



**2022 LINCOLN PARK DWRF PROJECT  
PLAN**  
for the  
**City of Lincoln Park**  
Wayne County, Michigan

Draft Project Plan  
May 18, 2021

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2022 Lincoln Park DWRP Project Plan  
City of Lincoln Park

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## **I. Introduction**

The City of Lincoln Park is a largely populated Downriver suburb of the City of Detroit, established as a Village in 1921 and incorporated as a City in 1925. Prior to being established as a City, the City of Lincoln Park was part of Ecorse Township, which at one time, included the present-day Cities of River Rouge, Melvindale, Ecorse, Allen Park, Southgate, Wyandotte, and that portion of the City of Detroit south of the Rouge River. Neighborhoods were first established within the northern part of the City (then Ecorse Township) in 1906 due to the growth of the automobile industry, in particular the establishment of the Ford Motor Company Rouge Complex in nearby Dearborn and the establishment of steel mills in neighboring River Rouge and Ecorse. Prior to 1906, the area was primarily a rural, farming community with a population of less than 1,000 people. Due to the large nearby industrial establishment, the population of the City of Lincoln Park reached 12,336 people by 1930 and reached its peak in 1960 at 53,933 people as a large influx of people entered the City in the late 1940's following World War II and during the 1950's when urban sprawl began to take place with people leaving the City of Detroit for the inner suburbs. Since the 1960's the City has seen a steady decline in population to approximately 37,000 residents today.

The City of Lincoln Park has municipal water and sanitary sewer services throughout the entire City. The water distribution and wastewater collection systems within the City are owned and maintained by the City's Department of Public Services. Water is purchased through the Great Lakes Water Authority (GLWA), formerly the Detroit Water and Sewerage Department (DWSD) and provided through transmission mains from the City of Detroit. Sewage is discharged into the Downriver Sewage Disposal System (DSDS) and treated at the wastewater treatment plant in the City of Wyandotte. A map for the City study area can be found in Appendix A.

The current distribution network follows the City's street network. City-owned and maintained water mains range in size from 6-inch to 36-inch in diameter, with most water mains constructed as cast iron pipes and ductile iron pipes. The City has estimated 15,800 Water Service connections to the water main, all of which are believed to be a lead water service pipe.

Due to the recent changes of the Lead Copper Rules within Safe Drinking Water Act 399 of 1976, the city of Lincoln Park is now required to complete full water service line replacements from the existing or newly installed water main into the existing dwelling for each property regardless of public or private property ownership.

As required by the Lead Copper Rule, replacement of the LSL must be completed at a minimum of 5% a year and not to exceed 20 years. This means that the City must replace, at a minimum, approximately 200 LSLs each year. However, the City is economically challenged and currently is unable to meet this requirement due to financial hardship.

The project is submitted as a single project and would require approximately three (3) years to implement and complete, including design, permit acquisition, bidding, financing, construction, and final restoration.

To maintain compliance, this project plan will conclude the following:

1. Replacement of water mains along twelve (12) specified project areas.
2. Replacement of Lead and Galvanized Steel Service Lines at a minimum of 5% a year for a 3-year period.
3. Estimated construction replacement costs are \$6,568,550.00 for a 3-year project plan, including replacement of twelve (12) water mains and 330 lead services.

This project plan also provides a detailed analysis of the environmental impacts associated with each alternative, the inconvenience it may cause to the public, and the mitigation required to properly construct the project.

Location of the work area map can be found in Appendix B.

## **II. Project Background**

### ***A. Study Area Characteristics***

The City of Lincoln Park is a largely populated Downriver suburb of the City of Detroit, established as a Village in 1921 and incorporated as a City in 1925. Before being established as a City, Lincoln Park, along with River Rouge, Melvindale, Ecorse, Allen Park, Southgate, Wyandotte, and a small portion of Detroit, made up the area of Ecorse township. In 1906, Lincoln Park's population began to rise due to the exponential growth of the automobile industry. This increase particularly occurred around the establishment of the Ford Motor Company Rouge Complex in Dearborn, as well as the establishment of steel mills in neighboring River Rouge and Ecorse.

Prior to 1906, the area was predominantly a rural, farming community with a population of fewer than 1,000 people. Due to the surge of the industrial industry, the population of Lincoln Park reached 12,336 people by 1930 and reached its peak in 1960 with 53,933 people. The population began to reach its apex in the late 1940s, followed by World War II, then proceeded by the urban sprawl of the 1950s when Detroit residents began to leave the City for the suburbs.

The City of Lincoln Park is approximately 5.9 square miles in land size and bordered by the cities of Melvindale and Detroit to the north, at Outer Drive. To the east, the City of Ecorse borders Lincoln Park by the Ecorse River. Wyandotte and Southgate border the City to the south at Goddard Road and Brest Road, and Allen Park to the west at the following locations: Ford Line Road south of I-75 and a line west of residential streets Bailey Street/Riopelle Street/Frank Street north of I-75.

At present, the City consists primarily of residential land use with most of the commercial land use along Fort Street, Dix Highway, and Southfield Road. The City has a small industrial base that is

primarily located along both sides of I-75 from Southfield Road to Outer Drive. No large industrial users exist in the City of Lincoln Park.

The land use for Lincoln Park, per the Southeast Michigan Council of Governments, consists of the following:

Single Family Residential	43.6%
Multiple Family Residential	2.2%
Commercial	8.1%
Industrial	2.2%
Governmental/Institutional	5.0%
Parks and Recreation	3.4%
Transportation, Communication and Utility Infrastructure	33.4%
Vacant	1.7%
Water	0.4%

**Table 1. Land Use in the City of Lincoln Park**

The City of Lincoln Park has municipal water and sanitary sewer services throughout the entire City. The water distribution and wastewater collection systems within the City are owned and maintained by the City's Department of Public Works. Water is purchased through Great Lakes Water Authority and provided through transmission mains from Detroit. The distribution-only system has origins dating back to the 1920s. A majority of the system is constructed of the older cast iron water main along with some newer ductile iron water main, constructed in the 1980s.

## ***B. Economic Characteristics***

There are no large-scale industrial or manufacturing companies in the City of Lincoln Park. The City is considered a “bedroom community.” Large commercial retail stores exist within the community and are considered the largest employers in Lincoln Park. These large employers include Meijer Stores, Vibra HealthCare, and Lincoln Park Schools. As of 2019, SEMCOG reported the median household income was \$44,554 and the per capita income at \$23,031.

In 2016 daytime population was estimated at 27,914 people. Approximately 6.9 percent of the population is unemployed and approximately 71 percent of the population is not within the workforce. This is due to retirement, the underage population, and other factors. 20.4 percent of the population lives in poverty. By 2045, SEMCOG estimates the number of jobs available in the City of Lincoln Park will increase by 4.0 percent.

## ***C. Existing Facilities***

The source facilities consist of Detroit’s Water and Sewerage Department (DWSD) transmission water mains. DWSD’s transmission mains have been used since the inception of Lincoln Park’s water system, back in the early 1920s. The current transmission mains connecting the City’s system are all 24-inch mains along Outer Drive and on Southfield Road, west of Dix-Toledo Road. Current information on the conditions of the 24-inch mains are not available from DWSD.

The City of Lincoln Park has no water treatment facilities. The Detroit Southwest Water Treatment Plant as well as the Springwells Water Treatment Plant serves the City.

At least 30% - 40% of the City’s service leads date back to the late 1920’s. As a part of the project, 330 leads will be replaced during the water main replacement project.

The City's public distribution system consists primarily of cast iron water mains with diameters of 8-inches or smaller. The water mains located within the project areas are all either 6-inch or 8-inch water mains. This size pipe makes up approximately 86% of the City's water main. A Map of the Project Plan study areas are in Appendix A.

As of December 2017, Lincoln Parks water distribution pipe network consists of the following:

Storage/Distribution Assets	Length (ft)	Percentage of Total Network
6-Inch Water Main	273,595	40.0%
8-Inch Water Main	320,127	46.0%
10-Inch Water Main	7,887	1.1%
12-Inch Water Main	44,374	6.4%
16-Inch Water Main	9,006	1.3%
20-Inch Water Main	1,277	0.2%
24-Inch Water Main	20,001	2.9%
36-Inch Water Main	15,197	2.1%

**Table 2. Summary of Pipe Distribution Network Remaining**

Residuals handling and disposal is not applicable.

#### ***D. Summary of Project Need***

The Lead and Copper Rule enacted in June 2018 mandated new Action Levels (AL) for lead and copper-based on a 90th percentile level of tap water samples. In Michigan, a State Lead Action Level of 15 parts per billion (ppb) was established. Along with this, new sampling requirements were developed to improve lead detection in a community's drinking water. An Action Level exceedance is not a violation but triggers a set of requirements that must be completed to minimize exposure to lead and copper in drinking water. This included water quality parameter monitoring, corrosion control treatment, source water monitoring and treatment, public education, and lead service lead replacement.

This project involves the replacement of 12 water mains and 330 leads between 2022 and 2024. The replacement of the water mains and leads include open cut replacement during road



reconstruction and directional drilling during road resurfacing. By combining these two projects and replacing the identified water mains and lead service leads, the areas will have improved and reliable drinking water, which will favor the health and safety of the citizens of Lincoln Park. The 12 identified areas and correlated replacement years are as follows:

- 2022 Road and Water Main Projects
  - Road Reconstruction:
    - Austin between Southfield and Montie (0.52 miles)
  - Road Resurfacing:
    - Mayflower between Ferris and River Drive (0.70 miles)
    - Buckingham between Porter and Fort Street (0.60 miles)
- 2023 Road and Water Main Projects
  - Road Reconstruction:
    - Leblanc between Fort Street and Gohl (0.50 miles)
  - Road Resurfacing:
    - Washington between Montie and Southfield (0.48 miles)
    - Ethel between Montie and Southfield (0.50 miles)
    - Grant between Cicotte and Southfield (0.35 miles)
- 2024 Road and Water Main Projects
  - Road Reconstruction:
    - Rose between Lafayette and Fort Street (0.23 miles)
    - Detroit between Lafayette and Fort Street (0.23 miles)
  - Road Resurfacing:
    - Champaign between Dix-Toledo and Fort Park (0.70 miles)
    - Bailey (southbound lane) Minnie and Champaign (0.37 miles)
    - Horger between Dix-Toledo and Porter (0.19 miles)

Construction will consist of approximately 28,354 linear feet of new water main, over 3 years.

