

Hobart Sustainable Neighborhoods

Environmental/ Ecological Sub-Plan

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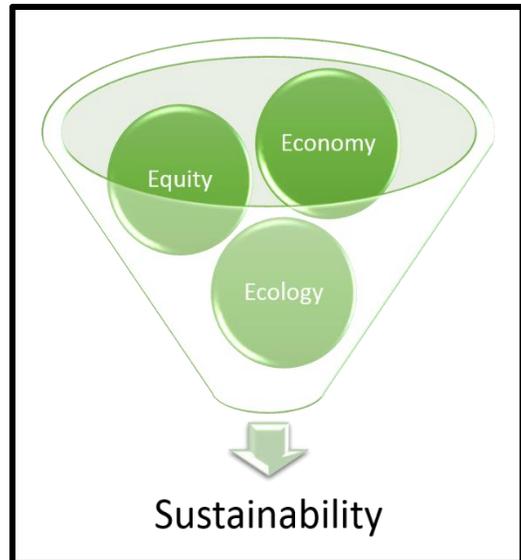
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Section A: Sustainability

According to the Environmental Protection Agency, “to pursue sustainability is to create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations” (EPA, 2015). Simply put, sustainable practices ensure that a community and its resources can endure indefinitely.

Three factors combine to produce sustainability, including Ecology, Economy, and Equity. All will be considered in Hobart’s Sustainable Neighborhoods (HSN) Plan.



Section B: Hobart Sustainable Neighborhoods Plan

The HSN Plan seeks to advance sustainability in the City of Hobart, one neighborhood at a time. By identifying and benchmarking each residential area within the City, this plan pinpoints neighborhoods suffering from unsustainable practices, offers solutions for correcting these issues, and ensures that future development occurs in such a way that it “meets the needs of the present without compromising the ability of future generations to meet their own needs” (United Nations, 1987).

The HSN Environmental/ Ecological Sub-Plan will focus solely on the Ecology portion of sustainability, identifying and setting benchmarks for environmental considerations within Hobart. The following section offers a comprehensive description of the process used to create this plan.

Funding for the development of the HSN Environmental / Ecological Sub-Plan was made possible in part by a grant from the National Oceanic and Atmospheric Administration and the Indiana Department of Natural Resources, Lake Michigan Coastal Program.

Section C: The Process

1. Acquiring & Preparing Data

In order to conduct sustainability analysis, a vast amount of data had to be acquired and prepared. This data came largely in the form of GIS shapefiles. Descriptions and source information for each shapefile can be found in [Appendix A](#). Most shapefiles included data for either the entire United States or the State of Indiana. Using ESRI’s ArcMap program,

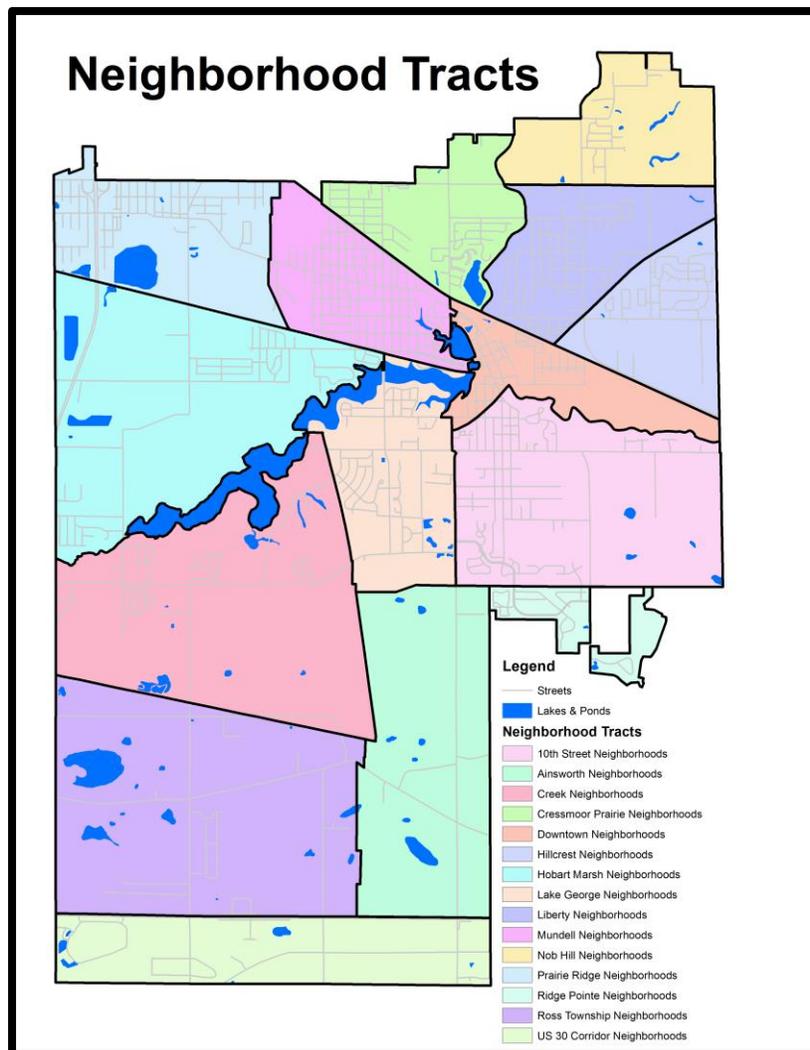
each of these files was clipped to the boundaries of Hobart. The clipping process is further illustrated in [Appendix B](#).

2. *Dividing Hobart into Neighborhood Tracts*

To begin the process of identifying each residential neighborhood, the City of Hobart was divided into Neighborhood Tracts, or large sections of land separated from one another by major dividing features. These features are both natural and manmade, including:

- Streets (local roadways and highways)
- Railroad Lines (active and abandoned)
- Waterbodies (lakes, streams, and rivers)
- Recreational Trails
- Utility Corridors

In the end, 15 Tracts were created and named according to established features either in or near the Tract. A general map of these Tracts can be found below, with a more detailed map of each Tract located in [Appendix C](#).



3. *Dividing Neighborhood Tracts into Neighborhood Groups*

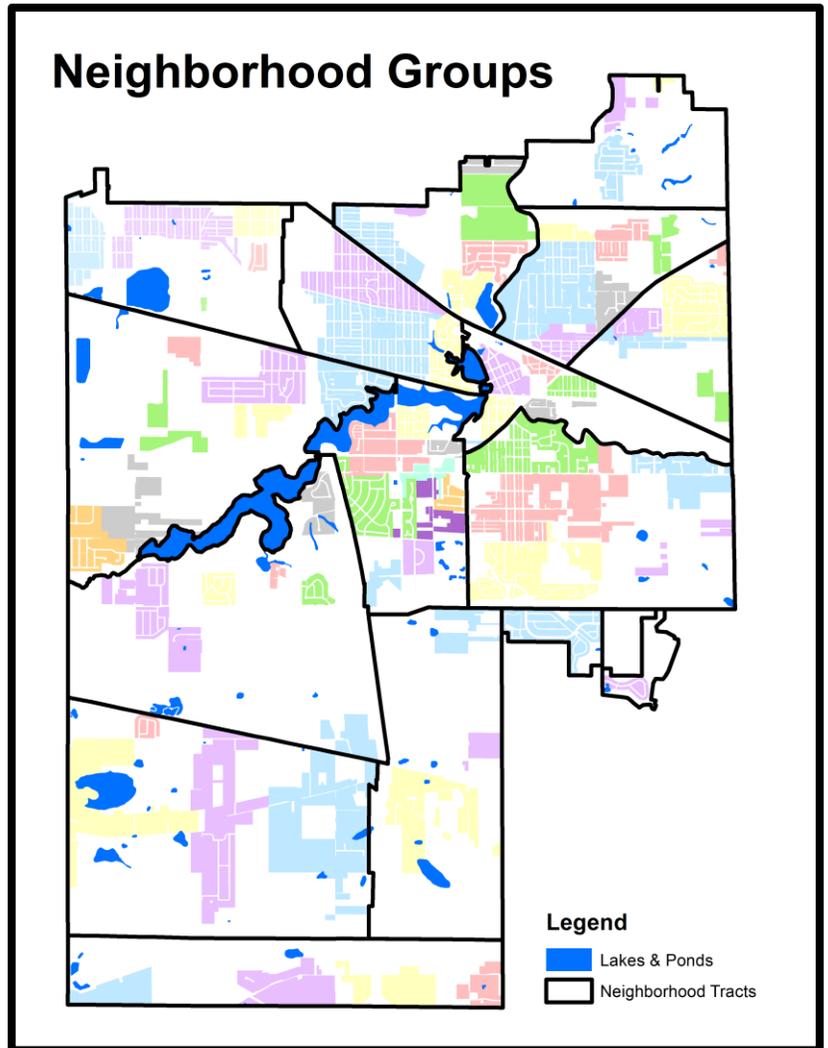
After dividing the City into Tracts, the plan focused on the creation of Neighborhood Groups. These Groups represent collections of Neighborhoods within close proximity of one another. The creation of Neighborhood Groups became necessary as the number of Neighborhoods within the City grew to the point that individual analysis became infeasible. A citywide map of the 74 newly-created Neighborhood Groups can be found to the right, while maps showing the Neighborhood Groups within each Tract can be found in [Appendix D](#).

4. *Dividing Neighborhood Groups into Neighborhoods*

Neighborhoods are the smallest division created by this plan and were developed by considering the following factors:

- Parcel groupings, based on both size and geographical location
- Parcels which are oriented toward one another
- Residential areas bounded by local roadways
- Residential areas bounded by local waterways, including lakes, streams, and rivers
- Similar housing stock
- Proximity and access to other homes

While analysis occurs only at the Tract and Neighborhood Group levels, corrective measures can be implemented at all levels, including on a Neighborhood-by-Neighborhood basis. City officials can determine the appropriate level for corrective measures as needed. Each of Hobart's 216 Neighborhoods can be viewed by Neighborhood Tract in [Appendix E](#).



5. *Establishing the Benchmarks of Environmental Sustainability*

After dividing the City into units suitable for sustainability analysis, the plan focused on identifying the benchmarks of environmental sustainability. Benchmarks resulted from conversations with city officials, careful examination of several EPA guidebooks focused on sustainability, and the availability of necessary GIS data layers. In the end, the following factors were identified as targets for analysis.

- Environmental Hazards
- Sanitary Sewer Lines, Facilities, & Water Wells
- Stormwater Lines & Facilities
- Impervious Surfaces
- Land Cover & Open Space
- Managed Lands, Parks, Trails, & Recreational Facilities
- Waterways & Impaired Waterways
- Tree Canopy

6. *Conducting Sustainability Analysis & Identifying Problem Areas*

Sustainability analysis largely involved the use of ArcMap, which was used to create one or more maps for each of the aforementioned benchmarks. Maps began at the city-level and were subsequently created for each Neighborhood Tract appearing to contain trouble spots. These spots were identified either visually or mathematically, using one or more calculation/analysis features in the ArcMap Toolbox. Neighborhood Tract maps also allowed for Neighborhood Groups and Neighborhoods to be analyzed on an individual level, helping to determine which specific areas should be targeted with sustainability solutions. The resulting maps and identified problem areas are outlined in the Sustainability Analysis section of this document.

7. *Offering Solutions*

Once an unsustainable feature was identified, solutions were offered for its remediation. These solutions largely came from four distinct sustainability guidebooks ([Appendix F](#)) and various, credible Internet resources. When no obvious solutions were present, a recommendation to gather and utilize other sources of information was delivered.

Section D: Sustainability Analysis & Solutions

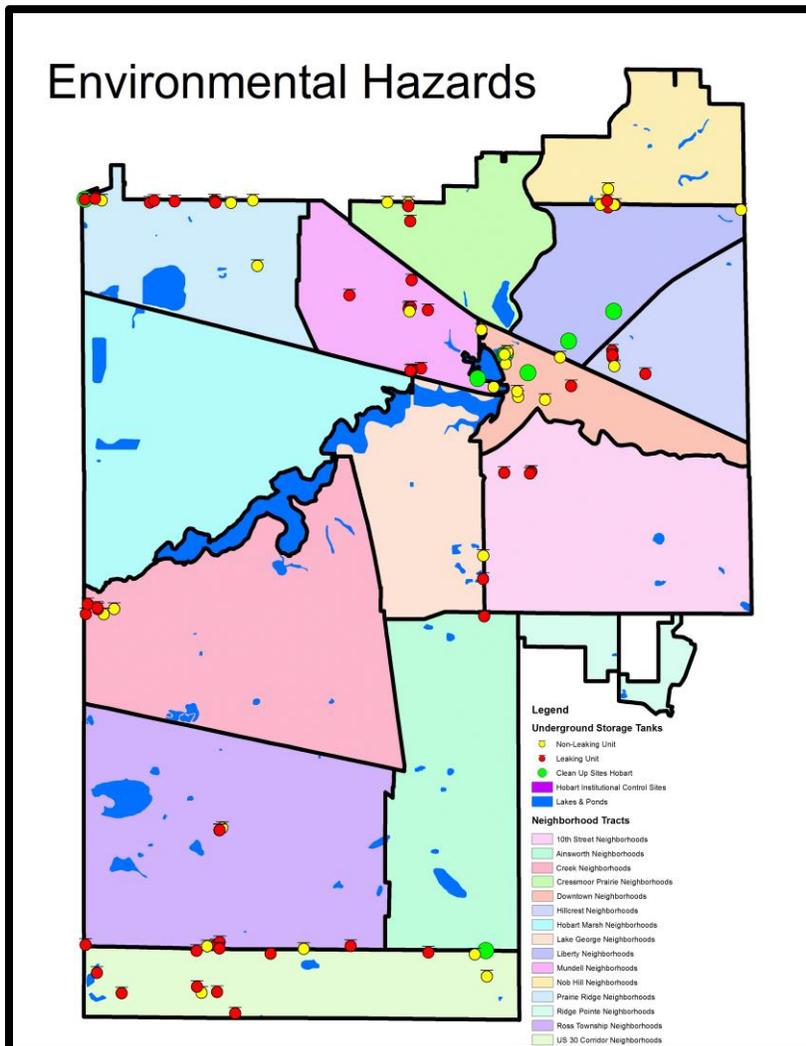
This section of the plan will examine each of the benchmarks previously discussed. Analysis will occur on the level (Tract or Group) most appropriate for each specific benchmark, with some occurring on both levels.

Benchmark 1: Environmental Hazards

Within the City of Hobart, 3 types of environmental hazards are present, including:

- Clean up sites
- Institutional control sites
- Underground storage tanks

Each of these hazards needs to be further evaluated to determine its severity. While some of these sites likely pose little to no threat, others may carry a risk of contaminating groundwater resources, sparking fires or explosions, or threatening the health of nearby residents.



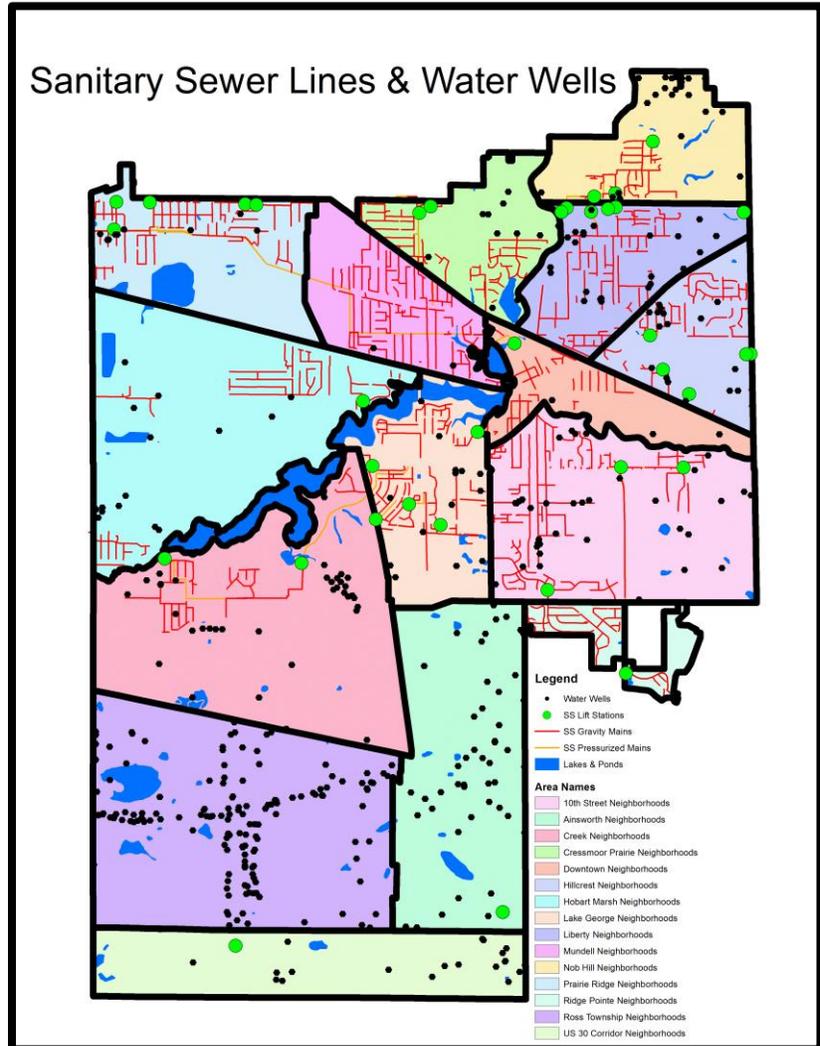
The Environmental Hazards Map demonstrates the disbursement of these hazards throughout the City. Using this map, areas with the highest concentrations of environmental hazards were identified and deemed high-priority. High-priority Neighborhood Groups are as follows: 1-A, 1-B, 2-A, 2-B, 3-B, 9-B, 9-C, 9-E, 9-F, 10-E, 14-B, and 14-C. Maps showing these affected areas can be found in [Appendix G](#).

Although few solutions can be offered for the remediation of these hazards, the Neighborhood Groups most likely to be most negatively affected have been identified. While mitigation may prove to be too costly, careful monitoring of both the

identified hazards and the threatened Neighborhood Groups would be a good place to start. This will ensure that the condition of each hazard does not worsen dramatically and will assist in prioritizing cleanup efforts.

Benchmark 2: Sanitary Sewer Lines, Facilities, & Water Wells

As seen in the Sanitary Sewer Lines & Water Wells Map, most Neighborhood Groups within Hobart have access to the City's sanitary sewer system. This is a major step towards achieving sustainability as sanitary sewer systems offer numerous benefits that septic systems do not. While waste collected by sanitary sewers is treated by experts in a facility designed specifically for that purpose, waste collected by septic systems is the responsibility of individual homeowners. Septic systems remove some organisms and toxins from waste, but not all. As such, solvents, drain cleaners, and many other household chemicals can leak into groundwater or surrounding waterways.



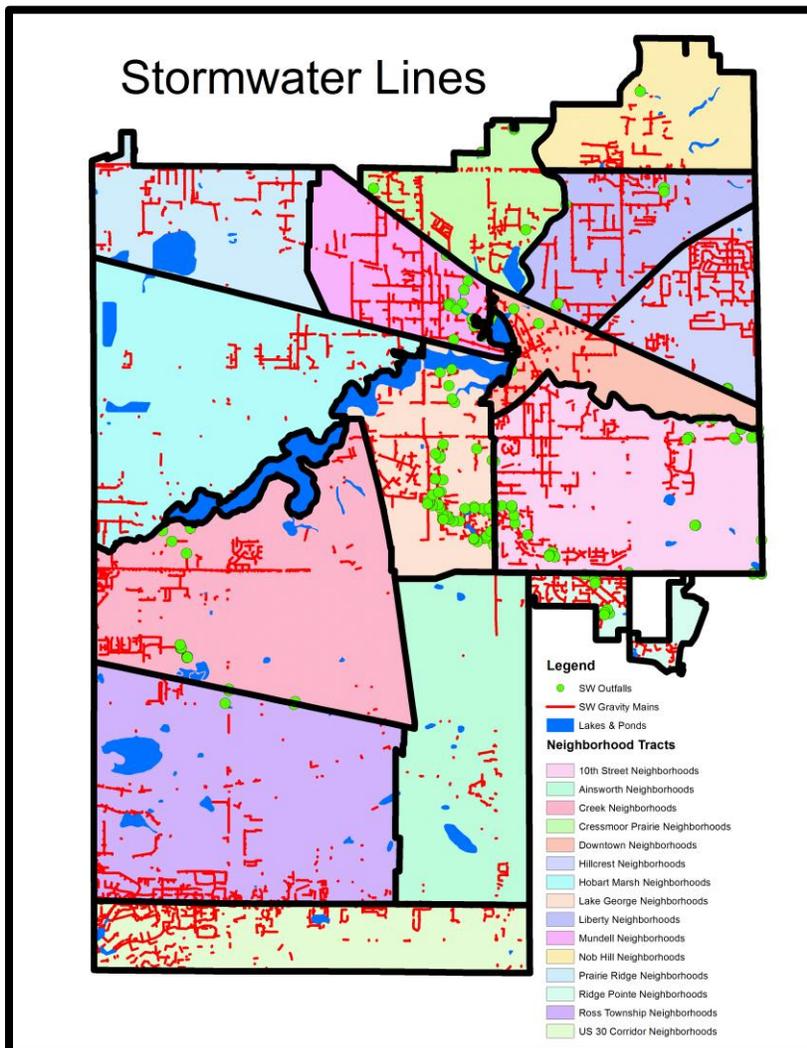
A second consideration occurs when areas with septic systems overlap with areas served by water wells. According to the CDC, “one of the most common sources of well water contamination are failed septic tanks or septic systems.”

Appendix H contains a Tract-by-Tract analysis of Hobart's sanitary sewer lines, as well as the presence of water wells throughout the City. Neighborhood Groups lacking sanitary sewers include: 1-E, 3-E, 3-F, 4-B, 4-C, 5-E, 6-D, 6-E, 7-C, 7-D, 7-E, 7-F, 7-G, 8-A, 9-5, 10-B, 11-A, 11-B, 11-E, 12-A, 12-B, 12-C, 14-A, 14-B, 14-C, 14-D, 15-A, 15-B, 15-C, and 15-D.

Neighborhood Groups which both lack sanitary sewers and have a strong presence of water wells include: 3-E, 4-B, 4-C, 5-E, 6-E, 7-G, 11-B, 11-E, 12-A, 12-B, 12-C, 14-A, 14-B, 14-C, 15-B, 15-C, and 15-D.

The obvious solution to these issues includes expanding City sanitary and water services. Where this is not possible, educating residents on the importance of regularly maintaining their septic systems and testing well water quality is crucial. Although the cost of these programs may be high, the maps above should help to specifically determine what areas of the City need additional attention.

Benchmark 3: Stormwater Lines & Facilities



Stormwater lines currently service a large portion of the Neighborhoods within Hobart. Good stormwater management is crucial to Hobart's overall sustainability as increased levels of impervious surfaces (examined in the next section), create increased levels of runoff during storm events. If not properly managed, this runoff can lead to severe flooding, property damage, erosion, and the entrance of pollutants into local waterways.

The Stormwater Lines Map illustrates the presence of stormwater gravity mains and outfalls throughout Hobart. Analysis for each Neighborhood Tract can be found in [Appendix I](#). This analysis revealed that the following Neighborhood

Groups are currently without a large presence of stormwater infrastructure: 1-A, 1-E, 3-E, 3-F, 4-B, 4-C, 5-E, 6-D, 6-E, 7-D, 7-E, 7-F, 8-A, 8-I, 9-F, 10-B, 10-C, 10-D, 12-B, 14-A, 14-B, 14-C, 15-B, 15-C, and 15-D. However, this may not indicate poor or missing service, as other factors

such as topography may play a role. Further analysis will be required to determine whether or not these Neighborhood Groups require additional infrastructure.

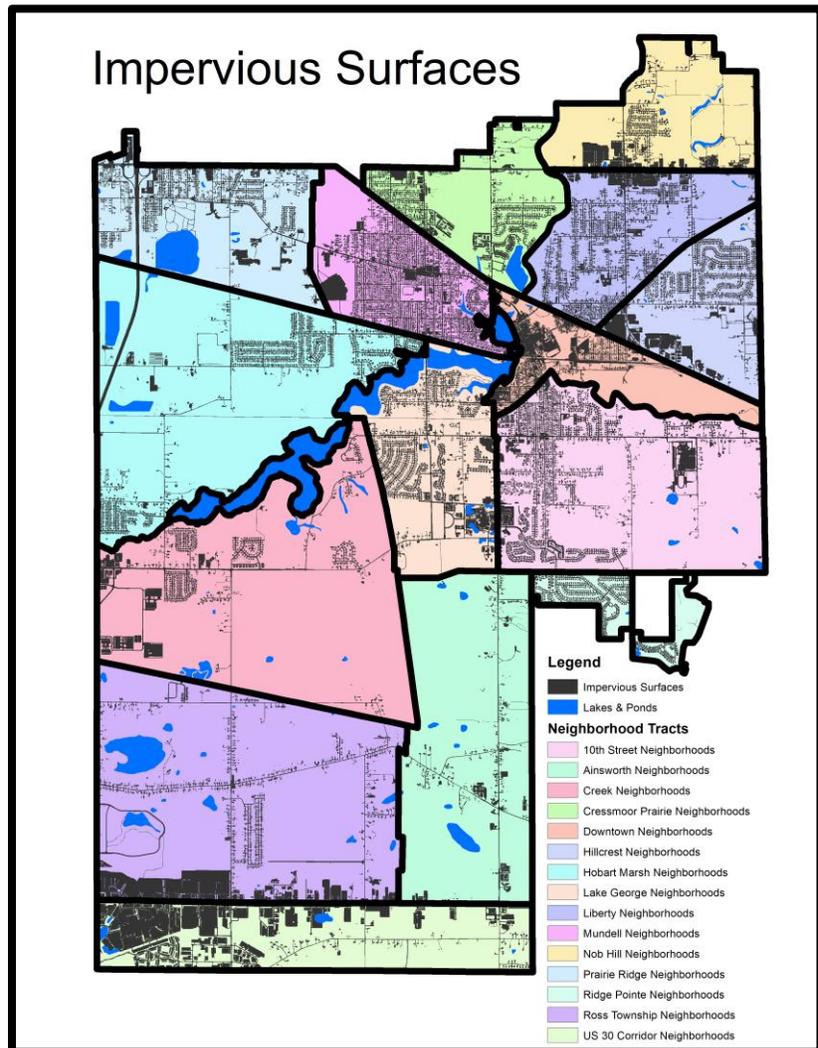
Increasing the presence of stormwater lines in underserved and unserved areas would be a major step towards furthering sustainability. In areas where this is infeasible, especially in those areas deemed highly impervious, green stormwater management practices should be implemented. On the parcel level, these practices include, among others: green roofs, permeable pavement, rain gardens, tree boxes, rain barrels, and vegetated swales.

The EPA recently published a guide for local decision makers, entitled, *Getting to Green: Paying for Green Infrastructure*. This guidebook should be consulted for help funding the practices previously discussed and can be found at http://www.epa.gov/sites/production/files/2015-02/documents/gi_financing_options_12-2014_4.pdf.

Benchmark 4: Impervious Surfaces

Impervious surfaces, such as asphalt and concrete, are those which water runs off of, rather than through. As percentages of impervious surface increase, so too do many environmental problems, including increased flooding, a depletion of groundwater resources, higher levels of pollution in local waterways, and many more.

At the watershed level, 10% impervious coverage is an indicator of likely impairment. Some communities mistakenly deal with this issue by reducing their density, not realizing that “low densities at the site level can increase imperviousness at the watershed level” (EPA, 2004). This leads to worse water quality overall.



However, “higher-density development can have more site-level impervious cover, which can exacerbate water quality problems in nearby or adjacent waterbodies” (EPA, 2006). As a result, a balance must be struck between regional and local benefits. Solutions for achieving this balance will be discussed below.

The Impervious Surface Map illustrates impervious surface coverage throughout the City, while [Appendix J](#) demonstrates impervious coverage within each Neighborhood Tract.

Impervious surface constitutes the following percentages of each Neighborhood Tract:

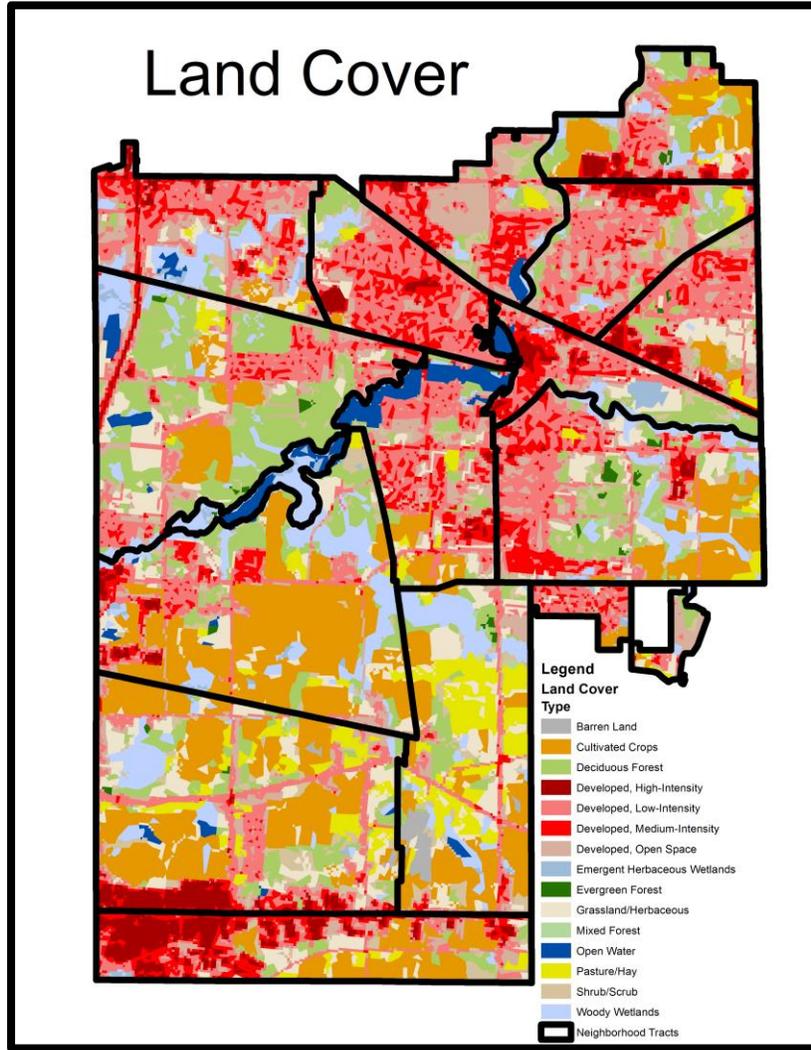
Tract 1: 20.03%	Tract 9: 28.80%
Tract 2: 35.70%	Tract 10: 16.83%
Tract 3: 19.96%	Tract 11: 7.61%
Tract 4: 15.17%	Tract 12: 4.57%
Tract 5: 26.25%	Tract 13: 22.81%
Tract 6: 26.70%	Tract 14: 12.61%
Tract 7: 9.54%	Tract 15: 31.81%
Tract 8: 20.34%	

Before any action is taken, impervious surface maps should be created for the watershed level. These will help determine whether the 10% threshold has been surpassed and as such, whether or not regional water quality is in danger.

On a local level, the City of Hobart can take many steps to mitigate negative effects in those Neighborhood Tracts with high percentages of impervious surface coverage.

- Maximize the use of existing impervious cover
 - “Redevelopment of previously developed sites provides water quality benefits by reducing the need to accommodate growth on undisturbed, open land” (EPA, 2004).
- Change site design practices for new development
 - Such as “reducing parking spaces, narrowing streets, and eliminating cul-de-sacs” (EPA, 2006).
- Incorporate green infrastructure
 - Such as green roofs, permeable pavement, rain gardens, tree boxes, rain barrels, bioretention areas, and vegetated swales.

Benchmark 5: Land Cover & Open Space



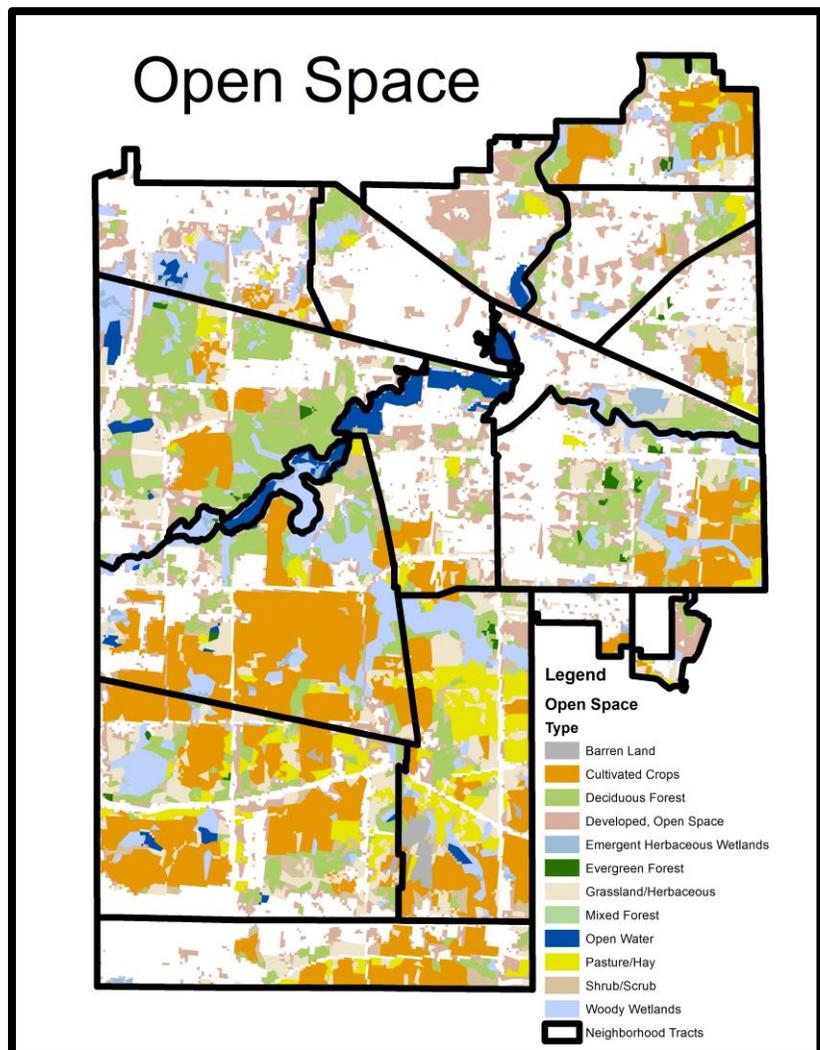
Hobart consists of a wide range of land cover types, ranging from high-density development to areas of extreme ecological importance. The Land Cover Map visually demonstrates the land cover types present throughout Hobart, and allows the percentages of each type to be calculated. These calculations can be used in establishing benchmarks, thus allowing for future changes in a Tract's land cover composition to be tracked. For Tract-by-Tract land cover maps and percentages, see [Appendix K](#).

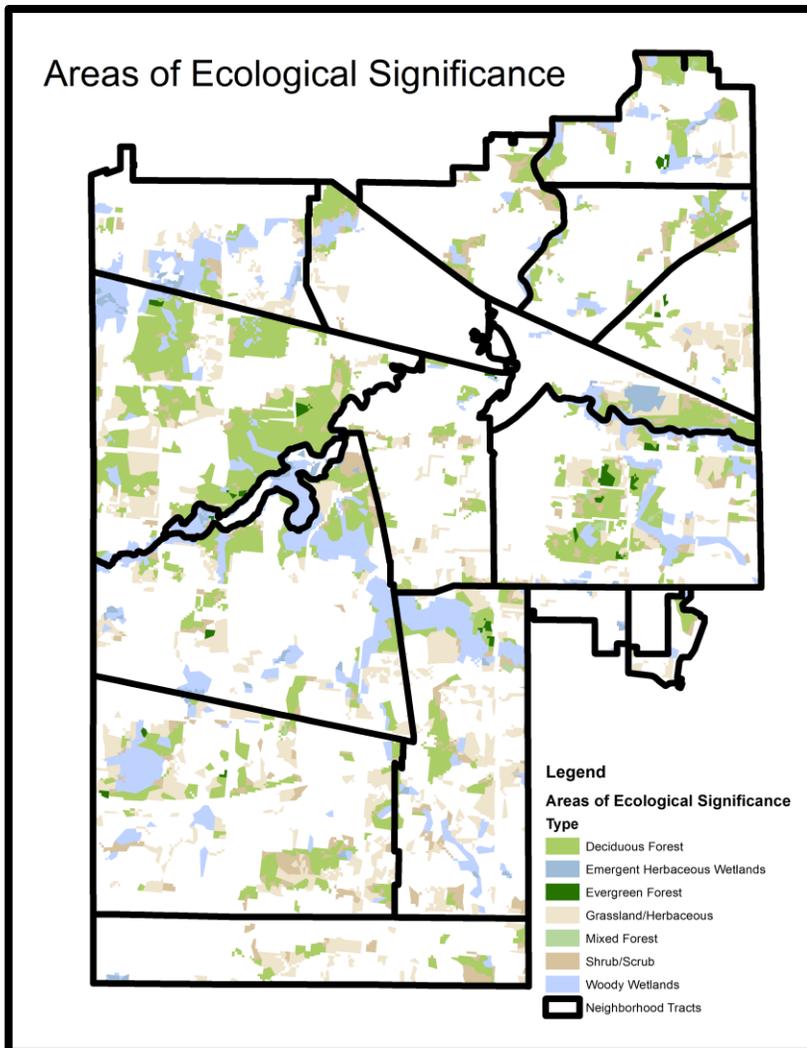
A critical component of land cover is open space. The Open Space Map illustrates the presence of this component throughout Hobart. Open space “supports smart growth goals by bolstering local economies, preserving critical environmental areas, providing recreational opportunities, and guiding new growth into existing communities” (Smart Growth Network, 2002). The preservation of open space is crucial, in that it:

- Increases local property values
- Reduces the need for the construction of new infrastructure
- Combats pollution
- Moderates temperatures
- Controls wind, noise, and erosion

Numerous policies and programs can be implemented to help preserve open space.

- Develop an open space conservation plan or a green infrastructure plan.
 - These plans would “target the most critical areas for preservation” (EPA, 2004), providing a framework for future growth.
- Establish a community preservation fund.
 - Such a fund would “specifically target resources to preserve open space” (EPA, 2004).
 - The EPA suggests securing capital for the fund through property taxes, matched by a dedicated state fund.
- Consider other innovative ways to fund the protection of targeted lands, such as:
 - Work with public or nonprofit organizations to acquire lands outright.
 - Seek out donated conservation easements, transfer of development rights (TDRs), and purchase of development rights (PDRs).
 - Levy a portion of the local sales tax or real estate transfer tax.
 - Establish impact fees.
 - Utilize borrowing power, largely in the form of bonds.
 - Charge user fees.
- Engage in public outreach and education.
 - This is necessary because oftentimes the general public does not understand the numerous benefits of open space.



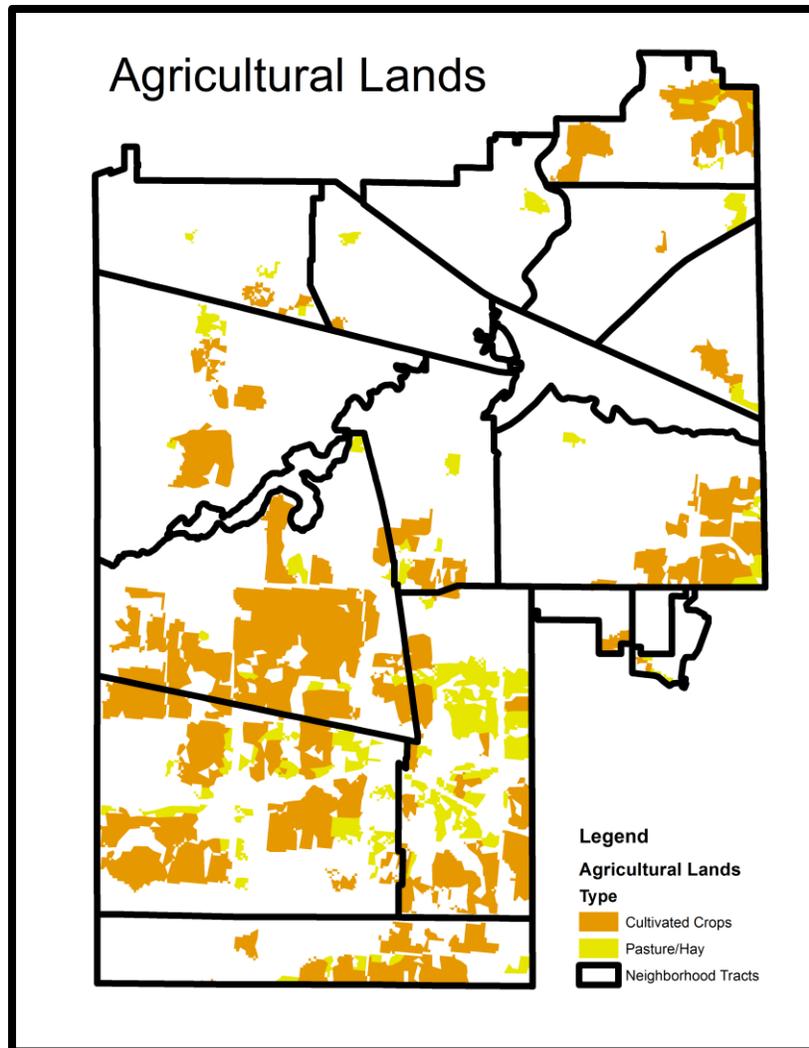


Hobart’s most ecologically sensitive open spaces will likely be the chosen targets of the aforementioned recommendations. Areas of the greatest ecological sensitivity, such as wetlands and forests, help to provide tourism dollars and more importantly, “protect surface and groundwater resources by filtering trash, debris, and chemical pollutants before they enter the community’s water system” (Smart Growth Network, 2002). These areas include several of the land cover types previously examined. They can all be viewed in the Areas of Ecological Significance Map.

Currently, the variety of open space facing the greatest development pressure is prime farmland, which “demands less in public services than development, thereby serving as a net local tax contributor” (Smart Growth Network, 2002). These agricultural lands can be viewed in the Agricultural Lands Map.

Several steps can be taken in order to preserve Hobart’s existing agricultural lands. These include:

- Creating agricultural districts.
- Implementing sliding scale zoning, in which denser development is permitted on lands with poor soil quality and prohibited on those with fertile soil.
- Implementing agricultural protection zoning.



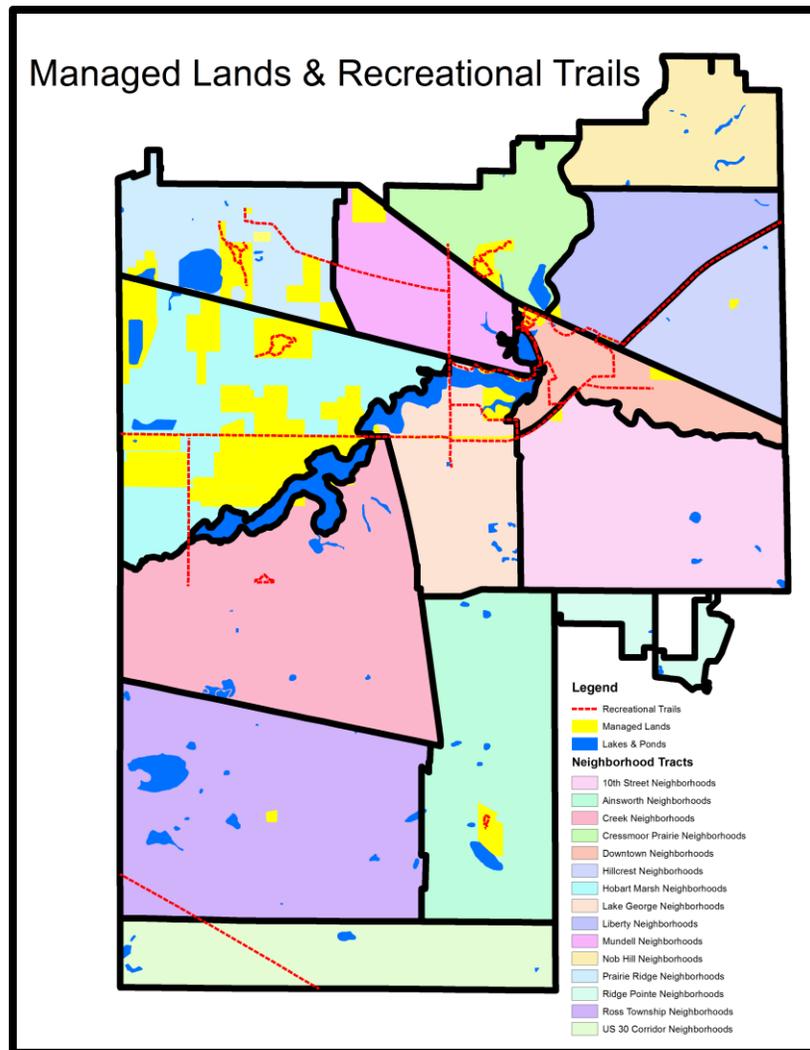
Benchmark 6: Managed Lands, Parks, Trails, & Recreational Facilities

According to The Trust for Public Land, parks and recreational facilities “improve our physical and psychological health, strengthen our communities, and make our cities and neighborhoods more attractive places to live and work” (Sherer, 2006). In addition, they offer a host of economic and environmental benefits. The Managed Lands & Recreational Trails Map examines the managed lands and trails within the City of Hobart. [Appendix L](#) contains a Tract-by-Tract analysis, demonstrating that the following Tracts are completely devoid of parkland: Nob Hill, Ridge Pointe, and US 30. The Liberty, Hillcrest, 10th Street, Creek, and Ross Township Tracts are quite limited as well.

In order to both preserve existing and acquire new parkland and recreational facilities, the EPA offers several recommendations.

- “Preserve and enhance green areas in existing neighborhoods” (EPA, 2004).

- Always consider the type of vegetation which will provide the greatest benefit to local water quality, and strive to protect areas containing it.
- Use tools such as “conservation easements, donations of public land-to-land trusts, and innovative partnerships for the care of the land.” (EPA, 2004).
 - Possible partners may include neighborhood associations and schools.
- Ready access to parks and recreational facilities are most important in compactly developed areas.
- Parks should serve a variety of people and purposes, including everything from civic plazas to ballfields.



Finally, because the acquisition of new parkland is always recommended, the maps in [Appendix M](#) demonstrate areas of ecological significance in the Tracts currently identified as lacking. Parcels not already deemed parks or preserves would make excellent targets for future recreational facilities.

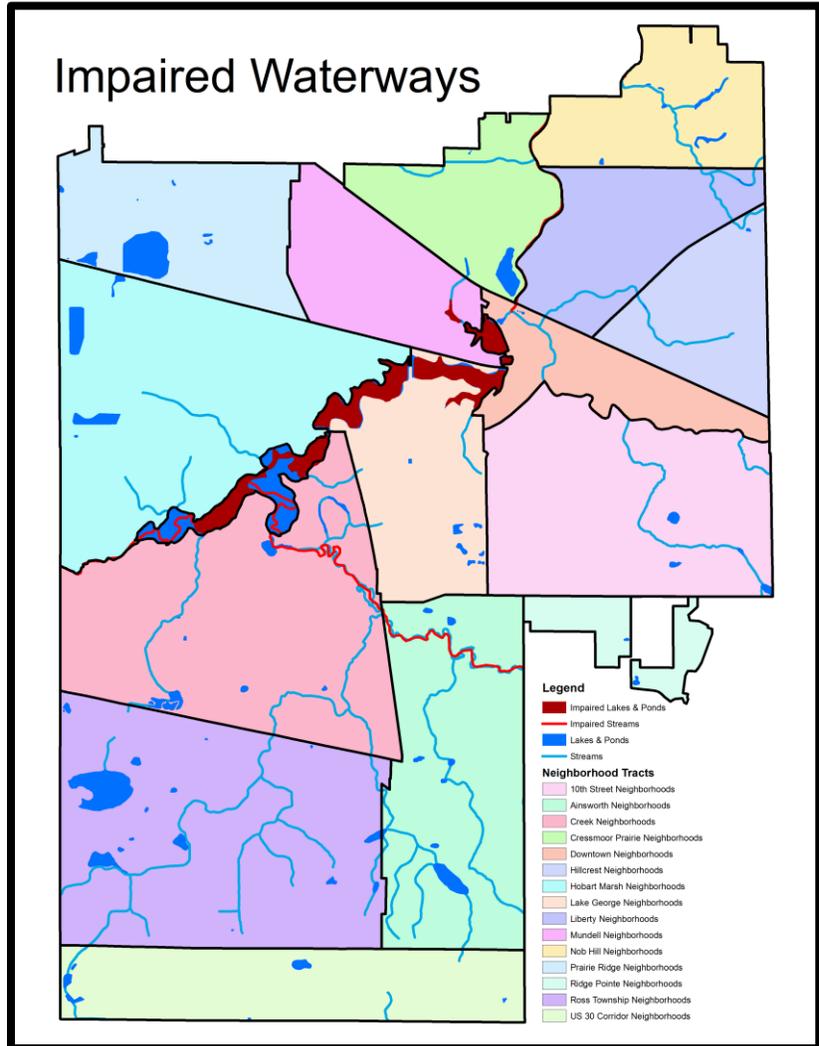
Benchmark 7: Waterways & Impaired Waterways

Local waterbodies are one of Hobart’s most attractive features. Not only do they provide scenic vistas, but the City’s waterways offer significant recreational opportunities as well. Thus, Hobart has a major stake in keeping these important features clean and healthy.

The Impaired Waterways Map demonstrates all of the waterbodies within the City, as well as the Neighborhood Tracts they flow through.

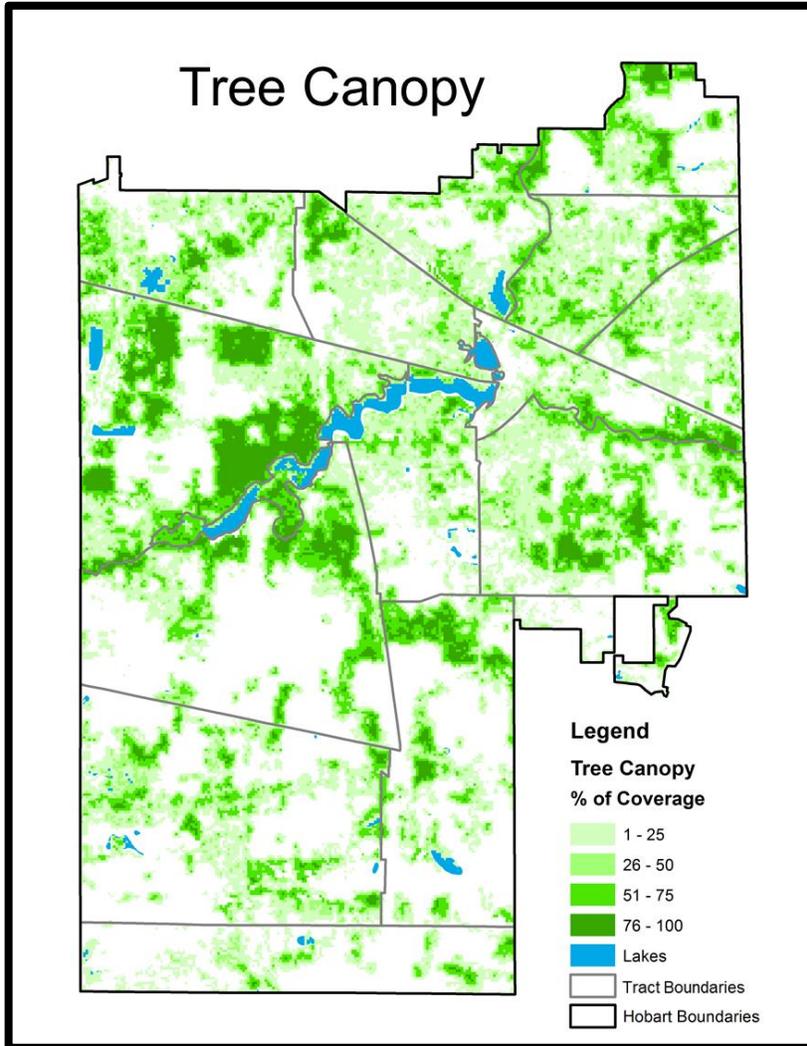
Some of Hobart’s existing waterbodies suffer from impairment. Several solutions exist to improve their conditions, including:

- Increasing development densities, thus minimizing regional water quality impacts.
- “Preserving ecologically important land, such as wetlands, buffer zones, riparian corridors, and floodplains” (EPA, 2006).
- Increasing strips of vegetation along streams and around lakes, which provide important buffers.
 - These buffers “decrease the amount of pollution entering the water system” (EPA, 2006), while “tree and shrub roots hold the bank in place, preventing erosion and its resulting sedimentation and turbidity” (EPA, 2006).
 - Maps illustrating the buffers (100 feet) around Hobart’s impaired waterways can be found in [Appendix N](#). These maps demonstrate that the following Neighborhood Tracts have moderately-heavily developed buffers: Cressmoor Prairie, Liberty, Downtown, Mundell, Lake George, and Hobart Marsh.



- Increase green infrastructure, especially in high-runoff areas.
- Increase the local tree canopy.

Benchmark 8: Tree Canopy



A sufficient tree canopy is a critical aspect of sustainability. The U.S. Forest Service tells us that trees provide a host of ecosystem benefits to cities and their neighborhoods, including:

- Shading sidewalks and buildings, thus reducing heat islands and energy bills
- Reducing air pollution
- Improving water and air quality
- Providing wildlife habitat
- Providing aesthetic and psychological benefits to residents

The Tree Canopy Map demonstrates that large sections of the City currently suffer from 0% tree coverage. While other areas have insufficient coverage, this plan will largely focus on identifying those

Neighborhood Groups which have sizeable portions of 0% coverage and offering solutions to correct this issue. A map of each Tract’s tree canopy can be found in [Appendix O](#). These maps show that while most Neighborhood Groups have some areas of 0% coverage, several have more significant sections of this coverage, including: 1-B, 1-D, 2-A, 3-D, 6-C, 8-B, 8-E, 8-G, 9-B, 10-B, 10-C, 10-D, 11-C, 12-B, 13-A, 13-B, 14-A, 14-B, 15-A, 15-B, 15-C, and 15-D.

Protecting and increasing the tree canopy within Hobart should be an important goal for the City in the coming years. Several steps can be taken to achieve this goal.

- Take steps to acquire a tree canopy shapefile that allows for more specific data to be ascertained.
 - For example, the current layer shows the existing tree canopy, but cannot be used to determine average tree cover percentages for the City as a whole or its Neighborhood Tracts. These averages would be helpful in establishing preservation benchmarks.
- Adopt a tree ordinance.
 - Tree ordinances set standards for a wide range of issues affecting a city's trees.
 - According to American Forests, four types of tree ordinances exist:
 - Street Tree Ordinances
 - Tree Protection Ordinances
 - Buffer or View Ordinances
 - Landscape Ordinances
 - The best tree ordinances “specify the goals of a community's tree program, its methods of enforcement, and evaluation procedures” (EPA, 2004).
 - A model tree ordinance can be found on Scenic America's website at <http://www.scenic.org/issues/tree-conservation/model-ordinance>.
- Encourage schools and civic organizations to engage in tree planting programs.
 - This action will increase the presence of trees on both residential streets and commercial thoroughfares.
- Establish a community grant fund for tree planting.
- Review existing zoning codes for tree friendliness and consider reduced zoning requirements where needed.
- Create a citywide plan for increasing the supply of trees and tree canopy cover.
- Consult an expert to determine which trees will provide the greatest benefit to the community.
 - “Different trees have different absorption rates, growing condition needs, growth rates, and lifespans” (EPA, 2004) and not all will offer the same level of benefit.

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Appendices

Appendix A: Layer Descriptions

Layer: Active/Abandoned Railways

Origin: Indiana Map

http://maps.indiana.edu/previewMaps/Infrastructure/Railroads_Active_Abandoned_INDOT.html

Description: “Shows all active and abandoned rail lines in Indiana.”

Layer: Building Footprints

Origin: Existing City GIS Data

Description: Shows the footprint of existing buildings within Hobart. Building footprint can be defined as the total area of a structure’s foundation.

Layer: Cleanup Sites (2015)

Origin: Indiana Map

http://maps.indiana.edu/previewMaps/Environment/Remediation_Cleanup_Sites.html

Description: “Shows State Cleanup sites that are on the Commissioner's Bulletin or referred remedial response locations or other IDEM programs that require mitigation of risk to human health and the environment through investigation, remediation or institutional controls.”

Layer: FIRM Floodplains (2014)

Origin: Indiana Map

http://maps.indiana.edu/previewMaps/Hydrology/Floodplains_FIRM.html

Description: “Shows floodplains and flood hazard areas, derived from FEMA Flood Rate Insurance Maps (FIRM). The FIRM are the basis for floodplain management, mitigation, and insurance activities for the National Flood Insurance Program (NFIP).”

Layer: Floodways

Origin: Derived from the FIRM Floodplains layer

Description: Shows the locations of floodways. Floodways are composed of the channel of a river or other waterbody, as well as adjacent land.

Layer: Hobart Boundaries

Origin: Derived from the Miscellaneous Government Boundaries layer

Description: Shows the municipal boundaries for the City of Hobart.

Layer: Impaired Lakes (IDEM, 2006)

Origin: Indiana Map

http://maps.indiana.edu/previewMaps/Hydrology/Water_Quality_Lakes_Impaired.html

Description: “Shows waterbodies that do not meet water-quality standards under Section 303(d) of the Clean Water Act.”

Layer: Impaired Streams (IDEM, 2006)

Origin: Indiana Map

http://maps.indiana.edu/previewMaps/Hydrology/Water_Quality_Streams_Impaired.html

Description: “Shows streams and rivers that do not meet water-quality standards under Section 303(d) of the Clean Water Act.”

Layer: Impervious Surfaces

Origin: Existing City GIS Data

Description: Shows impervious surface. Impervious surface can be defined as surface cover that water cannot penetrate, such as roads, roofs, and parking lots.

Layer: Institutional Control Sites (2015)

Origin: Indiana Map

http://maps.indiana.edu/previewMaps/Environment/Remediation_Institutional_Control_Sites.html

Description: “Shows Institutional Control (IC) site locations in Indiana. When any amount of contamination above a residential closure level is left on a property, a legal measure called an Institutional Control (IC) may be needed. An IC protects human health and the environment by restricting property activity, use, or access.”

Layer: Lakes & Ponds

Origin: Indiana Map

http://maps.indiana.edu/previewMaps/Hydrology/Water_Bodies_Lakes_LocalRes.html

Description: “Shows lakes, ponds, reservoirs, swamps and marshes.”

Layer: Land Cover (2011)

Origin: Multi-Resolution Land Characteristics (MRLC) Consortium

http://www.mrlc.gov/nlcd11_data.php

Description: Shows land cover data, composed of 16 types.

Layer: Land Parcels

Origin: Existing City GIS Data

Description: Shows the location and size of exiting land parcels.

Layer: Major Drainage Areas

Origin: Existing City GIS Data

Description: Shows the seven major drainage areas comprising the City of Hobart, indicating which waterbody the runoff from each area drains into.

Layer: Managed Lands (2015)

Origin: Indiana Map

http://maps.indiana.edu/previewMaps/Environment/Managed_Lands_IDNR.html

Description: “Shows natural and recreation areas which are owned or managed by the Indiana Department of Natural Resources. In addition, some lands are included that are owned by federal agencies, local agencies, non-profit organizations, and conservation easements.”

Layer: Miscellaneous Government Boundaries (2015)

Origin: Indiana Map

http://maps.indiana.edu/previewMaps/Government/Boundaries_Miscellaneous_IDHS.html

Description: “Shows miscellaneous government boundaries maintained by county agencies in Indiana.”

Layer: Parks

Origin: Existing City GIS Data

Description: Shows the location of parklands.

Layer: Recreational Facilities (IDNR, 2009)

Origin: Indiana Map

http://maps.indiana.edu/previewMaps/Infrastructure/Recreation_Facilities_IDNR.html

Description: “Shows outdoor recreation facilities, including facilities managed by federal, state, and local governments, as well as non-government organizations, private and commercial entities, and schools.”

Layer: Recreational Trails (IDNR, 2015)

Origin: Indiana Map

http://maps.indiana.edu/previewMaps/Infrastructure/Recreation_Trails_IDNR.html

Description: “Shows trails and associated attributes of public, off-road recreation, and transportation trails. It includes trails managed by federal, state, and local governments, as well as non-government organizations.”

Layer: Rivers (Local Resolution, 20150806)

Origin: Indiana Map

http://maps.indiana.edu/previewMaps/Hydrology/Water_Bodies_Rivers_LocalRes.html

Description: “Shows rivers, inundation areas, canals, ditches, submerged streams and other linear waterbody areas in watersheds in Indiana.”

Layer: Sanitary Service Boundaries

Origin: Existing City GIS Data

Description: Shows the jurisdictions of various sanitary service districts within the City of Hobart. These include the Gary, Merrillville, and Hobart sanitary districts.

Layer: Sanitary Sewer Gravity Mains

Origin: Existing City GIS Data

Description: Shows the location of sanitary sewer gravity mains. Sanitary sewer gravity mains are pipes which move waste to a desired location through the use of gravity.

Layer: Sanitary Sewer Lift Stations

Origin: Existing City GIS Data

Description: Shows the location of sanitary sewer lift stations. Sanitary sewer lift stations are used to raise waste product from a lower to a higher elevation, for a variety of reasons.

Layer: Sanitary Sewer Pressurized Mains

Origin: Existing City GIS Data

Description: Shows the location of sanitary sewer pressurized mains. Sanitary sewer pressurized mains are pipes in which waste is forced to flow to a specific location through the use of pressure.

Layer: Soil Survey Geographic (SSURGO) Database (2015)

Origin: Indiana Map

http://maps.indiana.edu/previewMaps/Environment/Soils_SSURGO_Soil_Survey.html

Description: “Shows the most detailed level of soil geographic data available for Indiana, and provides information about the kinds and distribution of soils on the landscape.”

Layer: Streams (Local Resolution, 20150806)

Origin: Indiana Map

http://maps.indiana.edu/previewMaps/Hydrology/Water_Bodies_Streams_LocalRes.html

Description: “Shows streams, rivers, canals, ditches, artificial paths, coastlines, connectors and pipelines in Indiana.”

Layer: Stormwater Gravity Mains

Origin: Existing City GIS Data

Description: Shows the location of stormwater gravity mains. Stormwater gravity mains are pipes which move stormwater to a desired location through the use of gravity.

Layer: Stormwater Outfalls

Origin: Existing City GIS Data

Description: Shows the location of stormwater outfalls. Stormwater outfalls are the discharge points for stormwater lines.

Layer: Streets

Origin: Indiana Map

http://maps.indiana.edu/previewMaps/Infrastructure/Streets_Roads_INDOT_2005.html

Description: “Shows roads, consisting of city streets, county roads, and U.S., state and interstate roads, and non-certified other roads.”

Layer: Tree Canopy (2011)

Origin: Multi-Resolution Land Characteristics (MRLC) Consortium

http://www.mrlc.gov/nlcd11_data.php

Description: Shows the current percentages of tree canopy cover.

Layer: Tree Districts

Origin: Existing City GIS Data

Description: Shows the location of each tree growing within a public right-of-way.

Layer: Underground Storage Tanks (2015)

Origin: Indiana Map

http://maps.indiana.edu/previewMaps/Environment/Storage_Tanks_Underground.html

Description: “Shows regulated underground storage tank locations, including leaking underground storage tanks. Regulated underground storage tanks are those that have 10 percent or more of the tank and piping buried beneath the ground and contain a regulated substance.”

Layer: Voting Districts (2010)

Origin: Indiana Map

http://maps.indiana.edu/previewMaps/Government/Voting_Districts_2010_USCB.html

Description: Shows “geographic entities, such as precincts, wards, and election districts, established for the purpose of conducting elections.”

Layer: Wells IDNR (2013)

Origin: Indiana Map

http://maps.indiana.edu/previewMaps/Hydrology/Water_Wells_IDNR.html

Description: “Shows ground-water-well locations.”

Layer: Wetlands

Origin: Existing City GIS Data

Description: Shows the location of wetlands.

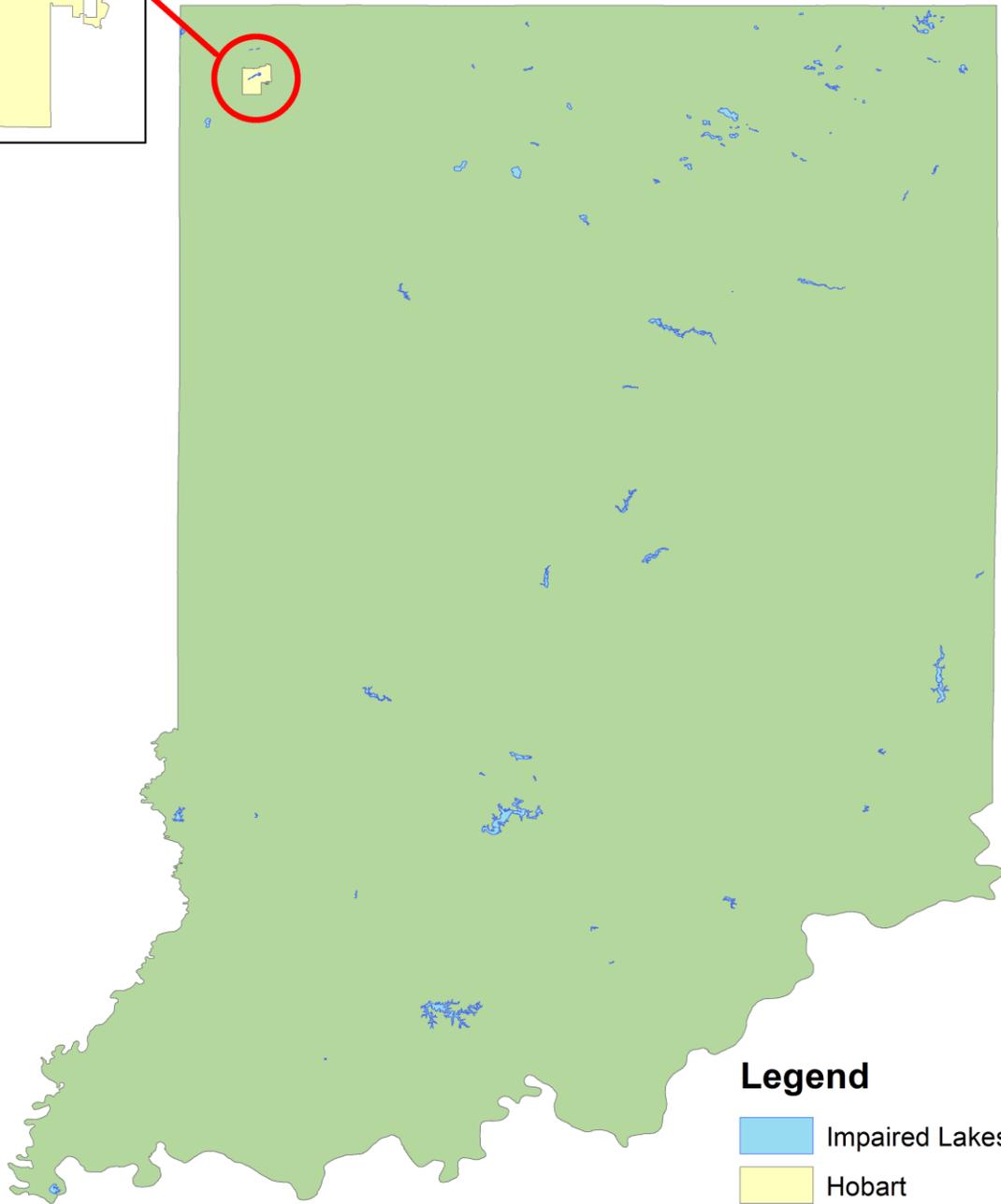
Layer: Zoning

Origin: Existing City GIS Data

Description: Shows the City of Hobart’s current zoning code, indicating which uses and developments are permissible in which locations.

