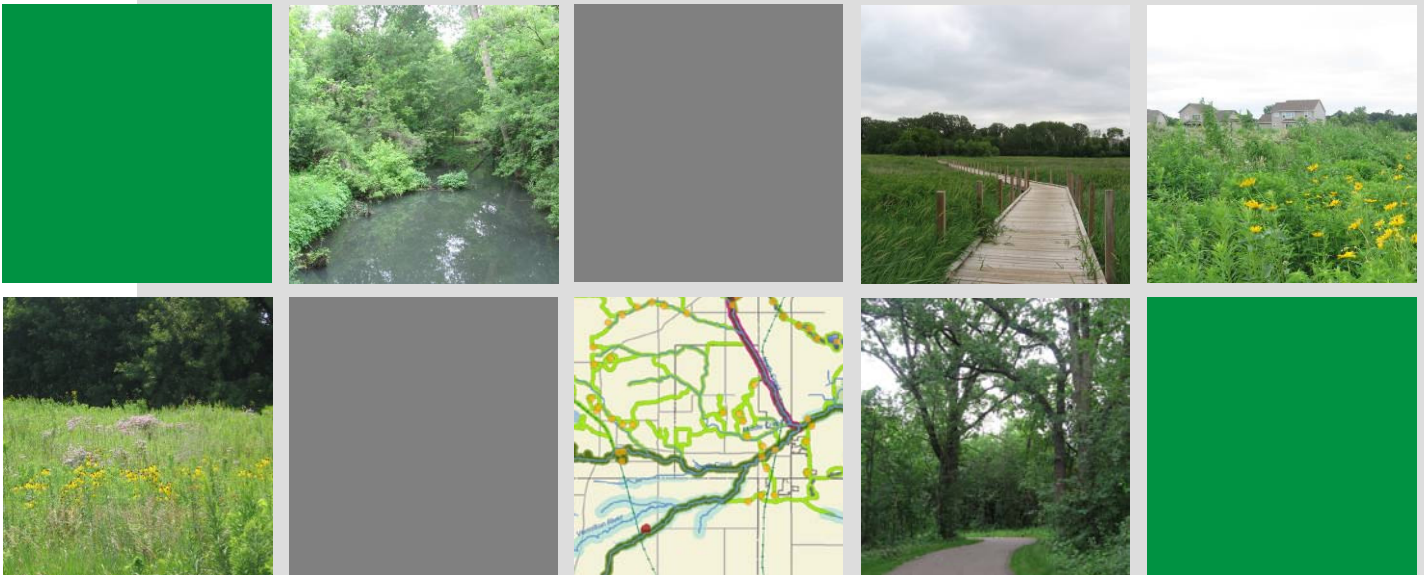


Report and Recommendations

FARMINGTON'S GREEN CONNECTIONS: AN INVENTORY AND MANAGEMENT PLAN



City of Farmington, Minnesota

April 2010
Project No. 14412.000

TKDA

ENGINEERING • ARCHITECTURE • PLANNING

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I. EXECUTIVE SUMMARY

The City of Farmington developed on a rich canvas of natural resources. The community developed at the confluence of the Vermillion River and its tributaries, on a rich matrix of prairie, wetlands and oak woodlands. These resources are at the core of the City's heritage, and fueled its early economic growth.

Significant natural resources and natural communities still remain within the fabric of the community. They connect the City with surrounding townships, the County and the Region. This study suggests that with good planning and care, these resources can be an important part of the community's future, add significant value, and help to shape its identity.

The City's natural resources and open space system form a unique set of Green Connections that knits the community together. The City's Green Connections system include:

- The City's *waterways, trails and floodplains* - these are connecting elements that knit the community and resources together
- *Natural communities, including prairies, wetlands and woodlands* that are located on public and private lands within the Green Connections system
- The City's *parks, open spaces*, which are key nodes within the system

The City of Farmington completed this natural resource inventory and management plan to identify and recognize its resources, and plan for the future. The plan was adopted by the City Council on February 9, 2010. The plan includes the following:

- An inventory and maps of significant resources and resource corridors within the City and in adjacent Township areas that will become part of the City
- A analysis of the value that natural resources and open spaces contribute to the community
- Goals and priorities for managing the City's Green Connections system
- Specific implementation steps the City can take on its own and in cooperation with others to develop and maintain its Green Connections

Development of this plan included input from City staff, Dakota County, the Dakota Soil and Water Conservation District, the Farmington Sportsmen's Club, Pheasants and Ducks Unlimited, and the City's Planning Commission and Parks Commission.

II. FARMINGTON IS A CITY OF GREEN CONNECTIONS

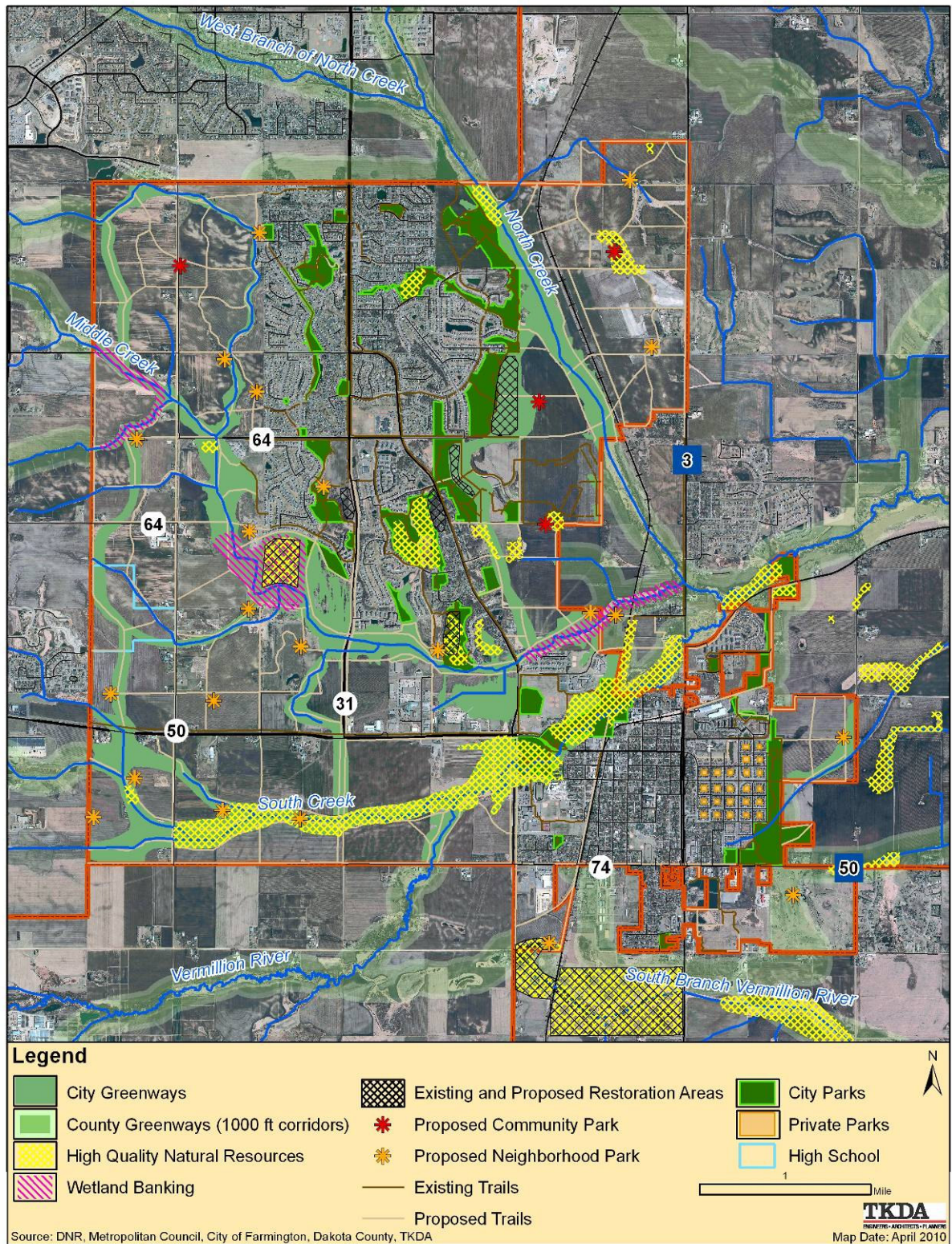
The City of Farmington is located at the confluence of the Vermillion River and several of its tributaries, including North and Middle Creek and the South Branch of the Vermillion River. These waterways have shaped the growth of the community, and connect it with other communities in Dakota County and the Region. They form the major arteries of the Green Connections system. These streams are still of high quality, and have been designated trout streams by the Minnesota DNR. The Vermillion River Watershed has recently been recognized as one of two Watersheds of High Significance in Minnesota's statewide natural resources plan. (The other watershed of high significance is the St. Croix River Watershed.)

