applied to these parcels today.

Since this major inconsistency cannot be resolved within the scope and timeline of this project, the Land Use Strategy is presented as a companion document to the Truck Routing and Community Plan and Implementation Strategy. While the Land Use Strategy does not require formal adoption by the County and local municipalities, the extensive stakeholder outreach process and the scenario development tools can continue to be a guide for communities for resolving future challenges collaboratively.

The two most significant contributions of the Land Use Strategy, as showcased in this document, are:

- Creating consensus on the fundamental approach that the location of new Industrial and TDL Land Uses should be tied to designated truck routes.
- Creating consensus on major preservation areas and the criteria for future preservation.

While specific criteria might evolve with changing market trends and community preferences, these two major consensus elements can continue to provide a cohesive foundation for land use decisions in this part of Will County.

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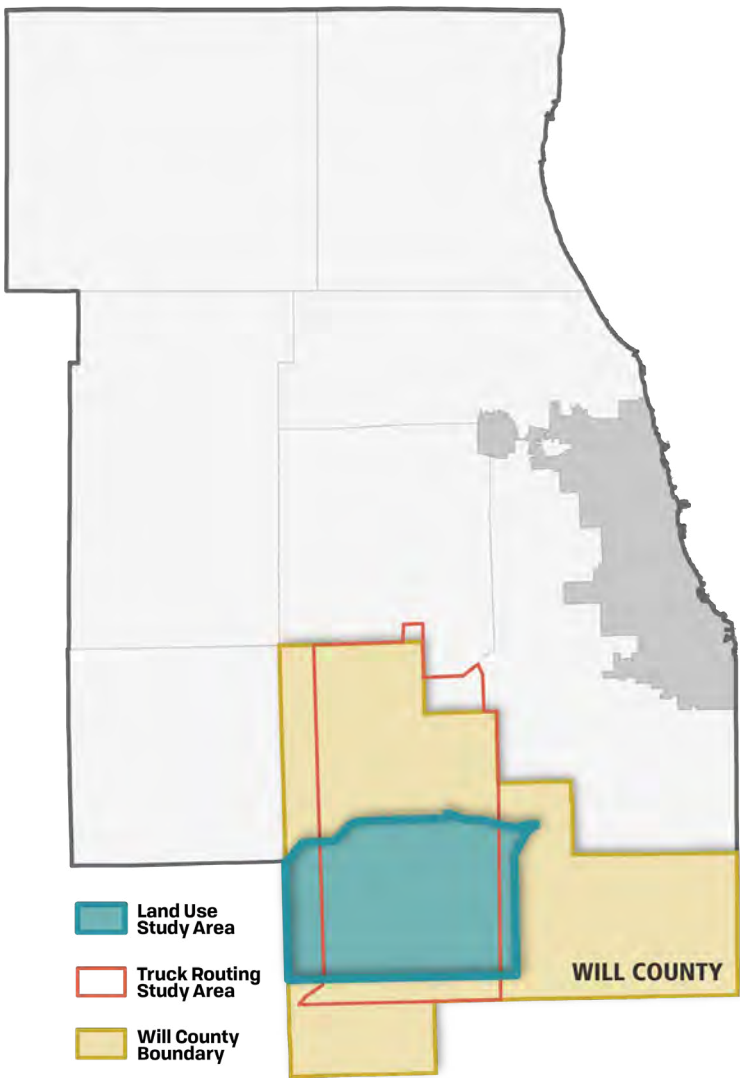
Introduction

Overview of Document

The Moving Will County project explores complex and interrelated truck routing and land use issues in western Will County, a region that is managing rapid development in industrial and logistics facilities. This document, the Land Use Strategy, focuses on land use issues surrounding Transportation, Distribution and Logistics (TDL) and industrial areas as well as areas to protect. It serves as a companion to the Truck Routing and Communities Plan and Implementation Strategy.

The Land Use Strategy is the result of extensive existing conditions research, literature review, outreach with diverse industry and agency stakeholders, and public engagement conducted between October 2019 and February 2021.

Figure 1. Study Area Boundaries for the Truck Routing & Land Use Strategies



The Land Use Strategy:

- Provides a framework that can inform future County and local municipal land use plans.
- Introduces a cohesive approach for directing Industrial and TDL uses in unincorporated areas.
- Establishes a system of criteria and exceptions for locating these uses.
- Establishes a direct connection between Truck Route designations and Industrial and TDL uses.
- Identifies major preservation areas to protect.
- Provides criteria for selecting areas for future preservation.
- Recommends best practices to mitigate environmental and community impacts related to Industrial and TDL uses.
- Provides a checklist to determine if a parcel is suitable for Industrial and TDL uses.
- Provides a checklist to determine if a parcel is suitable for preservation as open space.

Overview of the Moving Will County Project

The Chicago Metropolitan Agency for Planning (CMAP) ON TO 2050 plan for Northeastern Illinois recommends strategies to maintain the region's status as North America's freight hub, while balancing community concerns and the economic benefits of freight. Western Will County is part of one of the six freight land use clusters that CMAP has identified in the region. This rapidly growing cluster has a strong specialization in modern distribution facilities. Recent intermodal and distribution facility growth, as well as other economic development, has brought both benefits and challenges to the area.

To address these challenges and build on recommendations of the Will County Community Friendly Freight Mobility Plan, CMAP and Will County took on the Will County Freight Studies project (Moving Will County), which brought together a Truck Routing and Communities Study and a Land Use Strategy. These studies were combined due to their overlap in geography, data collection, outreach needs, and the interdependency of transportation and development objectives. The joint goal of the studies is to achieve balance between the truck traffic and routing, existing freight land use clusters and new development, agricultural business, natural and cultural resources, and residential neighborhoods and other sensitive areas. Both studies shared resources, including existing conditions and community engagement of stakeholders, to develop appropriate and supportive infrastructure and policies to best guide development and direct truck traffic. The goal for these collaborative solutions is to support economic development and complement communities, agriculture, cultural resources, and natural areas that are critical for Will County to be competitive and resilient.

The Moving Will County project is a planning-level study that includes a large, regional area: both study boundaries together include over 311,000 acres (486 square miles), 19 municipalities, and over 2,500 miles of roadway. For this reason, throughout the project process, the Steering Committee has played a critical role in getting the word out and sharing public involvement opportunities with their community members. They have been an important resource for this regional community engagement effort, as both the Land Use Strategy and Truck Routing and Communities study areas are large. The Steering Committee consists of leaders from local municipalities and agencies, as well as associations and nonprofits representing business, environmental and agricultural interests. They reviewed draft deliverables at key milestones in the timeline and provided feedback that was incorporated into revisions. The goal for the future is that they will be partners in implementing the Moving Will County project. Steering Committee members include:

- Will County Land Use Department
- Will County DOT
- IDOT District 1
- Illinois Soybean Association
- Illinois Trucking Association
- Midewin National Tallgrass Prairie
- Mid-West Truckers
- Openlands
- Will County Board
- Will County Center for Economic Development
- Will County Governmental League
- Forest Preserve District of Will County
- Village of Elwood
- Village of Manhattan
- City of Joliet
- Village of Channahon
- Village of Frankfort
- Village of Symerton
- Village of Minooka
- Village of Mokena
- Village of New Lenox
- Village of Rockdale
- City of Crest Hill
- City of Lockport
- Village of Plainfield
- City of Naperville
- City of Wilmington
- Village of Bolingbrook
- Village of Shorewood
- Village of Woodridge
- Village of Homer Glen
- Village of Romeoville

More information on the community engagement conducted throughout the process and project timeline is in **Appendix E: Moving Will County Engagement and Planning Process Overview and Timeline**.

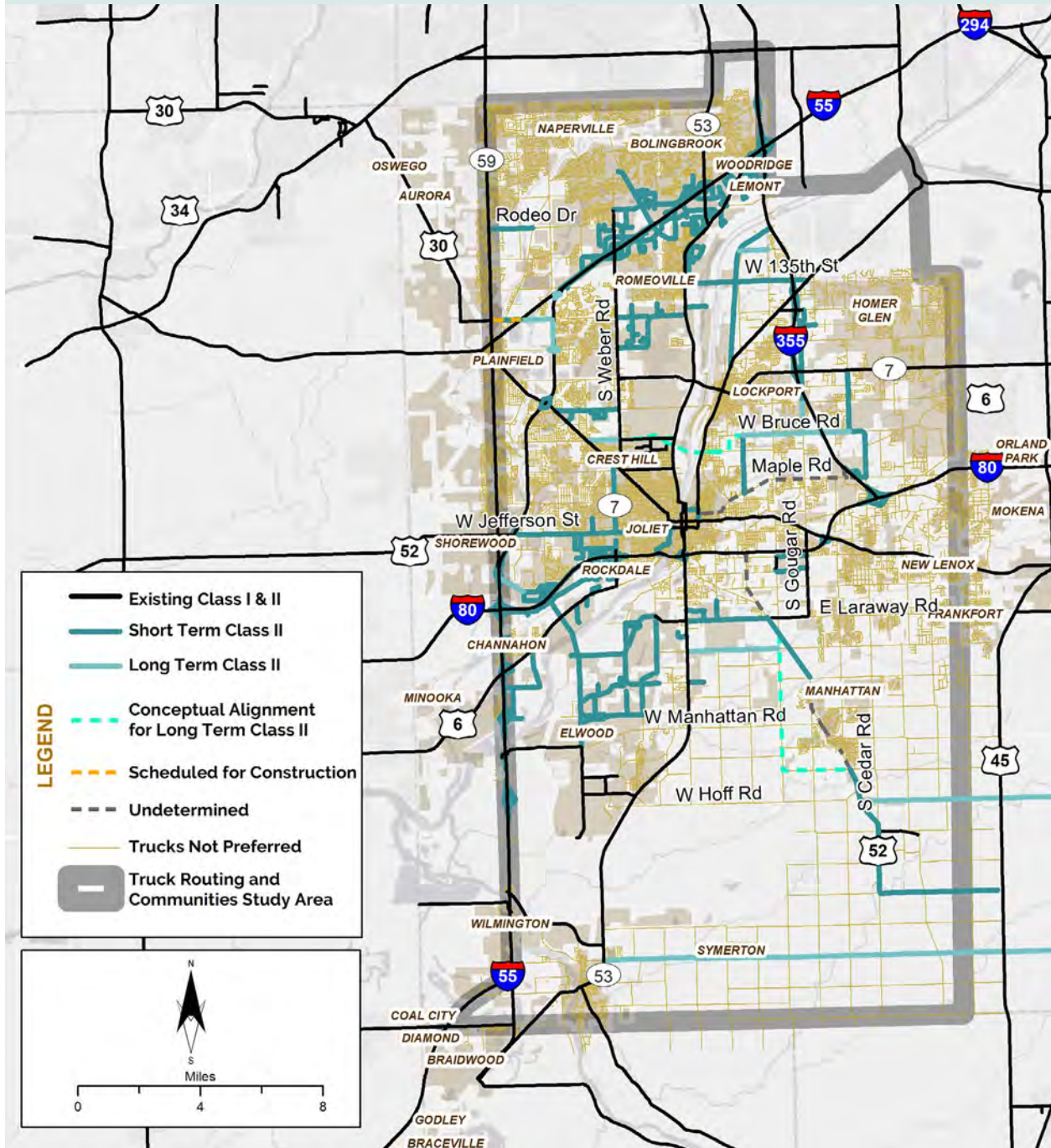
Overview of Recommended Truck Route Network

Truck routing is a key tool available to local agencies to direct the movement of truck traffic through their communities. State law in Illinois generally requires larger trucks to travel along designated truck routes, unless making local pickups or deliveries, or accessing food or rest for the driver or fuel for the vehicle. Agencies may also restrict truck traffic from use of their facilities.

Figure 2 presents an overview of the proposed and existing designated truck routes in the Truck Routing and Communities study area, as well as corridors where trucks are not preferred and where the recommendation is undetermined because further study is needed. The Truck Routing and Communities study area stretches further north past the Land Use Strategy study area to help identify greater north-south connectivity to interstates and freight generators. The Land Use Strategy study area is concentrated further to the south in an area of rapid growth and resultant environmental conflicts with truck routing and transportation, distribution, and logistics (TDL) sites. The Truck Routing and Communities Study companion document to this Land Use Strategy provides more details on the various types of routes, processes for determining routes, and implementation. For purposes of this document, two items on the map are of note:

- Existing Class I and II truck routes: These facilities include a mixture of highways and arterial roadways that are currently designated by IDOT, Illinois Tollway, or local municipalities as designated truck routes. It is expected and recommended that the designations of these routes are maintained.
- Short-Term Class II: These facilities are currently undesignated or restricted to trucks and are recommended to be designated as Class II truck routes within five years. These facilities were primarily identified based on existing land use patterns and connectivity to existing Class I and Class II designated truck routes. The goal of this proposed network is to balance access to truck-intensive land uses and mobility for large trucks across the study area. As a result, this category includes both large arterial roadways and local roadways within industrial districts that provide connections to intermodal facilities. The majority of the proposed Class II designated truck routes fall into this category.

Figure 2. Proposed Designated Truck Routes



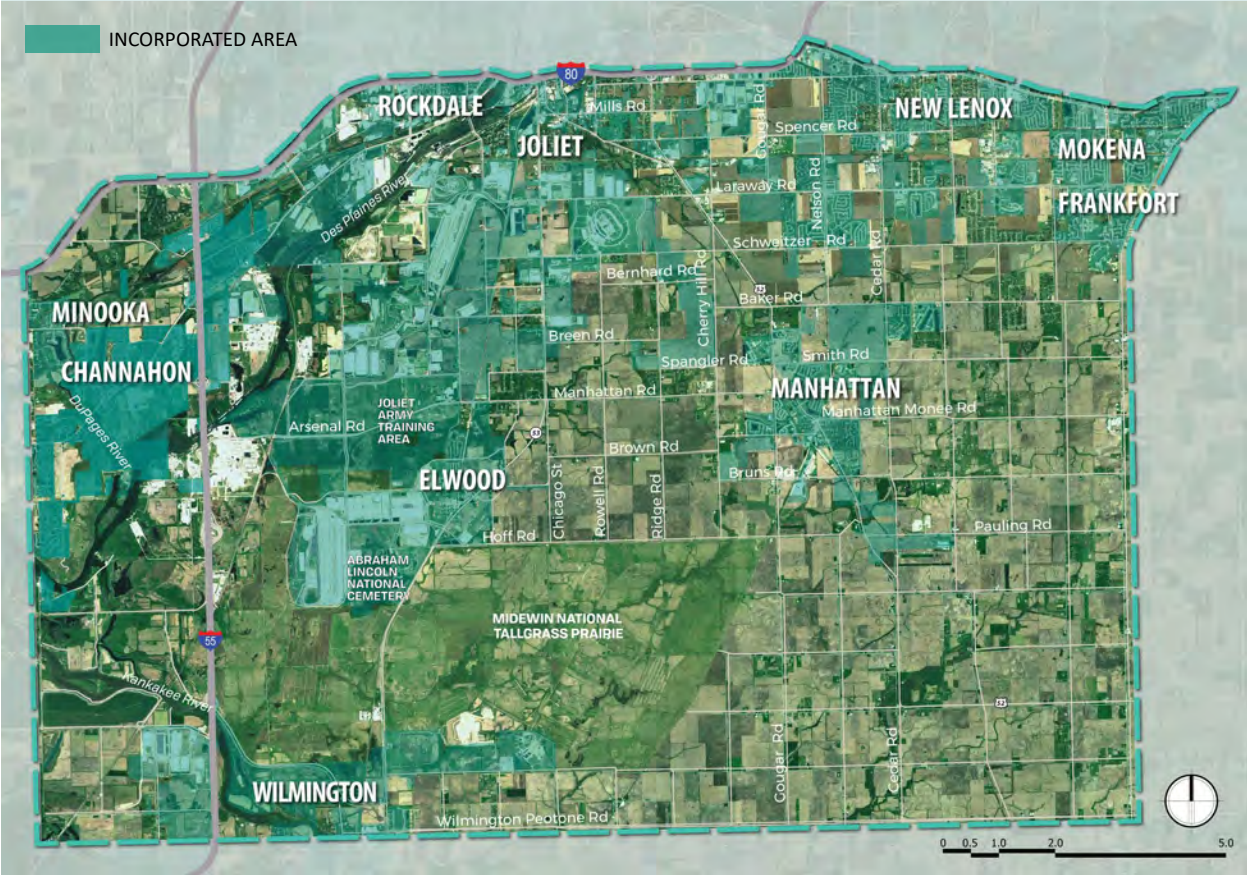
The category “Conceptual Alignment for Long Term Class II” includes major new arterials or corridors that are under consideration for development, and could have a larger, regional impact on truck travel, but additional study is required to confirm alignment and design. More details on truck routes and recommendations can be found in the Moving Will County companion document: Truck Routing and Communities Plan and Implementation Strategy.

Introduction to the Land Use Strategy

The Study Area for the Land Use Strategy includes over 154,000 acres (242 square miles) of land located in the western part of Will County. The majority of the land is currently unincorporated (approx. 69% or 167 square miles). The incorporated land, (approx. 31% or 75 square miles), includes the following ten municipalities today:

- 1. City of Joliet
- 2. Village of Elwood
- 3. Village of Manhattan
- 4. Village of New Lenox
- 5. Village of Mokena
- 6. Village of Frankfort
- 7. Village of Wilmington
- 8. Village of Channahon
- 9. Village of Minooka
- 10. Village of Rockdale

Figure 3. Land Use Study Area



Data sources: CMAP Land Use, 2015; Will County GIS, 2019.

PLEASE NOTE: This document contains maps and data that were used and distributed during the engagement process with the Steering Committee and the community. To maintain the integrity of the public process, changes to physical conditions, municipal boundaries, annexations, land uses, etc. that may have occurred after the engagement process are not reflected in this document.

The Need for a Land Use Strategy that is Coordinated with the Truck Routing Network

Will County has experienced tremendous growth in Industrial and TDL facilities in recent years, and truck traffic has expanded substantially with this development. This rapidly growing cluster has a strong specialization in modern distribution facilities and is home to a couple large and growing intermodal centers.

According to the market analysis conducted for the Land Use Strategy, industrial inventory increased steadily year-on-year between 2010 to 2019 and approached 200 million square feet countywide in these ten years. The Land Use Study Area comprised over 50 million square feet, or almost 30%, of that inventory, and has nearly doubled in that ten year time frame. A snapshot of the Industrial Market Trends is shown in **Figure 4**. The full market analysis is available in **Appendix B**.