Appendix B: The Clipping Process

Impaired Lakes

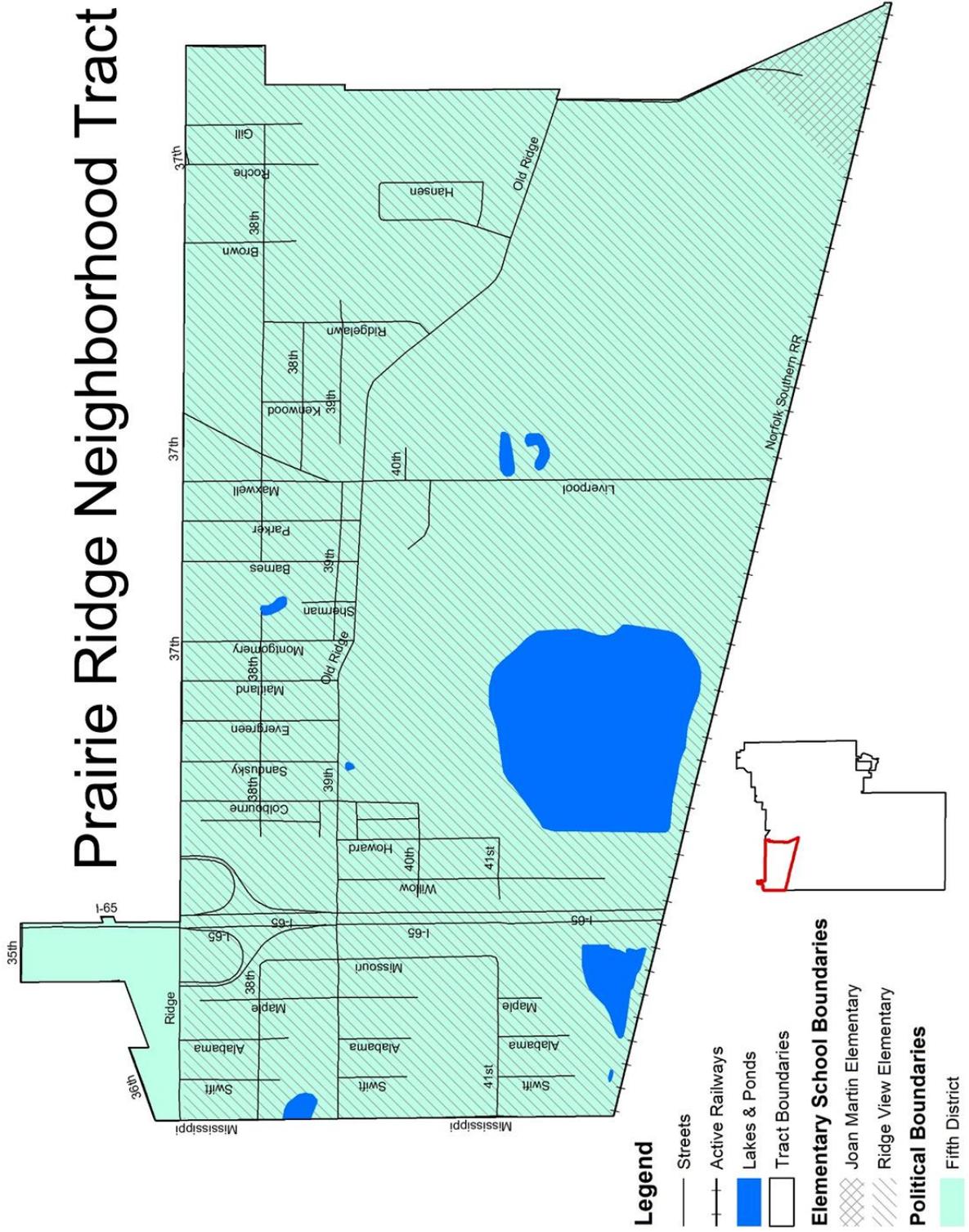


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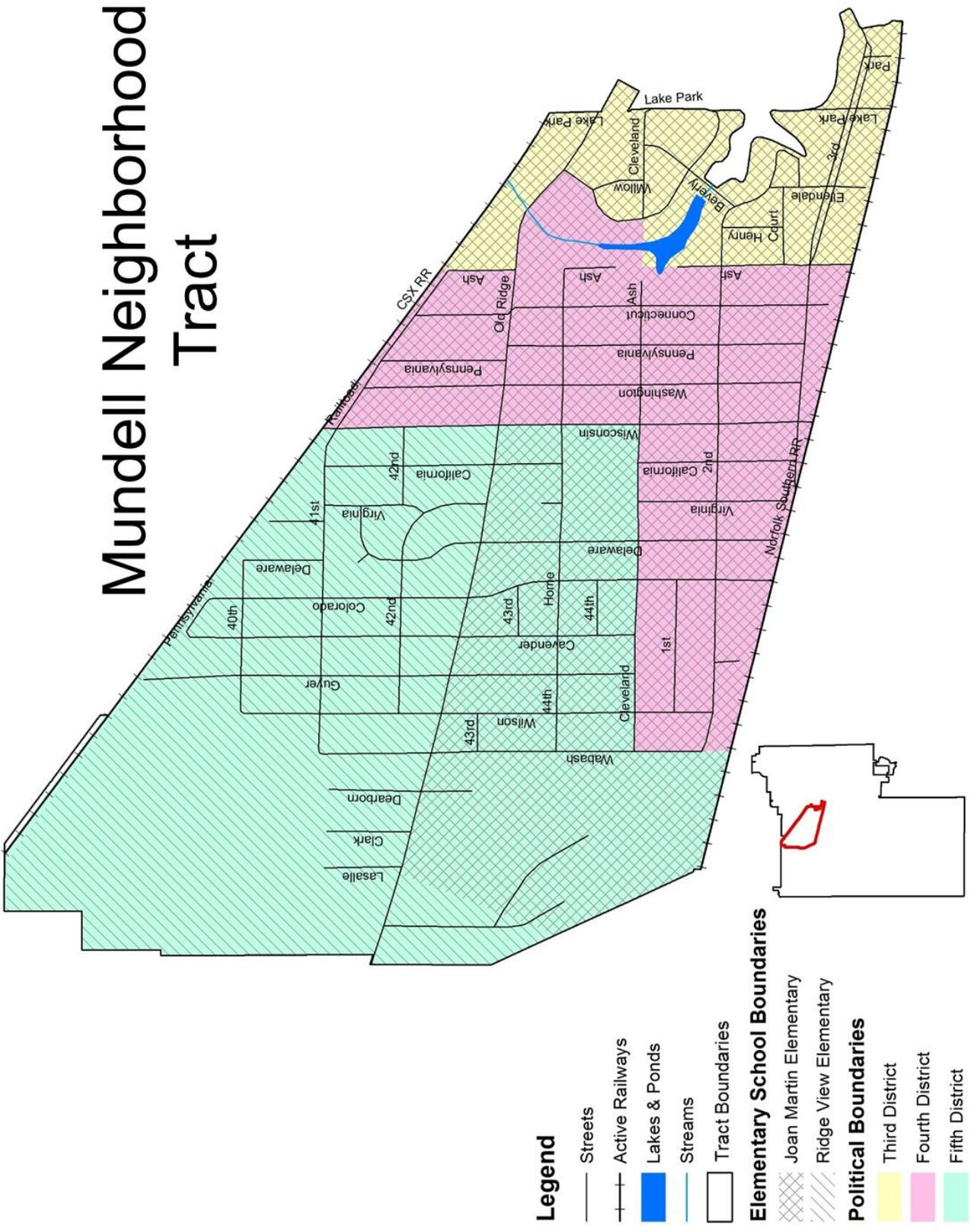
-  Impaired Lakes
-  Hobart
-  Indiana

Appendix C: Neighborhood Tracts

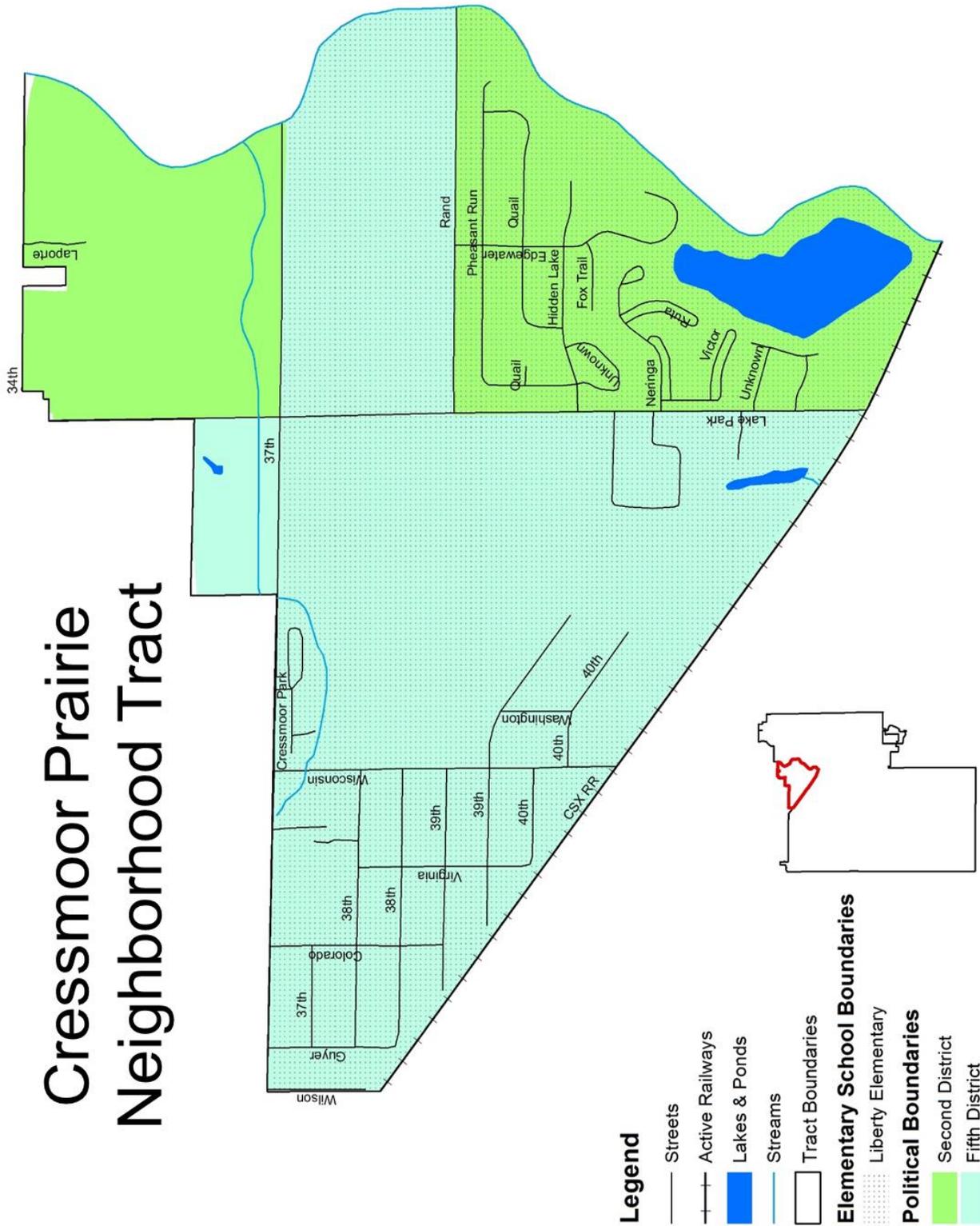
Prairie Ridge Neighborhood Tract



Mundell Neighborhood Tract



Cressmoor Prairie Neighborhood Tract



Legend

- Streets
- Active Railways
- Lakes & Ponds
- Streams
- Tract Boundaries

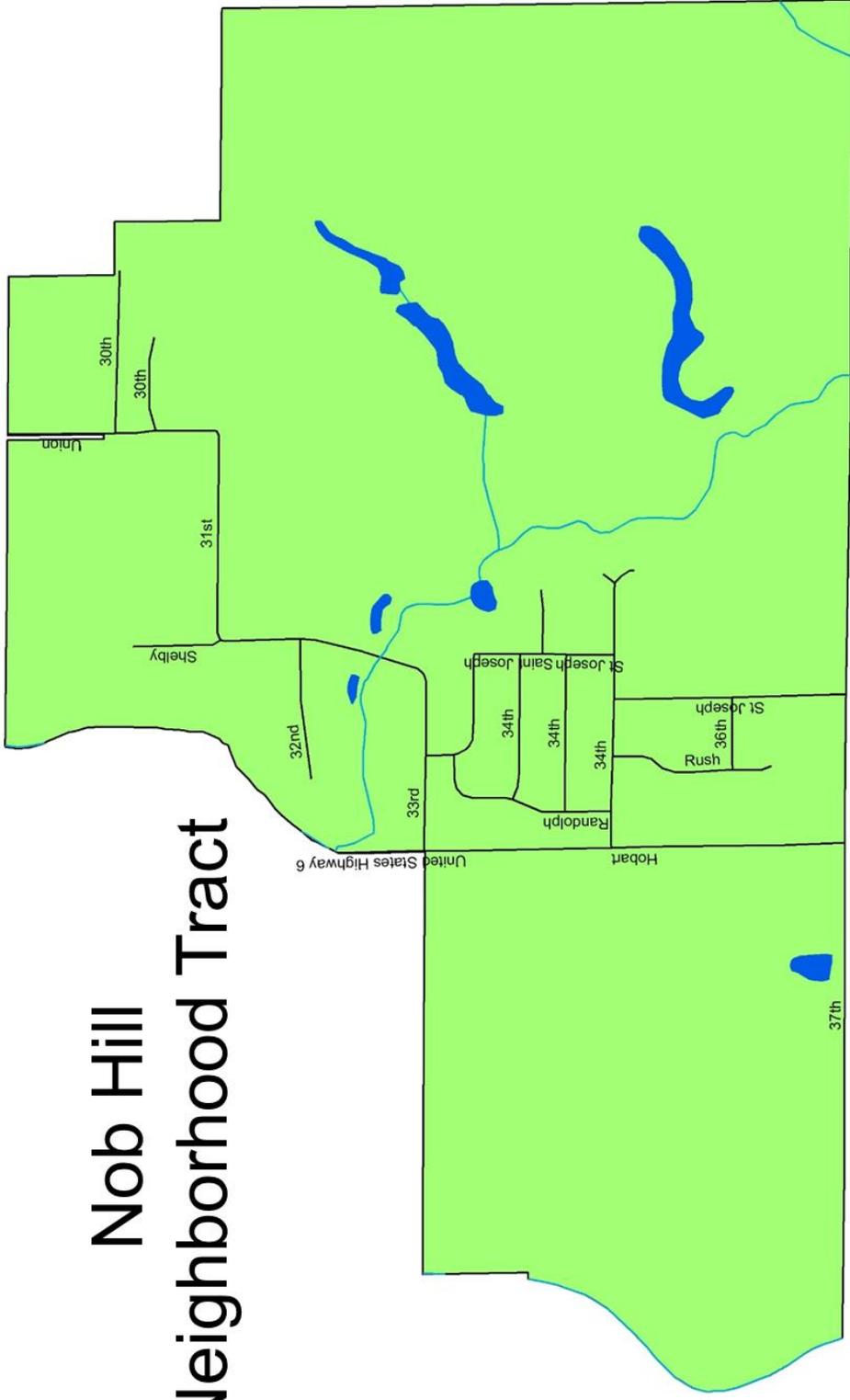
Elementary School Boundaries

- ▤ Liberty Elementary

Political Boundaries

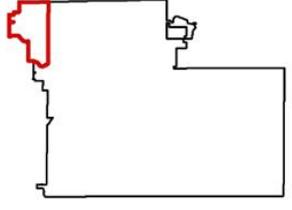
- Second District
- Fifth District

Nob Hill Neighborhood Tract

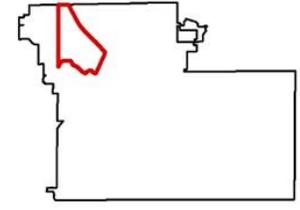
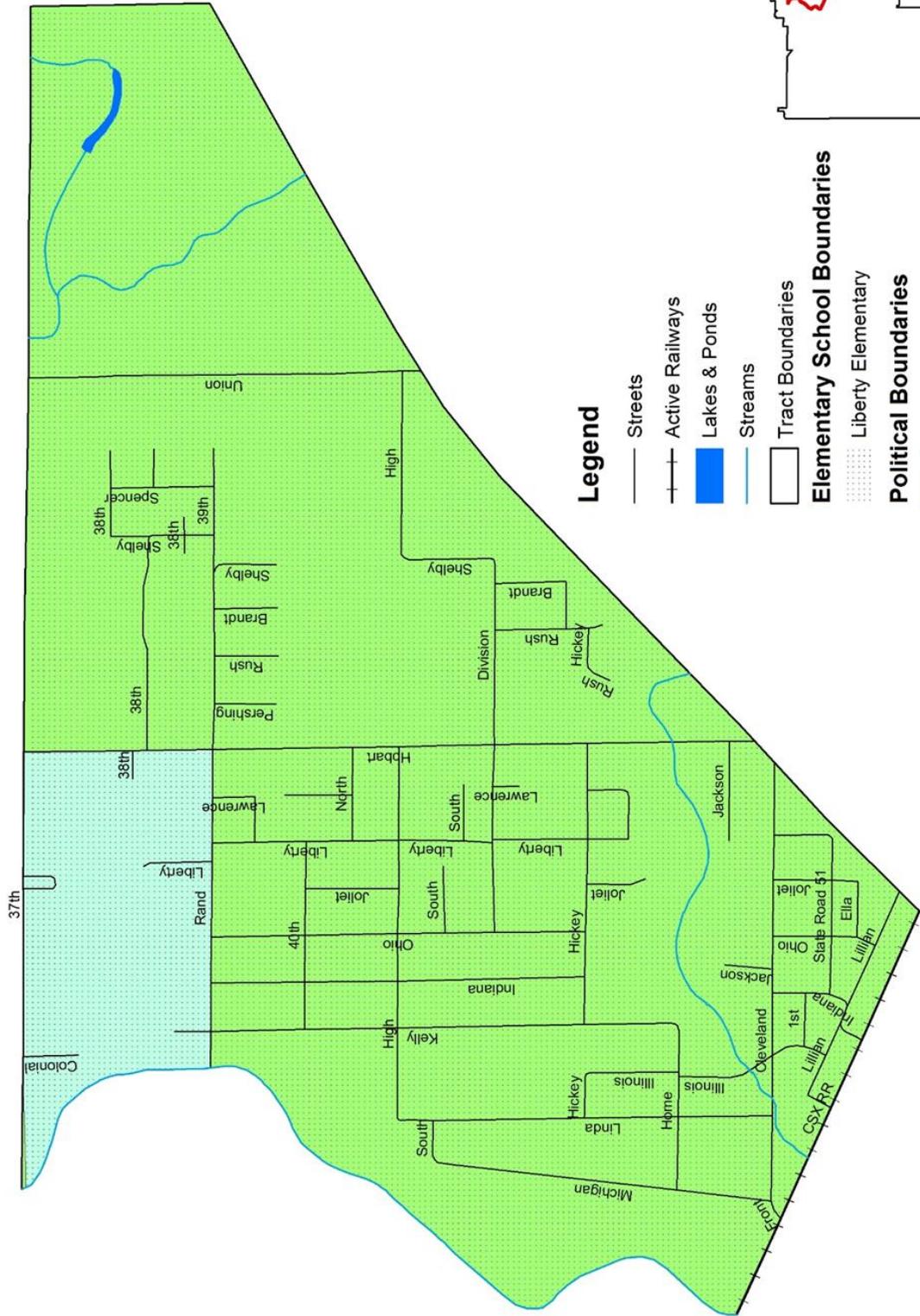


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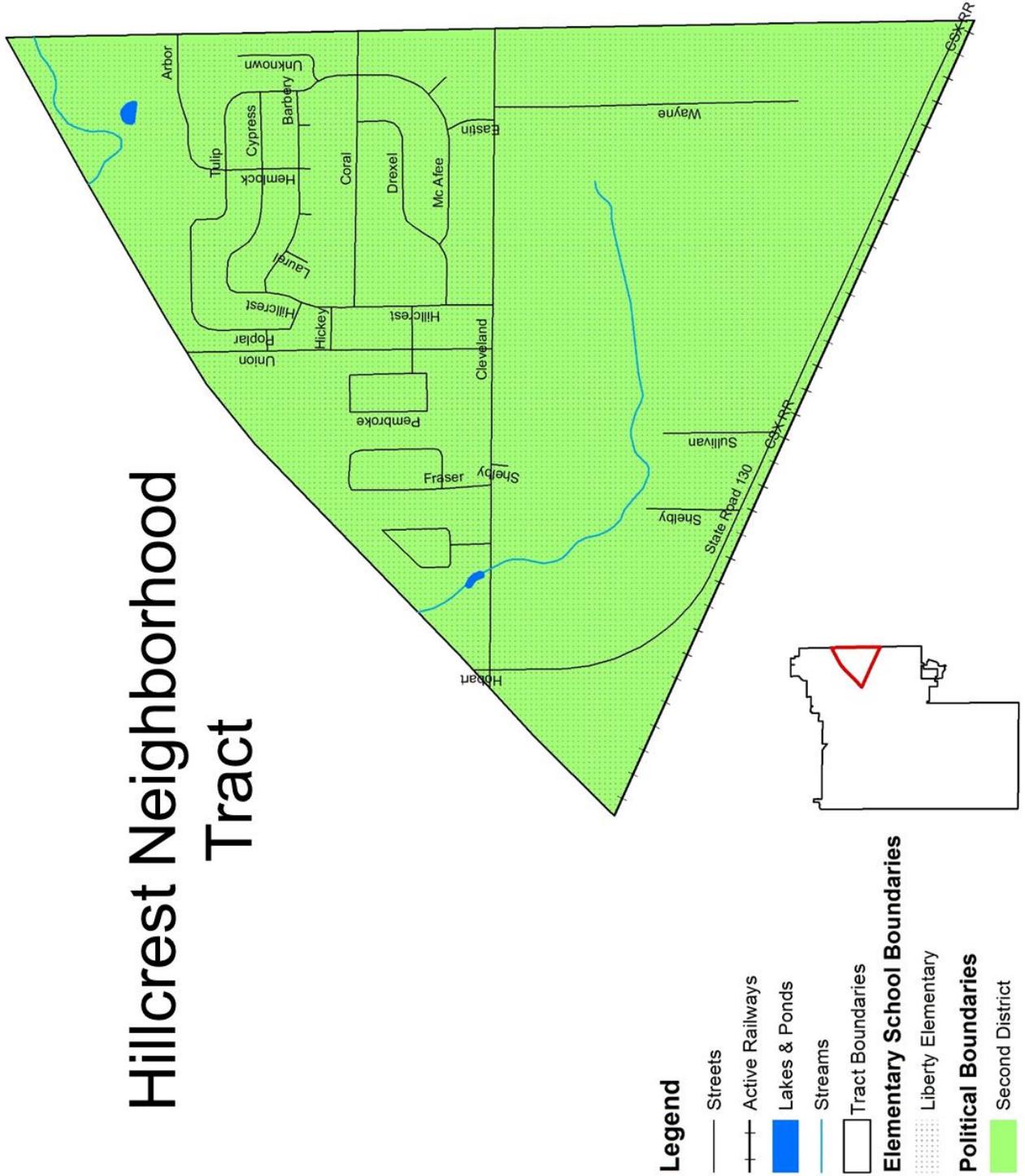
- Streets
- Lakes & Ponds
- Streams
- Tract Boundaries
- Political Boundaries
- Second District



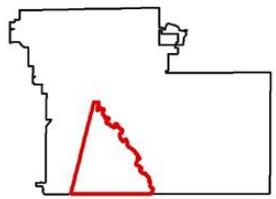
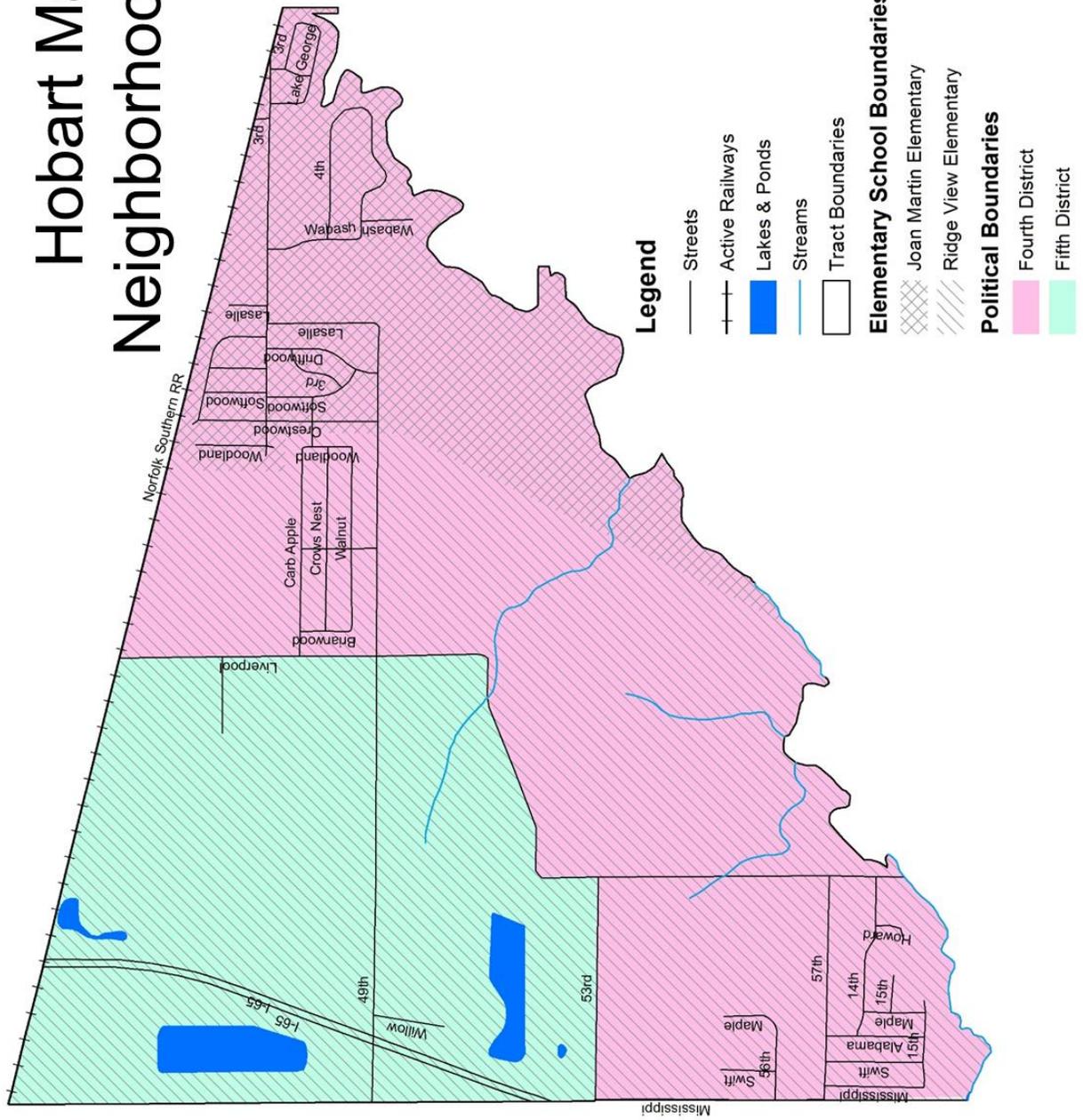
Liberty Neighborhood Tract



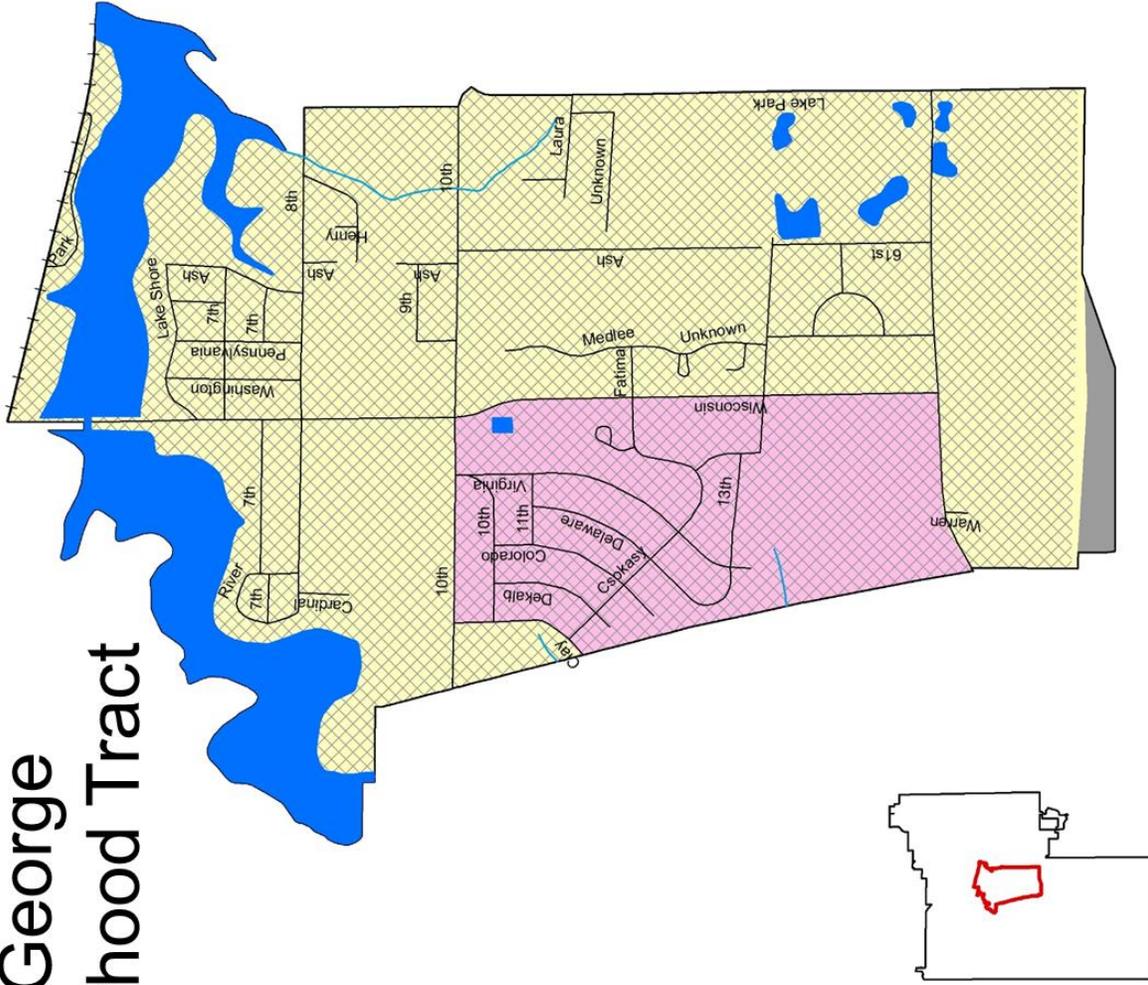
Hillcrest Neighborhood Tract



Hobart Marsh Neighborhood Tract



Lake George Neighborhood Tract



Legend

- Streets
- +— Active Railways
- Lakes & Ponds
- Streams
- Tract Boundaries

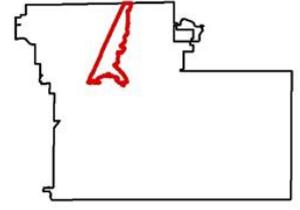
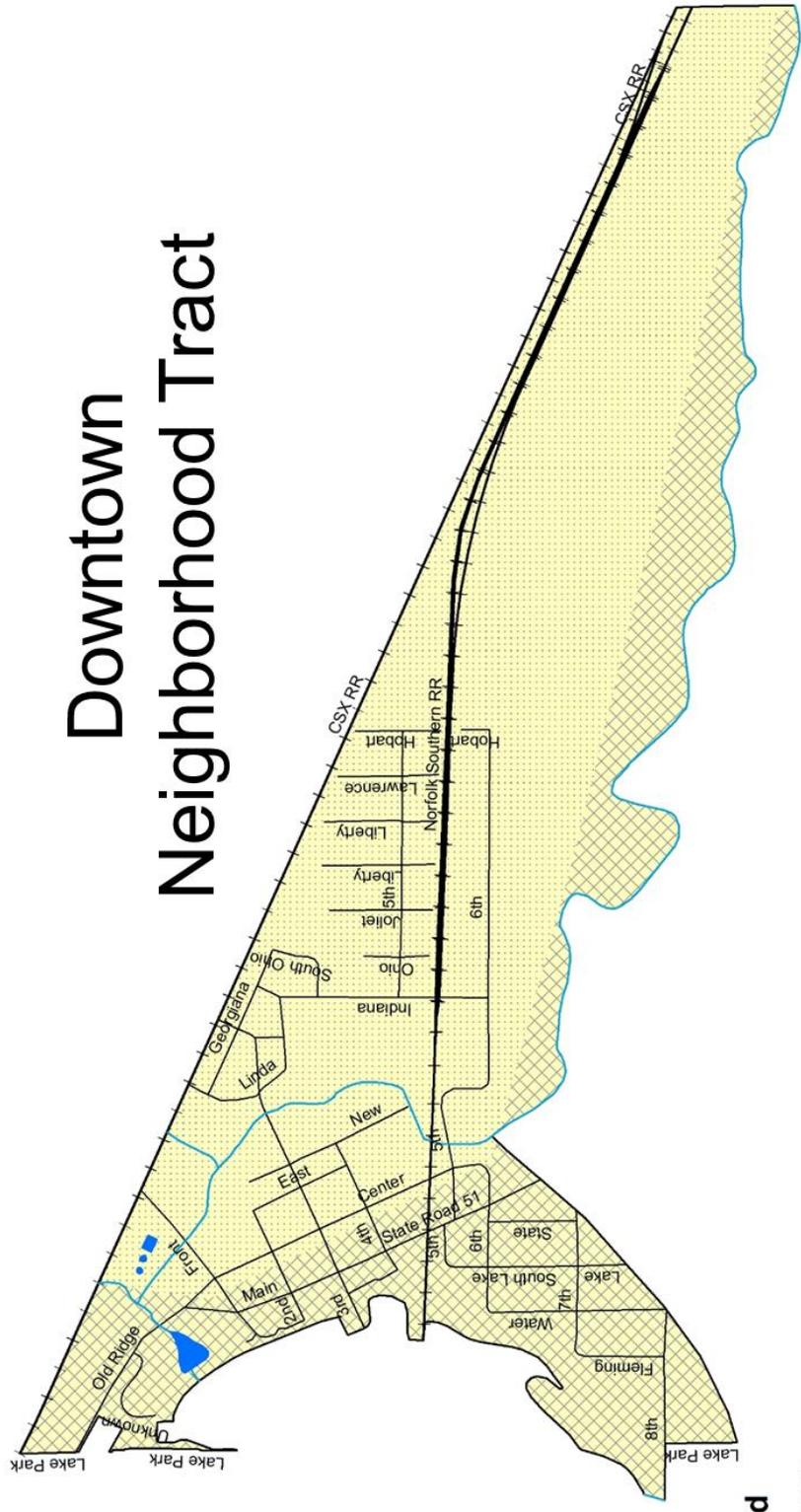
Elementary School Boundaries

- XXXXX Joan Martin Elementary

Political Boundaries

- First District
- Third District
- Fourth District

Downtown Neighborhood Tract



Legend

- Streets
- +— Active Railways
- Lakes & Ponds
- Streams
- Tract Boundaries

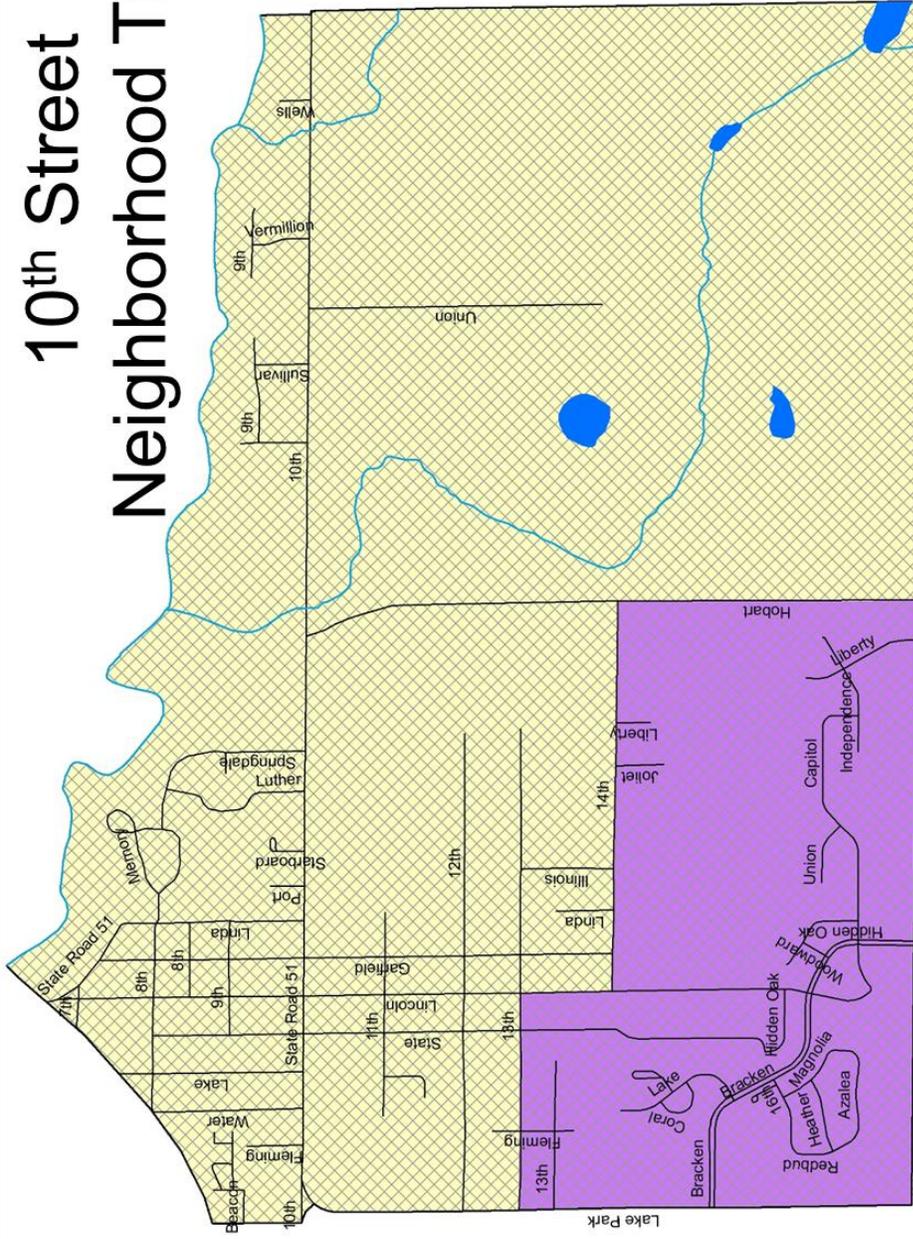
Elementary School Boundaries

- ▨ Joan Martin Elementary
- ▨ Liberty Elementary

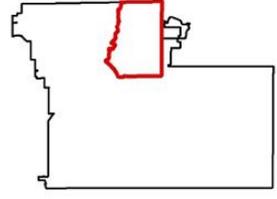
Political Boundaries

- Third District

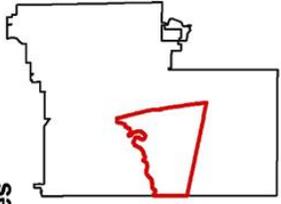
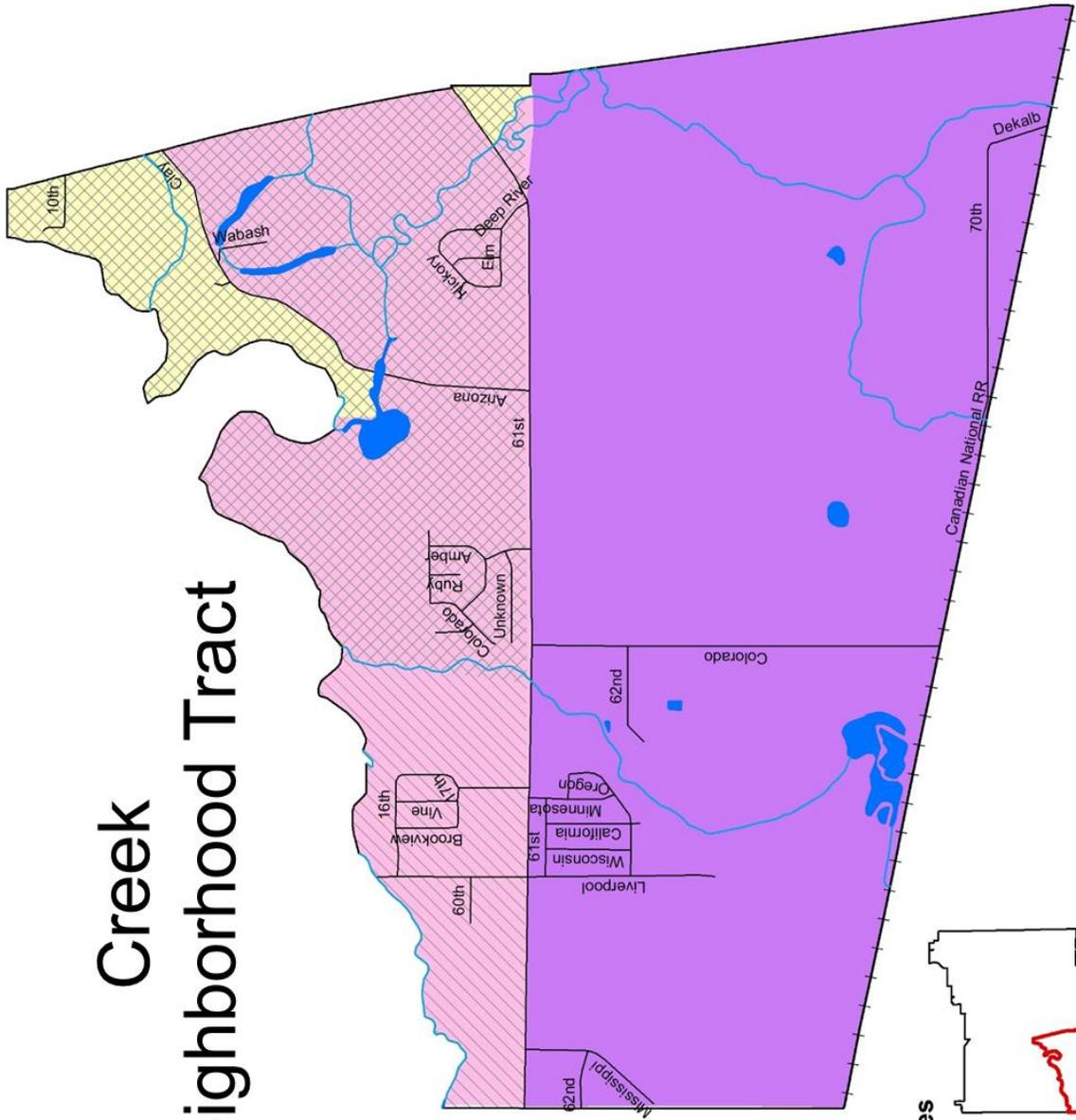
10th Street Neighborhood Tract



- Legend**
- Streets
 - Lakes & Ponds
 - Streams
 - Tract Boundaries
- Elementary School Boundaries**
- ▨ Joan Martin Elementary
- Political Boundaries**
- First District
 - Third District



Creek Neighborhood Tract



Legend

- Streets
- +— Active Railways
- Lakes & Ponds
- Streams
- Tract Boundaries

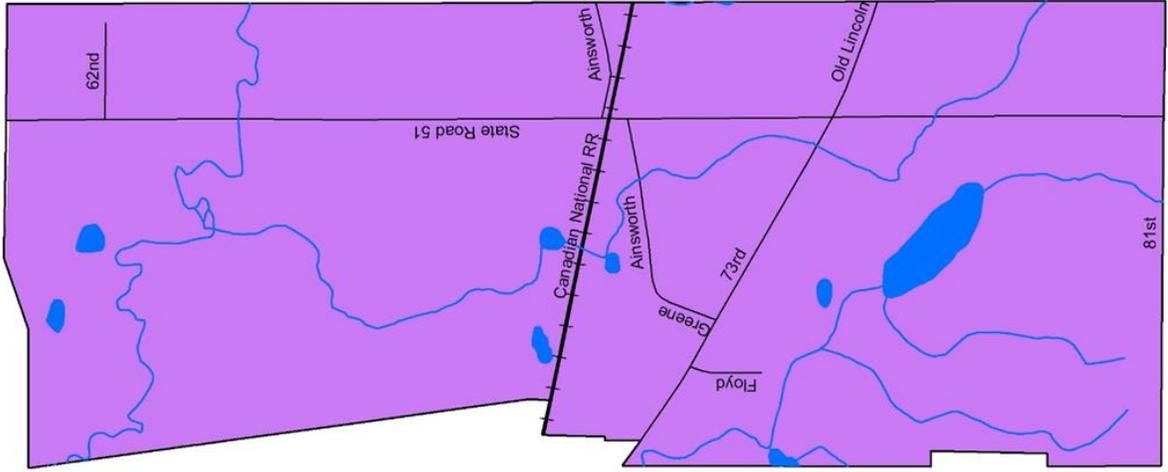
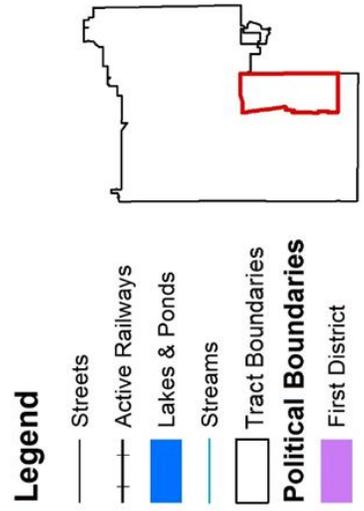
Elementary School Boundaries

- ▨ Joan Martin Elementary
- ▨ Ridge View Elementary

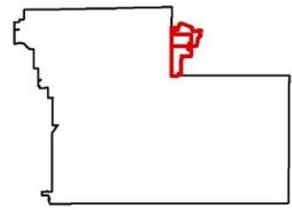
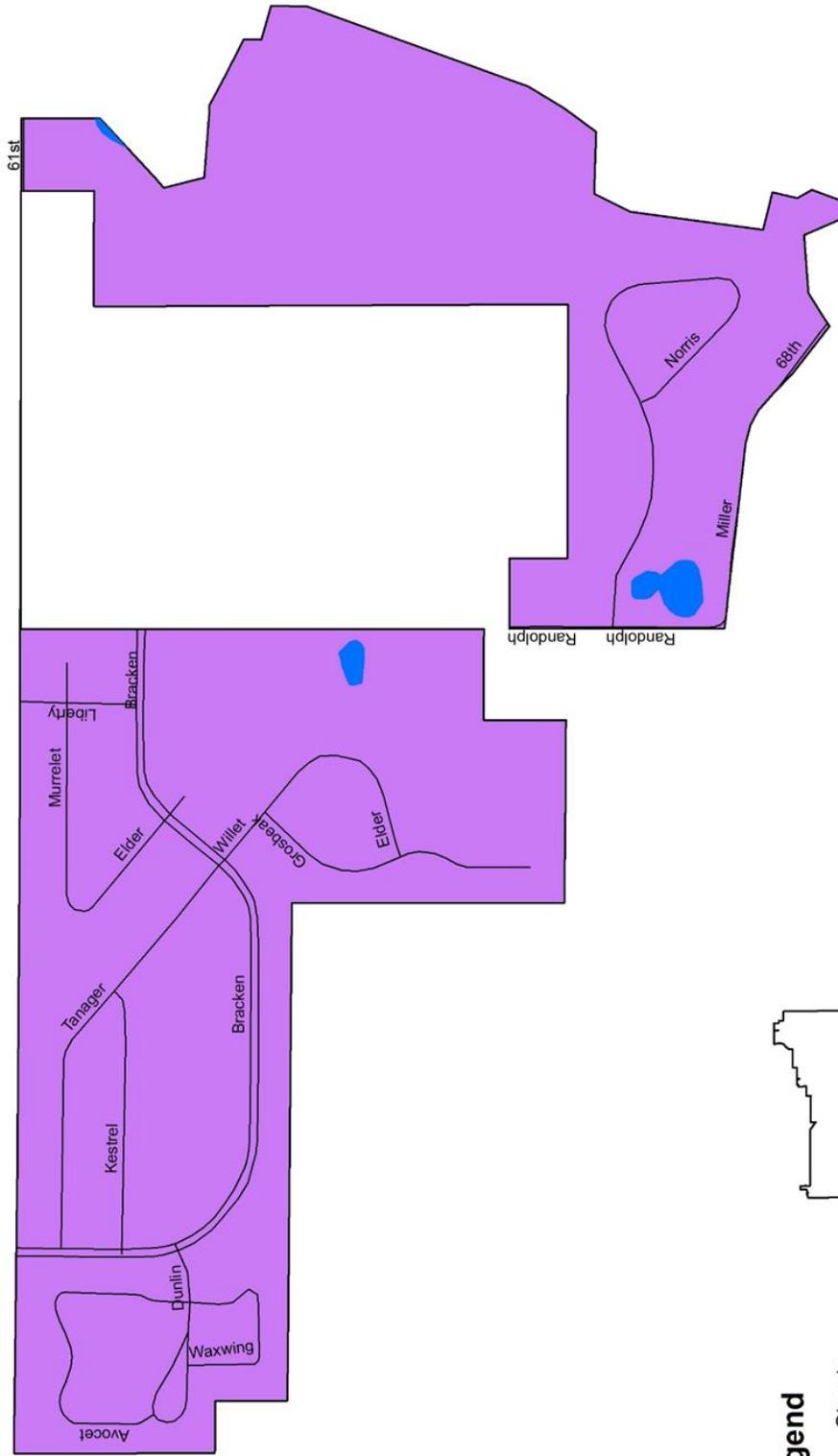
Political Boundaries

- First District
- Third District
- Fourth District

Ainsworth Neighborhood Tract

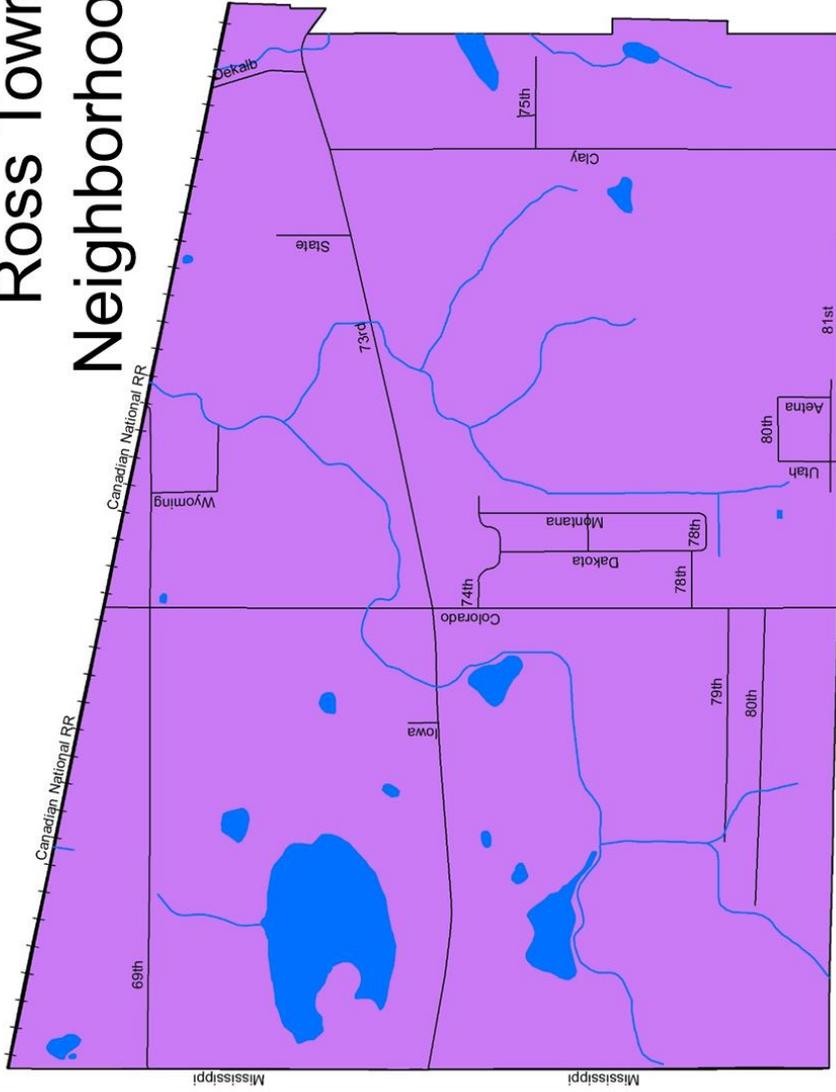


Ridge Pointe Neighborhood Tract



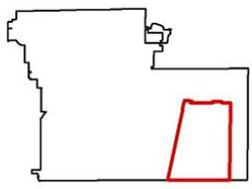
- Legend**
- Streets
 - Lakes & Ponds
 - Tract Boundaries
- Political Boundaries**
- First District

Ross Township Neighborhood Tract

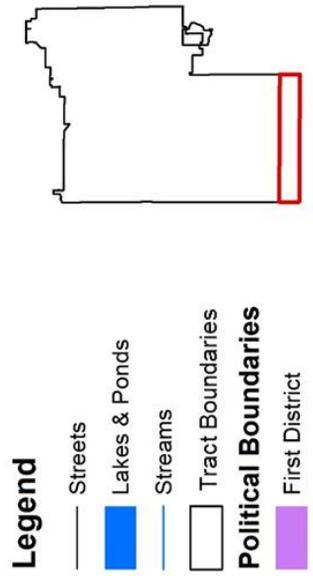
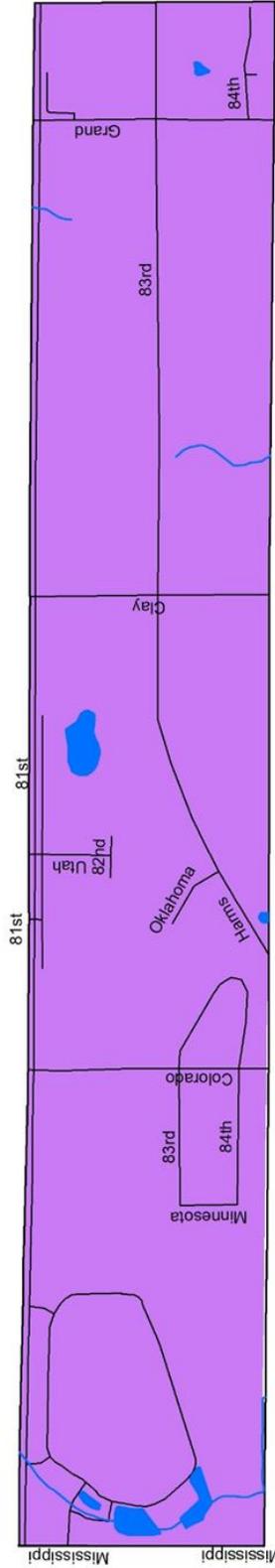


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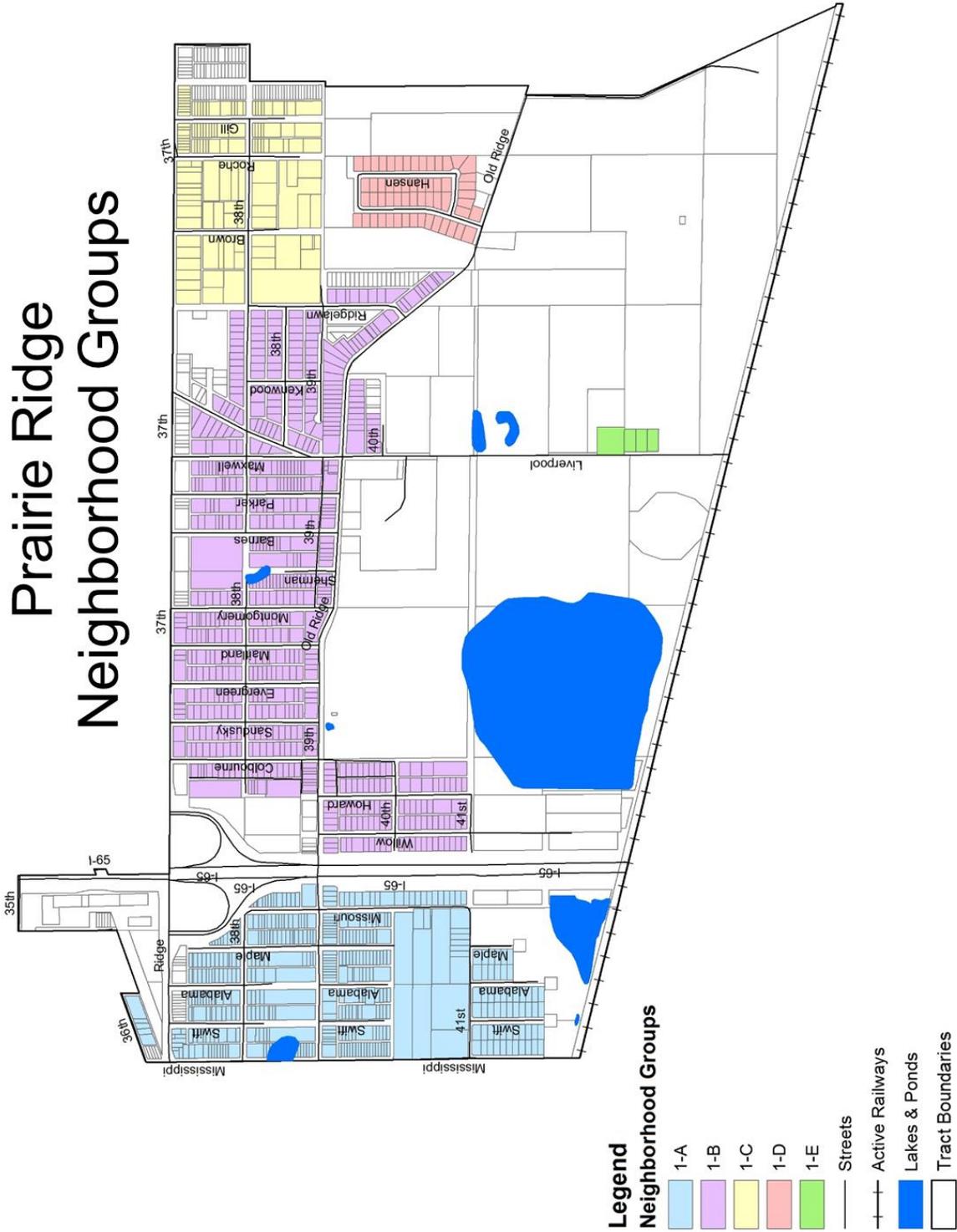
- Streets
- +— Active Railways
- Lakes & Ponds
- Streams
- Tract Boundaries
- Political Boundaries
- First District



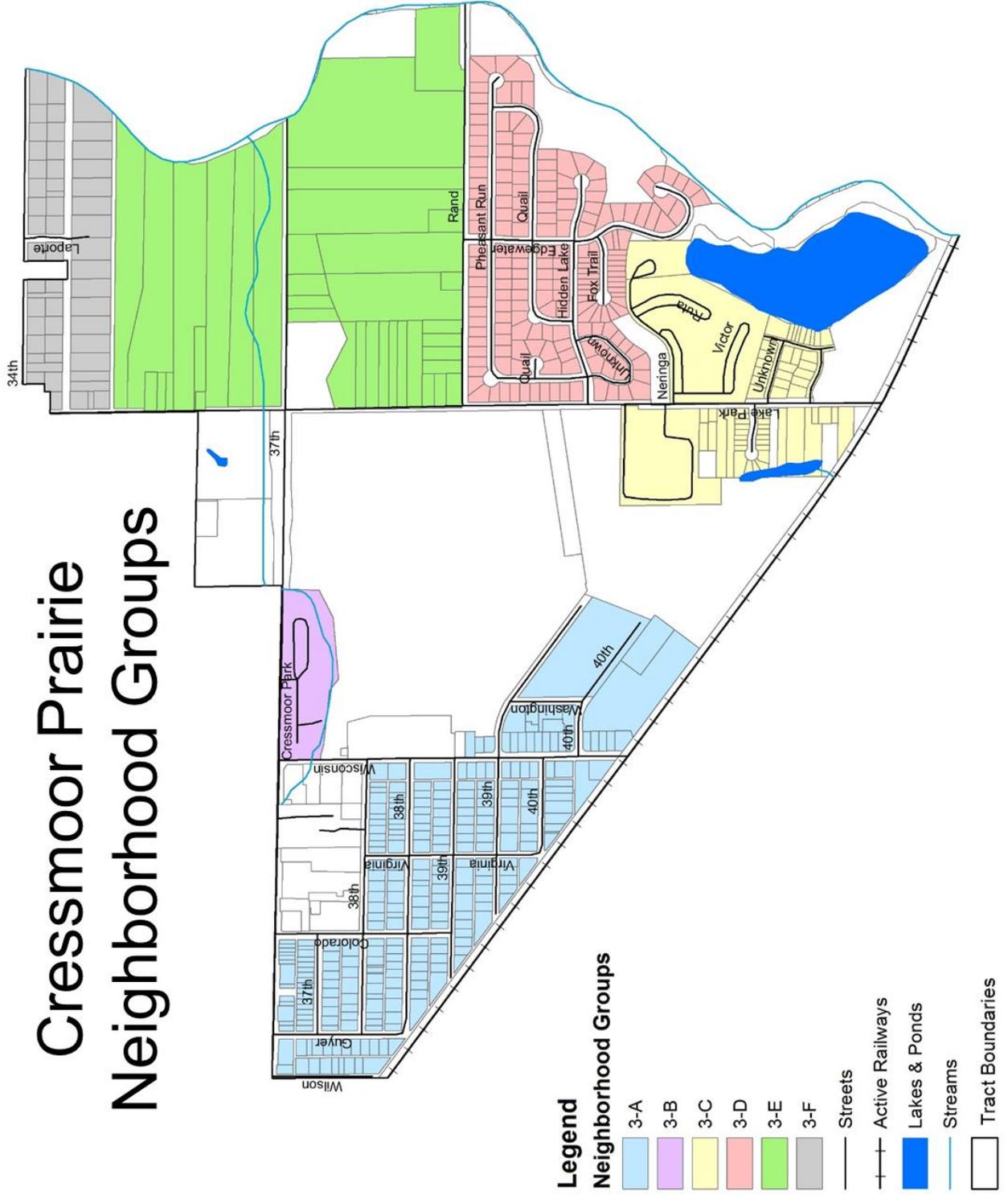
US 30 Corridor Neighborhood Tract



Appendix D: Neighborhood Groups by Tract

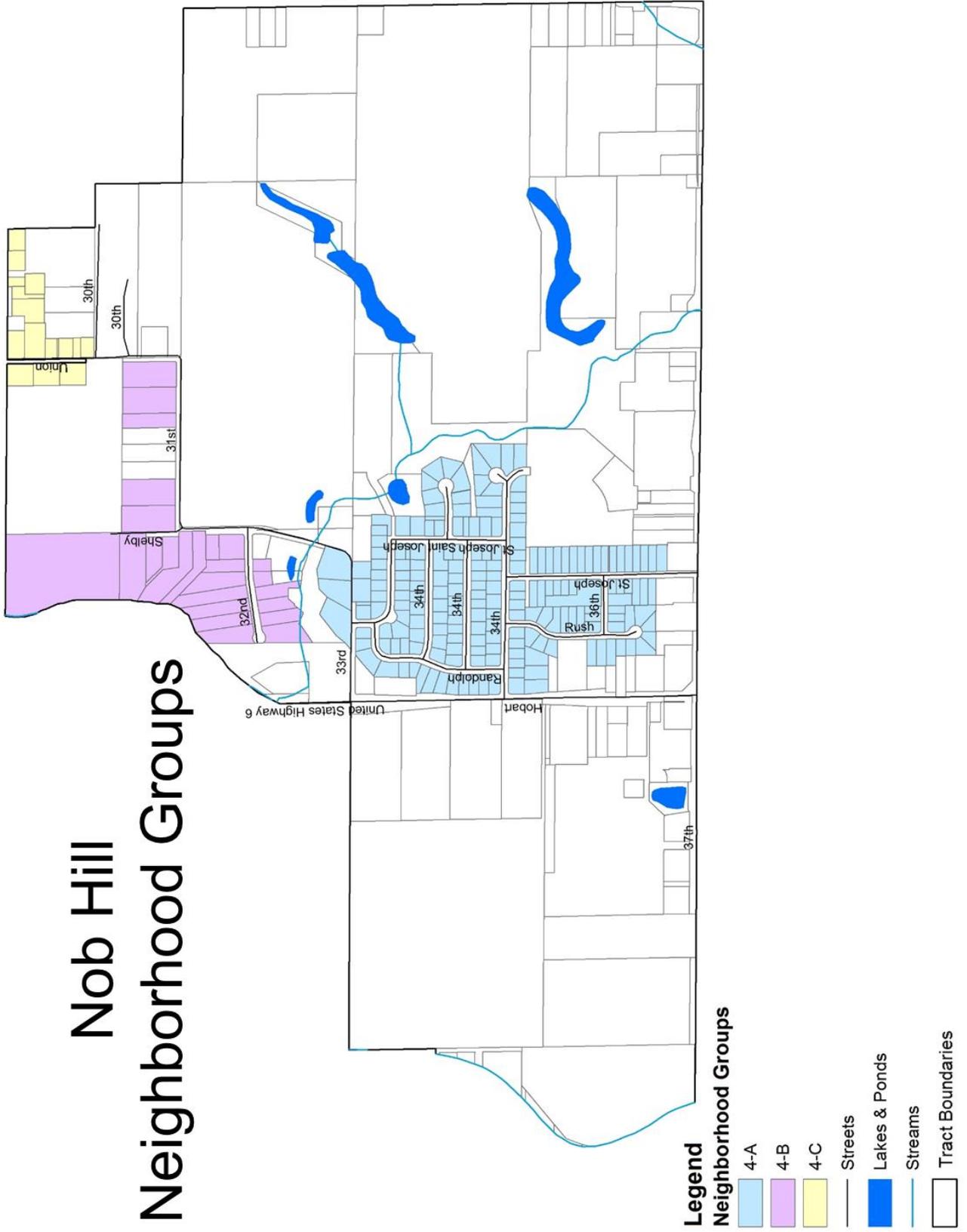


Cressmoor Prairie Neighborhood Groups

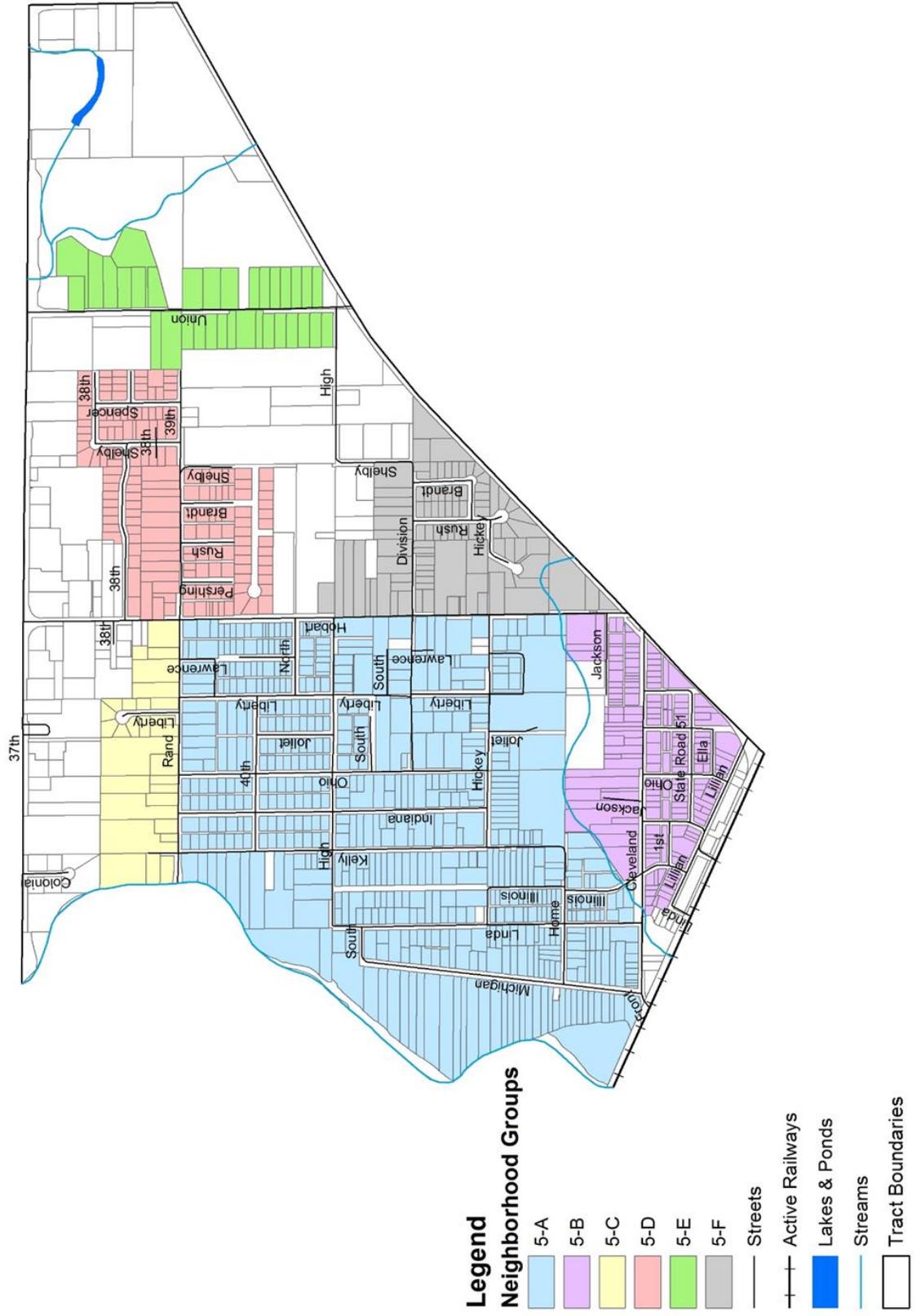


Legend
Neighborhood Groups

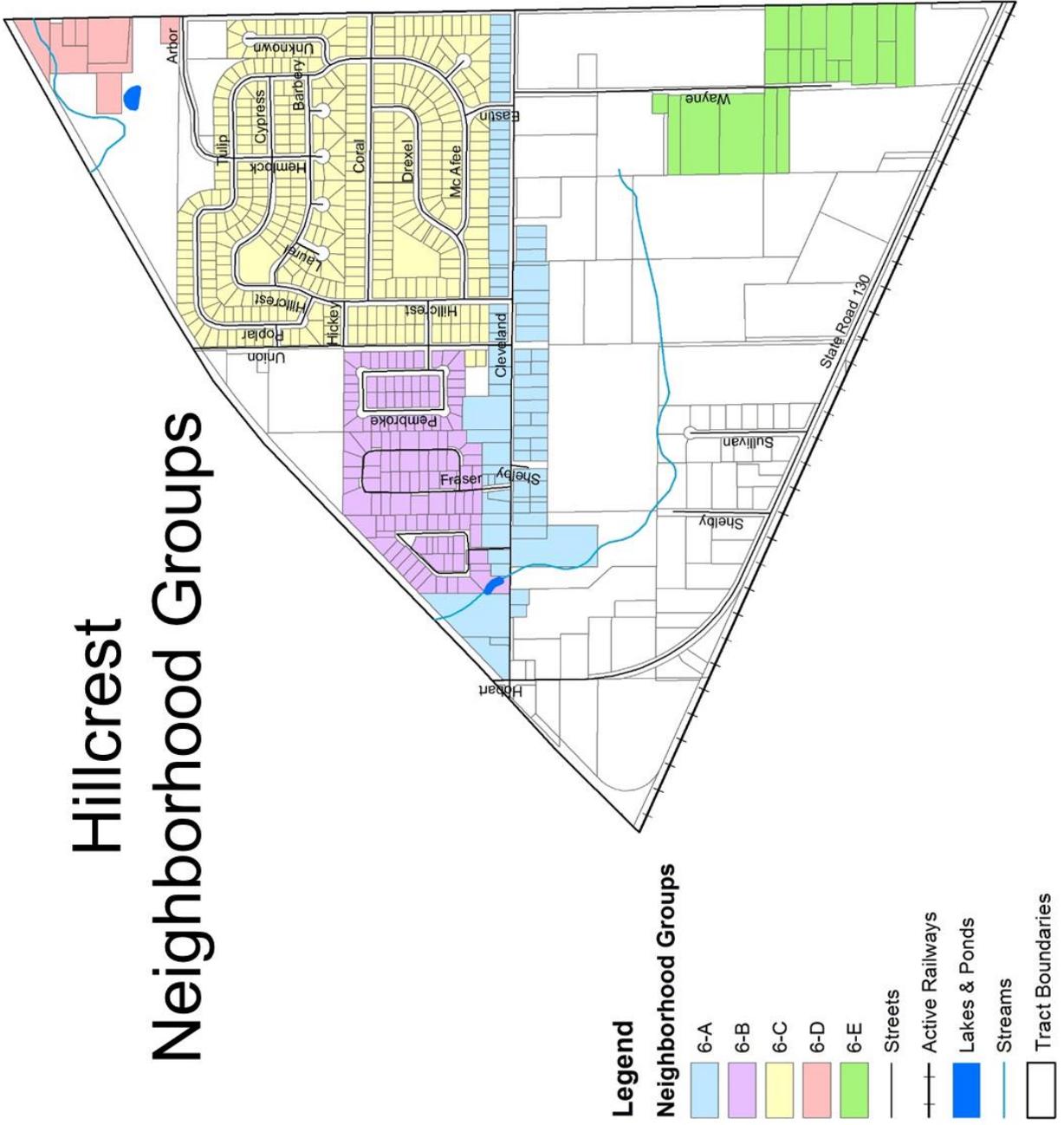
Nob Hill Neighborhood Groups



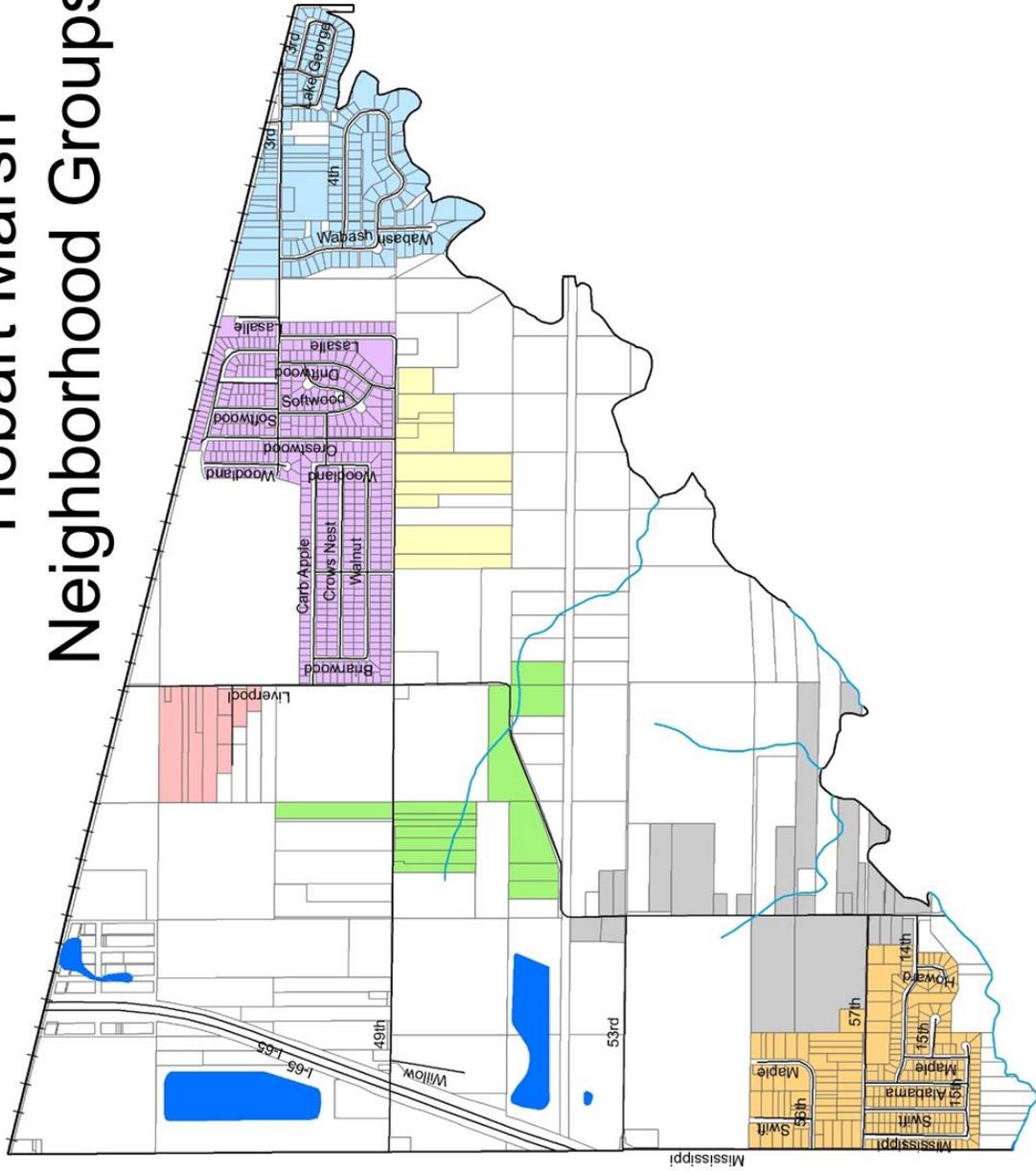
Liberty Neighborhood Groups



Hillcrest Neighborhood Groups

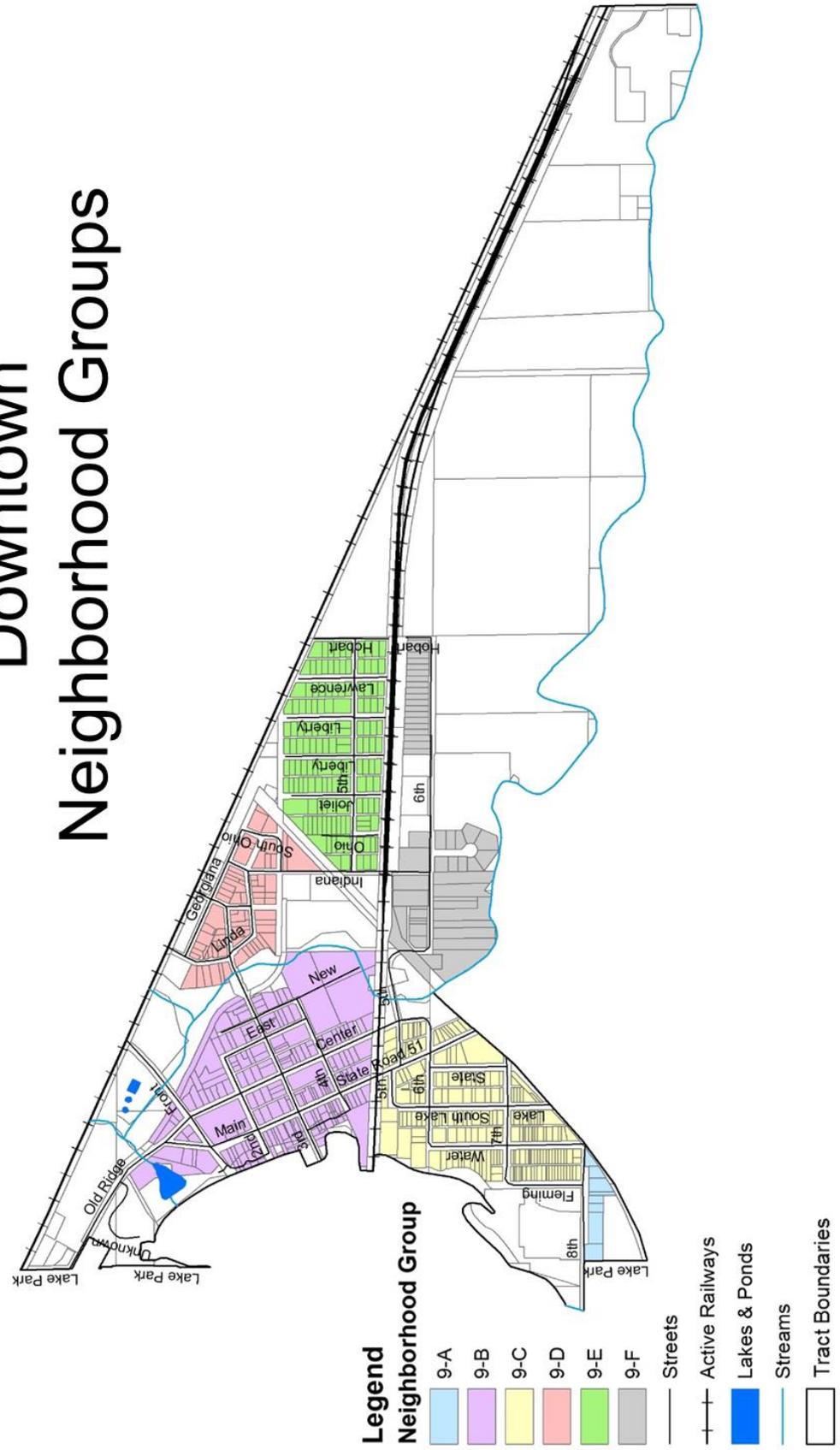


Hobart Marsh Neighborhood Groups

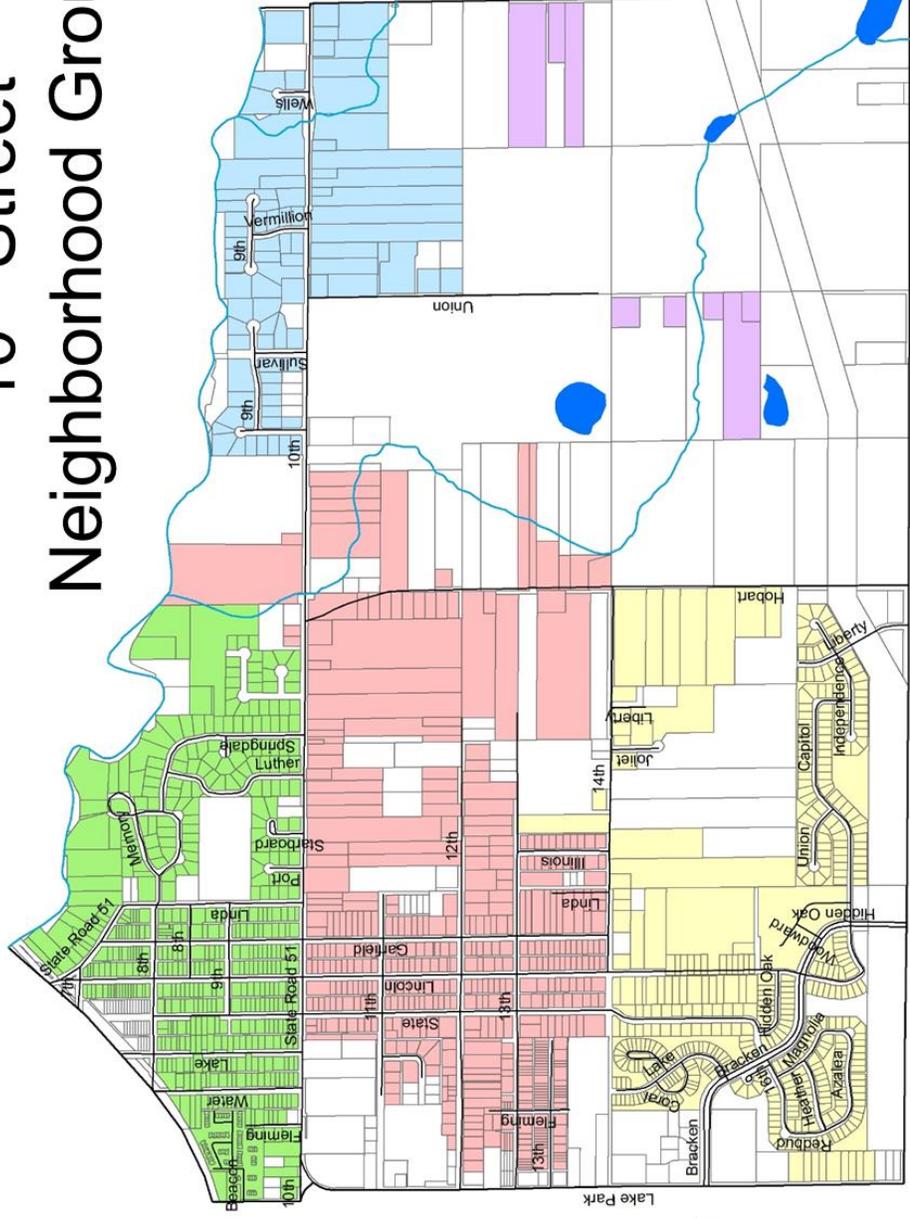


- Legend**
- 7-A
 - 7-B
 - 7-C
 - 7-D
 - 7-E
 - 7-F
 - 7-G
 - Streets
 - Active Railways
 - Lakes & Ponds
 - Streams & Ditches
 - Tract Boundaries