*The five waterways connect the City's existing and future neighborhoods. Collectively, they can shape a special identity and unique linear system of **Green Connections** - similar to the Grand Rounds system of lakes, creeks and trails in the City of Minneapolis.*

Figure 1 identifies the **Green Connections** system in Farmington. The elements of the system include the following:

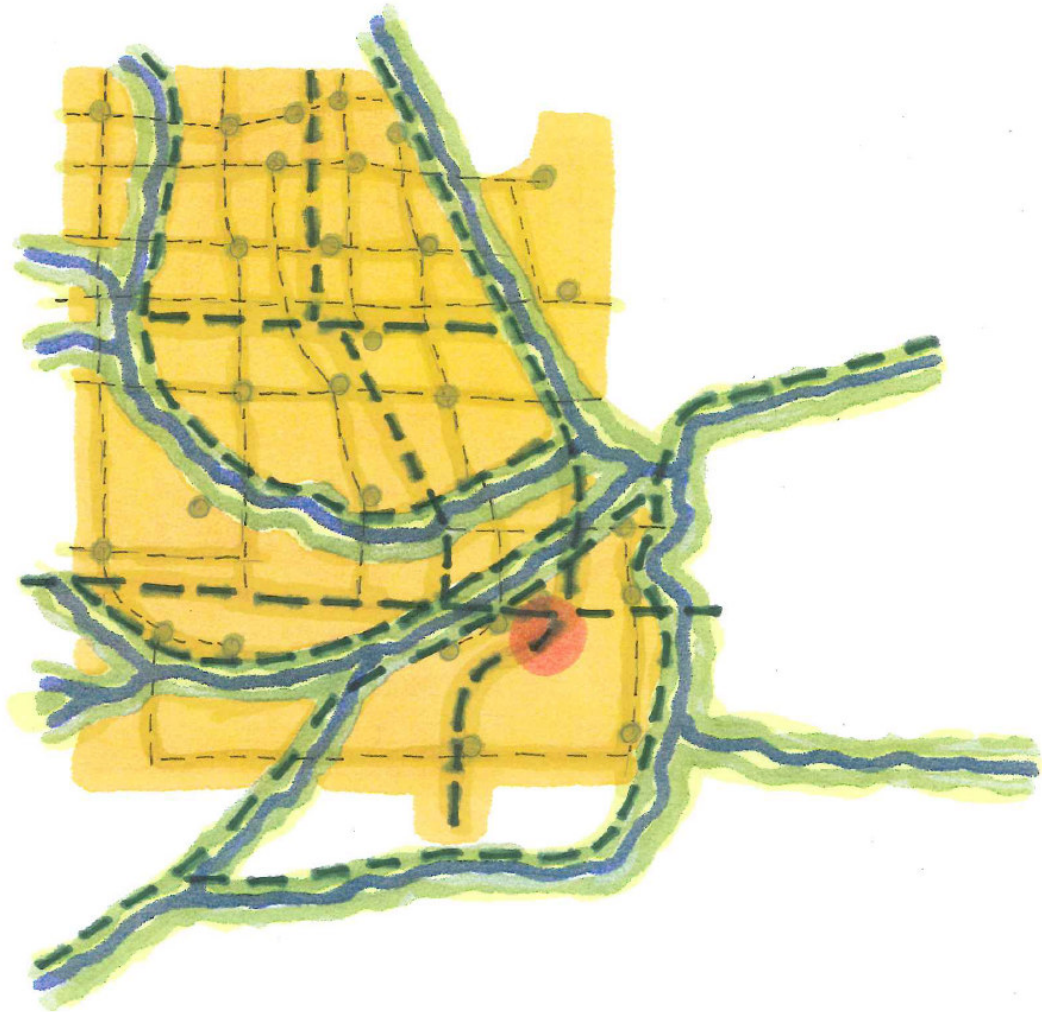
- The Vermillion River and its tributaries: North and Middle Creeks, the South Fork of the Vermillion River, and the Prairie Waterway
- High quality wetland and wet prairie resources within and connected to the corridors, including native community remnants and prairies and wetland that have been restored by the City
- Oak savanna and woodland resources, particularly those located along the Akin Ridge Greenway
- The Cities park lands, open space areas and trails system

Figure 1. City of Farmington Green Connections System



The Green Connections system is an infrastructure system, much like a transportation system. The stream corridors and major trail corridors are the system's "arterials"; neighborhood trails complete the system, and provide easy access for residents. The City's Parks and Open Spaces are key nodes within the system. Figure 2 is a schematic version of Farmington's Green Corridor system, illustrating the arterials and neighborhood hierarchy.

Figure 2. Green Connections Schematic Map



Communities across the U.S. and around the world are recognizing the importance of green infrastructure systems, and planning for multi-modal systems that provide connections within and between communities. Research and experience have shown that maintaining connections and movement is critical to the health of human communities and to natural communities.

Farmington is fortunate that it has an existing, natural network that forms the backbone of its green infrastructure system, and that its parks and trails planning to

date has recognized the importance of a connected, community-wide system and developed significant elements of this system.

This report discusses ways for the City of Farmington to recognize, maintain and enhance its Green Connections system to add value to the community for the long term. In summary, these recommendations include:

- Recognize the Green Connections system on the City's maps and in its policy documents
- Update the City's code to include system implementation
- Continue to develop the Green Connections as new areas are developed and added to the City.
- Maintain existing areas of high quality
- Restore and enhance additional prairie, wetland and woodland areas
- Continue to develop the community's planned park, trail and open space system in coordination with the Green Connections system
- Cooperate with Dakota County, surrounding communities, and others to extend the connections by linking to the County-wide greenways system.

These recommendations recognize that the Green Connections system includes areas of public and private ownership. Successful development of the system will require a partnership and investment by both public and private interests, and both will reap rewards from development of the community-wide Green Connections system.

III. THE GREEN CONNECTIONS SYSTEM IS AN INVESTMENT THAT ADDS VALUE

Farmington's Green Connections system deserves investment because it adds value to the community in several ways:

- Economic value
- Recreation and transportation value
- Community health and well-being
- Historic and aesthetic value, and community identity

Economic value. Recent analysis in Minnesota and other states indicates that properties near open spaces and greenways have a higher economic value than properties that are not near these areas. Recent data and analyses from Hennepin and Washington counties in Minnesota indicated that there is an average an “open space premium” or added value of \$16,000 per home on properties within 500 feet of greenways or open space. This translates into added value for homeowners as well as for cities and counties through increased property tax revenues on those properties.