While improvements have been made and more are planned, the roadway network has not kept pace with the rapid pace of development. High volumes of truck traffic have led to safety and congestion concerns at many locations throughout the County, particularly in sensitive areas such as historic downtown districts, residential neighborhoods, and critical environmental and agricultural resources. These locations were never planned to accommodate high volumes of truck traffic, leading to a substantial impact on quality of life for local residents and businesses.

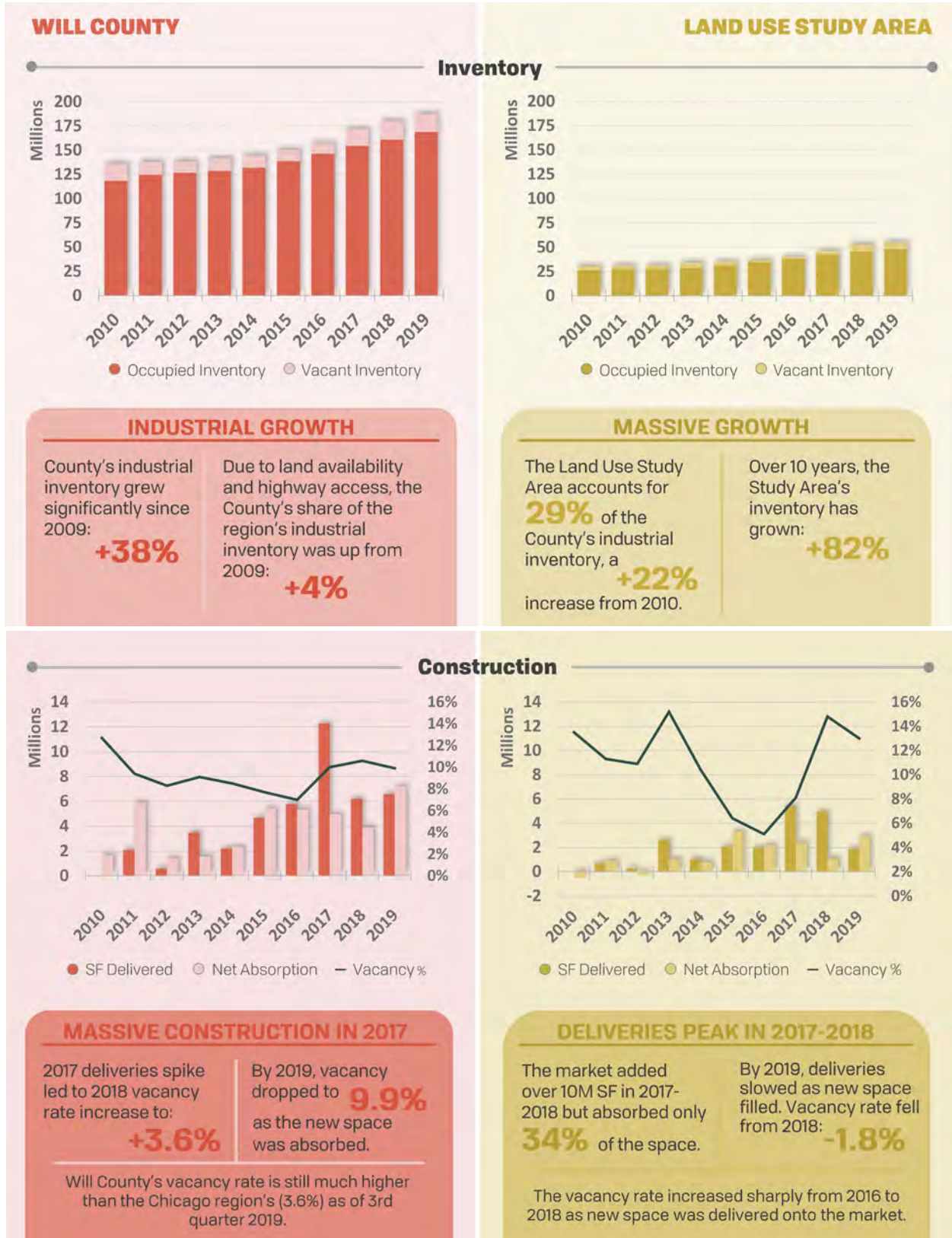
Western Will County is also home to significant regional natural and cultural assets. Midewin National Tallgrass Prairie, Abraham Lincoln National Cemetery, Des Plaines Conservation Area, Jackson Creek, the Kankakee River, and other important natural areas are regional amenities that could be negatively affected by new development and traffic.

Building on Will County Community Friendly Freight Mobility Plan Recommendations

The Will County Community Friendly Freight Mobility Plan recommended coordinating transportation and land use planning. In addition to the need for better routing of truck traffic, it also underscored the need for a coordinated land use approach that helps the County and municipalities reach consensus on where to prioritize the future development of Industrial and TDL land uses. Available infrastructure was identified as one of the key factors in focusing future development and avoiding negative impacts.

Stakeholders from both the public and private sector identified a need to coordinate transportation and land use planning to prevent or mitigate conflicts between freight traffic, workers, and residents. As identified in the plan, there is a lack of a continuous system of designated truck routes in the region. As a result, many truck drivers are unsure where they are allowed to travel, and the few major corridors that are officially designated as truck routes suffer from poor performance and asset condition. By developing a coordinated truck-route system, as well as an investment plan to improve these routes to better accommodate trucks, these issues can be minimized. For this reason, the Truck Routing Network that was created as a part of the Truck Routing and Communities Plan and Implementation Strategy was one of the major building blocks of this Land Use Strategy.

Figure 4: Snapshot of Industrial Market Trends (2010-2019)



Data source: CoStar

Application of the Moving Will County Land Use Strategy

The Land Use Strategy can provide guidance to both the County and municipalities within the study area as they consider areas for new development and update their land use and comprehensive plans. The strategy provides a flexible framework that can help them respond to changing conditions in the market, expansion of the truck network, if truck routes are changed, or if new infrastructure is implemented. This strategy can also be applied to the rest of Will County and to the larger region.

It should be noted that in cases where a new truck route is recommended in the companion document (the Moving Will County: Truck Routing and Communities Plan), further study would be necessary, which could in turn change the approach to the Land Use Strategy. Therefore, it is important for agencies and municipalities to continue sharing information and coordinating as they implement the truck route network and pursue future TDL and industrial developments. The Moving Will County studies provide guidance for prioritizing where trucks should travel and Industrial and TDL uses could be located in the future to minimize impacts. However, the project does not preclude roads from becoming truck routes or land from being developed for Industrial or TDL uses as conditions change in the future. For all the specific recommendations, further study would be needed by the affected jurisdictions.

The purpose for both of these studies is to provide a framework that communities can build on, to target further study and investments in terms of land use and truck routing issues within their municipality. The objective of this regional collaborative effort is to reach consensus among all the local agencies in the study area, so that everyone is working towards the same goals and considering regional impacts in future developments.

PLEASE NOTE: The Land Use Strategy aims to provide a user-friendly tool that can assist the County and local municipalities to determine where future Industrial and TDL uses might be suitable, primarily in unincorporated areas. **Local municipal policies on incorporation, annexation, and zoning are not impacted by the strategy.**

Guiding Principles of the Land Use Strategy

Development of the Moving Will County Land Use Strategy offered an opportunity for Will County, municipalities, and community stakeholders to find a cohesive approach to address potential impacts of Industrial and TDL uses. They identified the following as major areas of impact:

- Community quality of life
- Natural resources and preservation areas
- Historic and cultural landmarks, and archaeological assets
- Farmland, historically significant farm structures, and generational farms
- Development potential for other land uses such as residential, commercial, institutional, etc.
- Tourism potential around Route 66 and other major destinations
- Trails and bike corridors
- Long term costs for extension and maintenance of public infrastructure

Guiding principles for the Land Use Strategy were developed to address these impacts around three aspirational and unifying themes: **Prosper, Nurture, and Balance.**

Prosper

- **Pursue Prosperity for All** (County, townships, municipalities and neighborhoods)
- **Prosper in Diverse Economic Opportunities** (freight-related industry, manufacturing, agriculture, tourism, recreation, commerce & housing)



Nurture

- **Nurture Nature** (natural resources, open spaces, wildlife habitats, water, pollution, etc.)
- **Nurture Community** (quality of life, mitigating impacts of truck traffic, identity, history, etc.)
- **Nurture Connectivity** (freight, trails, transit, walkability, mobility, etc.)



Balance

- **Balance Growth** (strategies that balance needs of a prosperous economy and the transportation and logistics industry with nurturing natural and community resources)
- **Balance and Unify Policies** (the same rules are applied consistently between the County and local municipalities for development features like impervious coverage, landscaping, bufferyards, parking, etc.)
- **Balance Capacity** (policies and guidance that ensures potential new developments are safe, sustainable, and accountable for their impacts on public infrastructure and the critical water supply issues in the region)



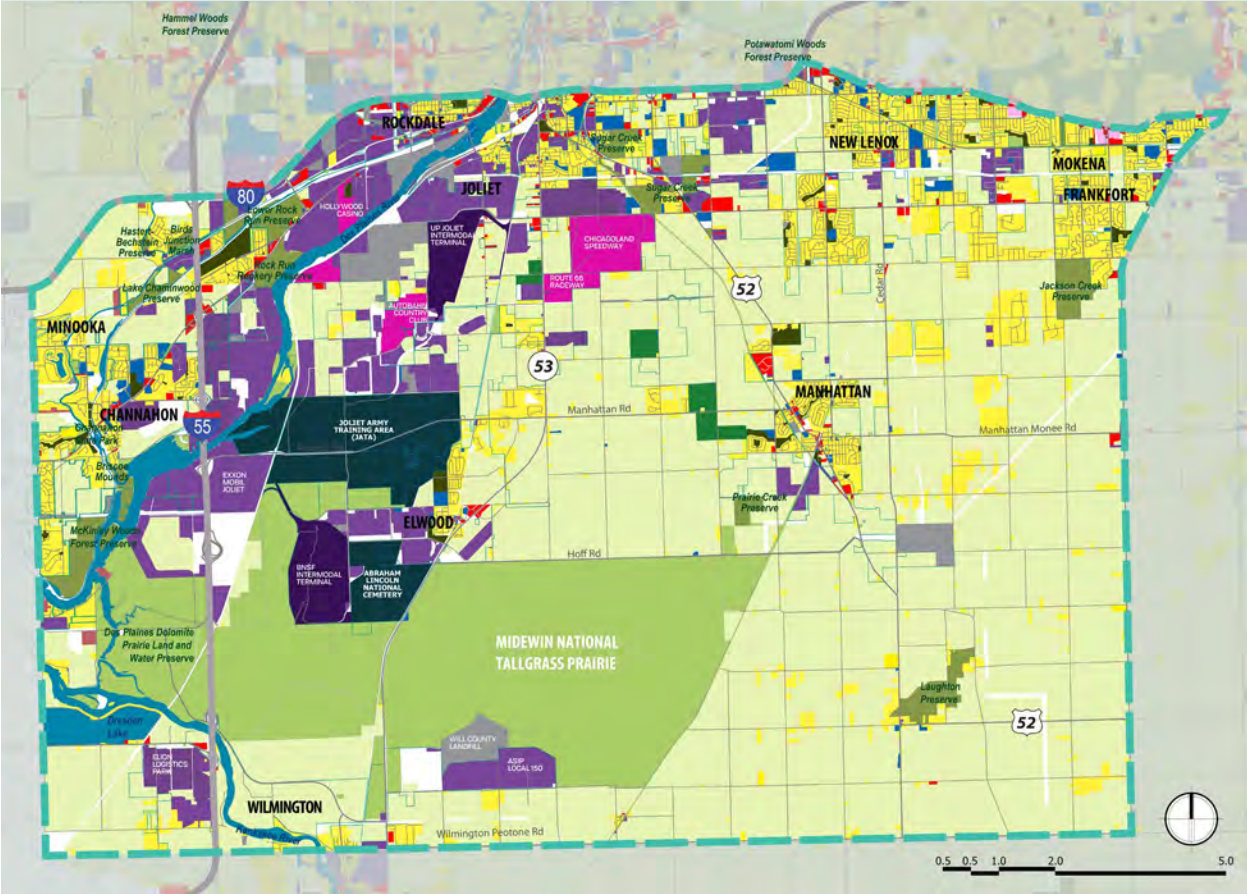
The Land Use Strategy also reflects the larger principles laid out in the ON TO 2050 Plan by CMAP adopted in 2018. Western Will County is part of one of the six freight land use clusters that CMAP has identified in the region. The ON TO 2050 Plan recommends strategies to maintain the region's status as North America's freight hub while balancing community concerns and the economic benefits of freight.















Existing Land Use Context

Agriculture is the predominant land use in the Study Area today. Residential land uses are evenly split between those located in incorporated areas versus in unincorporated areas. Retail and commercial uses are primarily small local businesses that are located along major arterials in incorporated areas. The area is home to major sports and tourism destinations, and is rich in natural resources. Industrial uses are primarily concentrated near existing intermodal facilities in Elwood and Joliet, and along I-80 and I-55.

Appendix A Existing Conditions Report provides an extensive summary of existing land uses, issues and opportunities in the Study Area. A brief summary of major land uses is provided next.

Figure 5. Existing Land Use Map



 SINGLE FAMILY RESIDENTIAL	 REGIONAL RETAIL	 UTILITY	 FOREST PRESERVE DISTRICT OF WILL COUNTY
 MULTIFAMILY RESIDENTIAL	 CIVIC / INSTITUTIONAL	 NURSERY	 LOCAL PARKS
 GENERAL COMMERCIAL	 INTERMODAL FACILITY	 MAJOR FEDERAL USE	 AGRICULTURAL
 ENTERTAINMENT HOTEL	 INDUSTRIAL USES	 FEDERAL, STATE AND IDNR LAND	 VACANT

Data sources: CMAP Land Use, 2015; Satellite Imagery, 2017; FPDWC GIS, 2019; Will County GIS, 2019.

Agricultural Uses

The majority of the Study Area currently consists of agricultural uses that are primarily located on unincorporated land. According to the US Department of Agriculture (USDA), most of the farmlands have prime soils, which are soils that offer the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops. Several generational farms and historic farmsteads identified by the 2009 Rural Historic Structure Survey by the County are also located here.

Agricultural	Sq. Mi.	% Total
Municipality	9.20	7.4%
Unincorporated	114.48	92.6%
Total (Land Use Study Area)	123.68	

Residential Uses

Existing residential uses are predominantly owner-occupied single-family detached dwellings that are generally over 20 years old. Community feedback suggests that there is a need for more affordable workforce housing, senior housing, multifamily, and rental options in the area.

Residential	Sq. Mi.	% Total
Municipality	9.14	47.8%
Unincorporated	9.99	52.2%
Total (Land Use Study Area)	19.13	

Housing Tenure & Age:

- From 2010 to 2019, housing tenure in the Study Area shifted slightly further toward owner occupancy (86.9% in 2010 to 87.6% in 2019)
- Only 3% of housing units were built in 2010 or later
- 47.8% were built in the 1990s and 2000s
- The oldest units, built before 1950, make up only 8.8% of the housing stock

Retail & Office Uses

Existing retail uses predominantly consist of strip retail and small neighborhood retail centers. Regional retail centers are primarily along I-80 in the Village of New Lenox at the northern edge of the Study Area. There are minimal office developments in the area today.

Commercial	Sq. Mi.	% Total
Municipality	4.07	78.3%
Unincorporated	1.12	21.7%
Total (Land Use Study Area)	5.19	

Major truck stop related retail uses and travel plazas are concentrated at IL53 and Laraway Road, I-55 and Lorenzo Road, and I-55 and Eames Street (US 6).

Civic & Institutional

Two High Schools serve the Study Area: Joliet Central High School (in Downtown Joliet, outside the Study Area) and Lincoln Way West High School in New Lenox. There are 14 public Elementary and Middle Schools and two private Elementary Schools. Religious, medical, government, and other educational uses are primarily located within incorporated areas.

Civic/Institutional	Sq. Mi.	% Total
Municipality	4.74	64.3%
Unincorporated	2.63	35.7%
Total (Land Use Study Area)	7.37	

Sports, Entertainment & Tourism

Major tourism destinations include Historic Route 66 (IL 53), Midewin National Tallgrass Prairie, Abraham Lincoln National Cemetery, Chicagoland Speedway, Route 66 Raceway, Autobahn County Club, and Hollywood Casino and Hotel. The 2014 Corridor Plan for Route 53 (prepared collaboratively by Will County, local municipalities, and CMAP) documents other local destinations in the area, including small downtowns, main streets, archaeological sites, and recreational anchors. The 2014 plan offers a cohesive strategy for positioning the overall area as a major tourism destination for the Chicagoland region.