Downtown Neighborhood Groups



10th Street Neighborhood Groups



Legend

Neighborhood Groups

- 10-A
- 10-B
- 10-C
- 10-D
- 10-E

Streets

Lakes & Ponds

Streams

Tract Boundaries

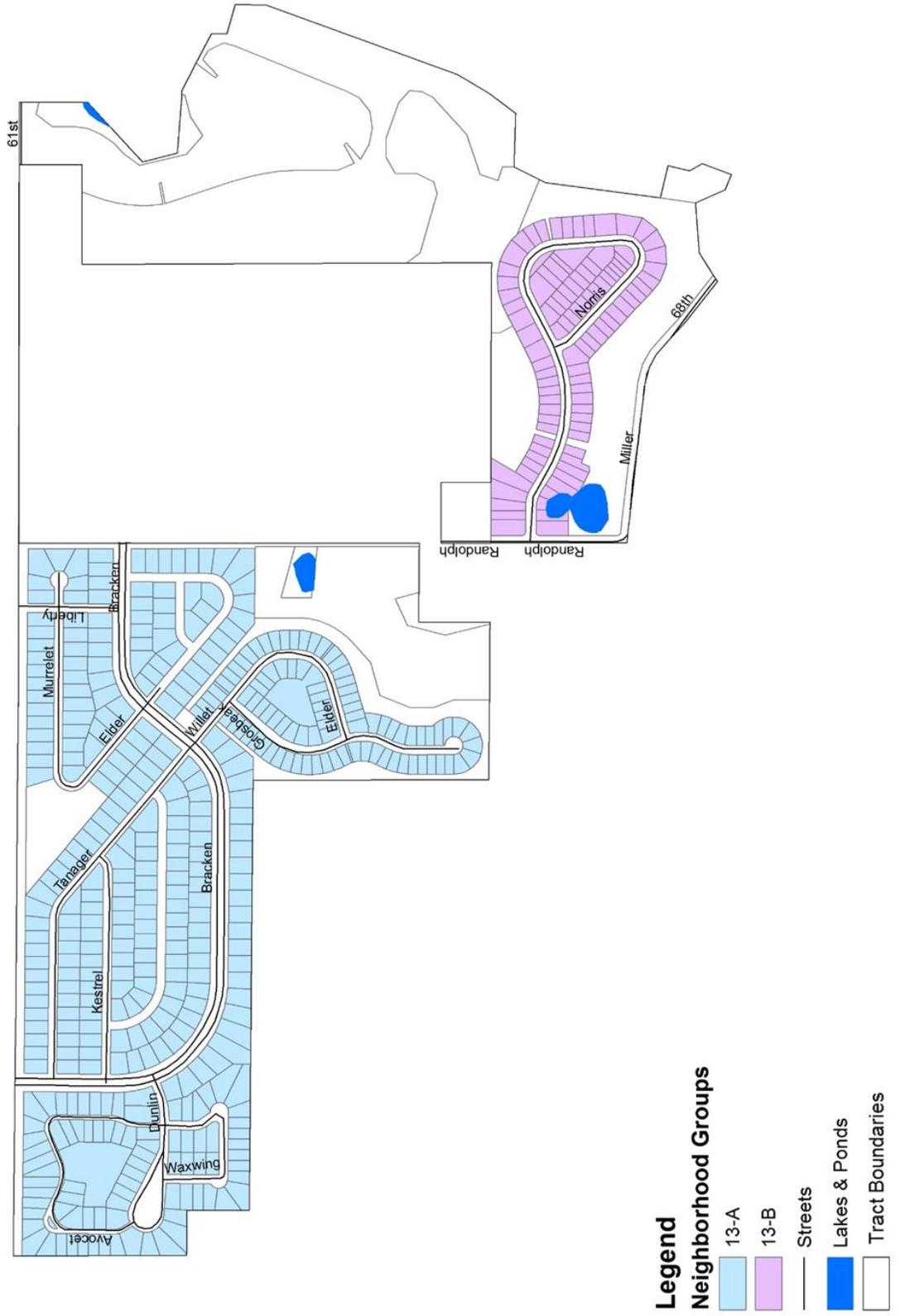
Ainsworth Neighborhood Groups



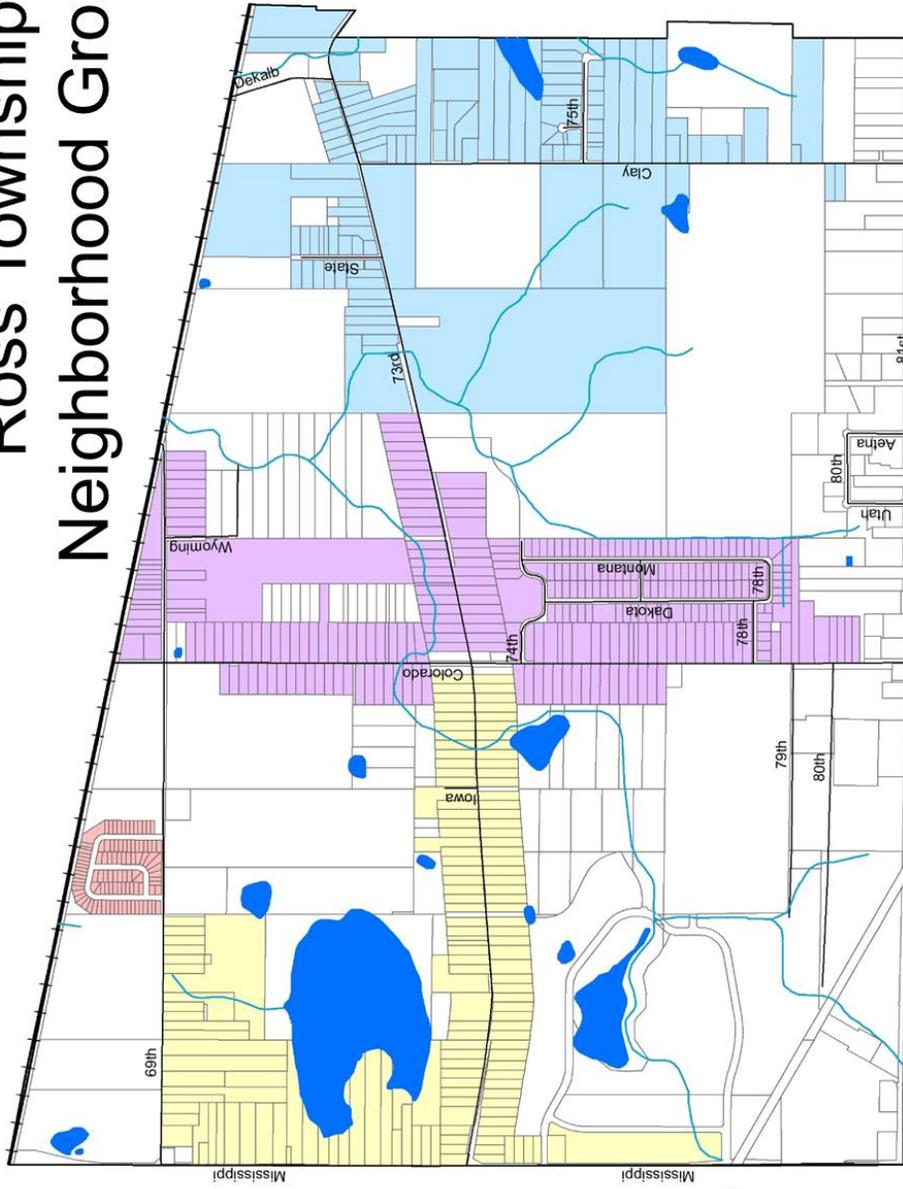
Legend Neighborhood Groups

- 12-A
- 12-B
- 12-C
- Streets
- Lakes & Ponds
- Streams
- Tract Boundaries

Ridge Pointe Neighborhood Groups



Ross Township Neighborhood Groups



Legend Neighborhood Groups

- 14-A
- 14-B
- 14-C
- 14-D
- Streets
- Active Railways
- Lakes & Ponds
- Streams
- Tract Boundaries

US 30 Corridor Neighborhood Groups



Legend

Neighborhood Groups

15-A

15-B

15-C

15-D

Streets

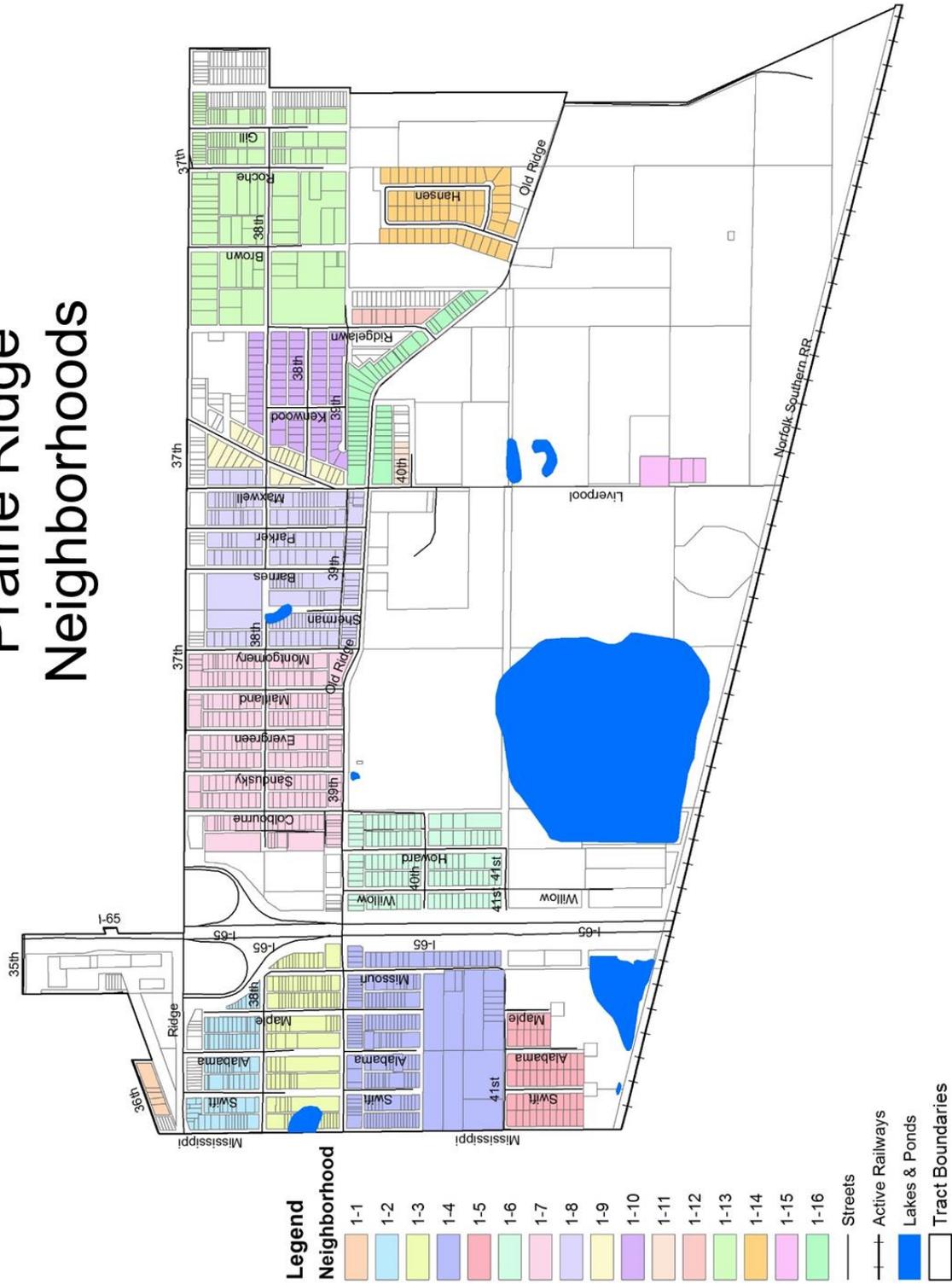
Lakes & Ponds

Streams

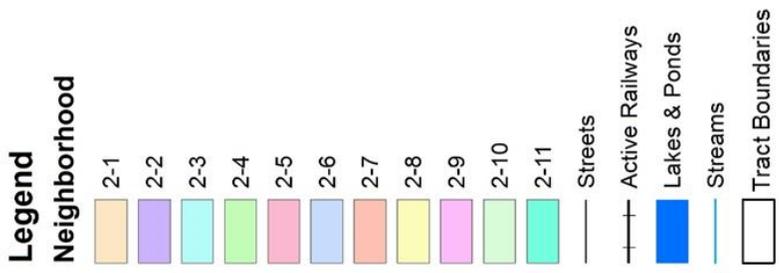
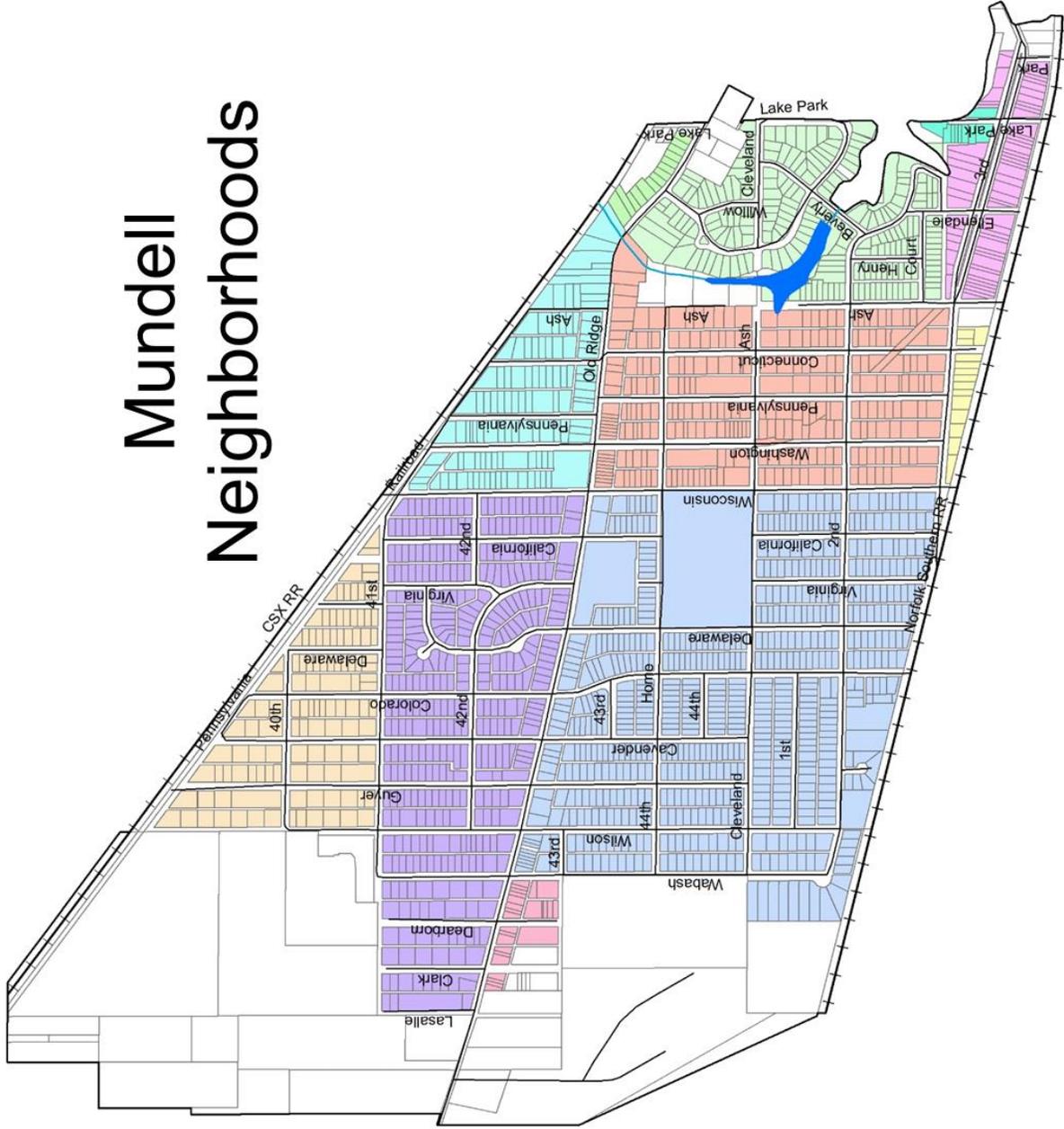
Tract Boundaries

Appendix E: Neighborhoods by Tract

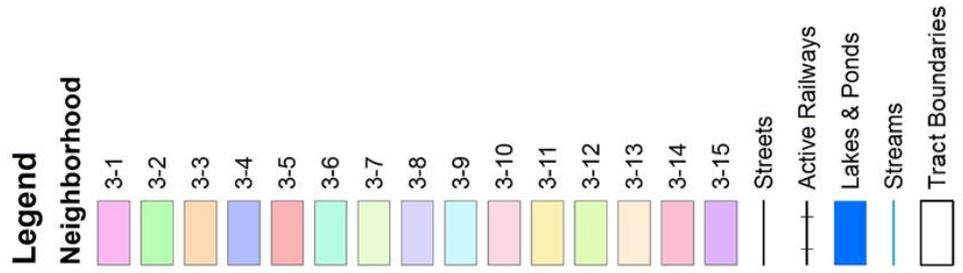
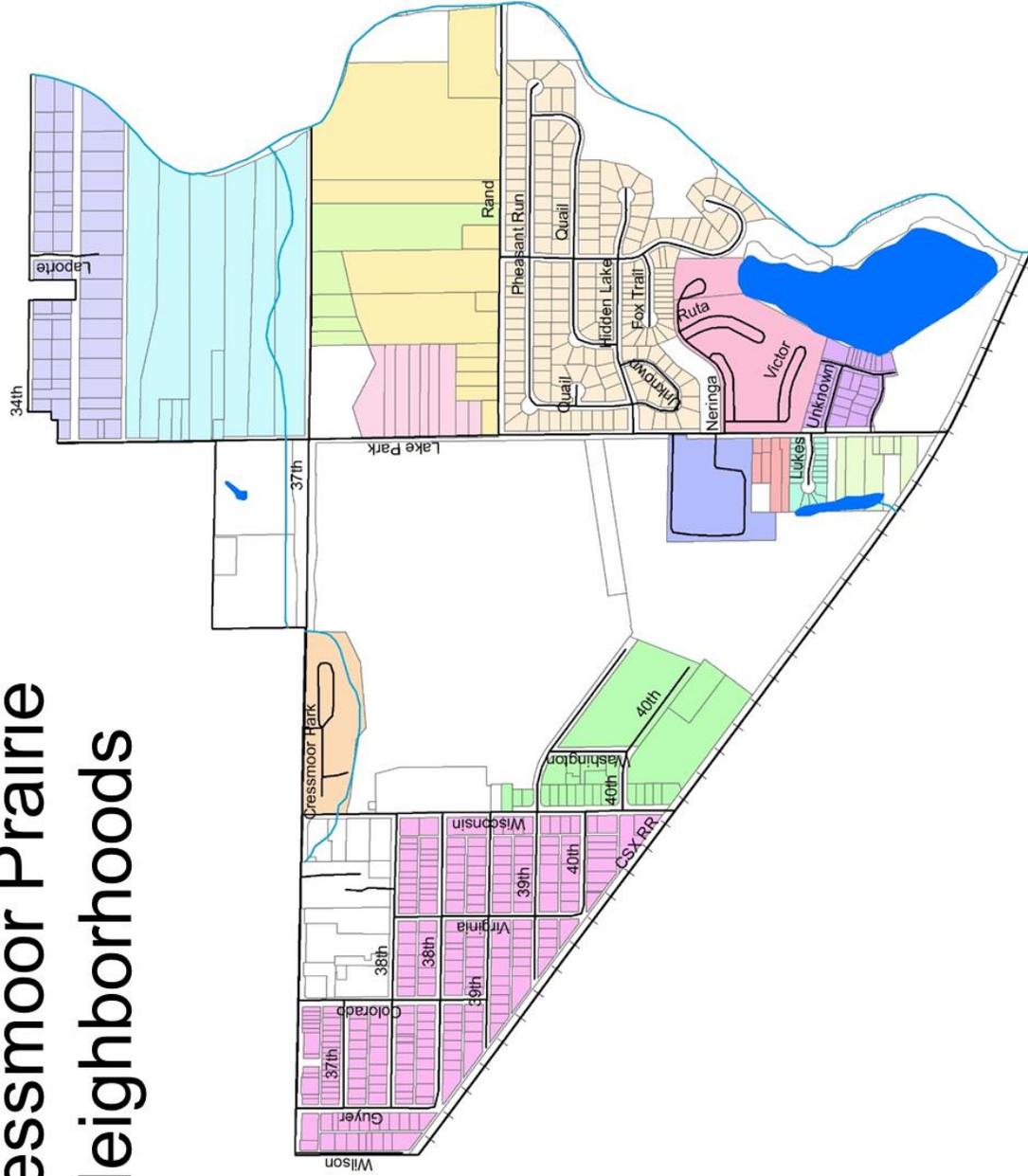
Prairie Ridge Neighborhoods



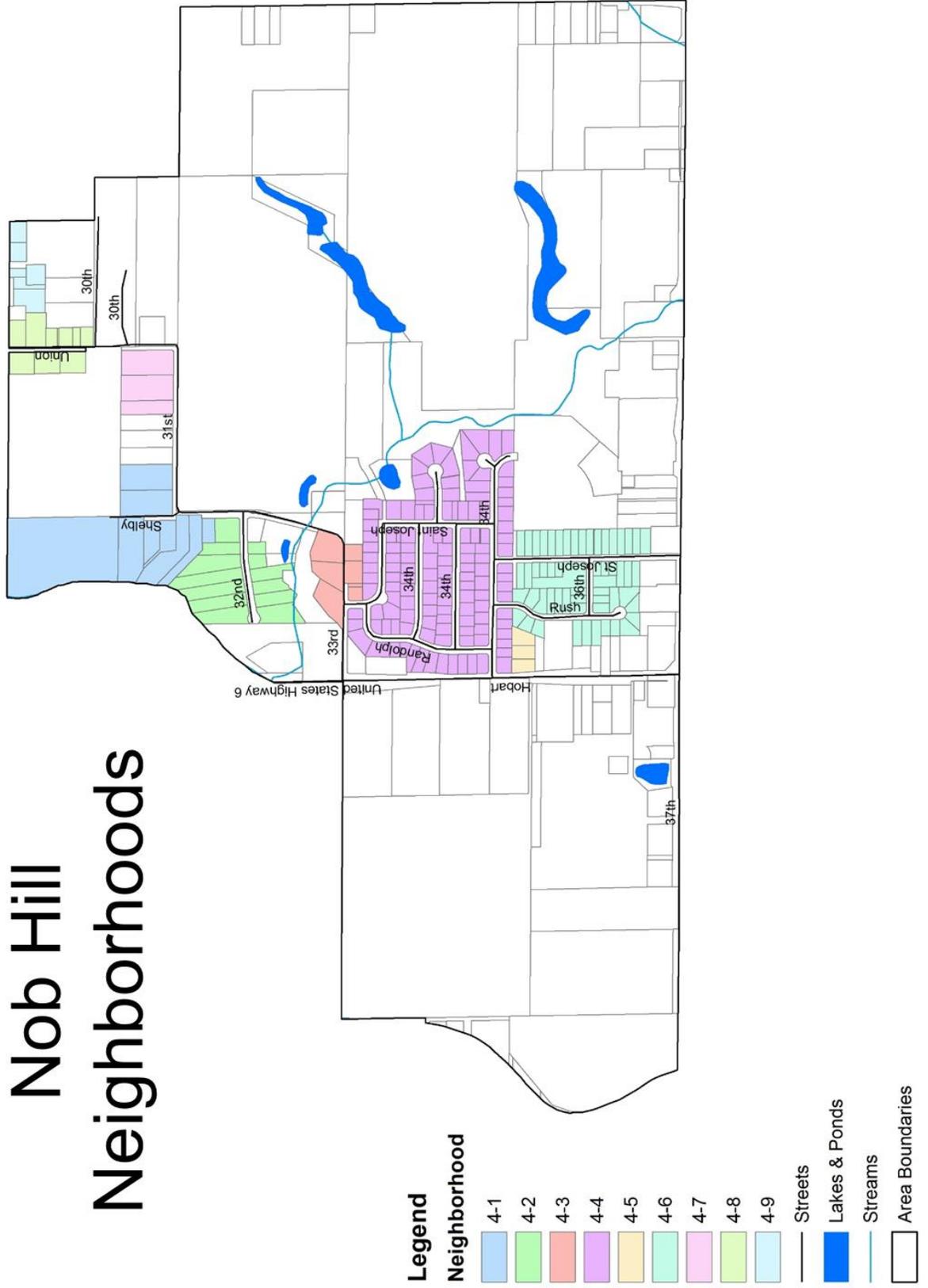
Mundell Neighborhoods



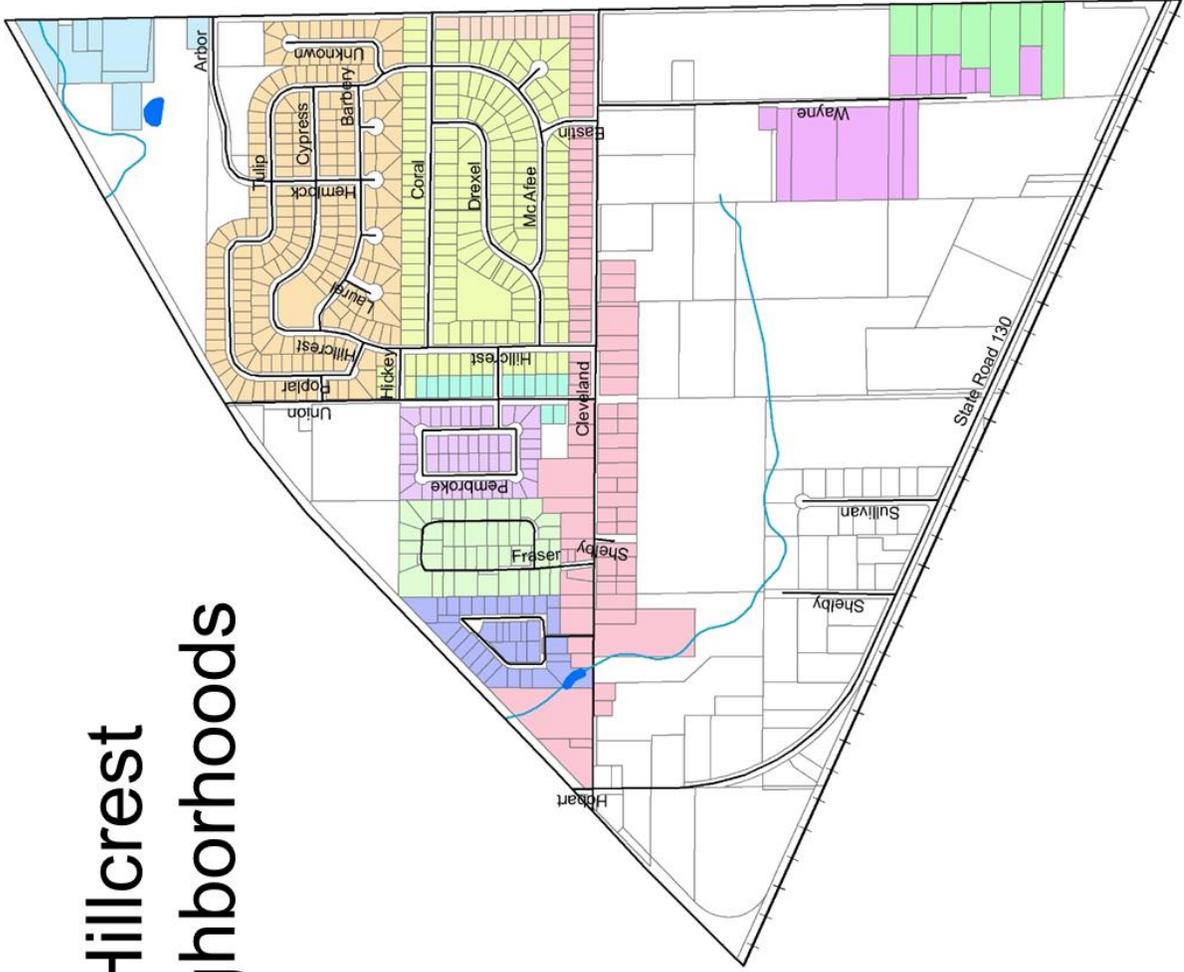
Cressmoor Prairie Neighborhoods



Nob Hill Neighborhoods

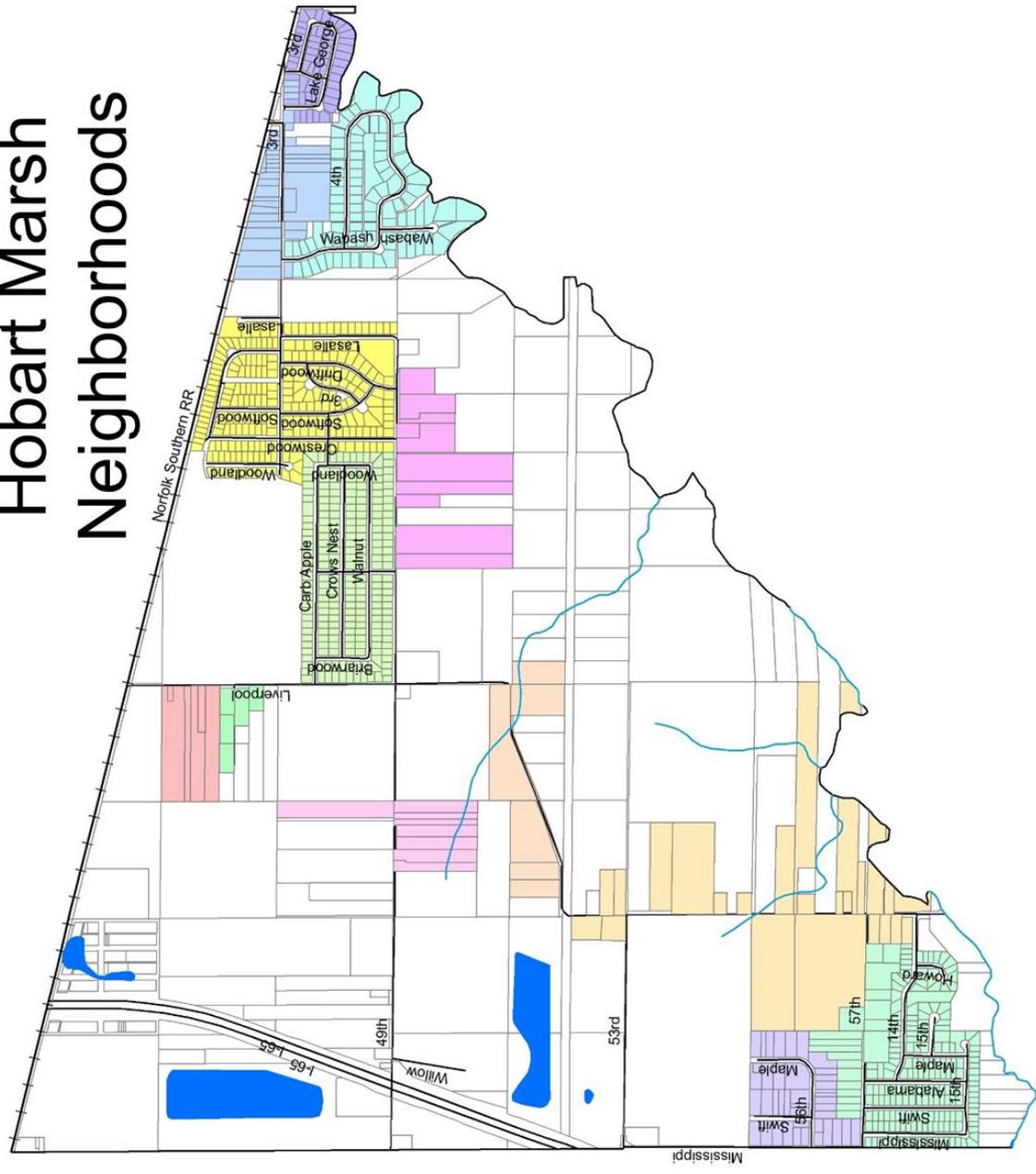


Hillcrest Neighborhoods



- Legend**
- Neighborhood 6-1
 - Neighborhood 6-2
 - Neighborhood 6-3
 - Neighborhood 6-4
 - Neighborhood 6-5
 - Neighborhood 6-6
 - Neighborhood 6-7
 - Neighborhood 6-8
 - Neighborhood 6-9
 - Neighborhood 6-10
 - Neighborhood 6-11
 - Streets
 - Active Railways
 - Lakes & Ponds
 - Streams
 - Tract Boundaries

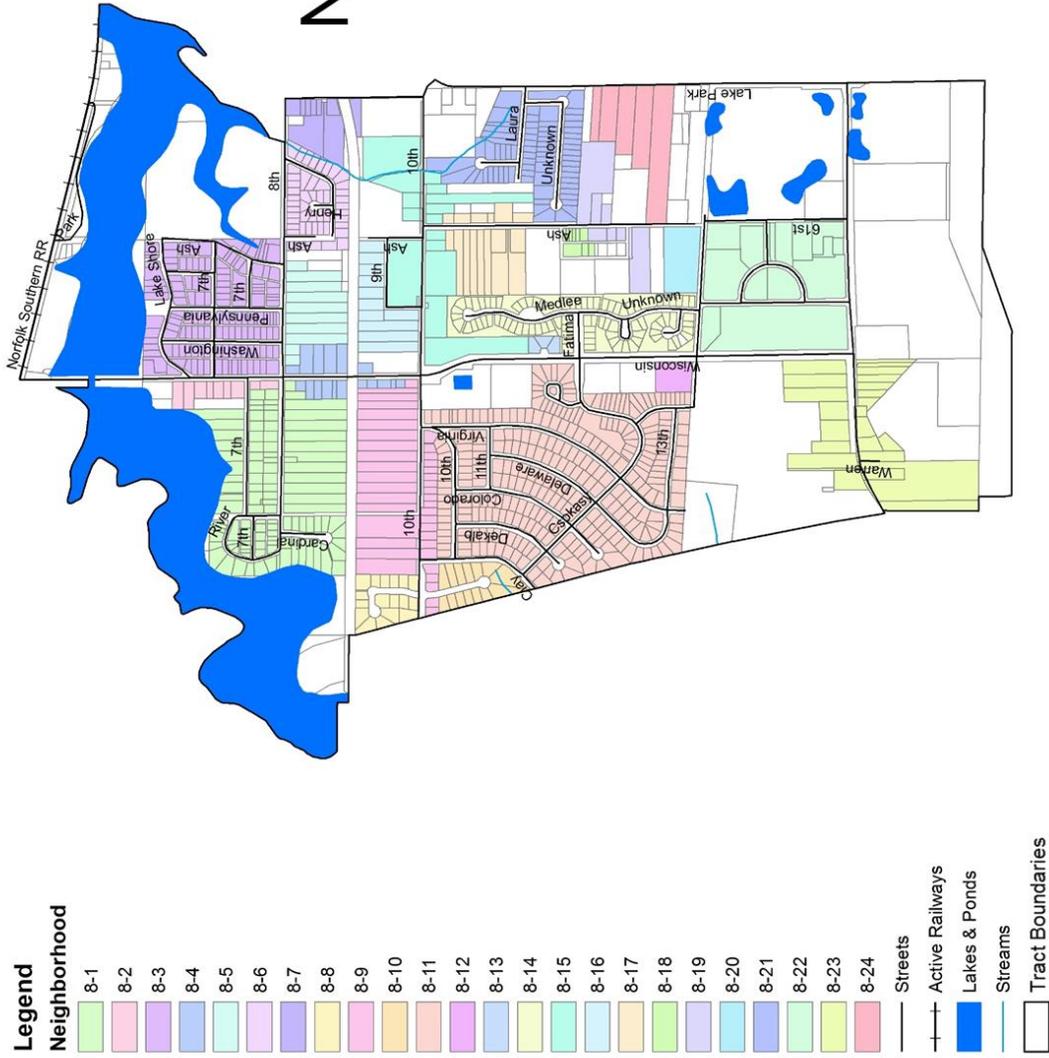
Hobart Marsh Neighborhoods



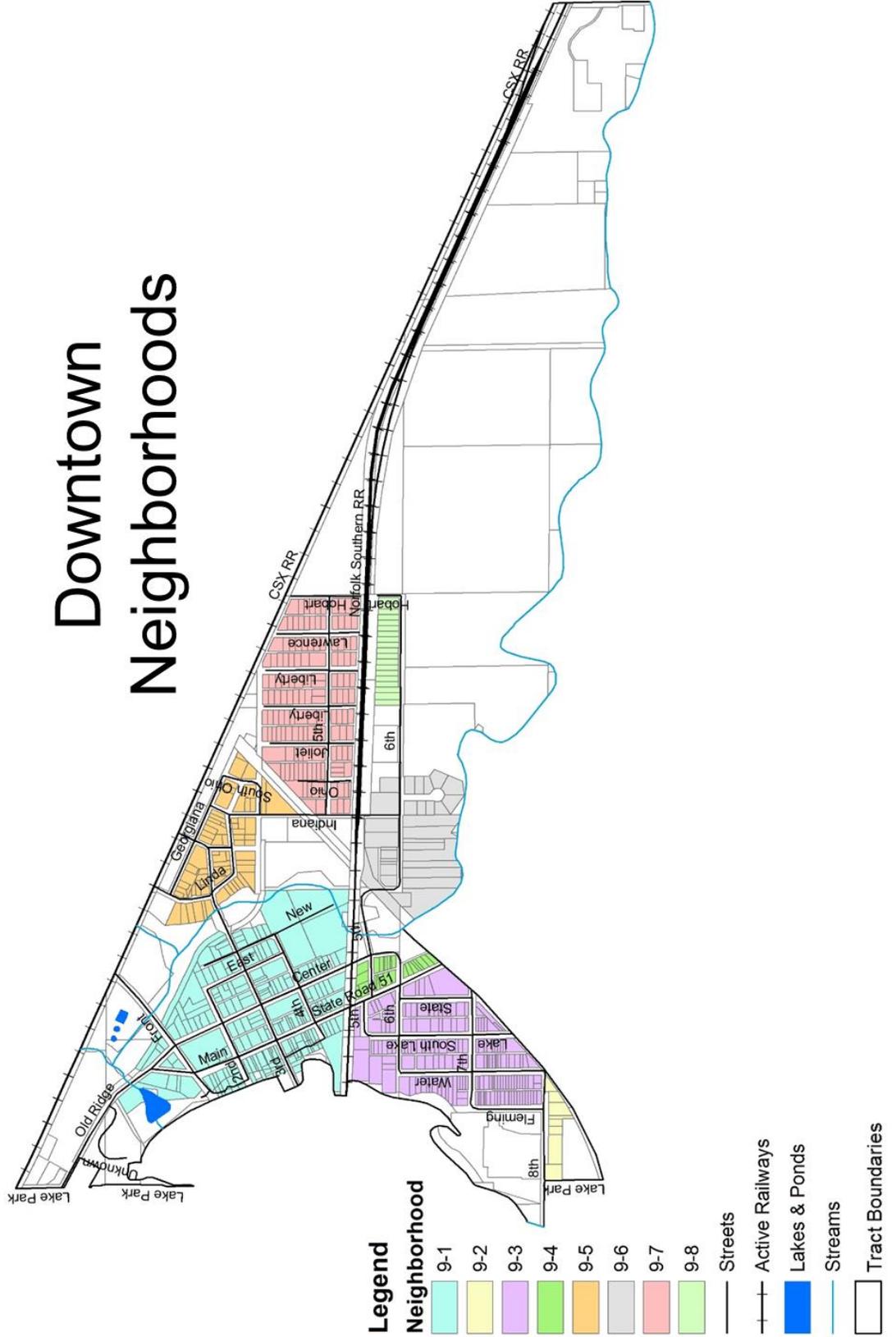
Legend

- 7-1
- 7-2
- 7-3
- 7-4
- 7-5
- 7-6
- 7-7
- 7-8
- 7-9
- 7-10
- 7-11
- 7-12
- 7-13
- Streets
- Active Railways
- Lakes & Ponds
- Streams & Ditches
- Tract Boundaries

Lake George Neighborhoods



Downtown Neighborhoods

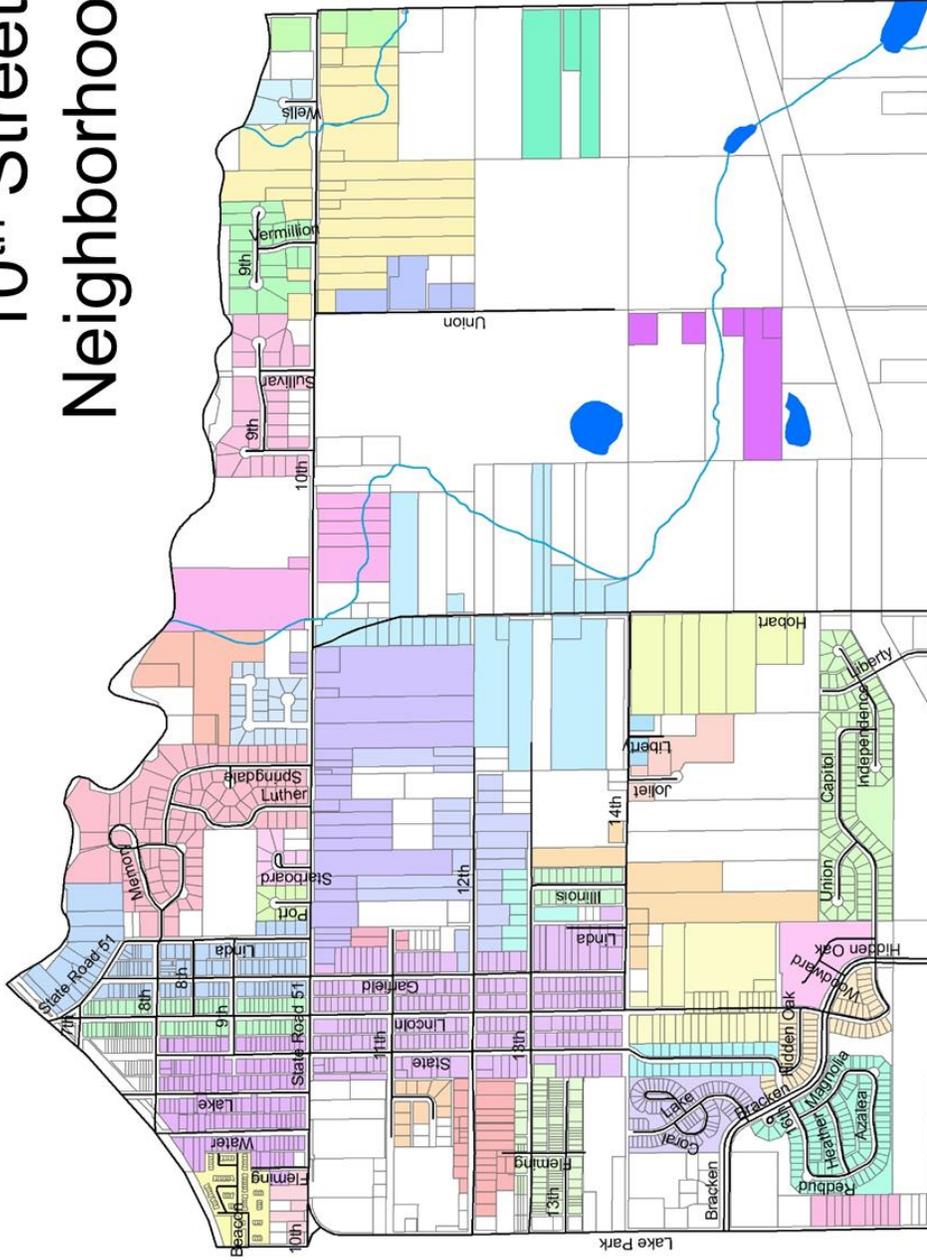


10th Street Neighborhoods

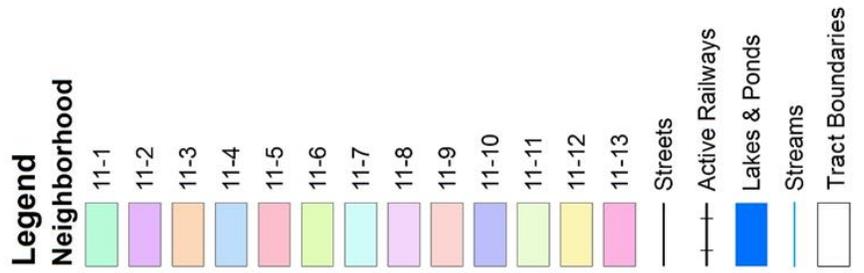
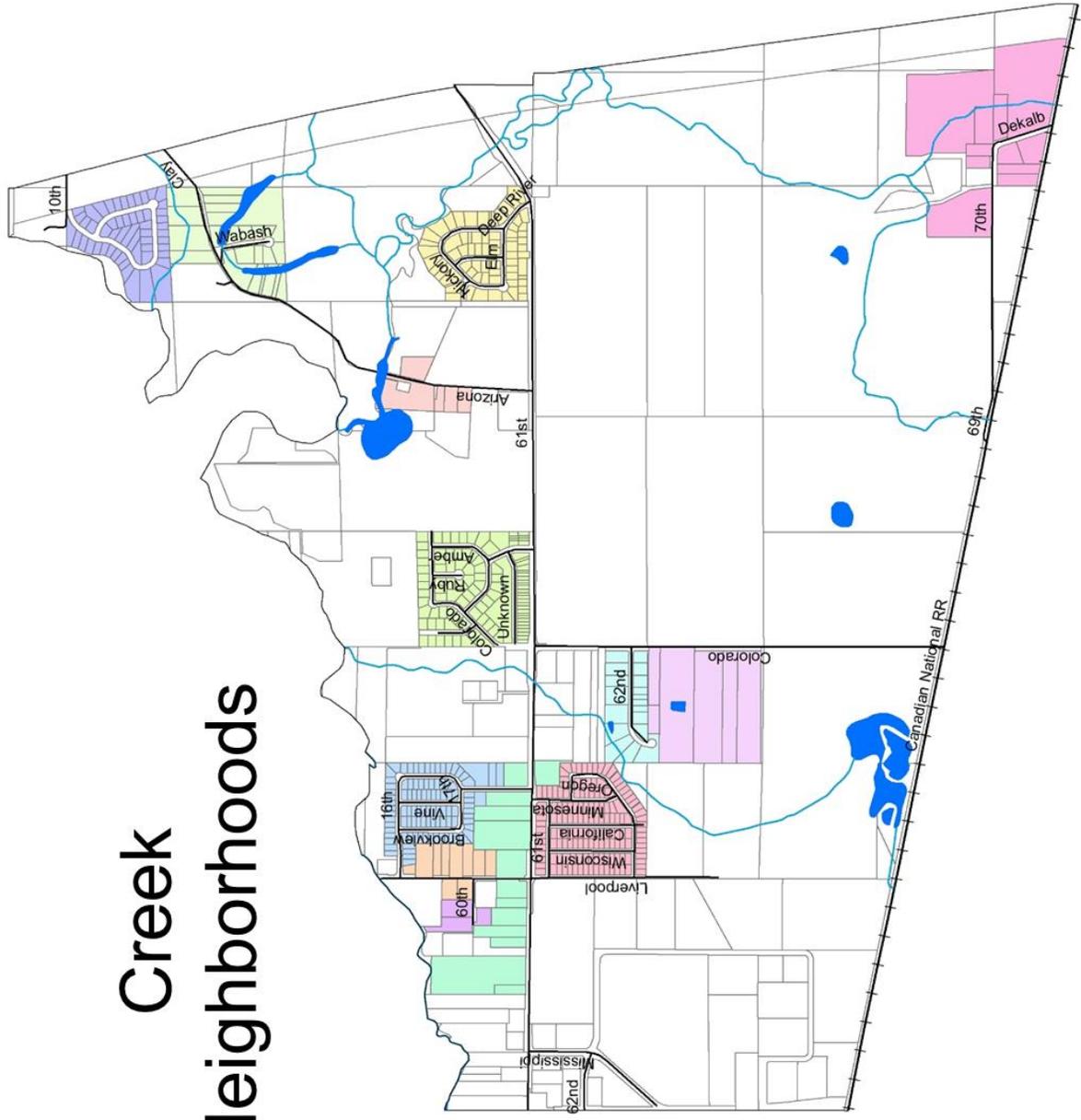
Legend
Neighborhood

- 10-1
- 10-2
- 10-3
- 10-4
- 10-5
- 10-6
- 10-7
- 10-8
- 10-9
- 10-10
- 10-11
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- 10-32
- 10-33
- 10-34
- 10-35
- 10-36
- 10-37
- 10-38
- 10-39
- 10-40
- 10-41

- Streets
- Lakes & Ponds
- Streams
- Tract Boundaries



Creek Neighborhoods



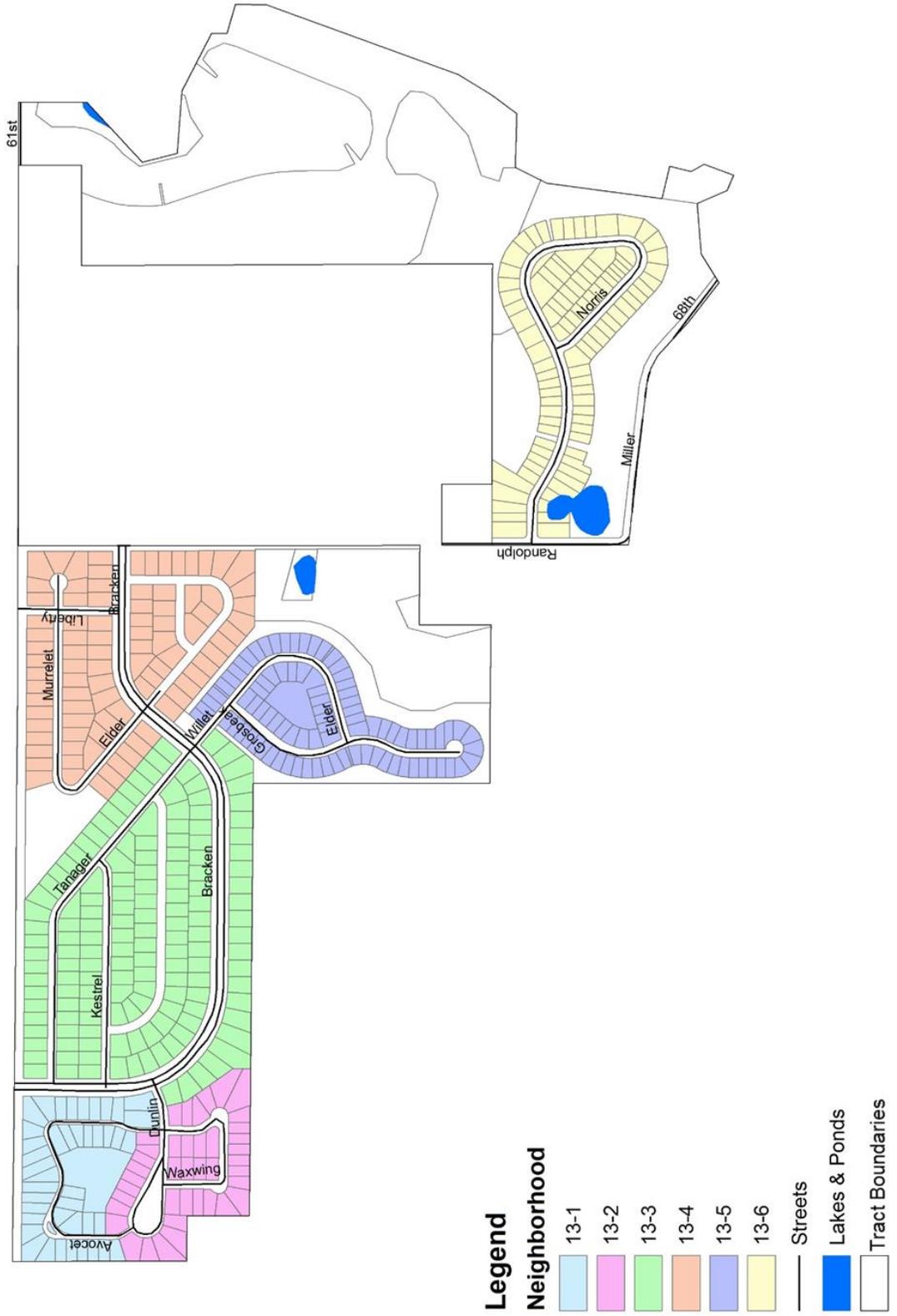
Ainsworth Neighborhoods

Legend

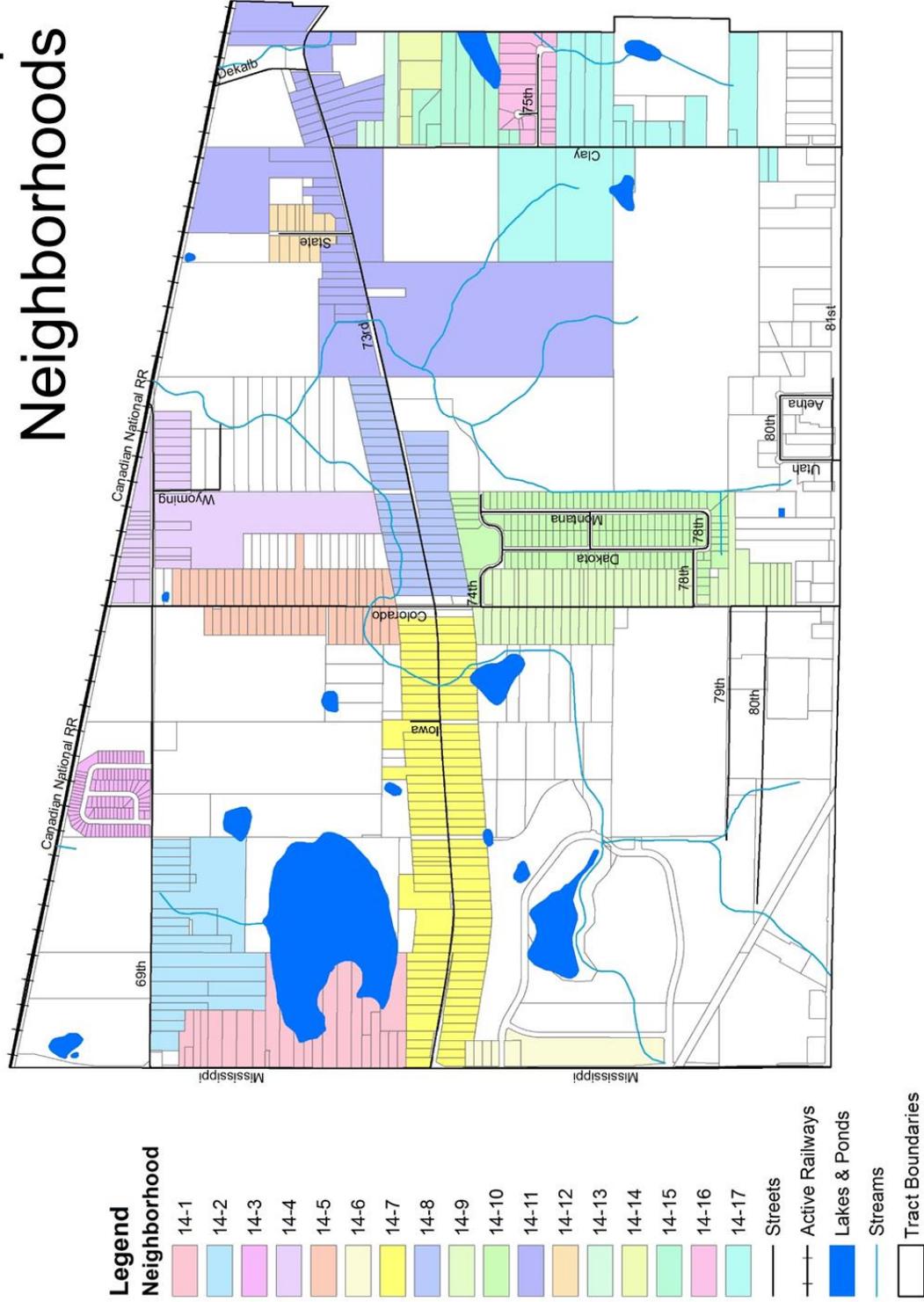
- | | | | | | | | | | | | | | |
|--------------|---|---|--|---|---|---|---|---|---|---|---|---|---|
| Neighborhood | 12-1 | 12-2 | 12-3 | 12-4 | 12-5 | 12-6 | 12-7 | 12-8 | 12-9 | Streets | Lakes & Ponds | Streams | Tract Boundaries |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |



Ridge Pointe Neighborhoods



Ross Township Neighborhoods



US 30 Corridor Neighborhoods

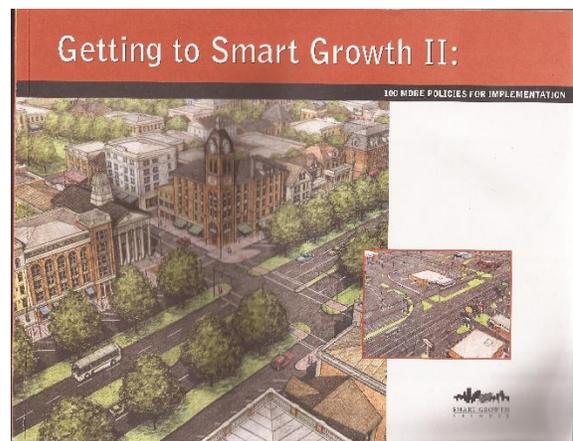
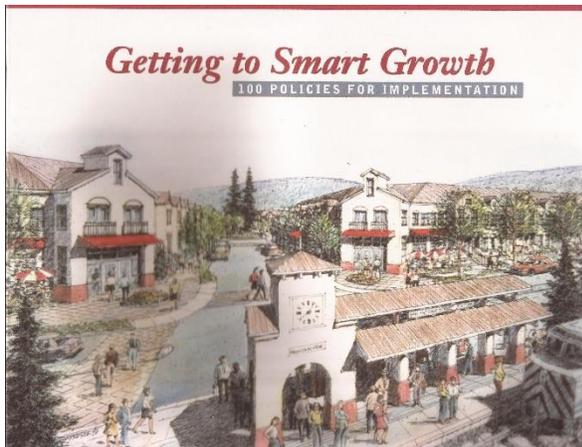
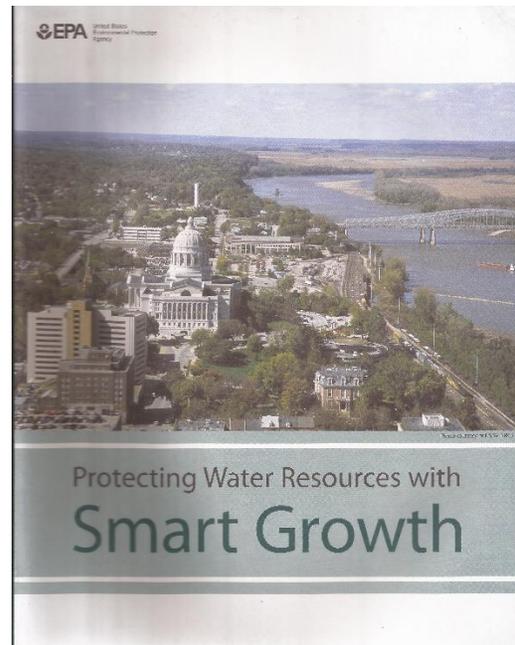
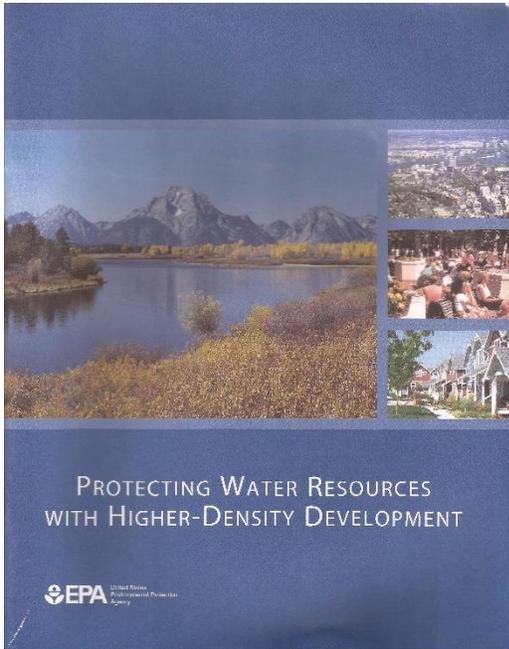
Legend

- 15-1
- 15-2
- 15-3
- 15-4
- 15-5
- 15-6
- 15-7
- 15-8

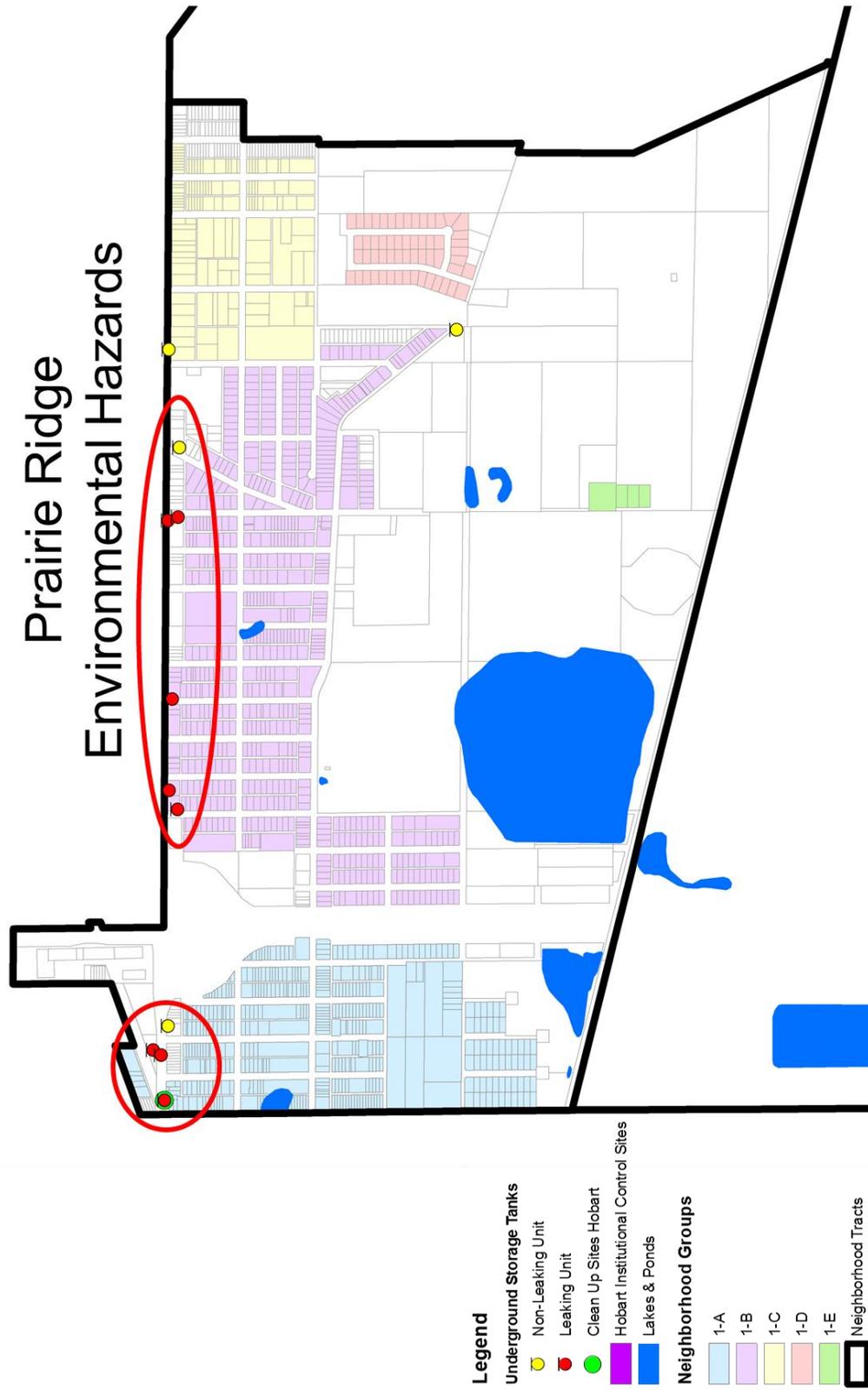
- Streets
- Lakes & Ponds
- Streams
- Tract Boundaries



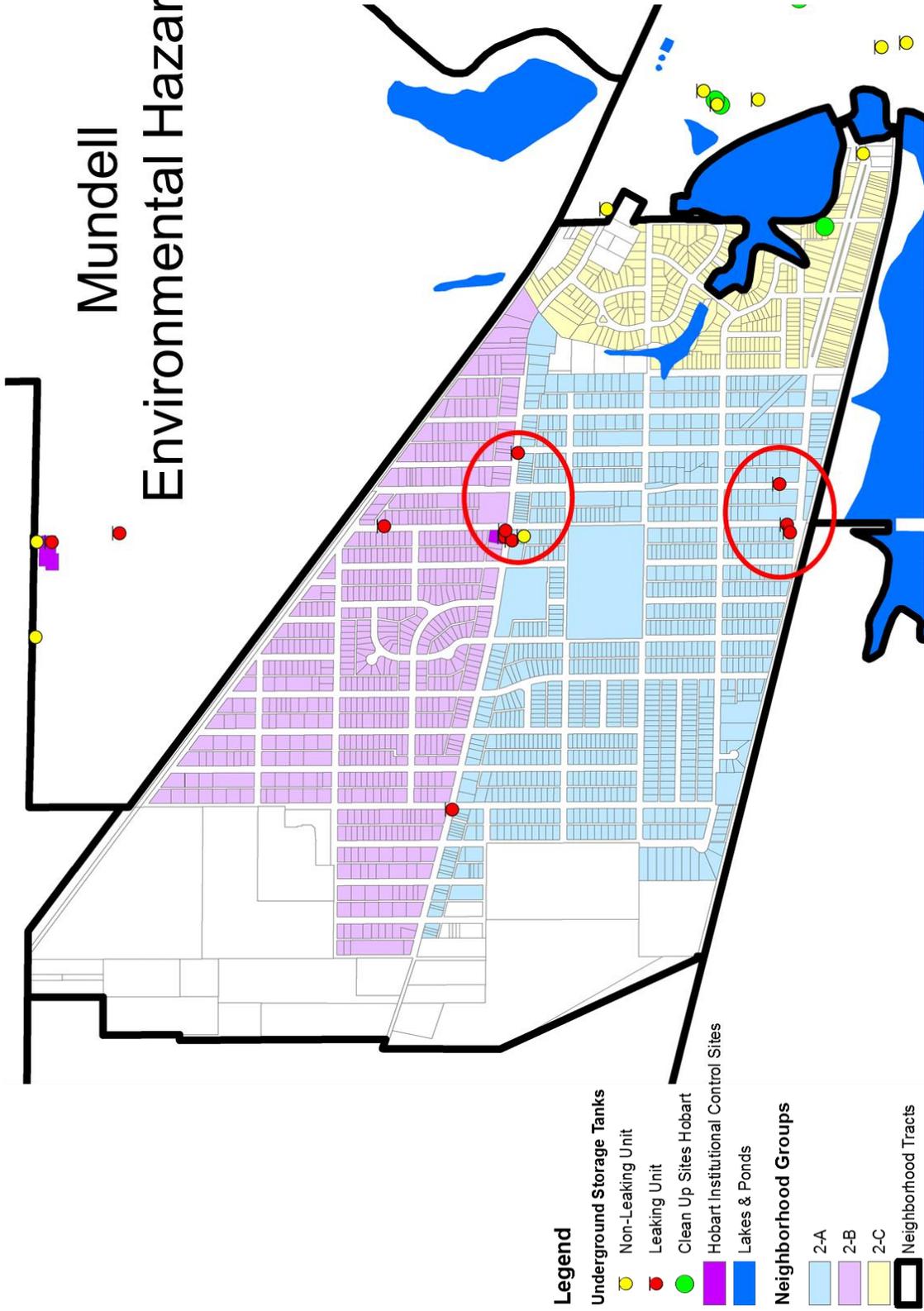
Appendix F: Sustainability Guidebooks



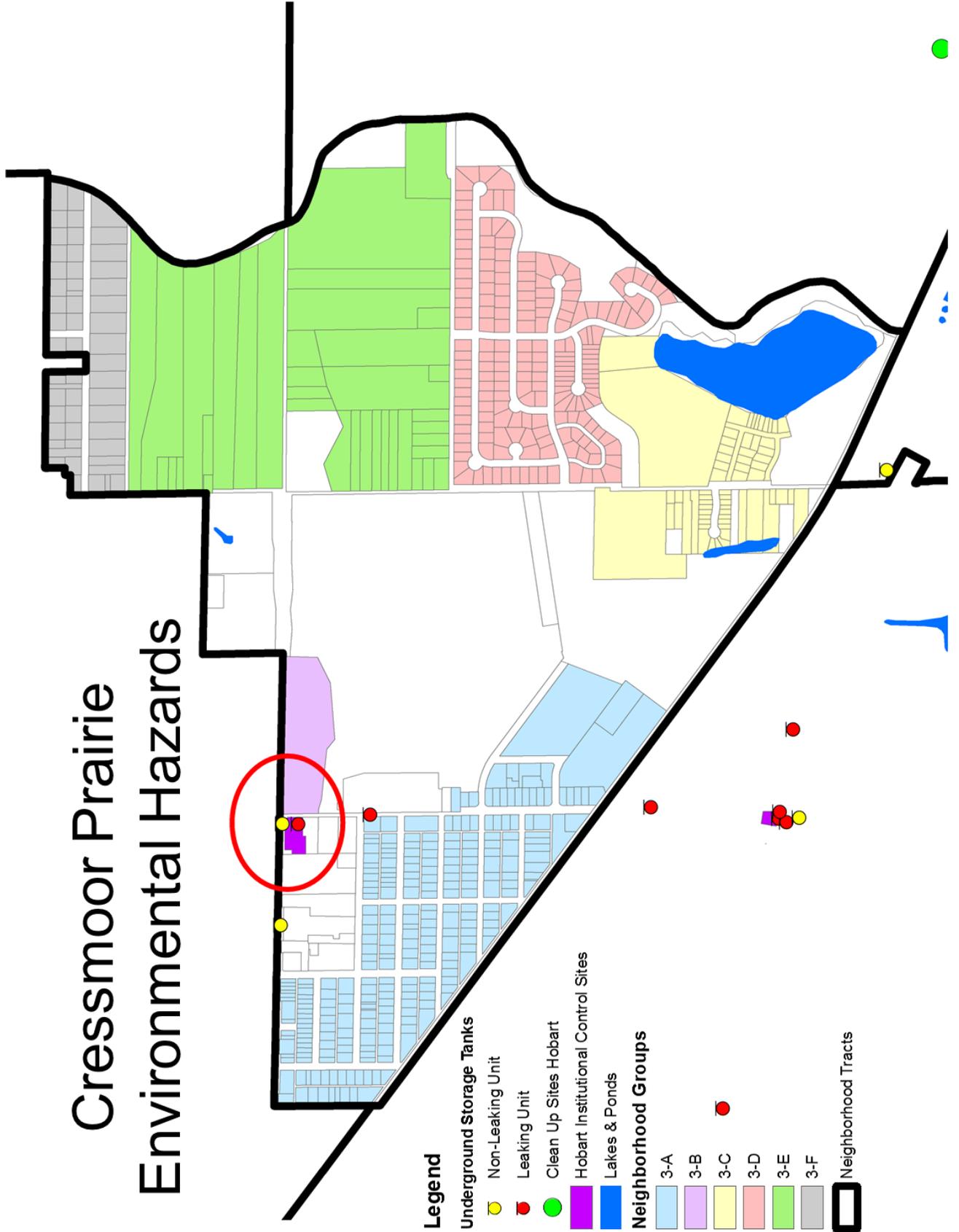
Appendix G: Environmental Hazard Maps



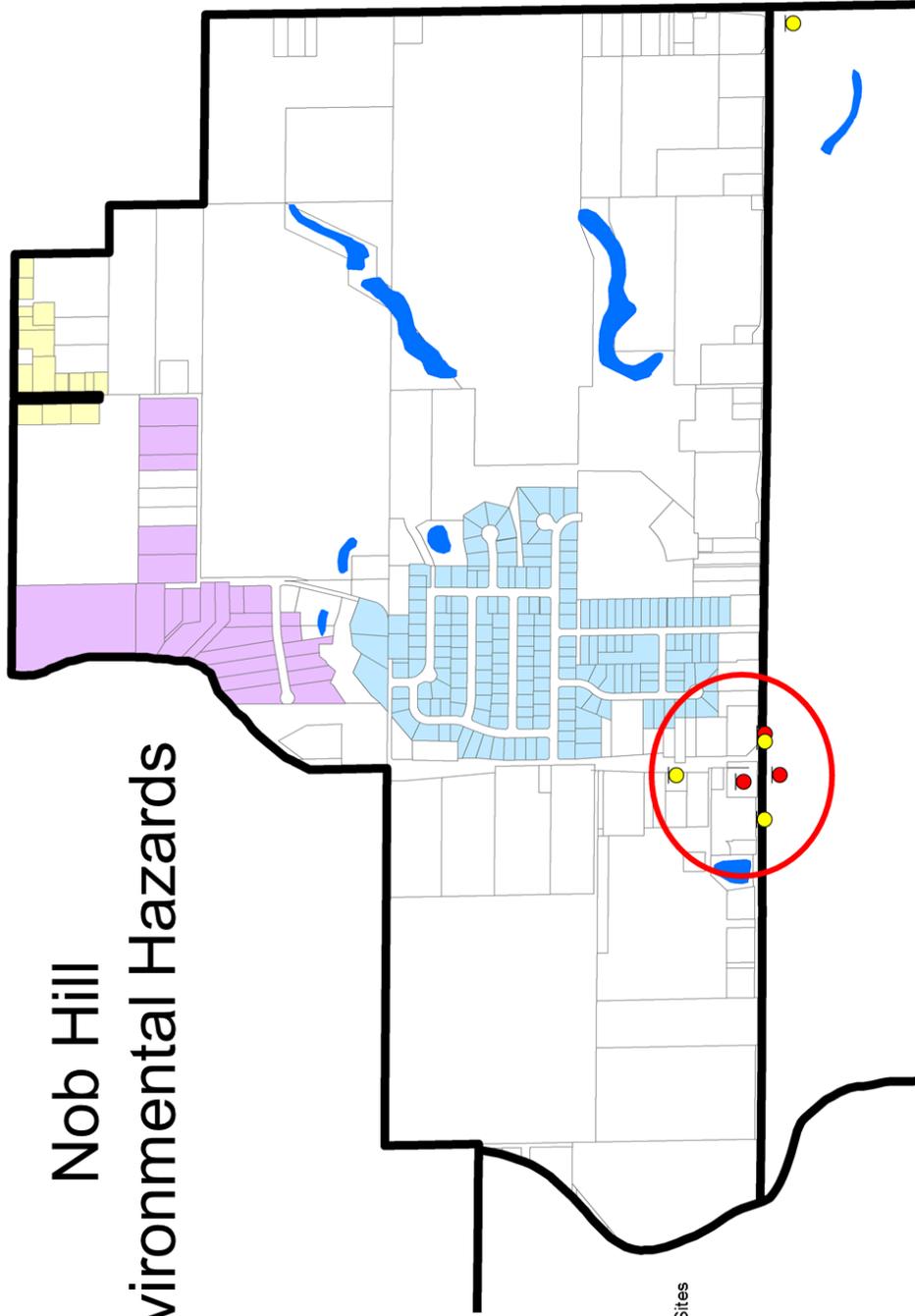
Mundell Environmental Hazards



Cressmoor Prairie Environmental Hazards



Nob Hill Environmental Hazards



Legend

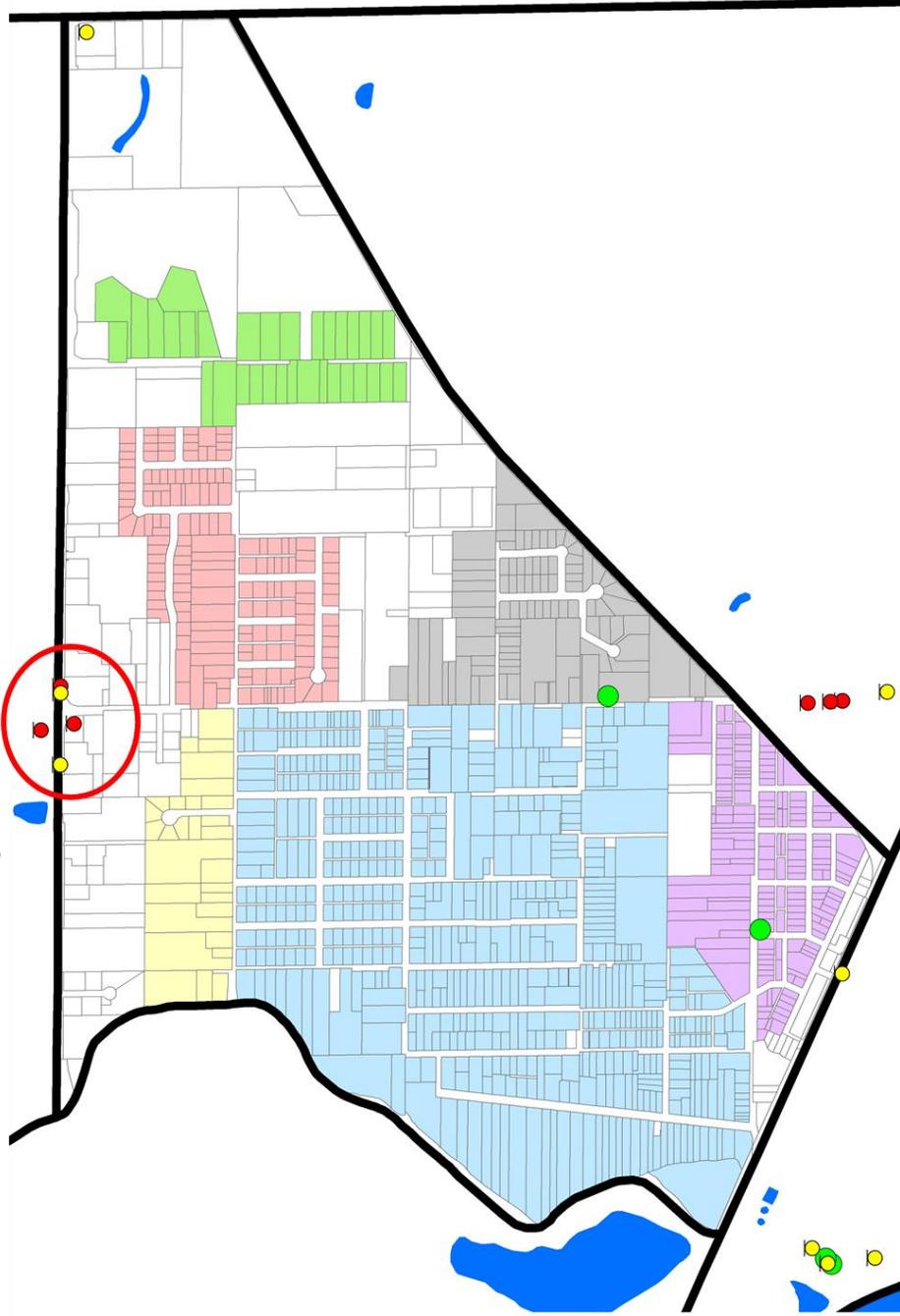
Underground Storage Tanks

- Non-Leaking Unit
- Leaking Unit
- Clean Up Sites Hobart
- Hobart Institutional Control Sites
- Lakes & Ponds

