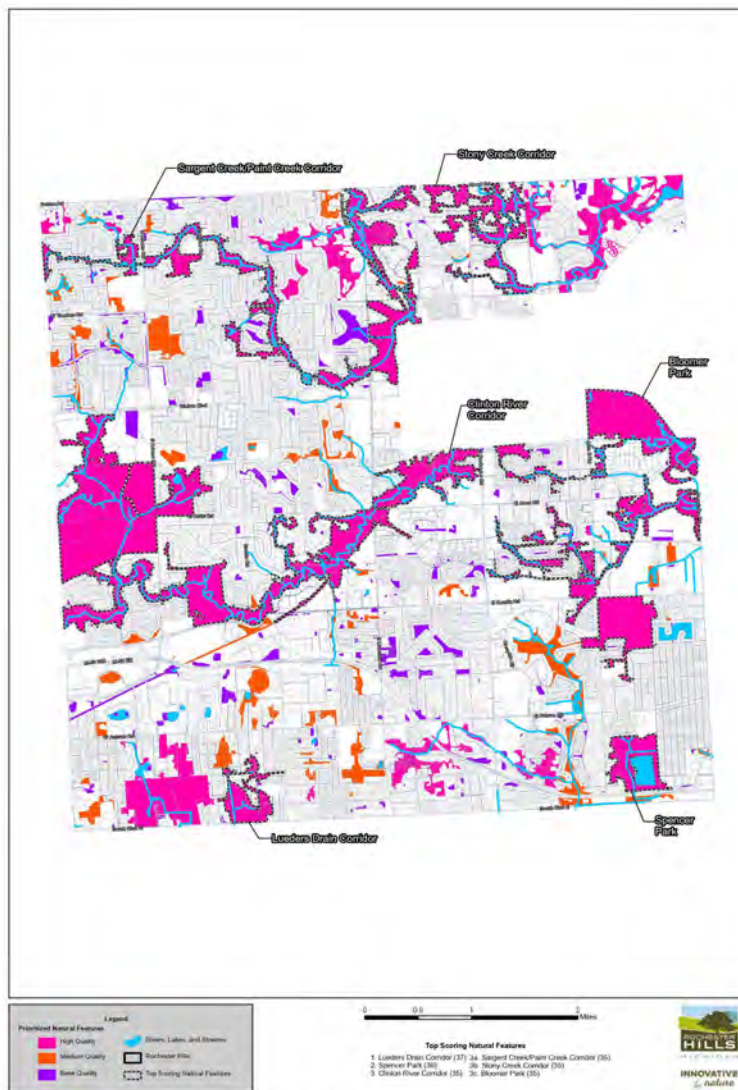


City of Rochester Hills 2024 Natural Features Inventory Update



Rochester Hills 2024 Natural Features Inventory
Client: The City of Rochester Hills
Created by: RMH, January 30, 2024, ASTI Project 11482-12

Figure 5 - Prioritized Natural Features Areas Map
(Circa 2022)



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1.0 Introduction

As one of the most progressive cities in Michigan, the City of Rochester Hills has changed in land use coverage over the last twenty years through development and conservation. To allow the City to be able to prudently weigh future planning options for development and the conservation of natural resources, the City requested that ASTI Environmental (ASTI) complete an update to the City's Natural Features Inventory (NFI), which was originally completed in 2005.

The updated NFI will be used by the City for planning purposes including, but not limited to, determining best engineering practices, proposed development impacts, appropriate areas to promote or require conservation and preservation of natural areas, and for overall long term master planning, which would also include a determination if current City natural resource ordinances provide adequate protection of natural areas meeting the goals and objectives of the City's Master Land Use Plan. The updated NFI will allow all City departments to review updated natural resource extents to allow for more environmentally prudent and economically responsible development. The updated NFI identifies the current extent of existing wetlands, woodlands, steep slopes, floodplains, and overall natural features areas; these data were compiled, analyzed, and compared to previous NFI data as applicable to assess the City's success in managing these features.

2.0 Data Compilation Methodology

ASTI utilized data and information from various sources to complete the updated NFI, including the City of Rochester Hills GIS Department, the Oakland County Conservation District, Oakland County Water Resources Commission (OCWRC), the Southeast Michigan Council of Governments (SEMCOG), the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), the Michigan Department of Environment, Great Lakes, and Energy (EGLE), the Michigan Department of Natural Resources (DNR), the Michigan Natural Features Inventory (MNFI), the Michigan Geographic Information Library (MGIL), and the Federal Emergency Management Agency (FEMA).

As part of the mapping process, ASTI utilized City GIS data developed from the previous NFI work for reference in completing the updated NFI mapping in this report. To ascertain changes in the City's natural areas, ASTI completed field inspections throughout the City to determine current wetland and woodland coverage through publicly accessible areas. Publicly available aerial photography was also utilized to assist in determining natural area extents within private lands that were not otherwise accessible. ASTI also relied on professional knowledge derived from over twenty years of assisting the City during development and conservation projects as the City's wetland consultant.

ASTI completed comprehensive field inspections in July 2022, which canvassed the entire City. Boundaries of all natural areas were verified and documented in the field and reviewed against current and historical aerial photography, while referencing the additional data sources noted above, as applicable. ASTI noted the size, types,

ecological quality, connectivity, current and surrounding land uses within and around all natural resources in the City. ASTI then imported these data into a City-approved natural area scoring matrix, which was used to determine a measurable value of the ecological importance for the City and for use for GIS mapping. As shown on Table 1 – *Rochester Hills Natural Features Inventory Scoring Matrix* below, the scoring matrix was based on the *Oakland County Potential Natural Areas Assessment: 2017 Update*. ASTI modified the County matrix to be more relevant to the City of Rochester Hills, such as adjusting qualifying natural area sizes based on the City’s size and not the County’s, and identifying natural features importance to the City specifically, such as Spencer Park, etc.

Table 1 – Rochester Hills Natural Features Inventory Scoring Matrix

Attributes	Rationale	Factor	Score	Total
Size of Natural Area	Total size of area.	0-20 acres	1	
	Larger contiguous areas provide greater potential for higher quality and higher functioning ecosystems.	20-40 acres	2	
		40-80 acres	3	
		>80 acres	4	
Core Area Size	Core Area = total natural area size minus 300 ft buffer from the edge of the natural area polygon.	0-6 acres	1	
		6-12 acres	2	
	The greater the core area the fewer negative impacts on edge sensitive fauna.	12-23 acres	3	
		>23 acres	4	
Riparian Corridor	Riparian corridors provide extended connections between habitats for a variety of flora and fauna. The Clinton River, River Rouge, Sargent Creek, and Paint Creek are important regional watercourses.	None	0	
(Present or Not)		Present	2	
		Present and Clinton River, Sargent Creek, River Rouge, or Paint Creek	3	
Landscape Connectivity	within 1/8 mile radius as a percentage	0-10%	0	
		10%-20%	1	
		20%-40%	2	
		>40%	4	