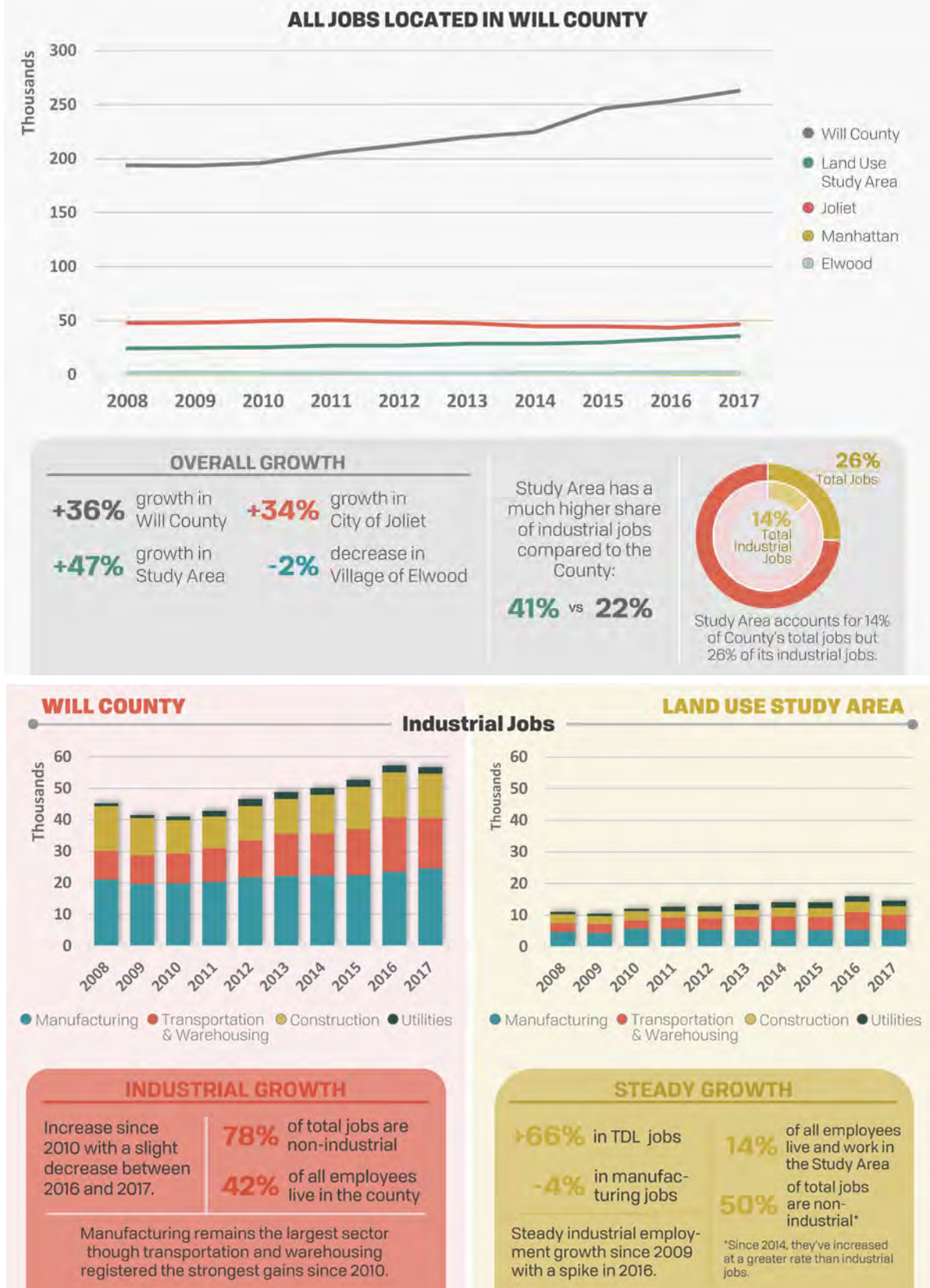
Industrial Uses

The majority of industrial uses are near the intermodal facilities and the I-55 and I-80 corridors. There is minimal industrial use today east of IL 53. The amount of industrial uses on municipal land versus on unincorporated land is nearly evenly split. Major industrial anchors include:

- The Union Pacific Global IV Intermodal
- The BNSF Logistics Park Intermodal
- Laraway Crossing Business Park
- Amazon Fulfillment Center
- IKEA Distribution Center
- Exxon Joliet
- Elion Logistics Park 55
- Cherry Hill Business Park
- Rock Creek Logistics Center
- Estes Truck Terminal

Industrial	Sq. Mi.	% Total
Municipality	11.94	49.6%
Unincorporated	12.11	50.4%
Total (Land Use Study Area)	24.05	

Figure 6. Snapshot of Industrial Jobs: Will County and Study Area (2008-2017)



Data sources: U.S. Census Bureau, LEHD Origin-Destination Employment Statistics.

Natural Resources & Open Spaces

The public open space system in the Study Area is anchored by the following major Federal, State and County protected lands:

Federal

- The Midwin National Tallgrass Prairie
- Abraham Lincoln National Cemetery
- Joliet Army Training Area (JATA)

State/IDNR

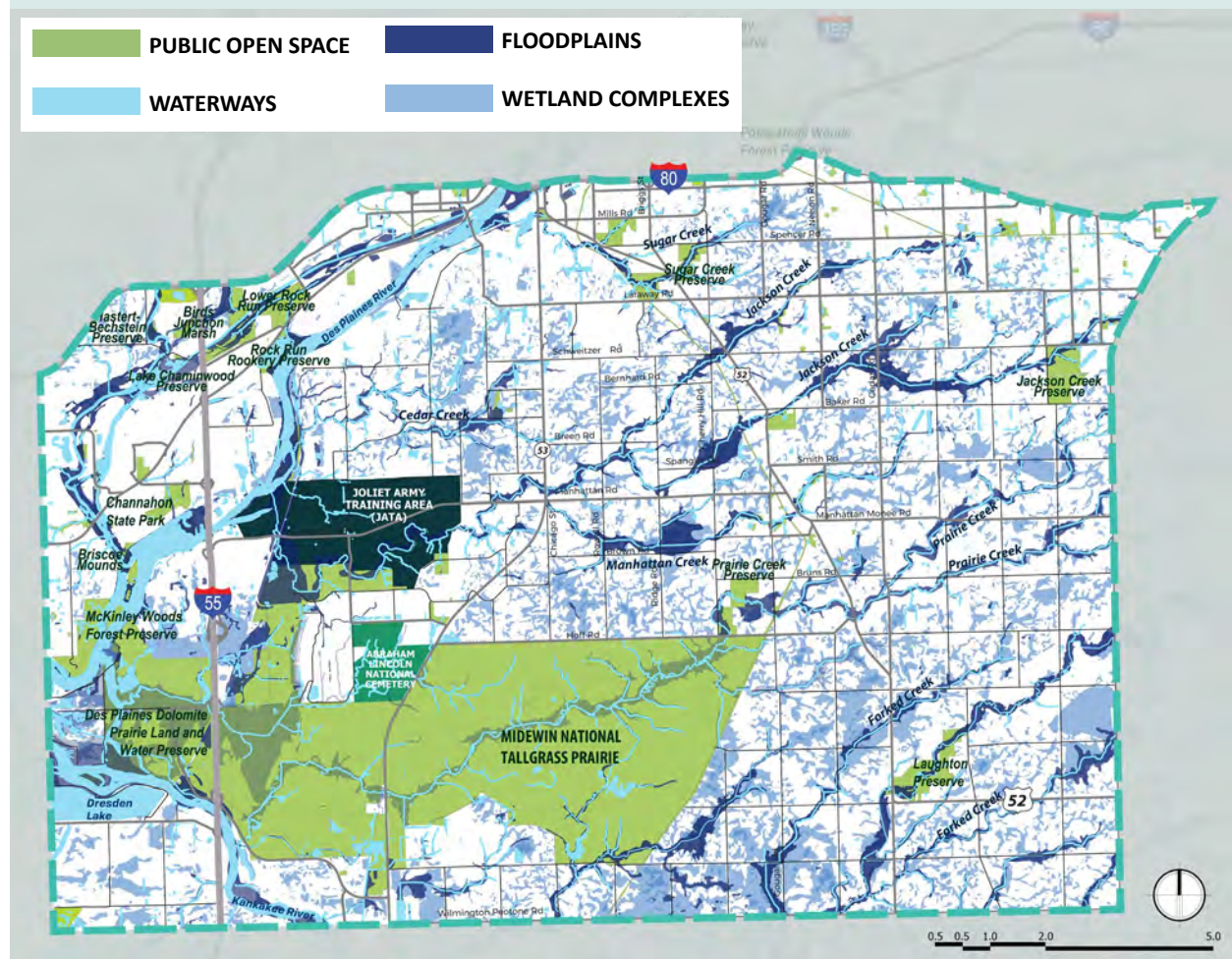
- Braidwood Dunes and Savanna
- Grant Creek Prairie
- Hitts Siding Prairie
- Sand Ridge Savanna
- Wilmington Shrub Prairie
- Des Plaines Dolomite Prairie Land & Reserve
- Channahon State Park

Forest Preserve District of Will County (FPDWC)

- Prairie Creek Preserve
- Laughton Preserve
- Jackson Creek Preserve
- Sugar Creek Preserve
- McKinley Woods
- Briscoe Mounds

The area also has six watersheds around the following major waterways: DuPage River, Kankakee River, Jackson Creek, Prairie Creek, Forked Creek, and Des Plaines River. Wetland Complexes make up about 24% of the total Study Area. According to the 2015 Green Infrastructure Vision,

Figure 7. Existing Natural Resources



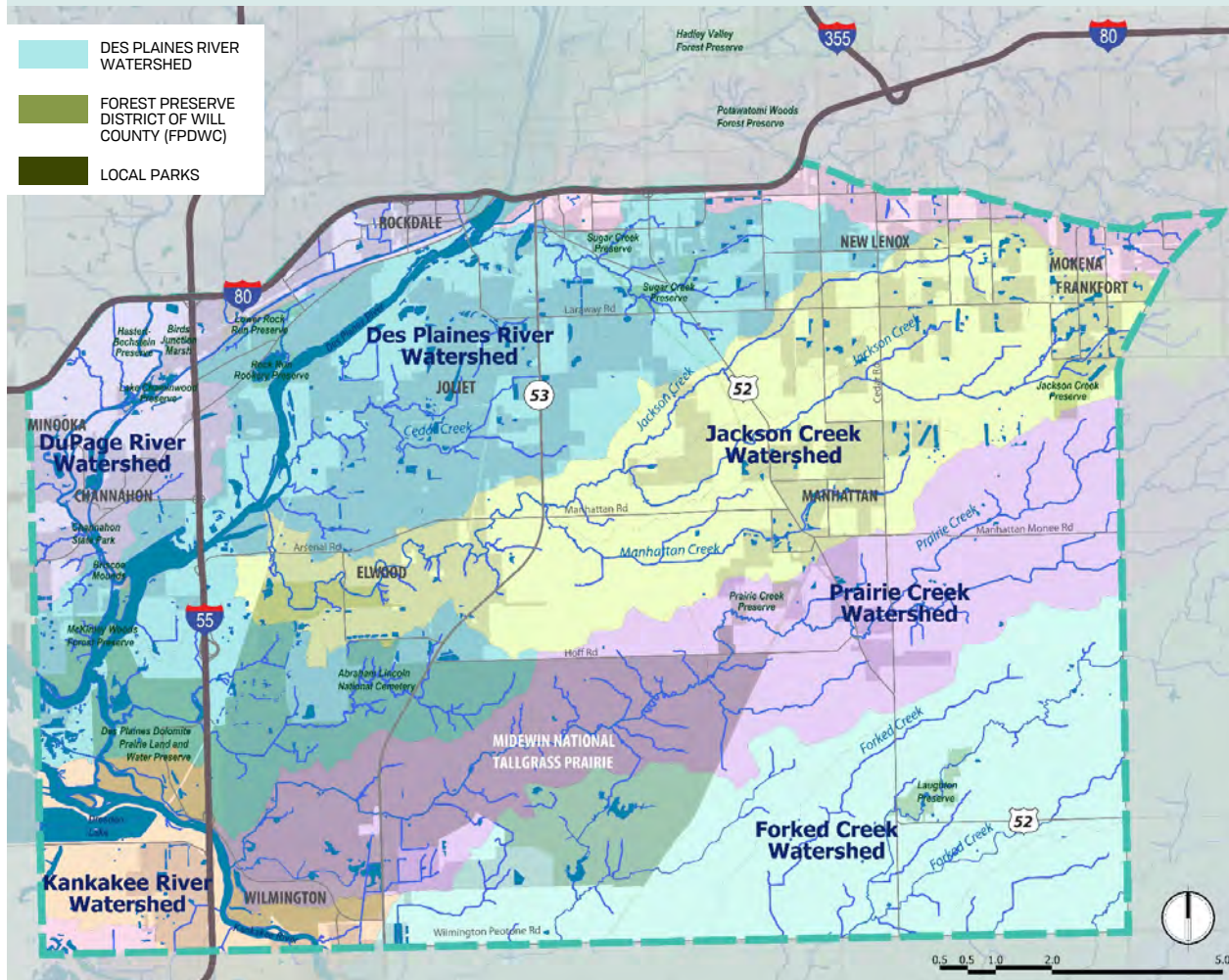
Data sources: CMAP Land Use, 2015; Satellite Imagery, 2017; FPDWC GIS, 2019; Will County GIS, 2019.

these complexes are areas with favorable wetland conditions that offer potential restoration and enhancement opportunities. The 2009 Jackson Creek Watershed Plan identified three high-priority areas for wetlands restoration along Jackson Creek and Manhattan Creek. The waterways in the area also support a rich and diverse fish habitat. According to the 2009 Field Museum Study, *Fishes of Will County*, a total of 112 fish species has been recorded in Will County over the past 107 years and many of these are threatened or endangered today.

According to the US Dept. of Agriculture (USDA), the majority of the area has prime farmlands and high hydric soils. Prime farmlands are lands that offer the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and are available for these uses. Hydric soils are soils where water remains at or near the soil surface for extended time periods during the growing season. These soils are critical for the formation of many types of wetlands.

Other natural and environmental resource elements that were analyzed for the Study Area include Carbon Storage, Groundwater Recharge, Drinking Water Sources, Aquifer Desaturation, Imperviousness, Native Flora and Fauna, Conservation Areas, Bird Habitats, Park Access etc., and are provided in **Appendix A**.

Figure 8. Existing Watersheds



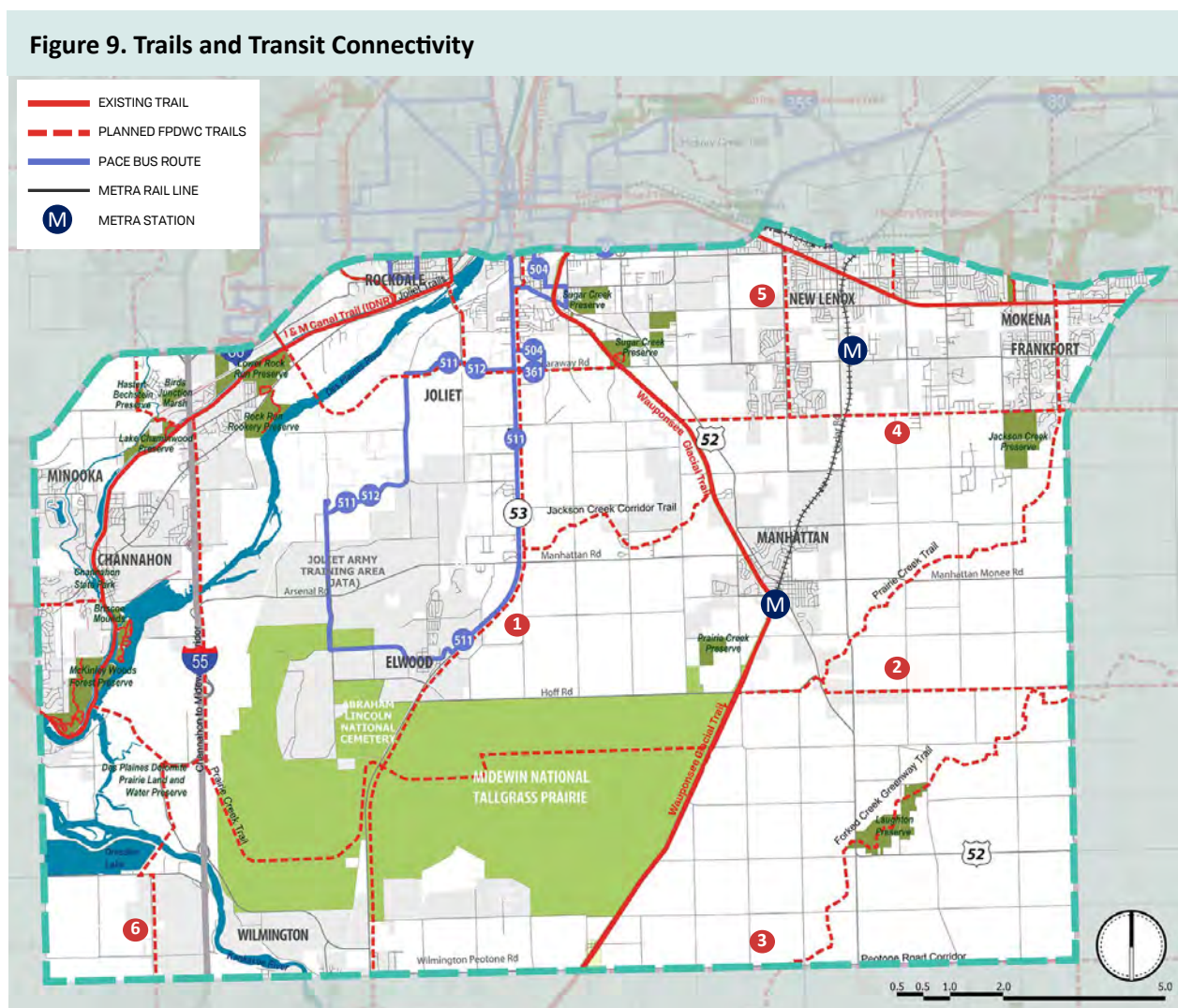
Data sources: CMAP Land Use, 2015; FPDWC GIS, 2019; Will County GIS, 2019.

Trails & Transit

The Wauponsee Glacial Trail, I & M Canal Trail, and Old Plank Road Trail are three major regional trails that run through the Study Area. These connect to local trails in IDNR and FPDWC open spaces and Midwin National Tallgrass Prairie. The 2016 Will County Bikeway plan by Will County Division of Transportation and FPDWC recommended a significant number of new trails for the Study Area. As shown in **Figure 9**, the following corridors were identified as major “Distinct Bikeway Corridors”:

1. IL 53 Bikeway Corridor
2. Trail along Hoff Road
3. Trail along Wilmington Peotone Road
4. Trail along Steger Road
5. Trail along Gougar Road
6. DuPage River Trail Extension

METRA also serves several communities within the Study Area via the Southwest Service (SWS). Communities with a Metra station include New Lenox, Manhattan, and Joliet (with a station just north of the study area boundary in Downtown Joliet). PACE operates five bus routes within the Study Area that include local, fixed, and express services.



Data sources: CMAP Bike Inventory, 2018; Will County FPDWC Trails, 2019; Metra, 2020; Pace, 2020; U.S. Geological Survey in cooperation with U.S. Environmental Protection Agency, 2020

Land Use Regulations for Unincorporated Areas

Land uses in unincorporated and in incorporated areas are regulated by the Will County Land Resource Management Plan (LRMP) and municipal Comprehensive Plans today. While some of these plans have been recently updated, the majority are approximately ten years old, and may not reflect the impacts of the rapid growth in the TDL sector in recent years.