Neighborhood Groups

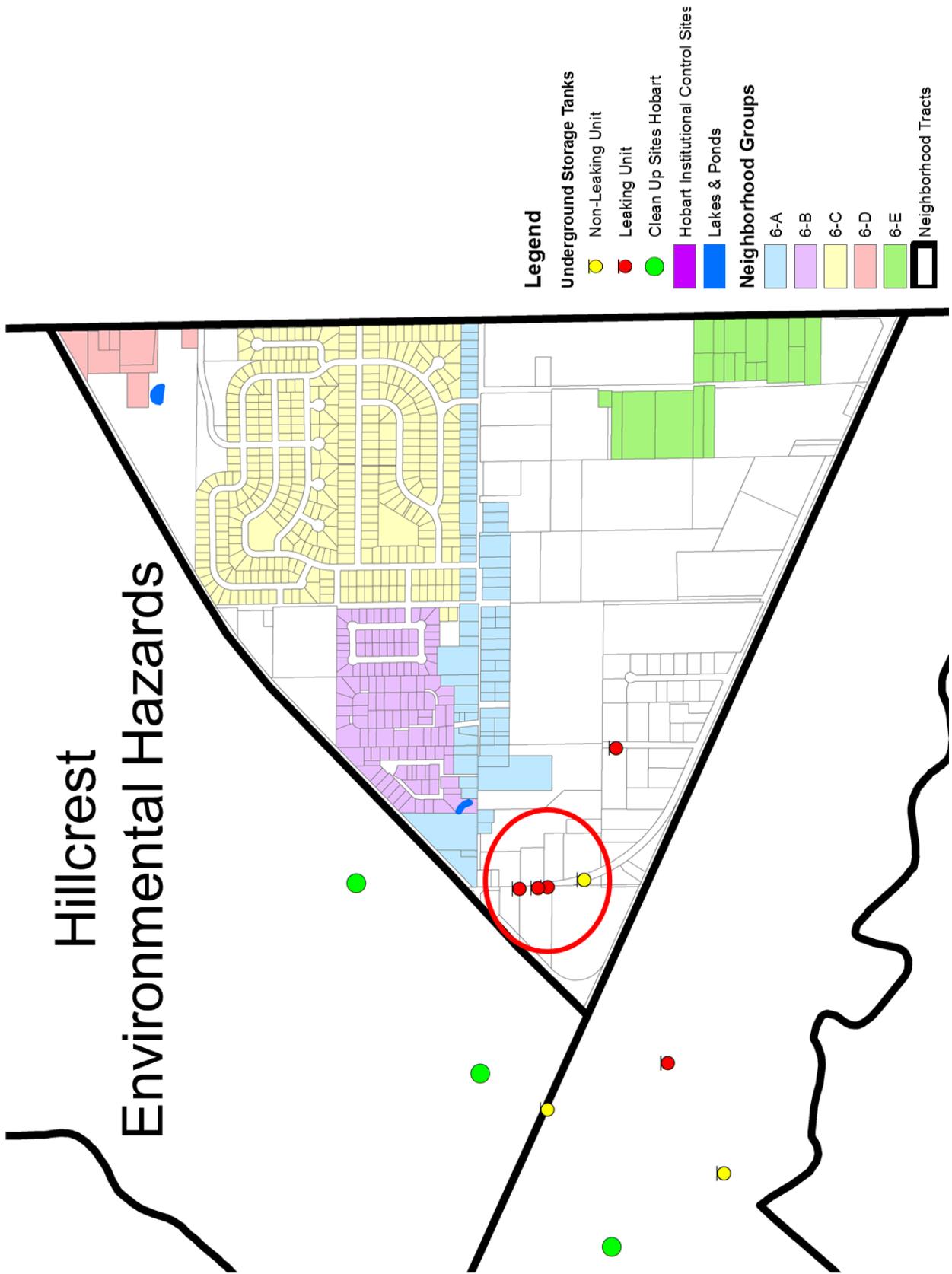
- 4-A
- 4-B
- 4-C
- Neighborhood Tracts

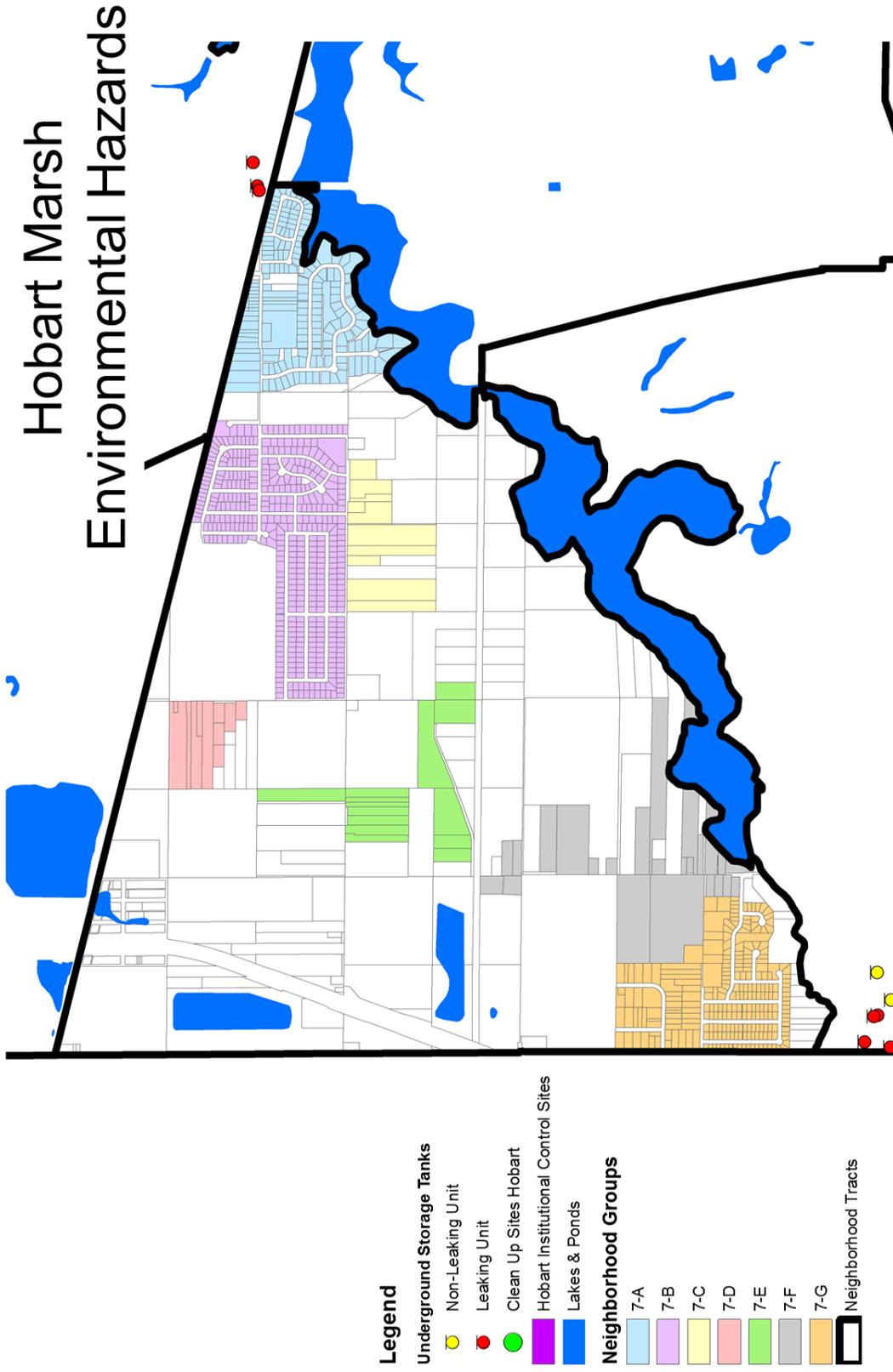
Liberty Environmental Hazards



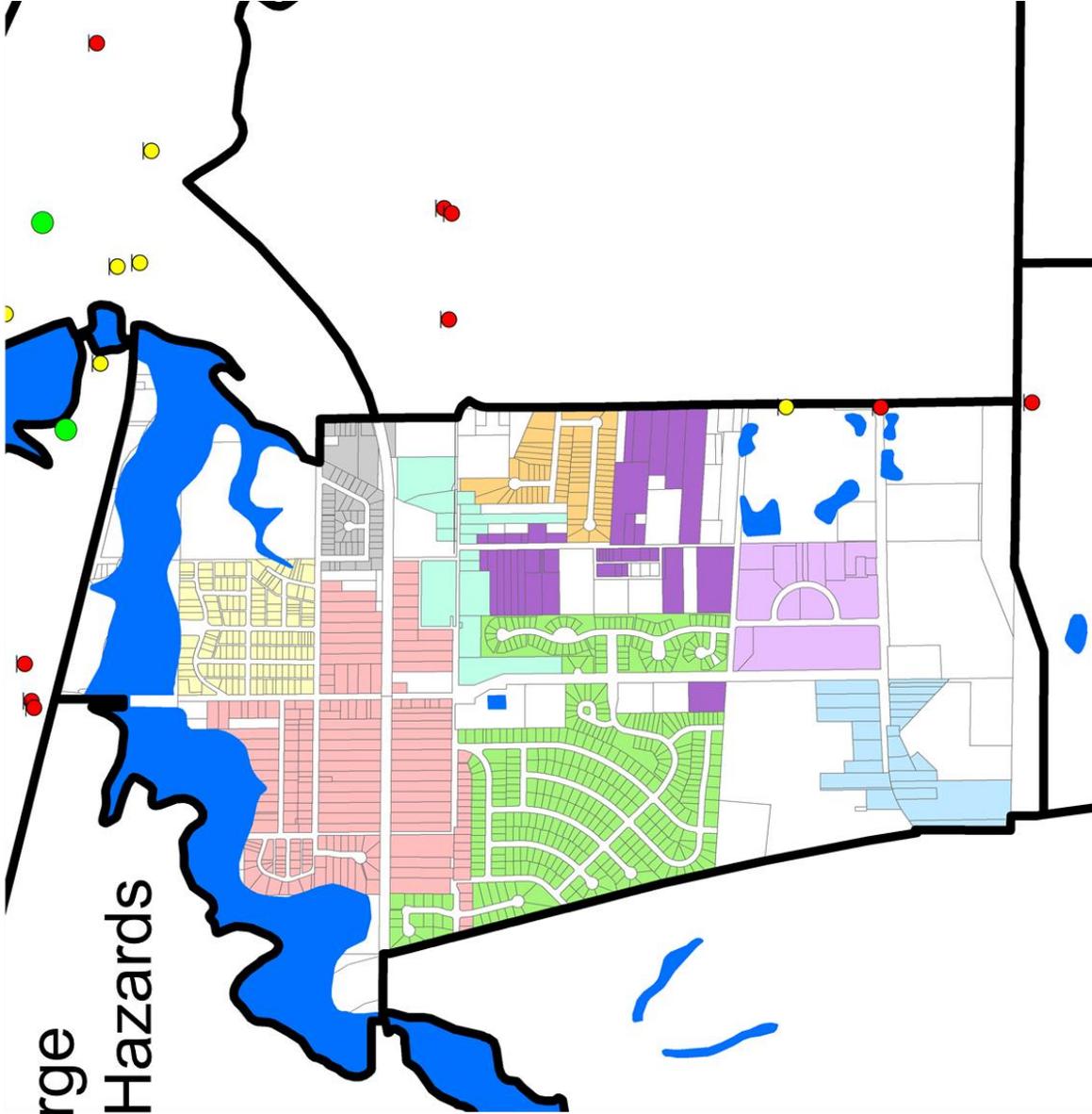
Legend

- Underground Storage Tanks**
 - Non-Leaking Unit (Yellow circle)
 - Leaking Unit (Red circle)
 - Clean Up Sites Hobart (Green circle)
 - Hobart Institutional Control Sites (Purple circle)
- Lakes & Ponds** (Blue area)
- Neighborhood Groups**
 - 5-A (Light Blue)
 - 5-B (Purple)
 - 5-C (Yellow)
 - 5-D (Pink)
 - 5-E (Green)
 - 5-F (Grey)
- Neighborhood Tracts** (Thick black outline)



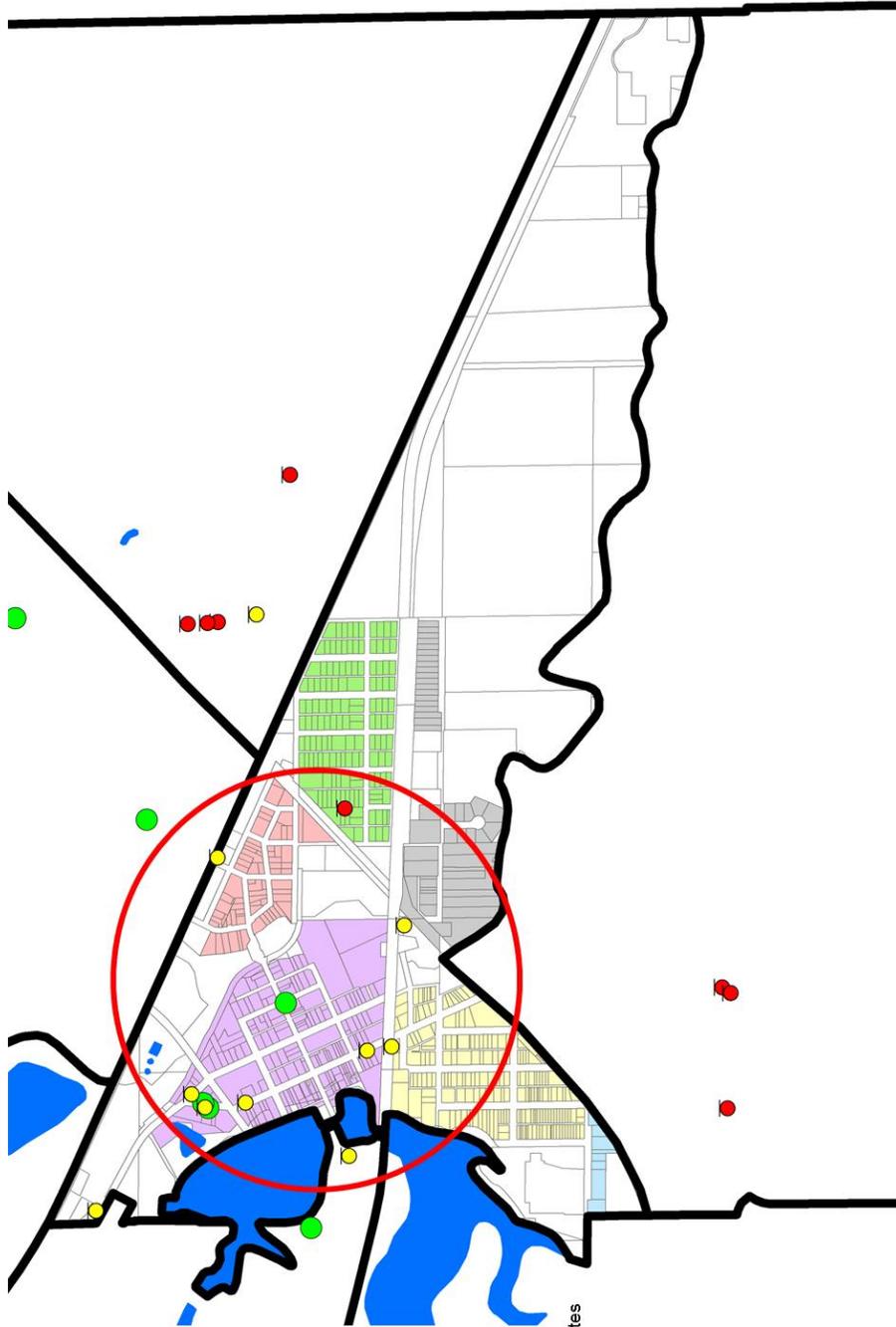


Lake George Environmental Hazards



- Legend**
- Underground Storage Tanks**
 - Non-Leaking Unit (Yellow dot)
 - Leaking Unit (Red dot)
 - Clean Up Sites Hobart (Green dot)
 - Hobart Institutional Control Sites (Purple dot)
 - Lakes & Ponds (Blue area)
 - Neighborhood Groups**
 - 8-A (Light Blue)
 - 8-B (Light Purple)
 - 8-C (Light Yellow)
 - 8-D (Light Red)
 - 8-E (Light Green)
 - 8-F (Light Grey)
 - 8-G (Light Orange)
 - 8-H (Light Teal)
 - 8-I (Light Purple)
 - Neighborhood Tracts (Black outline)

Downtown Environmental Hazards



Legend

Underground Storage Tanks

- Non-Leaking Unit (Yellow dot)
- Leaking Unit (Red dot)
- Clean Up Sites Hobart (Green dot)

Hobart Institutional Control Sites

- Lakes & Ponds (Blue area)

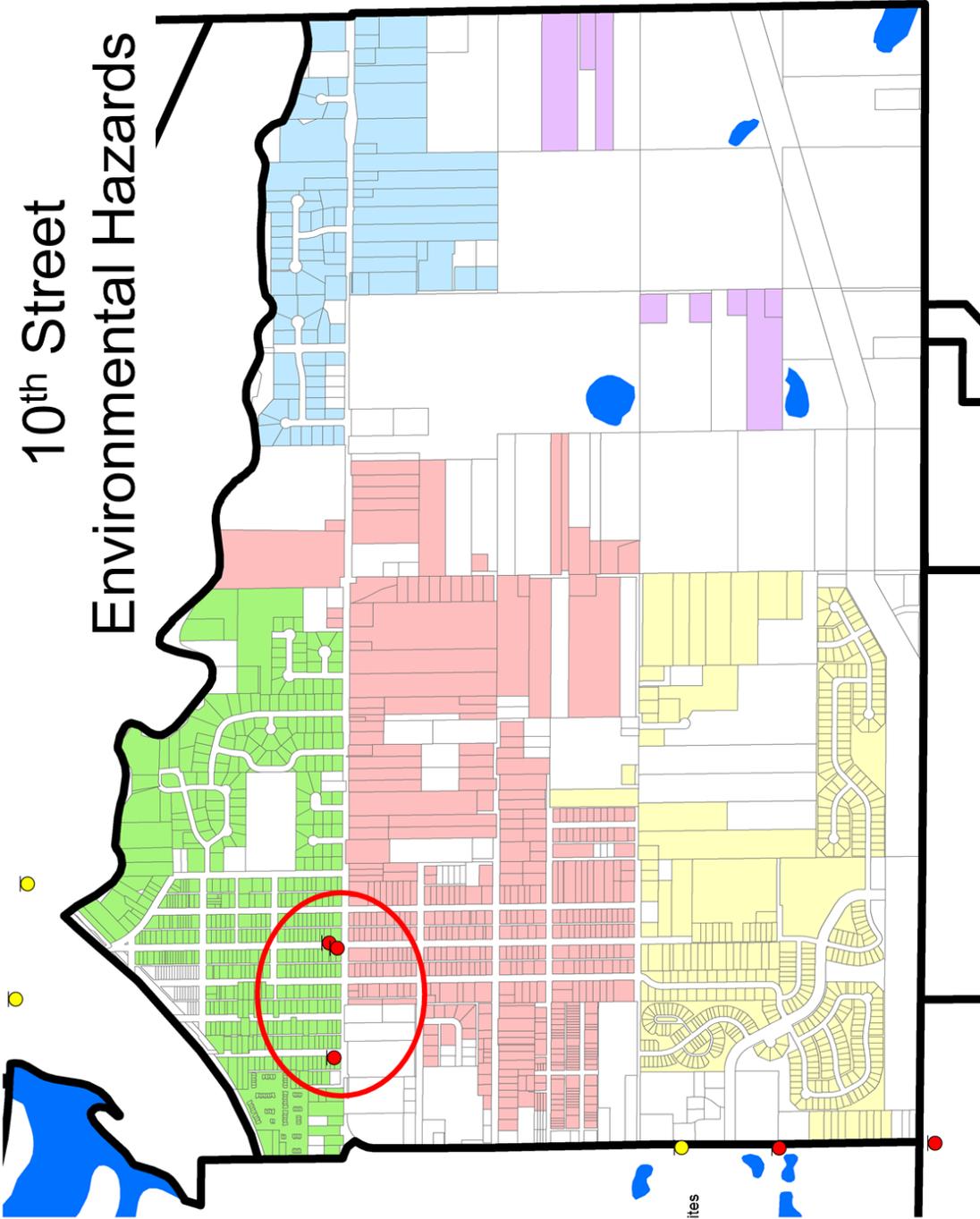
Neighborhood Group

- 9-A (Light blue)
- 9-B (Purple)
- 9-C (Yellow)
- 9-D (Pink)
- 9-E (Green)
- 9-F (Grey)

Neighborhood Tracts

- Neighborhood Tracts (Thick black outline)

10th Street Environmental Hazards



Legend

Underground Storage Tanks

● Non-Leaking Unit

● Leaking Unit

● Clean Up Sites Hobart

● Hobart Institutional Control Sites

● Lakes & Ponds

Neighborhood Groups

10-A

10-B

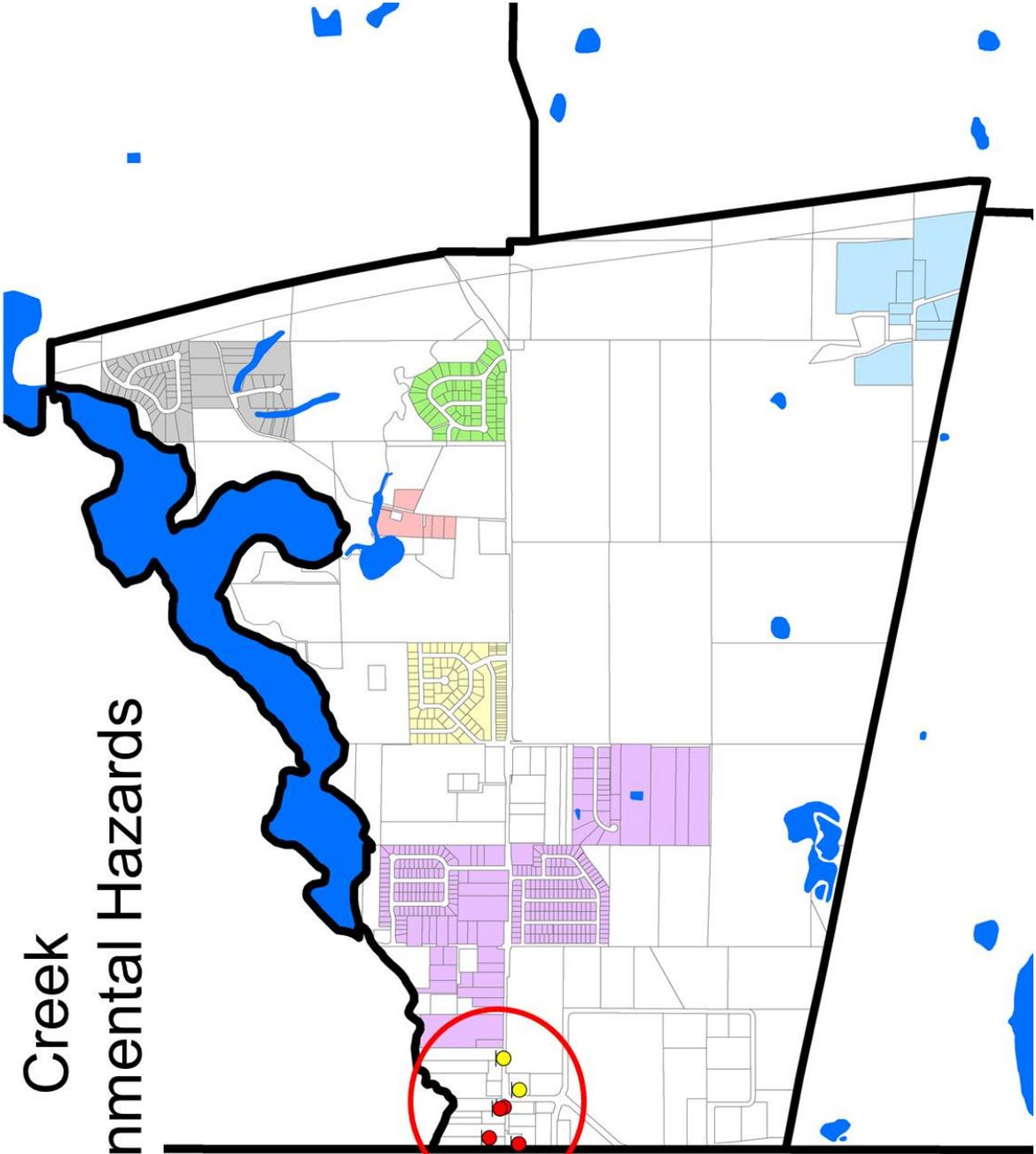
10-C

10-D

10-E

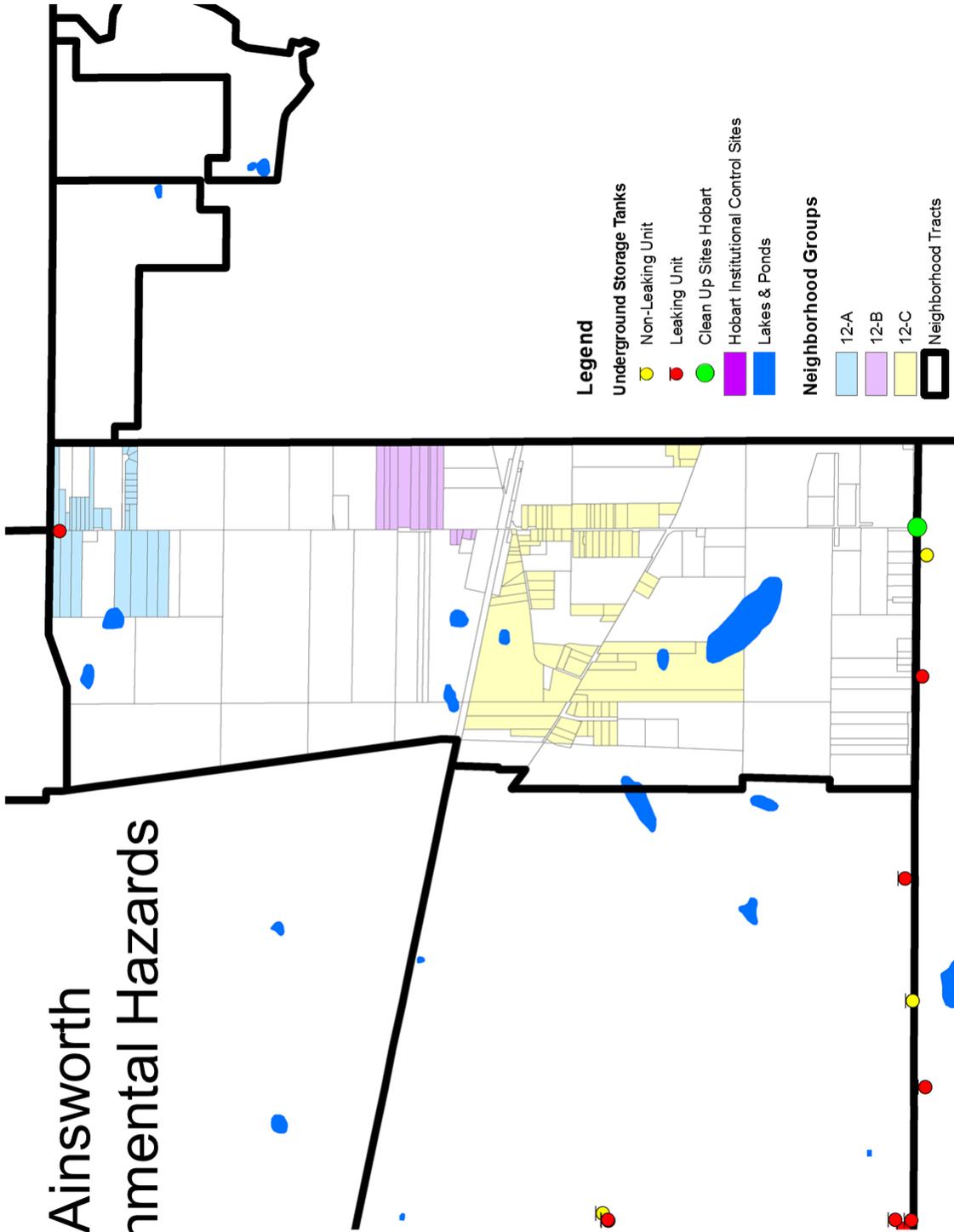
▭ Neighborhood Tracts

Creek Environmental Hazards

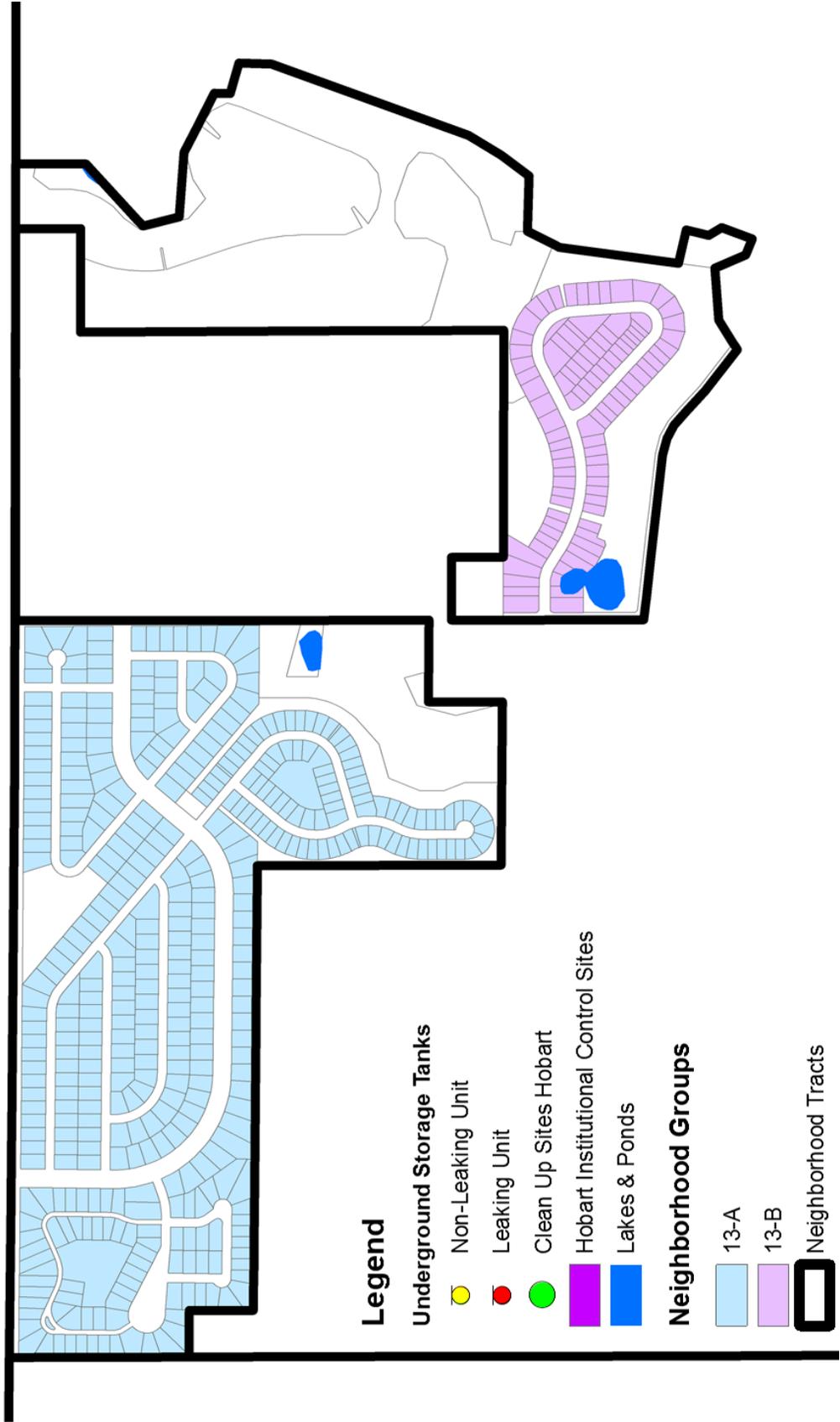


- Legend**
- Underground Storage Tanks**
 - Non-Leaking Unit (Yellow circle)
 - Leaking Unit (Red circle)
 - Clean Up Sites Hobart (Green circle)
 - Hobart Institutional Control Sites (Purple square)
 - Lakes & Ponds (Blue area)
- Neighborhood Groups**
- 11-A (Light blue)
 - 11-B (Light purple)
 - 11-C (Light yellow)
 - 11-D (Light pink)
 - 11-E (Light green)
 - 11-F (Light grey)
- Neighborhood Tracts (Black outline)

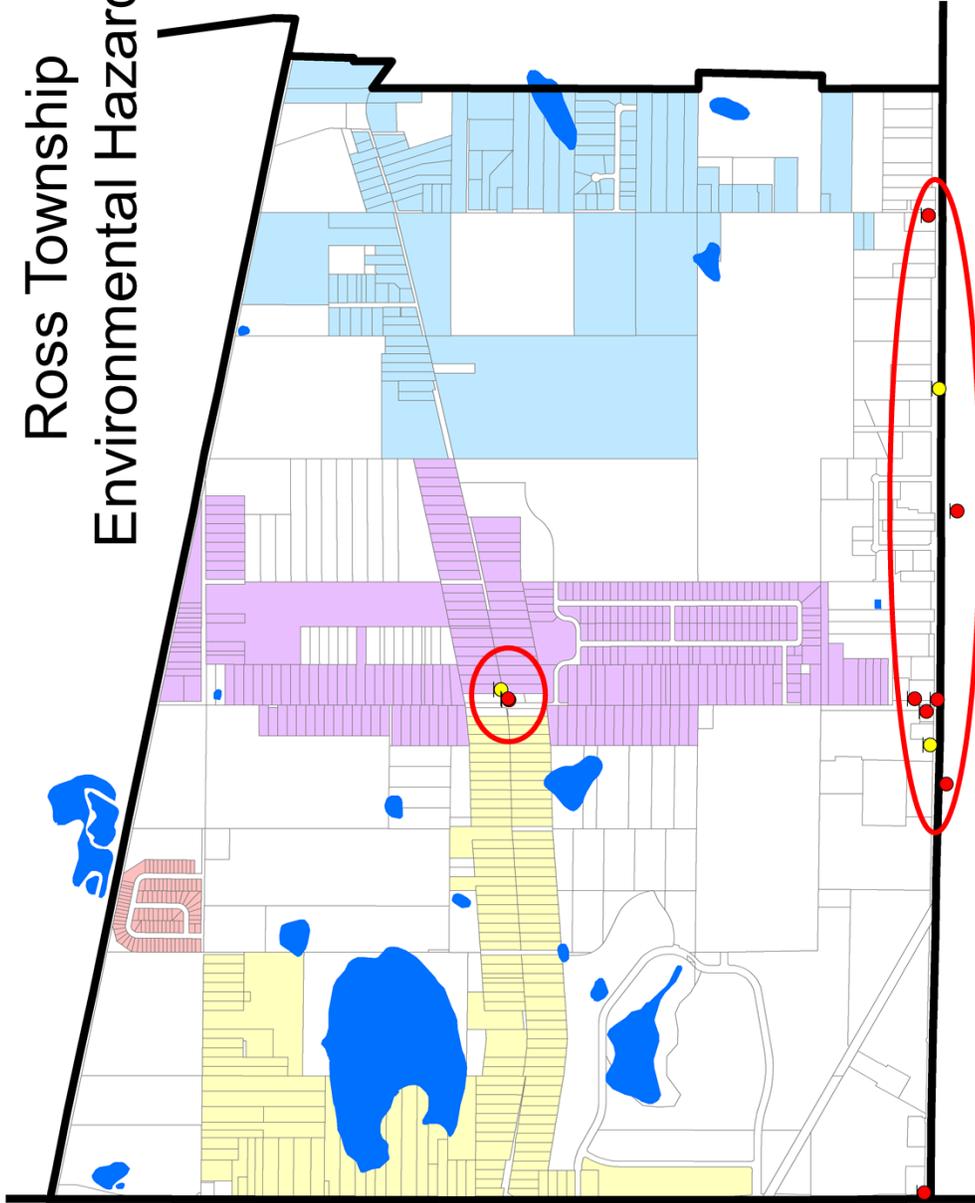
Ainsworth Environmental Hazards



Ridge Pointe Environmental Hazards

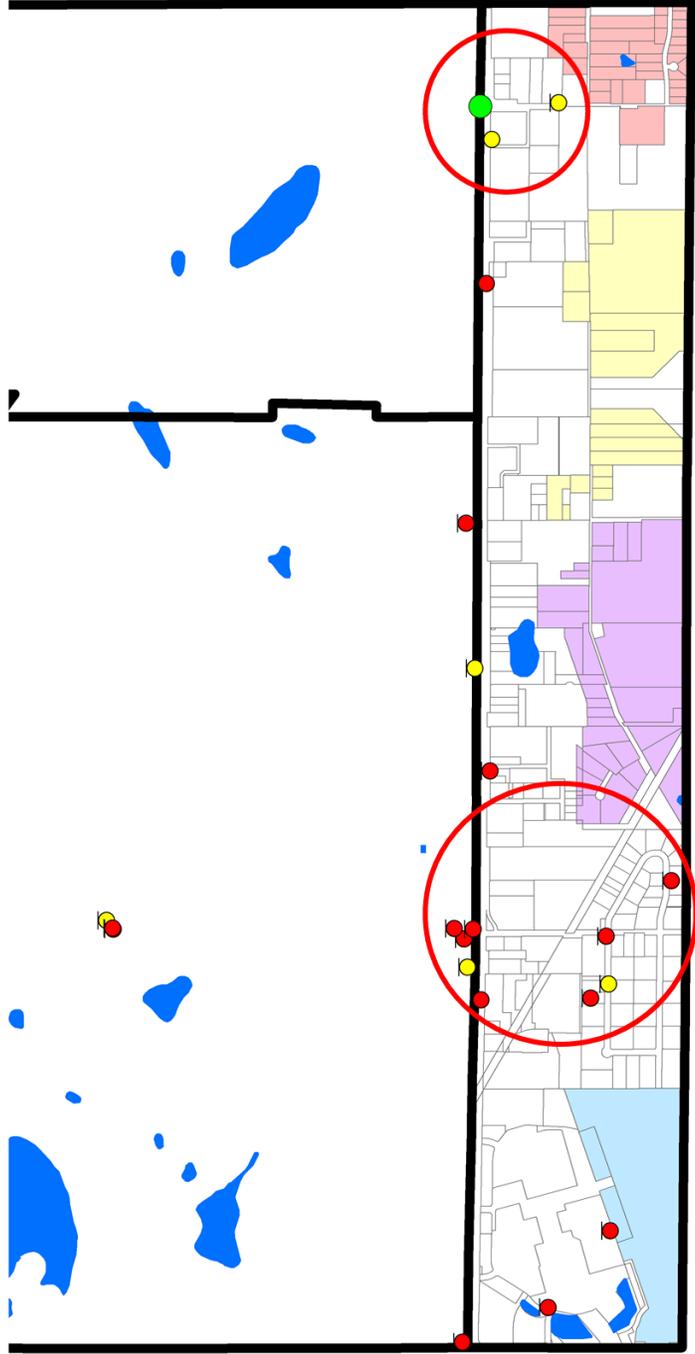


Ross Township Environmental Hazards



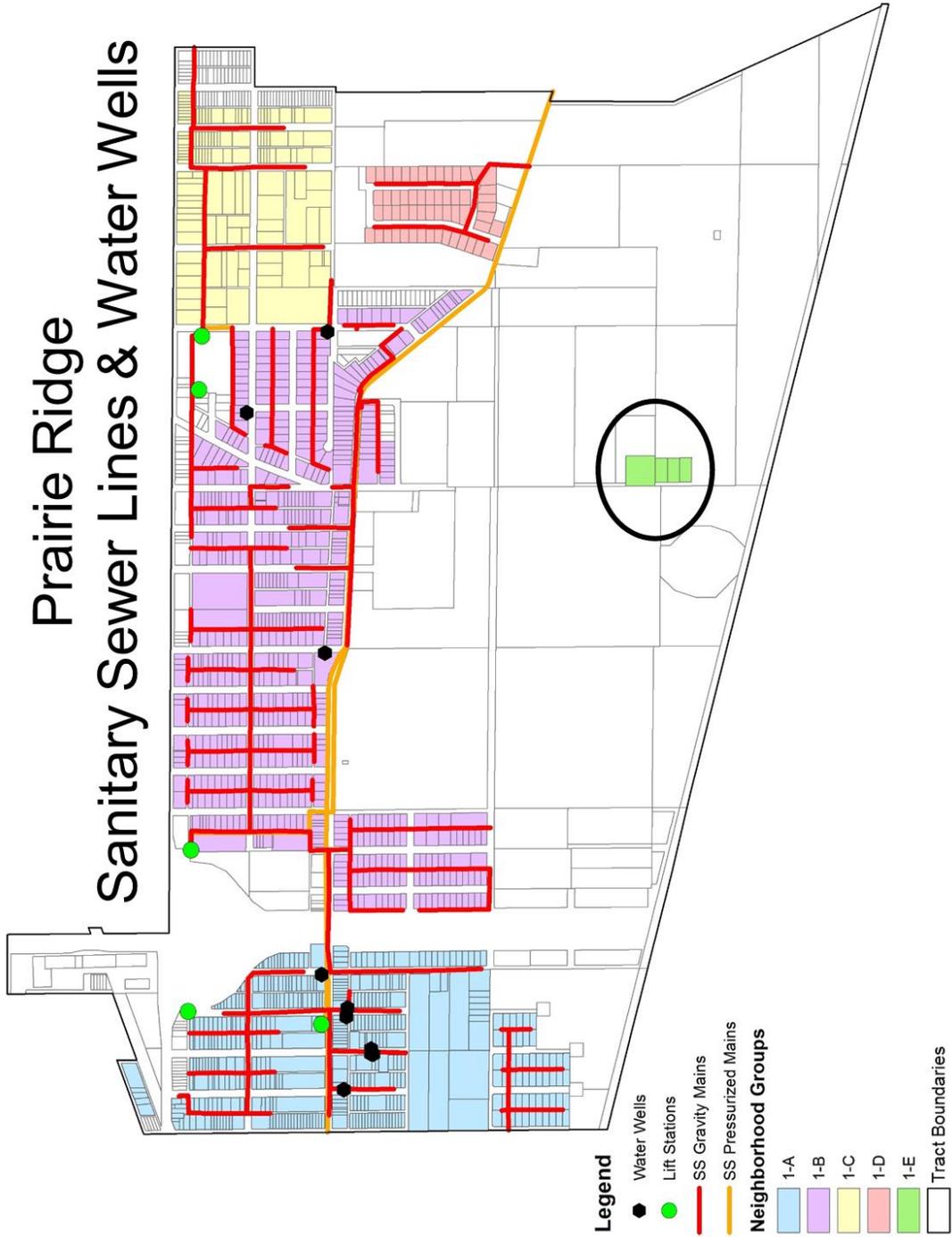
- Legend**
- Underground Storage Tanks**
 - Non-Leaking Unit (Yellow dot)
 - Leaking Unit (Red dot)
 - Clean Up Sites Hobart (Green dot)
 - Hobart Institutional Control Sites (Purple area)
 - Lakes & Ponds (Blue area)
 - Neighborhood Group**
 - 14-A (Light Blue)
 - 14-B (Light Purple)
 - 14-C (Yellow)
 - 14-D (Light Red)
 - Neighborhood Tracts (Black outline)

US 30 Environmental Hazards

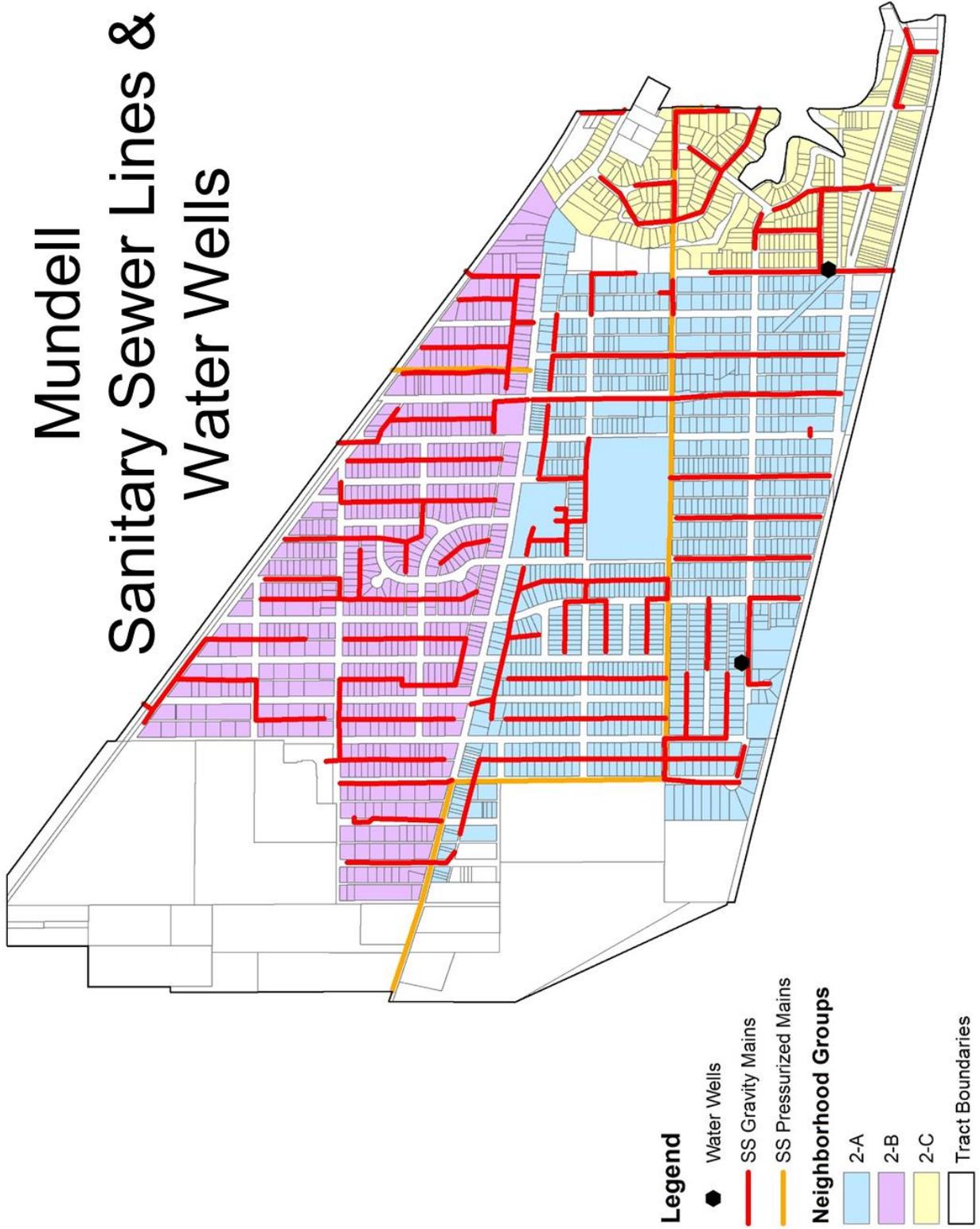


- Legend**
- Underground Storage Tanks**
 - Non-Leaking Unit (Yellow circle)
 - Leaking Unit (Red circle)
 - Clean Up Sites Hobart (Green circle)
 - Hobart Institutional Control Sites (Purple square)
 - Lakes & Ponds (Blue square)
 - Neighborhood Groups**
 - 15-A (Light blue square)
 - 15-B (Purple square)
 - 15-C (Yellow square)
 - 15-D (Pink square)
 - Neighborhood Tracts (Black outline)

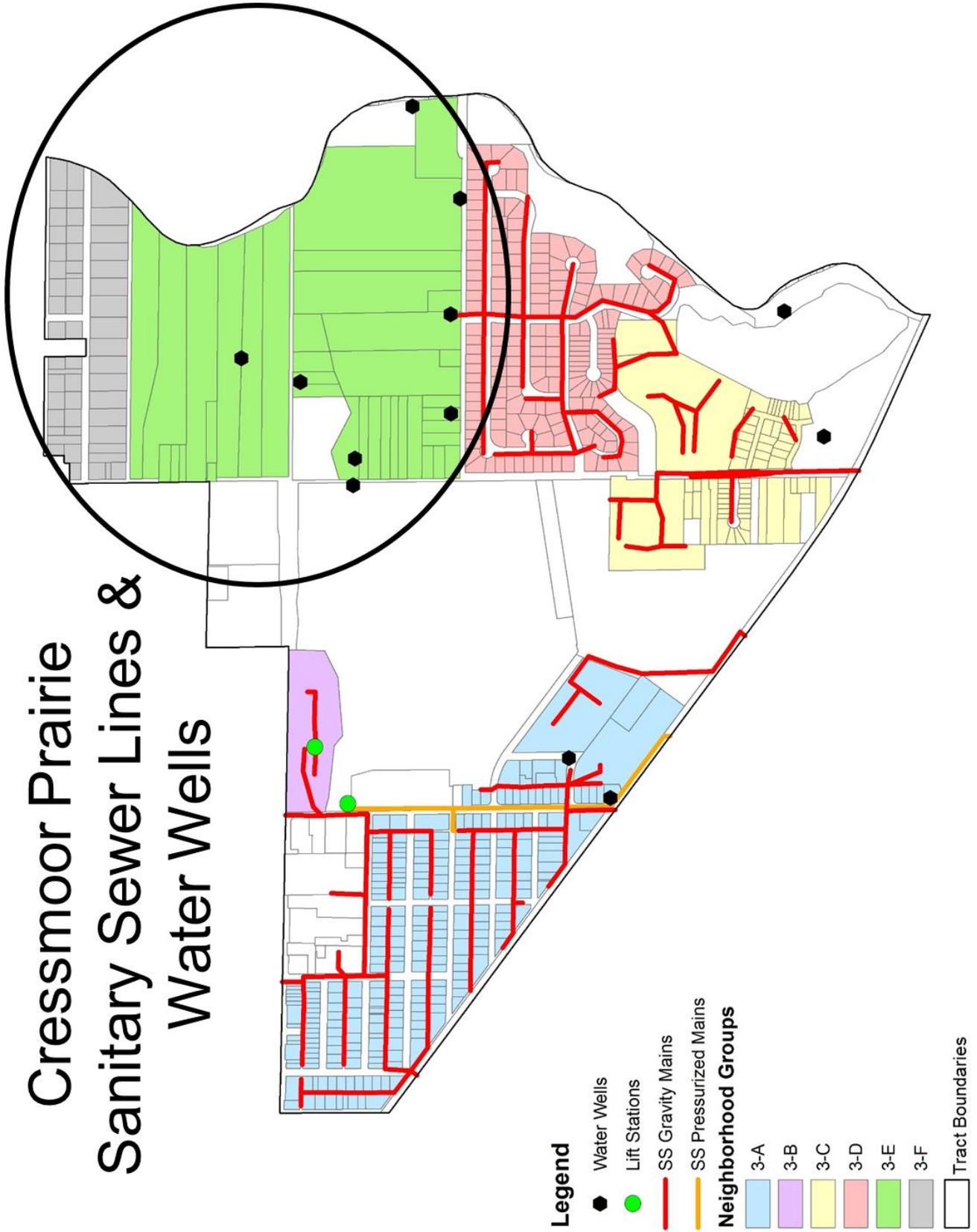
Appendix H: Sanitary Sewer Lines & Water Wells



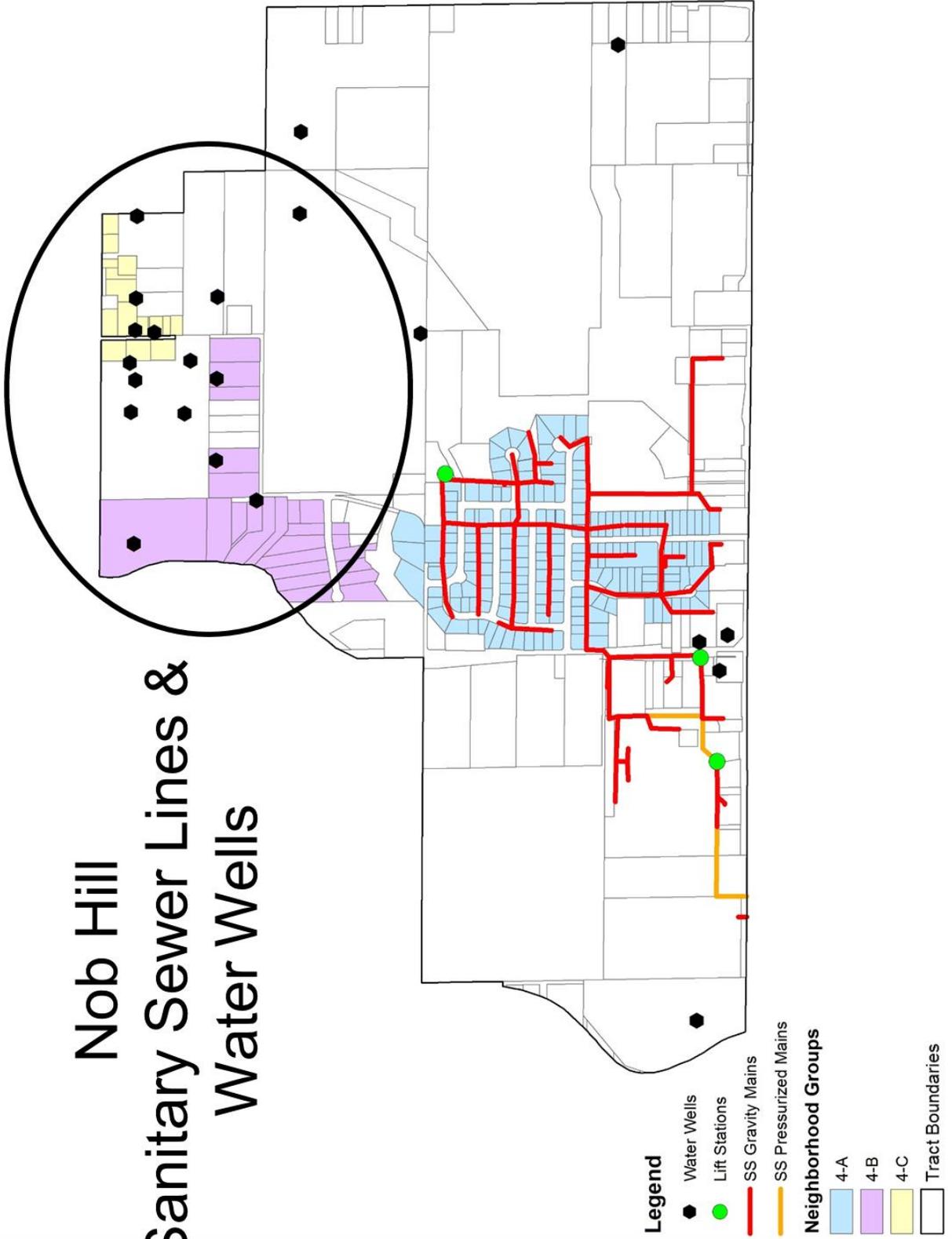
Mundell Sanitary Sewer Lines & Water Wells



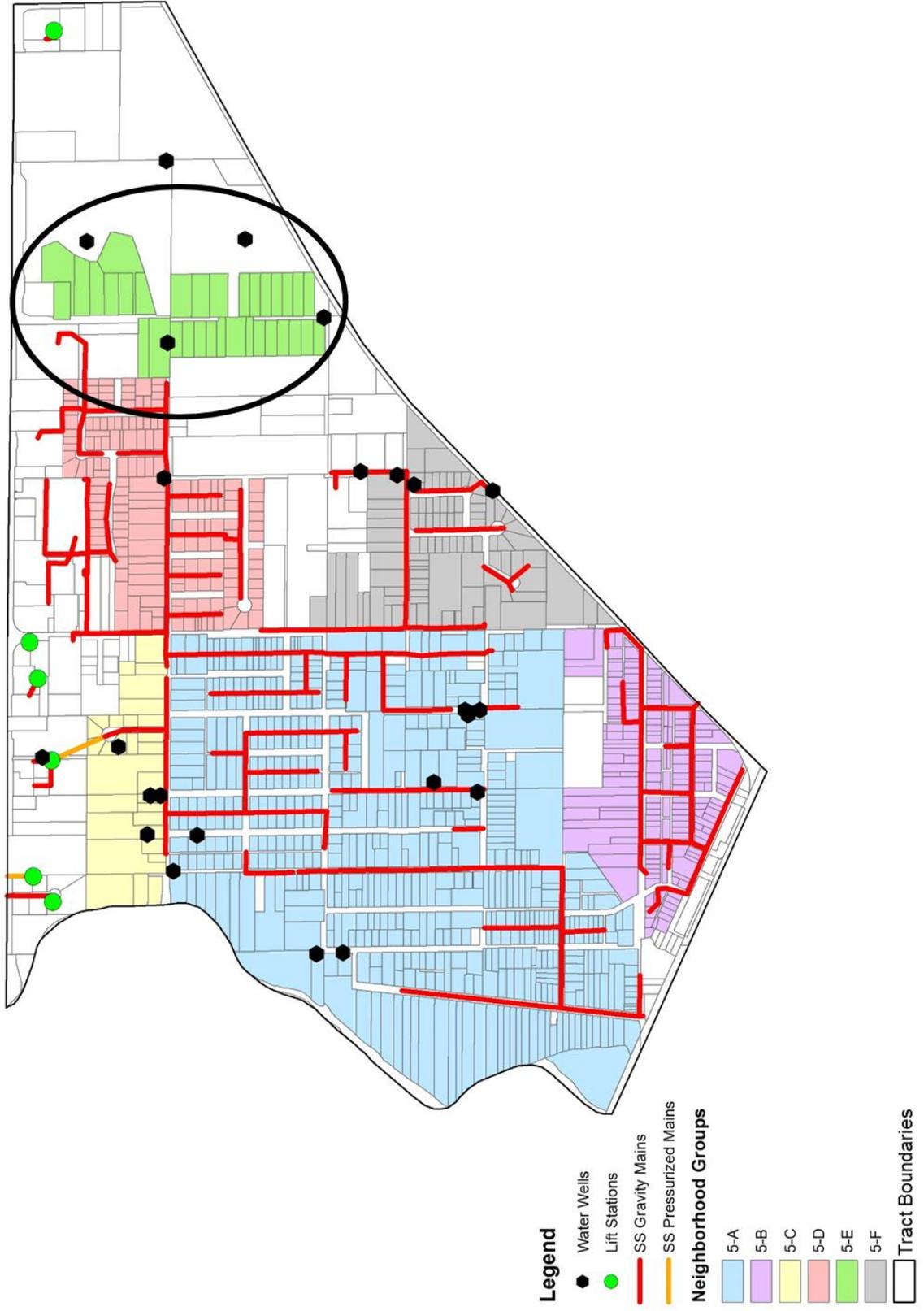
Cressmoor Prairie Sanitary Sewer Lines & Water Wells



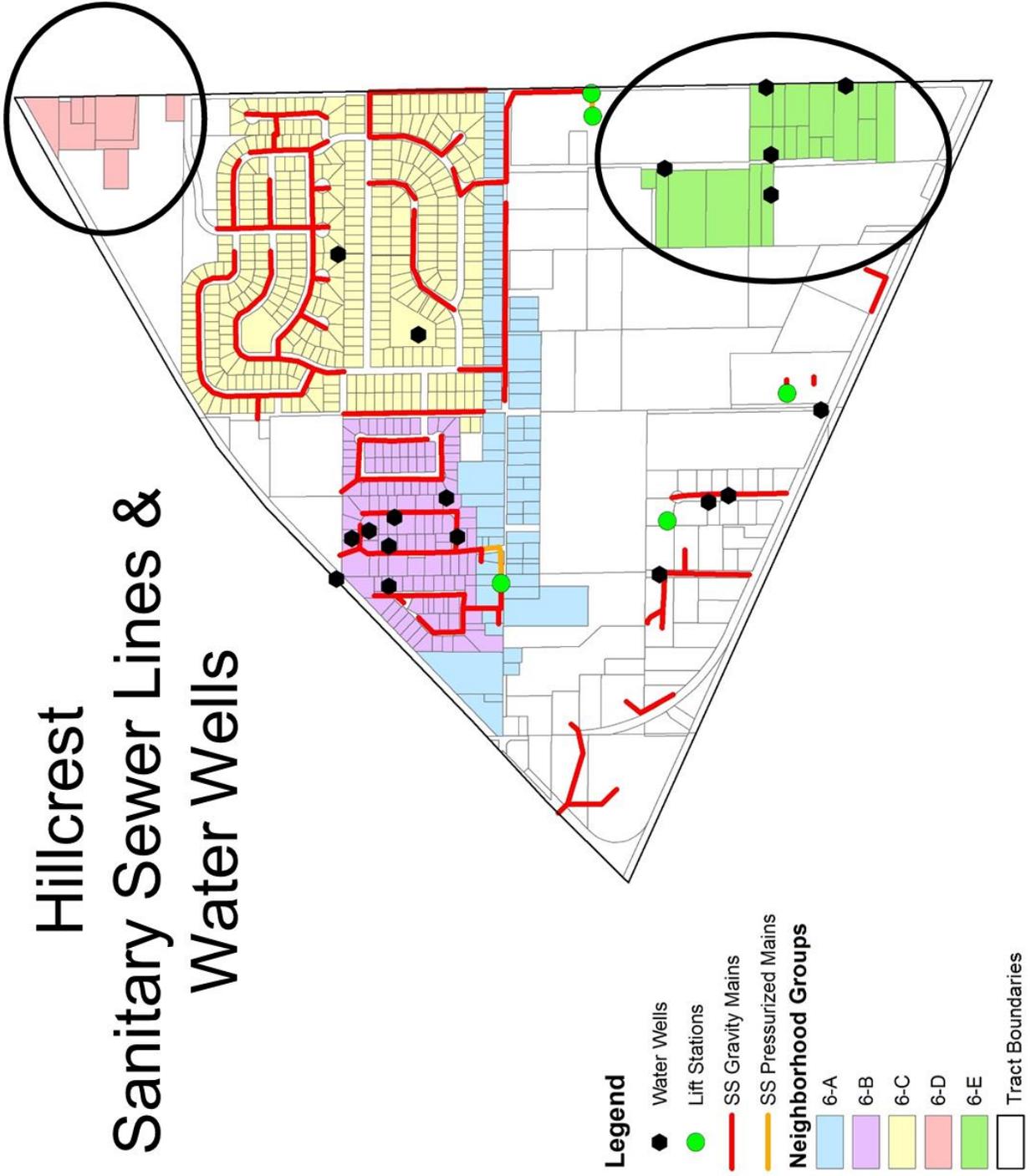
Nob Hill Sanitary Sewer Lines & Water Wells



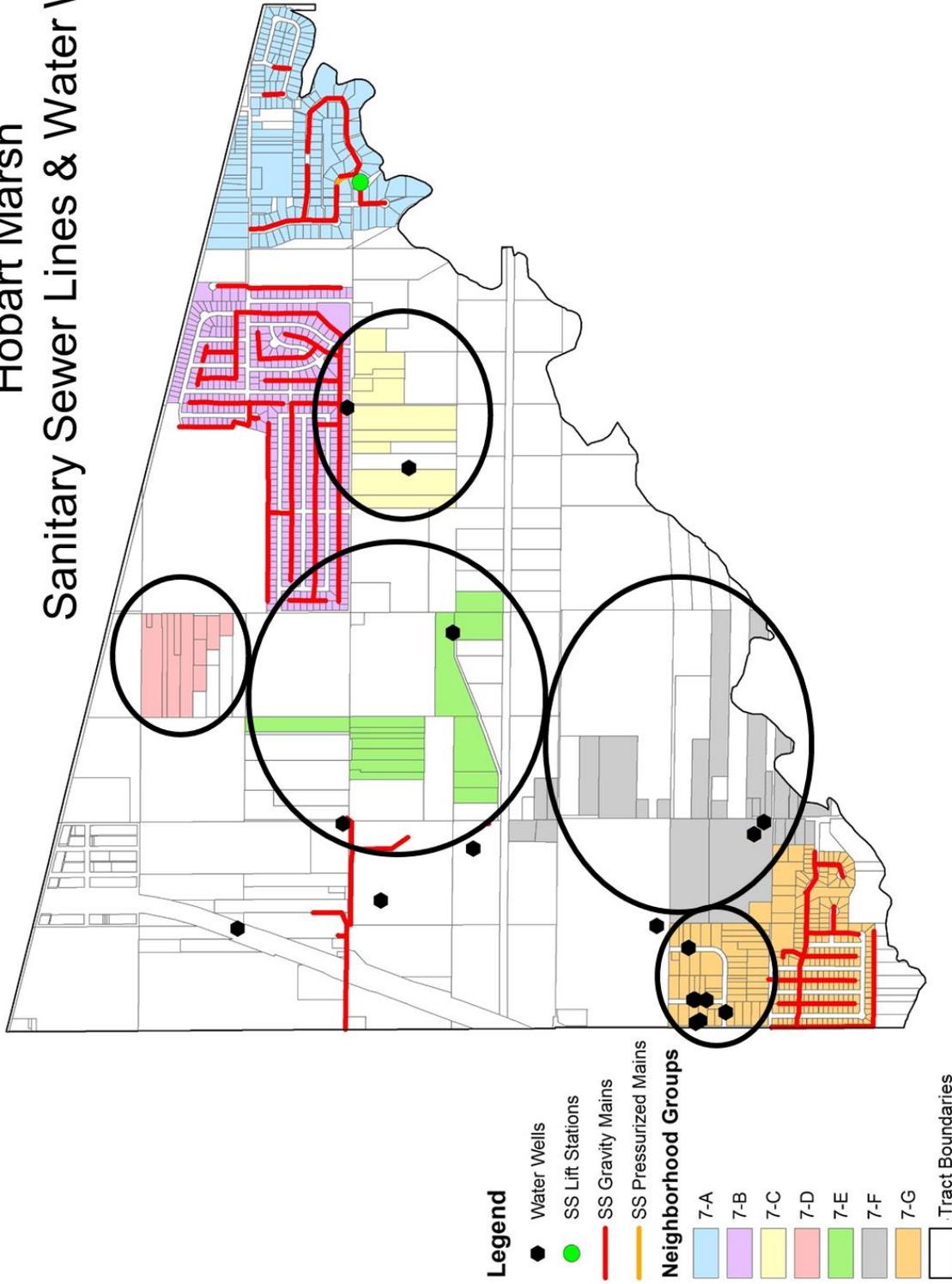
Liberty Sanitary Sewer Lines & Water Wells



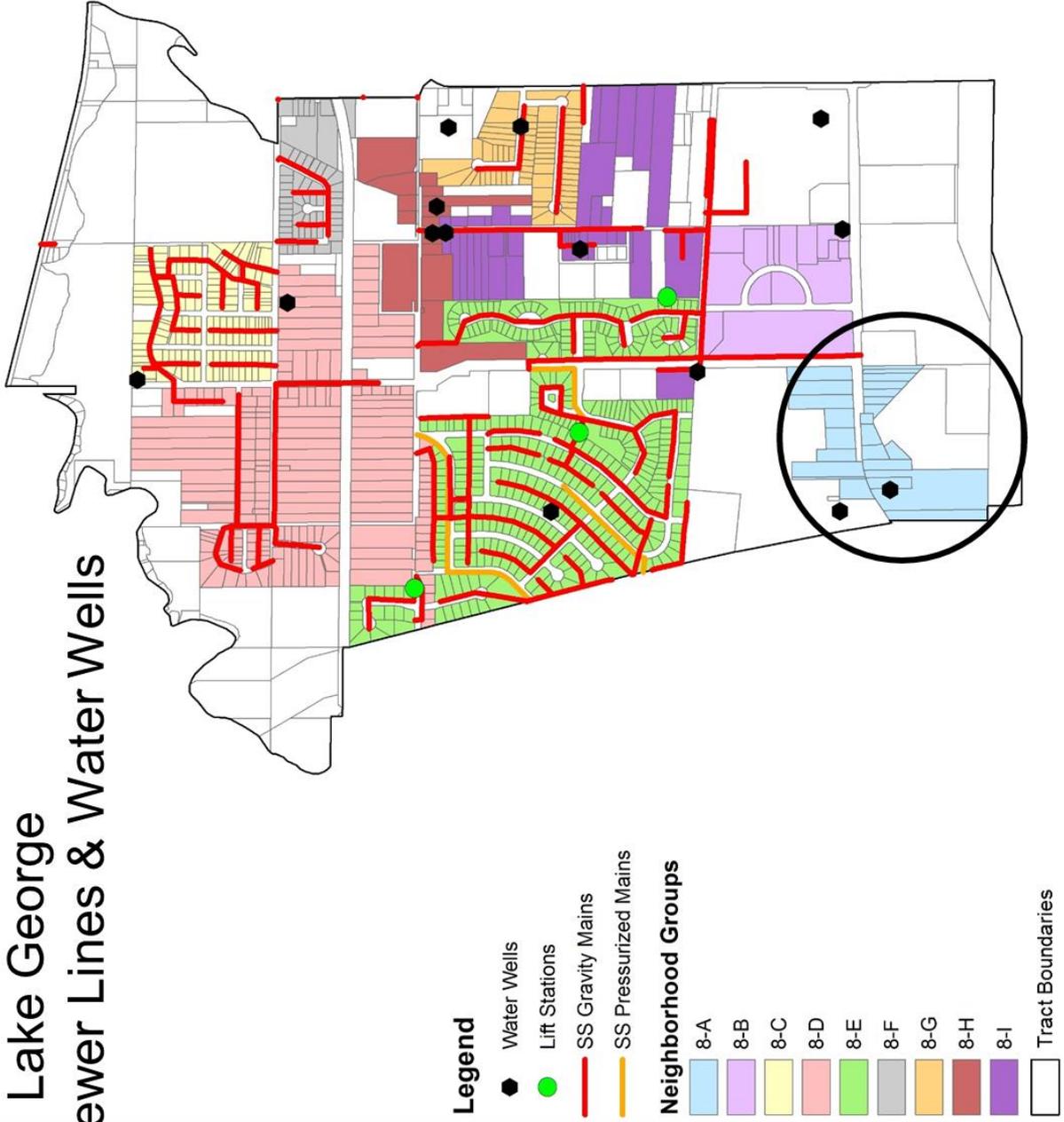
Hillcrest Sanitary Sewer Lines & Water Wells



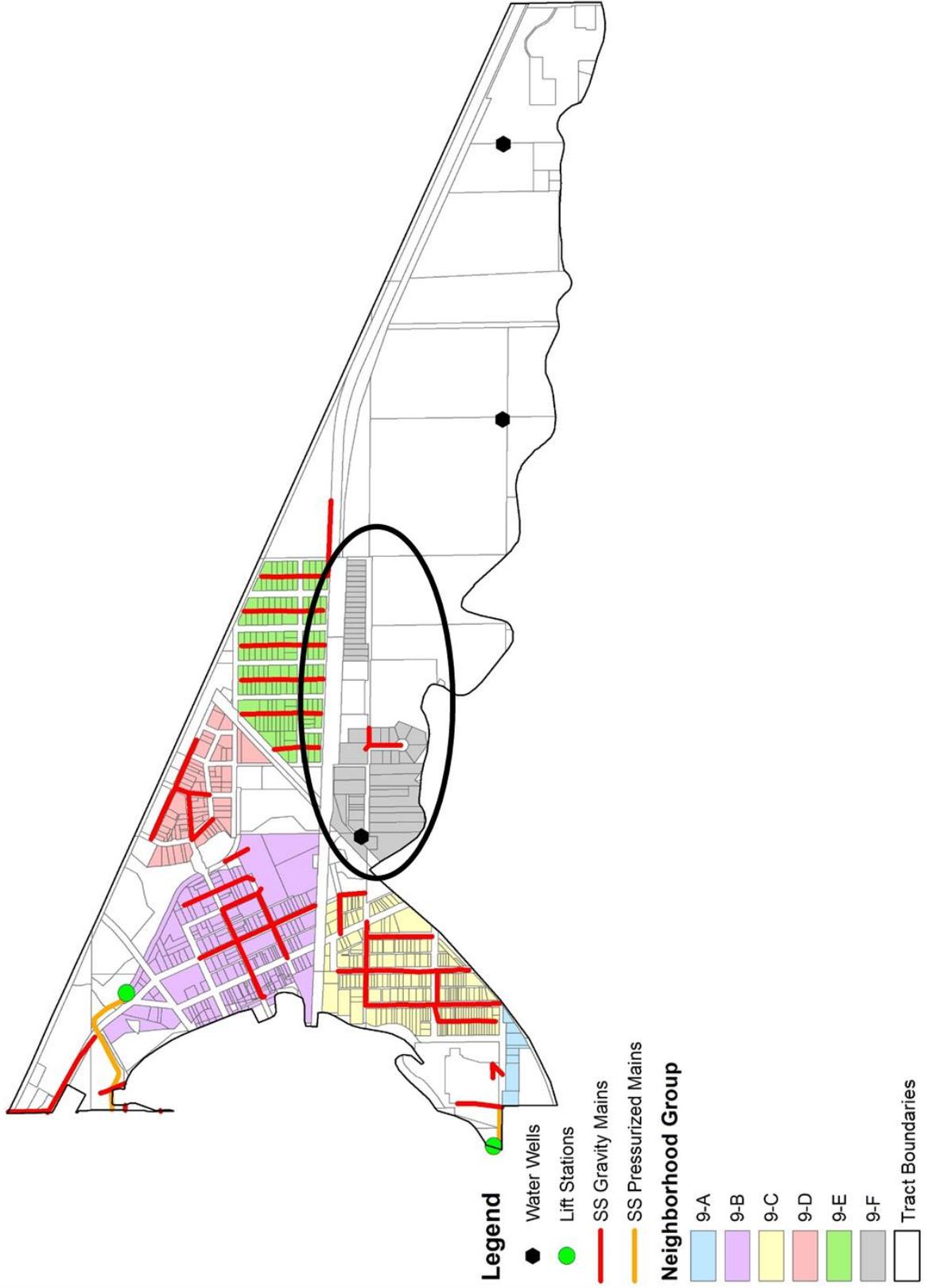
Hobart Marsh Sanitary Sewer Lines & Water Wells