Cities like Minneapolis and St. Paul provide examples of how greenway systems add value and help to maintain it for the long-term. The highest-value homes in both communities are concentrated along the connected “Grand Rounds” system of trails and parkways that connects lakes, Minnehaha Creek, the Mississippi River and the Cities’ parklands. These areas have maintained and increased their value over a hundred years, and the system as a whole is a highly visible and marketable element that helps to define and attract residents to these communities.



Transportation value - for recreation and other trips. Farmington's Green Connections system includes a trail network that is interconnected with its transportation system and parks system. These linkages will help to connect new and developing neighborhoods with older neighborhoods as the City grows. The system also provide important links to County and Regional trail systems. The Green Connections should be seen as part of the community's transportation infrastructure.

Bike and pedestrian routes within this connected system offer commuting opportunities as well as recreational resources. They provide residents with routes to work, shopping areas, entertainment, and recreation. Use of this system can reduce the community's dependence on fossil fuels, reduce pollution, and minimize the community's "carbon footprint."

Community health. The Green Connections system can help to maintain the health of community residents as well as its natural resources.

The trail and greenway system that is part of the community's Green Connections provides easily accessible routes for walking, biking, and access to the City's park and recreation facilities. Easy access to such systems is one of the key factors in encouraging healthy lifestyles.

Ecologists also emphasize the importance of connected habitats in maintaining the health of species and natural systems. The Green Connections system helps to maintain natural connections among habitat areas, which is critical for many species that need to access multiple habitats during their lifecycles. It provides opportunities for plant and animal species to escape from disease and predation, and multiple areas for foraging and breeding. Maintaining connections among habitat areas is particularly important as the growth of urban areas tends to fragment and isolate habitat areas.

Historic and aesthetic values, and community identity. Farmington developed as an agricultural center and local trade center. Prairies and waterways created the soils and setting for the growth of agriculture and the community. The City's waterway system and remaining prairies, wetlands and woodlands help to keep this history alive as the community grows.

Few communities have the unique network of Green Connections that knits the older and newer neighborhoods of Farmington together. The system and concepts of Green Connections can help to unify the community, and give it a special identity for current residents and potential residents.

IV. KEY NATURAL RESOURCES IN FARMINGTON - GOALS AND PRIORITIES

Field Inventory Results and Original Vegetation

This natural resource inventory incorporated data from previous wetland inventories completed in Farmington, and expanded the data using map and field inventories. The inventories included uplands and wetlands in the existing community and adjacent areas that will become part of the City in the future.

The resource areas of highest quality in Farmington and adjacent township areas are mapped on Figure 3 and include the following:

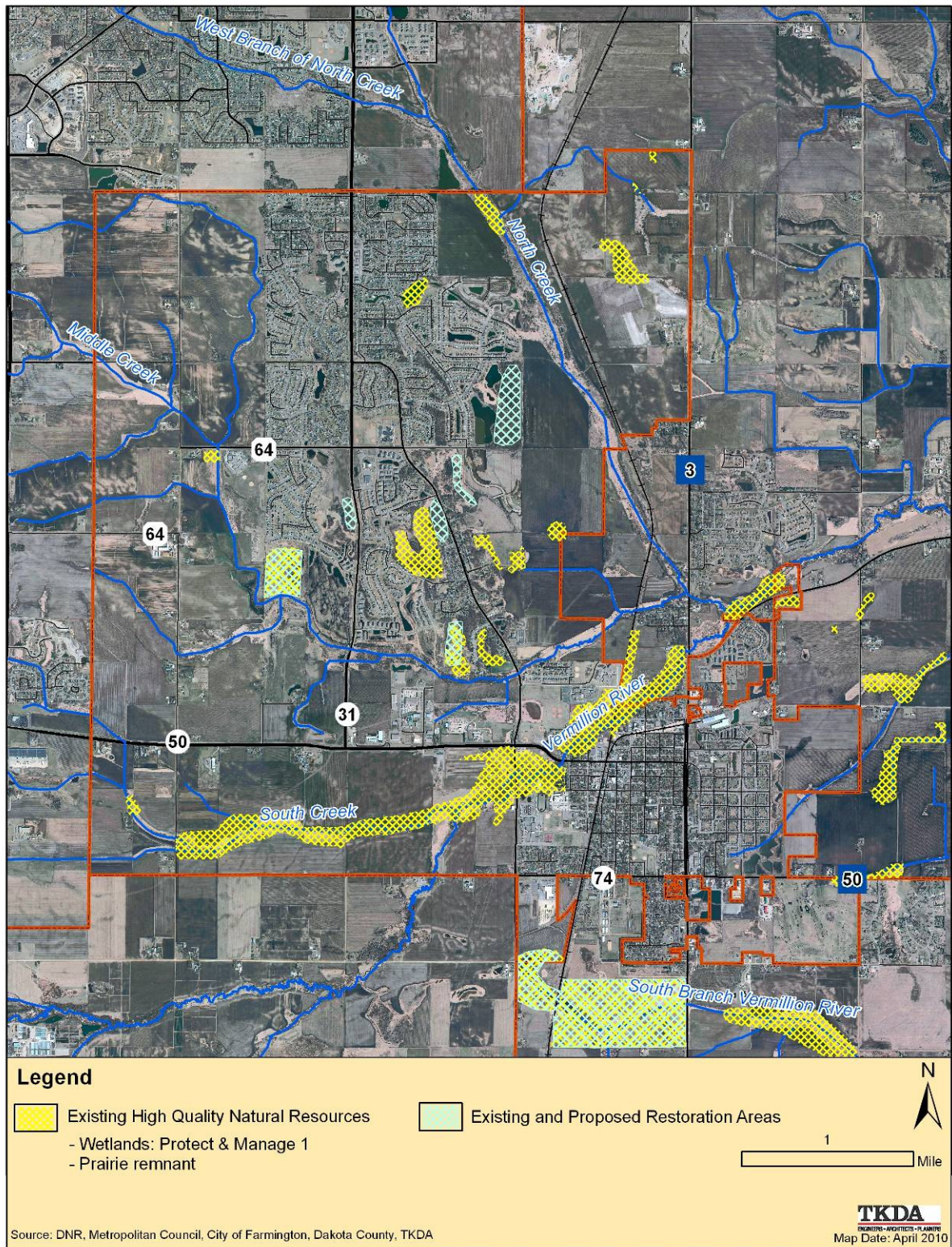
- Trout streams, including the Vermillion River and its tributaries
- High quality wetlands identified throughout the community, including areas that offer the potential for restoration and creation of wetland banks
- Prairie remnants along the railroad, the Vermillion River, and near Meadowview Elementary School
- Oak savanna and woodland areas along Akin Road identified as the Akin Oak Greenway

These natural areas and potential restoration areas are the remnants of the natural communities that were present in Farmington at the time of settlement. The Minnesota County Biological Survey (MCBS) identified the natural community areas around Farmington at the time of the original Land Survey in the 1840's. The MCBS has noted that the original vegetation of the area included prairies, wet prairies, and oak openings and woods, as well as the streams that knit the community together. The inventory indicated that examples of each of these communities and resources still exist in the Farmington area.