The location of the projects above is provided in Appendix B.

#### **E. *Population Data***

Per SEMCOG, the past, current, and projected population and housing data for the City of Lincoln Park is as follows:

Year	Population	Existing Housing Units	Occupied Housing Units
2000	40,008	16,821	N/A
2010	38,144	16,530	14,924
2020	36,310	16,499	14,819
2025	35,585	N/A	N/A
2030	34,855	N/A	N/A
2040	35,083	N/A	N/A
2045	35,618	N/A	14,716

**Table 3. Historical and Projected Population in the City of Lincoln Park.**

As shown in Table 3, the population for the City of Lincoln Park has steadily decreased over time since 2000, with a peak population in 1960 at nearly 54,000. The population is anticipated to plateau over the next 25 years. In 2010, the residential occupancy rate for the City of Lincoln Park was 90.3 percent; in July 2020, the rate has slightly decreased to 90.0 percent. The average household size for the City of Lincoln Park is currently 2.2 residents per home.

## **F. Environmental Setting**

### **1. Climate**

Below is a table providing the average temperature range, average precipitation, and average snowfall for the Detroit Metropolitan Area, measured at the Detroit-Wayne County Metropolitan International Airport in Romulus, Michigan.

	Avg. Max. Temp.	Avg. Min. Temp.	Avg. Precip. (in.)	Avg. Snowfall (in.)
January	32	19	1.96	12.5
February	35	21	2.02	10.2
March	46	29	2.28	6.9
April	59	39	2.90	1.7
May	70	49	3.38	0.0
June	79	60	3.52	0.0
July	83	64	3.37	0.0
August	81	63	3.00	0.0
September	74	55	3.27	0.0
October	61	43	2.52	0.1
November	49	34	2.79	1.5
December	36	24	2.46	9.6

**Table 4. Climate Data for the City of Lincoln Park.**

The total average precipitation is 33.47 inches, and the average snowfall is 42.5 inches for one (1) year.

### **2. Air Quality**

Adverse impacts to air quality during construction will relate to dust and soil erosion and sedimentation which will be temporary and not have an effect following construction.

### **3. Wetlands**

There are no wetlands within the proposed work area. A map of the wetlands within Southeastern Michigan is attached in Appendix E.

### **4. Coastal Zones**

The City of Lincoln Park is located along the Ecorse River; however, does not border any large bodies of water. Therefore, no work is proposed within a designated coastal zone.

### **5. Floodplains**

A map of the floodplains areas within Southeastern Michigan is attached in Appendix E. The area on Ethel Ave. between Montie Rd. and Russell Ave. is at 0.2% Annual Chance Flood Hazard. The proposed work area on Washington Ave. between Montie Rd. and Cicotte Ave. is at 1% Annual Chance Flood Hazard. All the rest is in a minimal Flood Hazard Area.

### **6. Natural or Wild and Scenic Rivers**

The city of Lincoln Park is bounded by the Ecorse River and distributary channels of the Ecorse River to the north, south, and east. No work is proposed near these rivers nor are these rivers classified as wild or scenic rivers.

### **7. Major Surface Waters**

Other than the Ecorse River and its branches, there are no other surface waters within the boundaries of the City.

### **8. Recreational Facilities**

The City owns and maintains the following parks:

- Council Point Park - Located along River Drive with the parking lot entrance at Stewart. This park is the newest of the parks with the following features: two baseball/softball fields, two soccer fields, an inline skating rink, a looped walking path of 1.9 miles, a playscape, a pavilion, a restroom facility. The Ecorse Creek runs along the entire length of the park which encompasses approximately 27 acres.
- Exchange Park - Located at Dix and McLain and featuring a playscape.
- Braverman Park - Located in Detroit and Washington. This park has a playscape.
- Forest Park - Located at the intersection of Richmond and Buckingham. The park is wooded and rustic with electricity and no other facilities.
- Ford Park - Located at Buckingham and Wilson, features include a ball diamond and playground equipment.
- Ford Motor Park - Located at Cicotte and the Railroad tracks, features include a playscape, ball diamonds, and pavilion. This park's playscape was installed through one of our Community Build efforts in 2001.
- Jaycee Park - Located at Harrison and Ferris, features a playground.
- Kiwanis Park - Located at Gohl and LeBlanc, includes ball diamonds, playground, picnic area, pavilion, and restroom.
- Lions Park - Located at River Drive and LeBlanc along the Ecorse Creek. Features a playscape, swings, sensory garden, and paved looped trail.
- Maple Park - Located at Hazel and LeBlanc. The park offers a playscape, ball diamond and picnic area.
- Marion Park - Located at Marion and Southfield, has a tot lot and playscape.
- Memorial Park - Located at Fort and London. Features include the Kennedy Memorial Building, Senior Center, War Memorial, an open-air bandshell, soccer field, tennis courts, playground, and the Blumrosen Memorial Rose Garden.
- Papalas Park - Located at Montie and Pingree, has a ball diamond.

- Paun Park - Located at Bailey and Hoover, features a picnic area.
- Propspinner Park - Located at Ford and River Drive, features football and soccer field.
- Quandt Park - Located at Dix and Euclid, has lighted ball diamonds, playground, picnic areas, restroom, and pavilion.
- VFW Park - Located at Montie and Chandler. Features play equipment.
- Willow Park - Located at Montie and Empire, has a playscape and picnic area.
- Youth Center Park - Located at Dix and Gregory, this park was formerly known as Gregory Park and is one of Lincoln Park's largest. Youth Center is home to the Lincoln Park Community Center with a wooded park. Youth Center Park also has playscapes and several pavilions available. The Lincoln Park Community Center is located in Youth Center Park and is home to activities throughout the year.

There are no plans currently for the expansion of these parks. A map showing parks and recreational facilities are provided in Appendix G.

## **9. Topography**

The topography of the City is relatively flat with elevation ranging between 579 feet above sea level in the southeast corner of the City and 596 feet above sea level in the southwest corner of the City. A Topo Map for the City of Lincoln Park is in Appendix C.

## **10. Soils and Geology**

The soils within the City of Lincoln Park consist primarily of clay soils. A soils report has been included in Appendix F.

## **11. Agricultural Resources**

There are no farmlands remaining in the City of Lincoln Park.

## **12. Fauna and Flora and Unique Features**

It is not anticipated that any sensitive environments or habitats will be disturbed as a part of this project as the study area is completely built out. There are endangered species that exist within Wayne County per the United States Fish and Wildlife Service and are as follows:

- Indiana Bat
- Eastern Massasauga Rattlesnake
- Northern Riffleshell
- Rayed Bean Mussel
- Eastern Prairie Fringed Orchid

No correspondence is yet needed as these projects have no effect on any of the above environments.

### **III. Analysis of Alternatives**

The City of Lincoln Park has begun to implement an Asset Management Plan (AMP) and a 10-year Capital Improvement Plan (CIP) for the watermain in the City. Through this process, they have determined watermain to be replaced in conjunction with road reconstruction or rehabilitation projects.

Due to the recent changes to lead service line replacements as part of the Lead and Copper Rule, the City is now required to replace all lead and galvanized water service lines affected by these projects from the new water main to the dwelling at each property, regardless of property ownership, a cost not budgeted for or affordable to the City at this time.

Therefore, the City is applying for a DWRF loan to complete watermain and lead service line replacements along twelve (12) routes, and to be bid as one (1) project and completed over a 3-year period.

#### ***A. Identification of Potential Alternatives***

The potential alternatives available to the City of Lincoln Park are as follows:

- 1. “No-Action”**
- 2. Replace Existing Water Main and the Lead or Galvanized Services**
- 3. Rehabilitate Existing Water Main and the Lead or Galvanized Services**
- 4. Regional Alternatives**

#### **1. “No-Action”**

##### **Water Main Replacement**

No Action on the water main replacement would result in continued use of the existing sub-standard, unreliable, and undesirable water mains. Completing “No Action” would adversely



impact public health due to the advanced age of the system, and its increasing unreliability to deliver safe drinking water. Main breaks can occur in new water mains as well as old mains. With the older smaller water mains such as the 6-inch and 8-inch mains, breaks seem to occur at a higher frequency. This just means that with older pipes, the frequency of breaks tends to increase with age.

The number of people affected by a given main break can vary widely from area to area. Populations affected by such main breaks can range from a few hundred with a main break to over 1,000 people depending on a break location.

As for the length of time, a given water main may be out of service is hard to tell. It is dependent on the type of break, where it is located, how long it would take to excavate the area by the break, etc. If a break occurs under pavement, it could take 6 hours to 12 hours or more to repair by the time the leak is located, and the area excavated to make the needed repair.

One major ramification that takes place during a water main break is putting residents out of water for a given time during the repair of a break. In addition to no water, there is the possibility of contamination of the system if the break is not fixed properly by the repair crew. Placing one resident or thousands of residents out of water is an alternative the City of Lincoln Park would prefer not to do, but when a break occurs it is an inconvenience to all involved.

Beneficial environmental impacts of “No Action” are minor. They include the avoidance of typical, temporary, and relatively insignificant disruptions associated with water main replacement, such as dust, construction traffic, noise, and brief service interruption. These disruptions are typical during the construction phase of a new water main within a built-out community. During construction, it can be anticipated that the contractor may hit a service lead that may be mismarked and/or not marked at all. If this occurs a brief interruption of service may happen to repair the damaged service.

## Lead Service Replacement

Taking no action to replace lead and galvanized water service lines would result in the City not complying with the current drinking water standards and Safe Drinking Water Act 399 of 1976 and the current Lead and Copper Rules and would allow the City to continue operating an antiquated and potentially unreliable system potentially creating a future health hazard. No action could adversely impact public health with the existence of lead water service lines. In addition, as the useful life of existing water mains is approximately 50-80 years, the existing water distribution system along the proposed routes have surpassed their useful lives and needs to be replaced. Therefore, not to complete any improvements at this time, in the long run, will create a significant increase in capital improvement costs in the future risking water main failures pavement, creates an increase in repair and maintenance costs and at some point, the maintenance and repairs will be too great to handle with the current staffing levels. Most importantly though, not completing the replacement of lead and galvanized service lines remove the City from complying with current Drinking Water laws and standards. Therefore, it is not in the best interest of the City of Lincoln Park to take no action on the existing water distribution system along the proposed routes.

The “No-Action” alternative is not an option per the Lead and Copper Rule (LCR). Beginning January 01, 2021, Communities with LSLs must replace an average of 5% per year and 100% LSLs by the year 2041.