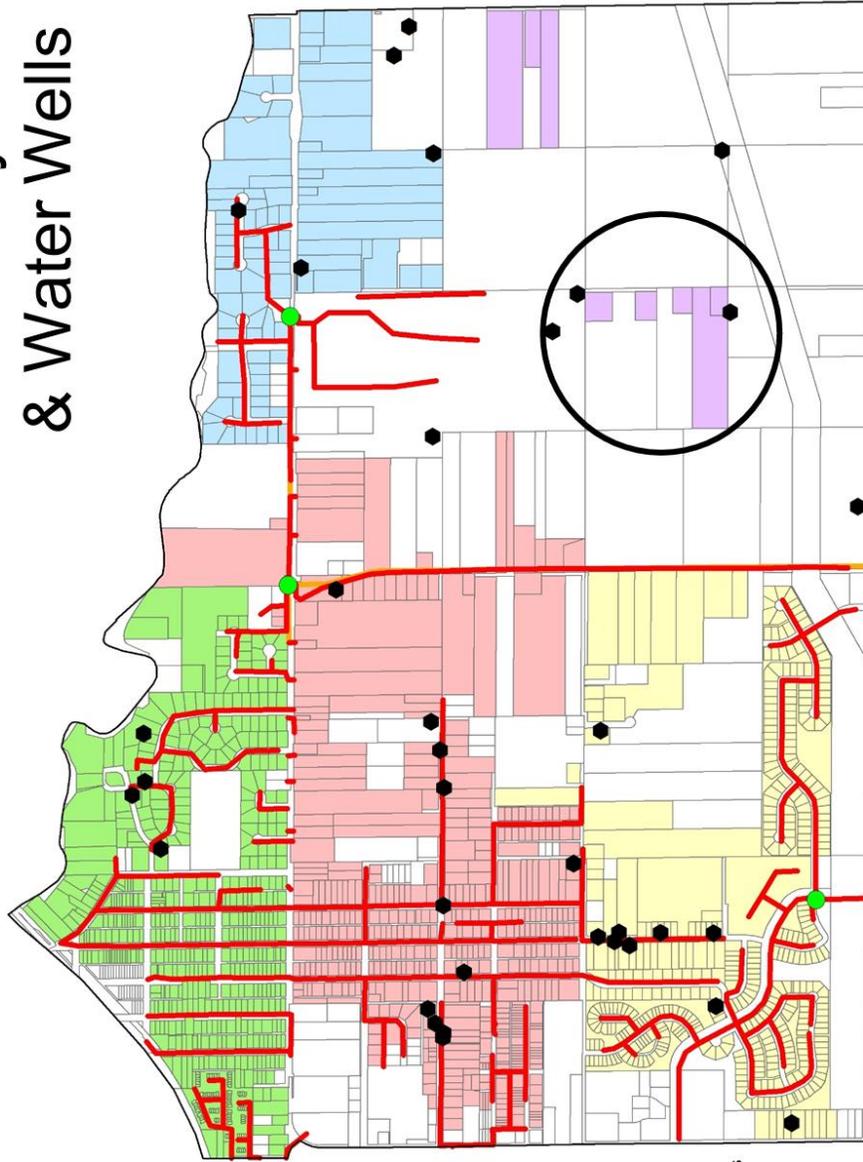
Lake George Sanitary Sewer Lines & Water Wells



Downtown Sanitary Sewer Lines & Water Wells

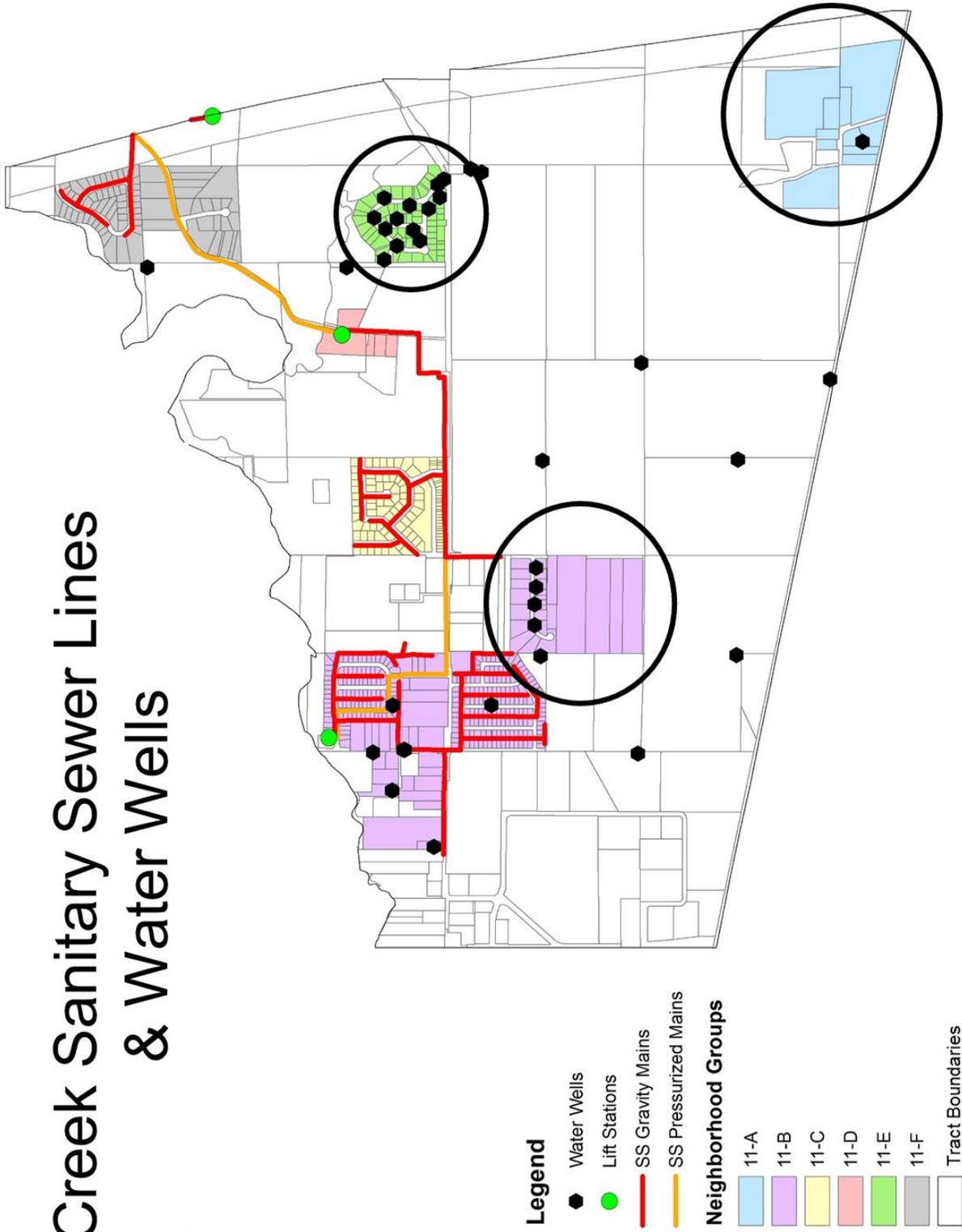


10th Street Sanitary Sewer Lines & Water Wells

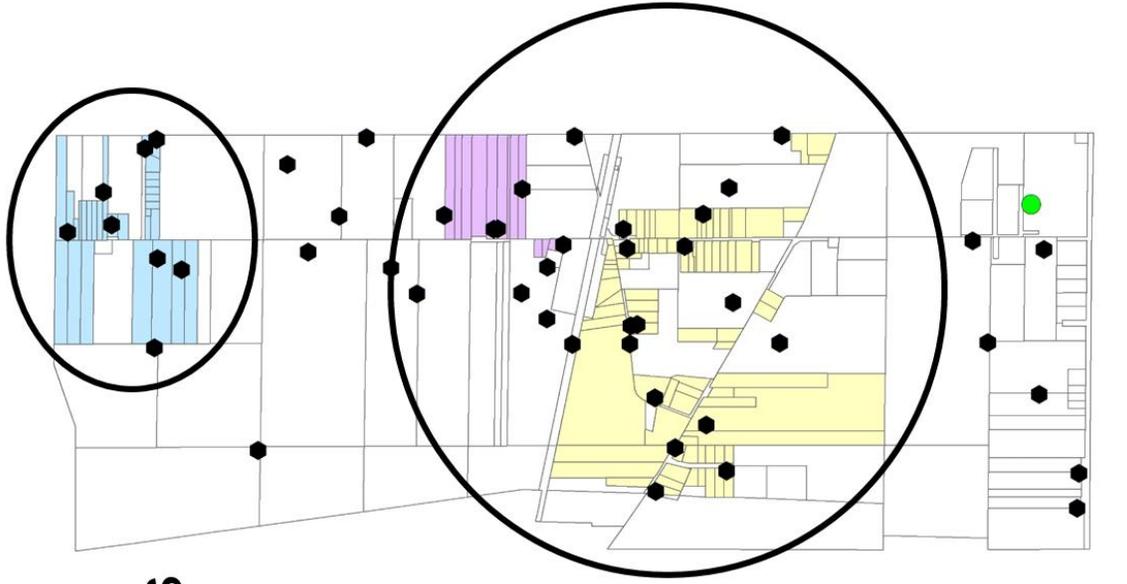


- Legend**
- Water Wells
 - Lift Stations
 - SS Gravity Mains
 - SS Pressurized Mains
- Neighborhood Groups**
- 10-A
 - 10-B
 - 10-C
 - 10-D
 - 10-E
- Tract Boundaries

Creek Sanitary Sewer Lines & Water Wells



Ainsworth Sanitary Sewer Lines & Water Wells



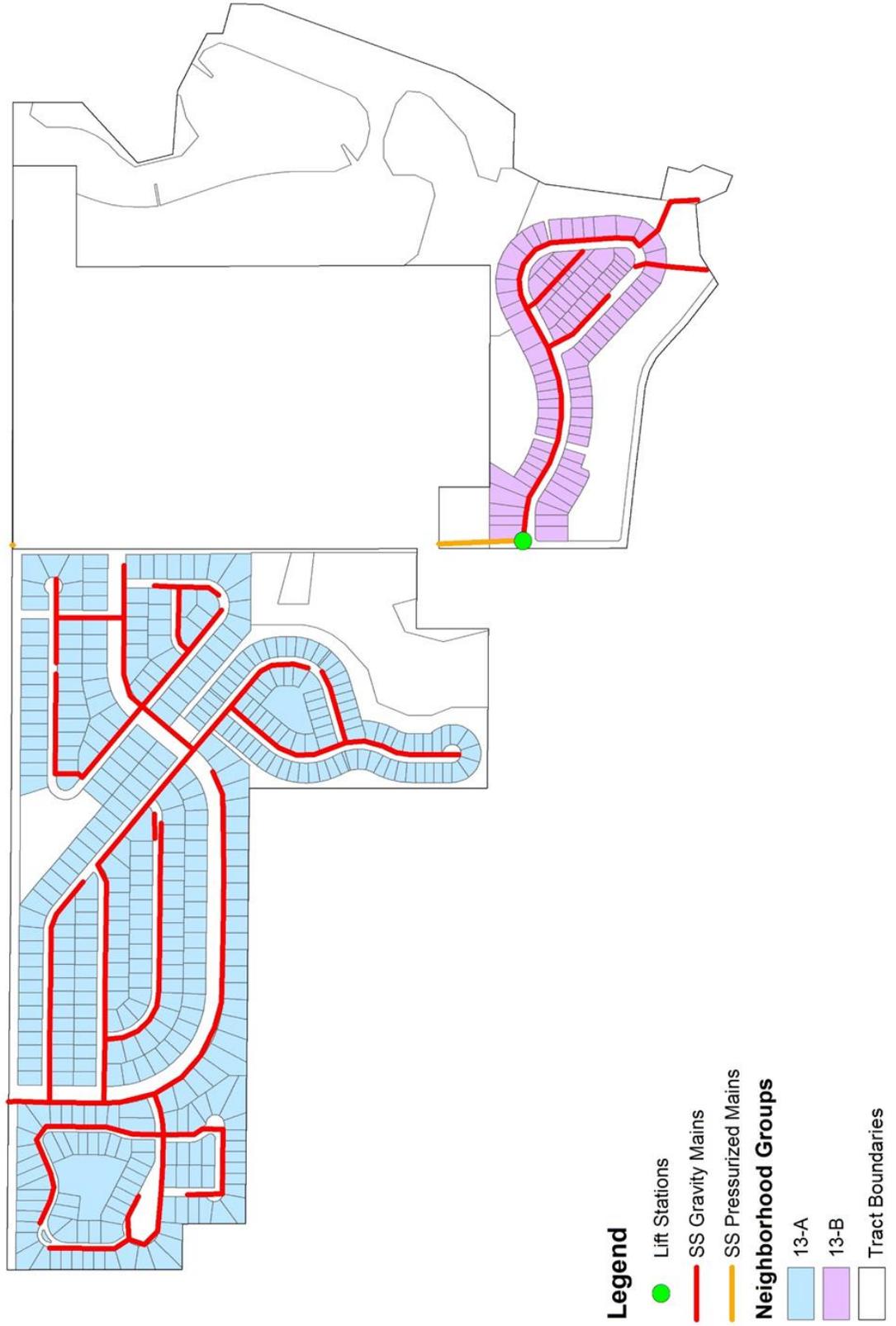
Legend

- Water Wells
- Lift Stations

Neighborhood Groups

- 12-A
- 12-B
- 12-C
- Tract Boundaries

Ridge Pointe Sanitary Sewer Lines & Water Wells



Ross Township Sanitary Sewer Lines & Water Wells



US 30 Sanitary Sewer Lines & Water Wells



Legend

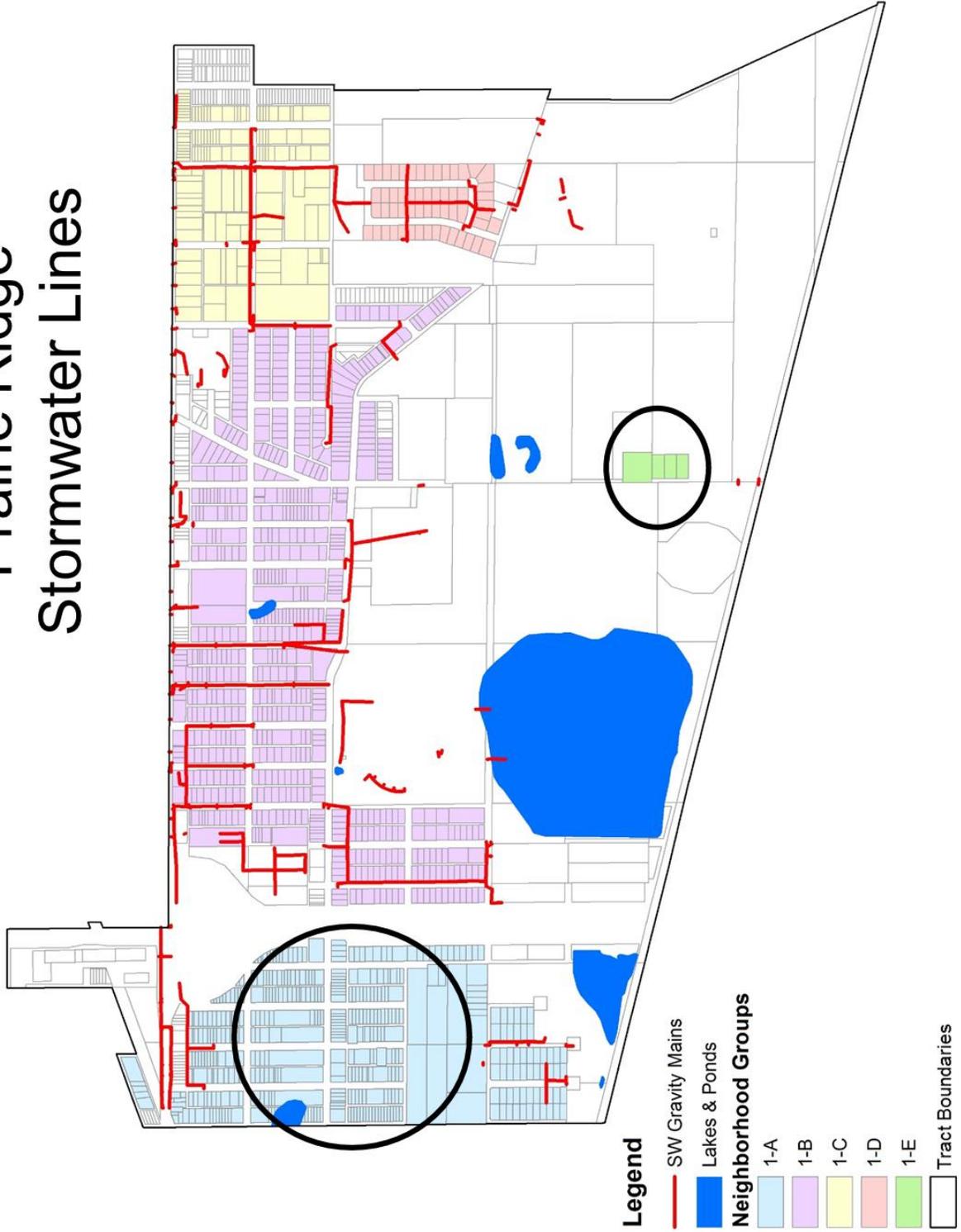
- Water Wells
- Lift Stations

Neighborhood Groups

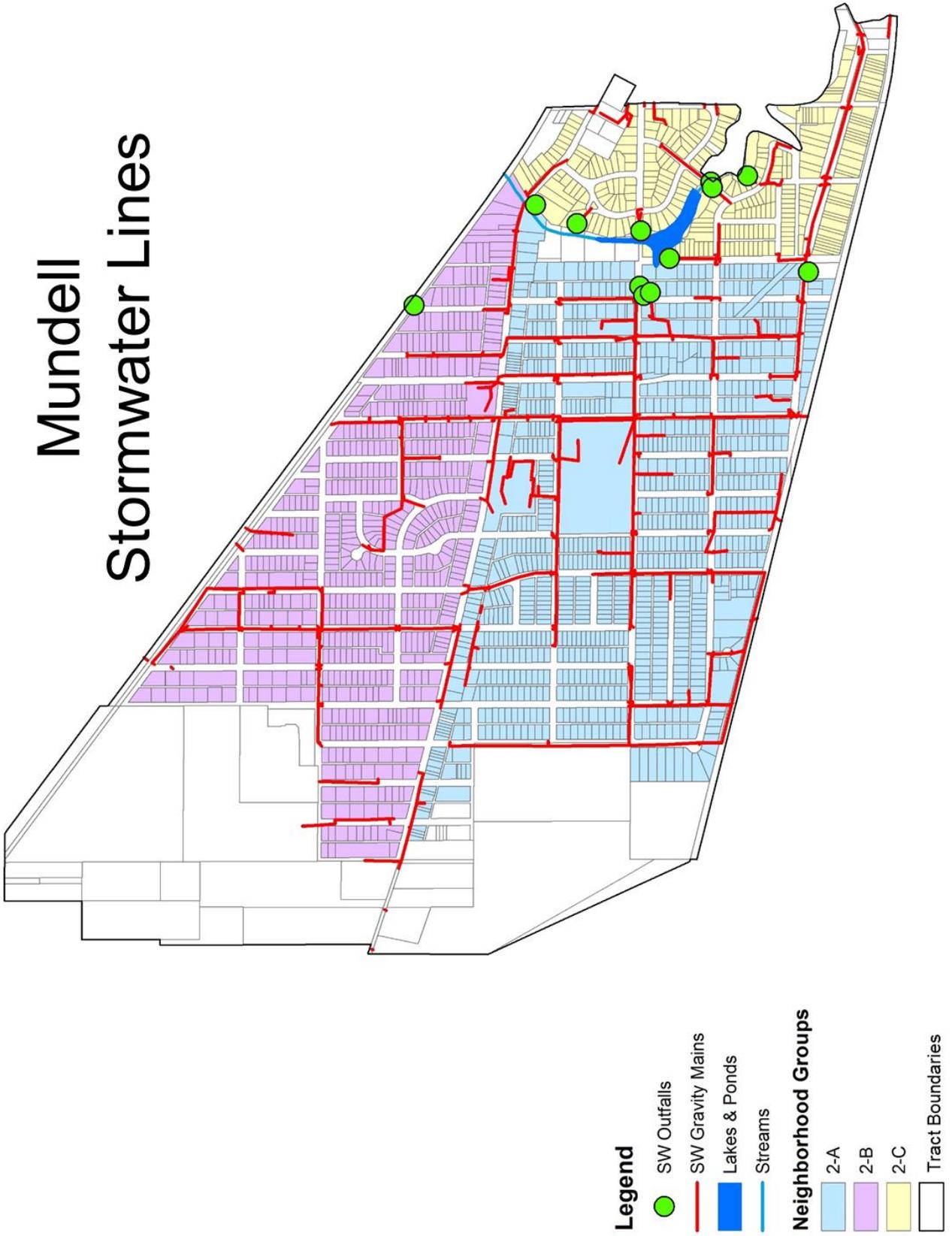
- 15-A
- 15-B
- 15-C
- 15-D
- Tract Boundaries

Appendix I: Stormwater Lines

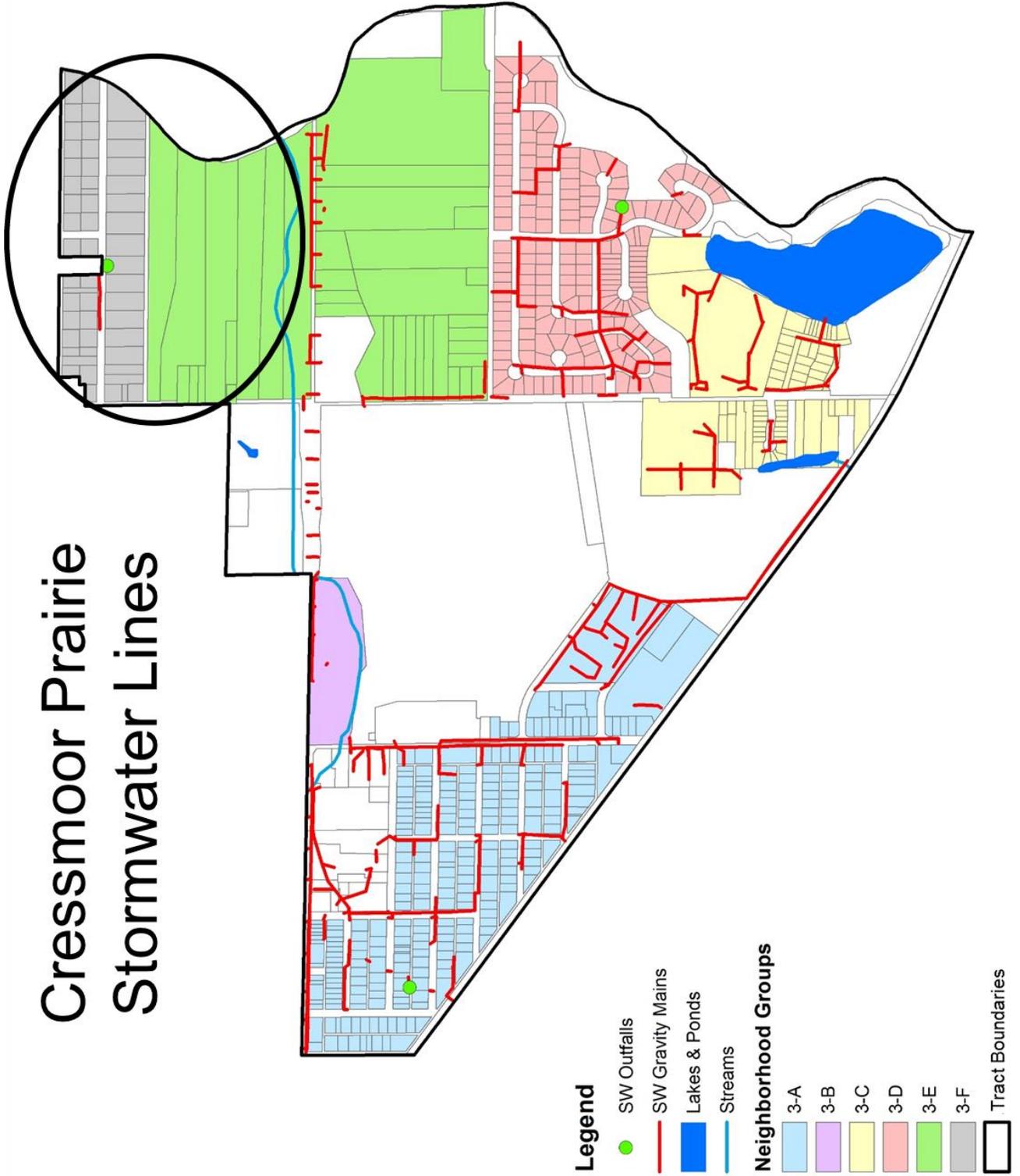
Prairie Ridge Stormwater Lines



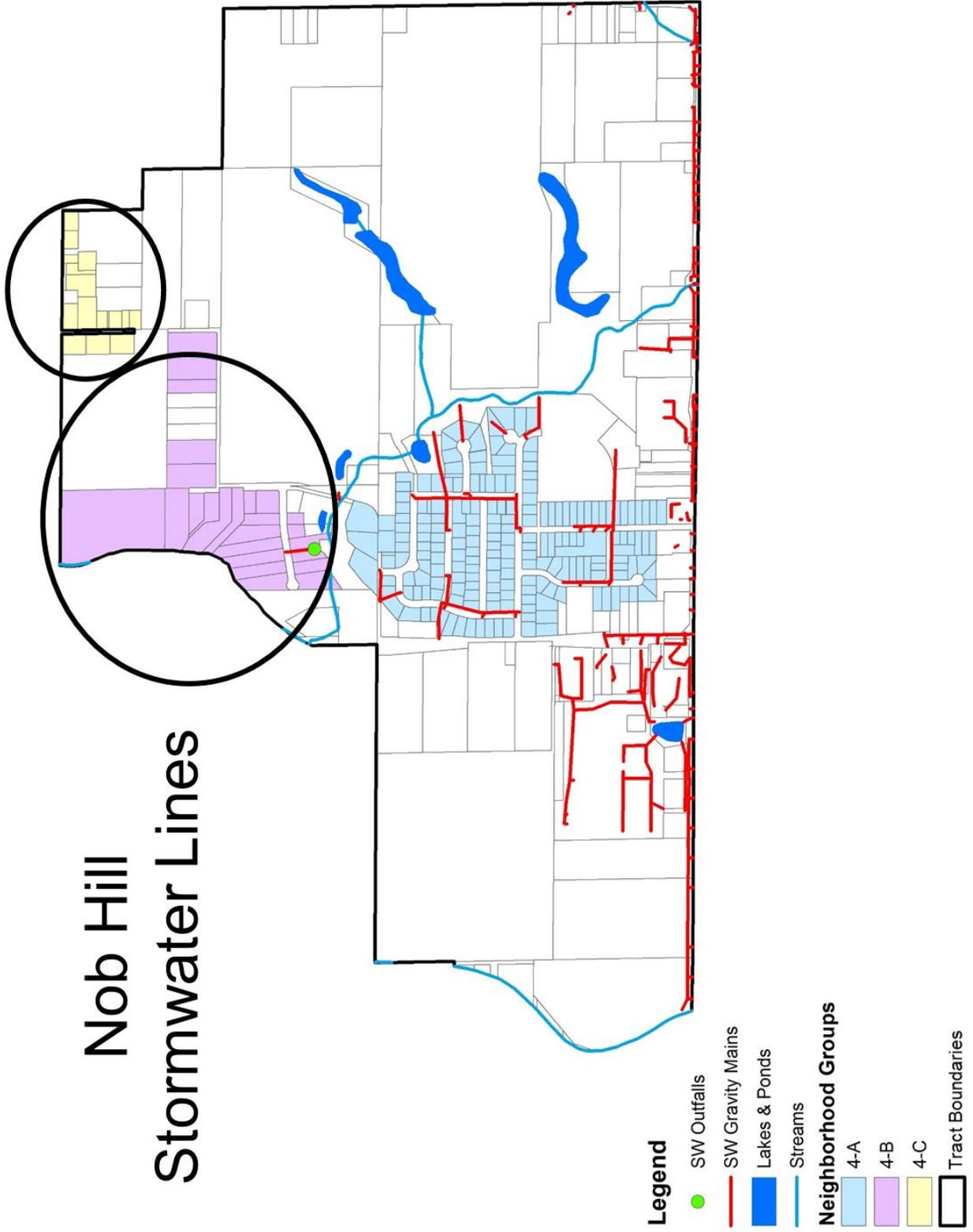
Mundell Stormwater Lines



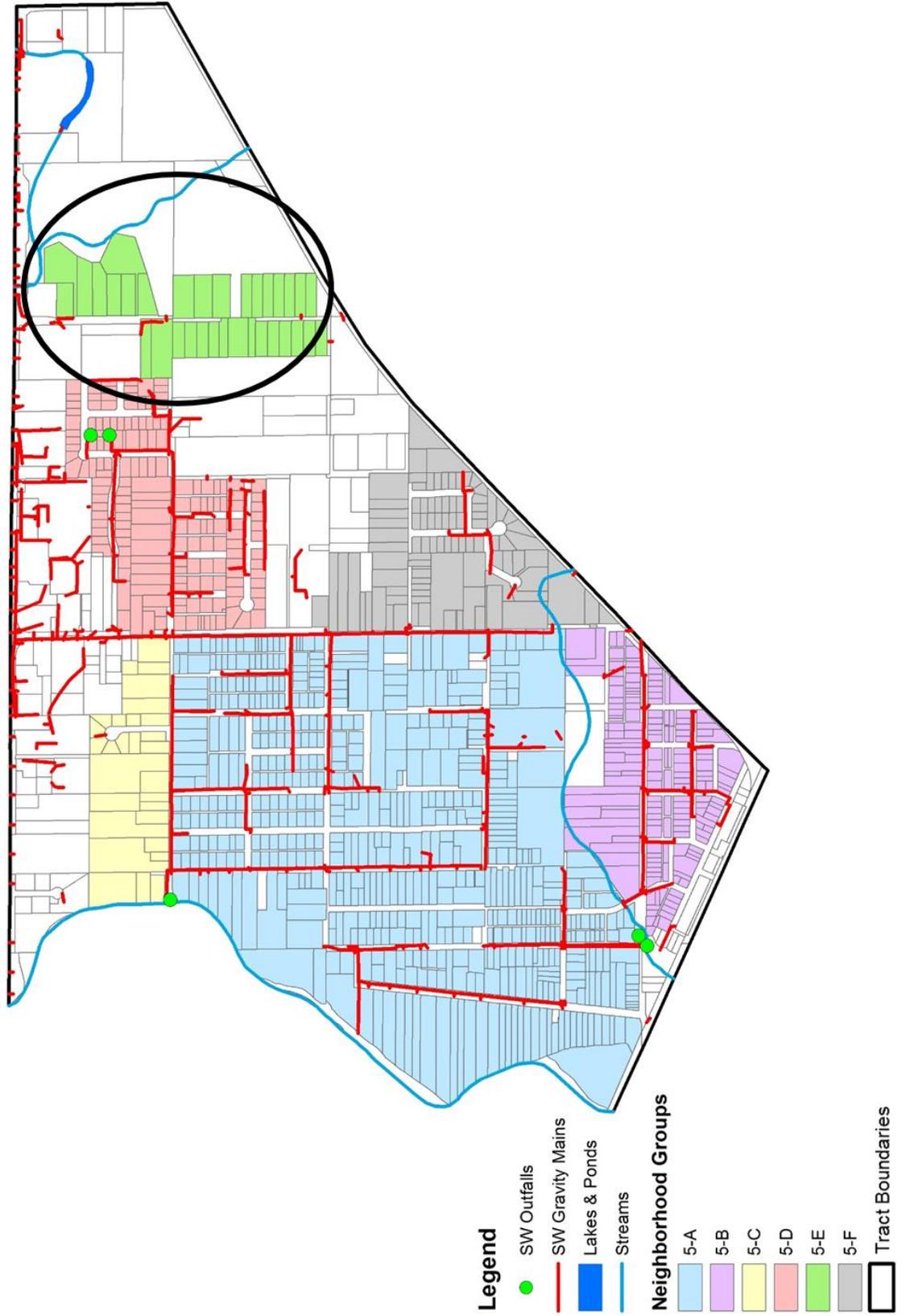
Cressmoor Prairie Stormwater Lines



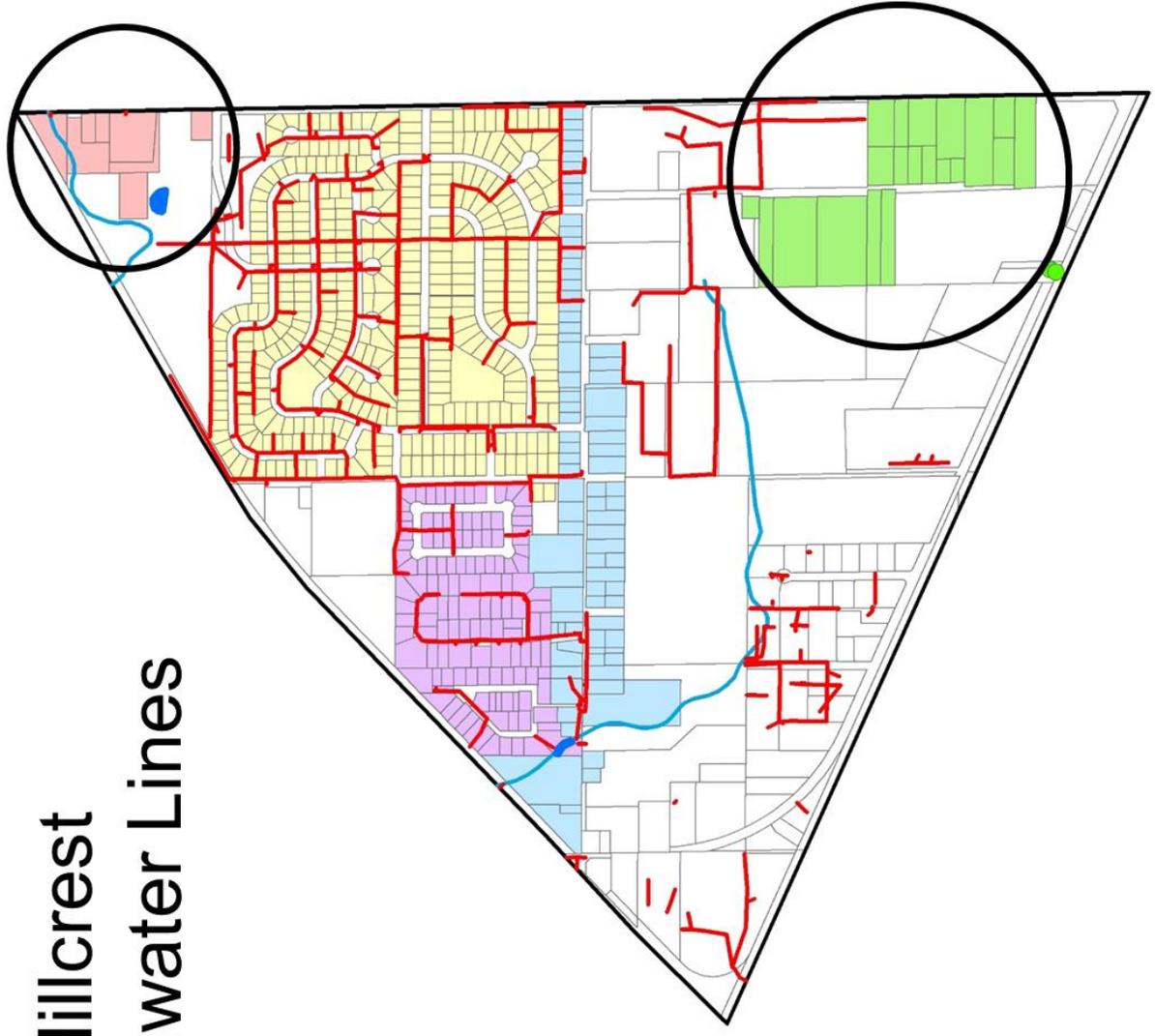
Nob Hill Stormwater Lines



Liberty Stormwater Lines



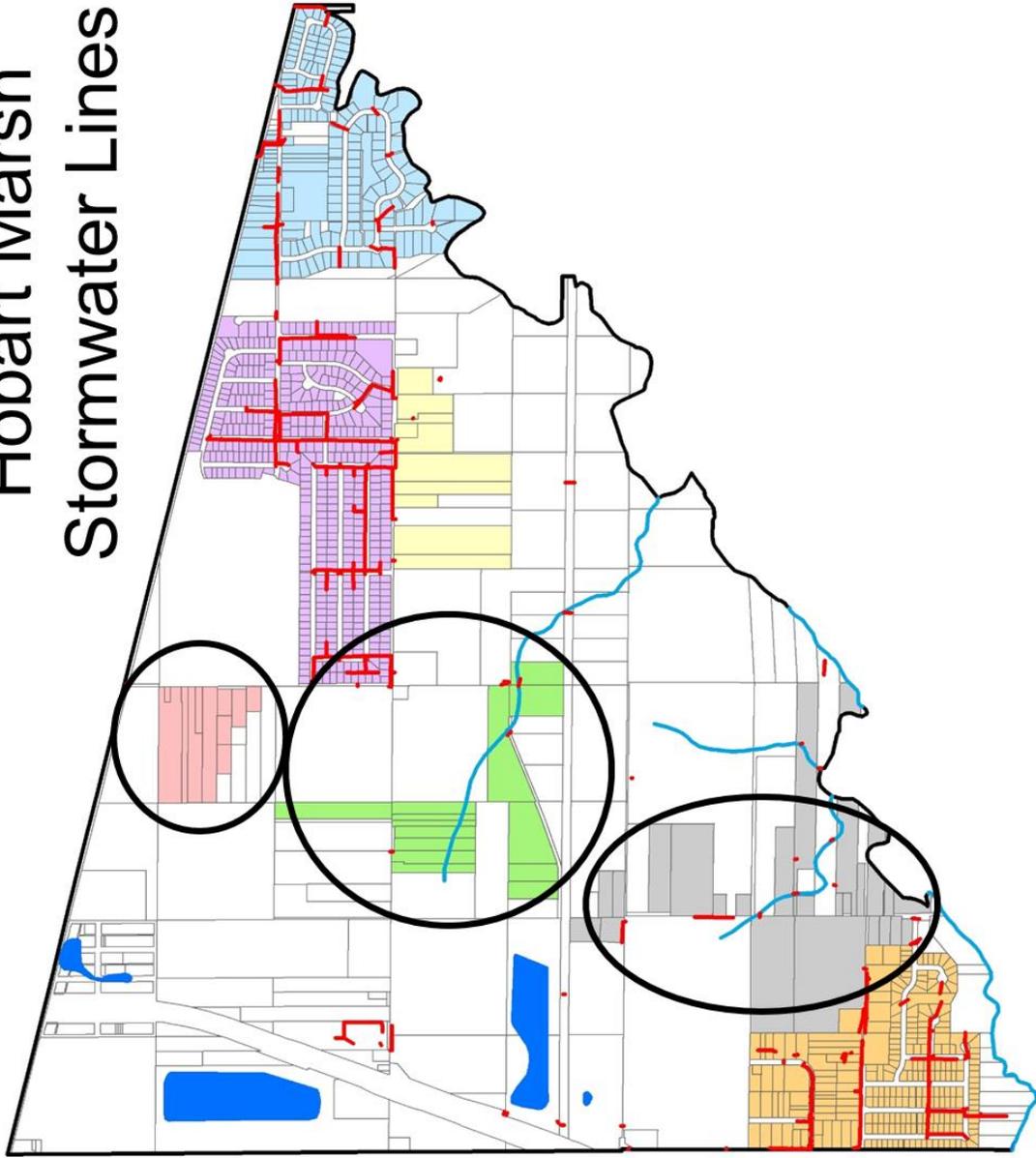
Hillcrest Stormwater Lines



Legend

- SW Outfalls
 - SW Gravity Mains
 - Lakes & Ponds
 - Streams
- ### Neighborhood Groups
- 6-A
 - 6-B
 - 6-C
 - 6-D
 - 6-E
- Tract Boundaries

Hobart Marsh Stormwater Lines



Legend

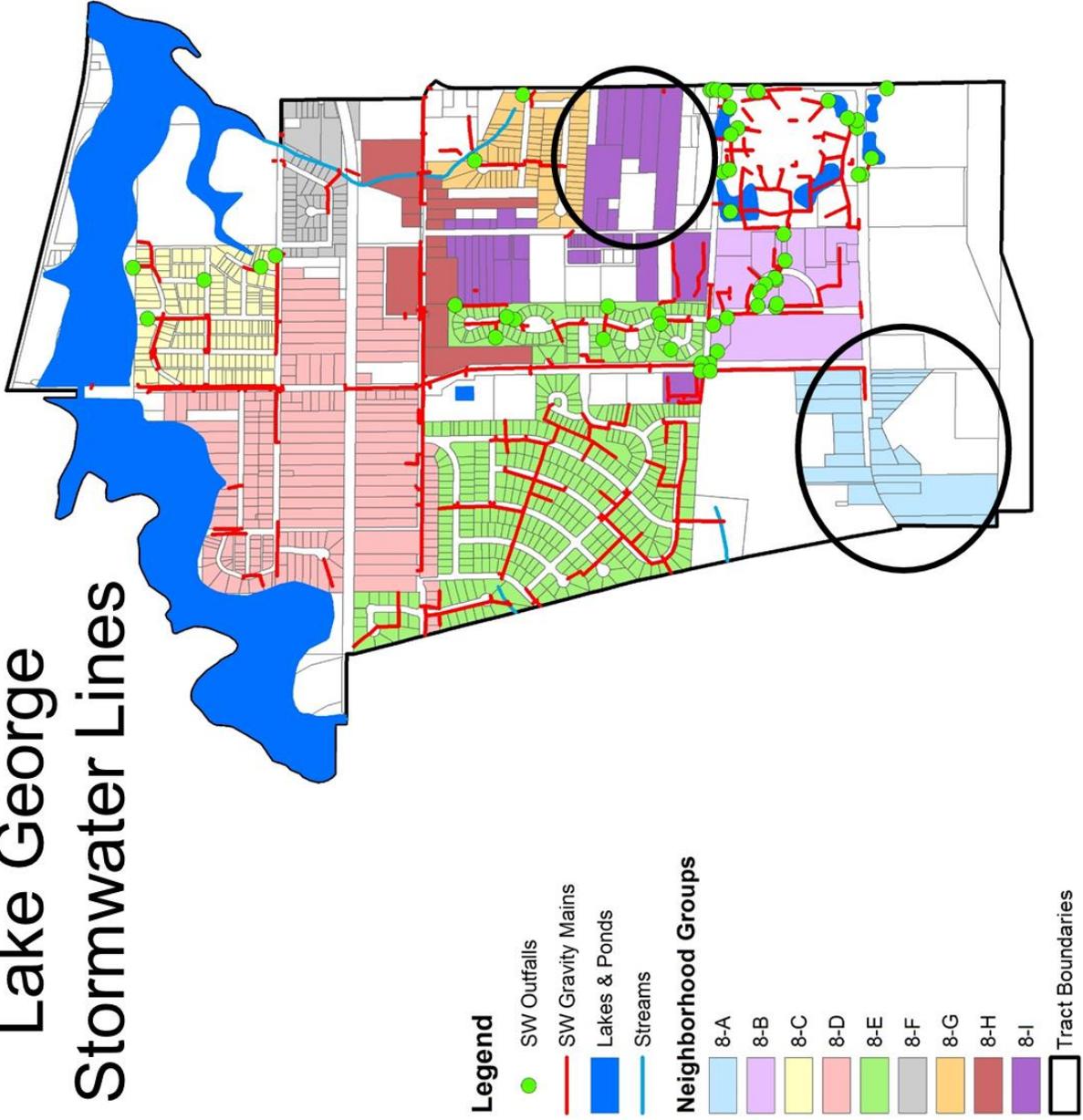
- SW Gravity Mains
- Lakes & Ponds
- Streams & Ditches

Neighborhood Groups

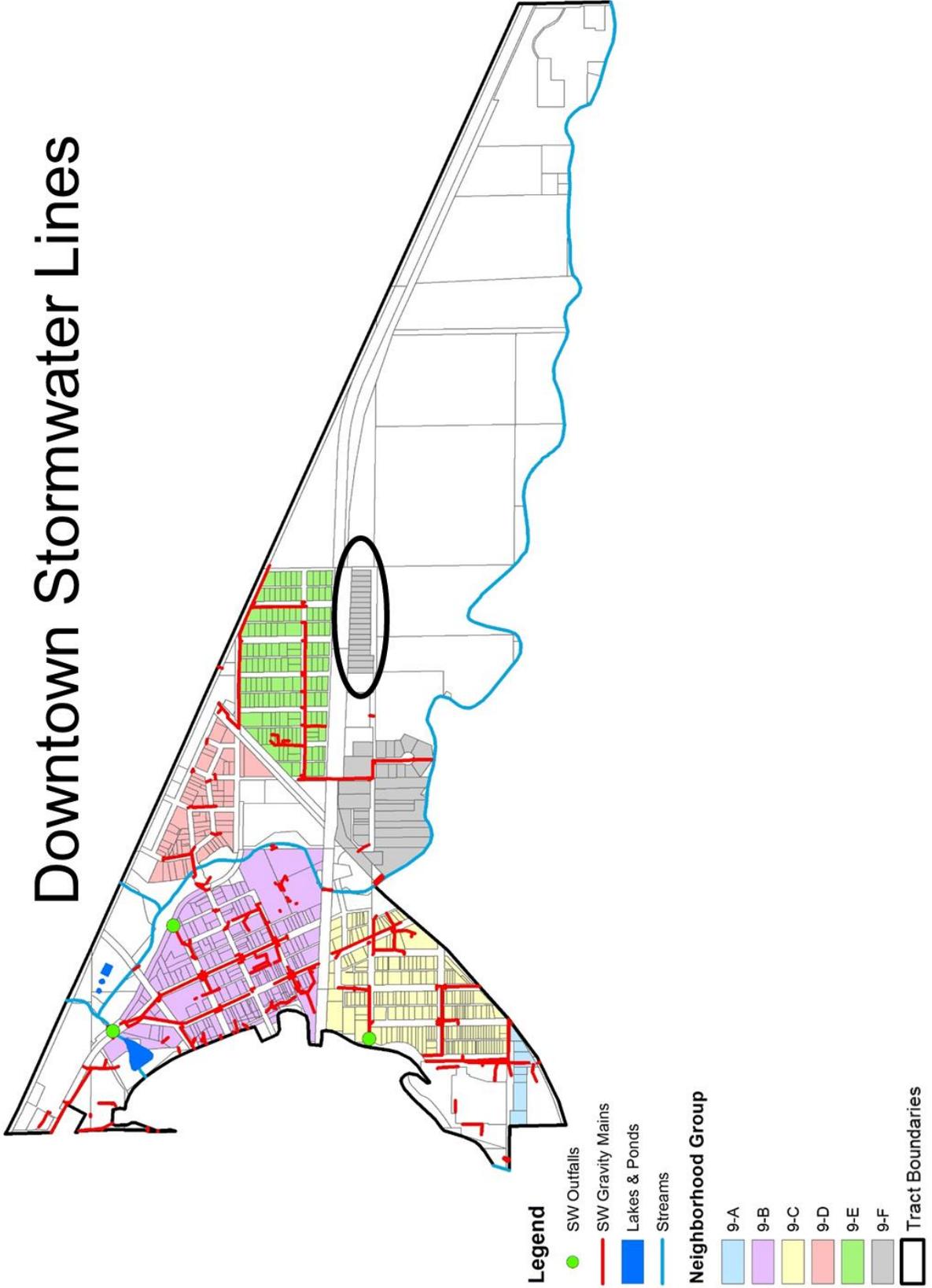
- 7-A
- 7-B
- 7-C
- 7-D
- 7-E
- 7-F
- 7-G

Tract Boundaries

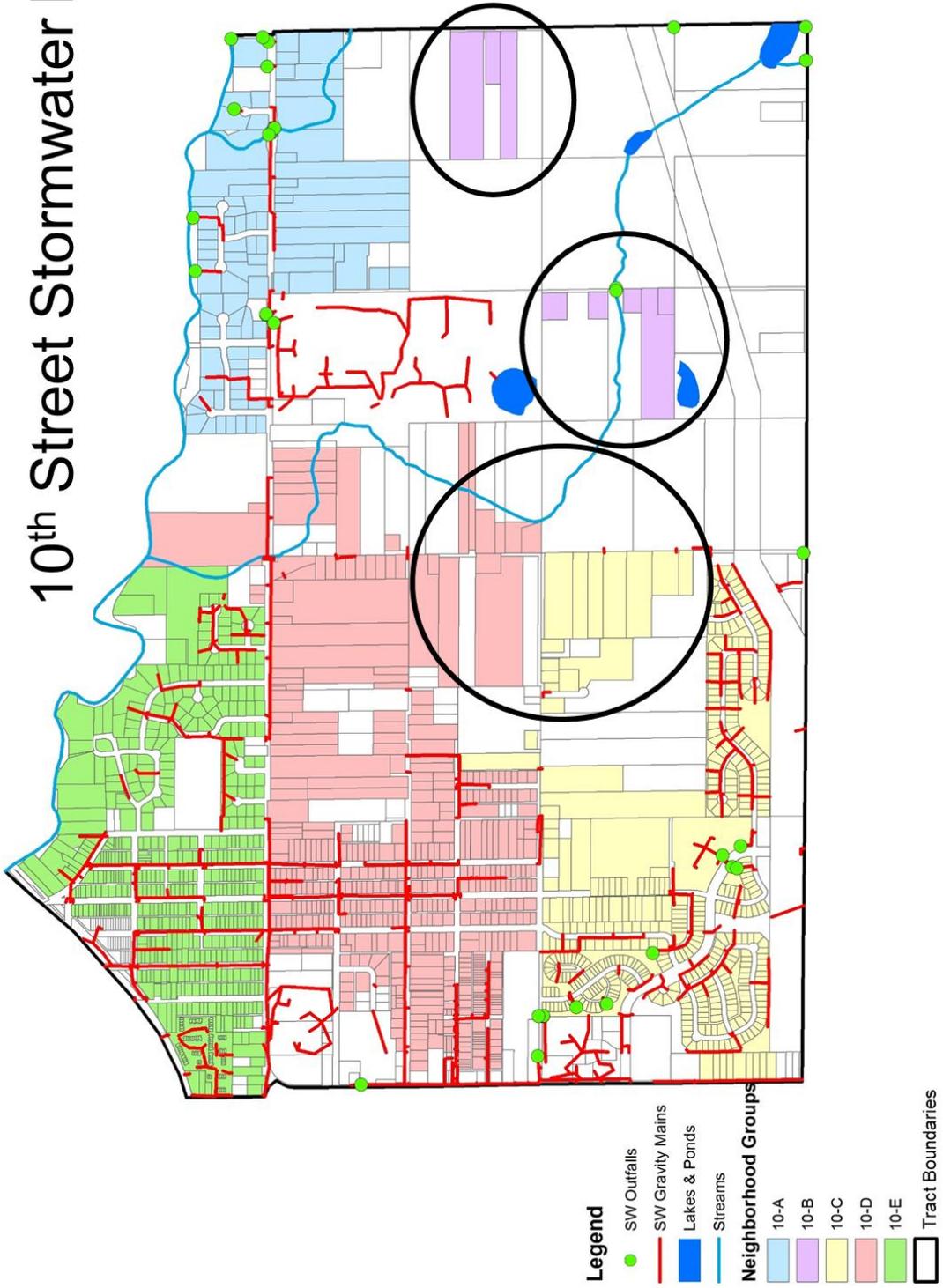
Lake George Stormwater Lines



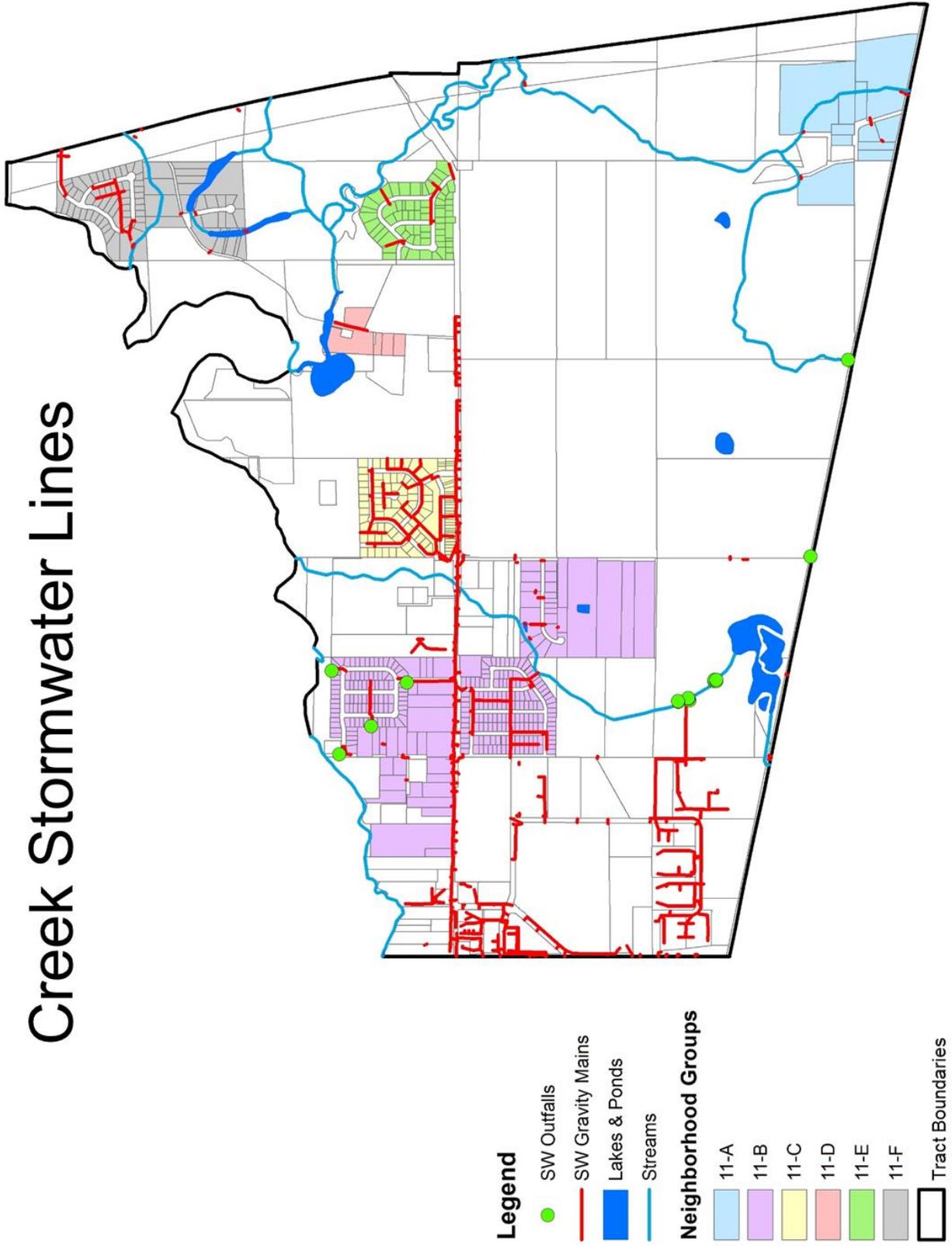
Downtown Stormwater Lines



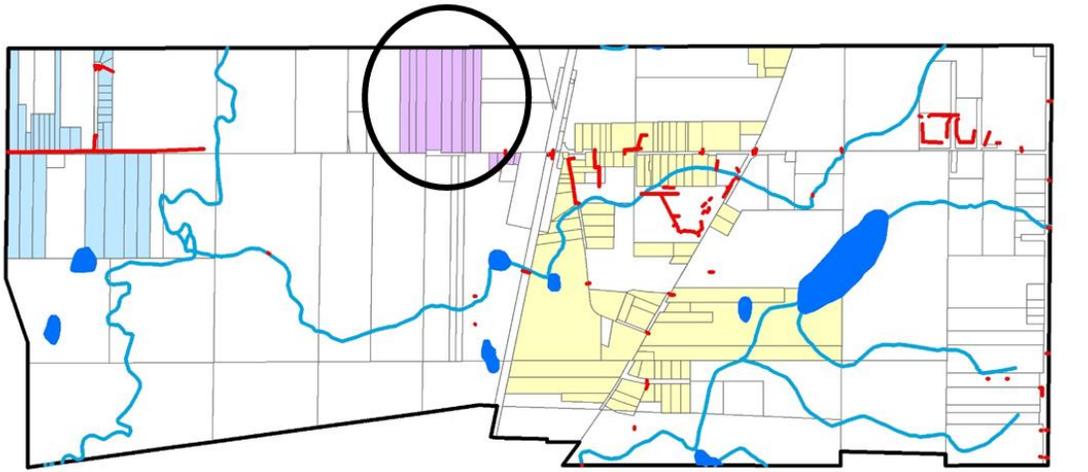
10th Street Stormwater Lines



Creek Stormwater Lines

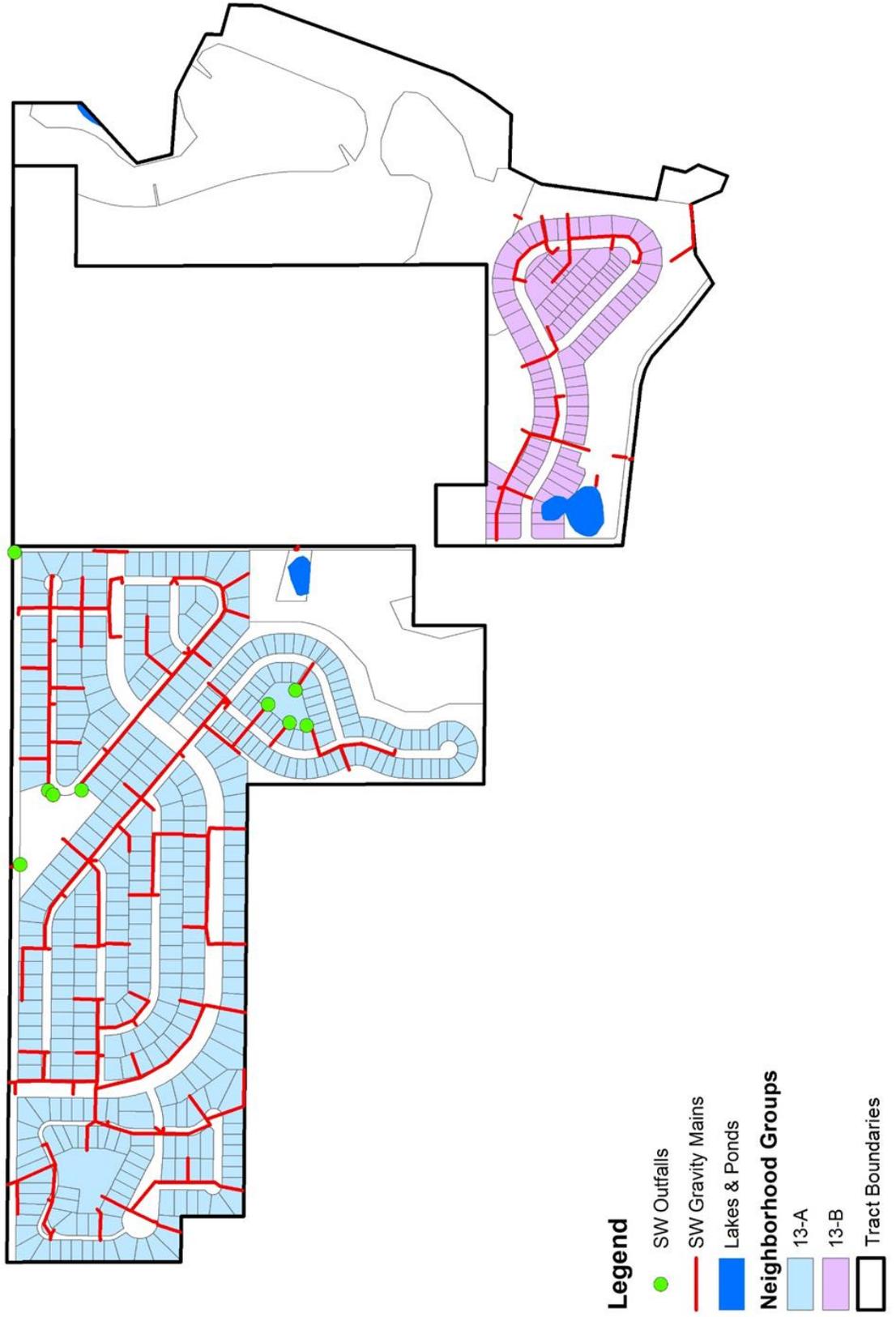


Ainsworth Stormwater Lines

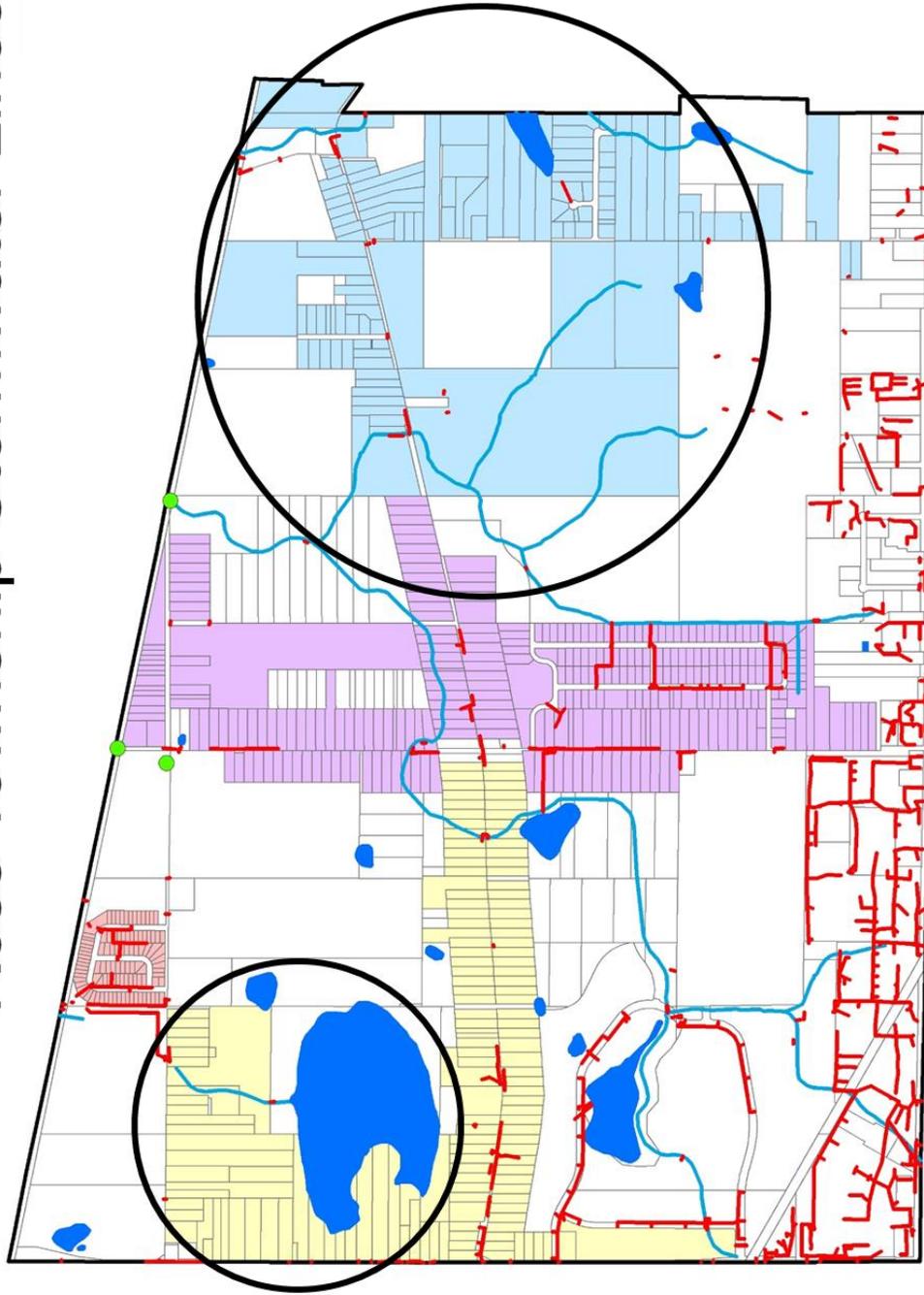


- Legend**
- SW Gravity Mains
 - Lakes & Ponds
 - Streams
- Neighborhood Groups**
- 12-A
 - 12-B
 - 12-C
- Tract Boundaries

Ridge Pointe Stormwater Lines

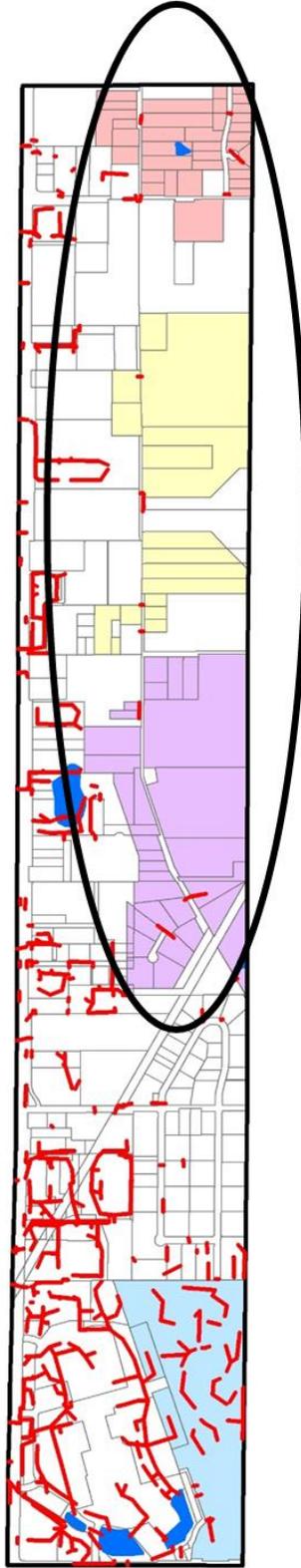


Ross Township Stormwater Lines



- Legend**
- SW Outfalls
 - SW Gravity Mains
 - Lakes & Ponds
 - Streams
- Neighborhood Group**
- 14-A
 - 14-B
 - 14-C
 - 14-D
- Tract Boundaries

US 30 Stormwater Lines



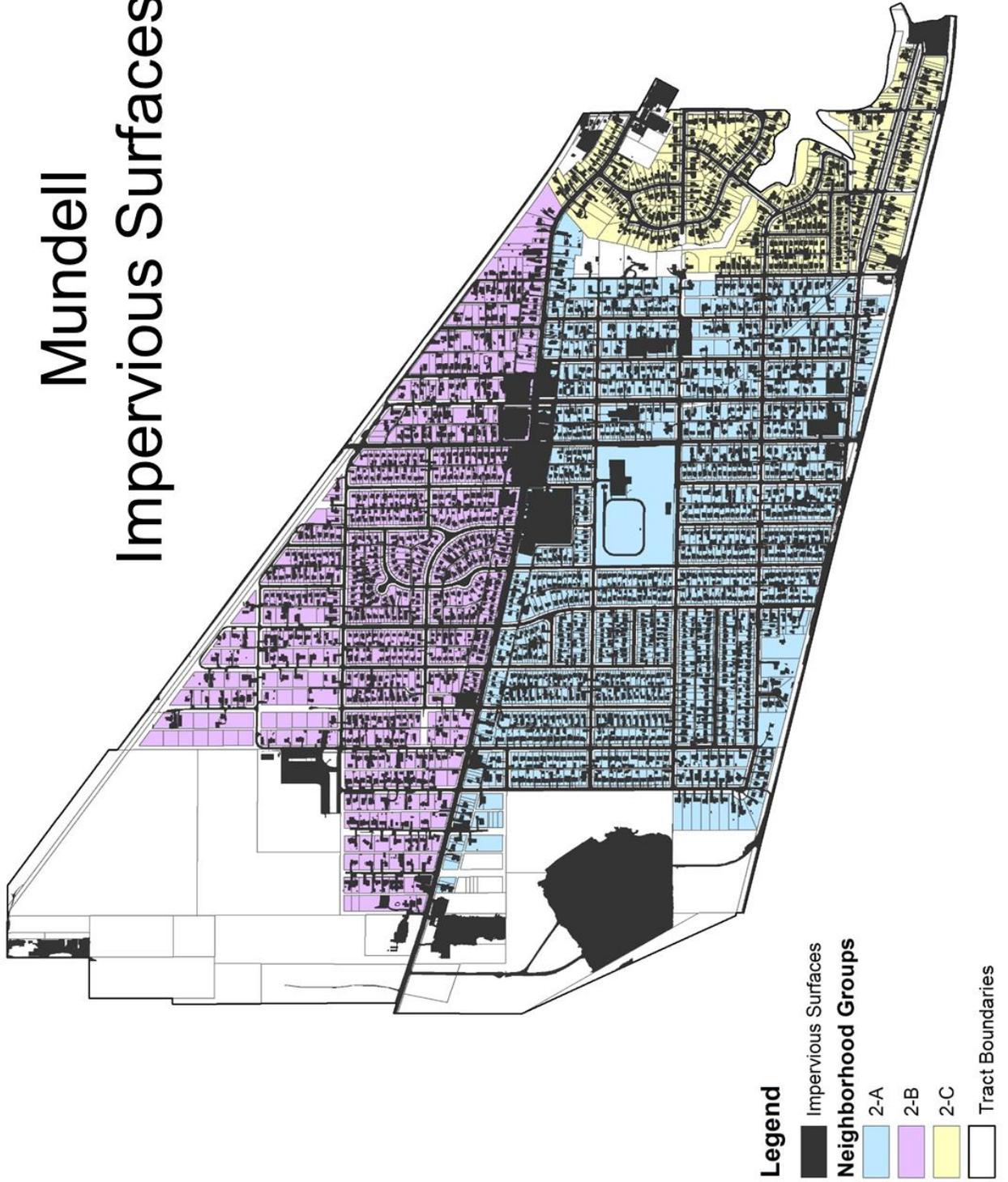
Legend

- SW Gravity Mains
- Lakes & Ponds
- Neighborhood Groups**
 - 15-A
 - 15-B
 - 15-C
 - 15-D
- Tract Boundaries