Attributes	Rationale	Factor	Score	Total	
Wetlands Percentage/Acreage/Quality Wetlands provide important natural functions for water quality enhancement, wildlife habitat, sensitive species habitat, flood control, storm water control, etc.	Considers the calculated amount of wetland within a natural area as a percentage.	0-15%	1		
		15-30%	2		
		30-50%	3		
		>50%	5		
	Considers the calculated amount of wetland within a natural area as acreage	>0-5 acres	1		
		5-30 acres	2		
		30-50 acres	3		
		>50 acres	5		
	Considers the quality of the wetland per field verification including invasive species composition, sedimentation, native species compositions, etc.	Base Quality	1		
		Medium Quality	3		
		High Quality	5		
	Woodlands Percentage/Acreage/Quality	Considers the calculated amount of woodland within a natural area as percentage.	0-5%	1	
			10-25%	2	
			25-50%	3	
>50%			5		
Considers the calculated amount of woodland within a natural area as acreage		>0-10 acres	1		
		10-25 acres	2		
		25-50 acres	3		
		>50 acres	5		
Considers the quality of a woodland per field verification including invasive species composition, tree size, native species composition, etc.		Base Quality	1		
		Medium Quality	3		
		High Quality	5		
		TOTAL	Highest Possible Score = 45		

3.0 Mapping Parameters

Wetlands and Woodlands

Development has increased functional demands on wetlands and woodlands within the City. Determining the current extent of wetlands and woodlands within the City will provide a comprehensive picture of the natural landscape, therefore allowing a more thoughtful approach to the planning process, development review and conservation strategies to protect these natural areas. To complete this, ASTI conducted field inspections along with desktop reviews of the City's known and potential wetland and woodland areas.

Generally, the larger the size of these natural areas, the more important they are ecologically as they are able to provide more natural benefits. Sizes, types, and connectivity of City wetlands and woodlands were all documented and mapped by ASTI. Additionally, ASTI compared the extent of current wetlands and woodlands with those that were determined in 2005. Figure 1 - *Wetland Map (circa 2022)* shows the extent of the City's wetlands identified in the 2024 NFI update; Figure 2 – *Woodlands Map (circa 2022)* depicts the extent of woodlands identified within the City per the 2024 NFI Update. Surface water data provided by the City were also placed on Figures 1 and 2 to show current known watercourses and waterbodies in relationship to the identified City wetlands and woodlands. Changes in the updated extents of the City's natural areas, as compared to the original 2005 study, are discussed in Section 4.

Steep Slopes

Steep slopes are often at risk for erosion depending on soil types and the amount and types of vegetation present. Ensuring stable steep slopes is of paramount consideration for the City; forested and vegetated slopes are the most stable slopes.

The City provided ASTI with current Light Detection and Ranging (LIDAR) topographical data, which, through GIS manipulation by ASTI, was used to calculate all areas within the City that meet the slope percentages per the City's Steep Slope Ordinance as shown below:

- 1) Moderate Steep Slopes = 20-25% slopes
- 2) Very Steep Slopes = 25-40% slopes
- 3) Bluff Slopes = 40% or greater (with an elevation change of >15 feet)

Figure 3 - *Steep Slopes Map (circa 2022)* completed by ASTI shows the City's steep slope areas per current City ordinance and the updated NFI.

Floodplains

The current Federal Emergency Management Agency (FEMA) floodplains within the City limits were overlaid onto the base City map as shown on Figure 4 - *FEMA Floodplain Map (circa 2022)*. The 100-year and 500-year floodplains within the City are mostly located along the Clinton River as well as Galloway Creek, Sargent Creek, Paint Creek, and the River Rouge, to a lesser extent.

Natural Area Prioritization & Ranking

Based on the matrix discussed above, ASTI evaluated, scored, and ranked each natural area based upon metrics that characterize their habitat and functional values and the connectivity of individual areas or resources. Based upon the resulting scores, overall natural features were categorized into three categories: High Quality, Medium Quality, and Base Quality as shown on Figure 5 – *Prioritized Natural Features Map (circa 2022)*.

Land Use of Natural Areas

Encouraging land uses or development practices that are compatible with, or sensitive to the identified natural features will help guide future zoning and planning decisions. Table 2 – *City Land Use and Natural Areas* below details all City land uses in relation to Natural Features.

Table 2 – City Land Use and Natural Areas.

City-Wide	City-Wide		Natural Area			Wetland			Woodland		
	Land Use	Area (Acres)	% of Total Land Use	Area (Acres)	% of Natural Area	% of Total Land Use Type	Area (Acres)	% of Wetland	% of Total Land Use Type	Area (Acres)	% of Woodland
Commercial/Office	1025.18	5%	71.85	1.38%	7.01%	20.56	1.09%	2.01%	38.34	1.16%	3.74%
Industrial	851.09	4%	73.99	1.42%	8.69%	37.12	1.97%	4.36%	58.05	1.76%	6.82%
Mobile Home Park	188.46	1%	6.05	0.12%	3.21%	3.43	0.18%	1.82%	4.30	0.13%	2.28%
Multiple Family	1062.65	5%	138.03	2.66%	12.99%	69.99	3.71%	6.59%	121.23	3.68%	11.41%
Public/Institutional	1379.05	7%	321.37	6.19%	23.30%	132.26	7.02%	9.59%	292.36	8.86%	21.20%
Recreation/Conservation	2610.53	12%	2610.53	50.27%	100.00%	730.80	38.77%	27.99%	1237.35	37.52%	47.40%
Road Right-of-Way	3308.12	16%	121.57	2.34%	3.67%	24.01	1.27%	0.73%	93.13	2.82%	2.82%
Single Family	8890.70	42%	975.66	18.79%	10.97%	285.63	15.15%	3.21%	885.84	26.86%	9.96%
Transportation/Utility/Communication	177.77	1%	54.25	1.04%	30.52%	23.34	1.24%	13.13%	46.21	1.40%	25.99%
Vacant	1208.50	6%	477.48	9.19%	39.51%	221.16	11.73%	18.30%	399.38	12.11%	33.05%
Water	360.66	2%	342.65	6.60%	95.01%	336.54	17.86%	93.31%	122.08	3.70%	33.85%
Total =	21062.70		5193.43		24.66%	1884.85		9%	3298.26		16%

Updated GIS Mapping

Current GIS mapping is significantly more advanced than that used in 2005, and, thus, some statistics are slightly different when compared. For example, the City’s entire area was calculated at 18,294.74 acres in 2005. As shown in Table 2 above, the City’s entire area as calculated in 2022 was 21,062.70 acres, which is slightly different, but a more accurate calculation than 2005 data. Therefore, while statistics are relevant and comparable from the previous Natural Features Inventory to the 2024 Natural Features Update, they are not exact.

4.0 Comments and Future Considerations for City Natural Areas

Wetlands Considerations

Wetlands provide beneficial functions to the City by providing wildlife habitat, water quality enhancement through nutrient retention, sediment removal, groundwater recharge and discharge, flood and storm water storage and control, erosion protection, open space, outdoor recreation areas, and aesthetics. Development within the City has increased the potential impacts to these natural resources by destruction, encroachment, runoff, etc. As noted above, generally, the larger the size of a wetland, the more important it is ecologically, since it is able to provide more natural benefits. However, smaller wetlands (less than two acres in size) can contain high quality vegetation and be extremely valuable on a local scale. Watercourses and waterbodies can connect wetland systems throughout the City, such as the wetland systems found along the Clinton River corridor. These natural hydrologic connections are important to natural processes and can provide varied habitat for flora and fauna.