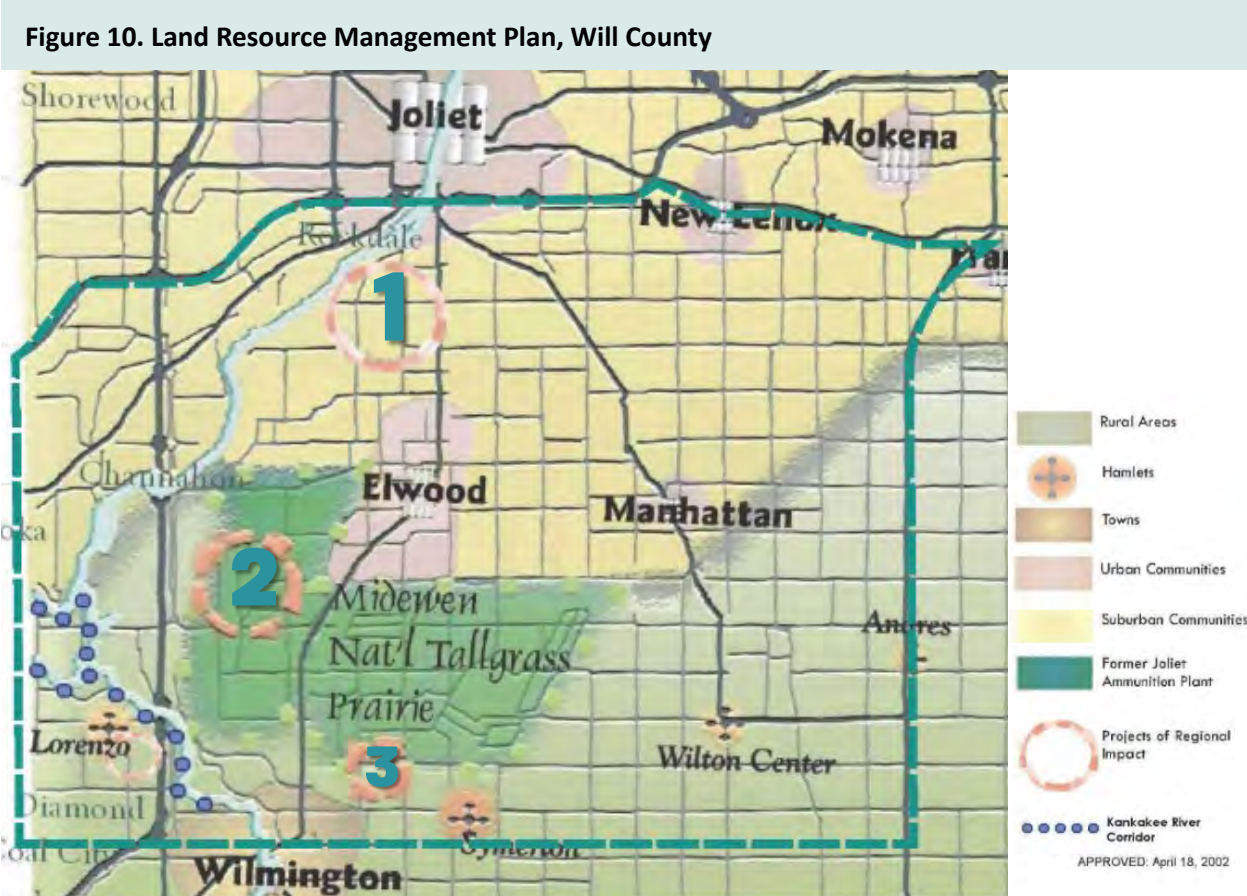
Will County LRMP

The 2002 Land Resource Management Plan (LRMP), last updated in 2011, guides land uses in unincorporated areas, especially for developments that are not annexed into a municipality. Major recommendations of the plan include:

- Maintenance of rural and agricultural land uses in the south-east part of the Study Area.
- “Suburban Community” or typical low-density single-family residential uses for most of the northern part of the Study Area
- Protection of creeks and waterways.

Three locations, as shown below, are recommended for “Projects of Regional Impact”, which are consistent with current locations of the major intermodal facilities:

1. The Union Pacific Global IV Intermodal in Joliet
2. BNSF Logistics Park Chicago
3. Deer Run Industrial Park



Data sources: Will County Land Resource Management Plan, Will County Land Use Department

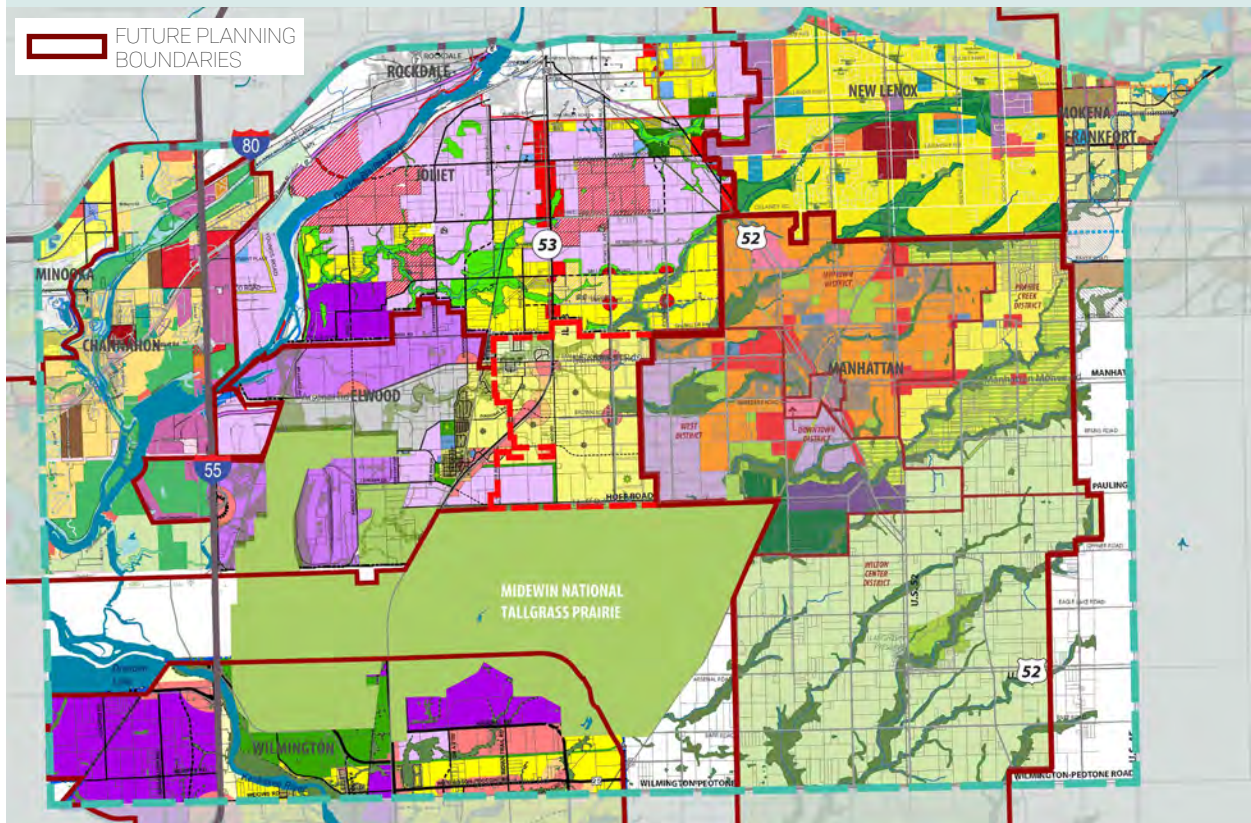
Municipal Comprehensive Plans

Municipal Comprehensive Plans typically contain a Future Land Use Map to guide land uses in adjacent unincorporated areas within the “Future Planning Boundary”. This boundary is defined by current boundary agreements with neighboring communities. These maps reflect community vision for future growth and help guide land uses during the annexation process.

Figure 11 is a composite graphic of future land use plans collected from local Comprehensive Plans that were available during the community engagement process. The composite graphic shows the following common themes:

- Significant land is allocated to low density housing and industrial uses.
- Commercial uses are generally envisioned along major arterials.
- Industrial uses are primarily along I-55, the Des Plaines River and the Intermodals.
- Agricultural uses are envisioned generally in the southeast part of the Study Area.
- All plans generally envision preserving creekways and floodplains.

Figure 11. Combined Future Land Use Map



Data sources: Comprehensive Plans from municipalities listed above

Year Local Comprehensive Plan was Adopted

- | | | |
|----------------------------------|-------------------|---------------------|
| • Will County: 2002, 2011 Update | • Manhattan: 2007 | • Wilmington: 2008 |
| • Joliet: 2007 | • New Lenox: 2018 | • Channahon: 2019 |
| • Elwood: 2007 | • Mokena: 2002 | • Minooka: Underway |
| | • Frankfort: 2019 | • Rockdale: NA |

- | | |
|--|--------------|
| | RESIDENTIAL |
| | COMMERCIAL |
| | INDUSTRIAL |
| | OPEN SPACE |
| | AGRICULTURAL |

PLEASE NOTE: The Land Use Strategy aims to provide a user-friendly tool that can assist the County and local municipalities to determine where future Industrial and TDL uses might be suitable, primarily in unincorporated areas. **Local municipal policies on incorporation, annexation, and zoning are not impacted by the strategy.**

Recommended Land Use Strategy for Industrial & TDL Uses

The Land Use Strategy provides a simple tool that can be used by the County, local municipalities, agencies, community stakeholders, and developers to determine where future Industrial and TDL uses can be directed. The tool can be particularly useful to apply to unincorporated areas, where existing plans may be dated or lack clear direction regarding these uses.

The strategy offers a **single criteria and four exceptions** to help determine if a parcel is suitable for future Industrial and TDL uses. If the criteria is met, and the site is not encumbered by any of the exceptions, it can be considered appropriate for these uses. A user-friendly checklist is provided on the following page that can be used to check for parcel suitability.

The Strategy: One Criteria + Four Exceptions

One Criteria



“New Industrial & TDL uses are allowed on parcels with frontage along Existing Class I and Class II truck routes, and short-term Class II truck routes, as designated by the companion document, the Moving Will County Truck Routing and Communities Plan and Implementation Strategy (pictured left). This criteria would also apply to future truck routes that are designated in the Study Area.”

Four Exceptions



1. Parcels with frontage only along IL 53/Historic Route 66.



2. Parcels within a ½ mile or a 10 min walk of existing residential areas, schools, places of worship, and civic and institutional uses.



3. Parcels designated for other uses in local comprehensive plans.



4. Parcels required for preservation of natural resources.

How to apply the Moving Will County Land Use Strategy



Checklist to determine if a parcel is suitable for **Industrial and TDL Uses.**

This user friendly checklist can be used by the County, municipalities, agencies, community stakeholders, and developers to quickly check for parcel suitability.

Meets the **ONE CRITERIA** for the Land Use Strategy

Does the parcel have direct access to an Existing Class I, Class II, and/or proposed short-term Class II truck route?

Resource: [Proposed Truck Routing Network Map](#) (click to go to map)

If the answer is yes, look at the **FOUR EXCEPTIONS** below.

Exception 1

Does the parcel have frontage *only* along IL 53/Historic Route 66?

Exception 2

Is the parcel within ½ mile or 10 min walk of existing residential areas, schools, places of worship, and civic and institutional uses?

Exception 3

Is the parcel designated for other uses in local comprehensive plans?

Resource: [Existing Land Use Map](#) (click to go to map)

**Contact local municipalities for most updated plan.*

Exception 4

Is the parcel required for preservation?

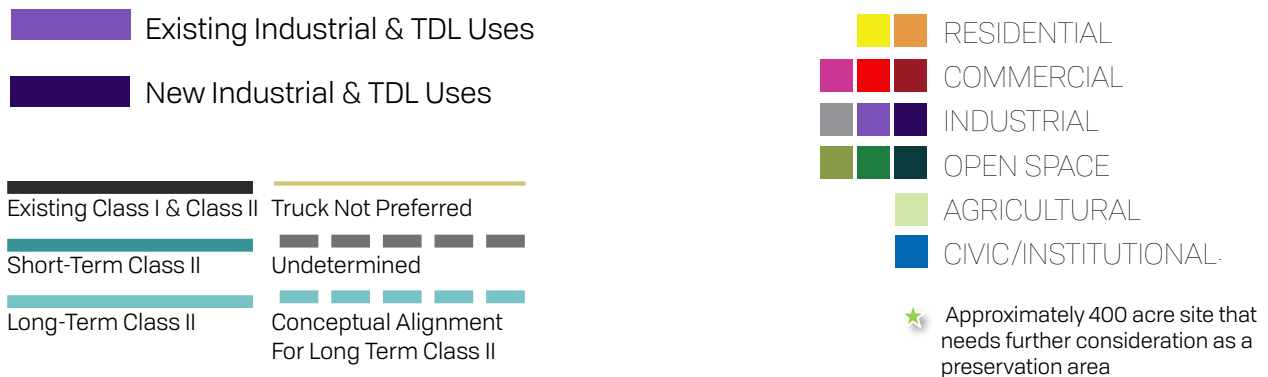
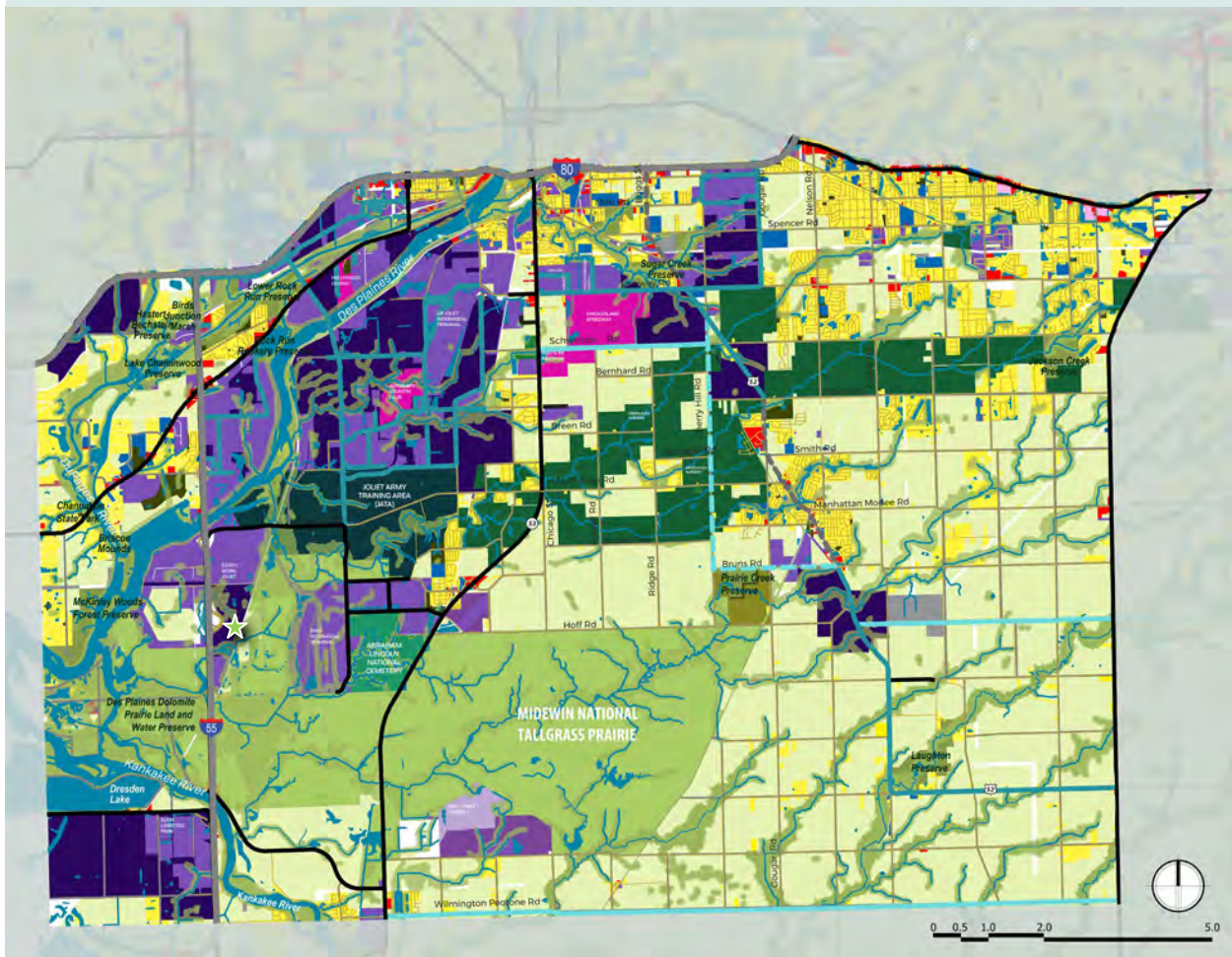
Resource: [Moving Will County Preservation Map](#) (click to go to map)

If the **ONE** criteria is met, and the site is not encumbered by any of the **FOUR** exceptions, it can be considered appropriate for Industrial and TDL uses.

Snapshot of Application of the Land Use Strategy

Figure 12 shows a snapshot of where new Industrial and TDL uses might be suitable in the Study Area if the Land Use Strategy is applied. This snapshot relies on data that was available during the development of the strategy and can continue to evolve with future annexations, changing conditions in the market, expansion of designated truck routes, or if new infrastructure is implemented.

Figure 12. Snapshot of Application of the Land Use Strategy



Data sources: CMAP Land Use, 2015; Satellite Imagery, 2017; FPDWC GIS, 2019; Will County GIS, 2019

Potential Land Capacity and Development in the Snapshot

Applying the strategy to the study area can yield as much as 12,000 gross acres of land for Industrial and TDL uses per data available during the development of the strategy. The **Gross Acreage** is based on the overall size of parcels and has been provided as a gauge for potential yield. **Net Buildable Acres**, or actual acres that can be developed, will vary depending on specific site conditions and local ordinances.

To determine how much Industrial and TDL development this gross acreage could potentially support, it was assumed that 50 gross acres of land were required for a facility with a gross area of 1 million square feet. (This size was chosen as it is an average acreage of the of TDL facilities that are commonly being built in the region as of lately, such as Amazon facilities). This assumption could yield to approximately 200 new facilities in the areas shown for new Industrial and TDL uses. This does not suggest that there should be 200 new facilities with this characteristic, it is for illustration purposes only.

Actual development capacity will vary based on the specific development and site conditions. For facilities with multiple stories, the development capacity would be higher on the same amount of land. For sites with smaller buildable areas or local regulations, the capacity would be lower.