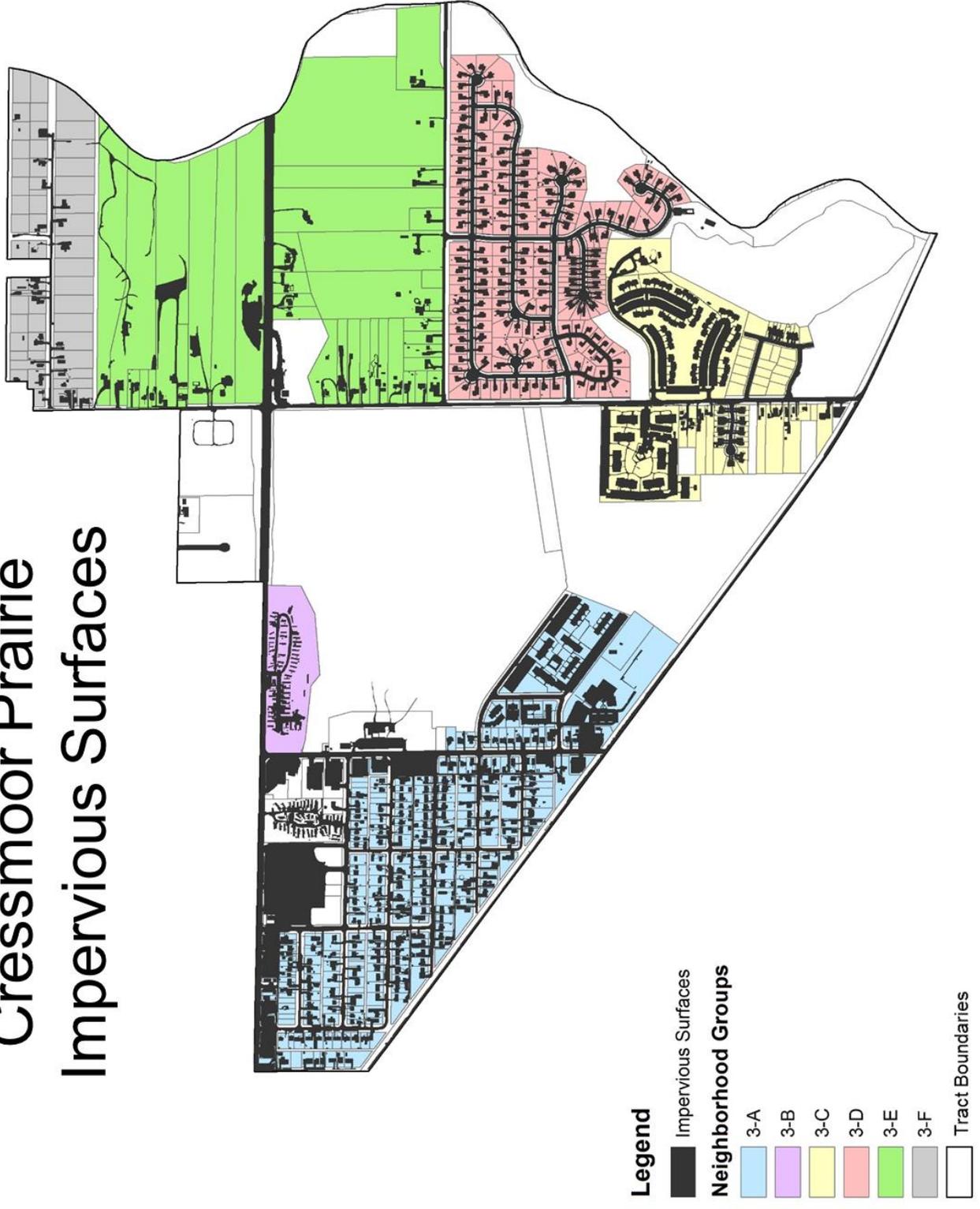
Appendix J: Impervious Surfaces



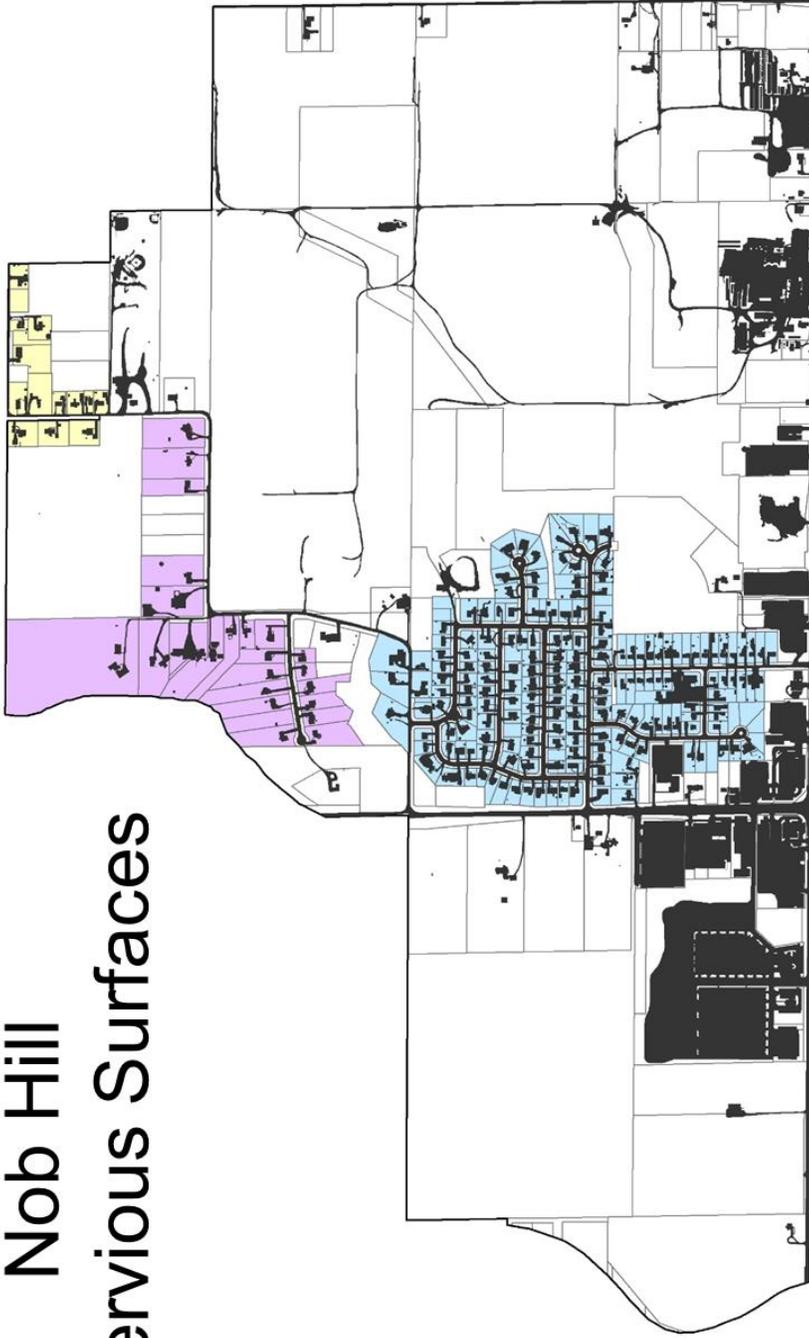
Mundell Impervious Surfaces



Cressmoor Prairie Impervious Surfaces



Nob Hill Impervious Surfaces



Legend

Impervious Surfaces

Neighborhood Groups

4-A

4-B

4-C

Tract Boundaries

Liberty Impervious Surfaces

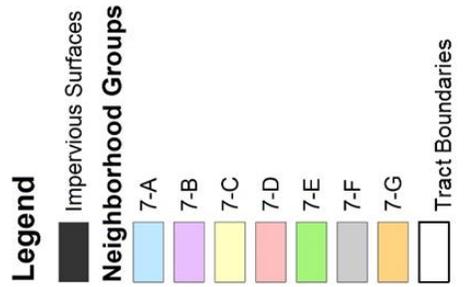
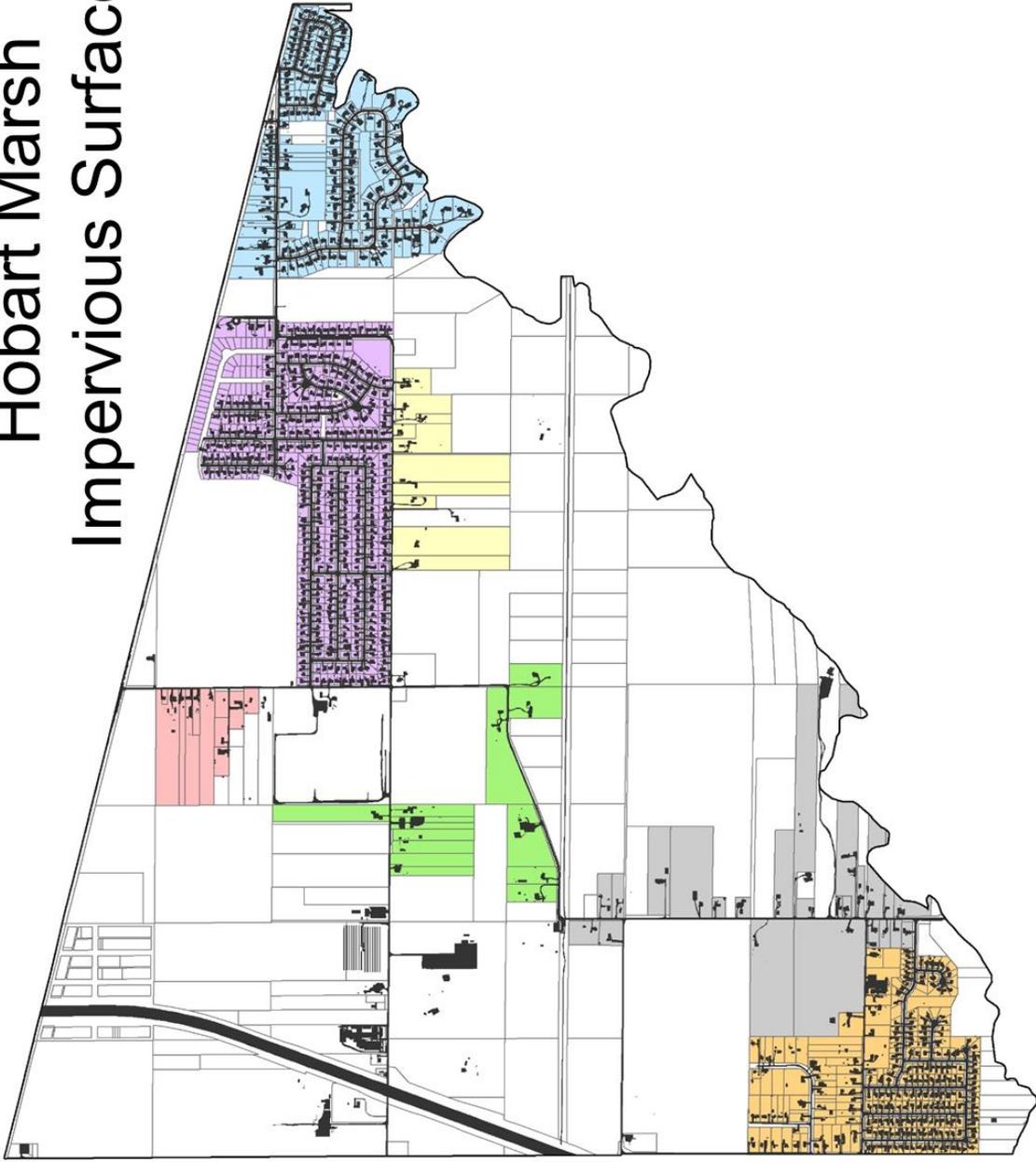


Hillcrest Impervious Surfaces

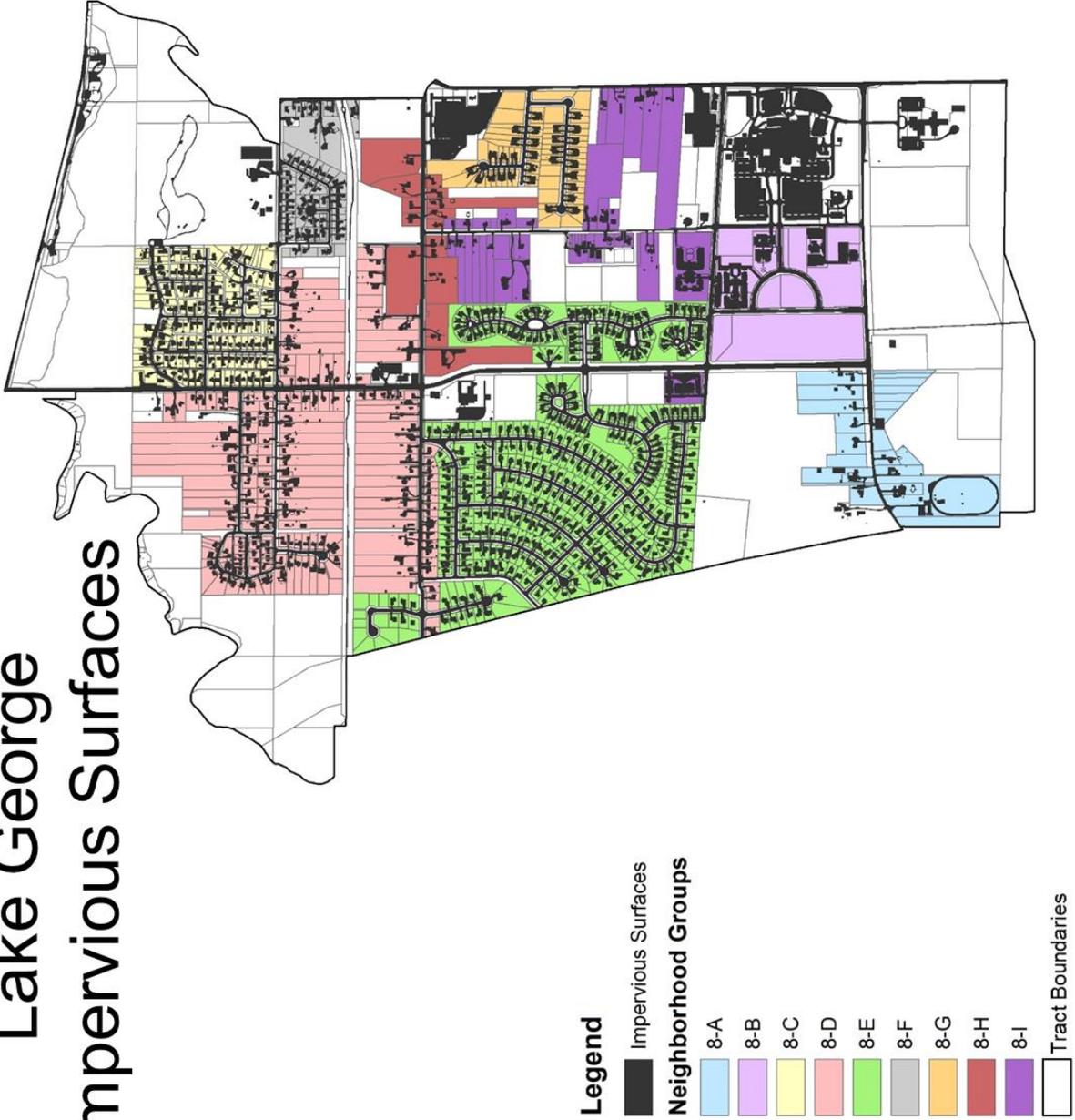


- Legend**
- Impervious Surfaces
 - Neighborhood Groups**
 - 6-A
 - 6-B
 - 6-C
 - 6-D
 - 6-E
 - Tract Boundaries

Hobart Marsh Impervious Surfaces



Lake George Impervious Surfaces



Downtown Impervious Surfaces



Legend

Impervious Surfaces

Neighborhood Group

9-A

9-B

9-C

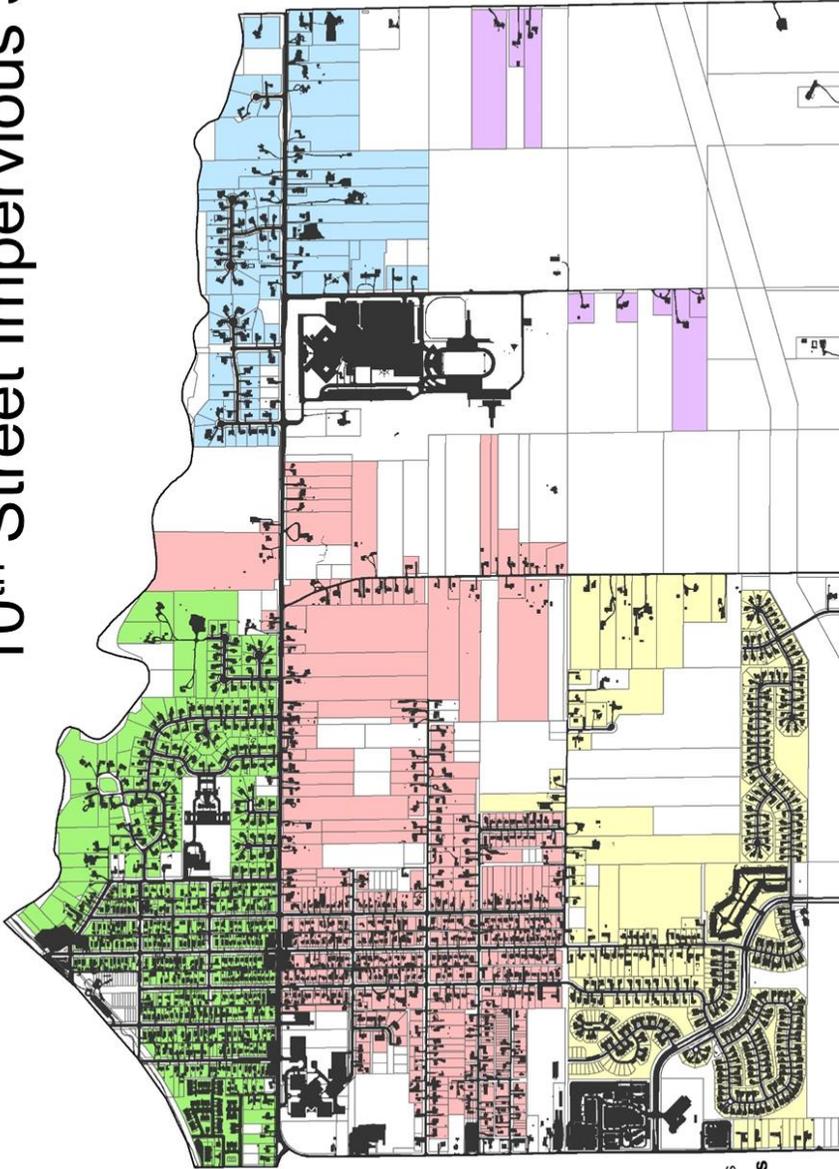
9-D

9-E

9-F

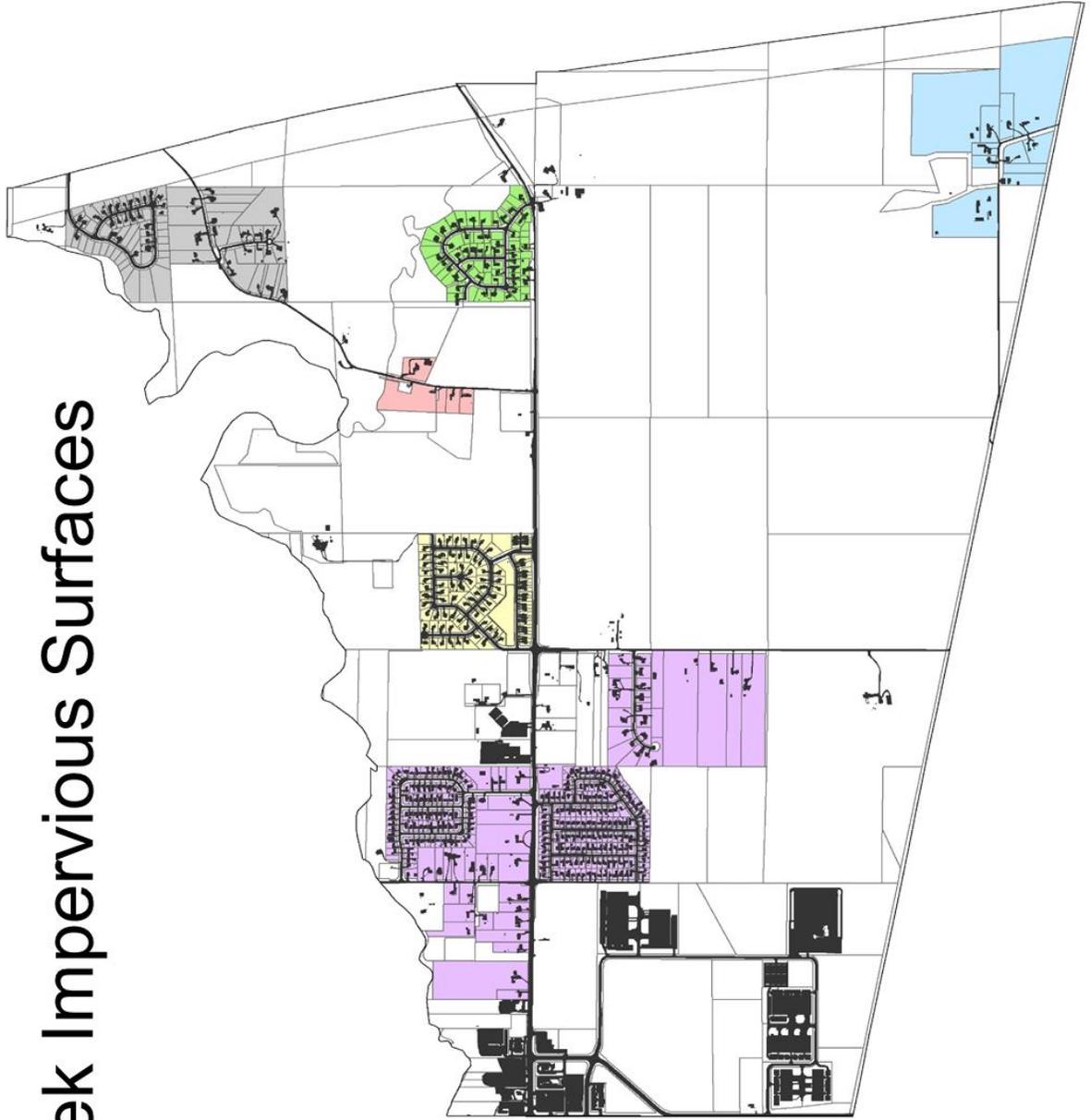
Tract Boundaries

10th Street Impervious Surfaces



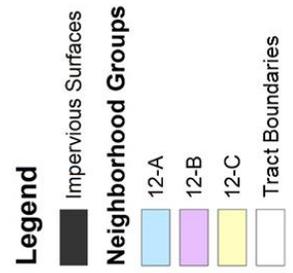
- Legend**
- Impervious Surfaces
 - Neighborhood Groups**
 - 10-A
 - 10-B
 - 10-C
 - 10-D
 - 10-E
 - Tract Boundaries

Creek Impervious Surfaces

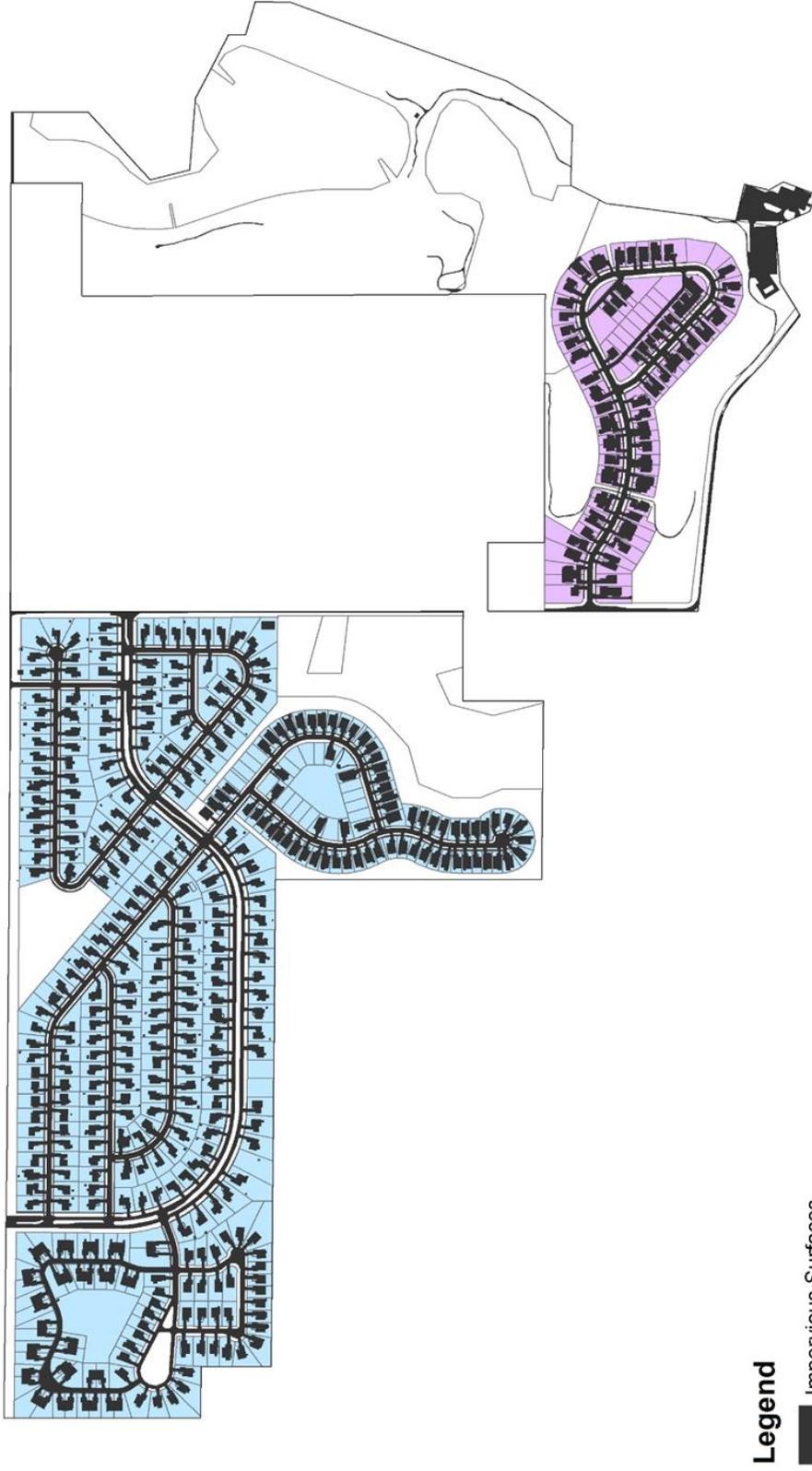


- Legend**
- Impervious Surfaces
 - Neighborhood Groups**
 - 11-A
 - 11-B
 - 11-C
 - 11-D
 - 11-E
 - 11-F
 - Tract Boundaries

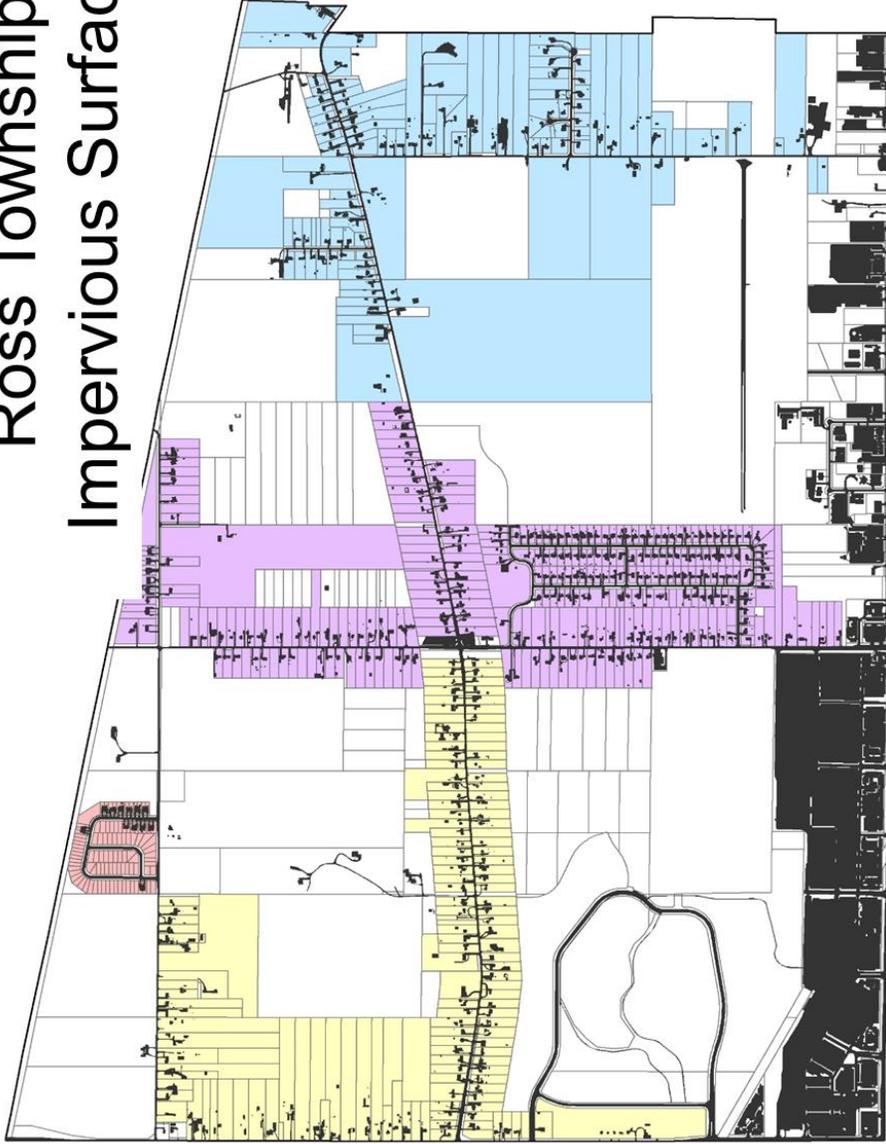
Ainsworth Impervious Surfaces



Ridge Pointe Impervious Surfaces



Ross Township Impervious Surfaces



- Legend**
- Impervious Surfaces
 - Neighborhood Group**
 - 14-A
 - 14-B
 - 14-C
 - 14-D
 - Tract Boundaries

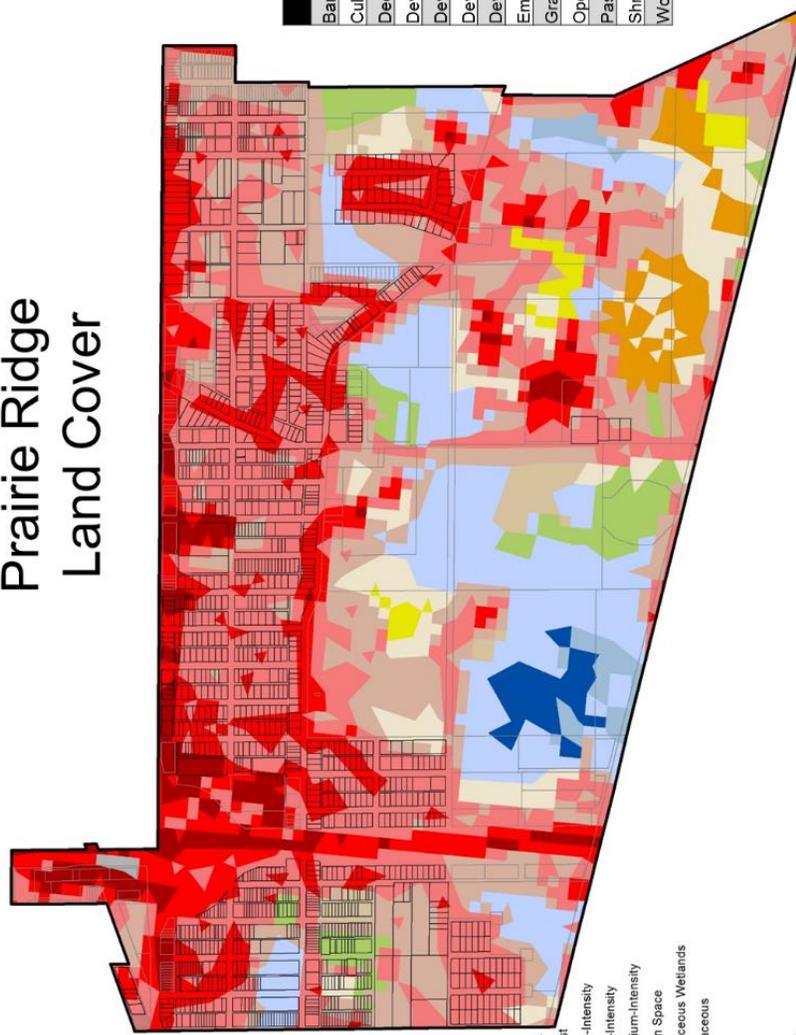
US 30 Impervious Surfaces



- Legend**
- Impervious Surfaces
 - Neighborhood Groups**
 - 15-A
 - 15-B
 - 15-C
 - 15-D
 - Tract Boundaries

Appendix K: Land Cover

Prairie Ridge Land Cover

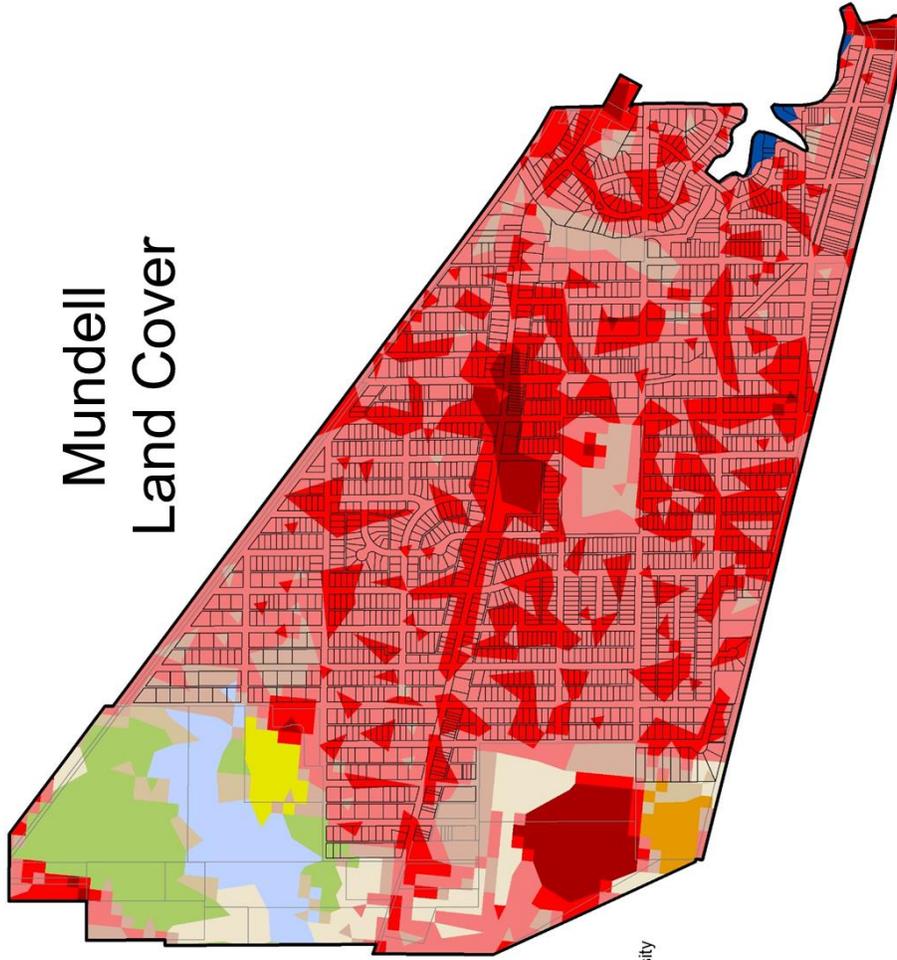


Legend

Land Cover Type
Barren Land
Cultivated Crops
Deciduous Forest
Developed, High-Intensity
Developed, Low-Intensity
Developed, Medium-Intensity
Developed, Open Space
Emergent/Herbaceous Wetlands
Grassland/Herbaceous
Open Water
Pasture/Hay
Shrub/Scrub
Woody Wetlands
Neighborhood Parcels
Parcels
Tract Boundaries

Land Cover Type	Percentage
Barren Land	0.12%
Cultivated Crops	2.49%
Deciduous Forest	3.47%
Developed, High-Intensity	4.14%
Developed, Low-Intensity	31.96%
Developed, Medium-Intensity	15.15%
Developed, Open Space	18.41%
Emergent/Herbaceous Wetlands	1.21%
Grassland/Herbaceous	5.99%
Open Water	1.32%
Pasture/Hay	1.13%
Shrub/Scrub	1.61%
Woody Wetlands	12.99%

Mundell Land Cover

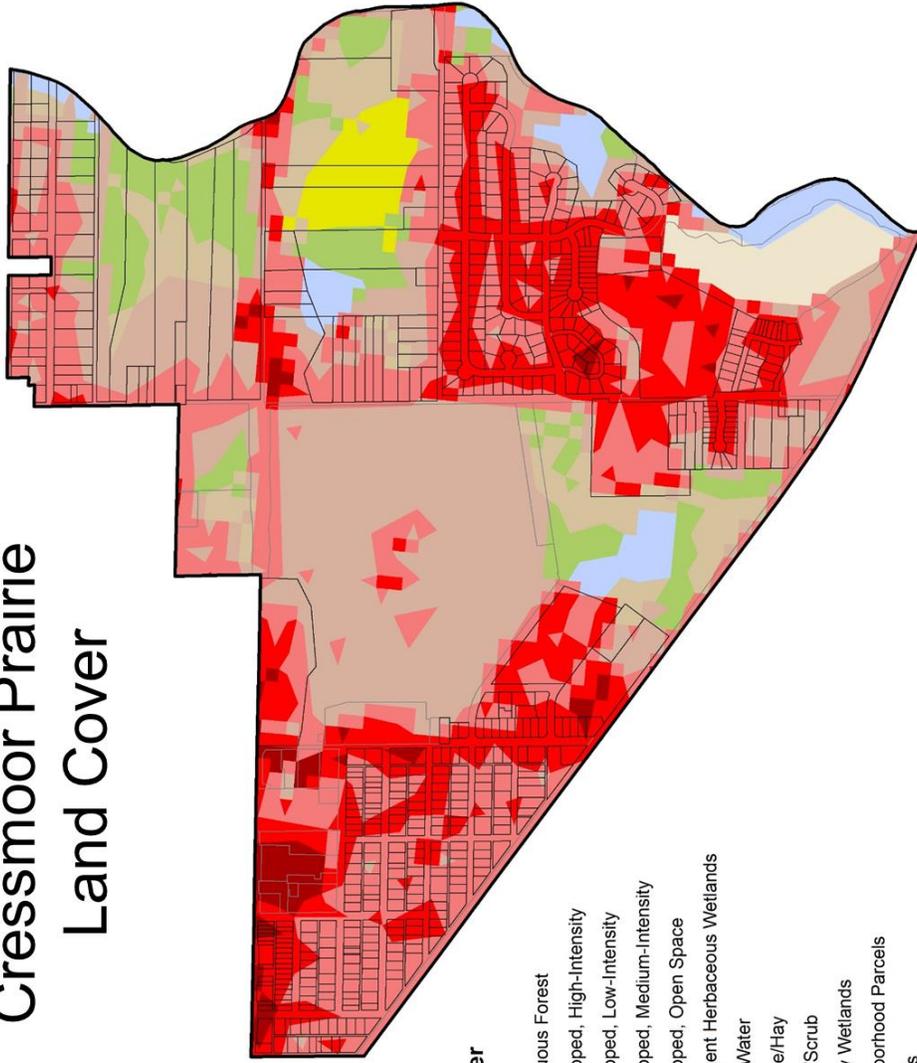


Legend

Land Cover Type	Color
Cultivated Crops	Yellow
Deciduous Forest	Green
Developed, High-Intensity	Dark Red
Developed, Low-Intensity	Light Red
Developed, Medium-Intensity	Red
Developed, Open Space	Light Brown
Grassland/Herbaceous	Light Green
Open Water	Blue
Pasture/Hay	Yellow-Green
Shrub/Scrub	Light Yellow
Woody Wetlands	Light Blue
Neighborhood Parcels	White with thin border
Parcels	White with thick border
Tract Boundaries	White with double border

Land Cover Type	Percentage
Cultivated Crops	0.82%
Deciduous Forest	5.67%
Developed, High-Intensity	4.12%
Developed, Low-Intensity	47.96%
Developed, Medium-Intensity	23.86%
Developed, Open Space	7.47%
Grassland/Herbaceous	3.76%
Open Water	0.29%
Pasture/Hay	0.94%
Shrub/Scrub	1.39%
Woody Wetlands	3.73%

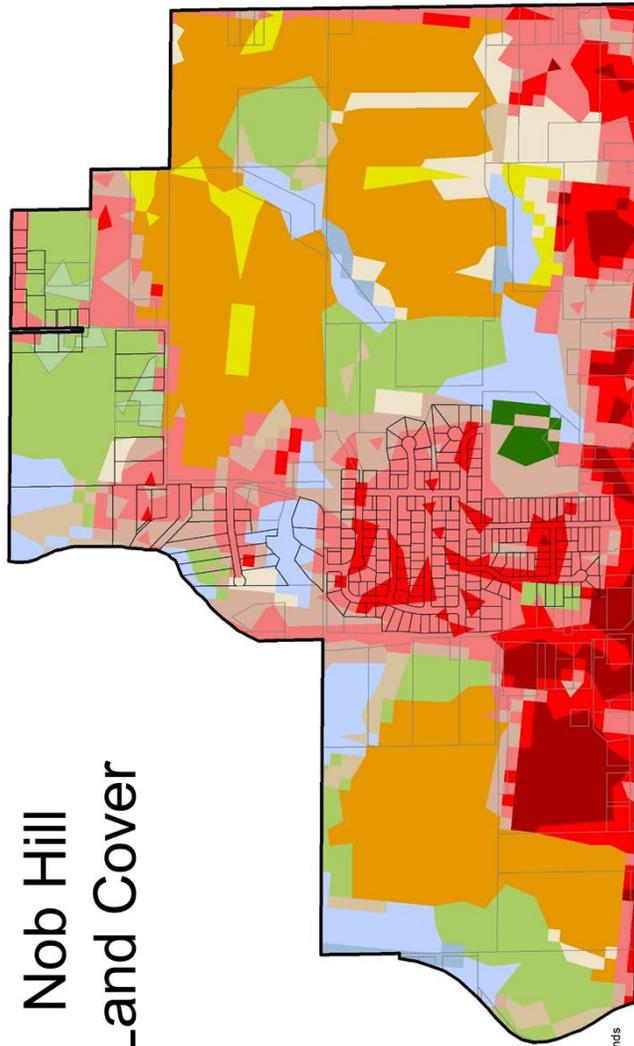
Cressmoor Prairie Land Cover



- Legend**
- Land Cover Type**
- Deciduous Forest
 - Developed, High-Intensity
 - Developed, Low-Intensity
 - Developed, Medium-Intensity
 - Developed, Open Space
 - Emergent Herbaceous Wetlands
 - Open Water
 - Pasture/Hay
 - Shrub/Scrub
 - Woody Wetlands
 - Neighborhood Parcels
 - Parcels
 - Tract Boundaries

Land Cover Type	Percentage
Deciduous Forest	7.35%
Developed, High-Intensity	2.20%
Developed, Low-Intensity	30.15%
Developed, Medium-Intensity	18.63%
Developed, Open Space	26.54%
Emergent Herbaceous Wetlands	0.02%
Open Water	2.65%
Pasture/Hay	2.16%
Shrub/Scrub	6.72%
Woody Wetlands	3.58%

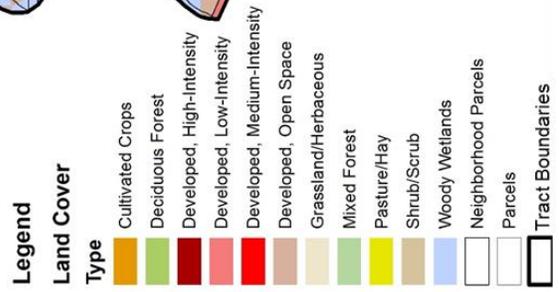
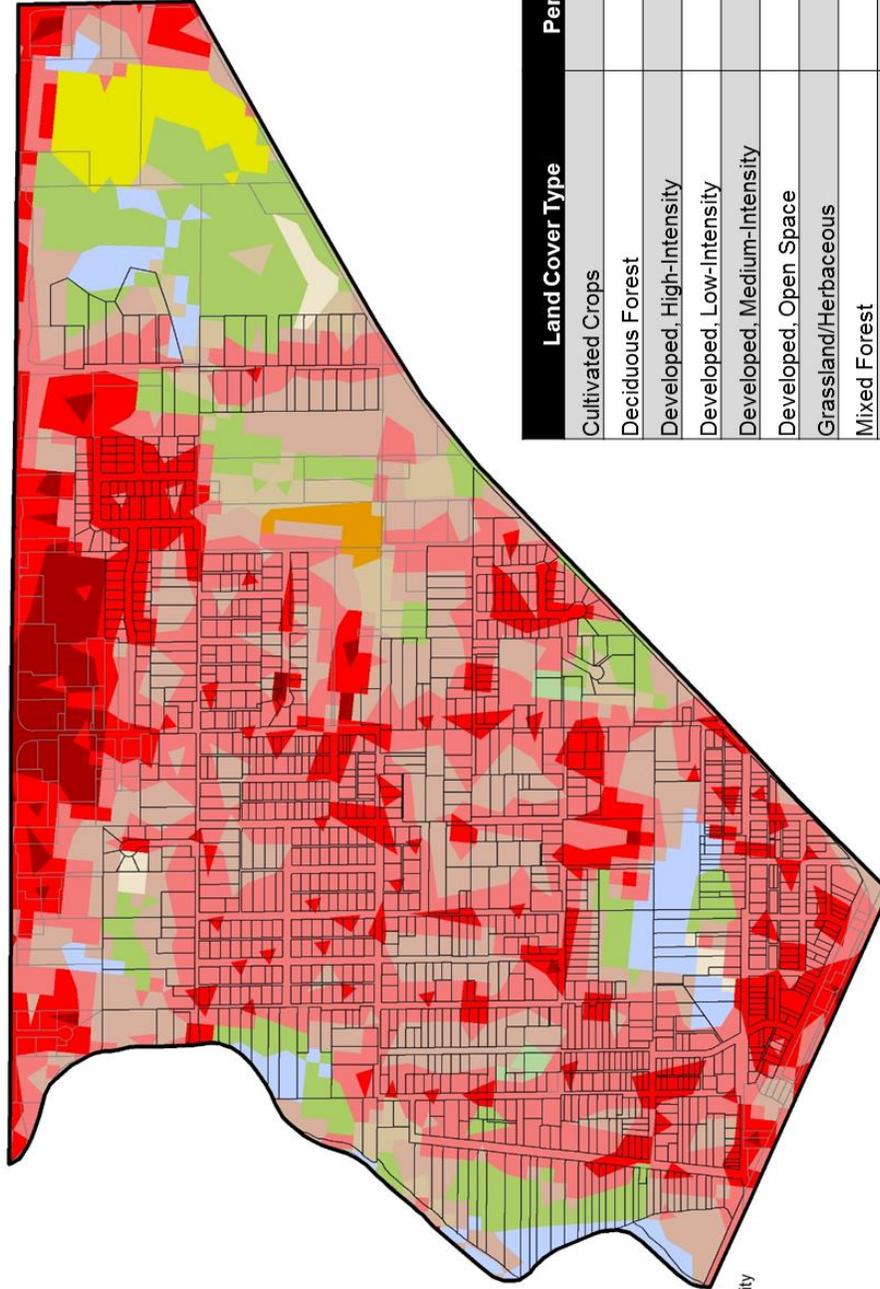
Nob Hill Land Cover



- Legend**
- Land Cover Type**
- Cultivated Crops
 - Deciduous Forest
 - Developed, High-Intensity
 - Developed, Low-Intensity
 - Developed, Medium-Intensity
 - Developed, Open Space
 - Emergent Herbaceous Wetlands
 - Evergreen Forest
 - Grassland/Herbaceous
 - Mixed Forest
 - Pasture/Hay
 - Shrub/Scrub
 - Woody Wetlands
 - Neighborhood Parcels
 - Parcels
 - Tract Boundaries

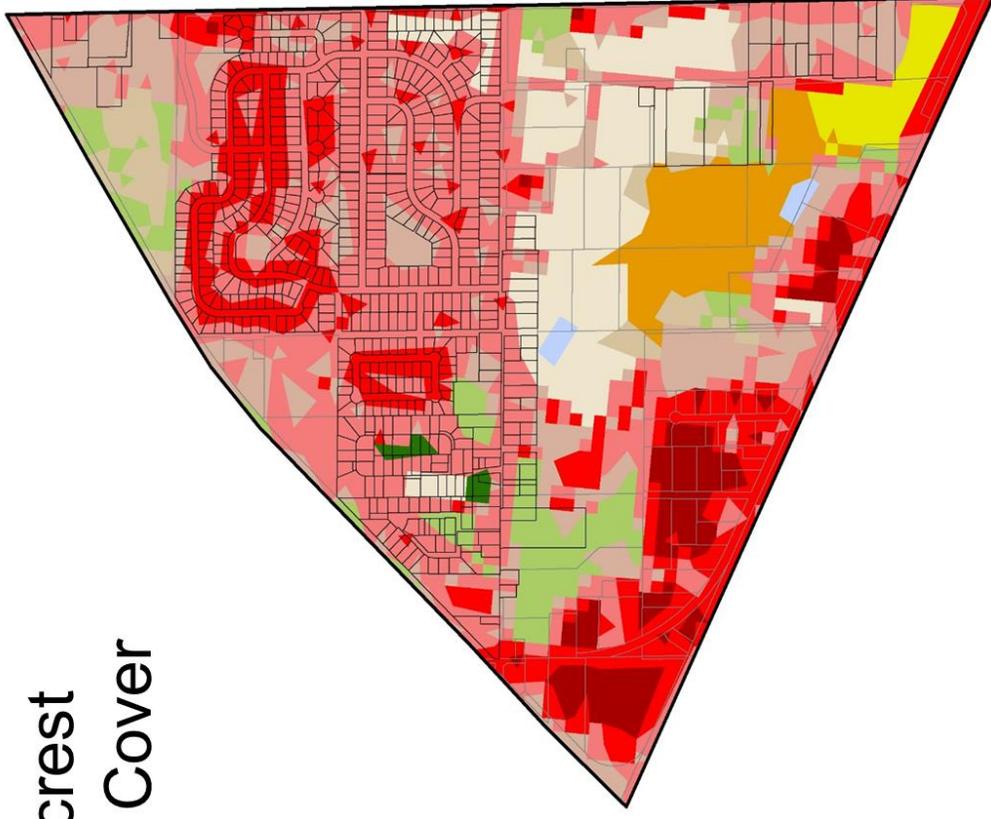
Land Cover Type	Percentage
Cultivated Crops	27.85%
Deciduous Forest	13.62%
Developed, High-Intensity	4.86%
Developed, Low-Intensity	17.45%
Developed, Medium-Intensity	8.40%
Developed, Open Space	8.52%
Emergent Herbaceous Wetlands	0.78%
Evergreen Forest	0.60%
Grassland/Herbaceous	4.17%
Mixed Forest	0.84%
Pasture/Hay	2.19%
Shrub/Scrub	2.55%
Woody Wetlands	8.17%

Liberty Land Cover



Land Cover Type	Percentage
Cultivated Crops	0.55%
Deciduous Forest	10.70%
Developed, High-Intensity	3.39%
Developed, Low-Intensity	38.91%
Developed, Medium-Intensity	15.55%
Developed, Open Space	19.93%
Grassland/Herbaceous	0.75%
Mixed Forest	0.33%
Pasture/Hay	2.57%
Shrub/Scrub	3.28%
Woody Wetlands	4.03%

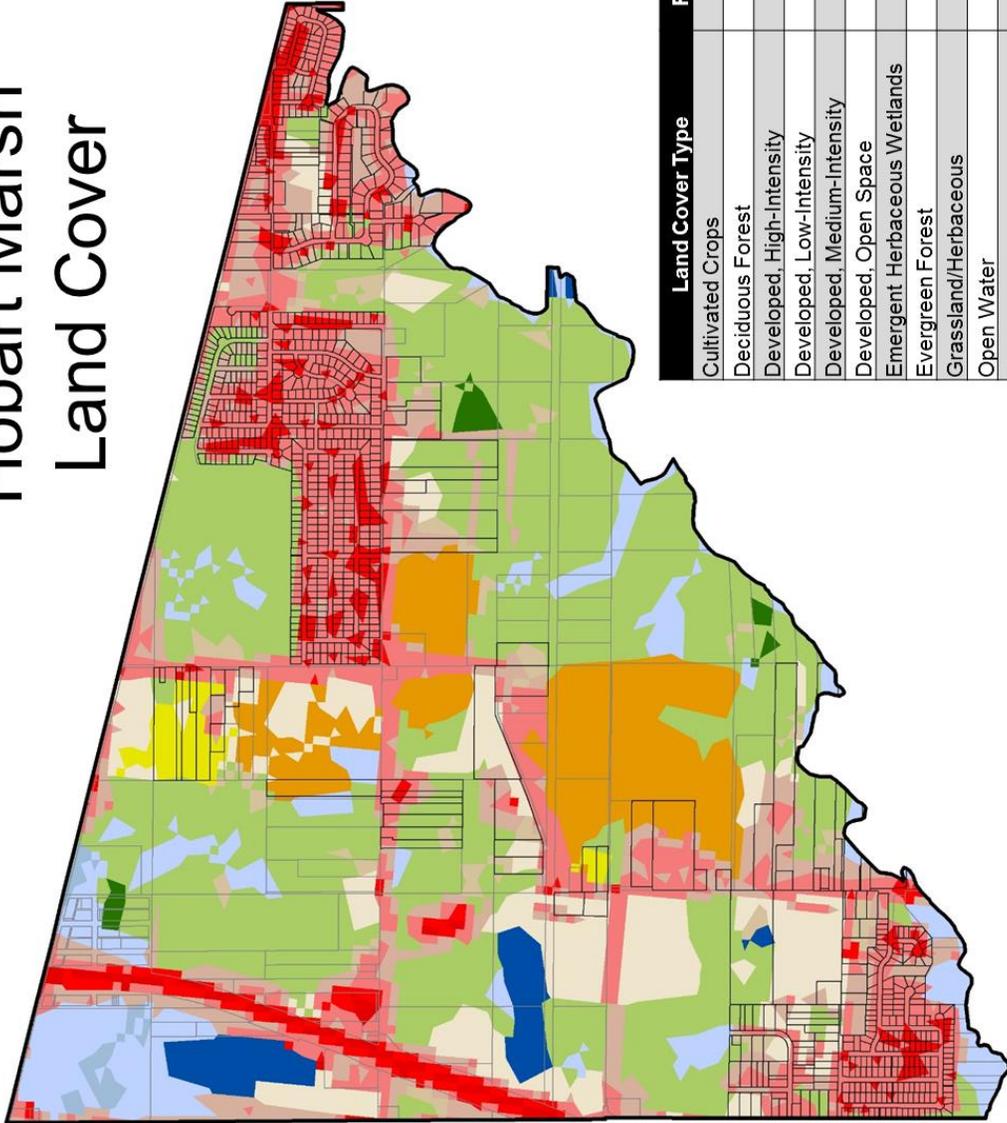
Hillcrest Land Cover



- Legend**
- Land Cover Type**
- Cultivated Crops
 - Deciduous Forest
 - Developed, High-Intensity
 - Developed, Low-Intensity
 - Developed, Medium-Intensity
 - Developed, Open Space
 - Evergreen Forest
 - Grassland/Herbaceous
 - Pasture/Hay
 - Shrub/Scrub
 - Woody Wetlands
 - Neighborhood Parcels
 - Parcels
 - Tract Boundaries

Land Cover Type	Percentage
Cultivated Crops	5.42%
Deciduous Forest	6.22%
Developed, High-Intensity	4.63%
Developed, Low-Intensity	35.11%
Developed, Medium-Intensity	16.58%
Developed, Open Space	14.78%
Evergreen Forest	0.36%
Grassland/Herbaceous	11.12%
Pasture/Hay	2.03%
Shrub/Scrub	3.30%
Woody Wetlands	0.44%

Hobart Marsh Land Cover



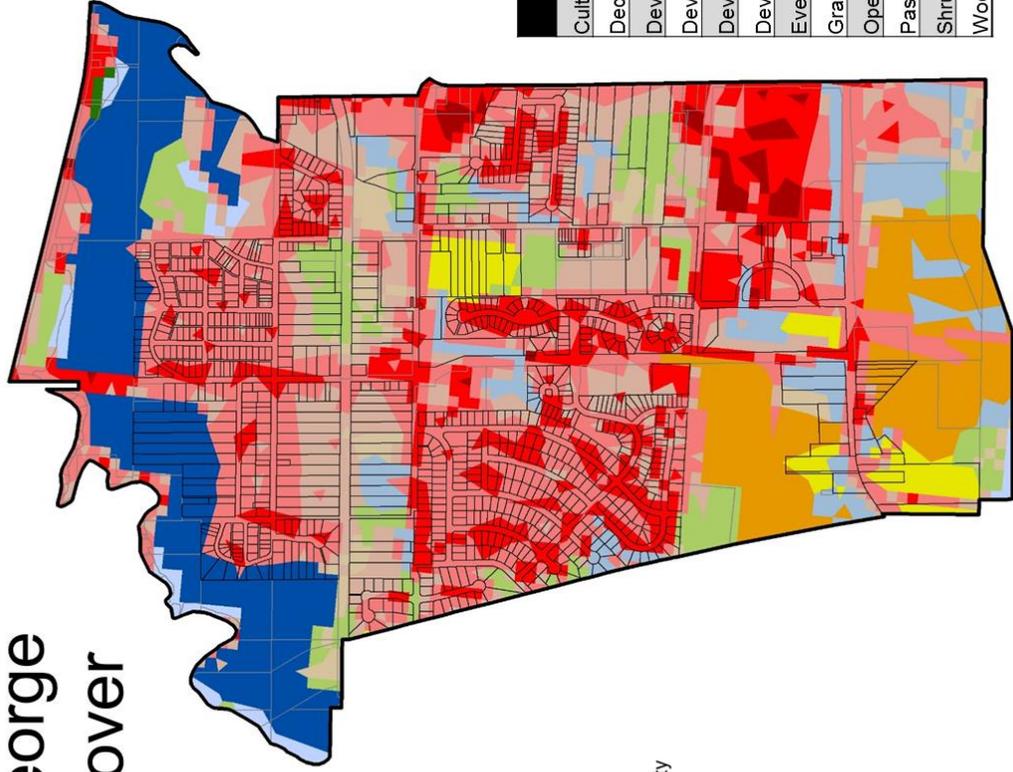
Legend

Land Cover Type

- Cultivated Crops
- Deciduous Forest
- Developed, High-Intensity
- Developed, Low-Intensity
- Developed, Medium-Intensity
- Developed, Open Space
- Emergent Herbaceous Wetlands
- Evergreen Forest
- Grassland/Herbaceous
- Open Water
- Pasture/Hay
- Shrub/Scrub
- Woody Wetlands
- Neighborhood Parcels
- Parcels
- Tract Boundaries

Land Cover Type	Percentage
Cultivated Crops	8.31%
Deciduous Forest	33.36%
Developed, High-Intensity	0.86%
Developed, Low-Intensity	18.78%
Developed, Medium-Intensity	4.32%
Developed, Open Space	10.17%
Emergent Herbaceous Wetlands	0.57%
Evergreen Forest	0.51%
Grassland/Herbaceous	9.92%
Open Water	2.12%
Pasture/Hay	1.12%
Shrub/Scrub	2.23%
Woody Wetlands	7.73%

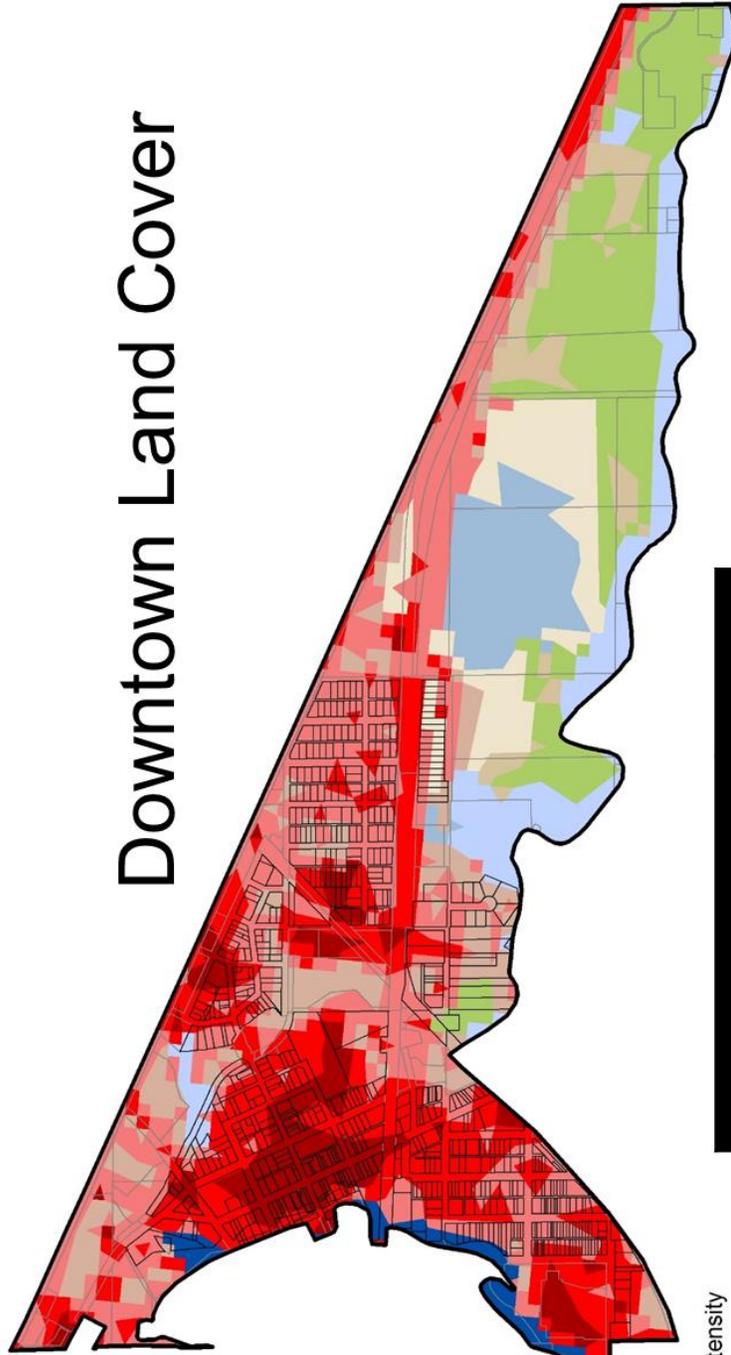
Lake George Land Cover



- Legend**
- Land Cover Type**
- Cultivated Crops
 - Deciduous Forest
 - Developed, High-Intensity
 - Developed, Low-Intensity
 - Developed, Medium-Intensity
 - Developed, Open Space
 - Evergreen Forest
 - Grassland/Herbaceous
 - Open Water
 - Pasture/Hay
 - Shrub/Scrub
 - Woody Wetlands
 - Neighborhood Parcels
 - Parcels
 - Tract Boundaries

Land Cover Type	Percentage
Cultivated Crops	8.19%
Deciduous Forest	6.60%
Developed, High-Intensity	1.29%
Developed, Low-Intensity	30.89%
Developed, Medium-Intensity	13.60%
Developed, Open Space	14.08%
Evergreen Forest	0.11%
Grassland/Herbaceous	6.13%
Open Water	12.36%
Pasture/Hay	2.54%
Shrub/Scrub	2.73%
Woody Wetlands	1.47%

Downtown Land Cover



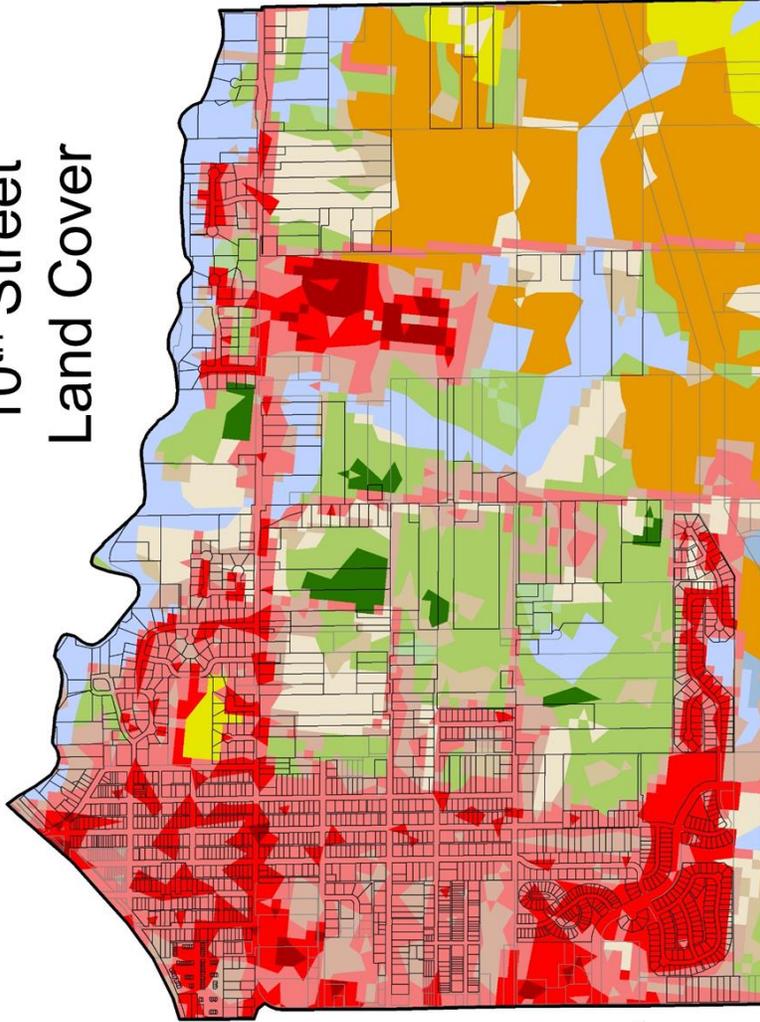
Legend

Land Cover Type

- Deciduous Forest
- Developed, High-Intensity
- Developed, Low-Intensity
- Developed, Medium-Intensity
- Developed, Open Space
- Emergent Herbaceous Wetlands
- Grassland/Herbaceous
- Open Water
- Shrub/Scrub
- Woody Wetlands
- Neighborhood Parcels
- Parcels
- Tract Boundaries

Land Cover Type	Percentage
Deciduous Forest	13.54%
Developed, High-Intensity	6.73%
Developed, Low-Intensity	26.19%
Developed, Medium-Intensity	19.50%
Developed, Open Space	9.37%
Emergent Herbaceous Wetlands	5.64%
Grassland/Herbaceous	6.27%
Open Water	1.70%
Shrub/Scrub	3.29%
Woody Wetlands	7.76%

10th Street Land Cover



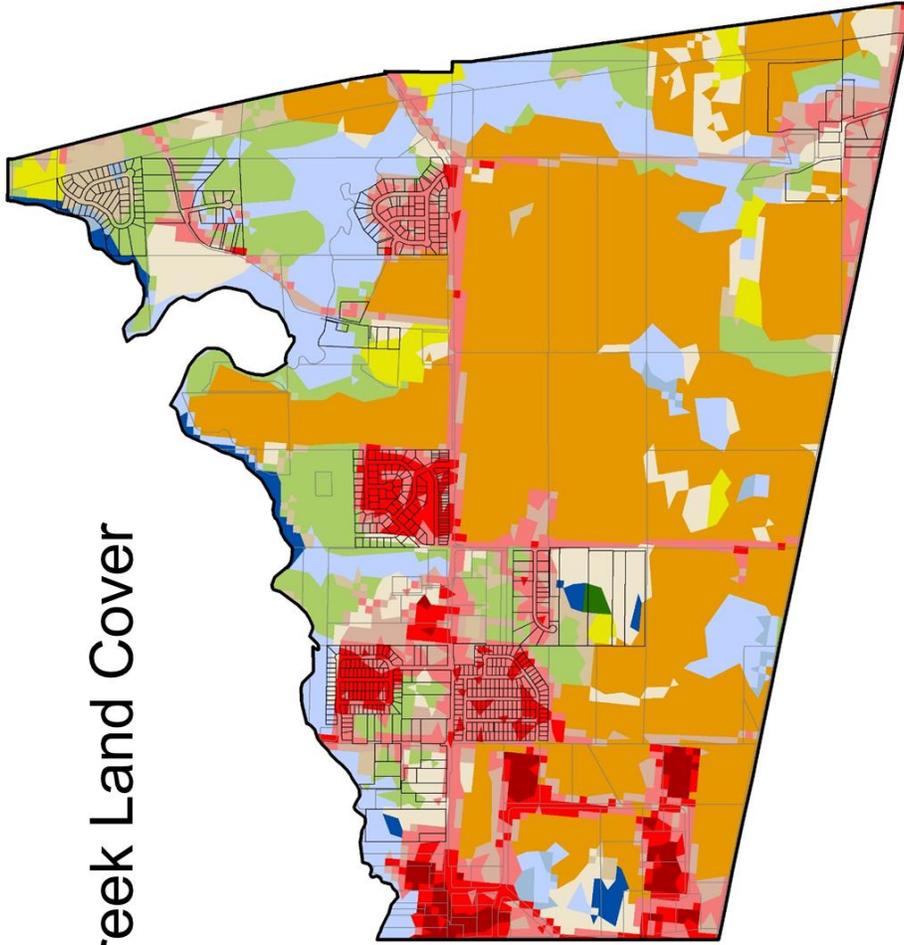
Legend

Land Cover Type

Yellow	Cultivated Crops
Orange	Deciduous Forest
Red	Developed, High-Intensity
Pink	Developed, Low-Intensity
Light Blue	Developed, Medium-Intensity
Light Green	Developed, Open Space
Green	Emergent Herbaceous Wetlands
Light Green	Evergreen Forest
Light Green	Grassland/Herbaceous
Light Green	Mixed Forest
Light Green	Pasture/Hay
Light Green	Shrub/Scrub
Light Blue	Woody Wetlands
White	Neighborhood Parcels
White	Parcels
Black outline	Tract Boundaries

Land Cover Type	Percentage
Cultivated Crops	15.54%
Deciduous Forest	13.42%
Developed, High-Intensity	1.24%
Developed, Low-Intensity	23.15%
Developed, Medium-Intensity	11.00%
Developed, Open Space	9.94%
Emergent Herbaceous Wetlands	0.22%
Evergreen Forest	1.19%
Grassland/Herbaceous	7.94%
Mixed Forest	0.64%
Pasture/Hay	2.14%
Shrub/Scrub	3.14%
Woody Wetlands	10.45%

Creek Land Cover

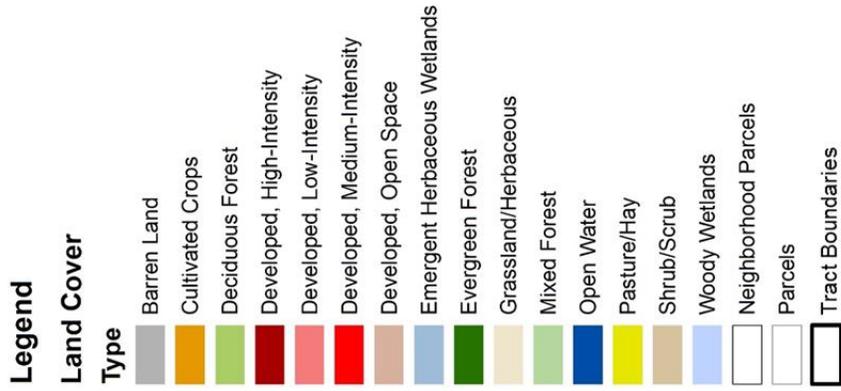


Legend

Land Cover Type
Cultivated Crops
Deciduous Forest
Developed, High-Intensity
Developed, Low-Intensity
Developed, Medium-Intensity
Developed, Open Space
Emergent Herbaceous Wetlands
Evergreen Forest
Grassland/Herbaceous
Mixed Forest
Open Water
Pasture/Hay
Shrub/Scrub
Woody Wetlands
Neighborhood Parcels
Parcels
Tract Boundaries

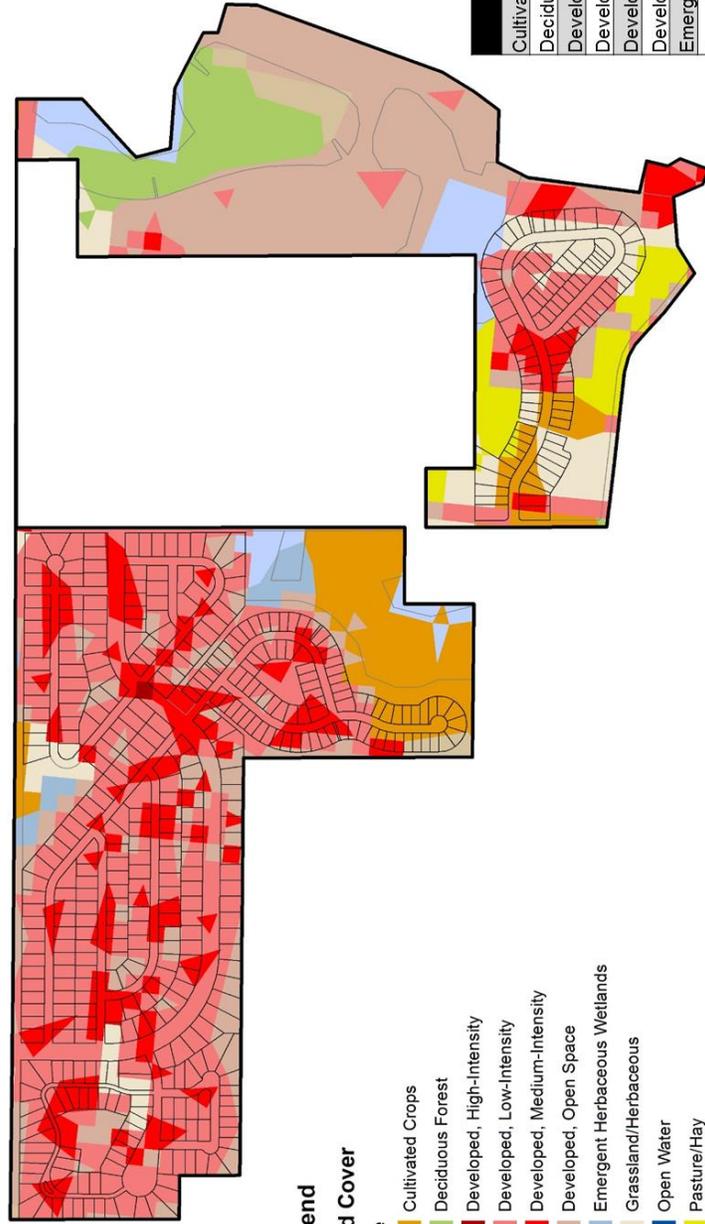
Land Cover Type	Percentage
Cultivated Crops	40.04%
Deciduous Forest	10.84%
Developed, High-Intensity	1.55%
Developed, Low-Intensity	10.30%
Developed, Medium-Intensity	4.73%
Developed, Open Space	5.70%
Emergent Herbaceous Wetlands	0.75%
Evergreen Forest	0.12%
Grassland/Herbaceous	7.39%
Mixed Forest	0.04%
Open Water	1.05%
Pasture/Hay	2.12%
Shrub/Scrub	2.70%
Woody Wetlands	12.64%

Ainsworth Land Cover



Land Cover Type	Percentage
Barren Land	3.62%
Cultivated Crops	21.57%
Deciduous Forest	8.29%
Developed, High-Intensity	0.11%
Developed, Low-Intensity	7.22%
Developed, Medium-Intensity	1.53%
Developed, Open Space	5.02%
Emergent Herbaceous Wetlands	0.35%
Evergreen Forest	0.34%
Grassland/Herbaceous	14.95%
Mixed Forest	0.36%
Open Water	0.53%
Pasture/Hay	19.47%
Shrub/Scrub	4.63%
Woody Wetlands	12.01%

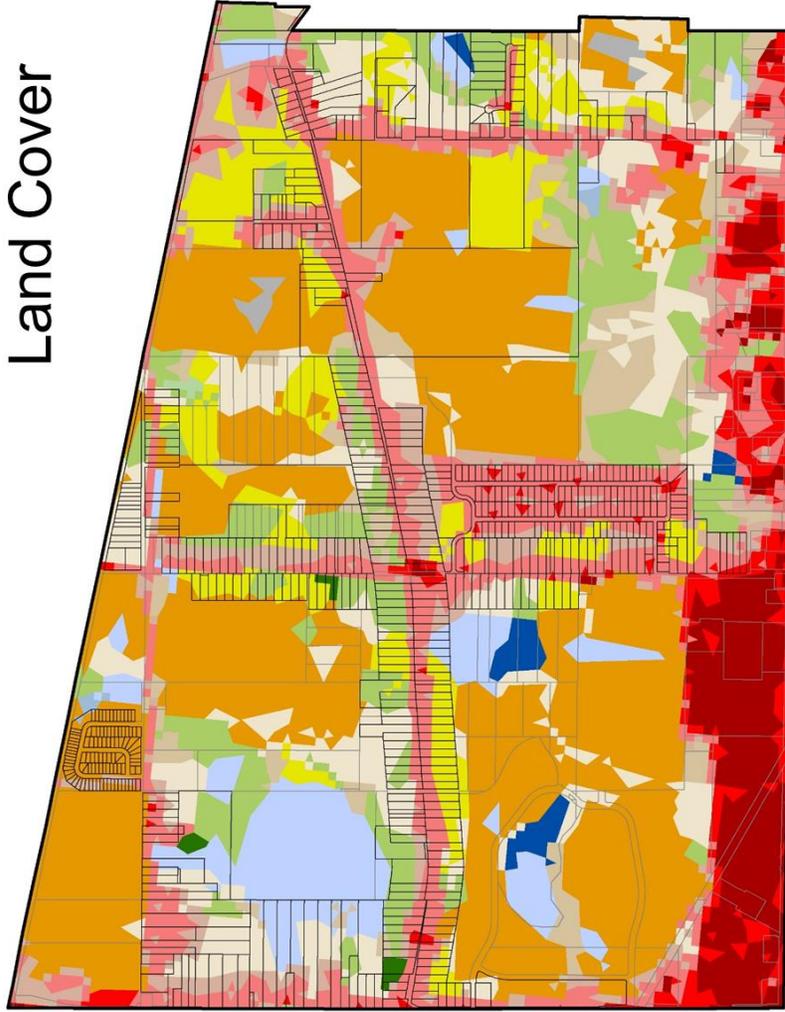
Ridge Pointe Land Cover



- Legend**
- Land Cover Type**
- Cultivated Crops
 - Deciduous Forest
 - Developed, High-Intensity
 - Developed, Low-Intensity
 - Developed, Medium-Intensity
 - Developed, Open Space
 - Emergent Herbaceous Wetlands
 - Grassland/Herbaceous
 - Open Water
 - Pasture/Hay
 - Shrub/Scrub
 - Woody Wetlands
 - Neighborhood Parcels
 - Parcels
 - . Tract Boundaries

Land Cover Type	Percentage
Cultivated Crops	8.33%
Deciduous Forest	4.80%
Developed, High-Intensity	0.08%
Developed, Low-Intensity	36.23%
Developed, Medium-Intensity	11.35%
Developed, Open Space	22.75%
Emergent Herbaceous Wetlands	1.22%
Grassland/Herbaceous	6.52%
Open Water	0.00%
Pasture/Hay	3.18%
Shrub/Scrub	1.51%
Woody Wetlands	4.01%