Per 2022 statistical data shown in Table 3 – *Wetland Coverage Changes* below, and Figure 6 – *Wetland Changes Map (2005 to 2022)*, 9% of the City land use is wetland; this is comparable to the 2005 wetland land usage of 10%. Since 2005, an additional 46.27 acres of wetland was identified. The increase in identified wetland area can be partially attributed to the thorough field inspections by ASTI that confirmed some areas not considered wetland in the 2005 inventory that are now considered wetland per the 2024 NFI update and to current, more accurate GIS technology. The top three City land uses for Wetlands are as follows:

- Recreational and Conservation Land = 27.99%
- Vacant Land = 18.30%
- Transportation/Utility/Communication Land = 13.13%

Table 3 – Wetland Coverage Changes

NFI Year	2005	2022	Change in Acreage from 2005
City Wetland Acreage	1,838.58	1,884.85	+46.27

While these data indicate no overall net loss in City wetland from 2005 through 2022, changes in City policies pertaining to wetland conservation and preservation could be adopted to further protect these resources, further ensuring their preservation and maintaining their quality over time.

The City currently regulates isolated wetlands that are at least two acres in size, regardless of connectivity to watercourses or waterbodies. Many isolated wetlands within the City are smaller than two acres in size and are not necessarily afforded protection by the City but still contribute to the overall environment and character of

the City. The City could consider regulating isolated wetlands of at least one acre in size, therefore promoting further conservation of these natural areas while allowing responsible development to continue City-wide where appropriate.

When wetland impacts are permissible, wetland mitigation may be required. Wetland mitigation allows for regulated wetland impacts in return for compensatory construction of wetland in another location on or off the property being developed or the purchase of wetland mitigation credits. The City does not currently require any form of wetland mitigation for City regulated wetlands, however, EGLE typically does require wetland mitigation to allow impacts to EGLE-regulated wetlands, which many times overlaps with City-regulated wetlands. Yet there are a number of wetlands that are smaller in size that are not subject to EGLE regulation and therefore no mitigation is required. Current City and EGLE regulations regarding mitigation (or non-requirement for) will likely have a long term impact on the amount of wetland in the City as EGLE's approach for wetland mitigation is based on a watershed scale, and as such, most wetland mitigation required by EGLE for projects located within the City is accomplished through the purchase of wetland mitigation banks within the impacted watershed but outside of the City and even Oakland County.

The City may also consider a program that requires mitigation of City-regulated wetland areas at a certain threshold of impact acreage to be accomplished within the City, which would result in lower net losses of wetland area within the City and provide the ecological benefits of the wetlands more locally. The City could also consider a fee option for wetland mitigation of wetlands only regulated by the City, requiring a calculated amount of funds be submitted to the City, such as a cost per square foot of wetland impacts for example. These funds could be used on City-owned land for natural area enhancement, stream and waterbody restoration programs, planting programs, invasive species treatment, park maintenance, City green space maintenance, and other activities intended to improve natural areas within the City.

Woodlands Considerations

Woodlands provide many natural functions such as stabilizing soils, preventing erosion, increasing stormwater dissipation, and facilitating natural water transmission into local underground aquifers. Woodlands also provide shade for watercourses and water bodies, thereby cooling these waters, which is required for a healthy habitat for many fish and other aquatic species. Woodlands are important to numerous terrestrial animals by providing habitat, shelter and food. Woodlands improve air quality by filtering out pollutants, producing oxygen, and reducing carbon dioxide. Woodlands can be important in creating links between scattered areas of wooded habitat in the wider landscape, helping to reduce forest fragmentation and increase connectivity, which is important in allowing the movement of some plant and animal species between woodland blocks. Woodlands also provide protection from wind, noise, and are an aesthetic visual barrier. Finally, woodland areas offer recreational opportunities for City residents such as hiking, photography, and wildlife viewing, increased land values and increased overall health and wellness.

Per the 2022 statistical data shown below in Table 4 – *Woodland Coverage Changes* and Figure 7 – *Woodland Changes (2005 to 2022)*, 16% of the City land use is woodland; this is similar to the 2005 woodland land usage of 17%. Since 2005, an additional 107.79 acres of woodland has been identified. Similar to updated City wetland acreages, the additional woodland area can be partially attributed to the thorough field inspections conducted by ASTI, natural growth and maturation of the woodland areas, and to current, more accurate GIS technology. The top three City land uses that woodlands are the most prevalent within are:

- Recreational and Conservation Land = 47.40%
- Vacant Land = 33.05%
- Transportation/Utility/Communication Land = 25.99%

Table 4 – Woodland Coverage Changes

NFI Year	2005	2022	Change in Acreage from 2005
City Woodland Acreage	3,190.47	3,298.26	+107.79

The Rochester Hills Tree Conservation Ordinance provides protection to individual trees within the City that meet specific size and species requirements. Preservation percentage requirements were increased in 2019 and changes were made to encourage preservation of larger trees across the entire city. As an Arbor Day Foundation-recognized “Tree City,” Rochester Hills has been active in tree protection as part of the City’s planning processes as well as during physical development. However, woodlands are not specifically protected by any City ordinance. Potential considerations regarding the City’s current tree conservation ordinance could include adding protection for woodland areas as a whole. If this was pursued, the City may consider an ordinance specifically addressing the protection of City woodland ecosystems. Size, location, and tree/vegetation components collectively could be used to determine protective measures afforded to these identified woodland areas. If deemed necessary by the City, tree replacement and financial requirements (or payment in lieu) could be more significant when identified woodland areas are planned for development depending on their scored value. ASTI recommends the City consider modifying the current tree conservation ordinance or adopting an ordinance specifically addressing the protection of City woodland ecosystems. Size, location, and tree/vegetation components collectively may be used to determine protective measures afforded to these identified woodland areas. Tree replacement requirements may be more significant when identified woodland areas are planned for development depending on their scored value and at the City’s discretion.

Steep Slopes Considerations

The City has determined that the establishment of regulatory ordinances and conservation practices to prevent disturbance of steep slopes is required to protect City residents and environmentally sensitive land within the City. The disturbance of steep slopes can aggravate erosion and sedimentation beyond rates experienced in natural processes and impact adjoining properties or other environmentally sensitive areas. Erosion and sedimentation often include the loss of topsoil, a valuable natural resource, and can result in the disturbance of habitats, degradation of surface water quality, degradation of wetlands, watercourses, and waterbodies, alteration of drainage patterns within watercourses, gulying of land, and the obstruction of drainage structures potentially causing flooding.

The steepest slopes within the City are generally within the Clinton River valley. Although many areas of erosion associated with steep slopes within the City are a result of natural processes (stream undercutting leading to slope failure, natural senescence of vegetation, etc.), many steep slopes may be exhibiting excessive or accelerated erosion due to encroaching development that intensify impacts such as deforestation, excessive foot traffic, urban run-off, and sedimentation. The Steep Slope Map (Figure 3) completed by ASTI reflects the current defined steep slope percentages (as defined in the City's Steep Slope Ordinance). Development on or near slopes 25% or greater should continue to be discouraged by the City to prevent potential erosion-related issues, such as property damage, siltation, and slope failure. Moreover, the current steep slope setbacks from the top and toe of City steep slopes (per the City's current Steep Slope ordinance) provide additional protection to these vulnerable areas.