Benefits of using the Land Use Strategy

The snapshot showcases the following benefits of the Land Use Strategy:

- Concentrates Industrial and TDL uses around existing intermodals and already developed areas with similar uses.
- Supports continued investment in designated Truck Routes as recommended by the Truck Routing and Communities Plan Implementation Strategy.
- Avoids the costs of installation and maintenance of new infrastructure needed to access and serve undeveloped areas.
- Maintains opportunities for prosperity for all by providing Industrial and TDL development potential in all municipalities in the Study Area.
- Positions the Des Plaines River at the center of the Industrial and TDL uses and strengthens its role as a mode of freight access.
- Protects major natural resources and preservation areas.
- Protects existing and planned bike trail corridors in the area.
- Protects the character and tourism potential of Historic Route 66/IL 53.
- Prevents new Industrial and TDL uses from locating too close to existing residential areas, schools, places of worship, and civic and institutional uses.
- Allows flexibility in responding to changes in Zoning Ordinances and Comprehensive Plans as these are updated.
- Provides a tool that can be applied to other parts of Will County.

How the Land Use Strategy was Developed

The Land Use Strategy was developed with extensive feedback from Steering Committee meetings, industry and agency stakeholder outreach, and public engagement. The following steps were used to develop the strategy:

1. Design an exploratory land use scenario process.
2. Identify major opportunity areas where the scenario process can be applied.
3. Develop four scenarios to show results of different assumptions.
4. Evaluate the scenarios based on Steering Committee feedback / prepare a preferred scenario.
5. Evaluate the preferred scenario based on community feedback.
6. Develop the Draft and Final Land Use Strategy.

Step 1: Design an exploratory land use scenario process.

Scenario planning can be divided into two major types: Normative and Exploratory. **Normative Scenario Planning** typically describes a community's ideal future or the future circumstances that would be most desirable. Resulting scenarios illustrate competing visions for the future resulting from current trends. This process tends to assume a large degree of control and influence to realize the desired strategy and often does not fully address uncertainties about how the future will unfold. **Exploratory Scenario Planning** typically describes a range of possibilities that could occur in the future. This helps navigate uncertainty and is most useful when there are a number of factors that make predicting the future difficult, if not impossible. This is a powerful tool for considering uncertainty and better incorporating external social, economic, and technological trends and climate change impacts.

An Exploratory Scenario Planning process was selected for the Moving Will County project in response to the uncertainties and complexities related to the pandemic, economic trends, development pressures, jurisdictional boundaries, environmental impacts etc. The process was designed to meet three major goals:

- Create a **place-based** analytical tool that directly ties truck routing designations to potential Industrial and TDL land use impacts along these routes.
- Create a **dynamic tool** that can change as the truck routing designations continue to evolve.
- Create a **consensus building tool** that allows stakeholders to select preferred elements from each scenario instead of having to choose one preferred scenario that may represent only one viewpoint.

Step 2: Identify major opportunity areas where the scenario process can be applied.

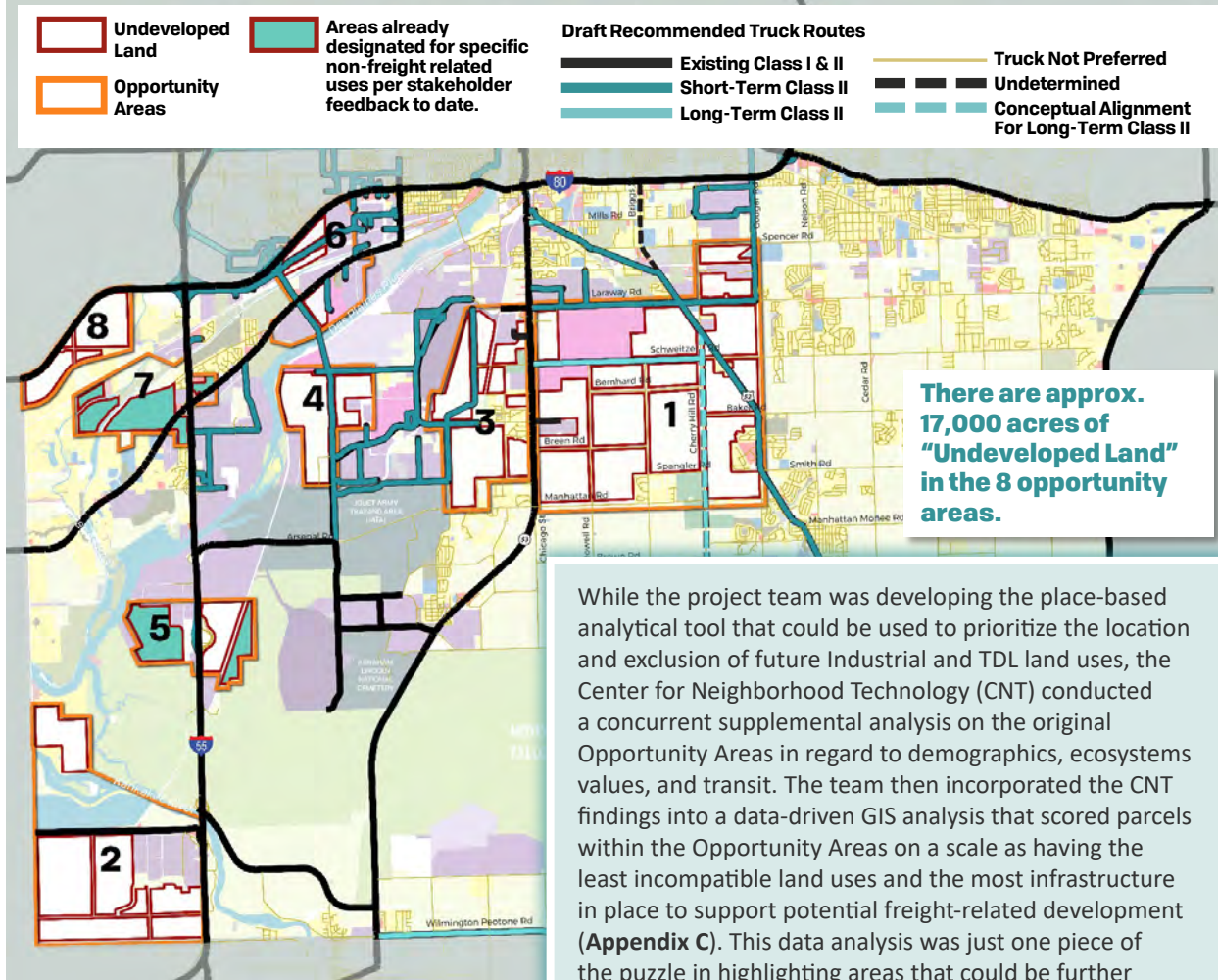
Figure 13 shows the eight areas that were selected with Steering Committee feedback for developing the land use scenarios. These areas were selected based on the following factors:

- Proximity to major transportation corridors, including I-55, I-80, and IL 53
- Proximity to major economic anchors
- Significant contiguous land for new development and infill opportunities
- Proximity to existing municipal incorporated areas and existing infrastructure
- Potential to protect waterways, including Jackson Creek, Des Plaines River, and DuPage River, and other natural resources
- Opportunities to implement Forest Preserve District of Will County (FPDWC) planned trail corridors, including the IL53, Jackson Creek, and DuPage River trail corridors

Step 3: Develop four scenarios to show results of different assumptions.

Four scenarios were developed for the opportunity areas to show potential impacts on “undeveloped land” as shown in **Figure 13**. Undeveloped land included vacant parcels and parcels

Figure 13. Opportunity Areas



Data sources: CMAP Land Use, 2015; Satellite Imagery, 2017; FPDWC GIS, 2019; Will County GIS, 2019.

with existing agricultural use, and did not include the following:

- Parcels with any existing development (industrial, residential, civic, commercial or other)
- Existing public open spaces
- Areas already designated for specific non-freight related uses per stakeholder feedback

While the project team was developing the place-based analytical tool that could be used to prioritize the location and exclusion of future Industrial and TDL land uses, the Center for Neighborhood Technology (CNT) conducted a concurrent supplemental analysis on the original Opportunity Areas in regard to demographics, ecosystems values, and transit. The team then incorporated the CNT findings into a data-driven GIS analysis that scored parcels within the Opportunity Areas on a scale as having the least incompatible land uses and the most infrastructure in place to support potential freight-related development (**Appendix C**). This data analysis was just one piece of the puzzle in highlighting areas that could be further explored to prioritize or exclude future Industrial and TDL land uses. The Land Use Strategy criteria and exceptions were also developed based on input from the Steering Committee, public involvement, stakeholder interviews, previous plans and studies, as well as a multitude of findings from the Existing Conditions Analysis phase of the project (**Appendix A**). However, the Opportunity Area data analysis was one step in helping the team validate the strategy for identifying the four exceptions.

The four scenarios were based on the following assumptions:

- Scenario A:** Freight related uses are allowed on all parcels with frontage along all recommended truck routes in the Moving Will County Truck Routing
- Scenario B:** Same as Scenario A, minus all parcels with frontage only on the long-term truck routes.
- Scenario C:** Same as Scenario B, minus parcels with frontage only along IL 53/Historic Route 66.
- Scenario D:** Same as Scenario C, minus parcels required for potential preservation

Appendix D Industrial and TDL Land Use Scenarios provides the full details on the four scenarios.

Step 4: Evaluate the scenarios based on Steering Committee feedback / prepare a preferred scenario.

The scenarios were evaluated by the Steering Committee in an interactive meeting followed by a survey that asked the following questions:

For the Land Use Strategy study area, how should the following areas to preserve be prioritized? (Please rank factors in order, 1-6)

- Jackson Green Parkway
- Midewin Buffer
- Floodplain Buffers
- Prairie Creek Area
- Joliet Army Training Area (JATA)
- Generational Farms

For all the scenario focus areas, in what order would you rank the below factors to consider in preserving natural resources? (Please rank factors in order, 1-10)

- Avoiding impacts to existing waterways, floodplains + wetlands
- Protecting Jackson Creek Parkway
- Avoiding impacts to public open spaces
- Preservation of JATA
- Avoiding impacts to Conservation Areas defined in the regional comprehensive plan (ONTO 2050)
- Creating buffers for waterways
- Native flora and fauna
- Impervious cover
- Avoiding impacts to generational farms
- Avoiding increasing impervious cover

How would you rank the four scenarios based on land capacity for freight related uses and preservation areas? (Too little, right amount, too much, other)

Step 5: Evaluate the preferred scenario based on community feedback.

Based on the Steering Committee feedback, a preferred scenario was developed and presented at a virtual public workshop. Community members provided feedback during the public workshop through comments and live polls as well as through a survey that was open for about a month after the meeting. This feedback was used to refine the scenario and provide more clarification in this document.

Appendix E provides the full details of the public comment period findings and Steering Committee survey results.

Step 6: Develop the Draft and Final Land Use Strategy

The compiled survey results from the Steering Committee and community members showed an overall preference for Scenario D that had the following parameters: Freight related uses are allowed on all parcels with frontage along all recommended truck routes in the Moving Will County Truck Routing and Communities Plan, except parcels with frontage only on the long-term truck routes and IL 53/Historic Route 66, and parcels required for potential preservation. This yielded approx. 9,000 acres of land capacity for freight related use and approx. 8,000 acres of land for preservation.

This balanced approach was selected as the foundation for developing the recommended Land Use Strategy for the overall Study Area.

4 Scenarios

SUMMARY TABLE FOR THE FOUR SCENARIOS

This table offers a summary for the four scenarios and the two variables: Land Capacity and Preservation Areas. Each scenario is shown in greater detail on the following pages.

	SCENARIO A Industrial and freight related uses are allowed on all parcels with frontage along all recommended truck routes.	SCENARIO B Same as Scenario A, minus all parcels with frontage only on the long-term truck routes.	SCENARIO C Same as Scenario B, minus parcels with frontage only along IL 53/Historic Route 66	SCENARIO D Same as Scenario C, minus parcels required for potential preservation
LAND CAPACITY				
1 LAND CAPACITY FOR FREIGHT RELATED USE	13,311 ACRES (266 AMAZONS)	11,764 ACRES (235 AMAZONS)	10,392 ACRES (207 AMAZONS)	9,073 ACRES (181 AMAZONS)
2 LAND REMAINING FOR OTHER USES & PRESERVATION AREAS	3,765 ACRES			
PRESERVATION AREAS				
3 JACKSON CREEK GREENWAY	Not Provided			
4 JATA	Provided			
5 BUFFERS FOR WATERWAYS	Not Provided			
6 GENERATIONAL FARMS	Not Provided			



Evaluation & Feedback

Moving Will County Land Use Study

Scenario D Feedback (9 participants)

Category	Amount	Too little	Right amount	Too much	Other
Land capacity for freight-related uses	9,073 acres (181 Amazons)	1	5	2	1
Remaining uses and preservation areas	8,003 acres	1	7		1

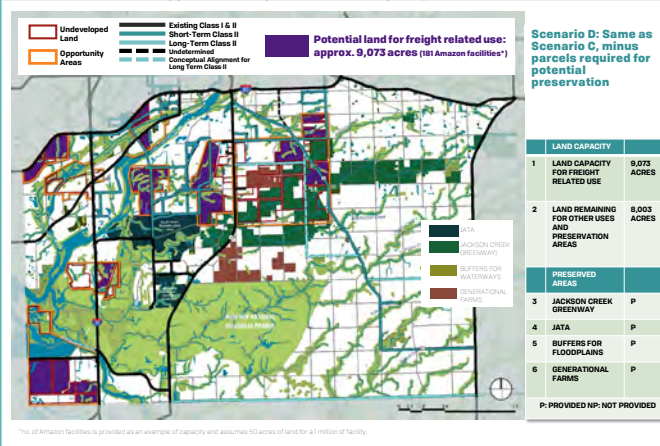


Preferred Strategy

In this scenario, Jackson Creek generational farms are all appropriate for this scenario.

Yes = 7 No = 2

SCENARIO D showing potential freight related land capacity



Recommended Preservation Strategy

Approach to Developing Criteria for Preservation of Natural Resources

The study area for the Moving Will County Land Use Strategy offers over 40 square miles of protected land that includes federal, state, county and local public open spaces. However, as documented extensively in **Appendix A: Existing Conditions Report (ECR)**, there are significant resources outside these areas that could be considered for future preservation and protection.

A two-step process was developed with feedback from stakeholders to develop a consistent set of criteria to determine what areas should be preserved in the future.

- Step 1: Collect existing criteria that are used by stakeholders and recent relevant plans.**
- Step 2: Identify common criteria/themes and consolidate into one consistent list that can be used by the County, municipalities, agencies and community stakeholders.**

For Step 1, the following sources were used to collect examples of criteria used by local agencies or past plans:

- Will County Long Range Master Plan (LRMP), Open Space Section, Revised 2011
- Land Acquisition Policy and Procedures, Forest Preserve District of Will County (FPDWC), provided by the FPDWC on June 26, 2020
- Land Evaluation System (LES) provided by the FPDWC on July 10, 2020
- Land Preservation Policy, The Conservation Foundation, 2006
- Jackson Creek Watershed Plan, CMAP, 2009

For Step 2, the criteria from the 2011 Will County Land Resource Management Plan (LRMP) was used as a starting point to develop a consolidated list. Elements from other sources recommended in stakeholder feedback (i.e. Openlands, Midewin) were added to expand the list.

The final criteria is provided on the following pages as a checklist that can be used by the County, municipalities, agencies, community stakeholders, and developers to check if an area should be preserved as open space.

The criteria was applied to the Study Area to develop recommendations for areas that needed to be preserved. With continued feedback from the community, stakeholders, and Steering Committee members, the following four areas were selected for preservation:

1. Joliet Army Training Area (JATA)
2. Jackson Creek Greenway
3. Prairie Creek Area
4. Floodplain Buffers

Two other areas that were considered based on stakeholder feedback include the protection of generational farms and the creation of buffers for the Midewin National Tallgrass Prairie. The complex issues and opportunities related to generational farms require more detailed studies and discussions than were possible within the scope and timeline of this project. These areas, as well as other new preservation opportunities, can continue to be investigated in future County and local planning efforts.

Appendix F: Criteria for Selecting Areas for Preservation and Protection Memorandum provides details on the overall process.

Moving Will County Preservation Strategy Criteria



Checklist to determine if a parcel meets the criteria for **Preservation**.

This user friendly checklist can be used by the County, municipalities, agencies, community stakeholders, and developers to check for preservation suitability.

CONNECTIVITY

- Creates continuity in the open space network and provides missing links between public open spaces, multi-use trails, and greenways.
- Protects existing and planned multi-use and water trail corridors and connections to the regional trails system.

EQUITABLE DISTRIBUTION

- Ensures that existing developed areas and areas intended for future growth are equitably served with public open spaces.

WATER RESOURCES

- Protects floodplains, waterways, wetlands, and hydric soils as important natural resources and habitat corridors.
- Protects public water supply sources including surface water intakes, groundwater wells, capture zones, and Sensitive Aquifer Recharge Areas (SARAs) that have a high potential for groundwater recharge.
- Protects water-based recreation including swimming, boating, fishing, canoeing, and kayaking.

NATURE & HABITAT

- Protects areas that have known occurrences of threatened and endangered species, critical habitat areas, and areas that are critical to maintaining local biodiversity.
- Creates uninterrupted habitat corridors to benefit wildlife.

AGRICULTURE

- Preserves farmland to maintain Will County's rural character, a critical goal of the 2011 Will County Land Resource Management Plan (LRMP).
- Protects prime farmland and soils of statewide significance to preserve lands that have the physical and chemical characteristics for producing food, feed forage, fiber, and oilseed crops.

Moving Will County Preservation Strategy Criteria (continued)

HISTORY & CULTURE

- Protects historic resources, rural structures, and archaeological resources as identified in national, county, state, and/or local registers, surveys or plans.

VISUAL RESOURCES, TOURISM & RECREATION

- Creates new opportunities for tourism and outdoor recreation and/or enhances existing destinations.
- Preserves the character of a community or rural setting, including lands along scenic roads and byways and around scenic man-made and natural features.

EXISTING OPEN SPACES

- Increases the area, diversity, linkage, or management opportunities of an existing public open space.
- Creates a buffer to protect habitats, plant life, water resources and other natural features of existing public open spaces.

PREVIOUS PLANS

- Are there previous plans that support the preservation/protection of the area?

COMMUNITY SUPPORT

- Does the area have expressed support or opposition from local and regional planners, elected officials, interest groups, adjacent landowners, and partnerships?