Ross Township Land Cover



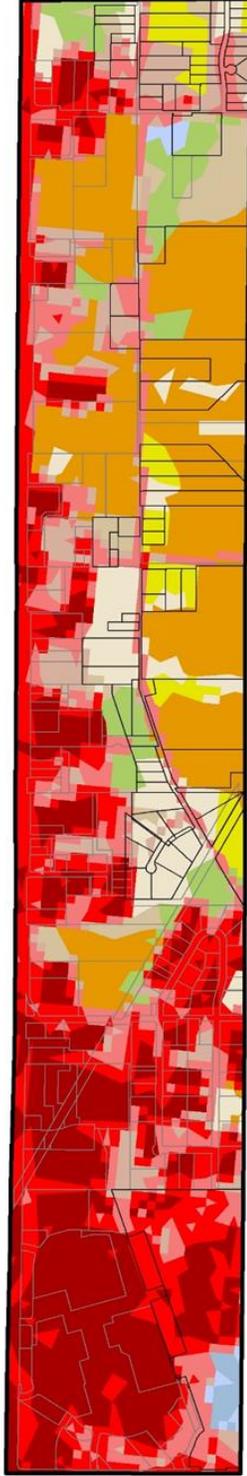
Legend

Land Cover Type

Barren Land	Neighborhood Parcels
Cultivated Crops	Parcels
Deciduous Forest	Tract Boundaries
Developed, High-Intensity	
Developed, Low-Intensity	
Developed, Medium-Intensity	
Developed, Open Space	
Emergent Herbaceous Wetlands	
Evergreen Forest	
Grassland/Herbaceous	
Mixed Forest	
Open Water	
Pasture/Hay	
Shrub/Scrub	
Woody Wetlands	

Land Cover Type	Percentage
Barren Land	0.36%
Cultivated Crops	30.64%
Deciduous Forest	8.99%
Developed, High-Intensity	5.52%
Developed, Low-Intensity	13.71%
Developed, Medium-Intensity	3.90%
Developed, Open Space	6.70%
Emergent Herbaceous Wetlands	0.14%
Evergreen Forest	0.20%
Grassland/Herbaceous	11.49%
Mixed Forest	0.07%
Open Water	0.79%
Pasture/Hay	7.49%
Shrub/Scrub	4.18%
Woody Wetlands	5.83%

US 30 Land Cover

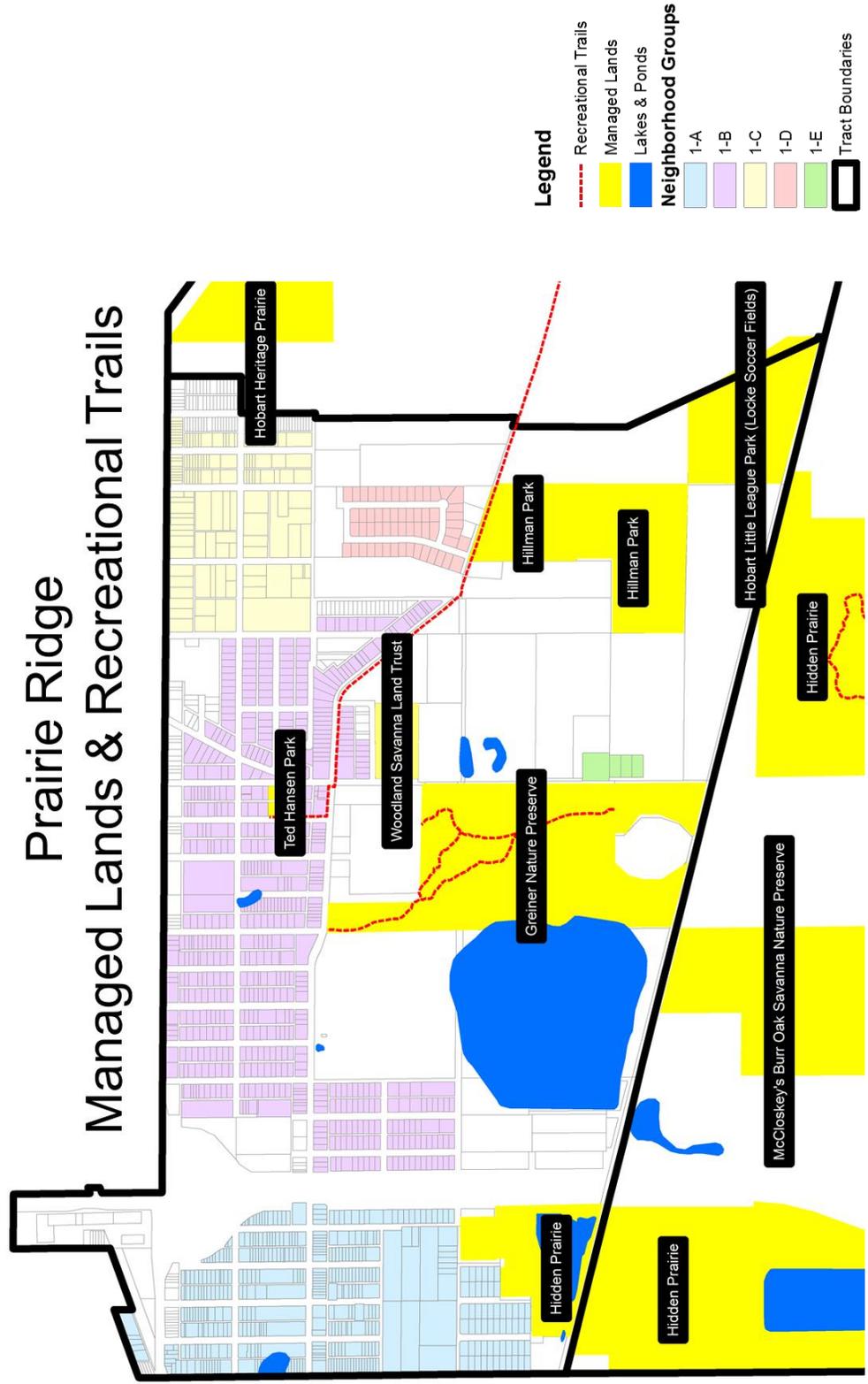


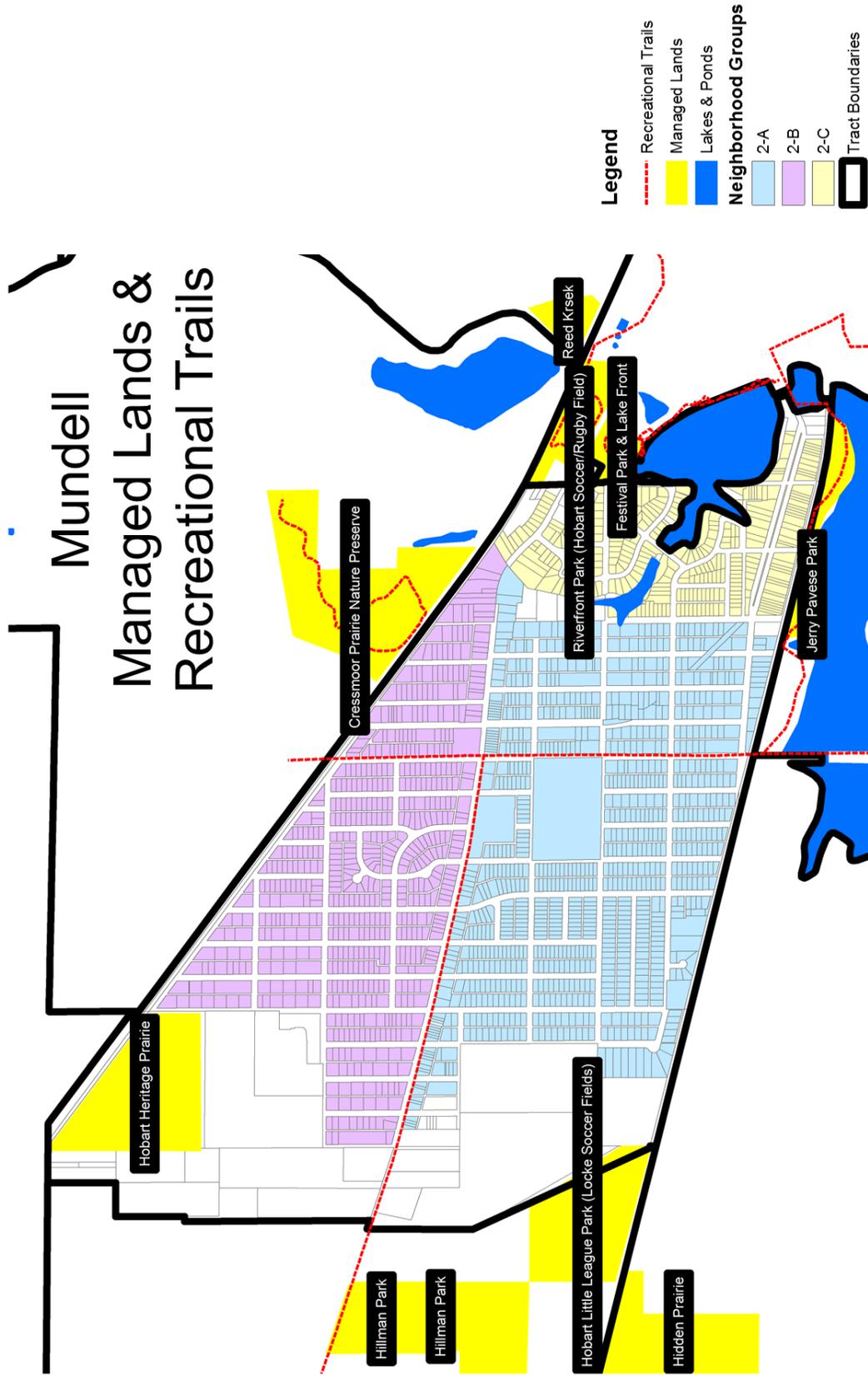
Legend

- Land Cover Type**
- Cultivated Crops
 - Deciduous Forest
 - Developed, High-Intensity
 - Developed, Low-Intensity
 - Developed, Medium-Intensity
 - Developed, Open Space
 - Emergent Herbaceous Wetlands
 - Grassland/Herbaceous
 - Pasture/Hay
 - Shrub/Scrub
 - Woody Wetlands
 - Neighborhood Parcels
 - Parcels
 - Tract Boundaries

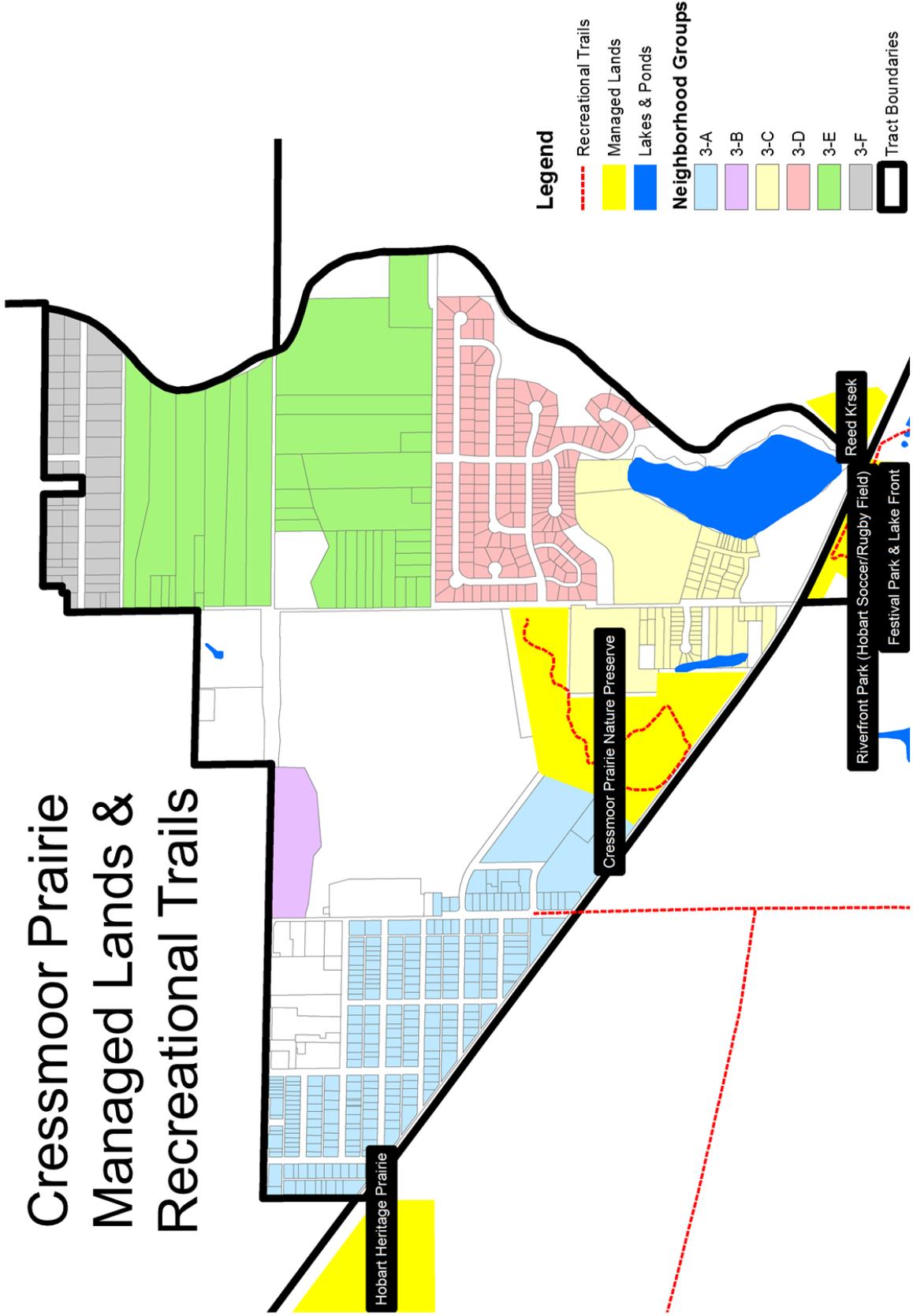
Land Cover Type	Percentage
Cultivated Crops	20.63%
Deciduous Forest	4.36%
Developed, High-Intensity	20.74%
Developed, Low-Intensity	13.73%
Developed, Medium-Intensity	19.62%
Developed, Open Space	6.99%
Emergent Herbaceous Wetlands	0.50%
Grassland/Herbaceous	6.72%
Pasture/Hay	3.10%
Shrub/Scrub	3.16%
Woody Wetlands	0.46%

Appendix L: Managed Lands & Trails

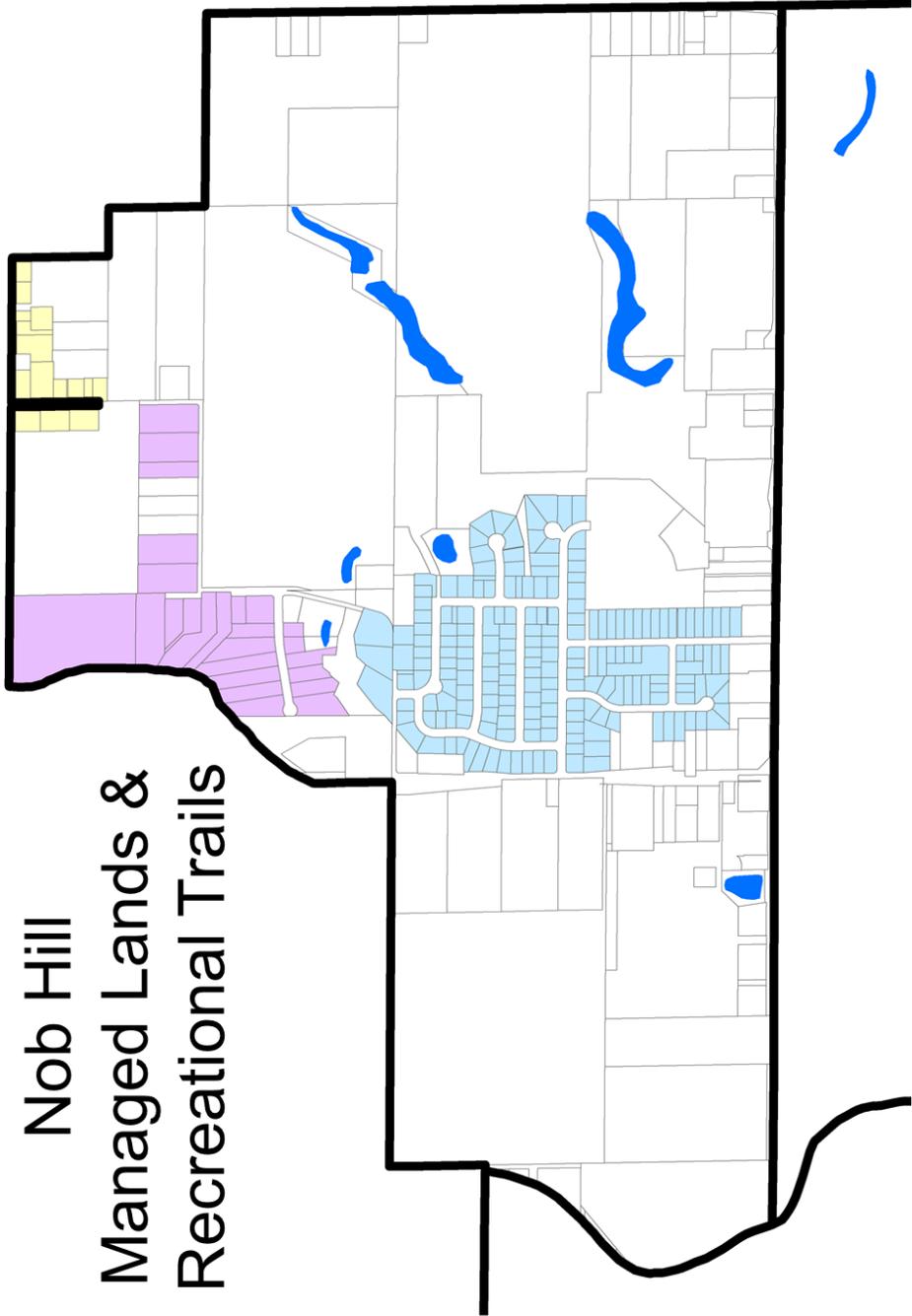




Cressmoor Prairie Managed Lands & Recreational Trails



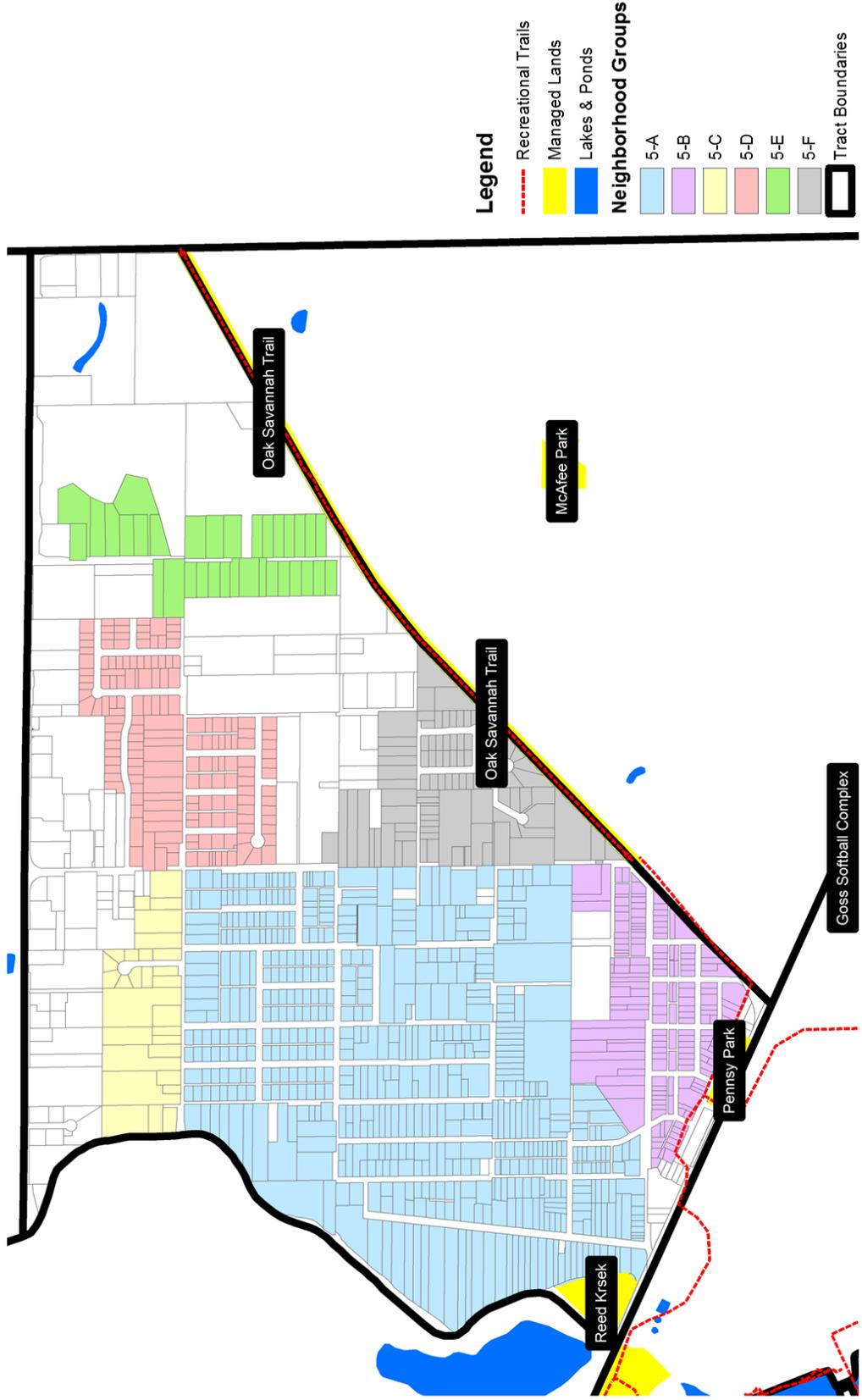
Nob Hill Managed Lands & Recreational Trails



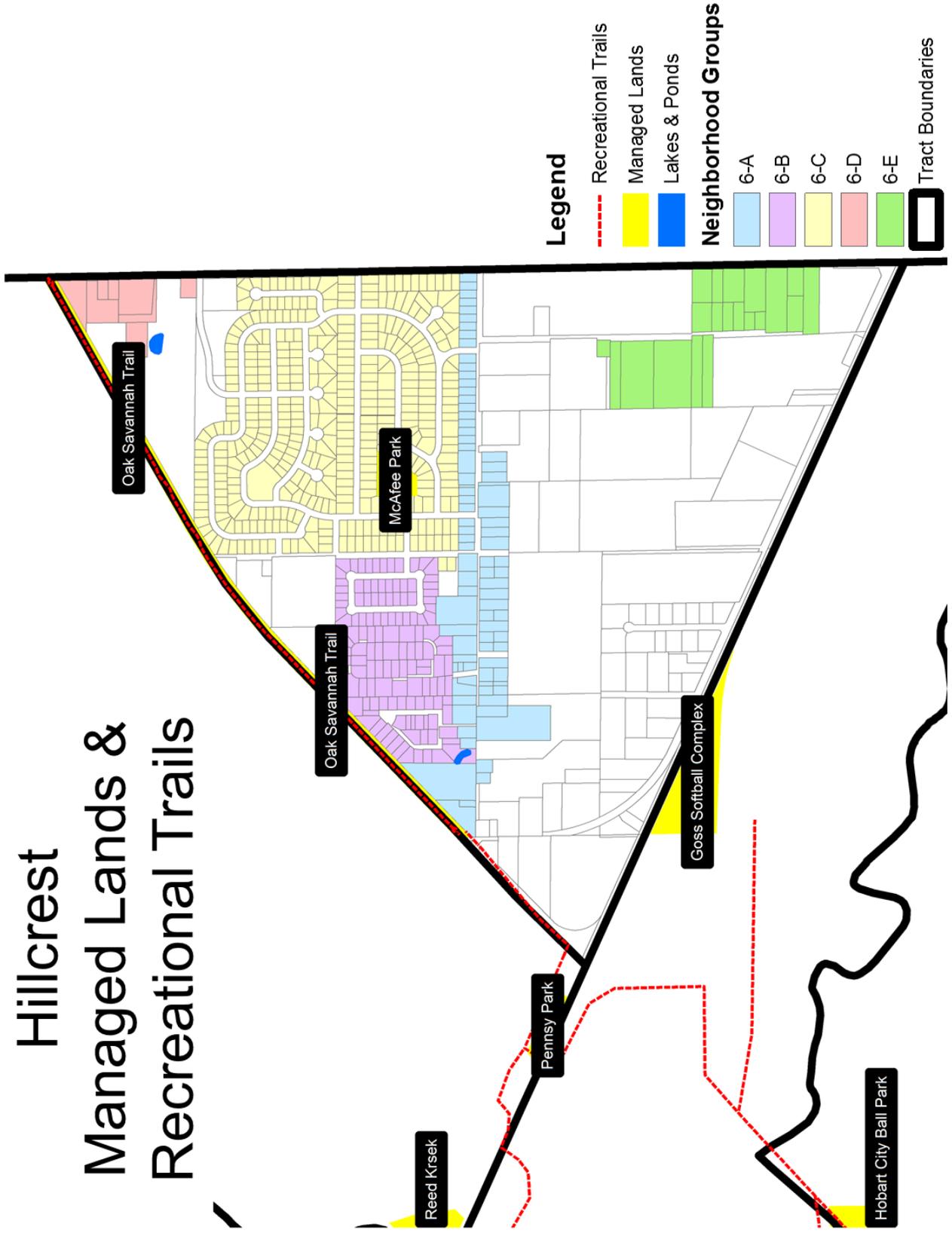
Legend

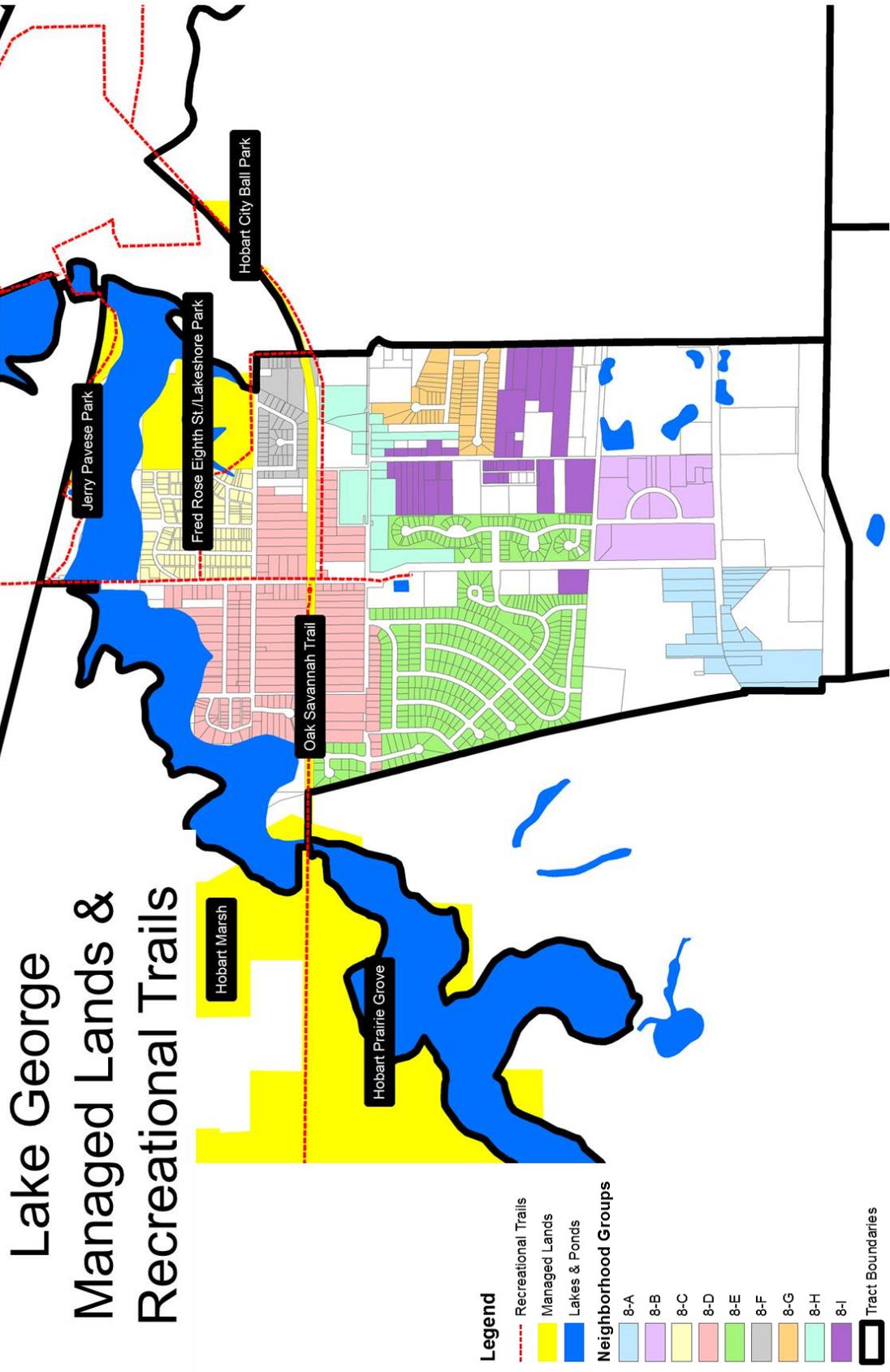
- Recreational Trails
 - Managed Lands
 - Lakes & Ponds
- ## Neighborhood Groups
- 4-A
 - 4-B
 - 4-C
- Tract Boundaries

Liberty Managed Lands & Recreational Trails

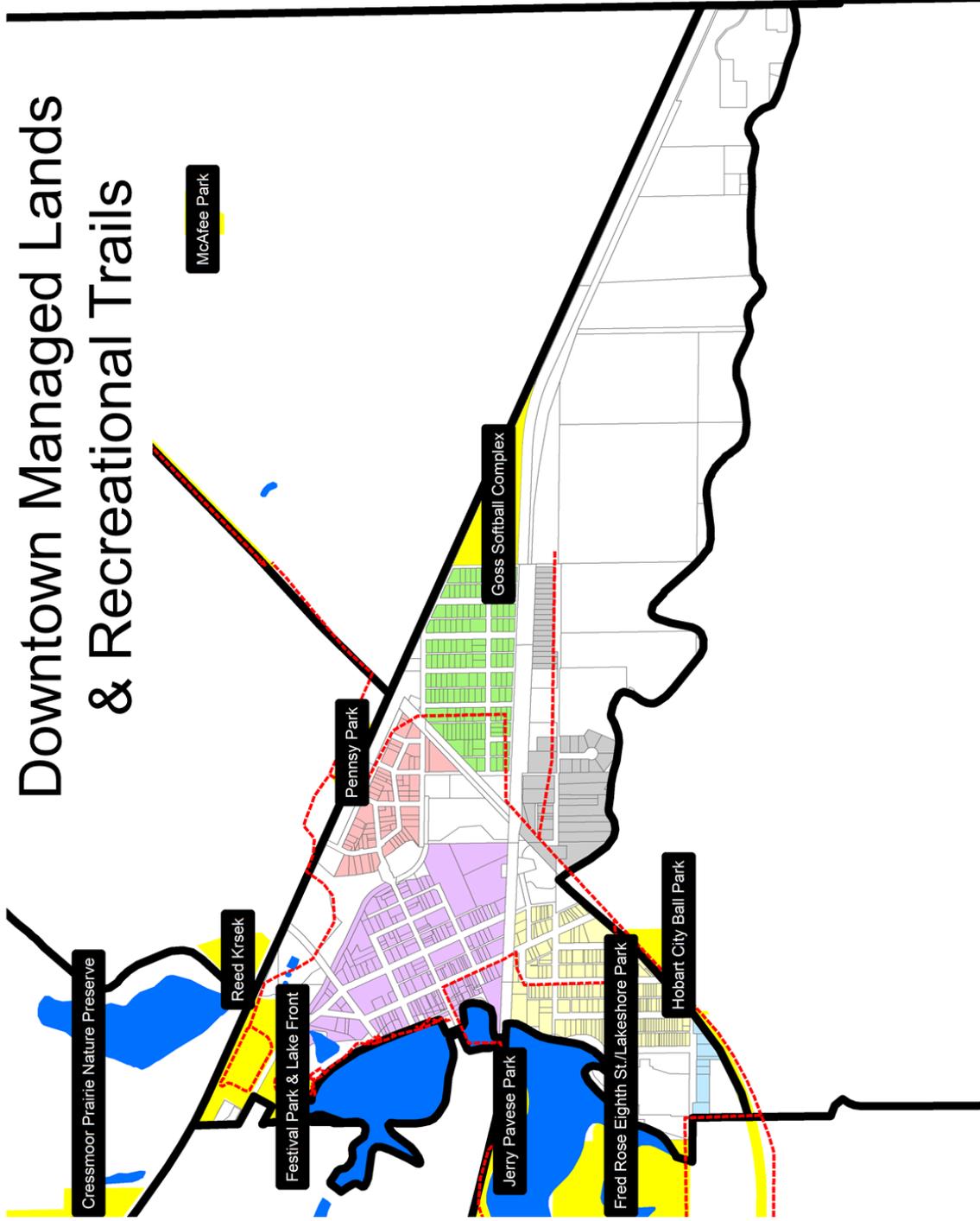


Hillcrest Managed Lands & Recreational Trails

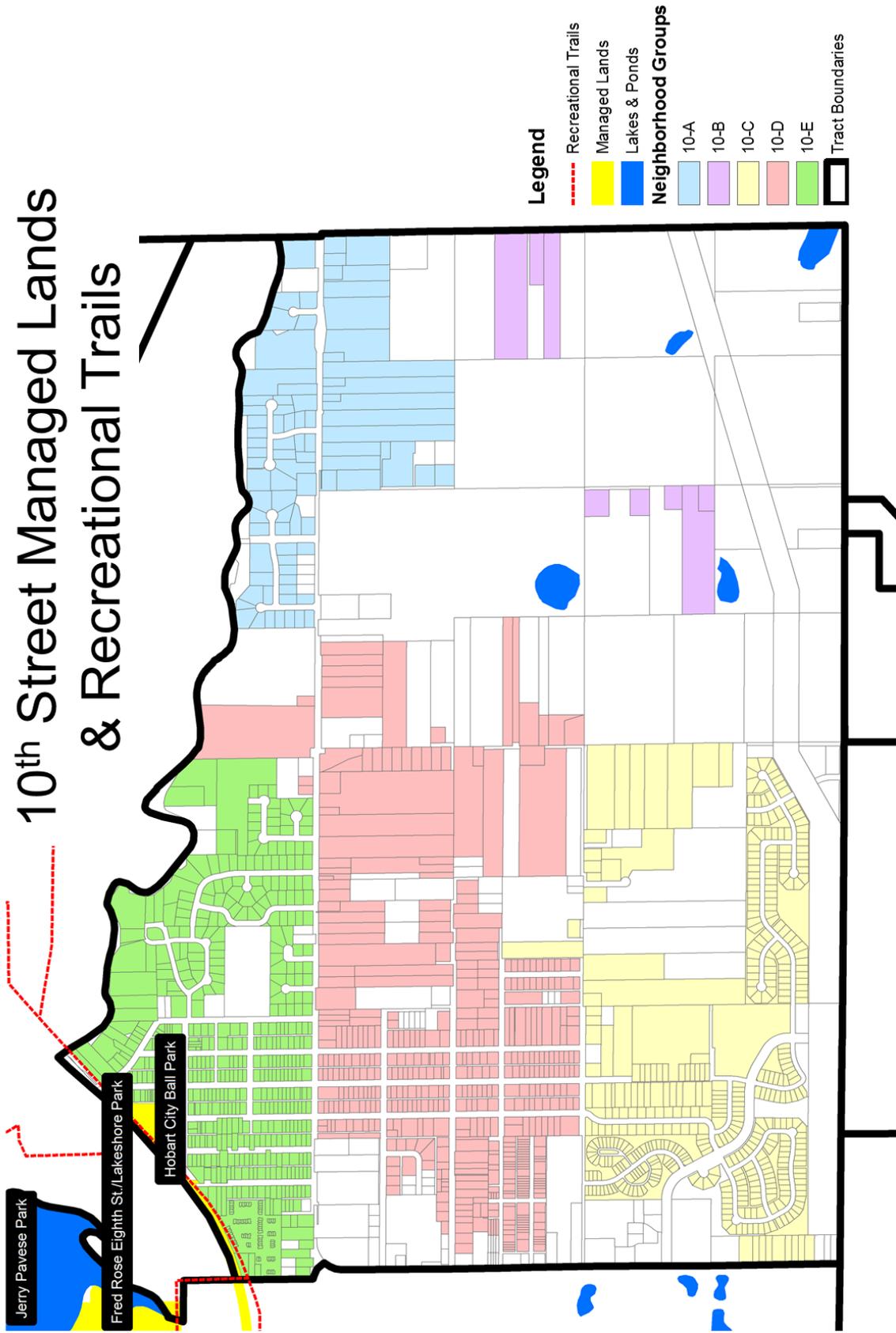




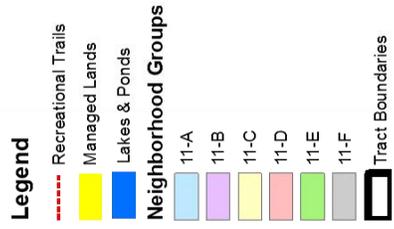
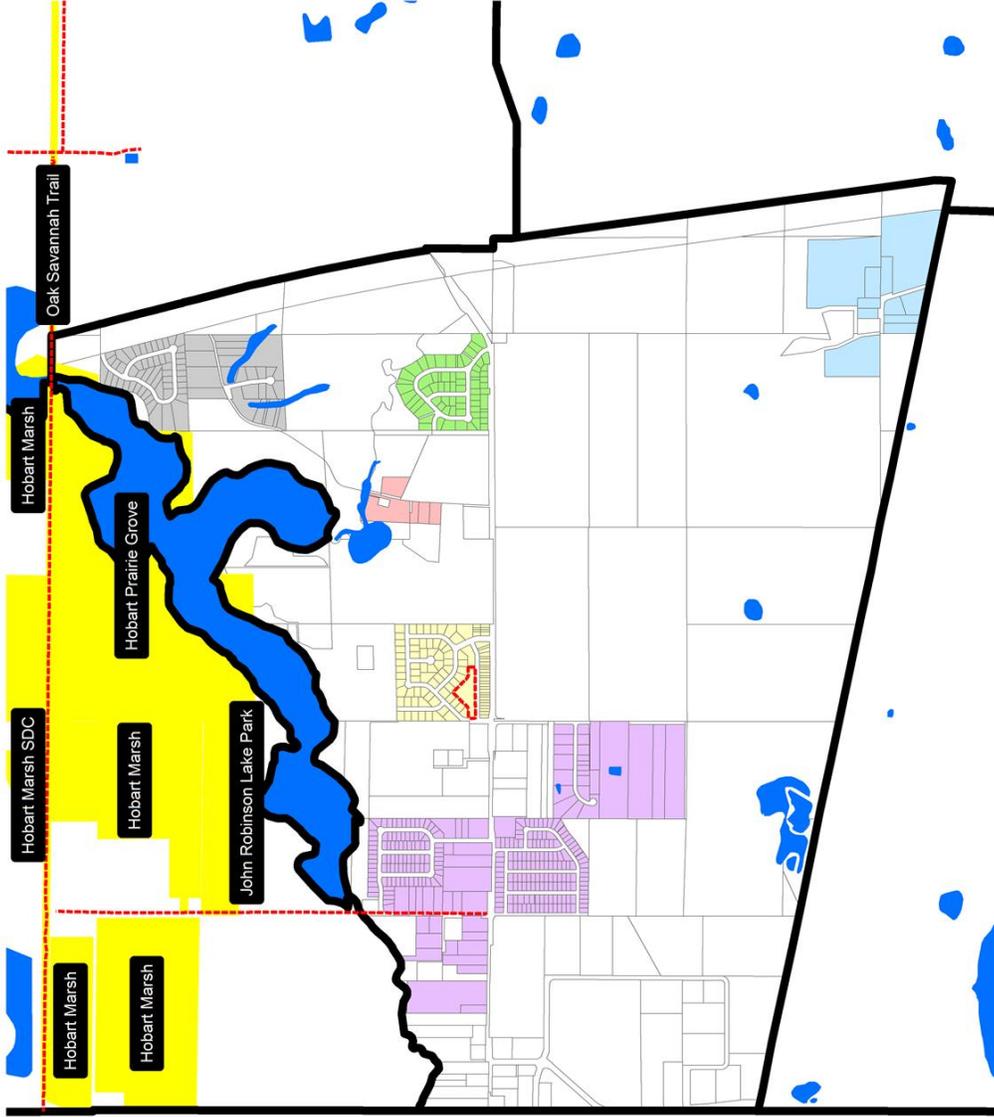
Downtown Managed Lands & Recreational Trails



10th Street Managed Lands & Recreational Trails



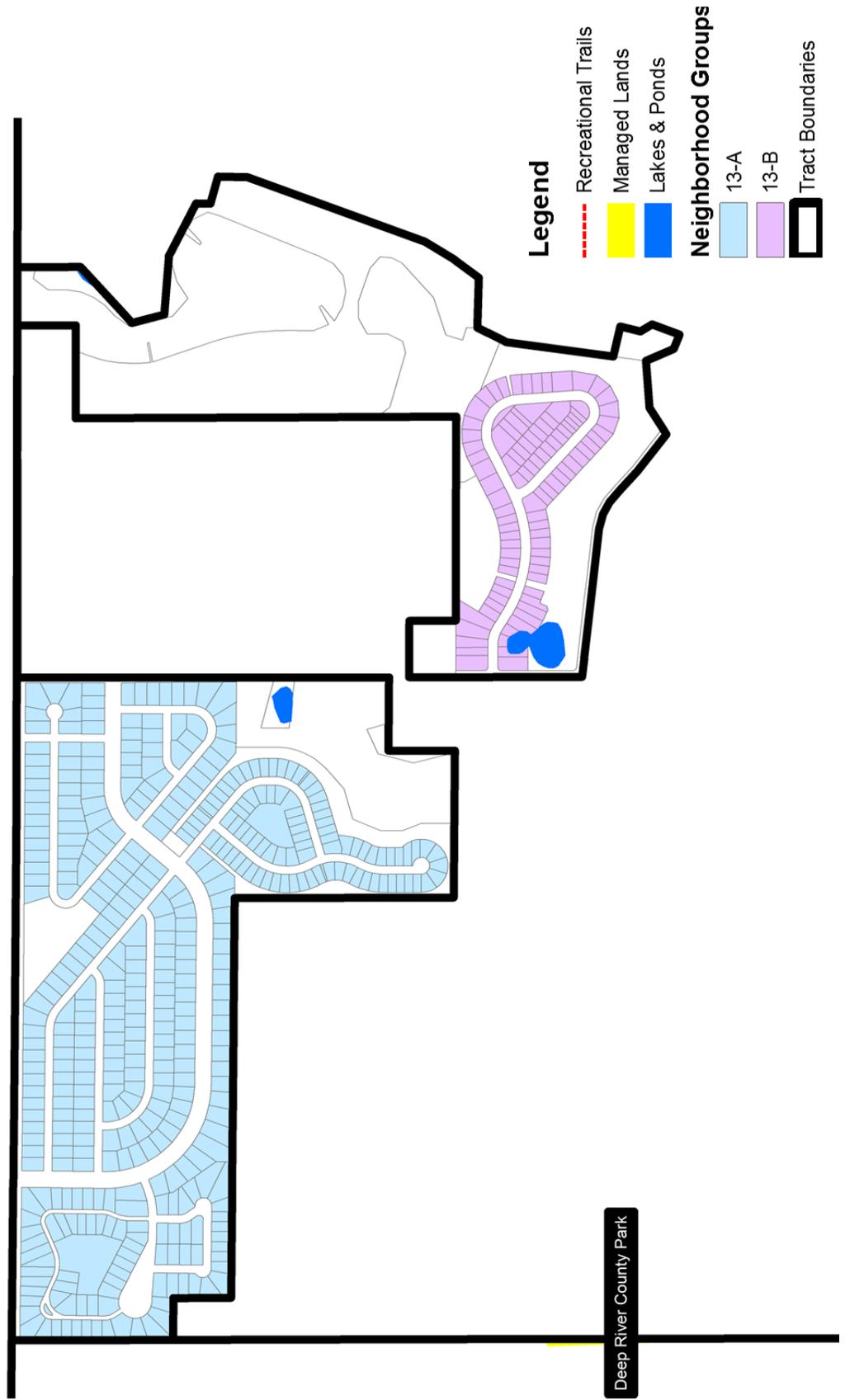
Creek Managed Lands & Recreational Trails



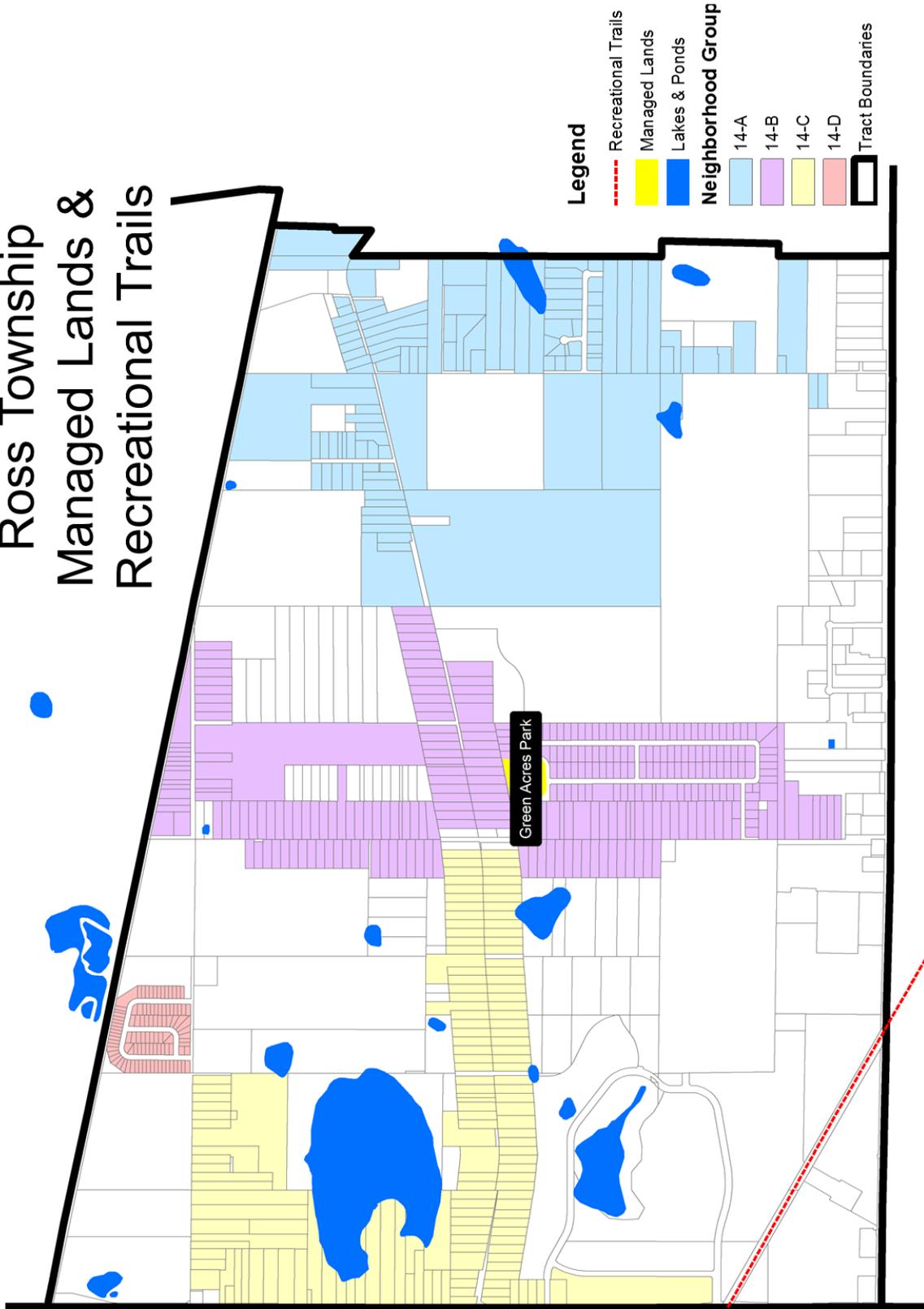
Ainsworth Managed Lands & Recreational Trails

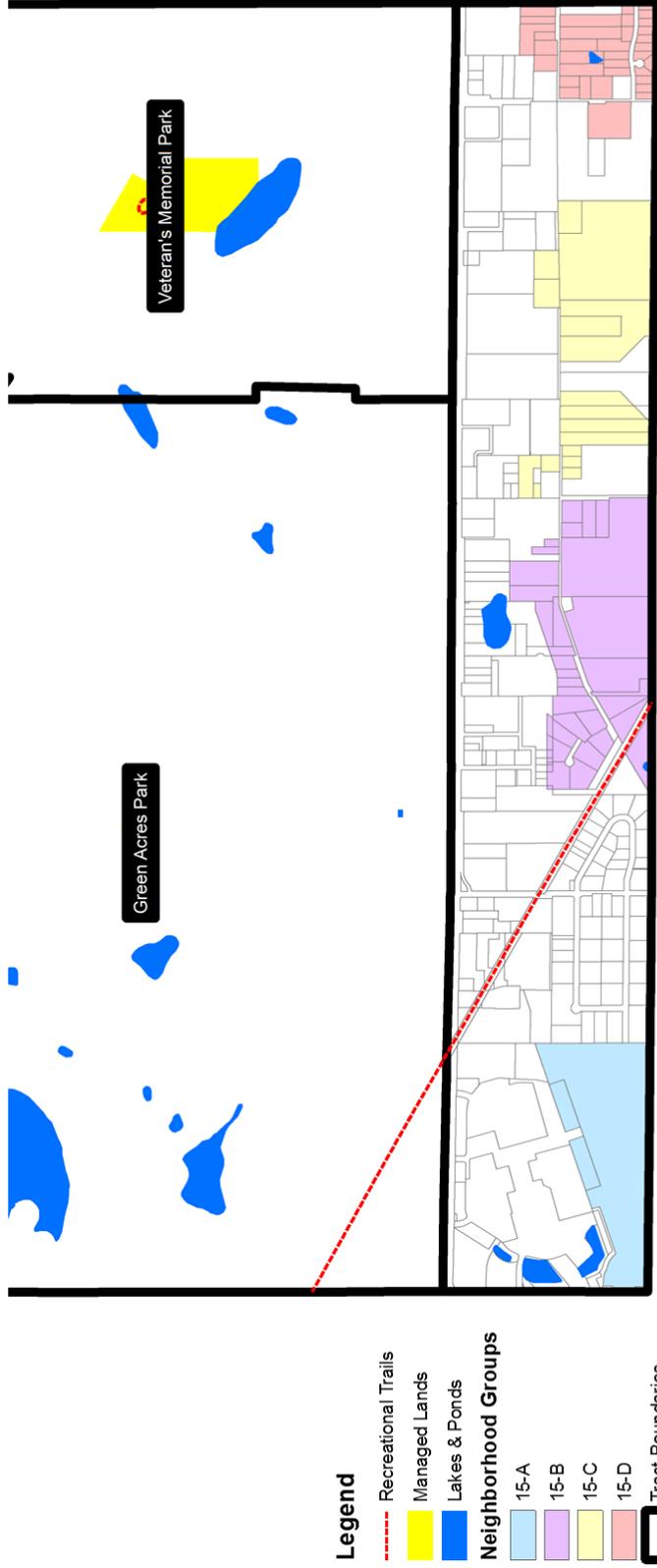


Ridge Pointe Managed Lands & Recreational Trails



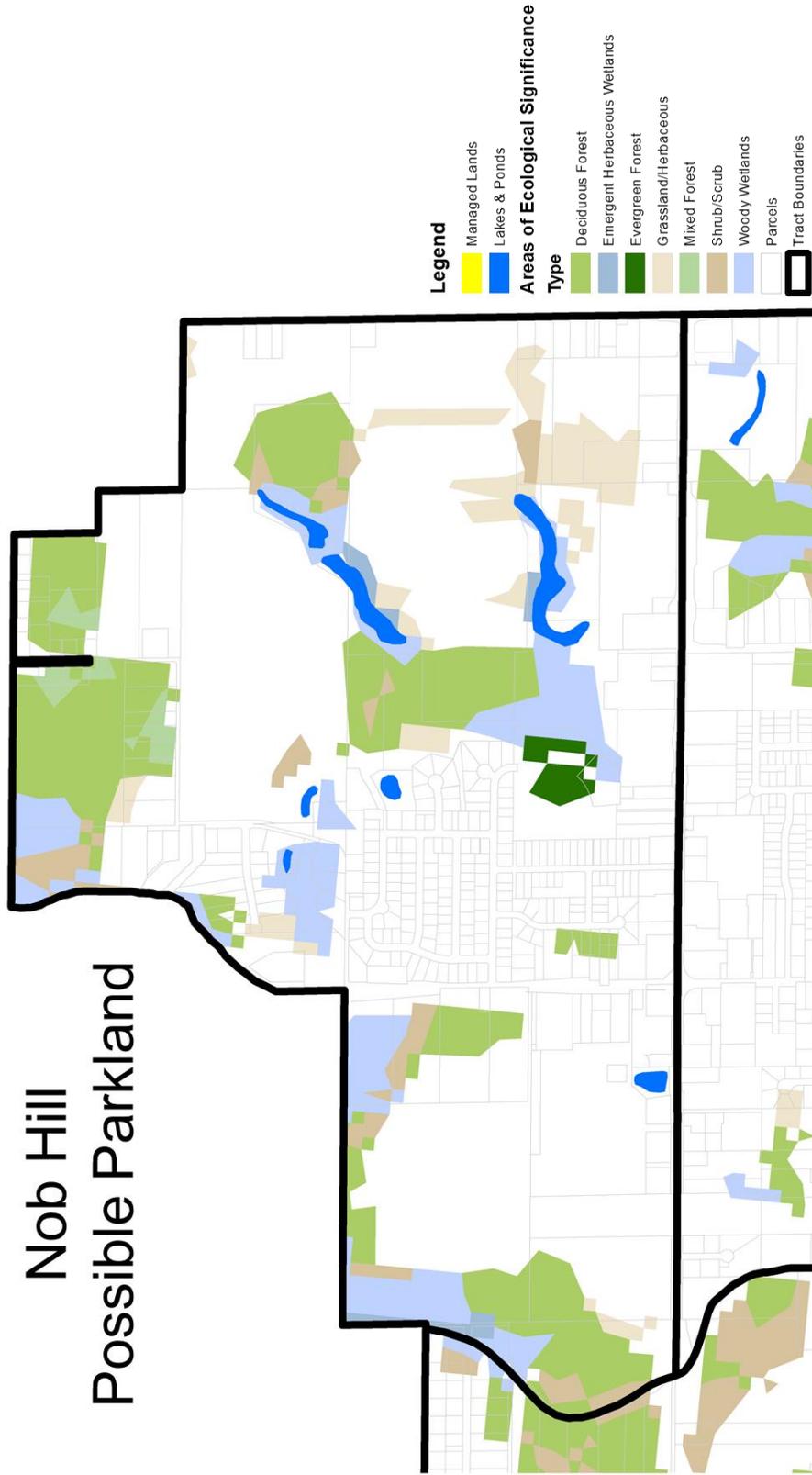
Ross Township Managed Lands & Recreational Trails



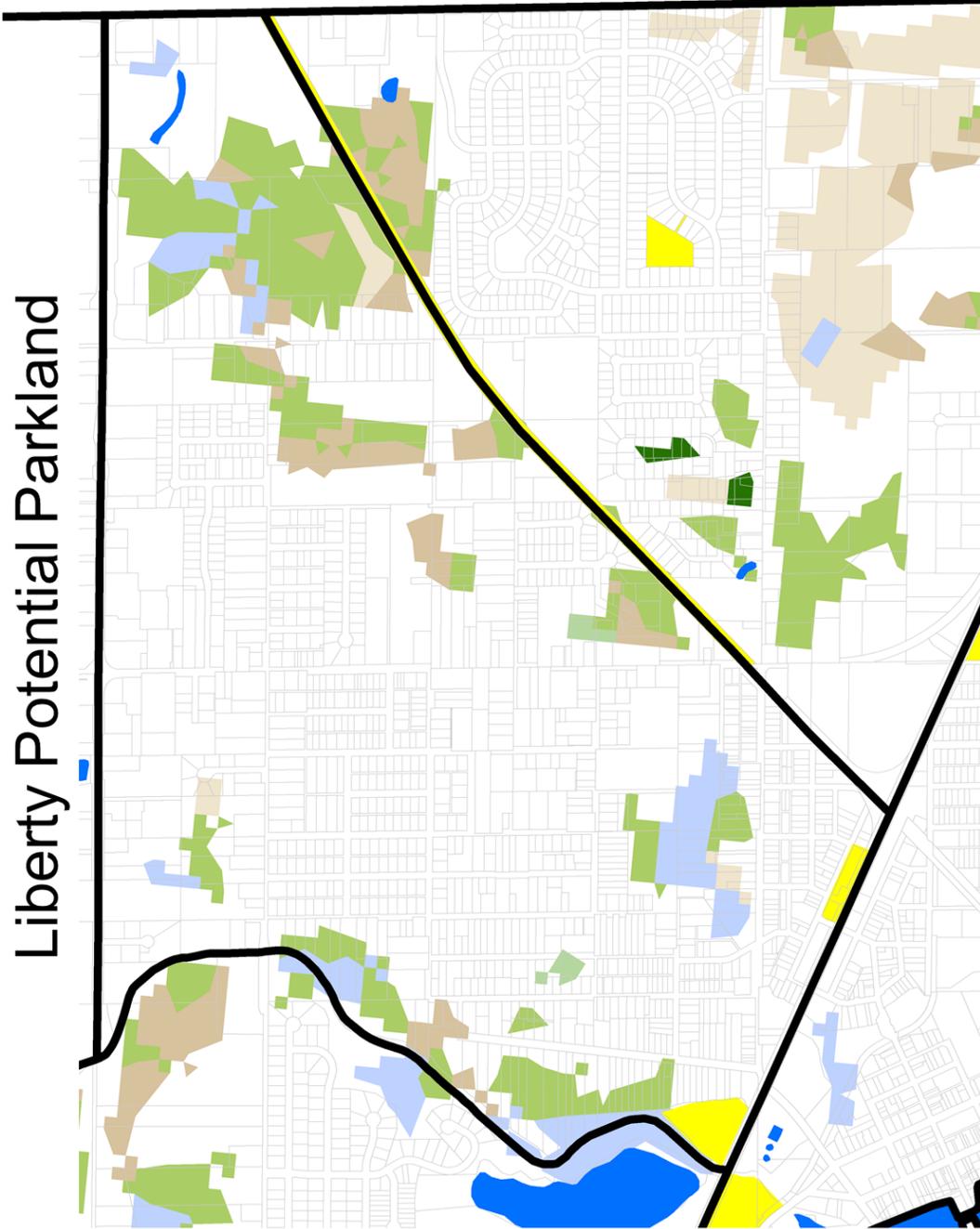


US 30 Managed Lands & Recreational Trails

Appendix M: Possible Parkland

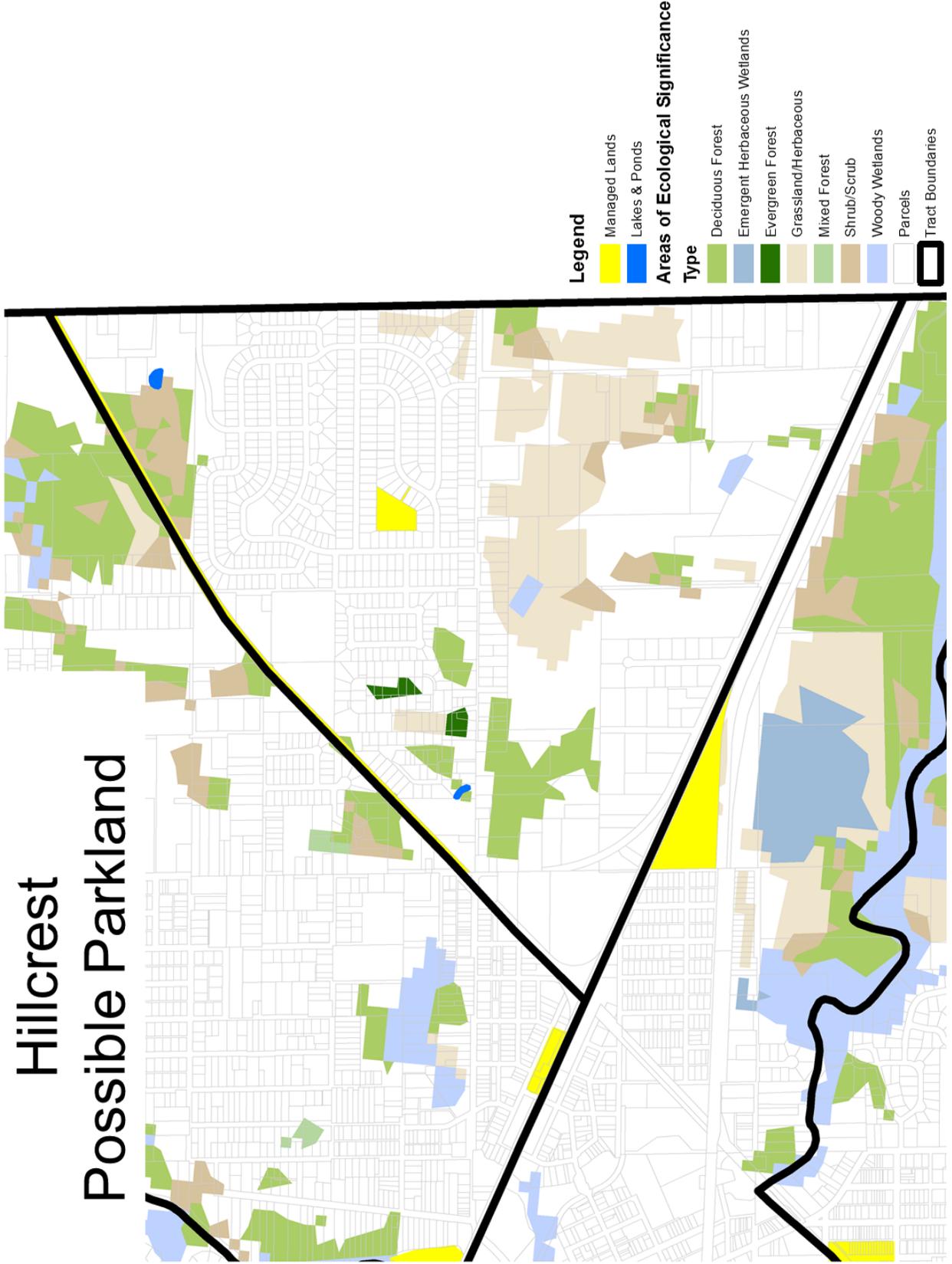


Liberty Potential Parkland

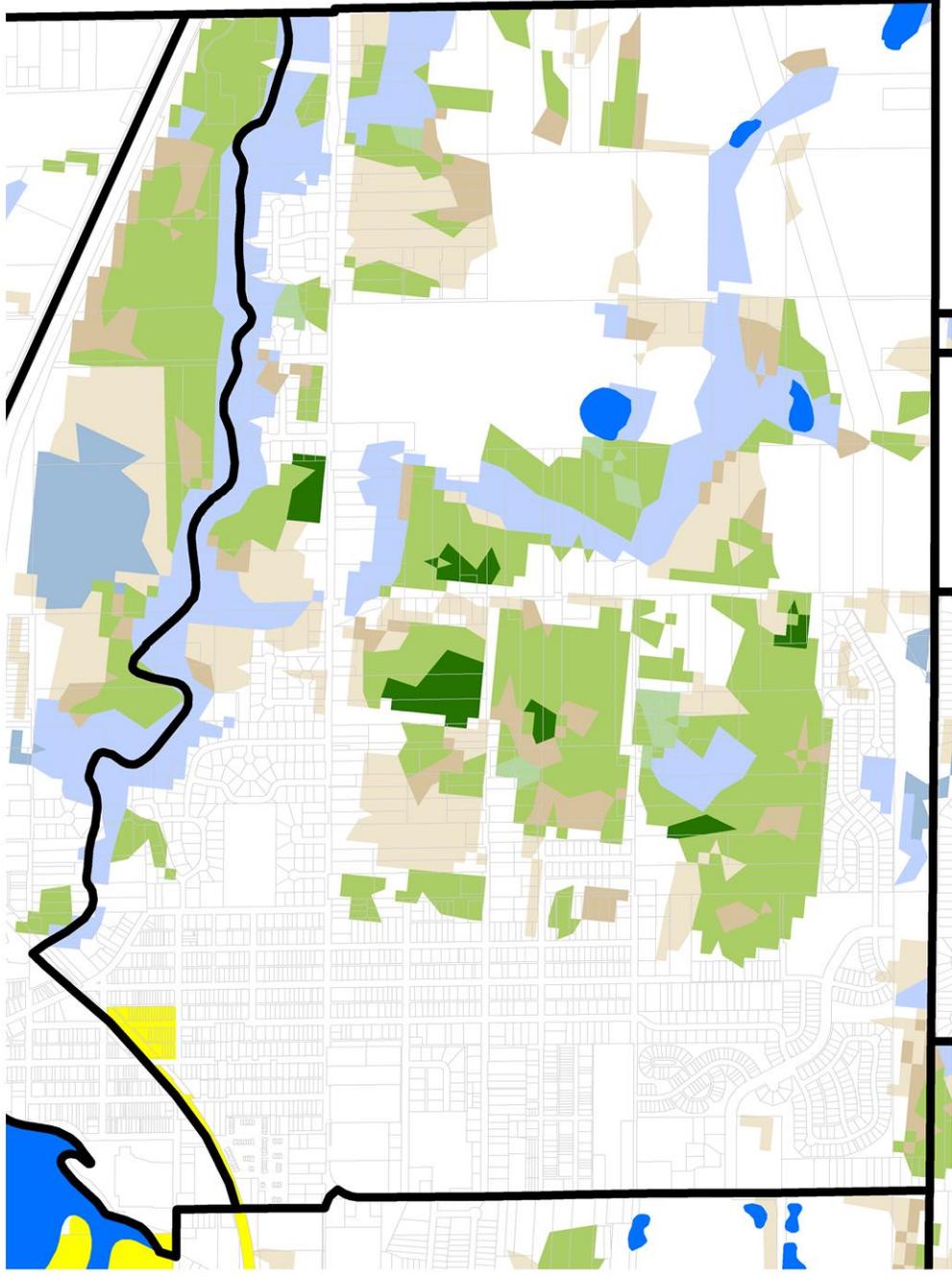


- Legend**
- Managed Lands
 - Lakes & Ponds
- Areas of Ecological Significance**
- Type
- Deciduous Forest
 - Emergent Herbaceous Wetlands
 - Evergreen Forest
 - Grassland/Herbaceous
 - Mixed Forest
 - Shrub/Scrub
 - Woody Wetlands
 - Parcels
 - Tract Boundaries

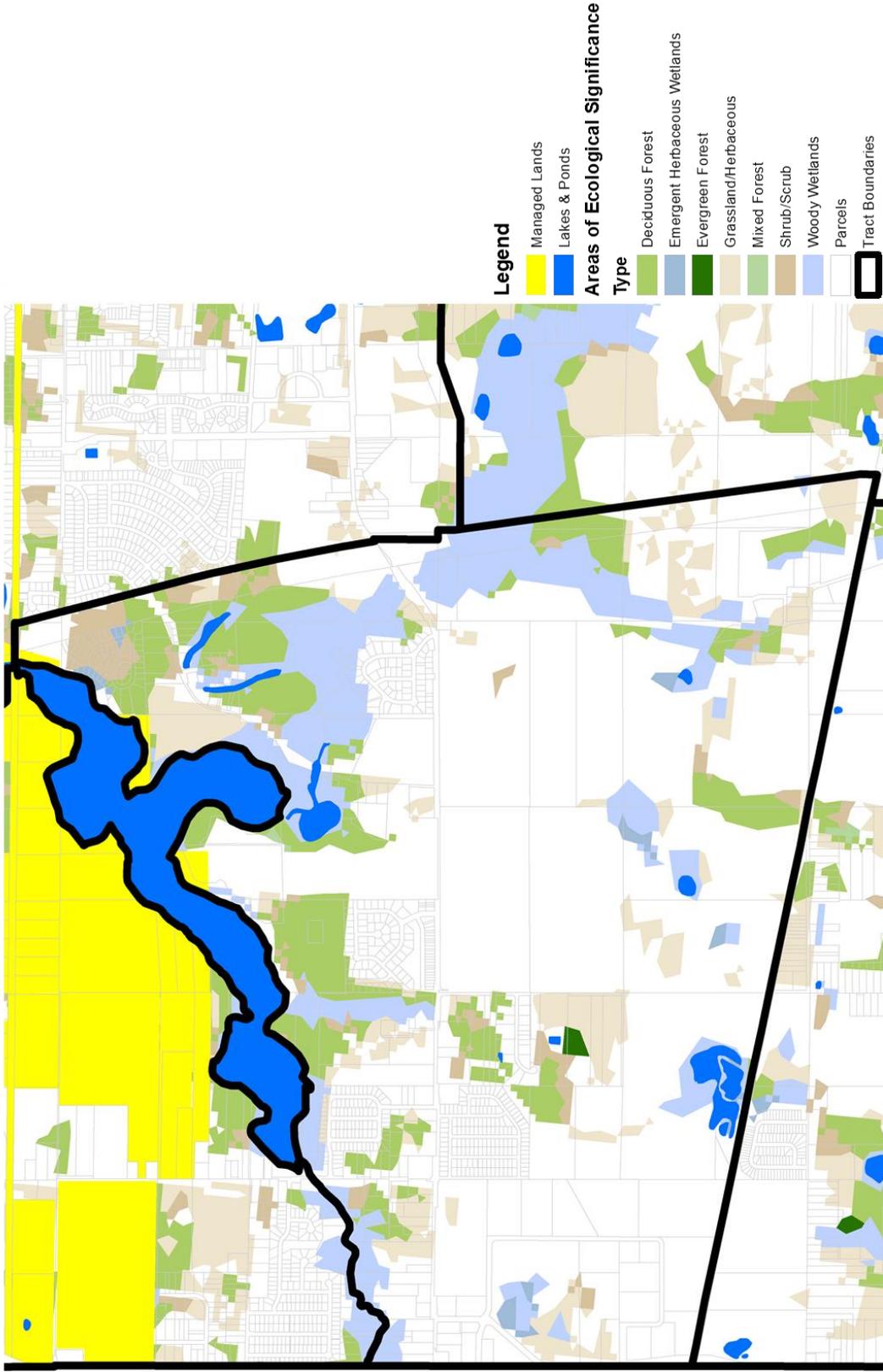
Hillcrest Possible Parkland

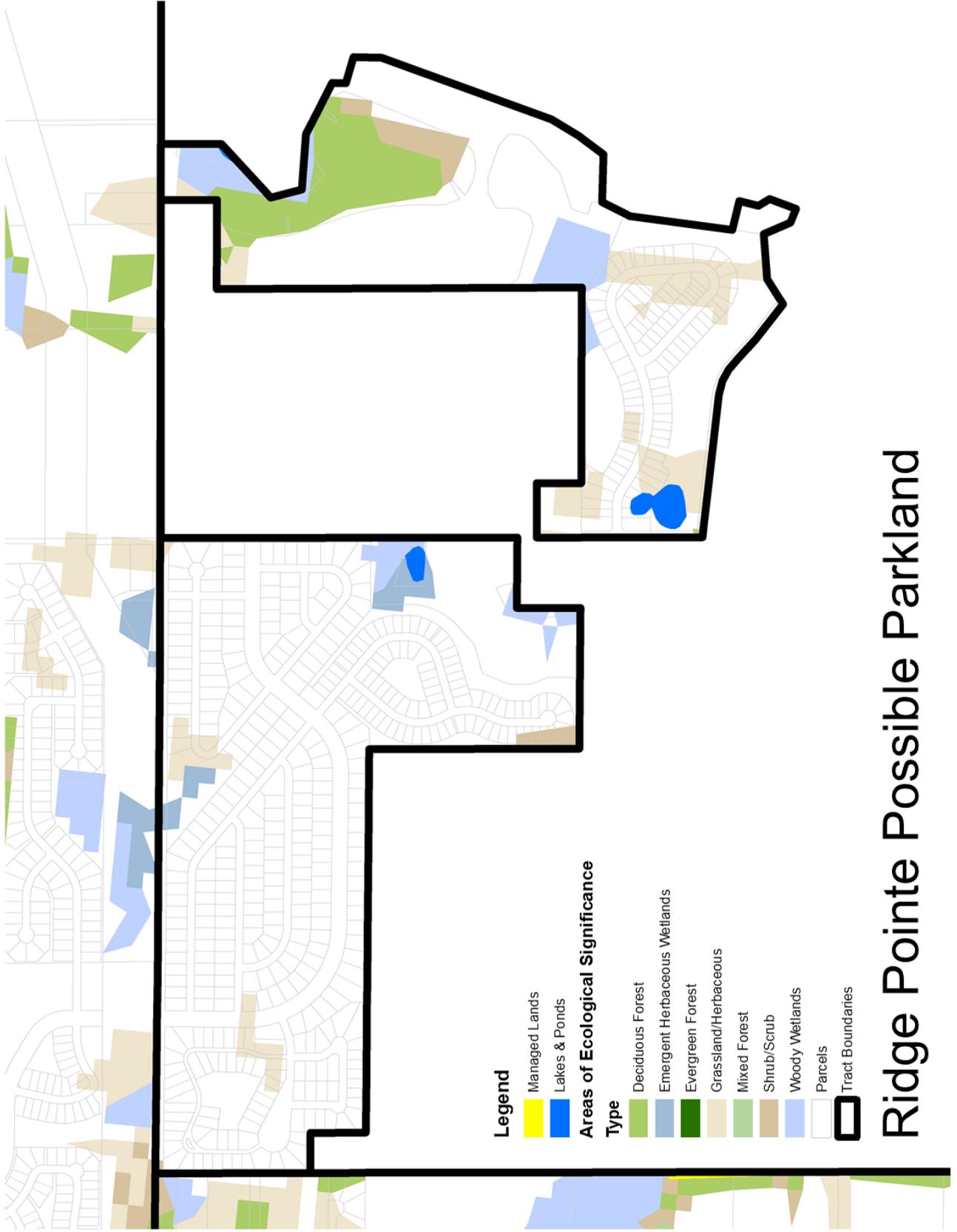


10th Street Possible Parkland



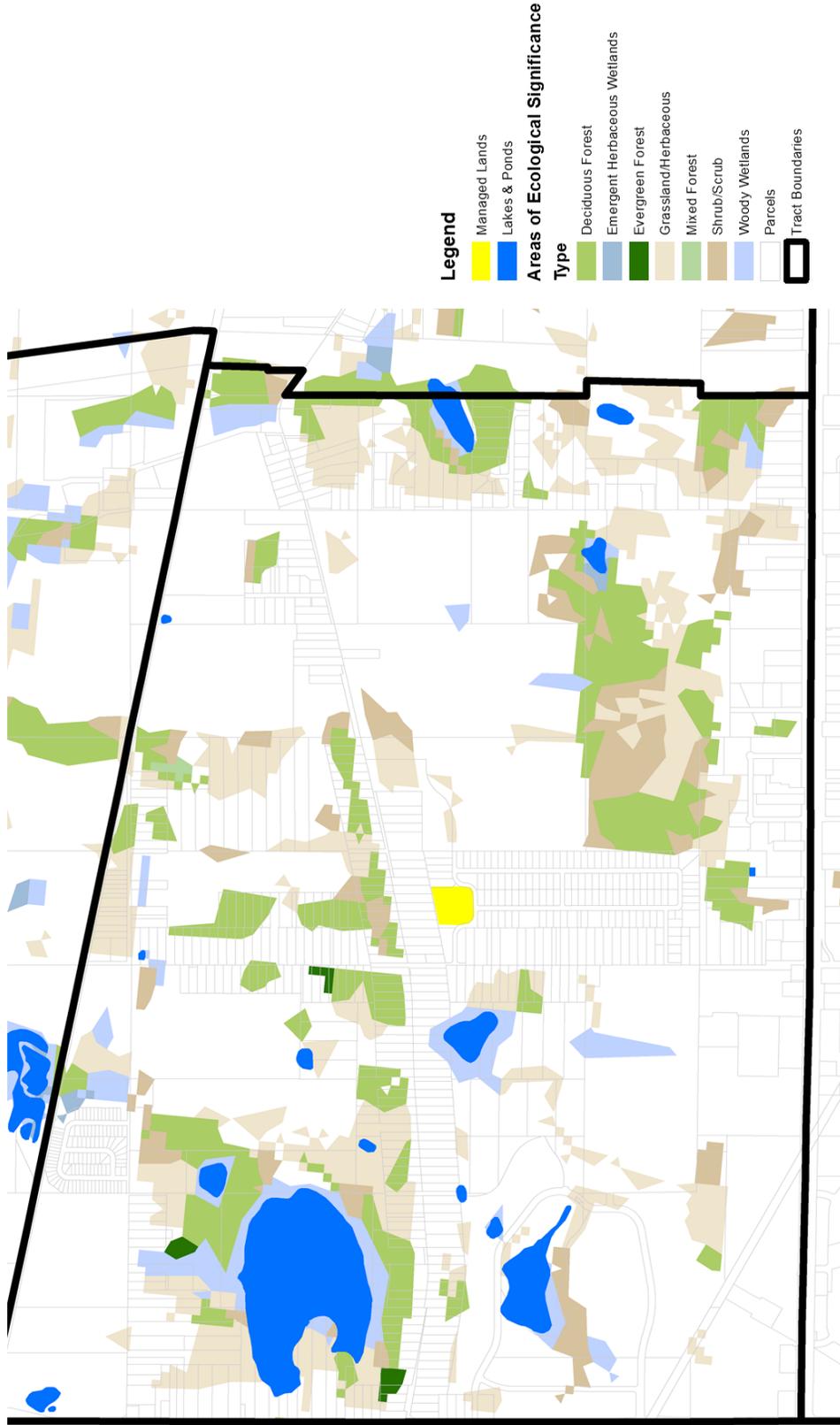
Creek Possible Parkland

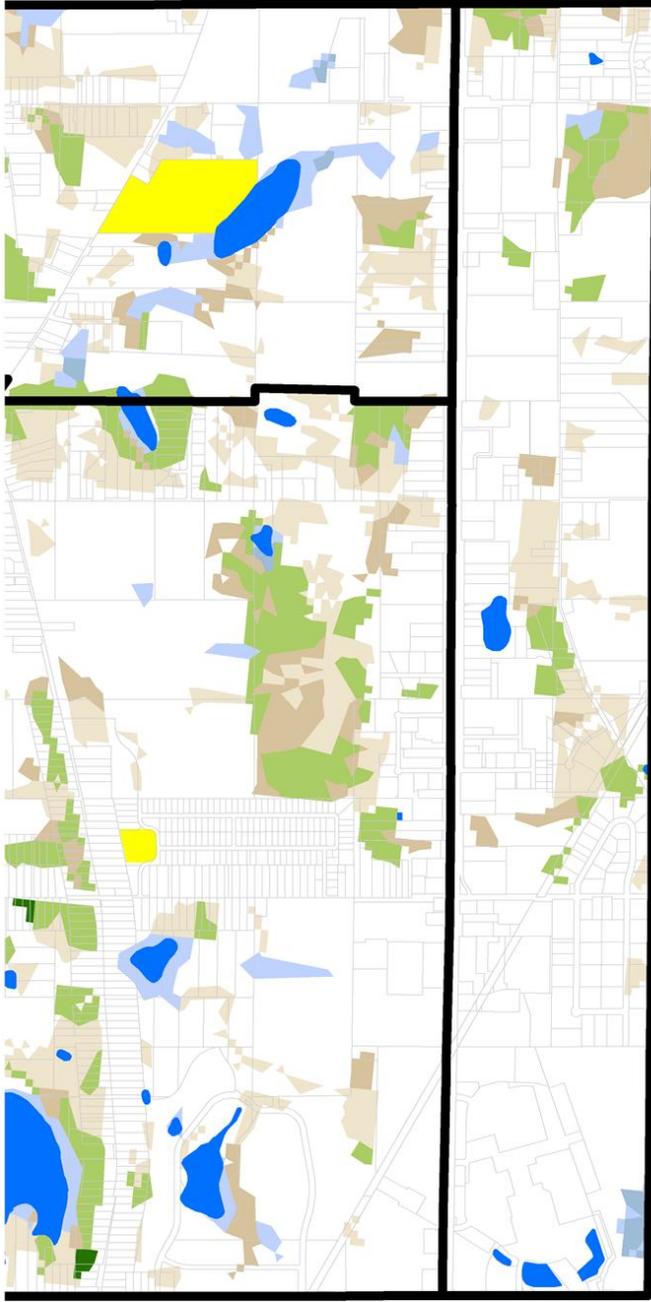




Ridge Pointe Possible Parkland

Ross Township Possible Parkland

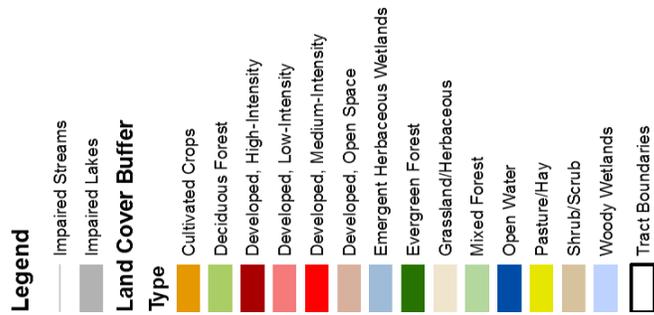
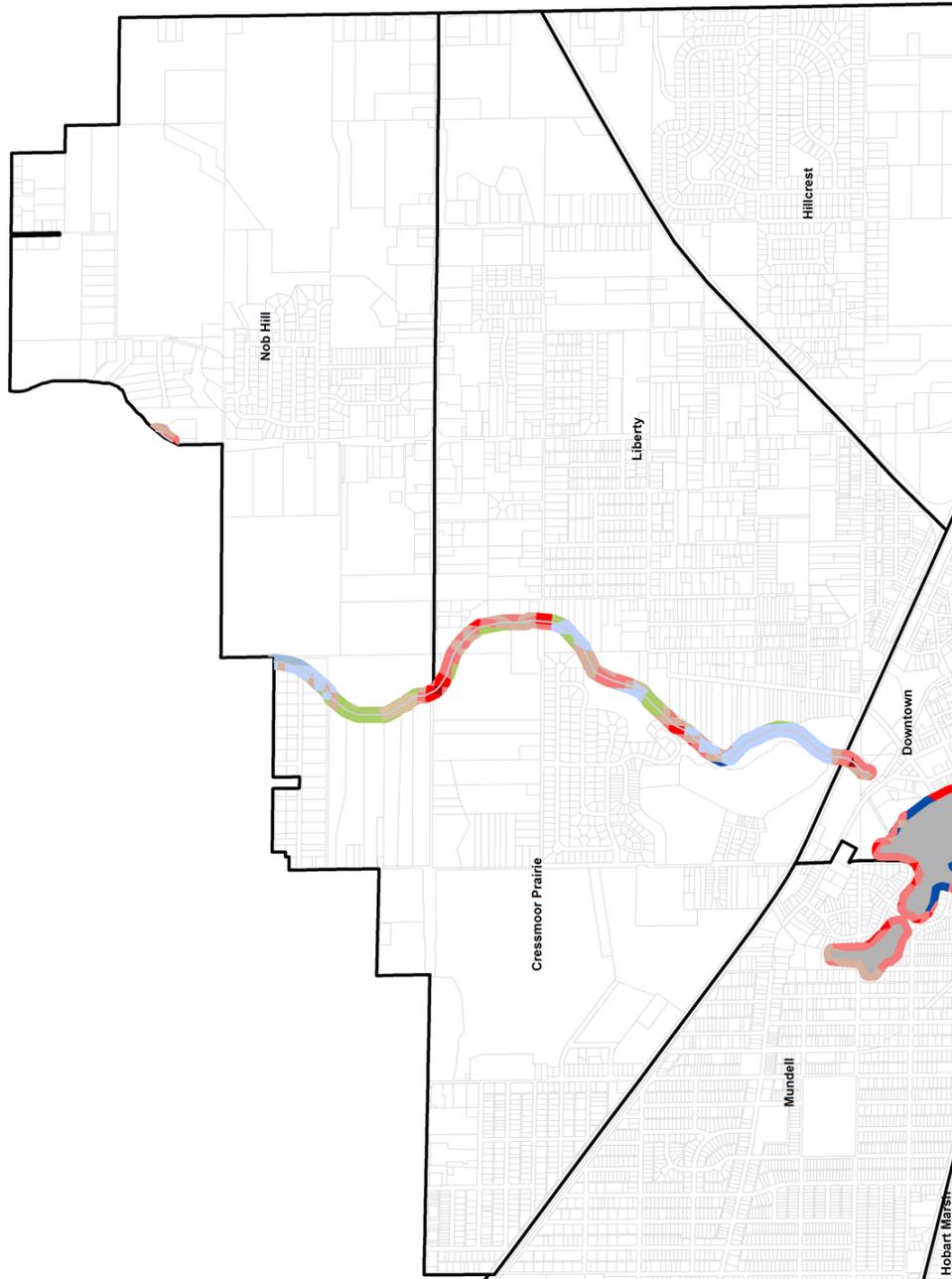