Therefore, it is not in the best interest of the City to take no action.

## **2. Replace Existing Water Main and the Lead or Galvanized Services**

### Water Main Replacement

Optimum Performance of existing facilities: Existing facilities are not operating at optimum efficiency. The City of Lincoln Park system is well past the useful life of 50 years old, the existing

facilities are not working to its full potential. This can be due to several reasons, but due to the number of watermain breaks the city repairs per year, low water pressure, and analysis of watermain sizes we know areas of repair that is needed. Refer to Table 5 for the watermain replacement project areas. Some of these areas have experienced multiple watermain breaks, as we begin replacing water service leads in these areas, there is risk associated if we do not replace the entire main. If we do not replace the main, we could face several watermain breaks in these areas while exposing the main to make the necessary service taps. This could cause many water quality issues if we have to start repairing multiple sections of main and could be more costly than just replacement of the existing watermain. All existing 6-inch watermains will be increased to an 8-inch watermain. This will increase the flow and water quality throughout the city.

Based upon the analysis of water mains that have experienced multiple water main breaks or align with a road project, it has been identified to replace the aging water mains along these routes which will require the full replacement of lead and galvanized water service lines to all dwellings served by these mains where lead and galvanized service lines exist. These routes are as follows:

Street	Limit	Limit	Service Leads	Current Diameter (inches)	Replacement Year
Austin	Southfield	Montie	63	6	2022
Mayflower	Ferris	River Drive	12	8	2022
Buckingham	Porter	Fort	18	8	2022
Leblanc	Gohl	Fort	42	8	2023
Washington	Southfield	Montie	28	6	2023
Ethel	Southfield	Montie	108	6	2023
Grant	Southfield	Cicotte	31	8	2023
Rose	Lafayette	Fort	14	8	2024
Detroit	Lafayette	Fort	11	6	2024
Champaign	Fort Park	Dix-Toledo	16	6 and 8	2024
Bailey	Minnie	Champaign	0	8	2024
Horger	Porter	Dix-Toledo	5	6	2024

**Table 5. Summary of Project Areas and Corresponding Construction Years.**

Lead Service Replacement

The number of water services that exist was obtained based upon the number of accounts being served by water along the project limits listed in the above table that the City has identified as having a lead service line. Typically for a DWRf project plan, three (3) alternatives are analyzed for the proposed project. However, based upon the new Lead and Copper Rules, there is only one (1) other alternative other than the No Action alternative and that is to completely replace the lead or galvanized water service line.

This would involve the complete replacement of existing lead and galvanized water services from the existing water main to at least 18 inches inside of the dwelling or the water meter inside the dwelling. New services would be tapped into the new water main being installed and a new curb stop box provided at the right-of-way line. As the section from the right-of-way line to the dwelling is on private property, permission will need to be granted from each property owner to work within a private property in addition to entering the structure to make the connection to existing plumbing within the structure. The City of Lincoln Park would prepare a waiver, reviewed and approved by the City Attorney, to be signed by the property owner to allow work to take place on private property similar to how the City of Detroit operates with the replacement of full-service line replacements. Photos would be taken both inside the structure and outside the structure within the limits of a private property prior to and after the replacement of the service line to minimize the risk of damage claims by property owners. If property owners do not comply with allowing access to the property and refuse to sign off on the waiver, the property owner will risk having water service shut off to their property until compliance is met. All new water service material, including the tap and curb stop box, would be of Type K copper material. Services would be installed using directional drilling with minimal excavations required. New services would be placed parallel to existing services and the existing service disconnected from the structure and

abandoned in place. New services would be placed at a minimum five-foot distance in the front yard of each structure and the location of existing services marked out through the MISS DIG system to prevent any damage to the existing lead or galvanized service. Access pits would be located at the tap to the new water main, at the right-of-way line for the curb stop box, and in close proximity to the dwelling to allow for the service to enter into the dwelling. All existing lead or galvanized materials that are removed at connection points would be disposed of properly per requirements of lead disposal and at a certified disposal site or recycled at a facility that allows for the recycling of lead materials. 330 water services would be replaced if all water services are identified as being lead or galvanized. If existing services are identified as being a material other than lead or galvanized, the service will not be replaced within the limits of private property. It is estimated that each service replacement will cost approximately \$5,000.00 to complete. The total cost in summary for this alternative is as follows and is provided in greater detail in Appendix I. The average cost per service is presumed less than most communities as structures within the City of Lincoln Park have little setback from the right-of-way line; therefore, the length of new water services are far less than found in most residential neighborhoods. The total project cost includes costs for engineering design, contract administration, construction inspection, bond attorney fees, and financial advisor consultant fees are provided in Table 6.

Item	Quantity	Unit	Unit Price	Total
2022 Water Main Projects	9610	LF	\$165.00	\$1,585,580.00
2022 Water Main Leads	93	EA	\$5,150.00	\$478,950.00
2023 Water Main Projects	9662.4	LF	\$170.00	\$1,642,610.00
2023 Water Main Leads	201	EA	\$5,305.00	\$1,066,310.00
2024 Water Main Projects	9081.6	LF	\$176.00	\$1,598,360.00

2024 Water Main Leads	36	EA	\$5,465.00	\$196,740.00
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**Table 6. Summary of Construction Breakdown**

Construction Total	\$6,568,550.00
Engineering and Design	\$361,270.25
Bonding and Financial Advisor Services	\$328,427.50
Construction Observation and Inspection	\$328,427.50
Construction Administration	\$164,213.75
Contingency	\$656,855.00
<b>GRAND TOTAL</b>	<b>\$8,407,744.00</b>

**Table 7. Summary of Project Cost**

### **3. Rehabilitate Existing Watermain and the Lead or Galvanized Services**

#### Watermain Replacement

Sliplining the existing watermain is completed by installing a smaller, carrier pipe into a larger host pipe, grouting the annular space between the two pipes and sealing the ends. The trenchless method is generally a cost-effective rehabilitation method to replace watermains. This would be not a viable option, this method will reduce the size of the existing main, thus reducing flow rates and capacity. In addition, due to age of the existing pipes, the slip lining process can break and shatter the pipe when trying to prepare them for lining and that will raise the cost associated with this alternative. Due to these concerns, Rehabilitate Existing pipes is not considered a viable option.

### Lead Service Replacement

This alternative would consist of rehabilitating the existing LSL. However, there is not a method to rehabilitate the LSL and due to the nature of these materials, these LSL in their entirety must be removed.

### **4. Regional Alternatives**

For this proposed project there are no regional alternatives available to consider as the City maintains and operates its water distribution system and the work proposed is within Lincoln Park City limits.

Currently, the City of Lincoln Park along with over 80 other customers purchase water from Great Lakes Water Authority (GLWA). The City has no intention of leaving the DWSD\GLWA system as a customer to either create his or her own water system. If the City wanted to break away from GLWA\DWSD the costs associated with creating the City's own system would be quite expensive and very uneconomical for the community. The City would have to have a new treatment plant designed and constructed along with disconnecting the current feed from the City of Detroit. Additional costs associated with creating their own system is hiring staff to operate the plant on a 24-hour a day schedule. If the City were to leave the GLWA\DWSD system while under contract they would face penalties for leaving and would have to pay GLWA and the City of Detroit for leaving the system.

At the present time, the City could not afford to construct their own treatment plant and associated transmission mains along with the staff required to operate the system, nor do they have the available vacant land to construct a facility. Overall, the costs to the City would outweigh the benefits in owning of their own treatment facility and leaving the GLWA\DWSD system.

## **B. Analysis of Principal Alternatives**

### **1. The Monetary Evaluation**

#### **a. Sunk Costs**

The sunk costs involved with this project consist of verifying the material of unknown water service pipes and the preparation of this project plan. The City will be received a (DSMI) grant from EGLE to assist with the costs to complete the water service line material. The other cost is the effort for preparing this DWRF Project Plan of approximately \$10,000.

#### **b. Present Worth**

An analysis of costs for replacing the Lead and Galvanized service Lines (Alternative No. 1) yields a total present worth of approximately \$504,449.00 per year. An interest rate of 1.875 percent was used over 20 years period.

#### **c. Salvage Value**

As the replacement of water mains, along with Lead and Galvanized service lines to HDPE and Copper pipes respectively, the lifespan is 50 years, the salvage value is negligible. This project plan and the SRF loan is for a 20-year period; therefore, the useful life far surpasses the SRF planning period.

#### **d. Escalation**

No costs were escalated in the present worth analysis as only energy costs and land value can be escalated in the monetary value per the requirements of EGLE. No land value is associated with the proposed project. All work is proposed within the existing right-of-way or existing utility easements and energy costs associated with this project involve construction equipment normally part of the bid prices during the bidding process.



#### **e. Interest During Construction**

As the construction period for this project is less than four (4) years, interest is one-half of the product of the construction period, the total capital expenditures, and the discount rate and is not calculated on a yearly basis.

#### **f. Mitigation Costs**

Mitigation costs involved with this project would be any costs associated with soil erosion and sedimentation control, traffic maintenance and control, the audio-visual recording of the construction site, maintenance aggregate, and any other costs associated with always maintaining access for residents during construction. These costs will be included in the bid prices received by potential contractors; therefore, mitigation costs do not need to be included in the present worth analysis.

#### **g. User Costs**

It is anticipated that all water main improvements will be funded through a 20-year, 1.875 percent interest DWRP loan. It is estimated that the recommended projects will cost users approximately an additional \$31.53 per year or \$2.63 per month for the next 20 years. User costs are discussed further in Chapter IV of this project plan.

### **2. Staging Construction**

The proposed project would be bid out and constructed as three (3) projects over the course of three years, beginning in 2022. Multiple crews could be working at different locations throughout the duration of the project. Federal aid assistance must meet the 'Made in USA' and 'American Iron and Steel' requirements for water main materials and the labor for the project paid according to Davis Bacon wage rate schedules.

### **3. Partitioning the Project**

No partitioning of the project will take place for the proposed alternative.

### **4. The Environmental Evaluation**

For water services and existing water main replacement, the environmental impact associated with these projects are negligible. Most of the work involved will utilize trenchless technologies with minimal open-cut excavations for access pits, typically located at the connection to the new water main, at the right-of-way line for the installation of the curb stop box, and within proximity to the dwelling.

The environmental evaluation of this project is provided in greater detail in Chapter V of this project plan and the mitigation of environmental impacts presented in Chapter VI of this project plan.