SITE SPECIFIC CONDITIONS will vary for each parcel and location. General issues to consider can include the following:

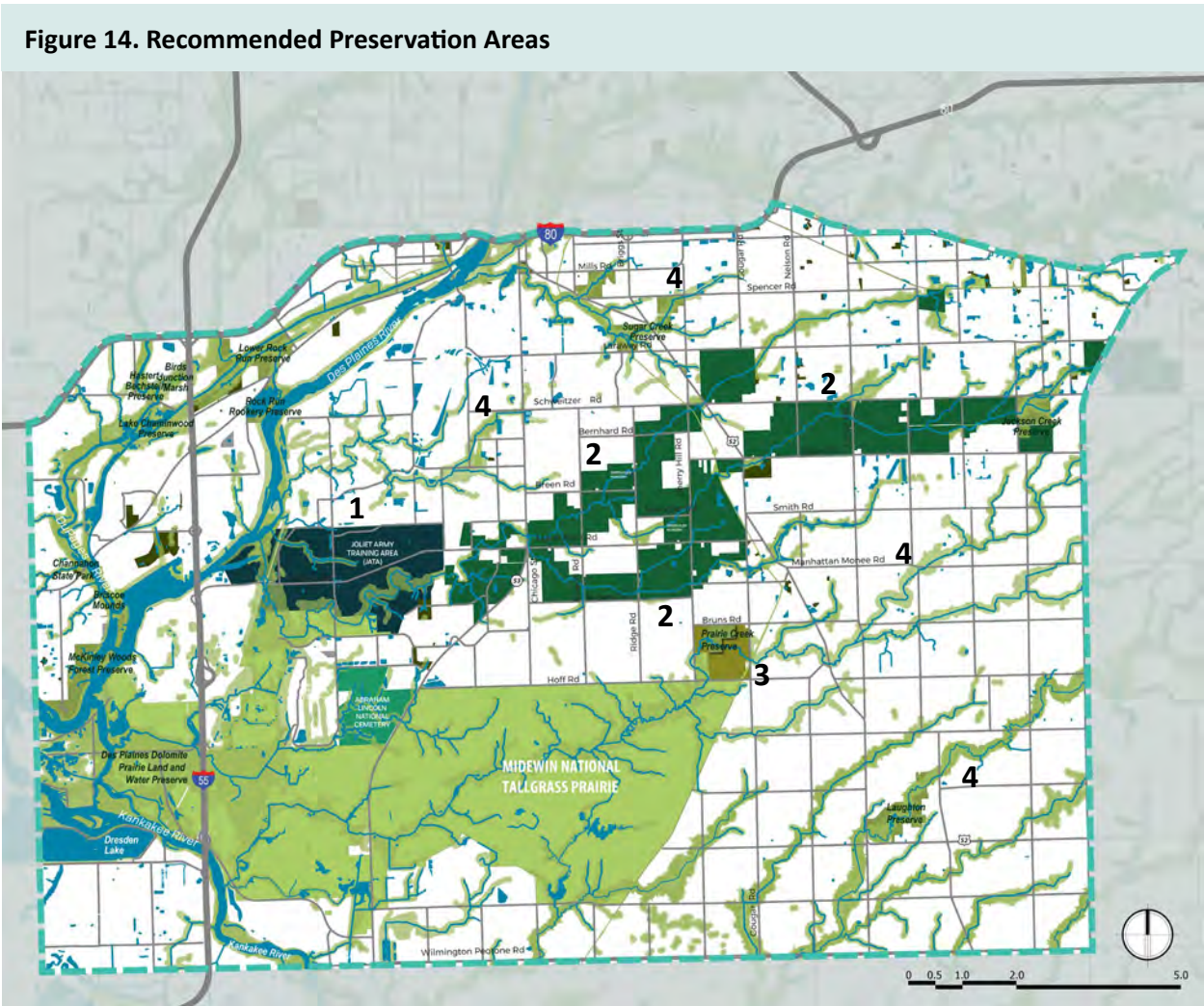
- Does the site's current and past use pose potential for hazardous waste, contaminated soils and water, debris, garbage, and/or other health risk factors?
- Do adjacent land uses, zoning and development character pose any negative impacts?
- Are there any existing long-term leases, licenses, and/or easements that may inhibit restoration, development, or management of the site?
- What degree of effort is necessary to restore and/or maintain the natural resources of the site?
- To what degree does the site's physical features support public access and recreational facilities?

Recommended Preservation Areas

Figure 14 shows the four areas recommended for preservation by the Moving Will County Land Use Strategy:

1. JATA (Joliet Army Training Area)
2. Jackson Creek Greenway
3. Prairie Creek Area
4. Buffers for Waterways

Together, these areas offer over 13,000 acres of new protected open spaces that can provide significant benefits to community quality of life, recreation, tourism, and environmental resources. A Natural Areas Assessment (page 40) was conducted that provided annual estimated benefits of ecosystem functions of these areas.

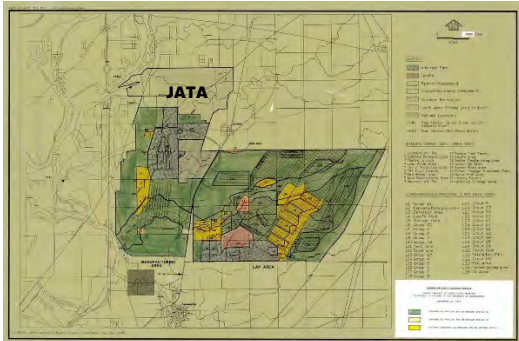


	JATA		PRAIRIE CREEK AREA
	JACKSON CREEK GREENWAY		BUFFERS FOR WATERWAYS

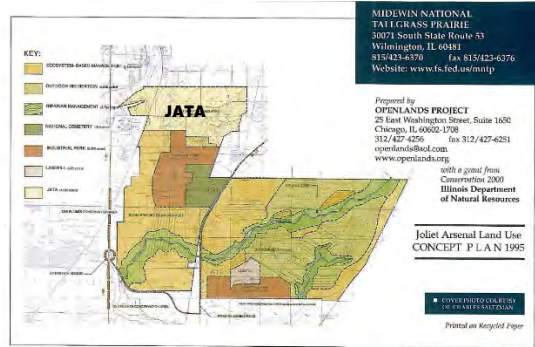
Data sources: CMAP Land Use, 2015; Satellite Imagery, 2017; FPDWC GIS, 2019; Will County GIS, 2019, Openlands, Midwin National Tallgrass Prairie, FPDWC, Jackson Township

1. Joliet Army Training Area (JATA)

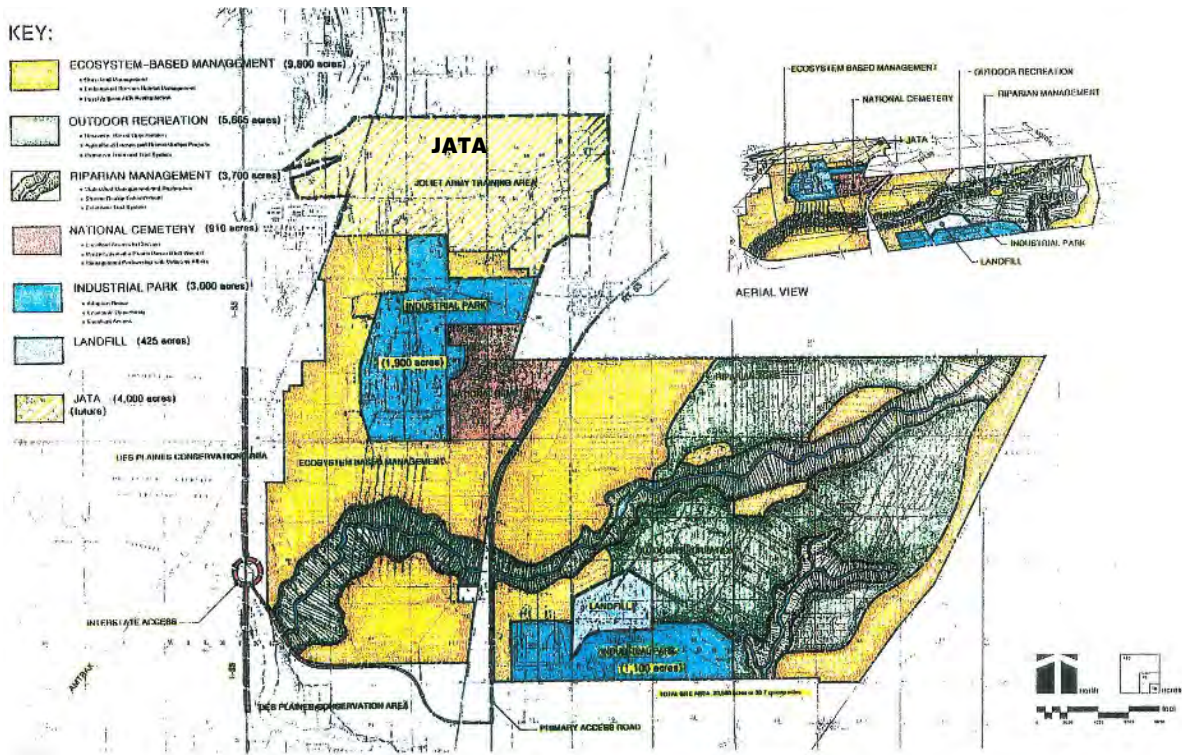
The 1995 Illinois Land Conservation Act stated the intent for JATA to be transferred to the Secretary of Agriculture for management by the Forest Service as an addition to the Midewin National Tallgrass Prairie. Land Use Plans developed by the Midewin and Openlands (below) show how the approx. 4,000 acres for JATA were designated as a future extension of the Midewin.



1995 Land Use Plan Map



1995 Openlands Land Use Concept Plan



Arsenal Land Use Concept
(Incorporated into U.S.F.S. Report)

Arsenal Land Use Concept
PRAIRIE PARKLANDS MACROSITE
Joliet Arsenal Citizen Planning Commission
Congressman George E. Sangmeister, Chairman

These plans facilitate ecosystem-based management and outdoor recreation for JATA. The Illinois Dept. of Conservation (IDNR today) prepared a report in 1995 that identified many of the ecological resources in JATA. JATA is also designated as “Public Open Space” and an extension of the Midewin in the 2011 Will County LRMP, and was selected by IDNR as a “Conservation Opportunity Area”. The National Audubon Society has designated JATA as an “Important Bird Area.”

Data and text sources: Openlands, Midewin National Tallgrass Prairie

Recommended Strategies

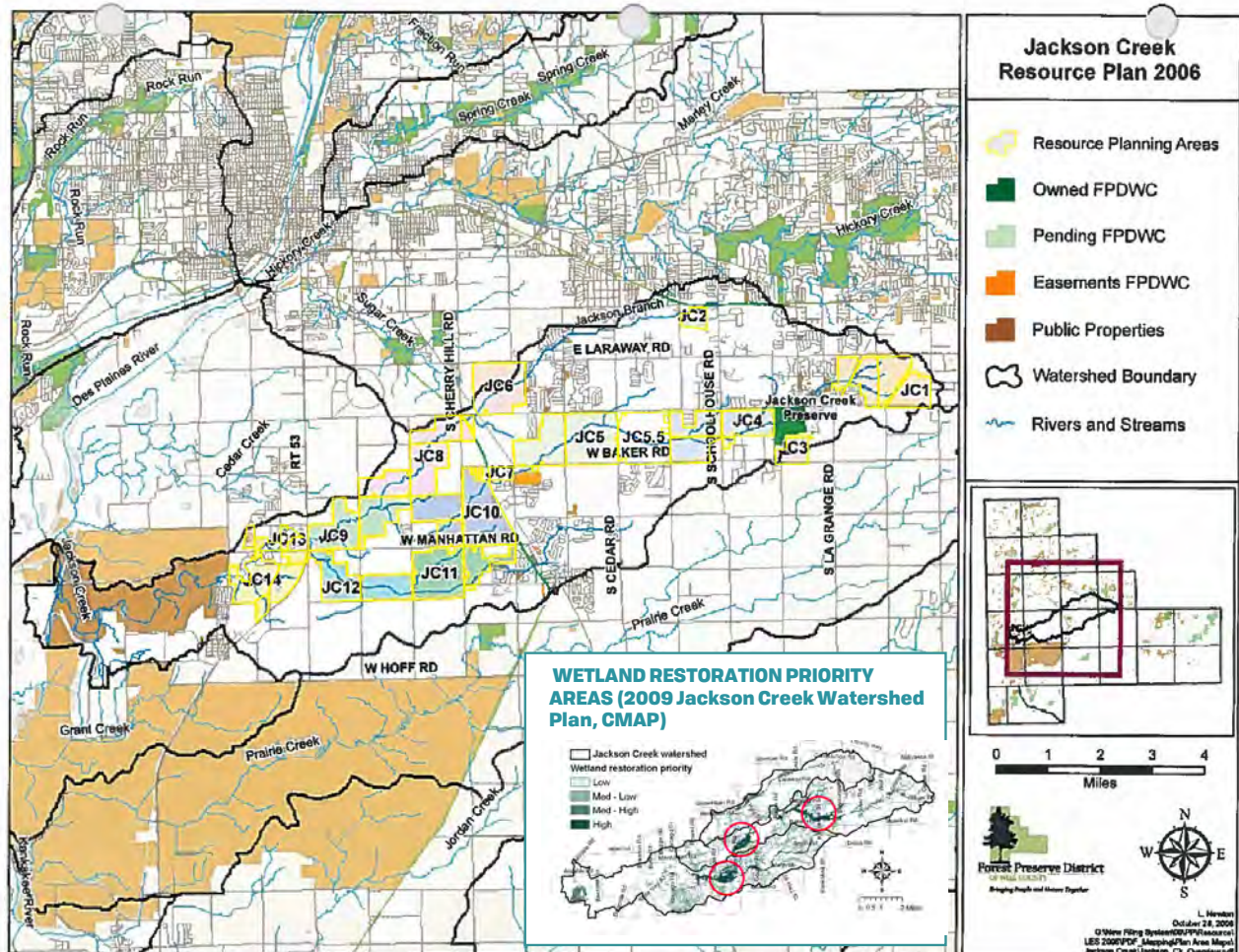
- Preserve JATA as a future addition to the Midwin and as a protected Federal Open Space.
- Develop plans for the protection and restoration of natural resources, including the Jackson Creek stream corridor and watershed, dolomite prairies, seeps that feed mitigation areas, restoration work and prescribed burning, recreational opportunities, bird habitats etc.
- Amend County and local plans as needed to show the JATA as a public open space.

2. Jackson Creek Greenway

The 2006 Jackson Creek Resource Plan by the Forest Preserve District of Will County (FPDWC) looked at 14 areas (J1 -J14 on map below) that could potentially be acquired or preserved to create a continuous public greenway. Goals of the 2006 Plan included the following:

- Protect a continuous greenway of open space to preserve the floodplain, hydric soils, water quality, and cultural resources.
- Provide for a trail connection between Old Plank Road Trail and Wauponsee Glacial Trail.

The greenway would also include the three wetlands that were identified by the 2009 Jackson Creek Watershed Plan as Wetland Restoration Priority Areas (map in inset). The greenway is further supported by the Open Space Element of the Will County LRMP, where the creation of a Greenway Overlay District to designate easements for open space or greenway corridors is recommended.



Source: Will County (FPDWC) & CMAP

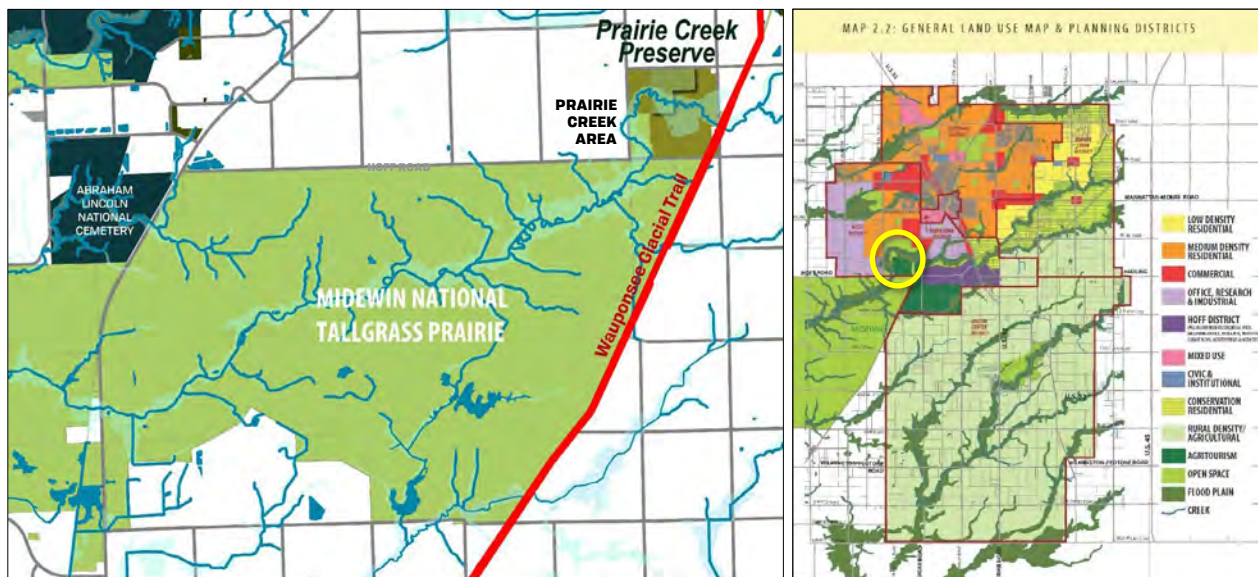
Recommended Strategies

- Preserve Jackson Creek Greenway as a major public open space amenity for Will County and the region.
- Assist FPDWC in developing a detailed acquisition plan that can identify the actual sizes and locations of parcels needed to create the greenway. According to FPDWC feedback, the 2006 Preservation Planning Areas were general in nature and were meant to include entire parcels and not portions thereof. Typically parcels were defined as having riparian corridors, adjacent and hydrologically connected wetlands, existing known natural area remnants or other known natural heritage significance. In many cases, the resulting FPDWC Acquisition Plans would have been based on further review of individual parcels, with the highest possibilities for success based on land owner contacts or other factors. The FPDWC could also consider fee simple acquisition or conservation easements to meet plan goals.
- Preserve and restore the three major wetland areas (map on previous page, page 37) as recommended by the 2009 CMAP plan.
- Amend County and local plans as needed to designate the greenway as public open space.