No data was available to compare the steep slope areas within the City from the 2005 inventory. However, it is ASTI's opinion that the current steep slope ordinance enforced by the City supplies adequate protection to these natural areas. Based on need and available funding, areas of steep slopes on City-owned land could be reinforced and/or improved by natural means such as native plantings and seeding.

Floodplain Considerations

Floodplains reduce the potential for adverse effects to citizen welfare, property damage, excessive erosion, and infrastructure. A "no net loss" of floodplain volume during development is required by EGLE and OCWRC, and it is understood that the City will continue to follow protocol and regulations set forth for floodplain regulations by those entities. This will help to protect sensitive floodplain areas and reduce the potential for property damage and human injury from flood events by ensuring that the necessary amount of flood water storage is being maintained. The City should continue to discourage development within floodplains unless no prudent alternative exists and/or the required volume of floodplain compensatory creation will be created.

Natural Feature Considerations

Natural features are comprised of multiple natural areas interconnected throughout the City. Woodlands, wetlands, streams, lakes, etc., can all be part of one natural

feature. Some natural features, such as the Clinton River Corridor within the City, can be extensive and provide corridors for aquatic and terrestrial wildlife habitat, water quality filtration processes, stormwater control, etc.

As a rule, larger natural features are more important ecologically. A large, high quality natural feature, such as the Clinton River Corridor (Figure 5), can provide all the ecological benefits of wetlands, woodlands, floodplains, and watercourses, thereby increasing their respective interconnected functions and therefore increasing the overall value and importance to the City and the southeast Michigan region. However, these areas can be easily fragmented by disturbances from man-made activities, such as building, road construction, utility expansion, and general human interactions. These features can also be degraded due to natural processes including sedimentation and water pollution. Natural features can also be vulnerable to natural disturbances, such as the emerald ash borer and the spotted lanternfly, which kill trees and negatively affect woodland areas, thereby altering them for numerous years. Human disturbances can also exacerbate these natural disturbances.

ASTI recommends the City consider natural features in an ecological system approach. While avoiding development within large natural features may be impractical, steps should be taken to preserve interconnected areas. For example, this could include ensuring wooded watercourses connecting natural features are left undisturbed, avoiding high-quality upland woodland areas, or considering what a proposed development upstream of a watercourse will have on its downstream portion outside the actual project site.

One way to achieve this is for the City to consider a Sensitive Natural Features Overlay. This type of overlay would be designed to consider natural features as a whole instead of a piecemeal approach based on individual development or an individual type of natural feature within the City. For example, a Sensitive Natural Features Overlay for the Clinton River Corridor would consider any wetland areas, woodland, steep slopes, and floodplains within its recognized area. The overlay would traverse multiple zoning areas such as residential, park space, and even industrial areas, and would aide in determining the best protections for that corridor in conjunction with the specific approved zoning district. A Sensitive Natural Features Overlay would add additional regulations for specific zoning areas within a recognized Natural Feature Overlay District, thereby providing additional, ecologically-based protections to natural features without discouraging development and rehabilitation projects within the City.

Per the 2022 statistical data shown below in Table 5 – *Natural Feature Coverage Changes*, 24.66% of the City land use consists of natural feature areas; this is an increase from the 2005 Natural Feature land usage of 17%. Since 2005, the City has gained 1,114.60 acres of Natural Features. The gain in natural feature acreage can be partially attributed to the thorough field inspections by ASTI and to current, more accurate GIS technology.

The top three City land uses where natural features are the most prevalent are the following:

- Recreational and Conservation Land = 100%
- Vacant Land = 39.51%
- Transportation/Utility/Communication Land = 30.52%

Table 5 – Natural Features Coverage Changes

NFI Year	2005	2022	Change in Acreage from 2005
City Natural Areas Acreage	4,048.83	5,193.43	+1,144.60

Based on the scoring matrix shown in Table 1 in Section 2.0, Data Compilation Methodology, ASTI calculated the number of High Quality, Medium Quality, and Base Quality Natural Features through GIS queries per field reviews, desktop data interpretations, and site-specific knowledge; a score of 45 is the highest possible score. Twenty-three (23) High Quality Natural Features, eighty (80) Medium Quality Natural Features, and two hundred sixty-five (265) Base Quality Natural Features were identified currently in the City. The top scoring Natural Features based on the 2024 NFI Update are as follows:

- 1 - The River Rouge Corridor = 37
- 2 - Spencer Park = 36
- 3 - Four Natural Features tied at 35: Clinton River Corridor, Sargent Creek/Paint Creek Corridor, Stony Creek Corridor, and Bloomer Park

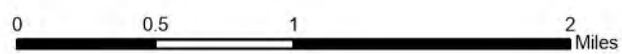
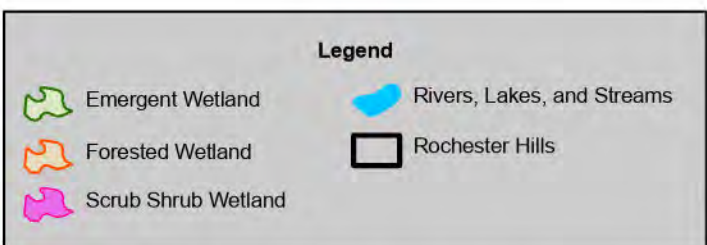
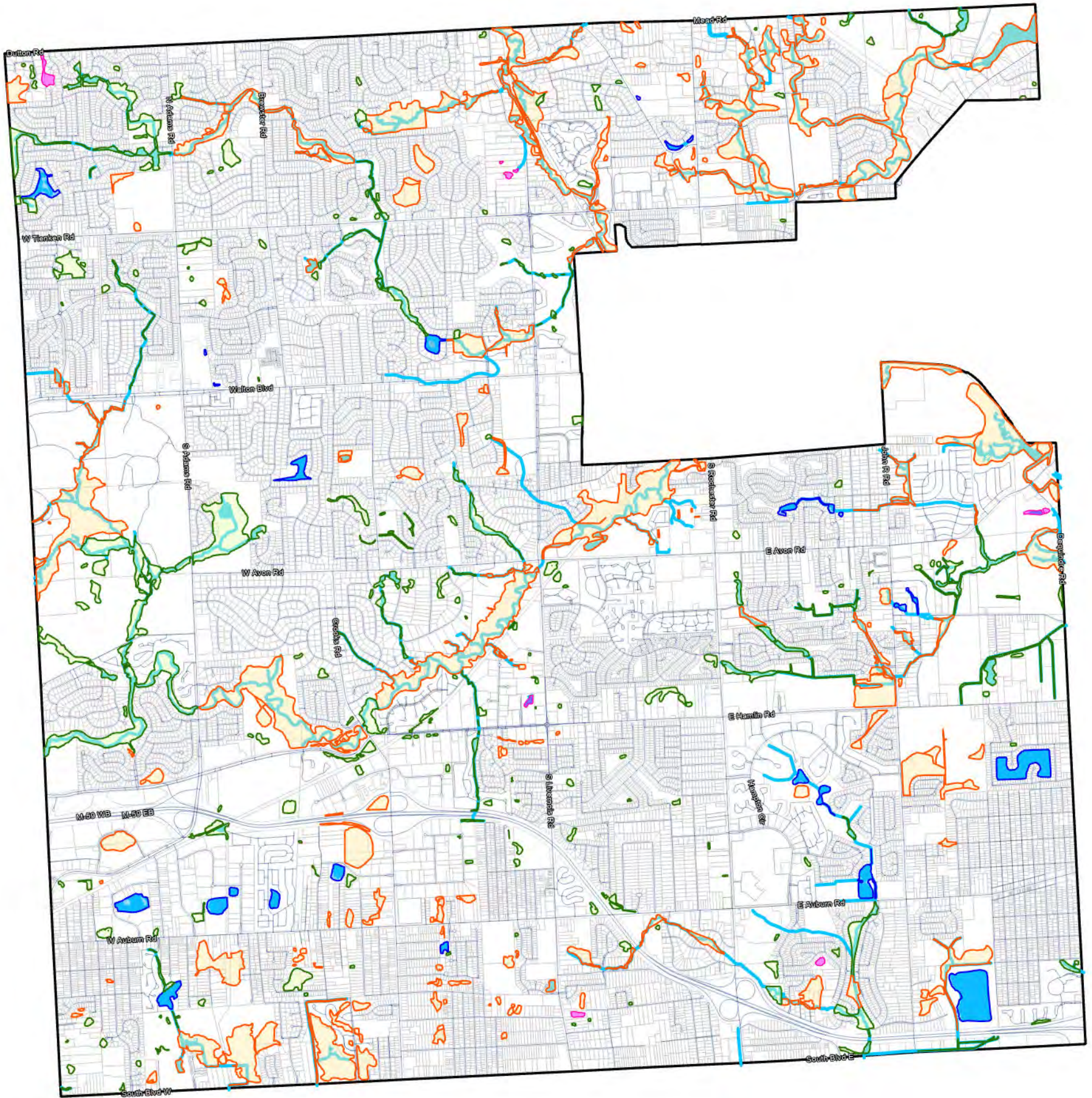
5.0 Conclusions