### **5. Implement ability and Public Participation**

The City of Lincoln Park and Hennessey Engineers will accept comments and concerns from the public during a 30-day public comment period that commenced on May 18, 2021 and ended upon the completion of a public hearing being held in conjunction with the City of Lincoln Park Council meeting on June 21, 2021. Public input and information regarding the public hearing, including the transcript from the public hearing, is discussed further in Chapter VII of this project plan. Once the project has been approved to proceed, the City of Lincoln Park will notify all affected residences and businesses, a minimum of 45 days in advance, that their water service will be replaced, and that access will be required onto private property and into their property to complete the full water service replacement. Additional notifications of when work will begin will also be provided at least one week in advance.

## **6. Technical and Other Considerations**

### **a. System Reliability**

To meet the Safe Water Drinking Standards, the City of Lincoln Park must provide a reliable water distribution network and continually maintain and properly operate the system to protect the health and well-being of the residents of the City. In addition, to meet recently updated Lead and Copper Rule standards and Drinking Water Act regulations, all lead and galvanized service leads must be replaced in their entirety regardless of ownership where new construction of water mains take place.

### **b. Residuals**

This project does not involve improvements at a treatment facility; therefore, residuals do not apply to this project plan.

### **c. Growth Capacity**

The proposed work area is completely built out and has been for several years. No additional users will be connected to the water distribution system as a part of this project.

### **d. Alternative Sites and Routings**

As this project involves the replacement of water service lines, alternative sites and routings were not considered.

### **e. Contamination of the Project Site**

Provided in Appendix H is a list of open and closed underground storage tank and leaking underground storage tank sites registered through EGLE throughout the City of Lincoln Park. As the work proposed is not within the vicinity of an open or closed underground storage tank; there will be no influence of the work within the vicinity of an open or closed underground storage tank.

## **IV. Selected Alternative**

### **A. Description of the Selected Alternative**

#### **1. Relevant Design Parameters**

Due to recent changes of the Lead and Copper Rules within the Safe Drinking Water Act 399 of 1976, the City of Lincoln Park is now required to complete full water service line replacements where lead or galvanized water services exist from the existing water main or newly installed water into the existing dwelling for each property regardless of if public or private property. Previously, for new water main installations, the City would replace the portion of the water service line from the new or existing water main to the curb stop box located at the right-of- way line, typically called a partial service line replacement. The portion of the service line from the right-of- way line to the dwelling was the responsibility of the homeowner to maintain.

The changes to the LCR requirements effective in June 2018 require communities to replace all lead and galvanized water service lines at an average rate of 5 percent per year beginning in 2021, not to exceed 20 years, or in accordance with an alternate schedule incorporated into an asset management plan and approved by EGLE. The full lead service line must be replaced by the water supply at the water supply's expense, regardless of ownership.

The recommended project consists of the replacement of up to 600 water service lines. If existing water services are identified as being materials other than lead or galvanized piping, the water service will not be replaced within the limits of private property. It is desired that ground disturbance shall be kept to a minimum to keep commercial businesses open without interruptions, continue the constant flow of traffic throughout these busy thoroughfares and provide little inconvenience to the residents and general public along these corridors; therefore, new water services will be installed by directional drilling methods.

## **2. Controlling Factors**

The City of Lincoln Park water distribution system services the entire population of approximately 36,697 people based upon recent population figures from the Southeast Michigan Council of Governments (SEMCOG) along with commercial and industrial users. Residents and businesses that will be affected by this project will be notified of the upcoming project at a minimum 45 days prior to the start of any work taking place and will require granting of permission through a waiver to replace the water service line on their private property. Residents and businesses will also be notified at least 48 hours of when the contractor will be on-site to perform proposed replacements to provide sufficient time for the property owner to prepare for temporary water shut off to complete the water service replacement and for the contractor to allow access into the dwelling to make the final connection within the home.

The City is not under any administrative consent orders (ACO) or any other Federal or State court-ordered enforcement actions; however, is required to comply with current drinking water standards and the Safe Drinking Water Act 399 of 1976 and the recent changes to the Lead and Copper Rule within this Act.

The proposed project will require permit approvals from The Michigan Department of Environment, Great Lakes, and Energy (EGLE) as part of Act 399, 1976, Water Supply Improvements permit for improvements to the water distribution system. No work is proposed within Wayne County or Michigan Department of Transportation rights-of-way.

Soil erosion and sedimentation controls that will be used include catch basin silt sacks and silt fencing, if necessary. As part of the SESC plan, the Contractor(s) will be required to sweep adjacent streets to the construction site daily to remove any soil that has been deposited during the workday.

Other environmental and mitigation efforts for this project are described in greater detail in Chapters V and VI of this project plan.

### **3. Project Maps**

Several maps and schematics are provided in the Appendices of this project plan. Appendix A provides an overall map of the City of Lincoln Park. Appendix B provides maps of the City's water distribution system along the proposed work area (Phase 1). Appendix D provides the zoning established for the City.

### **4. Sensitive Features**

As the area where work is to take place is completely built out consisting mostly of residential and commercial properties, no sensitive features such as wetlands, floodplains, surface waters or natural habitats will be affected by the proposed projects. Greater detail regarding sensitive features and the findings through the EGLE and USFWS for the City of Lincoln Park is included in Chapters V and VI of this project plans.

### **5. Mitigation of Environmental Impacts**

As there are no sensitive areas within the study area, the proposed projects will have short- term environmental impacts related to construction and general inconvenience to the public. Mitigation of environmental impacts is provided in greater detail within Chapter VI of this project plan.

### **6. Schedule for Design and Consideration**

If a DWRF loan is approved for the 4th quarter FY 2022, to complete the replacement program, the proposed schedule would be as follows:

Project Phase	Estimated Date
Survey of Project Area	Jan. 2022 – Feb. 2022
Prepare Plans and Specification Development	March 2022 – April 2022
Obtaining Necessary Permits	May 2022
Bid and Award Project	May 2022 – June 2022
Start Construction of Project	August 2022

**Table 8. Proposed Schedule of Project Plan.**

## **7. Cost Summary**

Preliminary Cost Estimates of the selected alternative can be found in Appendix I. However, in summary, the total construction cost is estimated at \$6,568,550.00. Adding engineering design, inspection, construction administration, bond attorney fees and financial advisor service fees, the total project cost is estimated to be \$8,407,744.00. A present worth analysis has also been provided in Appendix I.

## **B. Authority to Implement the Selected Alternative**

The City of Lincoln Park is a municipal unit organized under the State of Michigan Constitution and statutes. The City is legally able to own and operate public utilities. The City does own and operate the public water system and sanitary sewer system; however, water is distributed to the City owned system by the Great Lakes Water Authority (GLWA) and all sewage is discharged into the City of Detroit wastewater system. All rehabilitative work proposed as a part of this project will be completed within the City-owned water distribution system within City rights-of-way and within temporary construction easements on private properties.

**a. Ability to Implement the Selected Alternative**

Ability to Implement the Selected Alternative: The City of Lincoln Park is a Michigan Municipal Corporation with a current license for water system operations. With contractual engineering, financial, legal and construction arrangements, the proposed project is well within its capabilities.

**C. User Costs**

A user charge system (UCS) will be developed consistent with EPA and EGLE guidance documents. The adequacy of funding for the operation, maintenance, and replacement by the adopted user fees will be verified. The debt service for the DWRF loan has been discussed with the City of Lincoln Park officials. The UCS for debt service is anticipated to be a fixed monthly charge proportional to the potential demands on the system by each customer.

Based on a 20-year SRF loan period, at a 1.875 percent interest rate, the city must repay a \$8,407,744.00 loan with annual debt service estimated at \$504,449.00. Based upon the total cost financed, the increase in user costs with approximately 16,000 user accounts; would be approximately \$31.53 per year or \$2.63 per month per account.



## **V. Environmental Impact Evaluation**

This project involves the replacement of 10 existing water mains and replacement of lead and galvanized water service lines from the water main into the dwelling per revised Lead and Copper Rules within the Safe Drinking Water Act 399 of 1976 pertaining to the full or complete replacement of known lead and galvanized water services regardless of ownership.

### **A. Description of the Impacts**

#### **1. Beneficial and Adverse Impacts**

The positive, long term, beneficial impacts of the proposed project are the following:

- Improve the quality of drinking water distributed to the residents and businesses of the City of Lincoln Park.
- Improve the reliability of the water distribution network.
- Comply with the Safe Drinking Water Act 399 of 1976 and current Lead and Copper Rules.
- Removal of potential lead contaminants from the drinking water supply

The negative impacts of this project are only short-term and include temporary inconvenience to the general public who reside or frequent businesses along the proposed work area.

The work proposed involves directional drilling of new water services therefore there are no adverse impacts to environmentally sensitive features and the State Historical Preservation Office is in concurrence that no cultural or historical significance will be encountered during this project.

## **2. Short Term and Long-Term Impacts**

Even though the short term impacts can be a nuisance to the general public, including noise pollution, air pollution, temporary road and driveway closures, the long term impacts greatly exceed the short term impacts as the long term impacts are seen as positive, beneficial impacts improving the water distribution system, public health and the quality of life for residents and businesses along and adjacent to proposed mains and water services being replaced and will provide for greater reliability of the distribution system.

## **3. Irreversible or Irretrievable Resources**

This project will not impact any water resources, wetlands, floodplains, coastal zones, or environmentally sensitive habitats. The proposed project is within completely built-out areas with residential and commercial development along and adjacent to the proposed construction sites. Therefore, irreversible nor irretrievable resources do not apply to this project.

## **B. Analysis of the Impacts**

### **1. Direct Impacts**

#### **a. Air Quality**

During construction, maintaining good air quality will be of importance for the safety and health of the citizens of Lincoln Park. Mitigation of the impacts of air quality is described in detail within Section VI of this project plan. Short term impacts to air quality will include:

- Emissions from Construction Equipment
  - Several pieces of equipment will be on-site for the proposed project. For open-cut excavations where access pits will be installed to allow for the installation of new water services using directional drilling, at a minimum, an excavator, dozer, loader, and pickup trucks will be on-site running throughout the day while work is taking

place. For trenchless rehabilitation work, far less equipment will be required on the site. All equipment on-site during all phases of construction will produce emissions into the air.