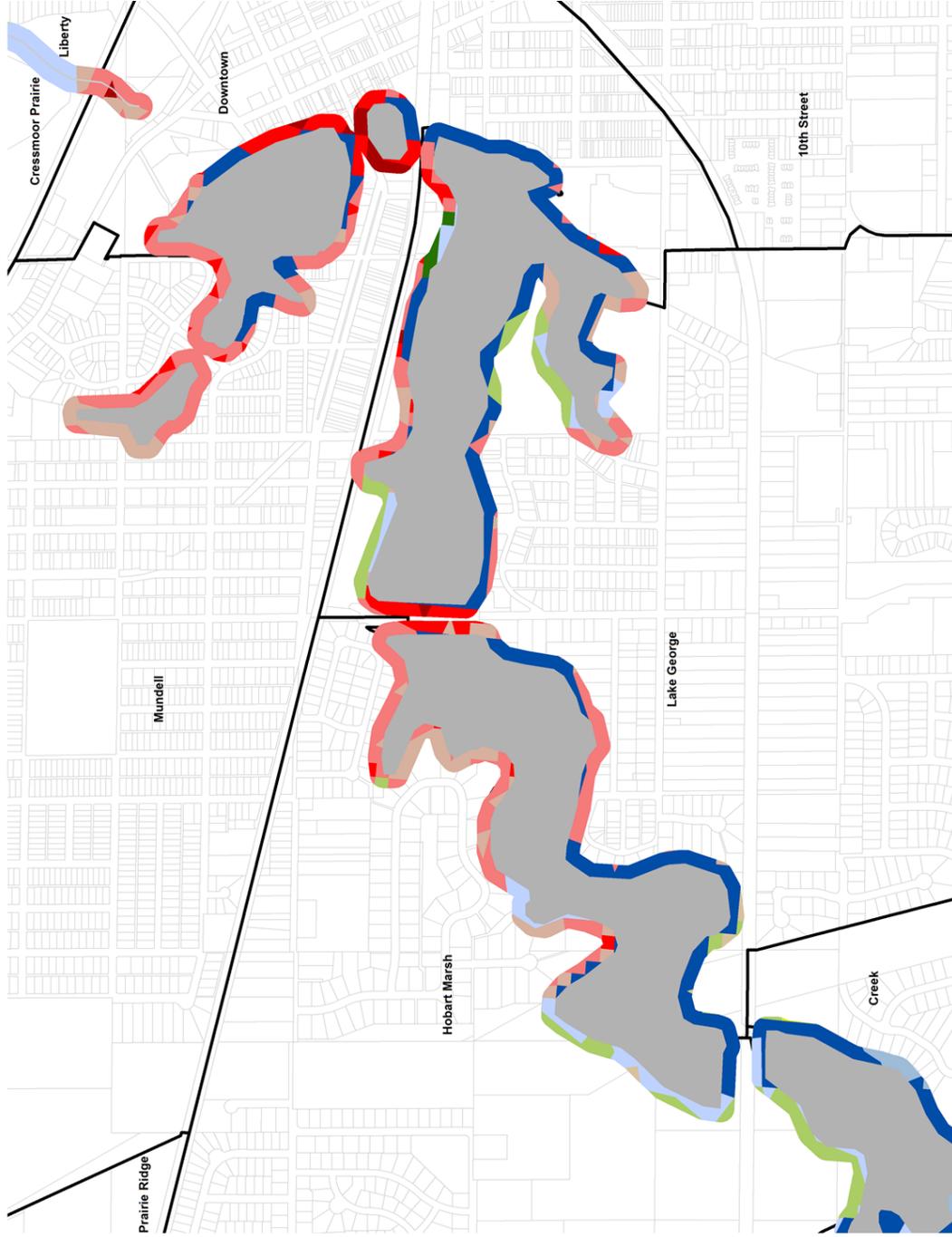


- Legend**
- Managed Lands
 - Lakes & Ponds
- Areas of Ecological Significance**
- Type
- Deciduous Forest
 - Emergent Herbaceous Wetlands
 - Evergreen Forest
 - Grassland/Herbaceous
 - Mixed Forest
 - Shrub/Scrub
 - Woody Wetlands
 - Parcels
 - Tract Boundaries

US 30 Possible Parkland

Appendix N: Impaired Waterway Land Cover Buffers





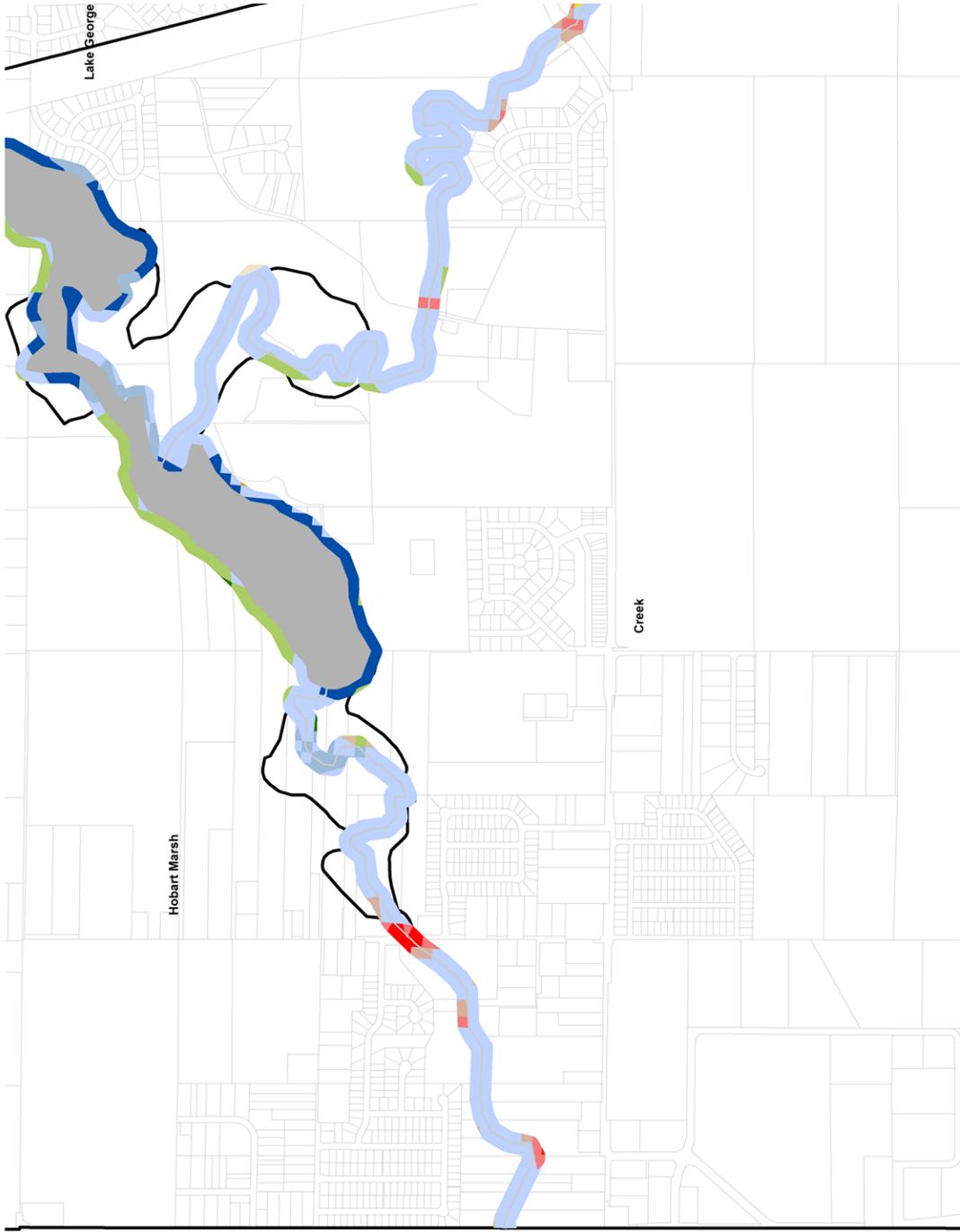
Legend

- Impaired Streams
- Impaired Lakes

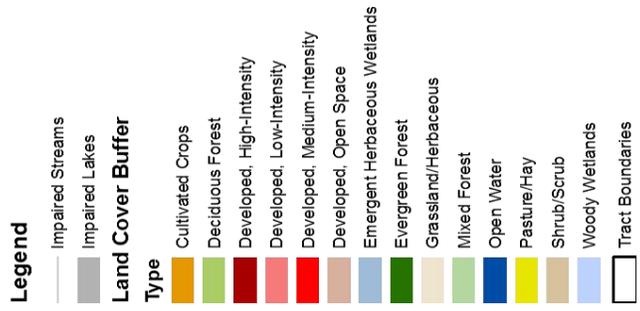
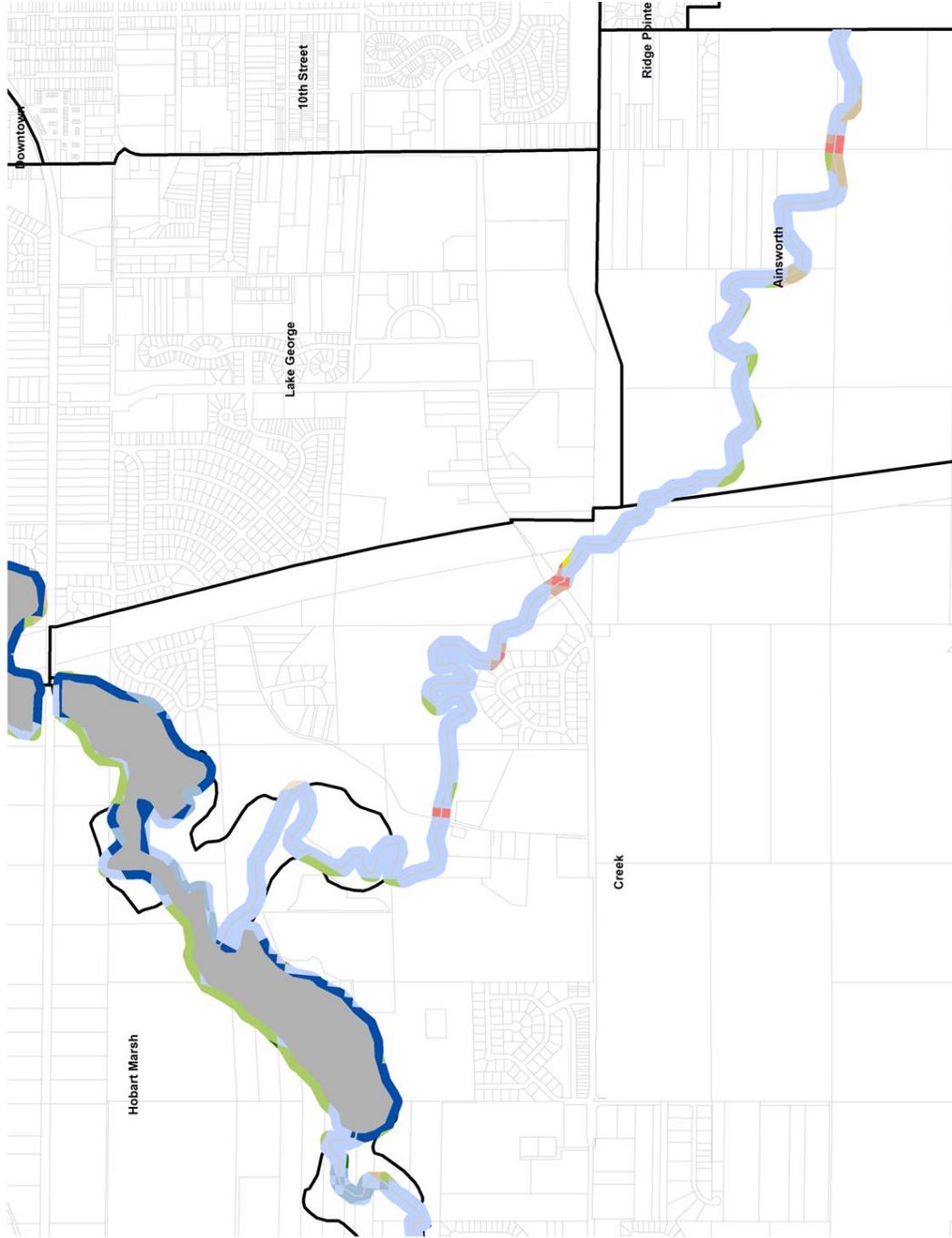
Land Cover Buffer

Type

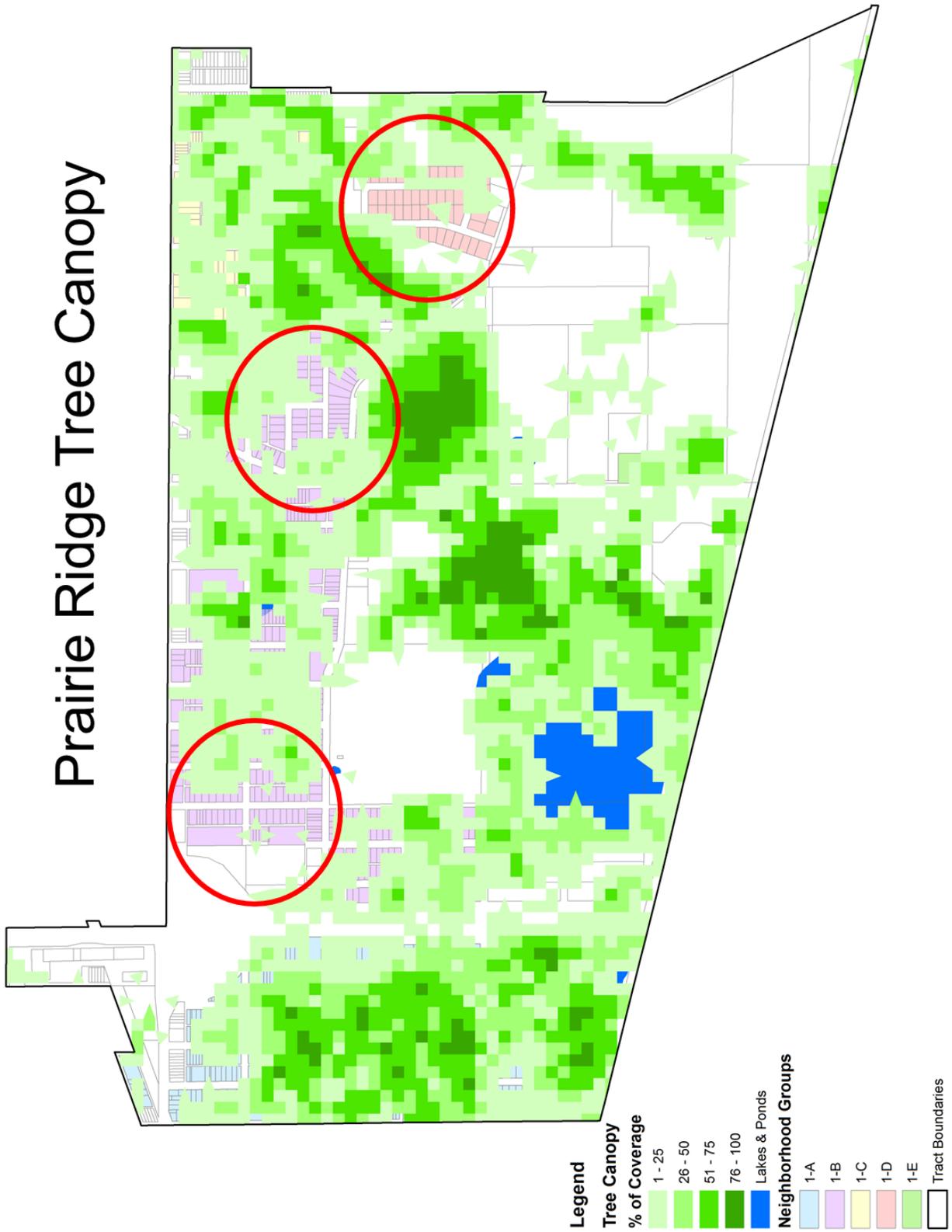
- Cultivated Crops
- Deciduous Forest
- Developed, High-Intensity
- Developed, Low-Intensity
- Developed, Medium-Intensity
- Developed, Open Space
- Emergent Herbaceous Wetlands
- Evergreen Forest
- Grassland/Herbaceous
- Mixed Forest
- Open Water
- Pasture/Hay
- Shrub/Scrub
- Woody Wetlands
- Tract Boundaries



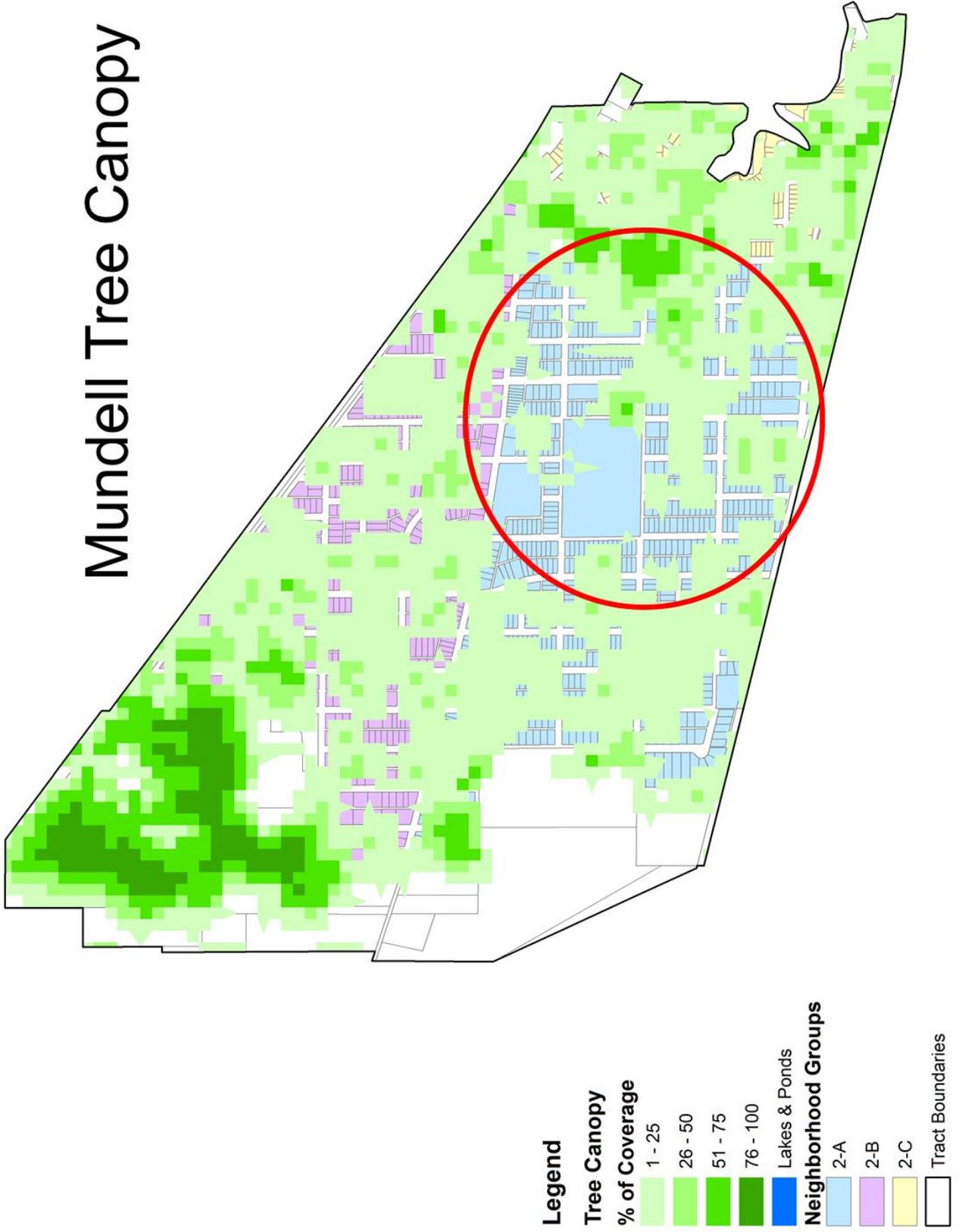
- Legend**
- Impaired Streams
 - Impaired Lakes
 - Land Cover Buffer**
 - Type**
 - Cultivated Crops
 - Deciduous Forest
 - Developed, High-Intensity
 - Developed, Low-Intensity
 - Developed, Medium-Intensity
 - Developed, Open Space
 - Emergent Herbaceous Wetlands
 - Evergreen Forest
 - Grassland/Herbaceous
 - Mixed Forest
 - Open Water
 - Pasture/Hay
 - Shrub/Scrub
 - Woody Wetlands
 - Tract Boundaries



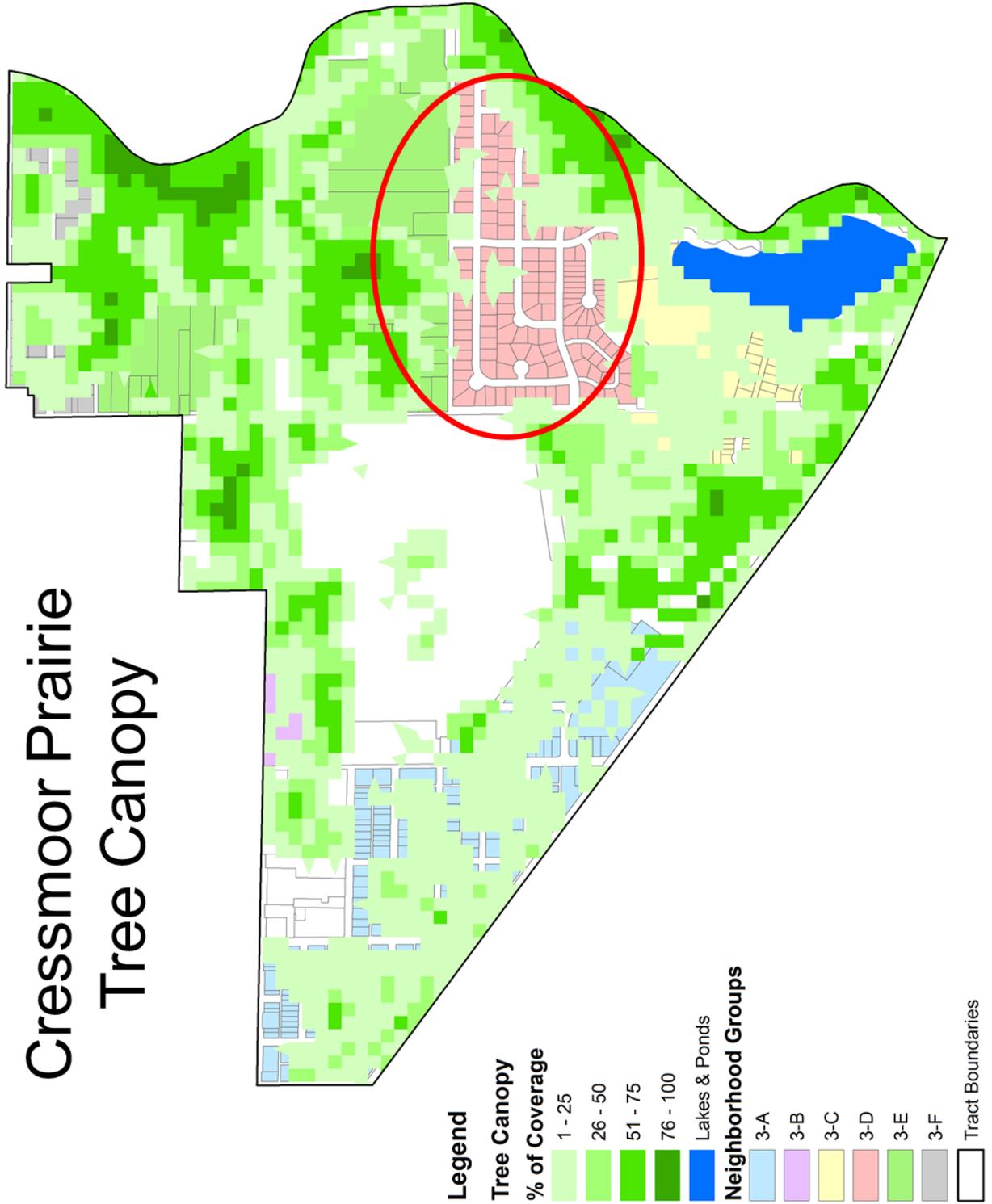
Appendix O: Tree Canopy



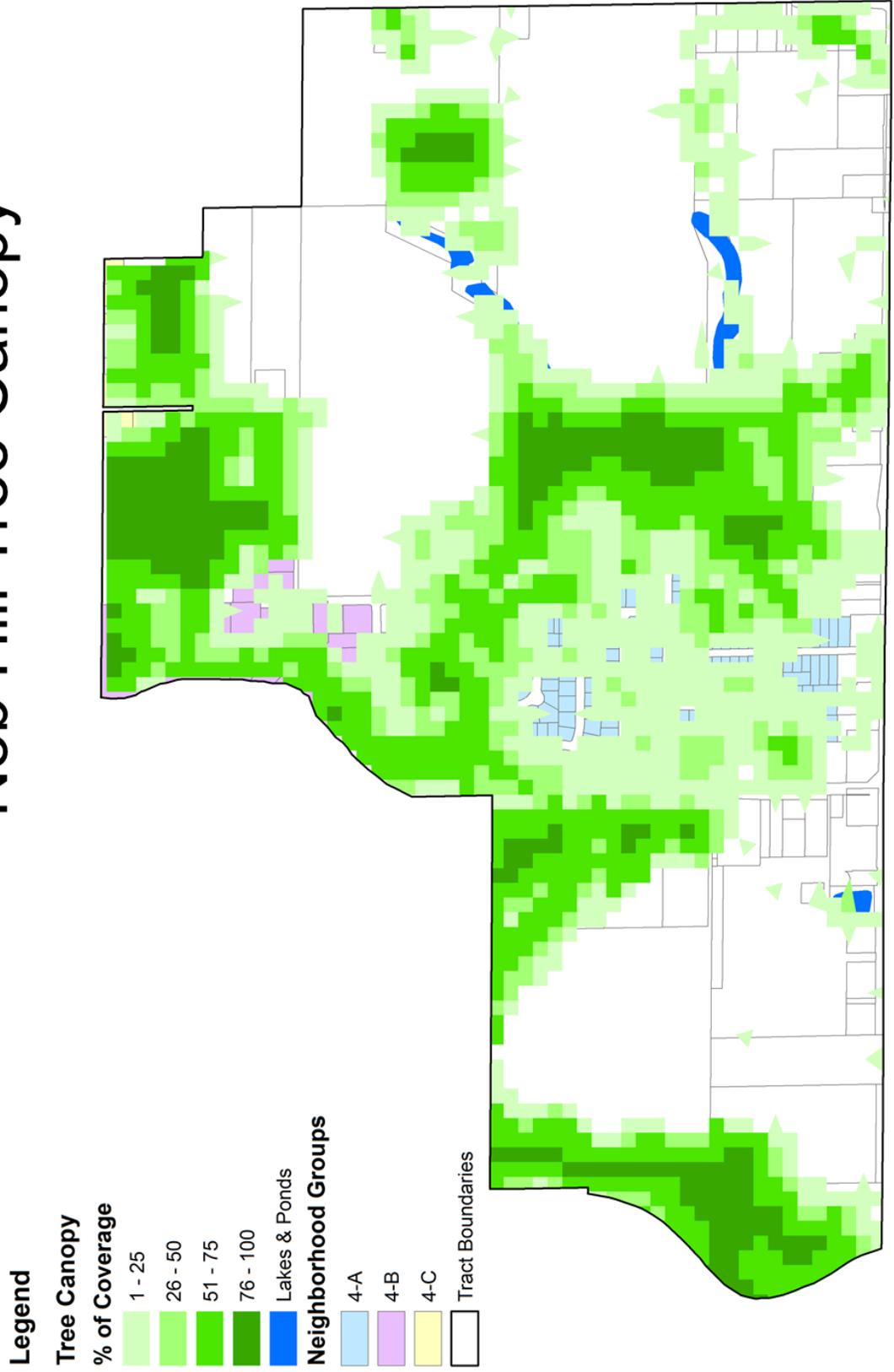
Mundell Tree Canopy



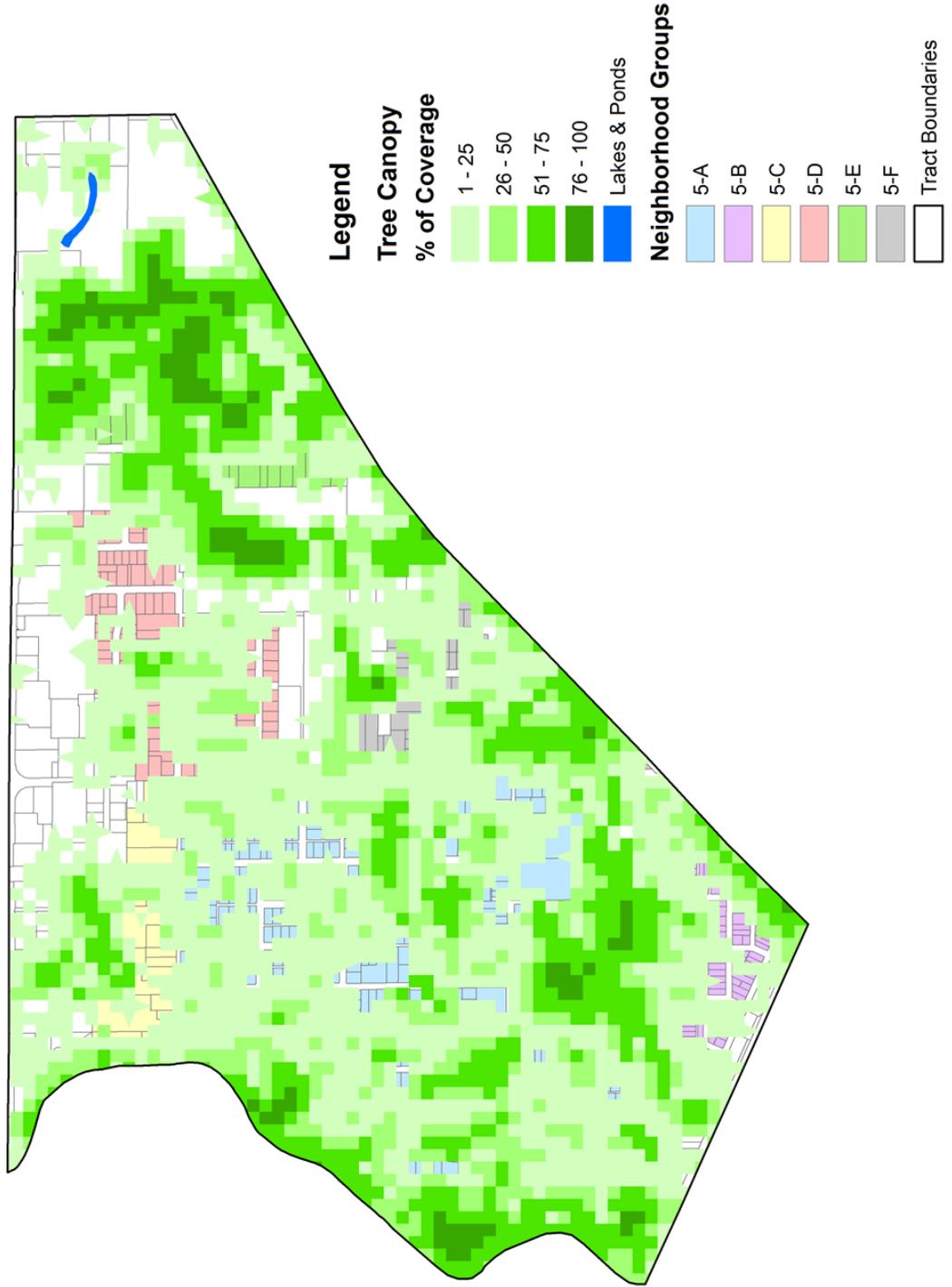
Cressmoor Prairie Tree Canopy



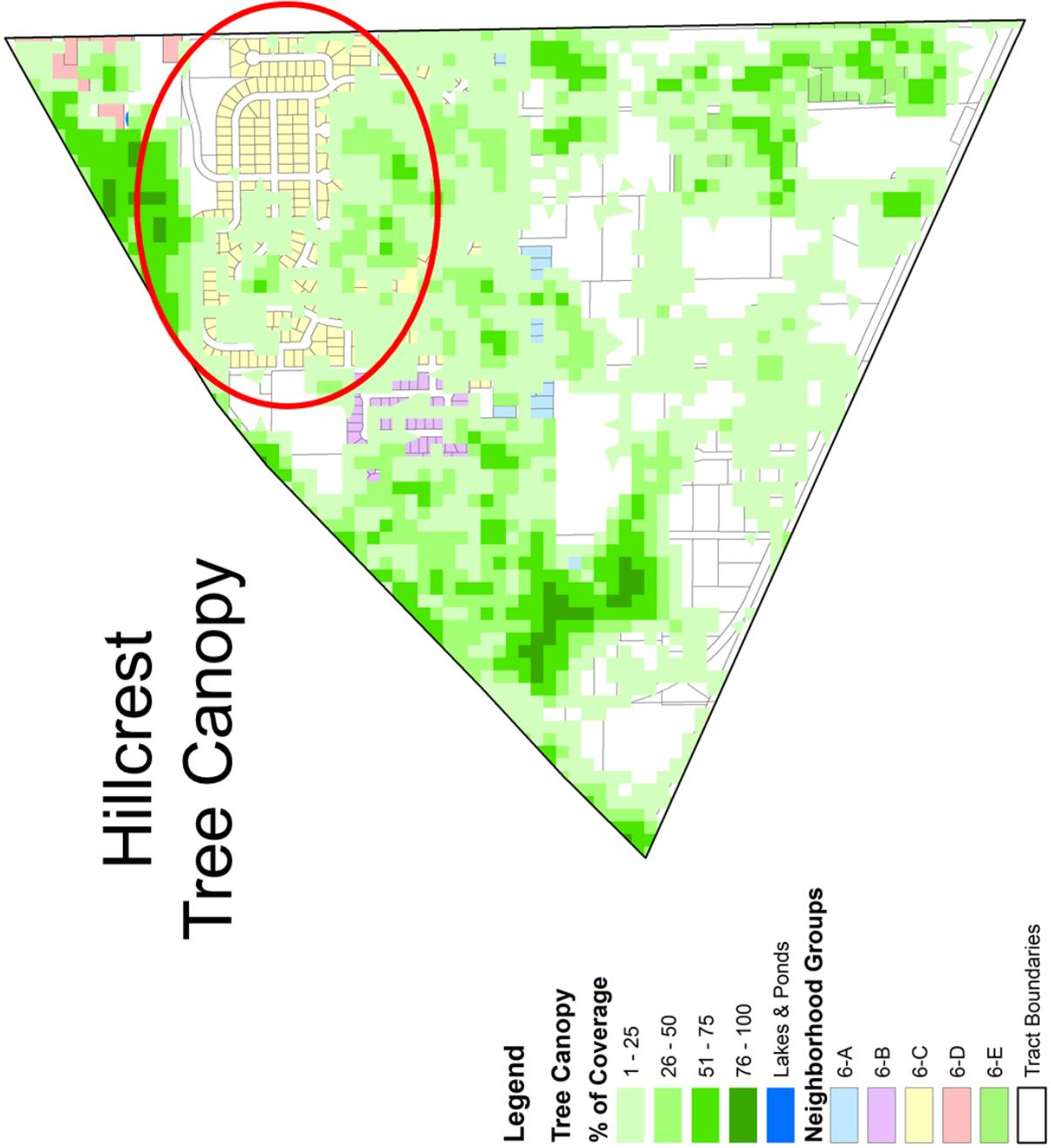
Nob Hill Tree Canopy



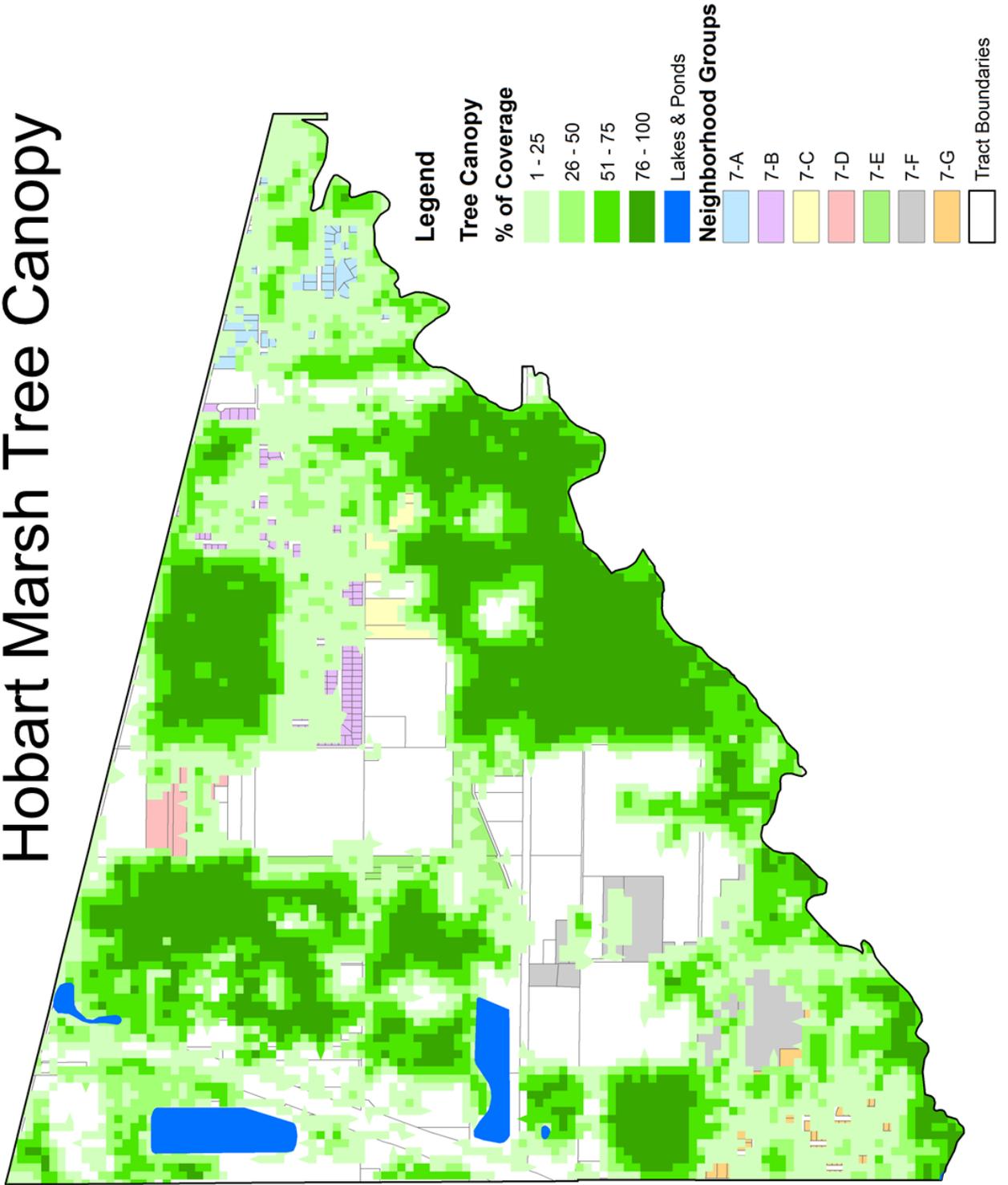
Liberty Tree Canopy



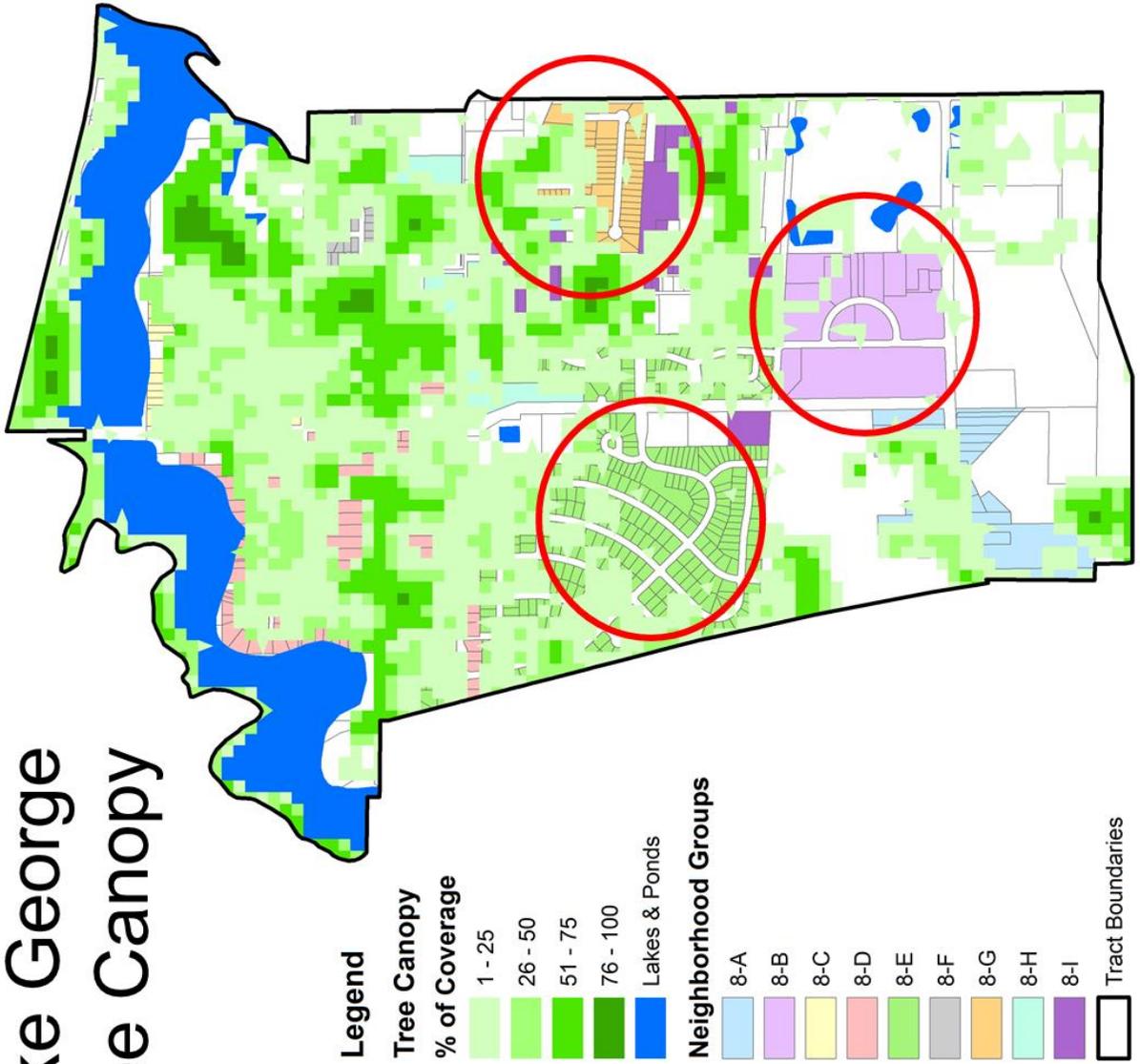
Hillcrest Tree Canopy



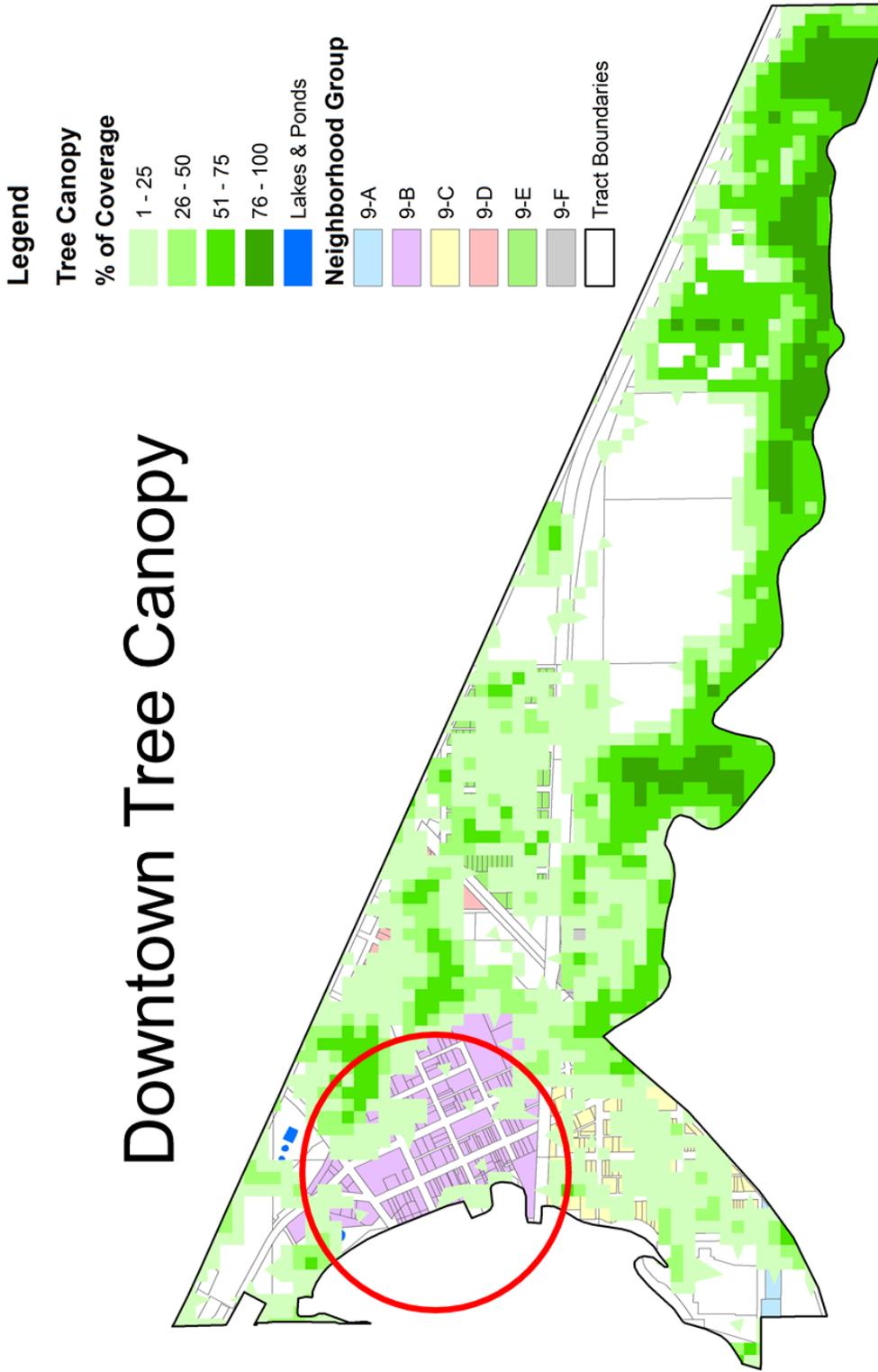
Hobart Marsh Tree Canopy



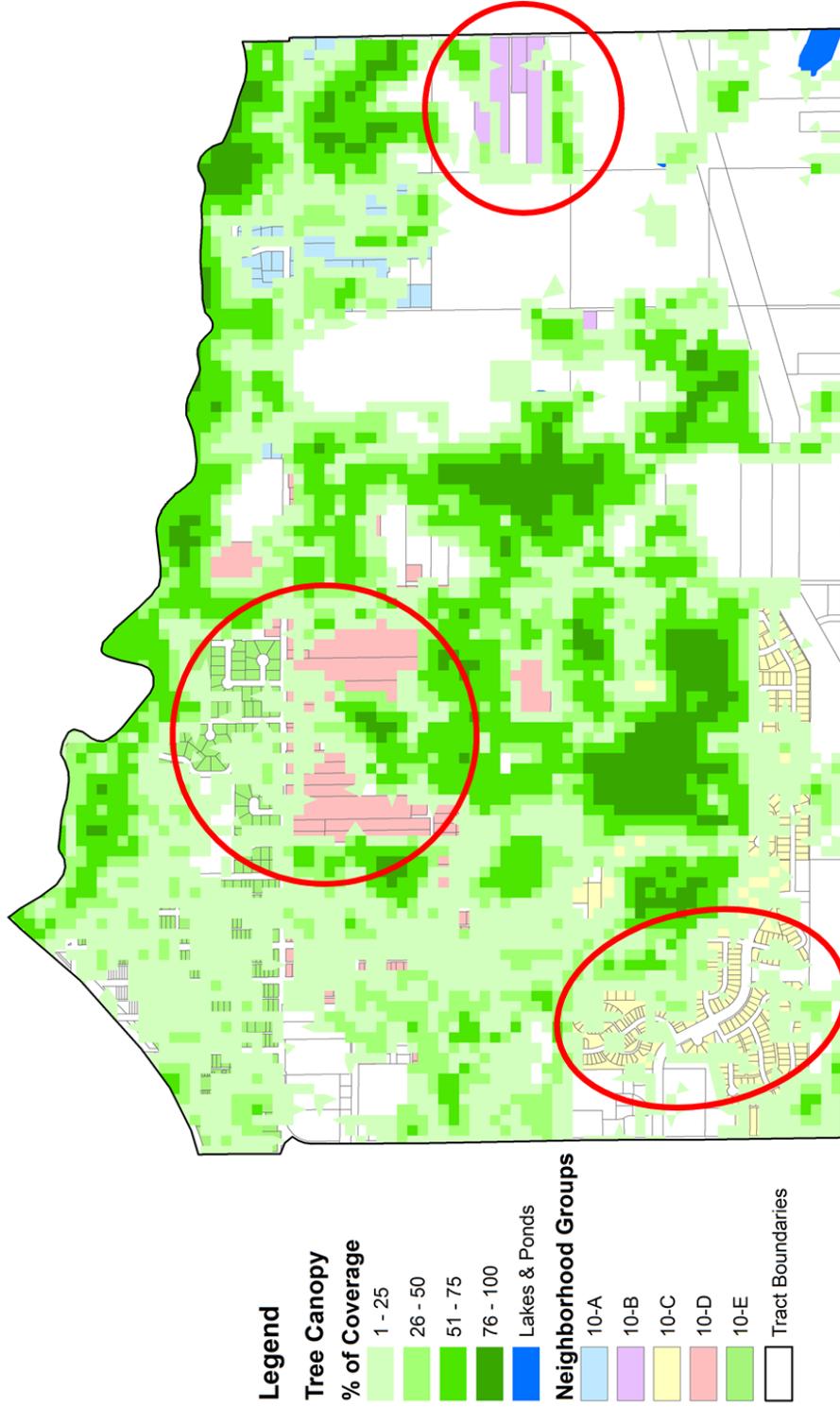
Lake George Tree Canopy



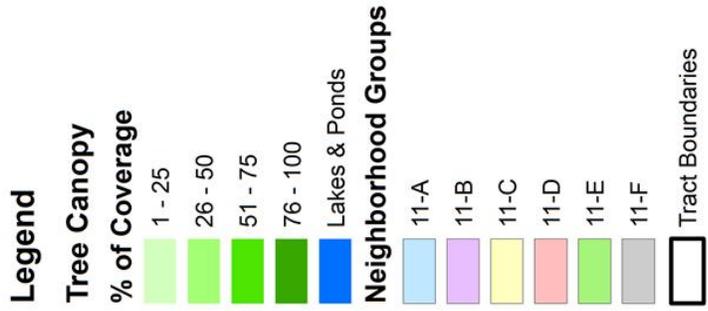
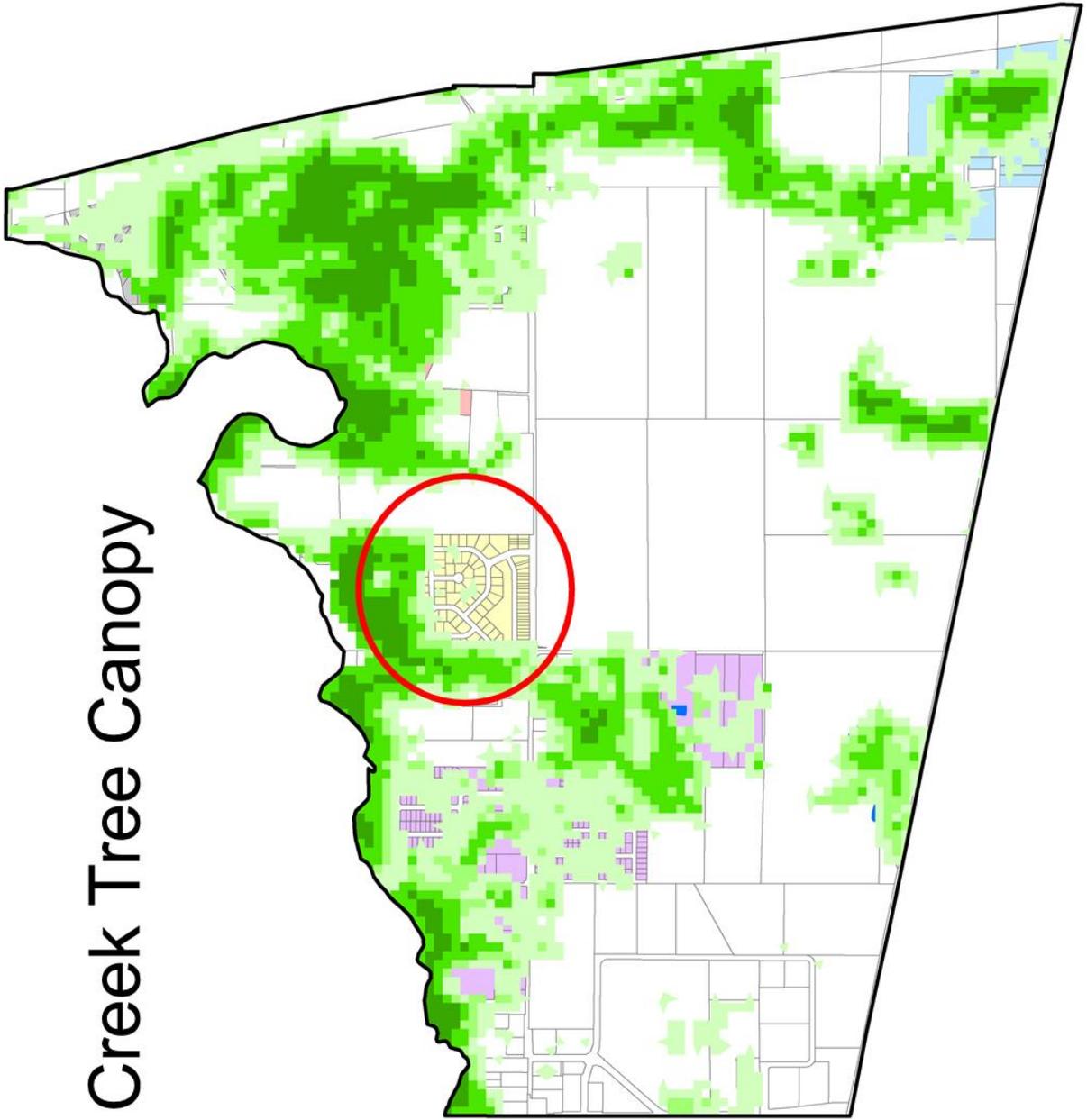
Downtown Tree Canopy



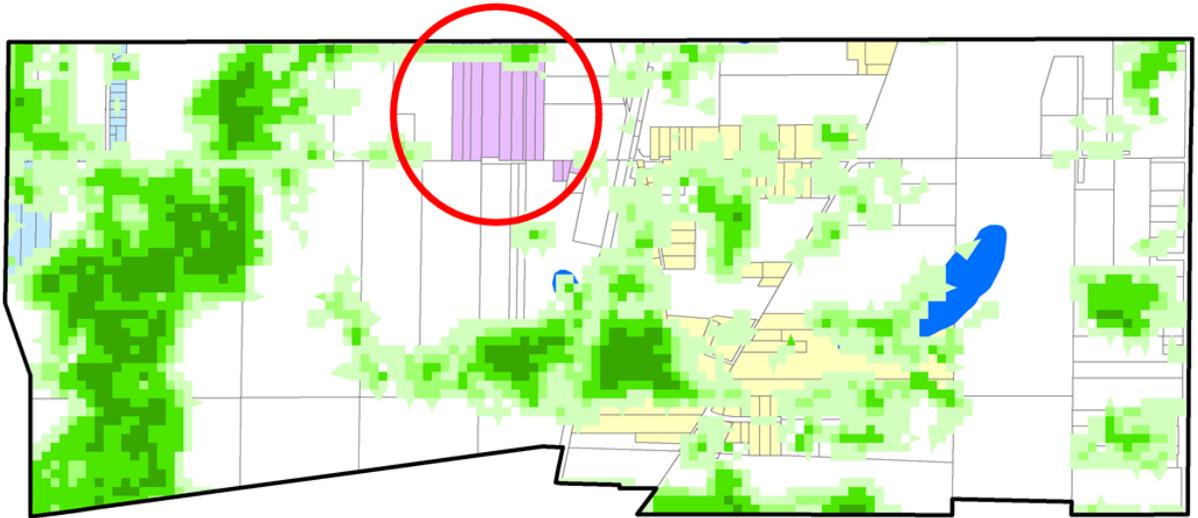
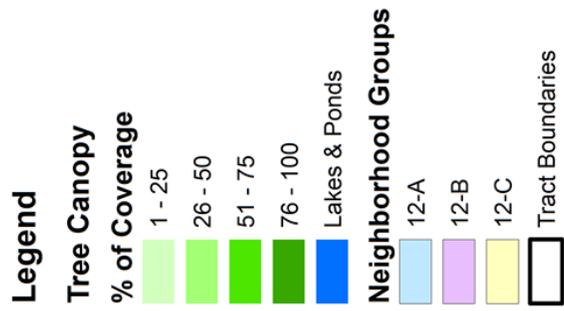
10th Street Tree Canopy



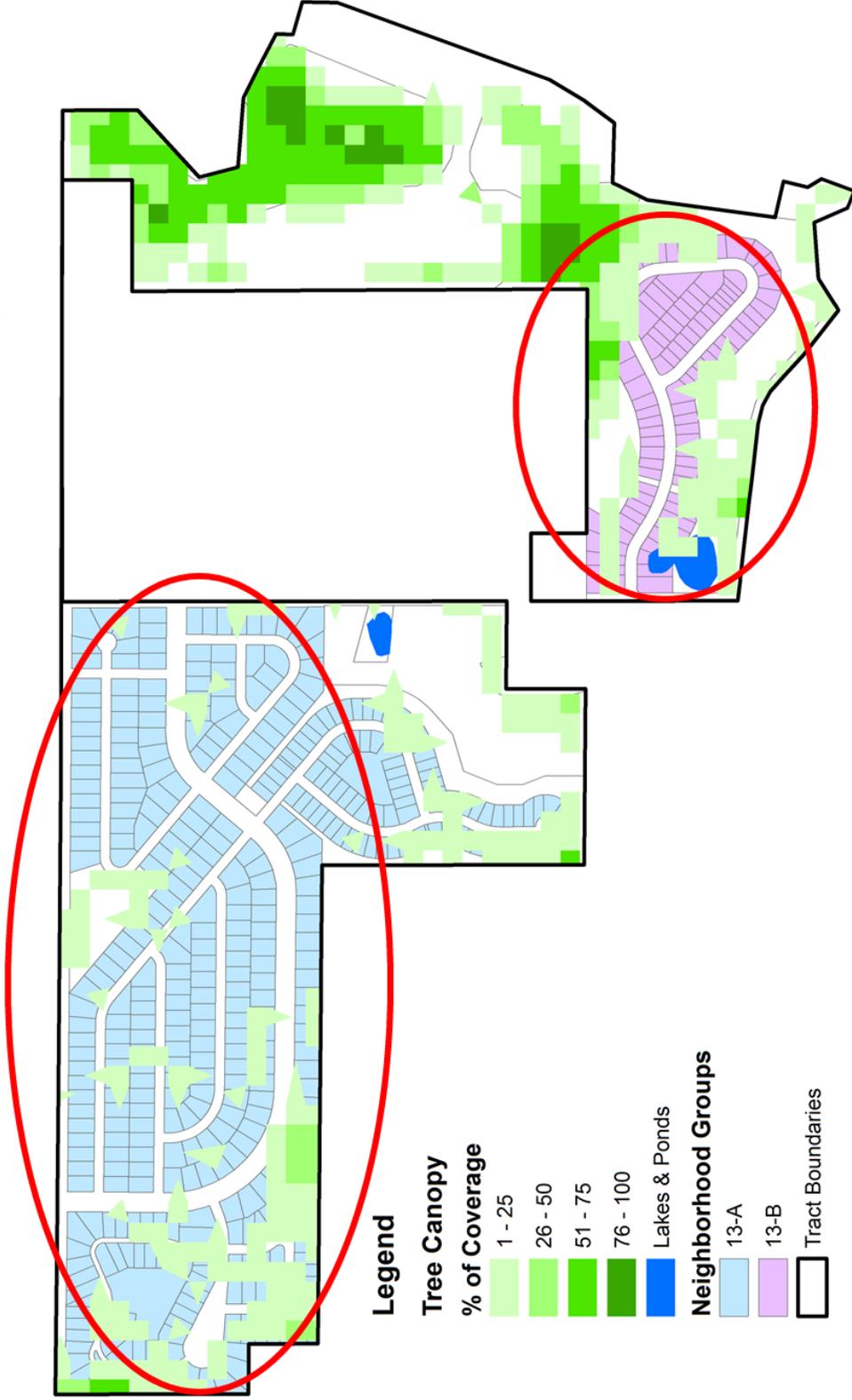
Creek Tree Canopy



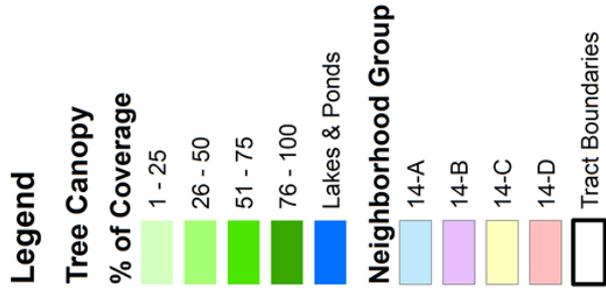
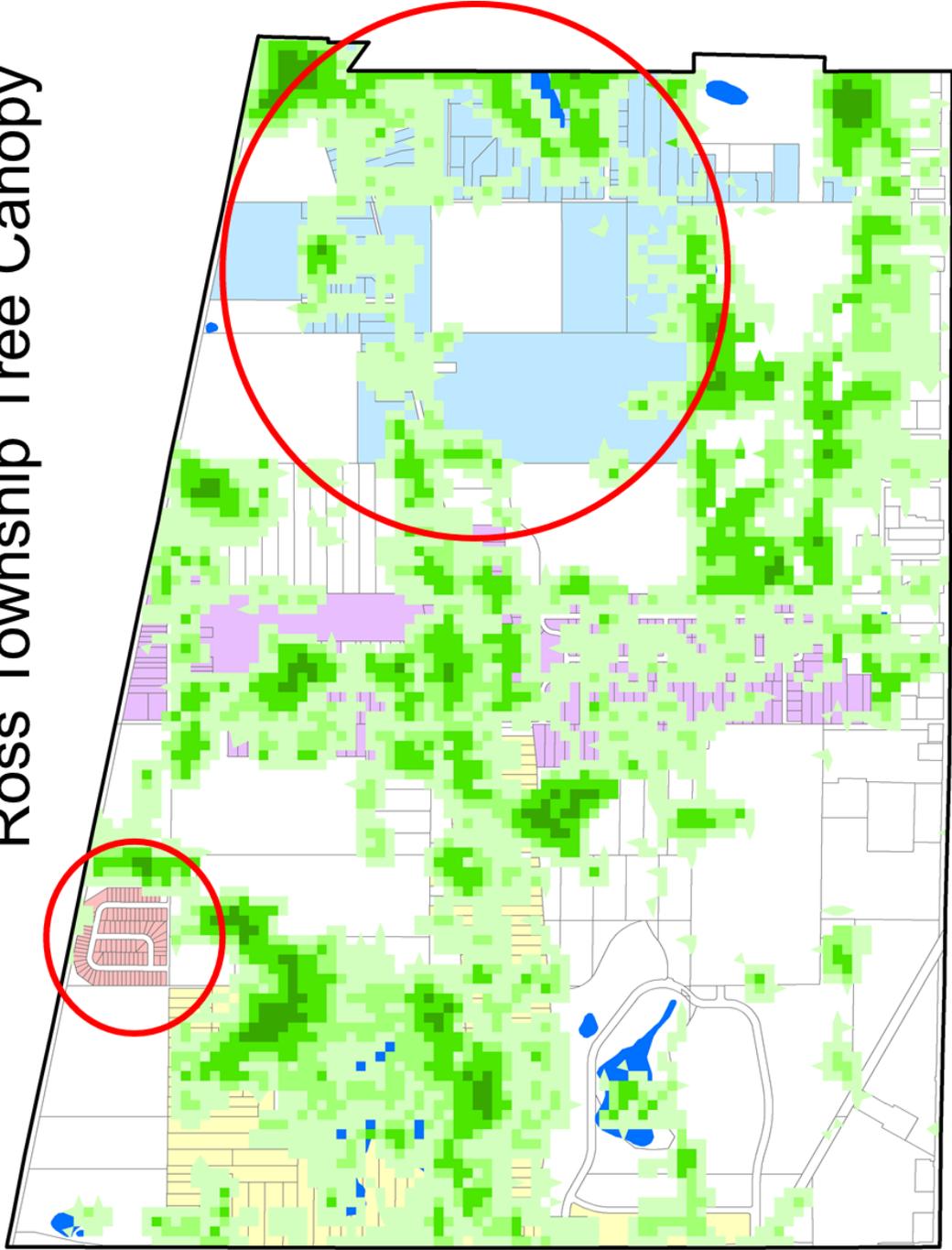
Ainsworth Tree Canopy



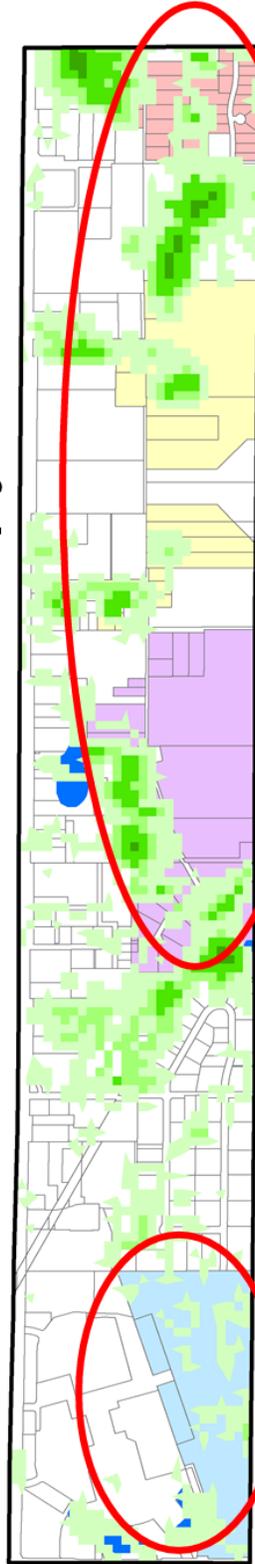
Ridge Pointe Tree Canopy



Ross Township Tree Canopy



US 30 Tree Canopy



Legend

Tree Canopy

% of Coverage

- 1 - 25
- 26 - 50
- 51 - 75
- 76 - 100

Lakes & Ponds

Neighborhood Groups

- 15-A
- 15-B
- 15-C
- 15-D

Tract Boundaries