The City of Rochester Hills has developed and implemented ordinances that protect its natural areas based on need and function that promote responsible development. As the City advances, prudence in the protection of natural areas will most certainly be a part of its progression. The Updated 2024 NFI will provide all City departments the ability to review proposed developments in relation to potential positive and negative impacts to natural features.

Considerations and recommendations for the City based on the Updated NFI include:

- Potentially regulating wetland areas less than two acres in size, thus expanding current City wetland protection and consideration of a compensatory program for impacts to City-regulated wetlands.
- Developing protection plans for woodland areas to go along with current protections for individual trees within the City.
- Stabilizing steep slopes on City-owned properties through native plantings and seeding as allowed by available public funds.
- Continue to discourage floodplain development and continue to follow state protocol of no net loss of floodplain within the City.
- Considered managing ecosystems as a whole in conjunction with the current site by site basis for development, such as considering potential effects of downstream ecosystems from upstream developments that could cause natural feature corridor disruption and/or fragmentation.

This review can be utilized not only for proposed development sites, but also the areas surrounding them, which may be equally important, through manipulation of GIS layers developed by ASTI. The GIS layers for Natural Features mapping included in this report can be used by the City for development and conservation decisions for years to come and may also be updated each time a permit is granted for woodlands, wetlands, floodplains, etc.



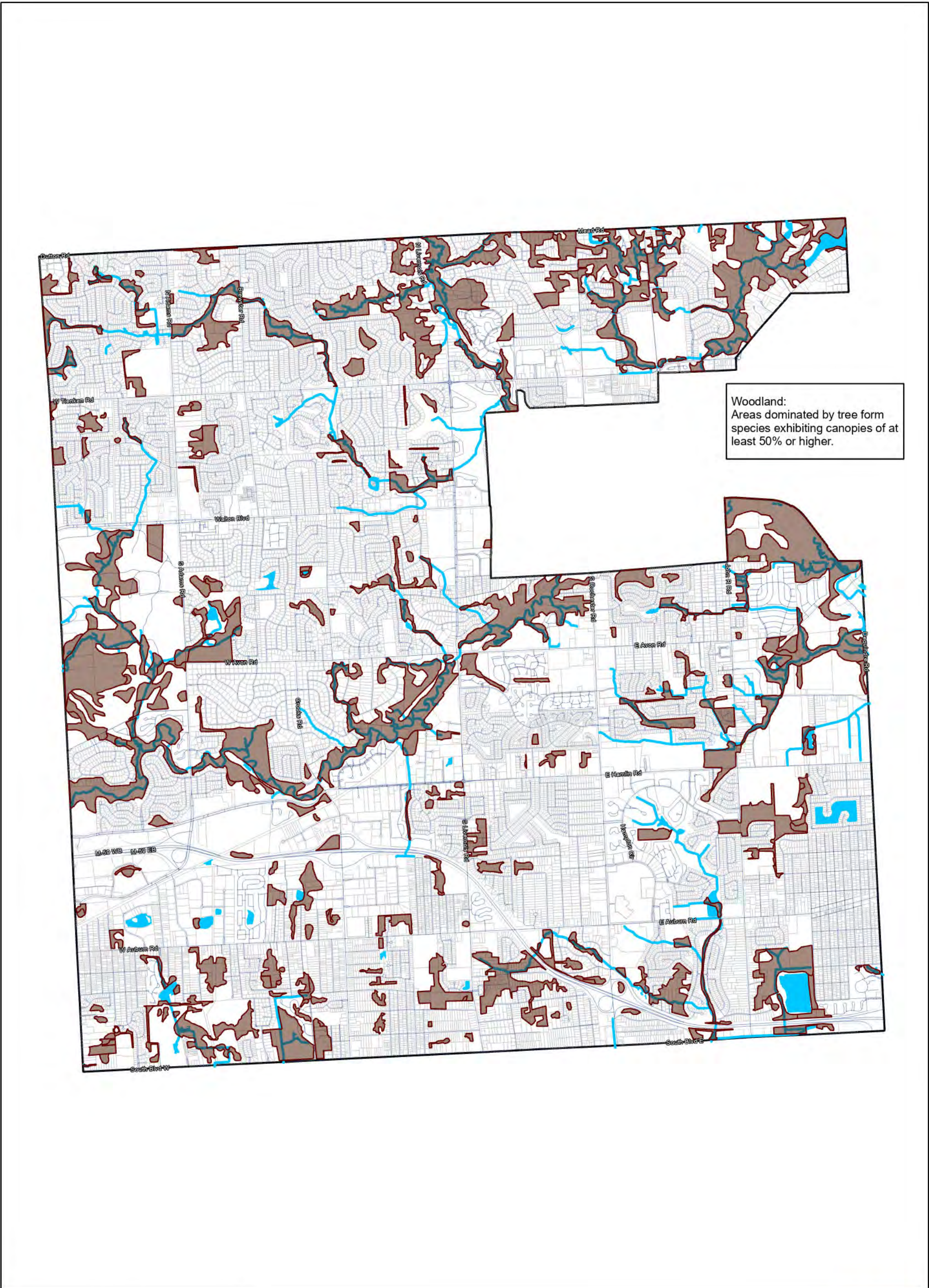
INNOVATIVE
by nature



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Client: The City of Rochester Hills
Created by: RMH, January 30, 2024, ASTI Project 11482-32

Figure 1 - Wetland Map
(Circa 2022)