- Dust and Particulate Matter
  - For areas involving excavation of the site, dust and particulate matter may enter the air as the ground is disturbed and either stockpiled or transferred to trucks to be hauled away. In addition, sand and stone materials being brought to the site and stockpiled for bedding and backfill material may also allow dust and particulates to enter the air when winds increase.

There are no long-term impacts to air quality for this project.

#### **b. Archeological, Historical, and Culturally Significant Resources**

The City of Lincoln Park is unaware of any tribal agencies that have historical or cultural significance known throughout the City of Lincoln Park that may impact the proposed construction. Section VI of this project plan presents the procedures if historical or cultural artifacts or significance is identified during the construction of the project.

#### **c. Groundwater and Surface Waters**

The existing groundwater within the City of Lincoln Park is typically identified to be within several feet below the surface. There are surface waters and shorelines located in Lincoln Park. Impacts involving the proposed projects include the following and the mitigation efforts for these impacts described in detail in Chapter VI of this project plan.

- Dewatering
  - Replacement of water services will utilize trenchless technologies with access pits located at the connection to the water main, at the location of the water shut-off

box at the right-of-way line, and nearest the structure being provided service. It is not anticipated dewatering will be required for access pits, as it is assumed access pits will be no more than approximately six (6) feet in depth.

- Soil Erosion and Sedimentation Control
  - For any necessary open-cut excavation, special attention will be required when stockpiling excavated materials in addition to other material stockpiles and their locations to not interfere with existing drainage patterns and transfer particulates into the drainage system.

#### **d. Sensitive Features**

The Michigan Department of Environmental Quality will identify any endangered species that may exist within the City that may be impacted during construction. Furthermore, the City has researched current Federal Emergency Management Agency floodplain maps for Wayne County updated in February 2012 and consulted recent wetlands inventories to identify existing wetlands and floodplains. It does not appear based upon the information compiled that any of the proposed work will take place in a designated floodplain or wetland. In addition, no agricultural lands exist within the City of Lincoln Park. However, if endangered species would become impacted, the procedures to mitigate are presented in Chapter VI of this project plan.

#### **e. People and the Economy**

The largest impact of the proposed project is the inconvenience to the general public and commercial businesses within the City. The proposed project will create several short-term impacts and are listed below. The mitigation efforts to prevent as much inconvenience as possible to residents and business owners are presented in detail in Chapter VI of this report.

- Noise

- During the course of construction, the noise level will be increased with the amount of equipment on-site and power tools being used. Truck traffic, at times, can be continuous hauling material in and out of the job site throughout the day.
- Traffic Closures and Detours
  - Where water service replacement work is taking place within or near road right-of-ways, roads may have to be partially or completely closed to vehicular and/or pedestrian traffic. In addition, for trenchless technology installation, equipment and vehicles will have to be parked within the road right-of-way for a specified period of time.
- Proximity to Schools and School Bus Routing
  - Special consideration will have to take place with road closures, barricading of the site, and cleanliness of the site when working in the vicinity of a school. In addition, the revised routing of school buses and pedestrian traffic to school will have to be addressed.
- Proximity to Nearby Businesses
  - Special considerations will have to take place with road closures, drive approach closures and parking lot entrance closures, barricading of the site, and cleanliness of the site when working in front of or adjacent to a business to prevent any loss of business to the establishment during construction and to provide a safe route to the business. Temporary access may be needed for certain businesses during construction.
- Service Delivery
  - Closures may result in the re-routing or postponement of garbage pick-up, mail delivery, parcel delivery, and other deliveries to residences and businesses. Access for emergency vehicles and access for handicapped or disabled persons will also need attention.

- Haul Routes
  - Consideration must be taken to establish haul routes that impact the least number of residents and businesses.
- Temporary Loss of Service
  - During the replacement of the PRVs and the water service line, there will be a brief period when service is interrupted to the dwelling be serviced by that service lead. Homeowners will be notified at least 48 hours in advance of any water shut offs.
- Temporary Loss of Driveway Access
  - Dependent on the location of work taking place, driveway access may be temporarily unavailable until all work is complete.
- Private Property Access
  - To complete this work, the City will have to gain access to private property and enter all structures to make the connection of the new water service to the existing plumbing within the structure. A waiver will have to be signed by the property owner to allow this work to take place on private property.
- Aesthetics
  - To keep complaints to a minimum and allow for people to find residences and businesses easily without being distracted, the job site must be kept as clean as possible and disturb as little as possible of the existing surface features.

#### **f. Operational Impacts**

Operational impacts for this project will be minimal. While the water service is being replaced from the existing main to the dwelling; there will be a brief interruption of water service for those directly affected. The shutoff will be within one working day. Otherwise, water service will remain in service without interruption throughout the City's system.

## **2. Indirect Impacts**

The indirect impacts of the proposed project are the improvements to the existing infrastructure to extend the useful service life of the water distribution system and provide for a more reliable water distribution network. The proposed work will improve the quality of life, improve public health, increase the value of real estate properties, and comply with the Safe Drinking Water Act 399 of 1976.

## **3. Cumulative Impacts**

The adverse cumulative impact of the project is the costs associated with the project to be borne by the City through their water and sewer funding.

## **VI. Mitigation**

### **A. Short Term Construction Related Mitigation**

#### **1. Air Quality**

The following efforts will be made to mitigate air pollution and release of dust, particulates and, odors into the atmosphere:

- Emissions from Construction Equipment
  - Several pieces of equipment will be on site for each location of the proposed project. For open-cut excavations where access pits must be installed, at a minimum, an excavator, dozer, loader, and pickup trucks will be on-site running throughout the day while work is taking place. In addition, pumps and generators may be running continuously throughout the project for dewatering purposes or to provide power to the site. For trenchless rehabilitation work, far less equipment will be required on the site. All equipment on-site during all phases of construction will produce emissions into the air.
- Dust and Particulate Matter
  - For locations involving excavation of the site for access pit installation, dust, and particulate matter may enter the air as the ground is disturbed and either stockpiled or transferred to trucks to be hauled away. In addition, sand and stone materials being brought to the site and stockpiled for bedding and backfill material may also allow dust and particulates to enter the air when winds increase. For trenchless technology operations, dust and particulates should not be an impact. To control the amount of dust and particulates entering the atmosphere from a construction site, the following efforts will be made:
    - Stockpiling of backfill materials should be kept to a minimum and should not be onsite for an extended period of time.



- Stockpiles shall be placed away from catch basins, manholes, and any streams.
- Excavated material shall be stockpiled neatly and away from catch basins and manholes and should be hauled away by trucks to appropriate dumping sites or landfills at the Contractor's discretion, as soon as possible.
- Any contaminated soils encountered shall be properly stockpiled and covered until the appropriate landfill allows for the dumping of this material through a manifest.
- Silt fencing shall be placed around the perimeter of all construction sites to prevent soil erosion and silt sacks or filter fabrics placed in all catch basins and any manhole covers with perforated lids to prevent sedimentation entering the sewer system.
- Odors
  - Odors should not be of concern for this project.

## **2. Archeological, Historical, and Culturally Significant Resources**

The City of Lincoln Park has submitted in the past a State Historical Preservation Office (Section 106) Application and requests to 14 tribal agencies throughout the State of Michigan to obtain information about any historical or cultural significance known throughout the City of Lincoln Park that may impact the proposed construction if required. It does not appear any historical or cultural resources will be impacted by the proposed project. However, if archeological, historical, or culturally significant artifacts are uncovered during excavations all work will be stopped and the State Historical Preservation Office and any tribal organizations with influence in the area will be contacted to come to the site and identify the artifacts and determine if additional artifacts may be uncovered. The State Historical Preservation Office and tribal organizations will be allowed to obtain the artifacts and direct us on how to proceed with construction.

The proposed project on Bailey between Minnie and Champaign is adjacent to Paun Park at the north end of the project.

## **3. Groundwater and Surface Waters**

The existing groundwater within the City of Lincoln Park is typically identified to be several feet below the surface. The following mitigation will be provided to maintain surface water quality:

- Dewatering
  - Dewatering is not expected for the proposed project. Excavation required will be minimal for the installation of access pits. However, if groundwater is encountered, groundwater will be pumped out of the excavation, treated through necessary filters, and discharged into the existing storm sewer system not allowing any silt or sediment into the storm sewer system.
- Soil Erosion and Sedimentation Control
  - For those locations involving excavations, all necessary soil erosion and sedimentation control measures will be put in place. These measures include:
  - Silt fence along the grading limits of the project. The silt fence will be trenched in at least 6 inches into the ground to prevent any sedimentation from leaving the construction site.
  - Silt sacks will be placed in all catch basins and perforated manholes within the grading limits and in all adjacent structures to the construction site to prevent silt and sedimentation from directly entering the storm sewer system.
  - Stockpiles will be always kept neat and if necessary, silt fence or erosion eels placed around the perimeter.
  - Adjacent streets and haul routes will be swept clean on a regularly to prevent the tracking of silt and sedimentation away from the construction site. Water will be used to spray the streets before being swept to mitigate dust control.

#### **4. Sensitive Features**

The Michigan Department of Environmental Quality will contact the United States Fish and Wildlife Service and the Michigan Natural Features Index to identify any endangered species that may exist within the City that may be impacted during construction and to identify any floodplains or

wetlands within the City. The City has researched current Federal Emergency Management Agency floodplain maps for Wayne County updated in February 2012 and consulted recent wetlands inventories to identify existing wetlands and floodplains. It does not appear based upon the information compiled that any of the proposed work will take place in a designated floodplain or wetland. No surface waters exist in the City of Lincoln Park. In addition, no agricultural lands exist within the City of Lincoln Park.

If endangered species are encountered all work for that particular project will be stopped until further notice so that the City can consult with the United States Fish and Wildlife Service and the Michigan Department of Environmental Quality to identify alternative solutions to construct the proposed project without interruption or destroying an endangered species habitat.

## **5. People and the Economy**

The largest impact of the proposed project is the inconvenience to the general public and to commercial businesses within the City. The proposed project will create several short-term inconveniences to the general public and are detailed as follows:

- Noise
  - During the course of construction, heavy equipment will be operating continuously during the workday. In addition, several power tools, generators, and potentially dewatering pumps could be running continuously throughout the workday. The City has an ordinance in place that will allow the Contractor to only operate during the hours of 7 am and 7 pm Monday through Saturday to allow residents to have quiet time when the majority of residents are at their homes. No work will be allowed on Sundays or holidays recognized by the City.
- Traffic Closures and Detours
  - It is not anticipated full closures of streets will be required. Lane closures may take place briefly and traffic control signage will be placed upon entering the

construction site per the current manual of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD). Construction sites will be properly barricaded to not allow vehicular or pedestrian traffic into the construction site.