3. Prairie Creek Area (north of Hoff Road)

Prairie Creek is one of the major waterways in the study area. This one square mile area (approx. 640 acres) is located to the northeast of Midewin across Hoff Road. Prairie Creek Preserve (118 acres) owned by the FPDWC, anchors the north end of the area. Midewin also owns approximately 75 acres along the western part of the area. The area has significant wetlands and floodplains and is adjacent to the Wauponsee Glacial Trail.

The 2007 Comprehensive Plan for the Village of Manhattan designated this area for open space and preservation, as shown in map below right.



Recommended Strategies

- Preserve the Prairie Creek area as a public open space amenity.
- Assist the Midewin and the FPDWC in developing a detailed acquisition plan that can identify the actual parcels that need to be acquired and protected.
- Amend County and local plans as needed to show the area as public open space.

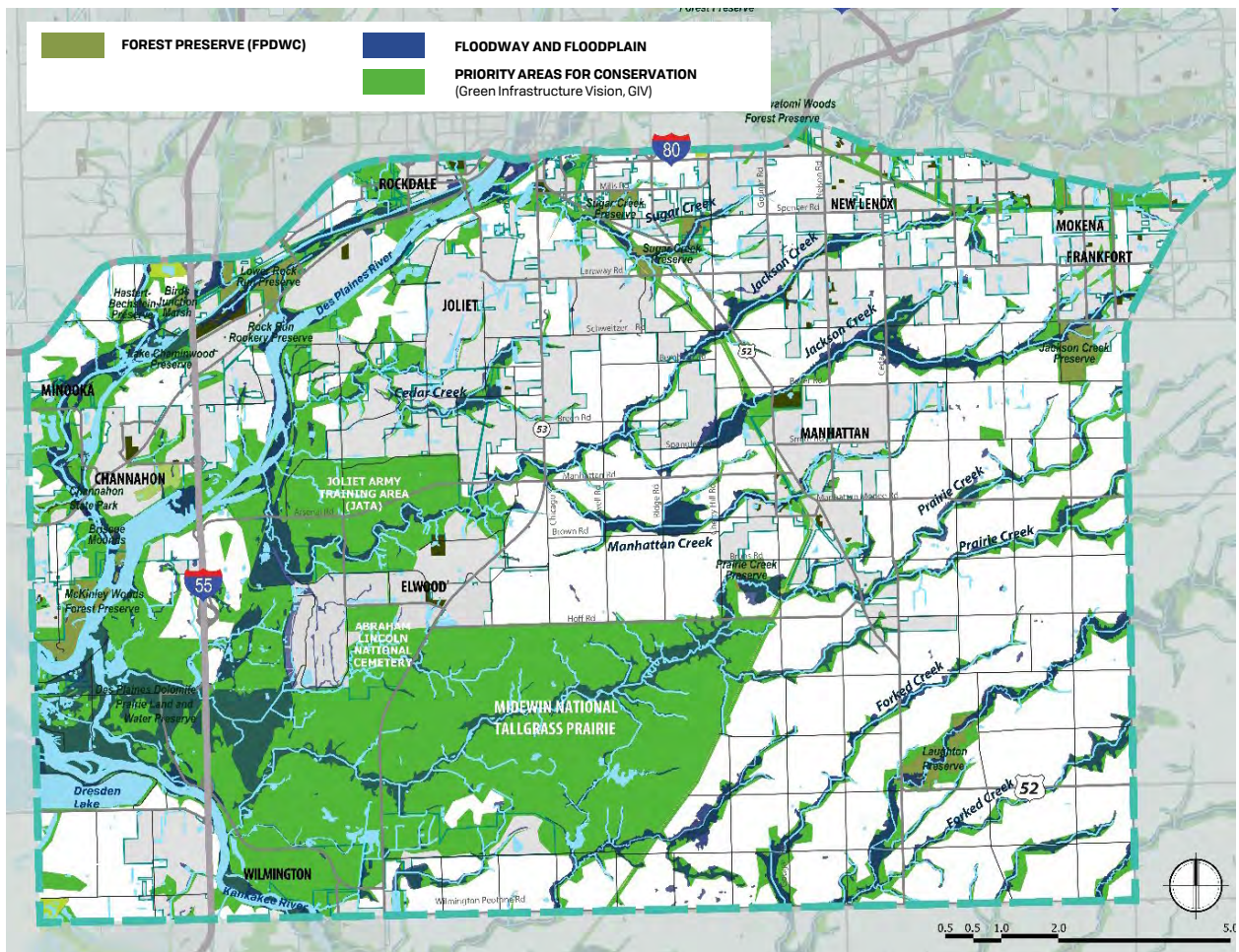
Data and text sources: Midewin National Tallgrass Prairie, Village of Manhattan Comprehensive Plan

4. Buffers for Waterways

Waterways in the study area include Des Plaines, Kankakee and DuPage Rivers, and Sugar, Cedar, Jackson, Manhattan, Prairie and Forked creeks. The natural resources along these waterway and creek corridors are shown in the map below, and are documented in detail in **Appendix A**. Floodplains and floodways along these waterways are currently protected from development by FEMA regulations, and County and local ordinances. However, there are no consistent requirements within the County and local municipalities for additional buffers along these critical riparian corridors, as shown by examples below.

Will County: Protection of all waterway corridors with a buffer is identified in the 2011 Will County LRMP's Open Space Element section as "Initiative #2: Establish riparian buffers around all stream corridors in Will County to protect water quality and prevent stream bank erosion". Will County's Water Resource Ordinance requires buffers around all defined waters of the United States, as well as isolated waters of Will County. The buffer sizes range from **Thirty (30) feet to One-Hundred (100) feet**, depending on the size of the tributary areas, designation as a High Quality Aquatic Resource, and linear vs. non-linear water bodies.

Joliet: In 2007, the City of Joliet passed an ordinance to create a buffer around Sugar Creek, Jackson Creek, and Prairie Creek. This ordinance requires a **25-foot** vegetated strip buffer from the ordinary high water mark and requires the establishment of a canopy cover.



Data sources: CMAP Land Use, 2015; Satellite Imagery, 2017; Will County GIS, 2019, GIV Data. Note: The CMAP 2015 Land Use Inventory data used in this analysis is draft data.

Manhattan: In 2003, the Village of Manhattan passed a resolution to “Preserve and Improve the Natural Functions of Manhattan Creek” that requires a **35-foot** strip of native prairie vegetation along the banks of the creek. Developers are required to restore surface and buried creeks existing in their property or in adjacent public right-of-way. Restoration is defined as daylighting piped creeks and historic creek corridors, removing fish barriers, establishing buffers and planting native vegetation, including native trees. Stream modification is also prohibited except as part of a restoration project.

Recommended Strategies

- Establish one consistent Waterway Buffer Ordinance that can be adopted by the County and local municipalities. The ordinance should establish consistent technical design standards for:
 - Minimum buffer width requirements (25’, 30’, 35’ to 100’) for specific conditions like tributary size, water quality, habitat etc.
 - How and where trails should be incorporated in the buffer area
 - Maintenance and ownership, private easements or publicly owned greenways
- Amend County and local plans as needed to show the buffers along creeks as preserved open space.

Natural Areas Benefit Assessment

A study provided in **Appendix G** was conducted to assess the potential economic benefits of the following three recommended preservation areas:

1. Joliet Army Training Area, 4,000 acres
2. Jackson Creek Greenway, 8,500 acres
3. Prairie Creek Area, 640 acres

The fourth recommended preservation area, Buffers for Waterways, was not assessed given the extensive size and varying acreages, locations, and conditions of these areas.

A monetary impact/benefit assessment has become a part of planning and building infrastructure, housing, commercial, cultural, educational, leisure and recreational developments. The same has not been true for ecosystems and nature preserves. Reasons for that are the lack of awareness of how important these areas are to the local economy and quality of life, as well as the cost efficiency of conducting a study to identify and monetize the benefits.

This has changed over the years and now there is a growing number of primary academic data and commercial studies on the functions and value of natural systems, which have also been used in this general assessment. For example, the loss of ecosystems that provide flood protection and clean drinking water requires communities to build facilities to replace and compensate for those lost ecosystem services. And that comes at an ever-increasing cost. Additionally, during the Steering Committee commenting period on the Land Use Strategy, Openlands provided suggestions for other studies that could be conducted to further explore a more robust valuation of environmental benefits (see **Appendix H**). These ideas can be explored in future studies and implementation.

Methodologies and Examples for Evaluating Benefits and Impacts

Open space provides a range of benefits to citizens of a community. Categorically, agricultural land can be valued for the vistas and decompressive open space it offers. Parks and natural areas can be used for recreation and as critical natural systems habitat. Wetlands can provide stormwater

drainage, flood mitigation and wildlife habitat. Forests also provide natural systems habitat and aesthetic benefits to surrounding residents. In growing urban and suburban areas, any preserved land can offer relief from congestion and other negative effects of development.

Economics literature provides two approaches for estimating open space value. Under the first approach are hedonic property value studies, in which the open space value is inferred by estimating the sales price or value of a property as a function of measures of proximity to open space and other property and neighborhood characteristics. In the second approach, studies use surveys to elicit preferences or values people (households) place on various types of open space amenities.

For this assessment, the second approach was used with some benefit/impact factors derived from already established values and involved the following steps:

- Identify and estimate (acres) of land cover classes, e.g., forest, grassland, wetlands
- Identify the benefit/valuation of ecosystem purposes and land cover class combination using the Benefit Transfer Methodology (BTM) to find and transfer appropriate values for ecosystem functions. In cases where no published studies were available for a particular ecosystem function/land cover combination, no value is shown in this report.
- Estimate the annual benefits for the three areas of the ecosystem services for a particular land cover class

Quantifying Benefits

Benefit Transfer Methodology (BTM) is a well-established methodology that indirectly estimates the value of ecological goods or services. BTM is frequently used because it can generate reasonable estimates quickly and at a fraction of the cost of conducting a full and comprehensive study.

The BTM process identifies previously published studies from comparable ecosystems and uses, for this project in particular, studies that examine similar uses and geographies in an urban fringe setting. It then ‘transfers’ the results and findings to a different study location, in this case Will County. In other words, the BTM process is similar to a home appraisal in which the value and features of comparable, neighboring homes are used to estimate the value of the home in question. As with home appraisals, the BTM results can be somewhat rough but quickly generate reasonable values appropriate for policy work and analysis.

Next, the individual study values from the identified comparable studies are adjusted and standardized for units of measure, inflation, consumer price index (CPI), and land cover classification to create a consistent set of variables to avoid “apples-to-oranges” comparisons. Because studies with a variety of subjects or features (land uses) contain uncertainty, results are usually presented in a range (in this case an annual high and low dollars per acre value).

Summary of Findings

Using land cover categories from the National Land Cover Database (NLCD), and satellite images of each site, a general estimate of the land cover type for each of the sites was prepared, as shown in **Table 1**.

This study identified 12 general ecosystem functions that could be valued across each land cover type shown in the previous table. Each land cover type provides economically valuable goods and services. For example, wetlands provide benefits such as habitat for wildlife, climate stability, and recreation opportunities like birdwatching.

Table 1. Estimated Distribution of Land Cover Type

Preservation Area	Joliet Army Training Area		Jackson Creek Greenway		Prairie Creek Area	
Total Size (Acres)	4,000	100%	8,500	100%	640	100%
Forests	1,600	40%	850	10%	32	5%
Grasslands	1,000	25%	2,550	30%	64	10%
Shrublands	800	20%	850	10%	64	10%
Water	200	5%	0	0%	32	5%
Wetlands	0	0%	0	0%	0	0%
Open Space	400	10%	4,250	50%	448	70%

Source: National Land Cover Database (NLCD), Google Earth Images, MFA

Table 2 shows a matrix of the ecosystem functions for each land cover type. Green fields indicate that values/data sets from comparable studies were available and assigned – orange fields indicate that no values/dataset were found or available in comparable studies. This does not indicate that there is no value, but instead simply states that no values/datasets were available to quantify benefits.

Table 2. Land Cover Type & Ecosystem Function Matrix

Function/Land Cover Type	Forests	Grasslands	Shrublands	Water	Wetlands	Open Space
Aesthetics	Y	Y	N	Y	Y	N
Air Quality	Y	N	Y	N	N	N
Climate Stability	Y	Y	Y	N	Y	N
Disaster Risk Reduction	N	N	Y	N	N	N
Energy & Raw Materials	N	N	N	N	N	N
Food	N	Y	N	N	N	N
Habitat	N	N	N	Y	N	N
Recreation	Y	N	Y	N	Y	Y
Soil Retention	Y	N	Y	N	N	N
Water Capture, Conveyance, & Supply	Y	N	N	N	N	N
Water Quality	Y	N	N	N	N	N
Water Storage	N	N	Y	Y	N	N

Source: National Land Cover Database (NLCD), Comparable Studies

Annual Benefits

Applying identified benefits/values from the reference tables in **Appendix G** to the estimated distribution of land cover types results in annual per acre benefits for each of the three subject sites. Results are shown below in dollars per acre per year and the total dollar value of the annual value of ecosystem functions for each land cover type.

The combined annual estimated benefits of ecosystem functions of the three subject areas are between \$13.6 million and \$126.3 million, as shown in **Table 3**.

Table 3. Annual Benefits of Three Preservation Areas

Preservation Area	Low	High
Joliet Army Training Area	\$4,477,224	\$70,112,995
Jackson Creek Greenway	\$8,455,901	\$53,319,946
Prairie Creek Area	\$676,185	\$2,871,451
Combined Total	\$13,609,310	\$126,304,391

Best Practice Strategies for Industrial & TDL Uses

Best practice strategies can help reduce the negative impacts of Industrial and TDL developments on the environment, the workforce, and the community quality of life. These tools can be incorporated into County and local ordinances as requirements or guidelines for developers. Incentives can be offered to encourage the usage of these tools including Tax Incentives, FAR Bonus, Expedited Permitting, Net Metering, Grants and Loans, Technical Assistance/Design Assistance, Permit/Zone Fee Reduction, Rebates, and Discounts on Environmental Products, etc.¹

LEED (Leadership in Energy and Environmental Design) is a major resource for Best Practice Strategies that can be incorporated into Industrial and TDL developments. LEED certification is a globally recognized symbol of sustainability achievement and leadership and is administered by the U.S. Green Building Council (USGBC). According to the USGBC, green Industrial and TDL buildings can offer the following benefits:

- Reduce the environmental impact of the development.
- Positively impact the health, safety, well-being and experience of employees and occupants.
- Respond to the potential growth in green jobs in manufacturing.
- Encourage manufacturers to be good stewards for their communities.
- Encourage the reuse of Brownfields and Landfill Sites.

In addition to Green Building design, developments can incorporate **Green Infrastructure** elements. These cost-effective, resilient approaches to managing wet weather impacts can provide many community benefits. While single-purpose gray stormwater infrastructure - conventional piped drainage and water treatment systems - is designed to move urban stormwater away from the built environment, Green Infrastructure reduces and treats stormwater at its source while delivering environmental, social, and economic benefits.²

Reduction of **heat islands** is also a major benefit of best practice design. Heat islands are described by the EPA as “urbanized areas that experience higher temperatures than outlying areas.” Structures such as buildings, roads, and other infrastructure absorb and re-emit the sun’s heat more than natural landscapes, creating heat islands where daytime temperatures can be 1–7°F higher than temperatures in outlying areas.³ With millions of square feet of paved areas and rooftops, Industrial and TDL uses can contribute significantly to the heat island effect.

During the Steering Committee commenting period on the Land Use Strategy, CNT suggested that in addition to green features that can be installed on-site to also consider strategies to encourage low-emissions trucks, provide transit options for workers, and install green features along truck routes that will be used to access the sites (see **Appendix H**). As a next step and further study, implementing communities can further explore these suggestions as many of the recommendations are within the purview of municipal governments.

The following Best Practice Strategies are recommended for Industrial and TDL uses:

- **Renewable Energy**
- **Green Roofs and Cool Roofs**
- **Reuse of Landfill and Brownfield Sites**
- **Reduction of Building Footprint**
- **Permeable Paving**
- **Natural Landscaping**
- **Bioswales and Rain Gardens**

1 http://resources.cleanenergyroadmap.com/SCPP_Z_green-building-incentives.pdf

2 <https://www.epa.gov/green-infrastructure/what-green-infrastructure>

3 <https://www.epa.gov/heatislands>

The Testa Produce facility in Chicago, Illinois, is a LEED Platinum certified development that showcases many of these Best Practice Strategies:

- **Renewable Energy:** The first freestanding wind turbine in Chicago, Testa's turbine generates approximately 30% of the building's power needs. A total of 180 solar panels located above rear docks and in the parking lot generate energy for the building, Solar Hot Water System panels on the roof produce 100% of the building's non-potable hot water. Compressed Natural Gas (CNG) trucks have been added to the Testa fleet, replacing older bio-diesel trucks. CNG trucks run on clean-burning, low-cost domestic gas, helping reduce the carbon footprint of the facility. All company cars are hybrid vehicles and there is designated preferred parking close to the building reserved for low-emitting, fuel-efficient vehicle owners.
- **Green Roof and Rain Water Harvesting:** A 45,650 sf green roof barrel covers the facility. Native plant material on the green roof requires minimal irrigation, collects rainwater, and prevents run-off. A 5,000-gallon internally filtered rainwater harvesting cistern collects and stores water runoff from the green roof. The filtered water is used for non-potable purposes throughout the building.
- **Reuse of Brownfield Site:** The facility was developed on a former brownfield site in the Chicago Industrial Stockyards Corridor.
- **Permeable Paving and No Blacktop:** Permeable pavers lining the walkways and parking lot are designed to drain water runoff into a bioswale system. There is no blacktop asphalt on the entire site. Instead, 5 acres of white concrete has been used throughout the site to reduce the urban heat island effect.
- **Natural Landscaping and Bioswales:** A 140,132-gallon bioswale system borders the building. The bioswales encourage rainwater infiltration into existing soils and filter water into the retention pond, reducing the demand on public sewers. The landscaping surrounding the building features native plant species that are functionally designed to require minimal irrigation and conserve water.
- **Sustainable and Recycled Materials:** All cleaning and pest control in the building is done using certified green products. All paints and adhesives used contained low VOC and only low emitting finishing products were used throughout the building to maintain good air quality. 31% of the entire facility is made of recycled materials. 85% of the building material was recycled construction waste diverted from landfills.