In Farmington as in much of Minnesota, most of the original prairie, savanna, wetlands and woodland communities have been lost or altered. The Minnesota DNR has found that less than one percent of the original oak savanna and prairie habitats in Minnesota remains today. The DNR has identified Oak Savanna as a one of the five Key Habitats in Greatest Conservation Need in the state.

The streams and natural community areas identified on Figure 3 are the remaining areas of high-quality natural communities in Farmington. The areas provide significant habitat for song birds and other animals. They also provide residents a glimpse of how the land looked as settlers first developed farms and communities in the area.

Figure 3. Remaining Natural Areas and Restoration Opportunities



Natural Community Inventory and Goals for Management

The sections that follow list the key resource elements in Farmington, including the Green Connections and natural areas. The sections include priorities and recommendations to improve and protect the health of these resources for the long term. The next section of this report includes specific implementation recommendations to accomplish the identified goals.

Green Connections Management Goals

Development and maintenance of the Green Connections system as a whole is the highest priority. The system needs to function as a connected whole to provide full value, just as transportation and other infrastructure systems do. Maintaining the connectedness of the system is critical to maintain the health of the natural resources and residents, and achieving the economic and aesthetic values that bring benefits to the community.

The Green Connections system includes the following elements:

- Corridors along the Vermillion River and North Creek, Middle Creek, and the South Creek of the Vermillion River within Farmington and adjacent Township areas
- Akin Oaks Greenway Corridor - a collection of oak woodland and savanna areas along the ridge on the east and west side of Akin Road
- The City's parks, open space and trails system



Farmington's Green Connections system includes prairies, woodlands, wetlands, trails and parks.

Goals for developing and maintaining the Green Corridors system include:

1. Establish the current Green Corridors system within Farmington as a basic infrastructure system for the community. Extend the system as new areas are added to the community
2. Maintain and develop natural and trail connections to create a unified system
3. Continue development of the community and neighborhood parks and open space “nodes” within the system
4. Develop and maintain connections to major County and regional corridors

High Quality Natural Communities - Oak Woodlands and Savannas - Management Goals

The oak resource areas are concentrated along Akin Road from Lake Julia Park and the Autumn Glen Open Space to Middle Creek. Many of the remaining oak savanna and woodland remnants exist on private properties, as well as within the following public parks and open spaces:

- Autumn Glen
- Farmington Preserve Park
- Vermillion Grove
- Pine Knoll Park
- Middle Creek Park

Goals for management of these resources include the following:

1. Include the Akin Oak Greenway on City maps and identify its value to residents.
2. Maintain or improve connections among within the oak canopy and among oak savanna and woodland communities within the Greenway from Autumn Glen to Middle Creek.
3. Improve the health of oak savanna and woodland communities within the Greenway through public and private efforts.

Prairies and Wet Prairies Management Goals

The prairie and wet prairie community areas in Farmington include remnant natural communities as well as restoration areas along the Prairie Waterway and in City parks, such as Middle Creek Park. An inventory of these areas includes the following:

- Wet prairies along the Vermillion River east of Highway 3
- Prairie along the Union Pacific Railroad tracks between Rambling River Park and Middle Creek
- Prairie restoration west of Meadowview Elementary School
- Prairie restoration at the Farmington Fairgrounds
- Prairie Waterway prairie restoration
- Prairie communities created in wetland buffers and community parks

The City and other agencies have committed significant resources in recent years to restoration of prairie communities within Farmington, and to creation of wetland buffers using native prairie vegetation. The ongoing maintenance efforts by the City have helped these areas to become attractive communities that provide good habitat and help to protect local water resources. Maintaining these efforts will support the City's investment and the value of the community's Green Connections system.

Goals for management of the community's prairie resources include the following:

1. Maintain the connections among these communities and the streams and upland natural communities along the City's greenway corridors.
2. Continue the maintenance activities that are supporting the prairie areas established by the City in the Prairie Waterway and in city parks.
3. Restore additional prairie and wet prairie areas as development occurs and the Green Connection system is developed.

V. IMPLEMENTATION

The sections that follow detail actions that the City of Farmington can take to develop its Green Connections system, and protect and enhance its natural resources.

The actions recognize that the Green Connections system includes both public and private lands, and that some actions will require a partnership with developers and residents. While the City will need to acquire lands for public trails and open space, in other cases it can set standards or provide incentives for private land owners to maintain corridors and natural communities.

The actions also include activities that the City can pursue in cooperation with other organizations - including Dakota County, the Dakota Soil and Water Conservation District, other agencies, and local service clubs, such as Trout Unlimited and Pheasants Unlimited. Working cooperatively can multiply the value of the City's investment, and make connections between the City's system and larger County and Regional corridor systems.

Building and Highlighting the Green Connections System

The following actions will establish the Green Connections as a significant infrastructure system:

1. Officially adopt the Green Connections system map as a City system. The system could be adopted as an official "overlay zone," similar to the Shoreland and Floodplain overlay zones, or it could be adopted and mapped on City zoning maps as an infrastructure system. The map should give names to the corridors, such as the "Akin Oaks Greenway" or "Akin Oaks Heritage Corridor."
2. Include a map and description of the system on the City's website. Promote the system in the City's marketing materials and communications with residents.
3. Integrate the system into the City Code and policies. For example:
 - Require developers to map and identify the system areas within their developments on concept plans, preliminary plats and final plats. Plat submissions should indicate the steps developers will take to comply with City zoning and subdivision standards in the Green Connections areas.
 - Revise sections of the Zoning Ordinance to include common requirements and performance standards for areas within the Green Connections system for landscaping, tree preservation, and site plan review requirements.

- Revise sections of the Subdivision Ordinance to include requirements and standards for the Green Connections system.
 - The City's code may includes requirements or standards that developers must follow on lands within the corridor system, and it may also include incentives to encourage participation in the system, such as incentives to cluster development. Some items may either be requirements or incentives - such as use of native plant materials and minimizing impervious surfaces within the Green Connections.
4. Develop and implement signage for the City's Green Connections system.
 5. Utilize Park Dedication resources to add trails and park areas to the Green Connections system as development occurs.
 6. Work cooperatively with Dakota County to include the County's Greenway Corridors system as a part of the City's Green Connections.
 7. Seek funding through County and State sources to acquire corridor connections that cannot be obtained through Park Dedication or as part of subdivision approvals. Possible funding sources include the Lessard-Sams Conservation Grants and Conservation Partners grants through the Minnesota DNR, and Pilot Projects funding through the Dakota County Greenways program.

High Quality Natural Communities - Oak Woodlands and Savannas

The following actions will maintain and enhance the quality of oak woodlands and savannas in Farmington:

1. Complete restoration efforts within the existing oak areas in City parks and open space areas. These efforts should include removal of exotic species such as buckthorn and prickly ash, and replanting native understory and shrubs as needed to control exotics and erosion and improve habitat. State or other grants may be available to assist with efforts.
2. Update the City's Tree Preservation ordinance to include requirements or incentives to protect oak and other woodland communities, and to restore these communities on private and public lands with development.



Oak savanna remnant in Vermillion Grove Park includes large Bur Oaks with understory dominated by buckthorn.

3. Acquire additional oak woodland and savanna areas that are within the Green Connections system through park dedication or other acquisition. A key priority is creation of the Akin Oak Greenway corridor east of Akin Road through public and private efforts as development occurs.
4. Provide information, praise and encouragement to landowners within the Green Connections system and Akin Greenway corridor for efforts to preserve the oak canopy in the corridor and maintain or restore oak savanna and woodland communities.