- Proximity to Schools and School Bus Routing
  - For any projects adjacent to or nearby a school, the sites will be properly barricaded to prevent pedestrian traffic from entering the construction site. Detour signs will be placed for pedestrian traffic to schools if warranted.
  - For school bus routing, the contractor will be required to contact the local school district to coordinate the re-routing of buses if necessary and relocate bus stops within the construction site away from the construction site. The Contractor, City, and local school district will work cooperatively to inform residents of any changes to bus stops with several days' notice.
- Proximity to Nearby Businesses
  - Driveways and pedestrian access to businesses will be provided at all times. It is not anticipated that any of the proposed work will affect access to any local businesses.
- Service Delivery
  - Mail delivery service will be always provided to residents and businesses.
  - Garbage collection will resume during construction. Garbage collection takes place within the alleys at these locations.
- Temporary Loss of Service
  - During the replacement of water services, there will be a temporary loss of water service prior to removal and replacement of the service line. The loss of water service should be no greater than one (1) working day. Notices to residents affected with temporary loss of service will be passed out 48hours prior to construction letting residents know of the upcoming interruption.

- Temporary Loss of Driveway Access
  - Driveway access will be provided as much as possible. There may be brief periods of time where driveways will not be accessible, particularly if new concrete driveway approaches are poured and must be cured for a minimum of five (5) days. Residents whose driveways are inaccessible for a brief period of time will be required to park on side streets. The City will provide additional police presence during times when several cars have to be parked in the street.
  - Emergency access will be provided at all times for the fire and rescue apparatus. During non-working hours, all equipment will be placed off to the side of a construction site to allow for through access. In addition, those residents that are disabled or handicapped that need direct access to their homes will be provided special access.
- Private Property Access
  - To complete this work, the City will have to gain access to private property and enter all structures to make the connection of the new water service to the existing plumbing within the structure. A waiver will have to be signed by the property owner to allow this work to take place on private property.
- Aesthetics
  - The Contractor will be required to keep the construction site as clean and neat as possible. The Contractor will be asked to sweep clean the adjacent streets to the construction site on a regular basis, always provide access and backfill trenches as much as possible at the end of every day. Stockpiling will be kept to a minimum.

## **B. Operational Impacts**

During the operations of construction projects, the most important concern is the safety of the construction workers and the safety of nearby residents and businesses. The Contractor for these

projects will be required to follow safety procedures per the Occupational Safety and Health Administration (OSHA) and provide the City and Engineer with a Contractors Safety Program. The Contractor's will also have to be bonded and insured. The City and Engineer will not be responsible as the safety officer for the site; and shall make note of any unsafe conditions and immediately report to the Contractor. The Contractor will be responsible for the safety and shall name a safety officer for the site responsible for all safety issues that arise. The Contractor will be responsible to provide safety training regularly during the course of construction. The following provides the mitigation required for operational impacts during the course of construction:

- Chemical Spills
  - If a chemical spill were to occur, all construction shall be stopped, and the chemicals cleaned up appropriately. If the chemical poses a dangerous threat to the public, the fire department must be immediately called to the site.
- Vehicular Accidents
  - If a vehicular accident occurs within the construction site, police and fire shall be called immediately to assist and provide a police report of the incident.
- Damage to Franchise Utilities
  - The Contractor will be required to call MISS DIG or 811 to mark all underground utilities three (3) business days prior to starting construction. Where underground utilities exist, the Contractor will be required to hand dig to expose the utility prior to excavation with equipment.
  - If a gas main is damaged during the excavation, the fire department shall be immediately called to the site and the local gas company immediately called to assess the situation and have repaired. All work must come to a stop and all equipment shut off when a gas main is damaged. If a large main is damaged, the construction site shall be evacuated.

- If a water main is damaged during the excavation, the City water department shall be immediately notified to shut off the water main at the next nearest gate valves and to allow the City to make repairs. All work shall be stopped until the water main is repaired.
- The Contractor will be responsible for all costs incurred to damaged utilities that were marked by MISS DIG or 811.
- If MISS DIG marks begin to fade away or disappear during the course of construction, the Contractor will be responsible to have MISS DIG re-stake the utilities. Markings are typically only good for 21 days; therefore, they may need to be re-staked at any time for the duration of construction.
- Personal Injury
  - Any serious injuries that take place during construction operations shall immediately be reported and the fire department contacted to provide a rescue unit.

## **VII. Public Participation**

### **A. Public Meetings on Project Alternatives**

No public meetings were conducted regarding this plan prior to the formal public hearing which will be held on June 21, 2021. However, meetings took place with City officials and City officials were continually updated as to the progress of developing this project plan and proposed work to be incorporated into the project plan.

### **B. The Formal Public Hearing**

Per the requirements of EGLE, a formal public hearing is scheduled and will be conducted during the regular City Council meeting on June 21, 2021. The public hearing allows the City Council, City officials, and the general public an opportunity to provide input and/or comments regarding the proposed DWRF project.

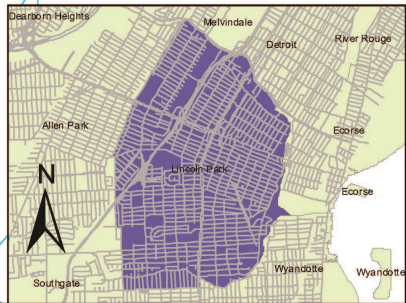
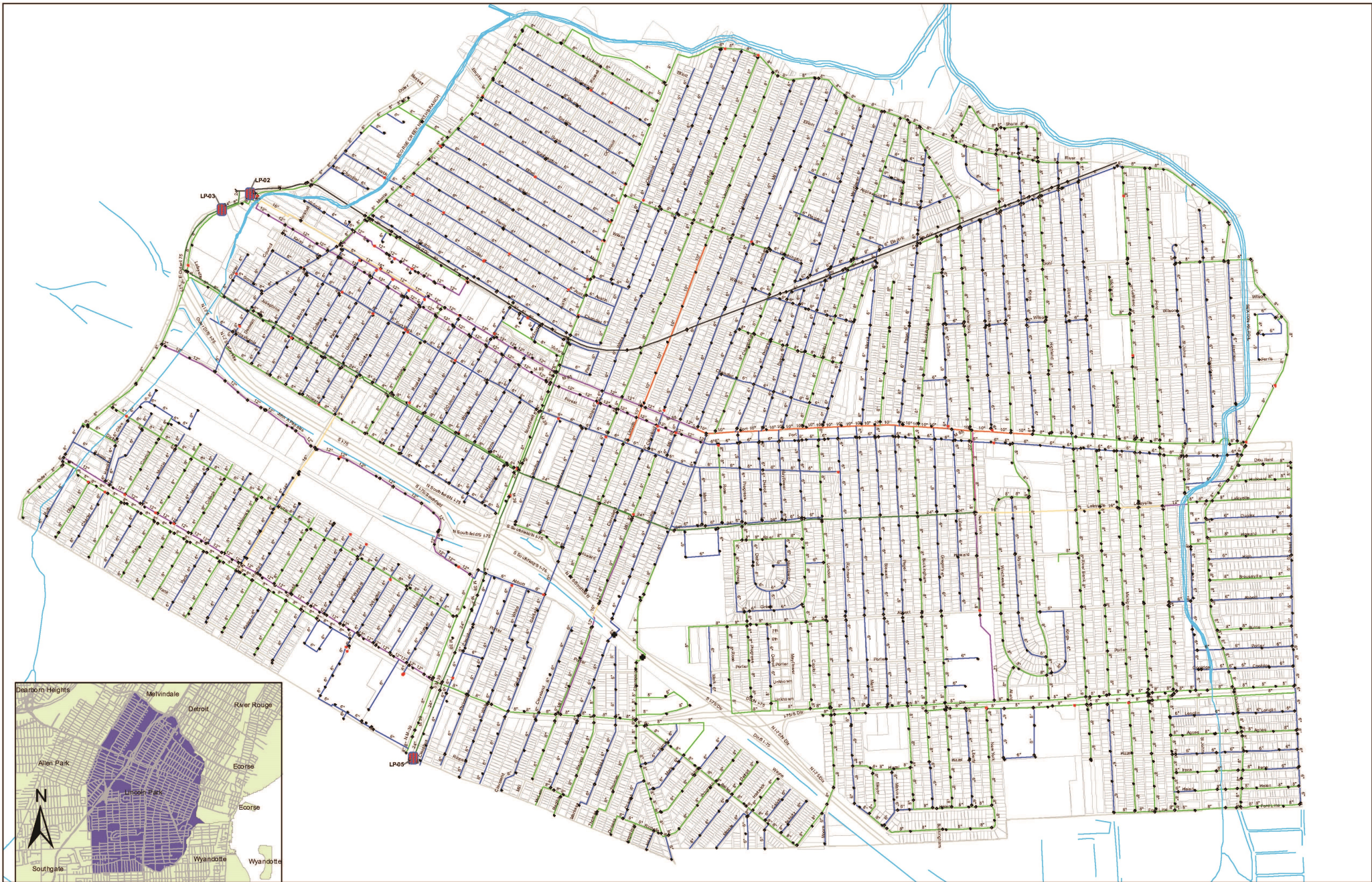
#### **1. Public Hearing Advertisement**

Per the requirements of EGLE, a notice for the public hearing will be held on June 21, 2021. This public notice was published in the Lincoln Park newspaper: The News Herald, May 12, 2021 edition, to allow for a minimum 30-day public comment period. The public comment period allowed for input and/or comments from the general public prior to the public hearing and allow the general public to review the draft DWRF project plan available for viewing at the City of Lincoln Park's Clerk Office starting on May 18, 2021. A copy of the advertisements and affidavits acknowledging the publishing of the advertisements are provided in Appendix J.