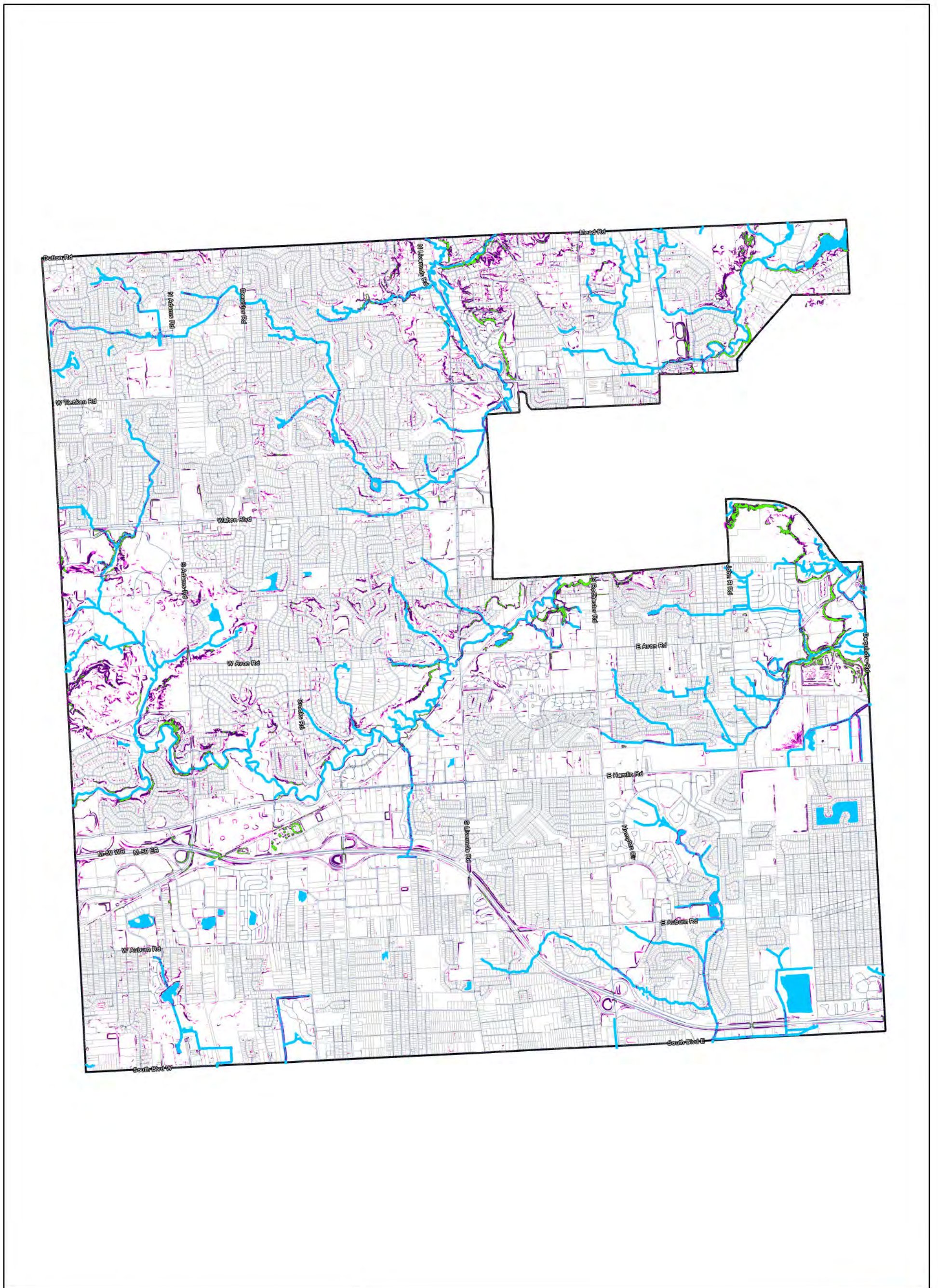


Rochester Hills 2024 Natural Features Inventory







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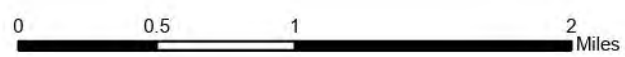
Figure 2 - Woodland Map
(Circa 2022)





Legend

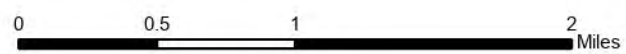
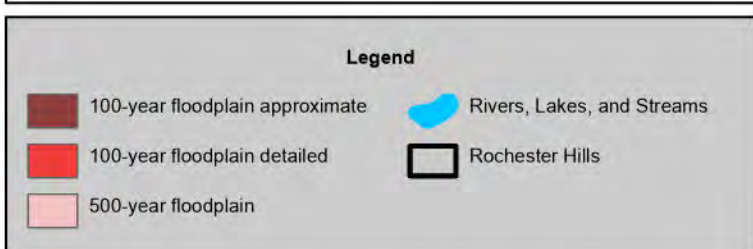
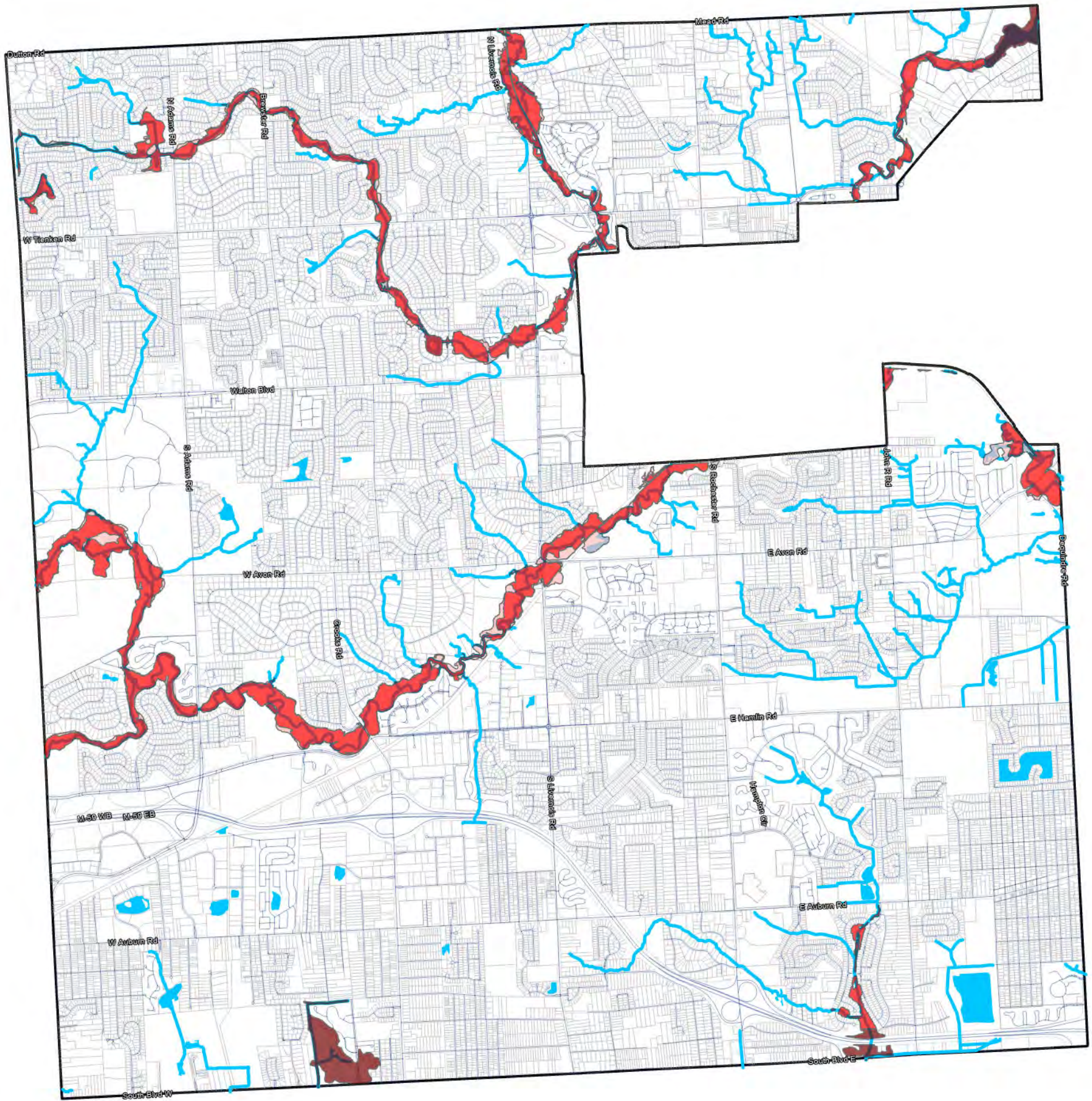
Steep Slopes	 Rivers, Lakes, and Streams
 <20%	 Rochester Hills
 Moderate Slopes: ≥20%-<25%	
 Very Steep Slopes: ≥25%-<40%	
 Bluff Slopes: ≥40%	