Prairies and Wet Prairies

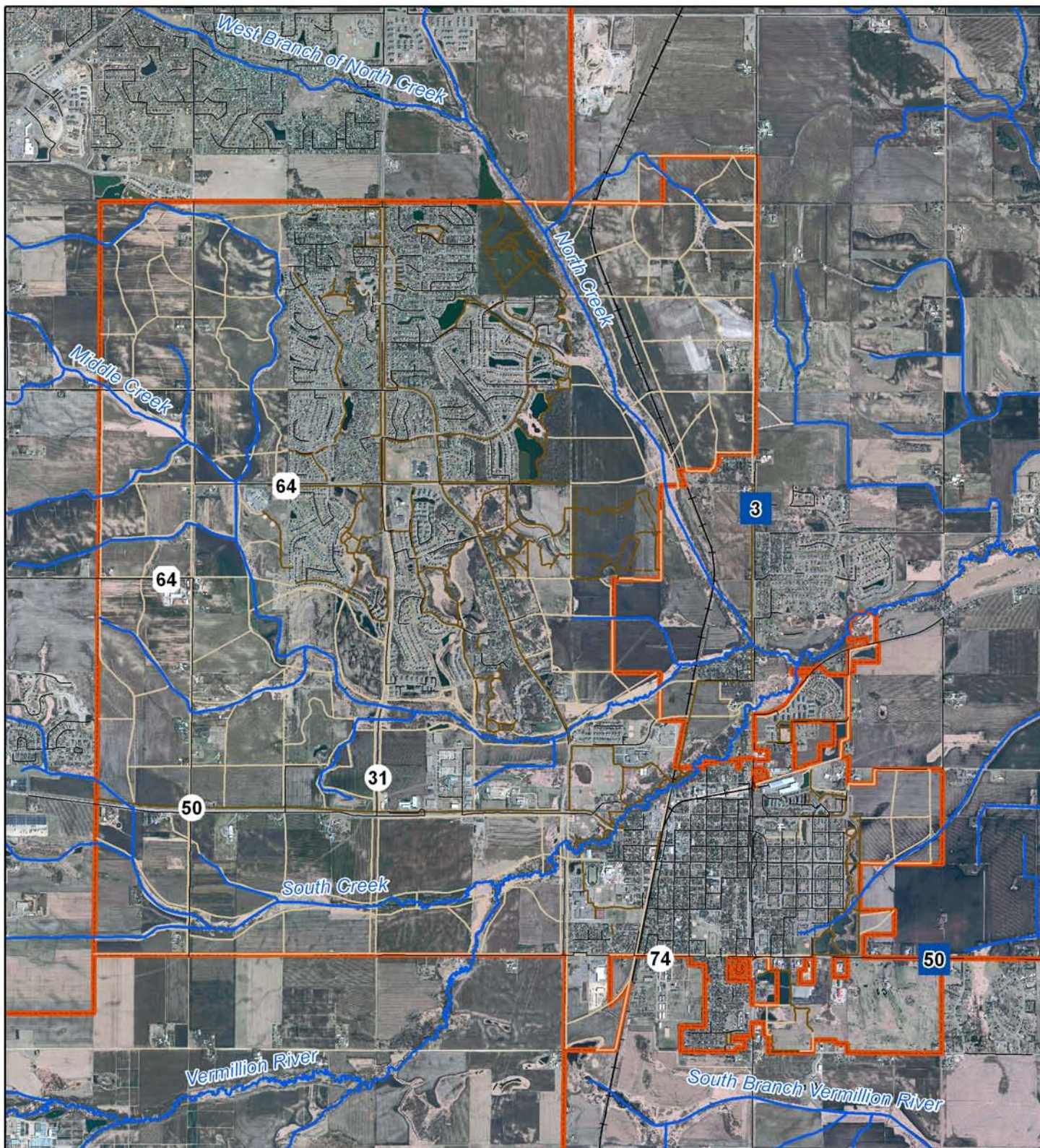
The following actions will maintain and enhance the quality of prairies and wet prairies in Farmington:

1. The City and other agencies have committed significant resources in recent years to restoration of prairie communities within Farmington, and to creation of wetland buffers using native prairie vegetation. The City should continue its current maintenance efforts in buffer areas, along the Prairie Waterway, and in other restoration areas in the Green Connections system.
2. Restore additional prairie and wet prairie areas within the Green Connections system. Priority areas include the potential wetland banking areas identified in the City's Wetland Management Plan. Restoration may include public and private efforts. The wet prairie restoration near Meadowview School is a good model for future restorations.



Black-eyed Susans in a prairie restoration at Meadowview Park.

Existing and Proposed Trails



Legend

- Existing Trails
- Proposed Trails



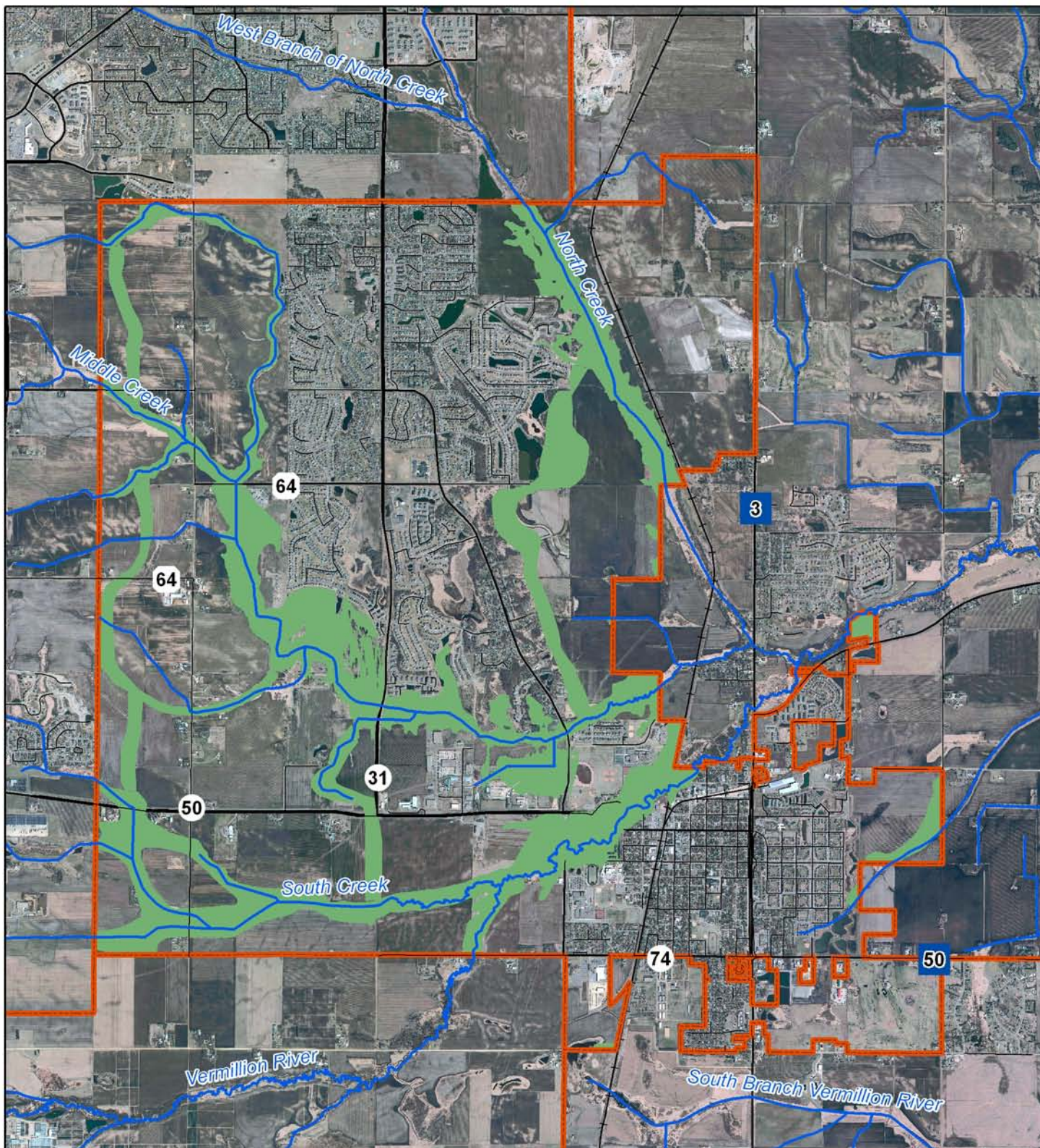
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City Greenways