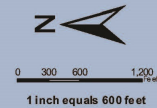
# Appendix A





# The City of Lincoln Park Water System Master Plan

- Legend**
- Hydrant
  - Gate Valve and Well
  - Gate Valve and Box
  - Disconnected Main
  - DWSD Supply Points
  - 6"
  - 8"
  - 10"
  - 12"
  - 16"
  - 20"
  - 24"
  - 36" DWSD Transmission Main
  - Rivers



Attachment A  
Existing Water System





# Appendix B







# CITY MAP CITY OF LINCOLN PARK 2022



City of Southgate

## LEGEND

-  WATERMAIN REPLACEMENT AND ROAD RECONSTRUCT
-  WATERMAIN REPLACEMENT AND ROAD RESURFACING



CITY OF LINCOLN PARK



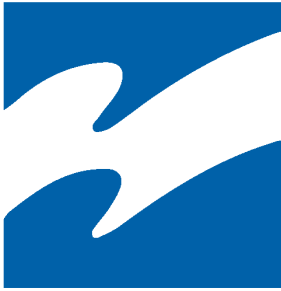
# CITY MAP CITY OF LINCOLN PARK 2023



## LEGEND

- \_\_\_\_\_

- \_\_\_\_\_



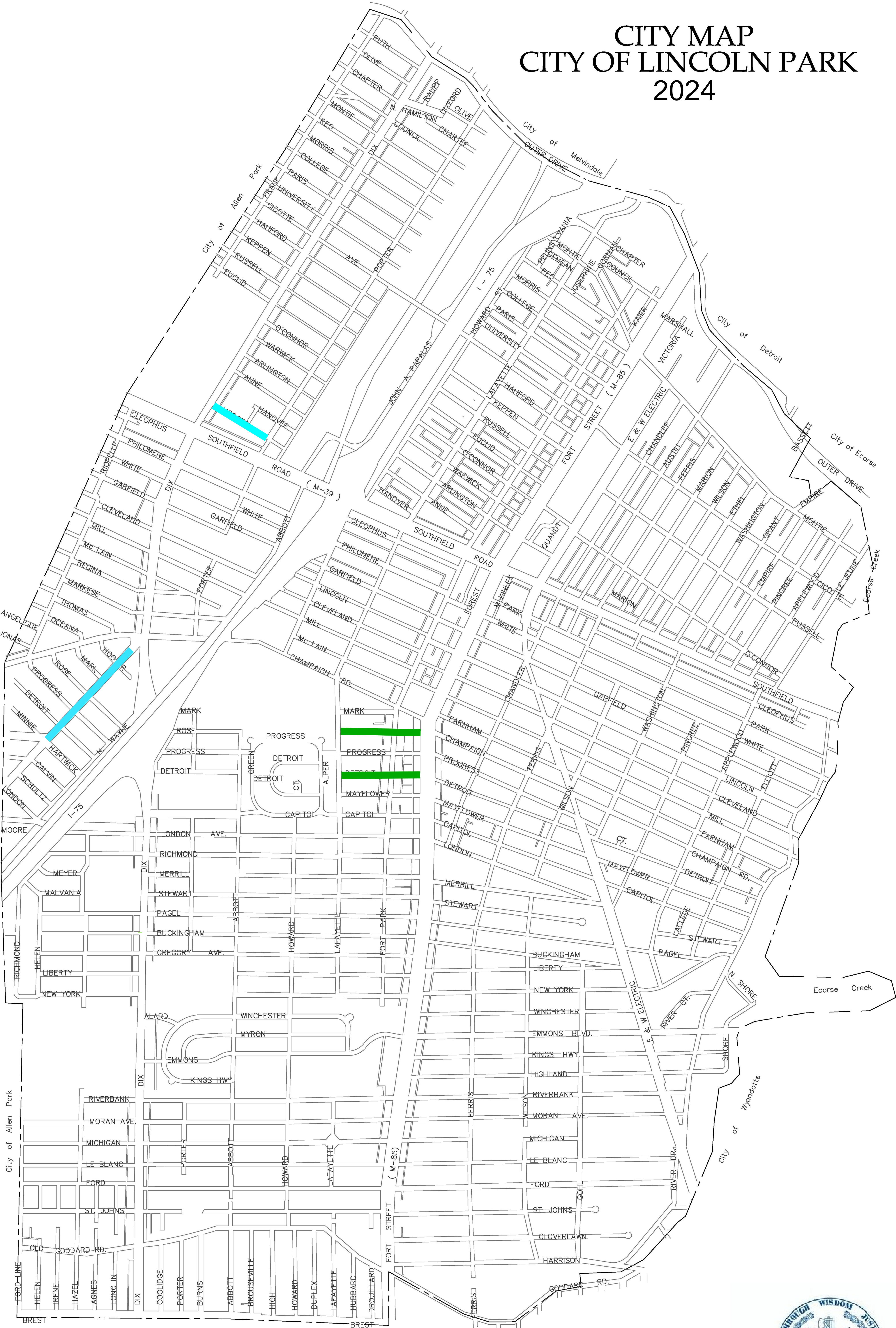
CITY OF LINCOLN PARK





# CITY MAP

## CITY OF LINCOLN PARK

### 2024



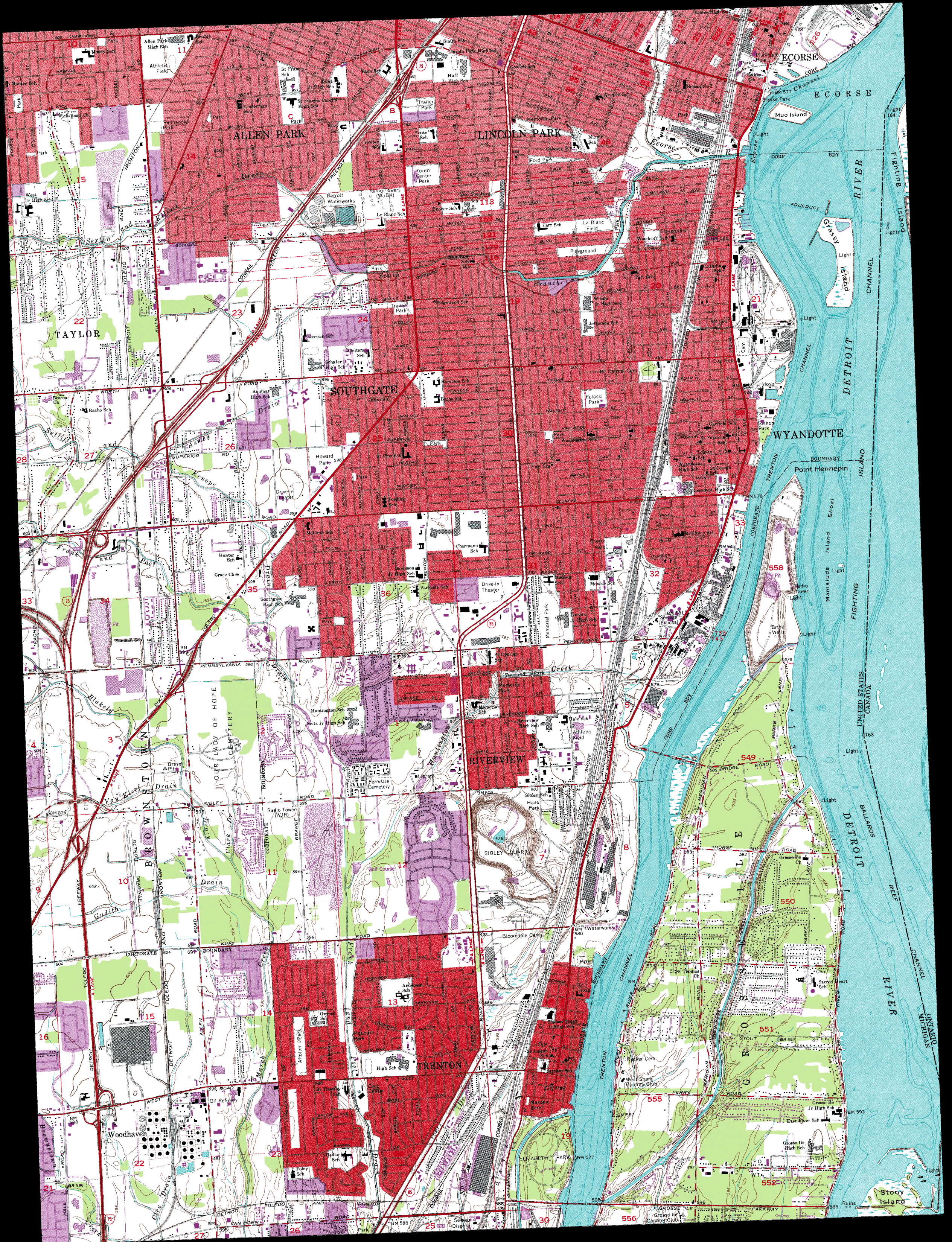
LEGEND