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Client: The City of Rochester Hills
 Created by: RMH, January 30, 2024, ASTI Project 11482-32

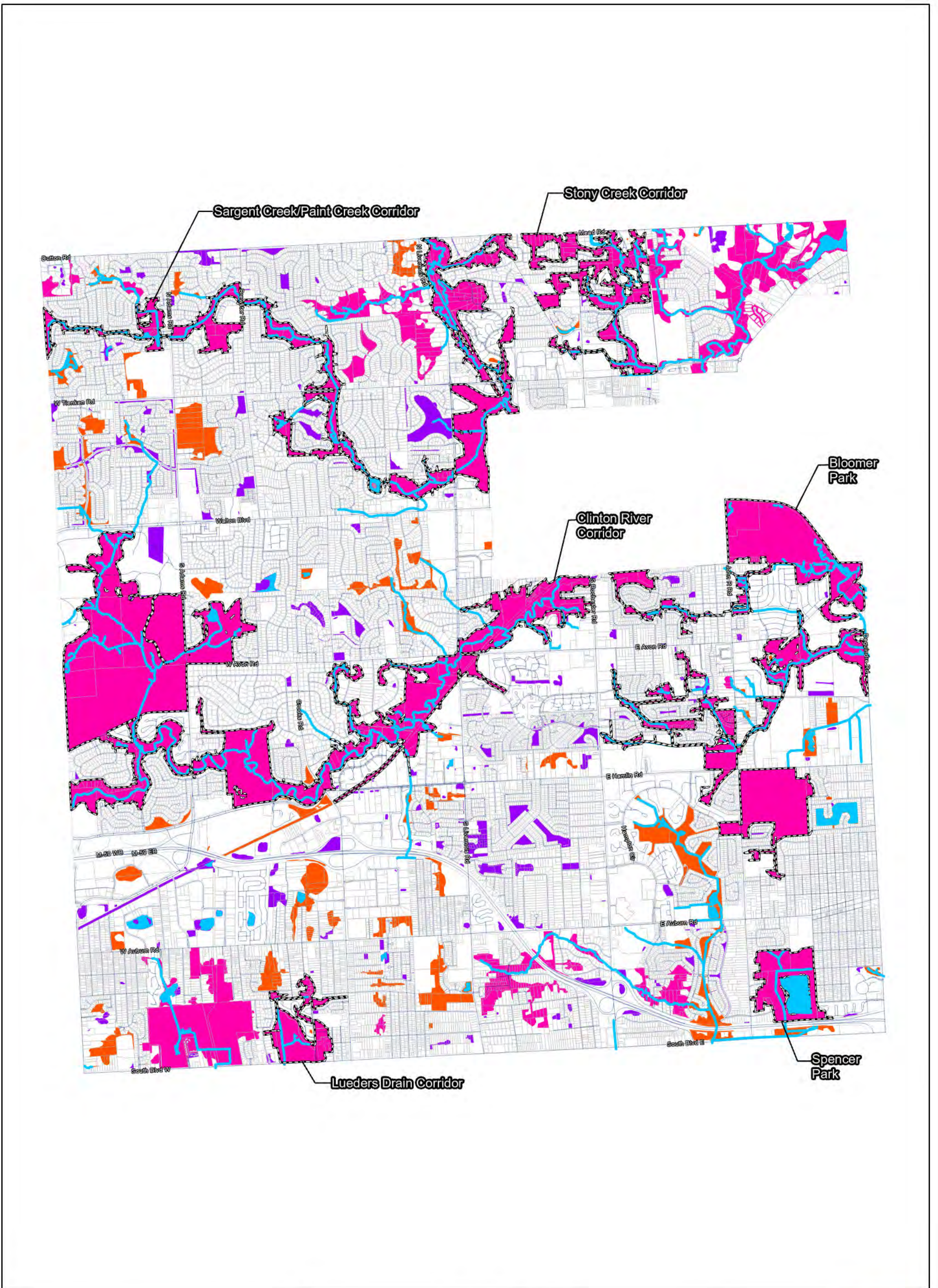
Figure 3 - Steep Slopes Map
 (Circa 2022)



Rochester Hills 2024 Natural Features Inventory

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Figure 4 - FEMA Floodplain Map (Circa 2022)



Legend

Prioritized Natural Features

- High Quality
- Medium Quality
- Base Quality
- Rivers, Lakes, and Streams
- Rochester Hills
- Top Scoring Natural Features