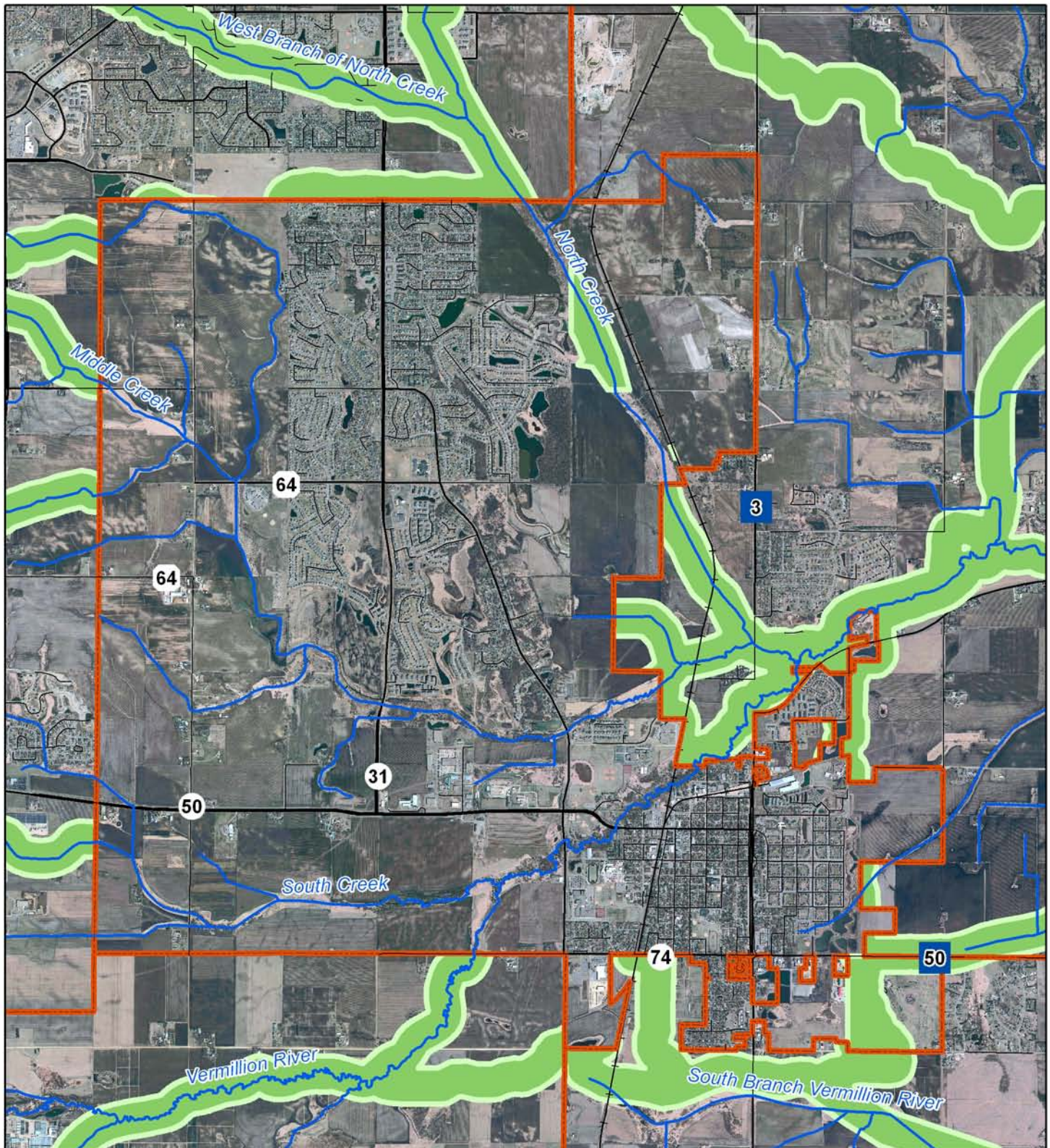


Legend


 City Greenways



County Greenways



Legend

 County Greenways (1000 ft corridors)



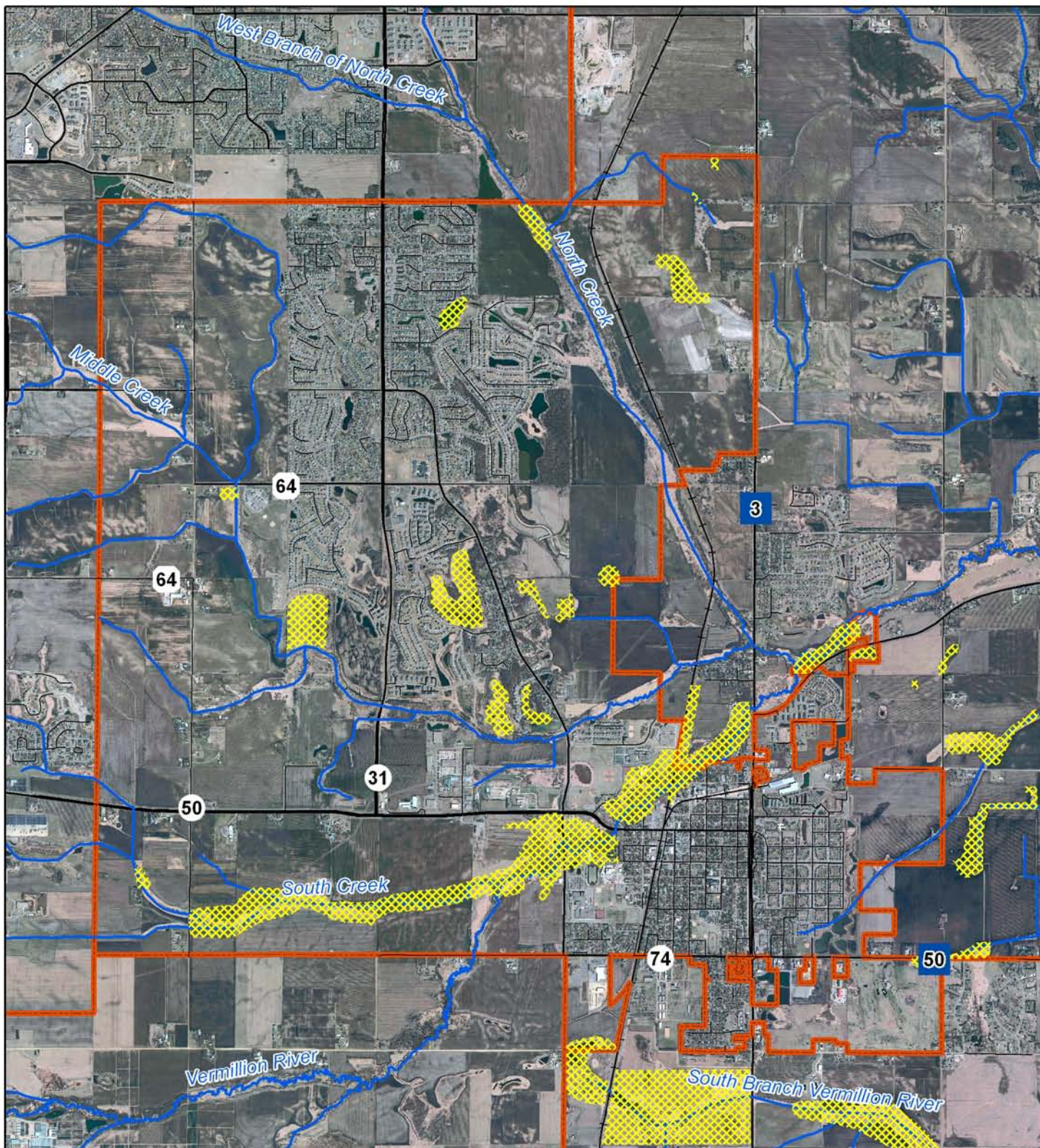
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
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High Quality Natural Resources