Source: www.testaproduce.com

Recommended Best Practices

Renewable Energy

According to the EPA, sources of renewable energy include Wind Power, Solar Power, Geothermal Technologies, Landfill Gas, Biomass Power, and Low-impact Small Hydropower. All Industrial and TDL developments are encouraged to incorporate these renewable energy sources in their facilities. A variety of on-site tools can be installed to harness renewable energy, including:

- Rooftop solar arrays
- Ground source heat pumps to eliminate or reduce the need for natural gas
- Small-scale Photo Voltaic (PV) installations, including solar awnings, parking lot lights, passive solar walls etc.
- Solar hot water heating systems
- Wind Turbines



The **IKEA Distribution Center in Joliet, Illinois**, is a LEED Gold-certified facility located in the Study Area. A key environmental highlight is its 10.5 acre rooftop solar array built with 9,036 solar panels, one of the largest in Illinois. The 2.9 megawatt array produces approx. 3,625,000 kWh of electricity annually for the facility, the equivalent of reducing 2,513 tons of carbon dioxide, or annual the emissions generated by 538 cars, or 6,612,222 miles driven in a passenger vehicle.

Source: www.joliet.gov



The **Method Southside Soapbox in Chicago, Illinois** is a LEED Platinum manufacturing facility located on 22 acres in the heart of the Pullman neighborhood. A 230-foot wind turbine uses wind to make electricity and helps to generate half of the building's annual electrical consumption. Three 35 x 35-foot solar tracking trees in the parking lot follow the sun from sunrise to sunset in order to maximize energy generation.

Source: www.methodhome.com, www.mcdonoughpartners.com



The **Amazon Fulfillment Center in Tracy, California**, has 11,700 solar panels on the roof of the 1 million square foot facility. The 3.8-megawatt rooftop installation covers two-thirds of the fulfillment center's 23-acre roof and can generate enough electricity to power 560 homes. This is one of the largest rooftop solar panel installations in California.

Source: www.prologis.com

Green Roofs and Cool Roofs

A Green Roof provides layers of living vegetation installed on top of buildings. Industrial and TDL buildings typically have massive roof surfaces. Green Roofs on these large surfaces can provide significant benefits, including the following:

- Manage stormwater and improve water quality by retaining and filtering rainwater.
- Provide more building insulation and reduce cooling and heating costs.
- Reduce cadmium, copper, lead, zinc, and nitrogen levels in stormwater runoff.
- Extend the life of roofs two to three times. A vegetated roof, on average, can be expected to prolong the life of a conventional roof by at least 20 years because the vegetation prevents the roof from being exposed to ultraviolet radiation and cold winds.
- Preserve habitat and biodiversity.
- Improve air quality and reduce the heat island effect.



The **Ford Motor Truck Plant, in Rouge Center, Michigan**, has one of the nation's largest ecologically inspired living roof that was planted on the massive industrial building. About 454,000 square feet of assembly plant roofing is covered with sedum and other succulent plants. The roof reduces stormwater runoff by holding an inch of rainfall. Also, the living plants absorb carbon dioxide as part of photosynthesis, so oxygen is emitted and greenhouse gases are reduced. In 2004, the 10.4 acre Ford Truck Plant green roof was recognized in the Guinness Book of World Records as the world's largest living roof and helped jump-start the early North American green roof industry.

Source: <https://www.greenroofs.com/projects/ford-motor-companys-river-rouge-truck-plant/>



The **Method Southside Soapbox in Chicago, Illinois** has a 75,000 square feet commercial-scaled greenhouse on the roof. The greenhouse produces about 500 tons of fresh, premium quality, pesticide-free produce annually for the local community and surrounding retail and restaurant market. A 1,520 square foot rooftop canopy is also provided. Green plants growing on the roof help decrease energy use, improve urban air quality, and reduce stormwater runoff.

Source: www.methodhome.com

A **Cool Roof** is one that has been designed to reflect more sunlight and absorb less heat than a standard dark roof. Dark roofs can reach temperatures of 150°F or more in the summer sun. A cool roof under the same conditions could stay more than 50°F cooler and save energy and money by using less air conditioning. Cool roof coatings are typically made of white or special reflective pigments that reflect sunlight. Coatings are like very thick paints that can protect the roof surface from ultra-violet (UV) light and chemical damage, and some offer water protection and restorative features. Light colored metal roof systems and polyurethane foam spray systems can also be used to create cool roofs. Benefits of Cool Roofs include:

- Reduce energy bills by decreasing air conditioning needs
- Improve indoor comfort for spaces that are not air conditioned
- Decrease roof temperature, which may extend roof service life.
- Reduce local air temperatures and the urban heat island effect
- Lower peak electricity demand, which can help prevent power outages
- Reduce power plant emissions, including carbon dioxide, sulfur dioxide, nitrous oxides, and mercury, by reducing cooling energy use in buildings

Reuse of Landfill and Brownfield Sites

EPA's 2020 study on "Environmental Benefits of Brownfields Redevelopment - A Nationwide Assessment" found that "when housing and job growth is accommodated by redeveloping existing brownfields sites, the expansion of paved impervious surfaces and average vehicle miles traveled (VMT) per capita/per job are reduced as compared to accommodating the same amount of growth on previously undeveloped sites." Reuse of previously contaminated sites in the Study Area for Industrial and TDL uses can bring these benefits of reduced impervious coverage and VMT, and also help avoid the costs of extending and maintaining new infrastructure to greenfield sites.



The FCA US Trenton South Engine Plant in Trenton, Michigan was developed on an existing brownfield site, and was designed for efficient production and minimal environmental impact. It remains a zero-waste-to-landfill site today. Overall annual CO2 emissions were reduced by 12,000 metric tons, and annual energy use was reduced by 39 percent. The state-of-the-art facility was the first engine plant in the world to obtain LEED Gold certification.

Source: <https://readymag.com/usgbc/industrial/projects/>



The L'Oreal Florence North Project in Florence, Kentucky became one of the company's largest plants worldwide with the renovation and expansion of its 380,000 square foot brownfield facility in 2012. The project included the installation of high-efficiency lighting and air compressors, reflective roofing, occupancy sensors, materials manufactured locally, with high reuse/recycled content and low-emitting materials to protect indoor air quality. The LEED NC certified facility also had a reduction of waste per unit by 55 percent.

Source: <https://readymag.com/usgbc/industrial/projects/>

Multiple Stories to Reduce Building Footprint

Multistory facilities can accommodate significantly more building area on a smaller building footprint. A smaller footprint leads to less impervious coverage and reduces adverse impacts on natural resources. Multiple tenants can be also be stacked vertically within a smaller footprint.



The **Amazon Fulfillment Center in Matteson, Illinois** provides approx. 4 million sf in **five floors**, and has a footprint of 800,000 sf on a 180 acre site. The **Amazon Fulfillment Center in Markham, Illinois** offers an overall floor area of approx. 3.8 million sf in **five floors** on a 140 acre site.

Source: <https://chicago.suntimes.com/business/2020/6/22/21299517/amazon-fulfillment-centers-suburban-chicago-matteson-markham>



Prologis Georgetown Crossroads in Seattle is a 590,000 SF warehouse with **three floors** and multiple tenants, including Amazon. The building was designed with truck ramps leading to loading docks on the second level and a third floor, served via forklift accessible freight elevators.

Source: <https://www.prologis.com/industrial-logistics-warehouse-space/washington/seattle/prologis-georgetown-crossroads>

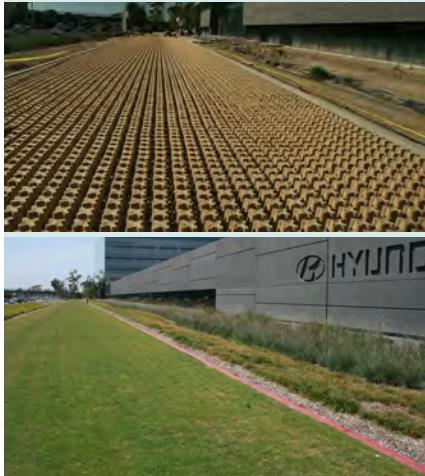
Permeable Paving to Reduce Impervious Coverage

According to the Will County Stormwater Technical Guidance Manual, “Impervious surfaces on a property should be minimized. Reducing impervious surfaces is one method for controlling increases of stormwater runoff, and controlling future increases in stormwater damages.”

Permeable paving is one Best Practice Strategy to help reduce the impervious coverage on the site. This typically consists of a porous surface composed of open pore pavers, concrete, or asphalt with an underlying stone reservoir. The permeable pavement catches precipitation and surface runoff, storing it in the reservoir while slowly allowing it to infiltrate into the soil below or discharge via a drain tile. Benefits of permeable paving include:

- Reestablish a more natural hydrologic balance and reduce runoff volume by trapping and slowly releasing precipitation into the ground instead of allowing it to flow into storm drains and out to receiving waters as effluent. This same process also reduces the peak rates of discharge by preventing large, fast pulses of precipitation through the stormwater system.
- Reduce the concentration of pollutants
- Cool down the temperature of urban runoff
- Reduce the need for or the required size of a regional BMP, such as a wet detention pond
- Reduced need to apply road salt for deicing in the wintertime. Air trapped in the pavement can store heat and release it to the surface, promoting the melting and thawing of snow and ice.

Industrial and TDL uses are encouraged to use industrial high performance permeable pavers made for heavy duty applications where possible, especially in parking lots, driveways, fire access lanes, and trailer parking areas. Light colored paving materials are recommended to reduce heat island effects. LEED recommends that pavement material should have a Solar Reflectivity (SR) of at least 0.33 at installation.



The **Hyundai Motor America Headquarters in Fountain Valley, California**, a LEED gold certified facility, has installed Grasscrete for emergency fire lane access. Grasscrete is a pervious reinforced concrete structure that has grass growing in the voids of the structure or has stone in the voids of the structure. The Grasscrete system allows for emergency vehicle access, management of storm water runoff, reduces heat island effect and uses recycled content in the application process as well as the concrete and sub-base.

Source: www.sustainablepavingsystems.com/project/hyundai-motor-america-us-headquarters-fountain-valley-ca/

Natural Landscaping

Natural landscaping refers to the use of native vegetation including prairie, wetland, and woodland species, and is strongly encouraged as an alternative to conventional landscaping for Industrial and TDL developments. Natural landscaping:

- Reduces maintenance costs, but also reduces air, water, and noise pollution from lawn mowers.
- Produces substantially less stormwater runoff than a conventional landscape. Native vegetation enhances both absorption of rainfall and evaporation of soil moisture due to extensive root systems that extend down 3 to 10 feet or more. In contrast, the root zone of turf grass typically extends only about 3 to 4 inches. Natural landscaping also reduces pollutants associated with site runoff, stabilizes soils, and prevent erosion along stream banks and detention basin edges.
- Provides habitat for native and migrating birds, butterflies, and insects.
- Moderates temperature extremes (such as the “urban heat island” effect), resulting in reduced heating and air conditioning costs.

County and local governments can amend local codes to require a minimum percentage of natural landscaping for all Industrial and TDL developments with an approved list of native plant species, and a maintenance criteria.

- Design should be tailored to individual site characteristics, factoring in topography, soils, drainage patterns and sun exposure.
- On some sites, natural landscaping can be installed or preserved in an informal setting; on others, native plants can be used in more formal settings in place of imported species.
- Plant slopes with a terraced system of native plants and ground covers can be used to break up the slope and slow down water runoff and soil erosion.
- A rain garden of deep-rooted native plants and grasses can be considered for low areas to encourage storm water to soak slowly into the ground.

Bioswales, Rain Gardens, and Rainwater Harvesting

A **Bioswale** is a vegetated open trench designed specifically to temporarily store and infiltrate stormwater. Bioswales are planted with deep-rooted native grasses and forbs, and are often used as an alternative or supplement to standard below ground stormwater sewers. They can be found on the edges of parking lots or around developments and vary widely in size. Benefits of Bioswales include:

- Reduce runoff volumes and rates by slowing water down through the vegetation allowing groundwater to recharge and sustaining stream baseflows.
- Deep-rooted native grasses and forbs can enhance the infiltration, cooling, and cleansing of water in order to improve water quality. This may reduce detention needs for the area.

Bioinfiltration systems should be located at least 10 feet away from buildings to ensure water does not drain into the foundations. Ideally, pretreatment should be provided to remove suspended solids from the runoff before it enters the system.

A **Rain Garden** is a simple form of bioinfiltration that typically relies on the underlying soils for drainage. Therefore, it may not function properly if underlying soil is compacted by heavy equipment and/or its absorption rate is slow. Where appropriate, however, rain gardens can be fitted with french drains, or other types of under-drains, to move more water through the soil.

- Full sun is best, but shade may be created by the presence of trees or surrounding buildings.
- No additional watering should be necessary, once plants are established.
- A gradual slope is generally better in order to prevent a minimum of erosion during heavier rain storms. Erosion mats can be used to help hold the soil, if the slope is steep.
- A full list of hardy native plants recommended by IDNR is available at <https://www2.illinois.gov/dnr/education/Pages/PlantListBioswale.aspx>.

Rainwater Harvesting can provide a source of alternative water for non-potable uses. Alternative waters are sustainable sources of water, not supplied from fresh surface water or groundwater, that offset the demand for freshwater. Rainwater harvesting captures, diverts, and stores rainwater from rooftops for later use. Typical uses of rainwater include landscape irrigation, wash applications, cooling tower make-up water, and toilet and urinal flushing.

The **L’Oreal plant at Muggensturm Germany** is a 1 million sf facility on 45 acres. Rainwater irrigates green areas, cleans the halls and flushes the toilets. Many other best practices have also been used in the design. Renewable energy is used to operate the facility. A rooftop solar array offers a maximum peak capacity of 2.0 megawatts. A 300,000 sf of conservation habitat in a green roof provides species protection measures, specifically for the skylark, a bird native to the local countryside.



Source: www.prologisgermany.de

Implementation

How to Use and Implement Recommendations

The near-term action items listed below are integral to the implementation process for both the Land Use Strategy and the companion document, the Truck Routing and Communities Plan and Implementation Strategy, which are tied together. It is recommended that the County, townships, and study area municipalities either adopt or approve both documents, as the Land Use Strategy is built from the truck routing recommendations.

- **Truck Routing and Communities Plan:** Incorporate truck routing network into roadways plans, implement near-term routes and restrictions, and seek funding for priority corridor improvements
 - *Responsible Parties:* Local municipalities and Will County
 - *Partners:* IDOT and CMAP
 - *Champions:* IL Soybean Association, IL Trucking Association, Midwest Truckers, Openlands, Midewin
- **Land Use Strategy:** Incorporate strategy into future land use plans/zoning and utilize design guidelines in future projects
 - *Responsible Parties:* Local municipalities and Will County
 - *Partners:* Will County Governmental League, FPDWC, Will County Center for Economic Development, and CMAP
 - *Champions:* IL Soybean Association, IL Trucking Association, Midwest Truckers, Openlands, Midewin

It should be stressed that as opposed to traditional land use and comprehensive plans that include a map to guide future land use designations and zoning, the strategy for future land use development in this document is geared towards the process, rather than providing a map to adopt and follow. As Will County does not have authority to implement land use recommendations within municipalities, it is the responsibility of communities to accept or adopt the strategy, and incorporate the criteria and process proposed in future land use decision making to help reach consensus with their neighbors in routing truck traffic, prioritizing locations for future TDL development, and protecting natural areas.

The criteria outlined in this document can be used by communities to inform and update their future land use, zoning and comprehensive planning efforts. Rather than using the maps provided in this strategy document, it is recommended that communities follow the steps and run the analysis themselves when determining where to locate future TDL uses in their municipal plans and maps, as conditions change and new datasets become updated or available. The maps in this strategy document are examples of results that the criteria could yield based on the existing conditions and available data during study production. However, these conditions can change within a few years, or even the span of a few months. For example, if new infrastructure is built as a part of another project, that could change the existing and short term truck routes network, which could in turn provide new opportunities for locating TDL land uses.

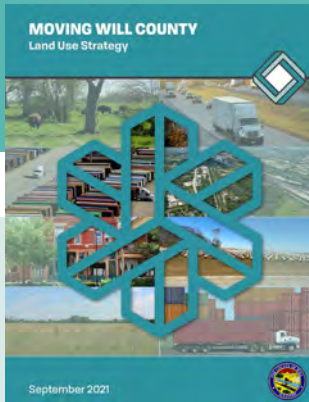
As communities embark on future planning and zoning efforts, revisit their internal policies, and review future development projects, it is also recommended that they consider the Best Practice Strategies included as a part of this document. The recommendations in this strategy are best practices, not a one-size-fits-all approach, so communities would need to consider how they could tie into their needs and goals when incorporating the recommendations into their standards.

The process for determining future locations for prioritizing the growth of TDL land uses is iterative. One of the key findings of the Will County Community Friendly Freight Mobility Plan (WCCFFMP) was that traditional planning approaches cannot handle the pace of freight development experienced in Will County. Therefore, a static land use map that shows a snapshot in time today may not be illustrative of the conditions tomorrow. For this reason, the Land Use Strategy provides a process for communities to follow rather than an outcome.

The WCCFFMP envisioned a land use plan to coordinate development with local partners to better plan for rapid growth. The goal of this strategy is for all communities in the study area to utilize the same agreed upon criteria and follow guidelines to better handle the rapid growth of Industrial and TDL uses in the future and minimize conflicts between neighbors, while still working towards local and regional economic development goals that are vital to the freight system.

How to Use the Land Use Strategy

(in the Study Area, or in other areas of Will County)



Use as a guide when updating County and local municipal Comprehensive Plans and Zoning Ordinances.

1. Joliet Army Training Area
2. Jackson Creek Greenway
3. Prairie Creek Area
4. Floodplain Buffers

Protect the four recommended Preservation Areas (page 32) in County and local plans and ordinances.



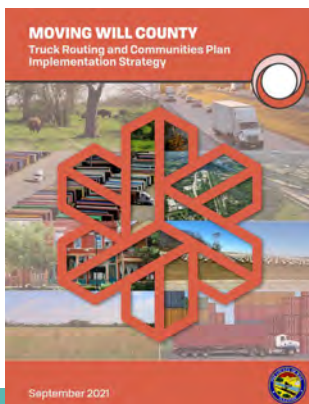
Use the Checklist (page 25) to determine if a parcel is suitable for Industrial and TDL uses.



Use the Checklist (pages 33-34) to determine if an area is suitable for Preservation.



Encourage the use of the Best Practice Strategies (page 43) in all Industrial and TDL developments.



Use in combination with the Moving Will County Truck Routing and Communities Plan and Implementation Strategy.