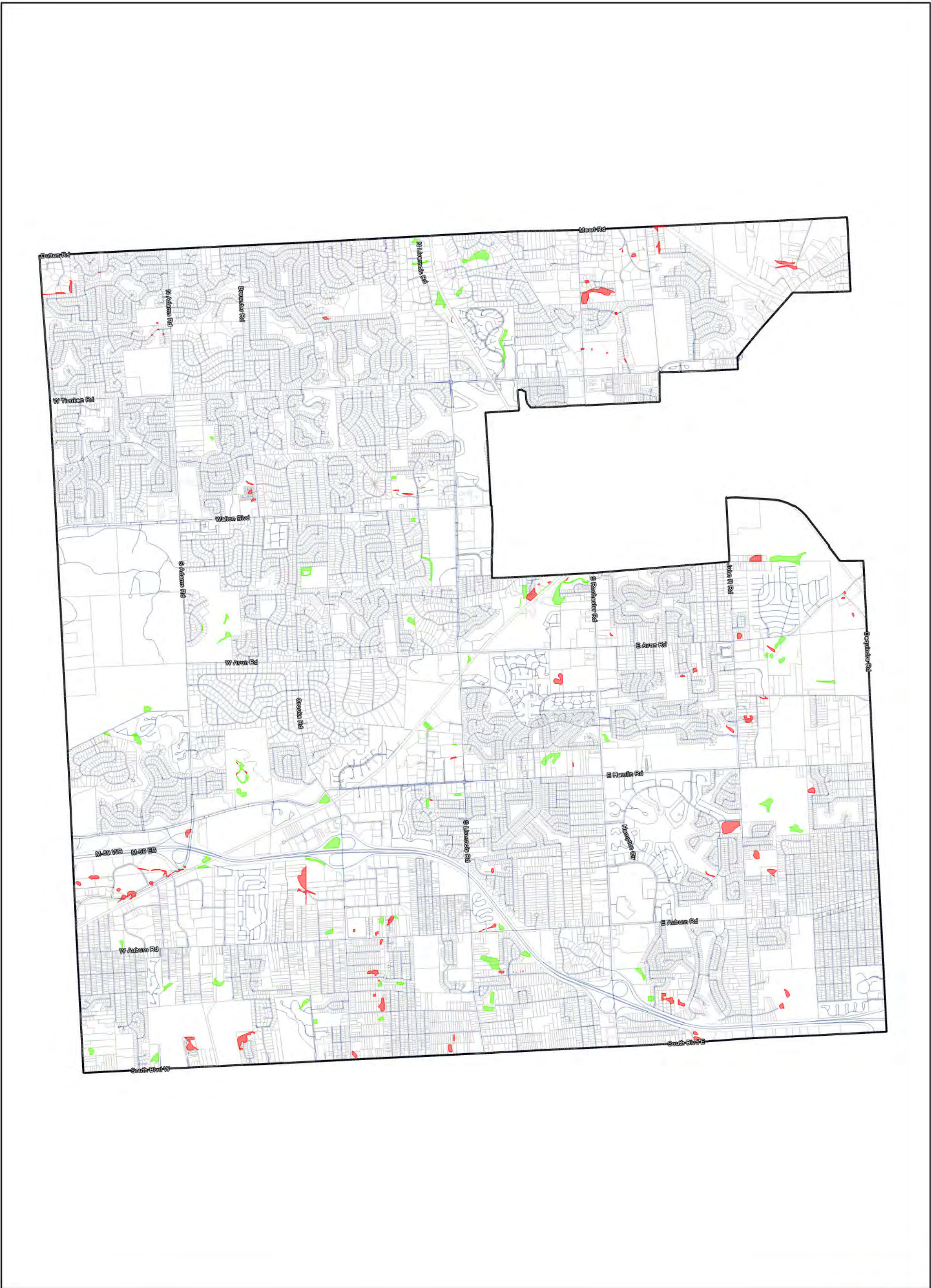
- Top Scoring Natural Features**
1. Lueders Drain Corridor (37)
 2. Spencer Park (36)
 3. Clinton River Corridor (35)
 - 3a. Sargent Creek/Paint Creek Corridor (35)
 - 3b. Stony Creek Corridor (35)
 - 3c. Bloomer Park (35)



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Figure 5 - Prioritized Natural Features Areas Map (Circa 2022)



Legend

- Rochester Hills
- Wetland Removed
- Wetland Added

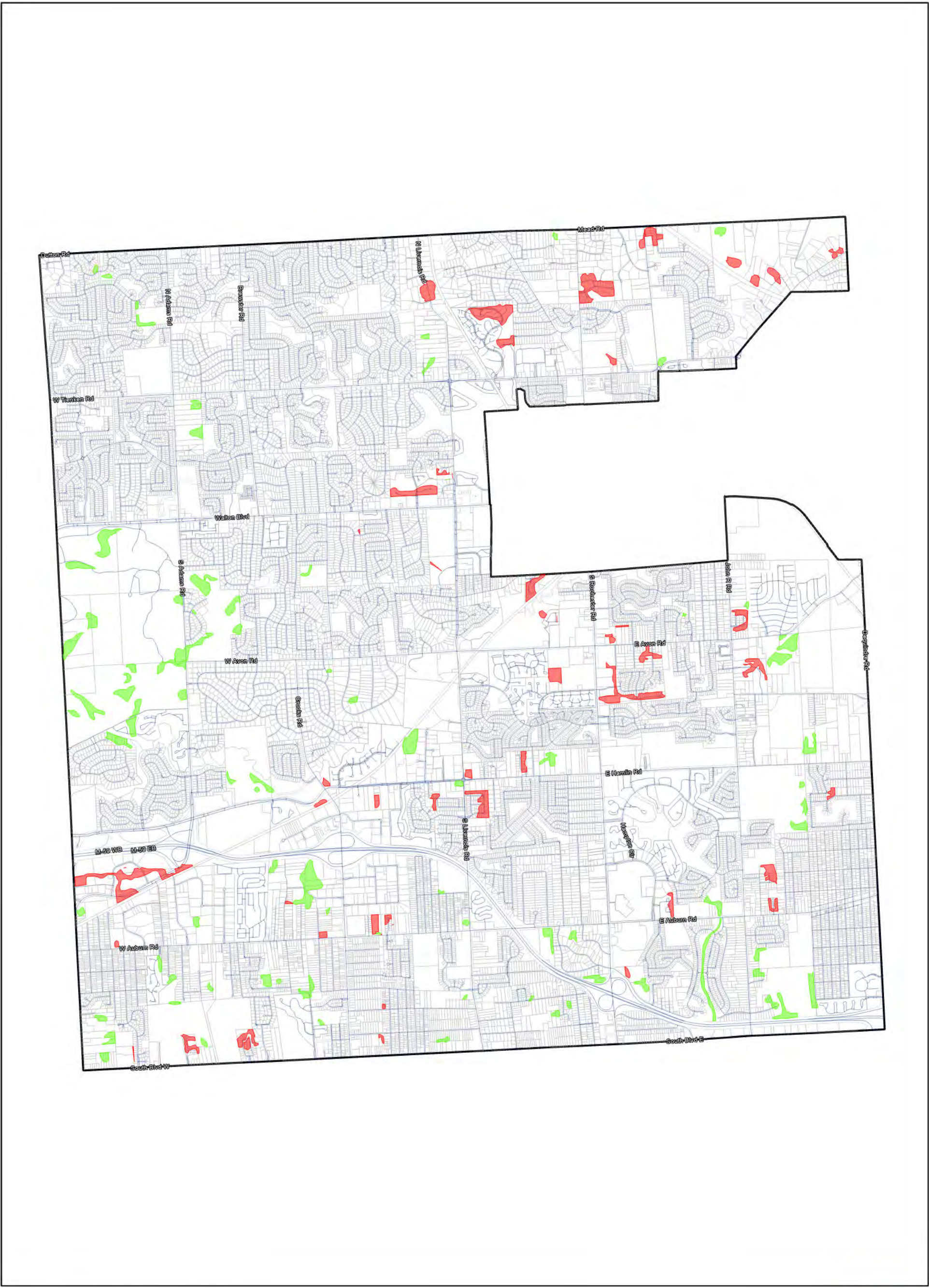


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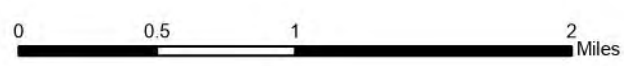


Figure 6 - Wetland Changes Map (2005 to 2022)




Legend

- Woodland Removed
- Woodland Added
- Rochester Hills



Rochester Hills 2024 Natural Features Inventory

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 Figure 7 - Woodland Changes Map
 (2005 to 2022)