Legend

 High Quality Natural Resources

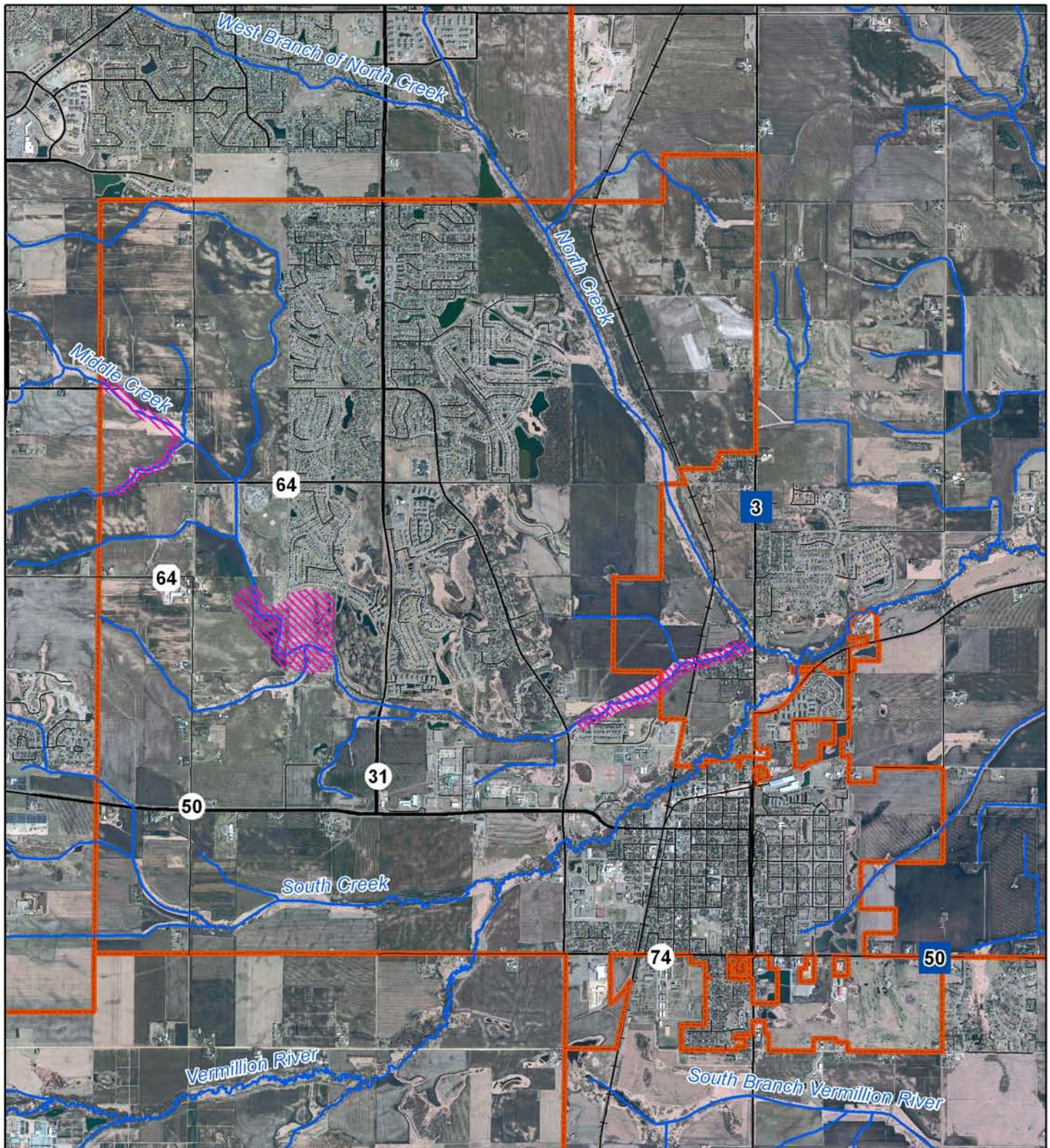


1 Mile

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Wetland Banking



Legend

 Wetland Banking

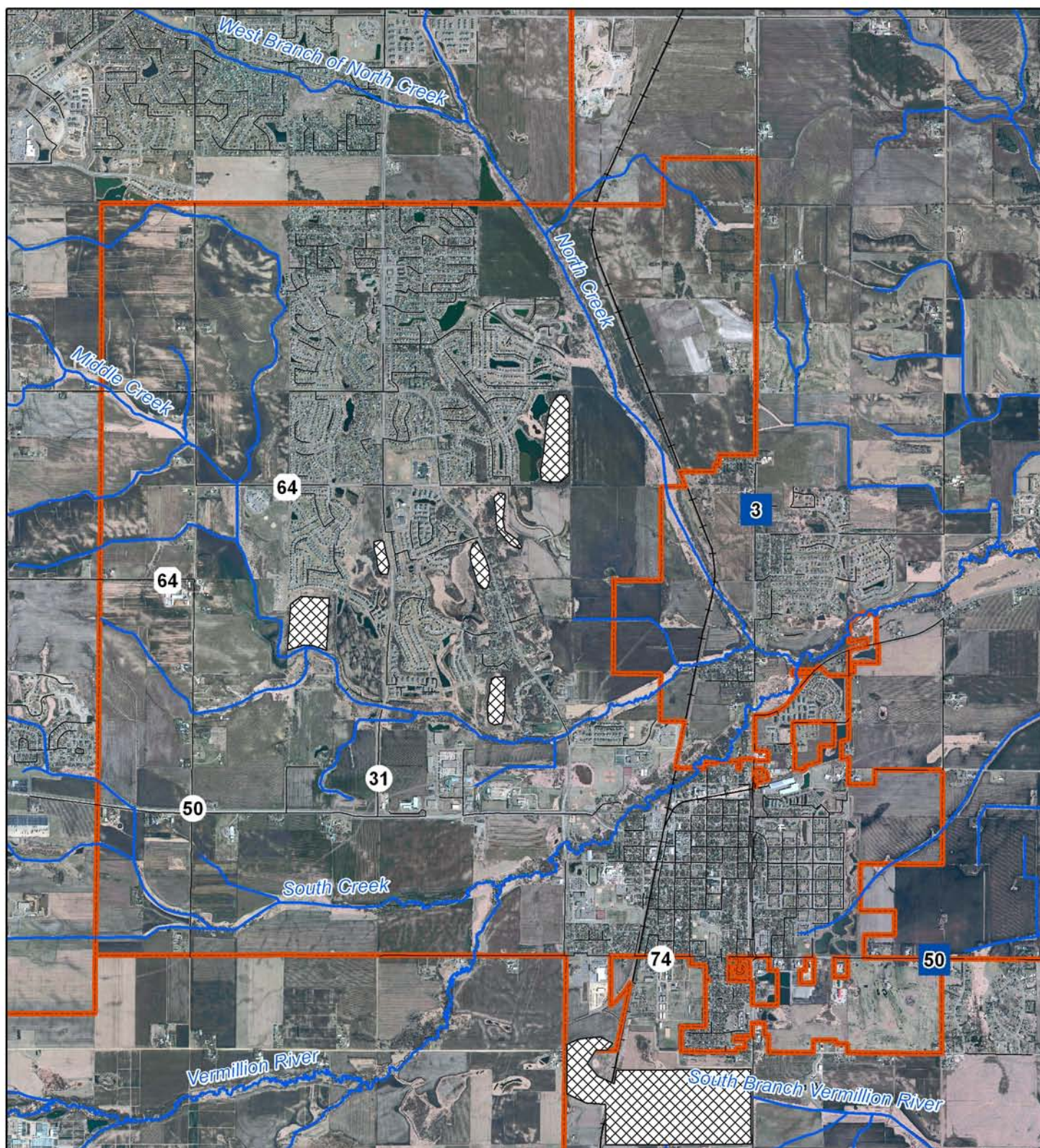


1 Mile

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Existing and Proposed Restoration Areas



Legend



Existing and Proposed Restoration Areas



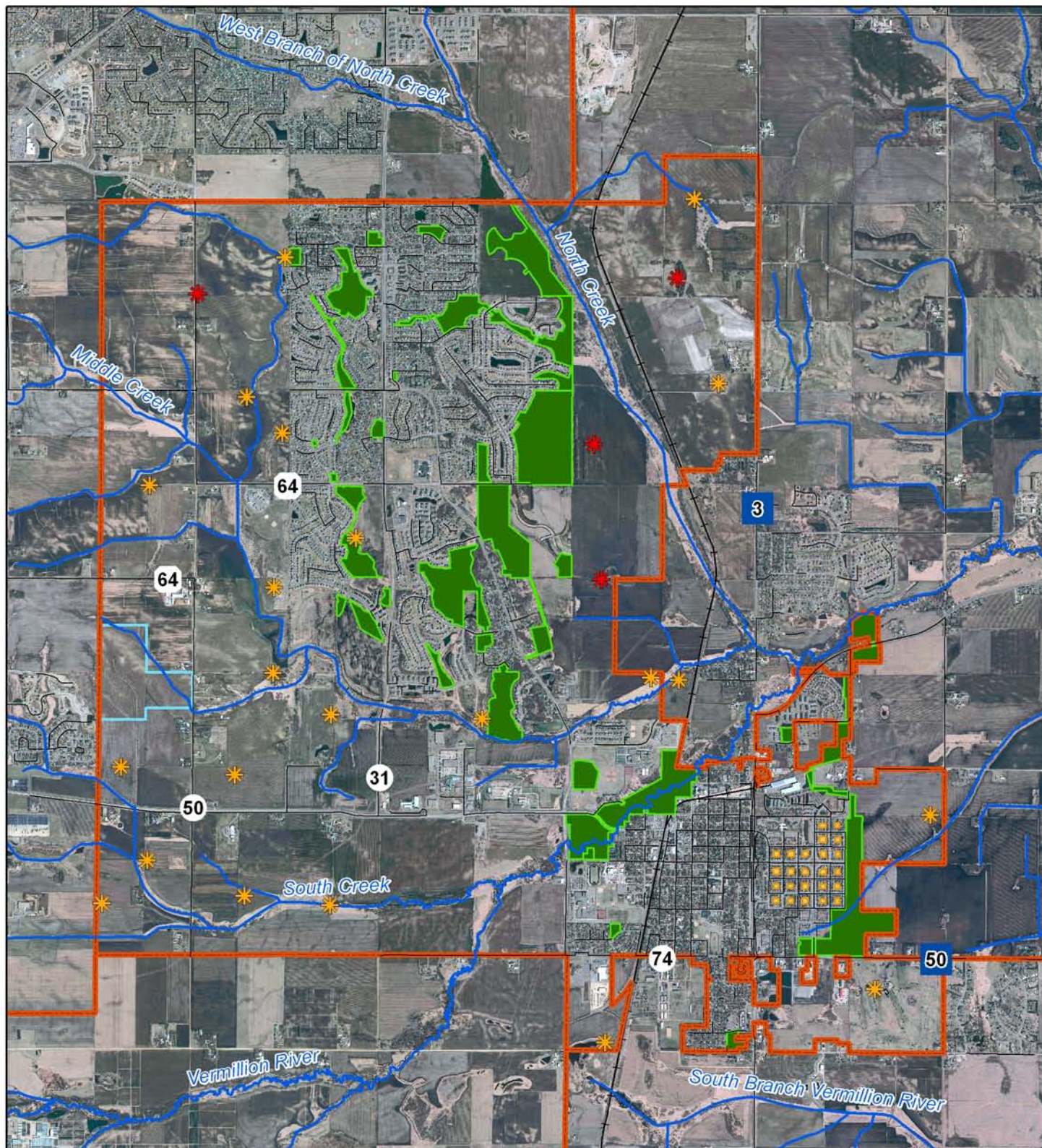
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Existing and Proposed Parks



Legend

- | | |
|---|--|
|  City Parks |  Proposed Community Park |
|  Private Parks |  Proposed Neighborhood Park |
|  High School | |



1 Mile

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WETLAND CLASSIFICATIONS

City of Farmington Surface Water Management Plan

WETLANDS, MANAGE 1: These wetlands have plant communities that are in a largely unaltered state. The vegetative communities of these wetlands are characterized by moderate floral diversion and are slightly to moderately susceptible to stormwater and snowmelt impacts.

WETLANDS, MANAGE 2: These wetlands have usually been altered by human activities. These wetlands have low to medium floral diversity and wildlife habitat components. These wetlands are slightly susceptible to impacts from stormwater. In addition, if a wetland has characteristics of a utilized basin but is located within a park or greenway corridor (as shown on the wetland and water body classification map) it was put in this management classification.

WETLANDS, PROTECT: These wetlands exist in a largely unaltered state and have special and unusual qualities that call for a high level of protection. These wetlands may provide habitat for rare, threatened and/or endangered plant and animal species present; and/or have moderate to exceptional floral diversity/integrity and moderate to high susceptibility to stormwater and snowmelt; and/or are within the designated trout stream corridor identified on the city's wetland and water body classification map.

WETLANDS, UTILIZE: These wetlands have been significantly altered and degraded through past disturbances. They may be isolated, with altered hydrology from urban or agricultural land uses. These wetlands have low floral diversity, and for the most part are not connected to other ecosystems. These wetlands are the least susceptible to impacts from stormwater.

10. The following buffer area sizes are minimum requirements:

<u>Wetland Type</u>	Protect	Manage 1	Manage 2	Utilize
Average buffer width	75 feet	50 feet	30 feet	25 feet
	100 feet "protect" wetlands in the designated trout stream corridor			
Minimum buffer	75 feet	30 feet	25 feet	16.5 feet
Structure setback from outer edge of buffer	10 feet	10 feet	10 feet	0 feet