-  WATERMAIN REPLACEMENT AND ROAD RECONSTRUCT
-  WATERMAIN REPLACEMENT AND ROAD RESURFACING

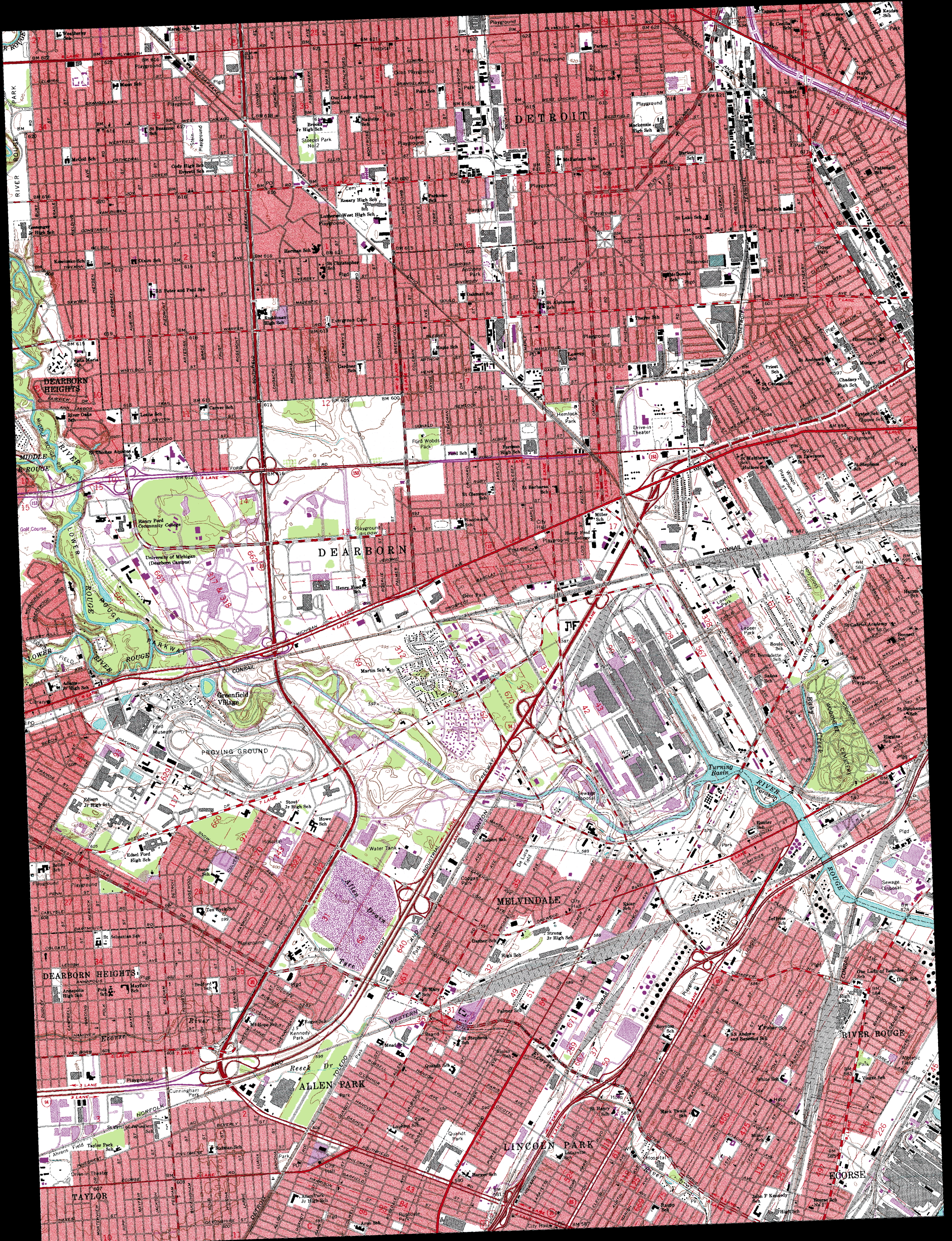


# Appendix C





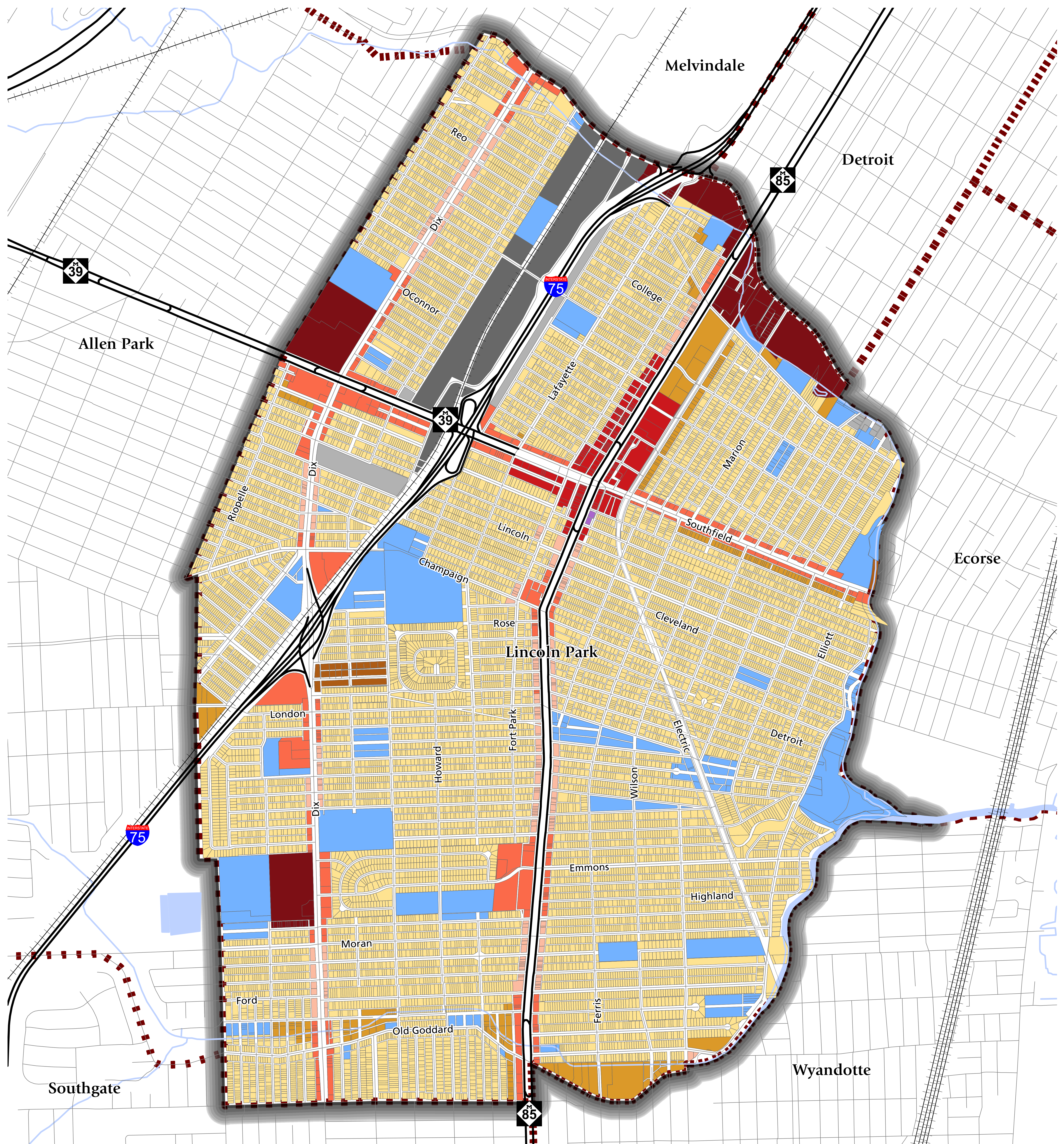






# Appendix D





# CITY OF LINCOLN PARK

## Zoning Map

Data Sources: State of Michigan Geographic Data Library, City of Lincoln Park, Wayne County GIS

- Lincoln Park Boundary
- State Roads
- All Roads
- Railroads
- Municipalities

- Single Family Residential
- Multiple Family Residential
- Mobile Home Park
- Light Industrial
- General Industrial
- Planned Unit Development

- Neighborhood Business
- Municipal Business District
- Central Business District
- Regional Business
- Community Service

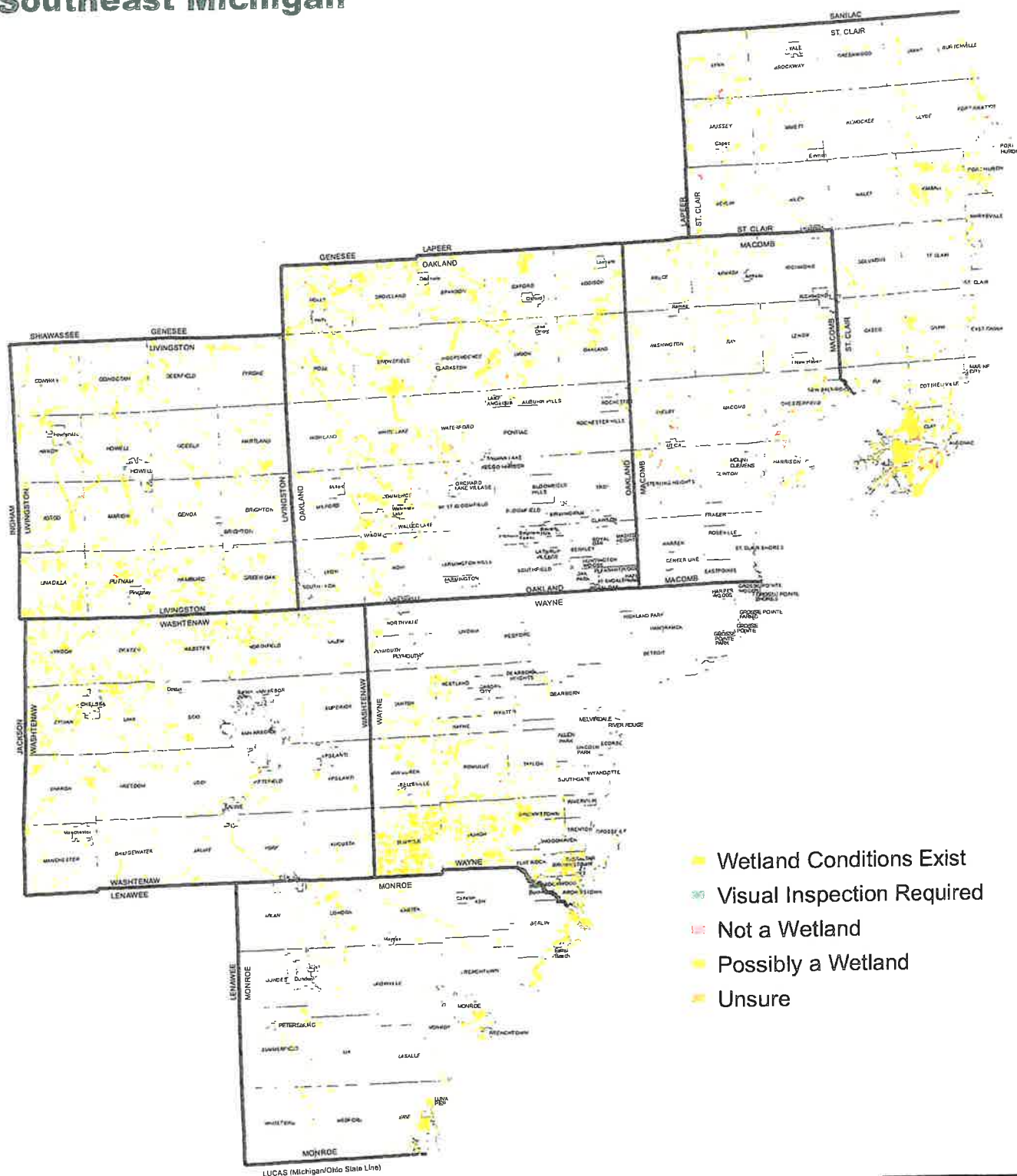




# Appendix E

# Wetland Indicators

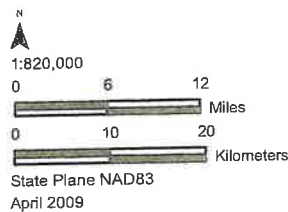
## Southeast Michigan



- Wetland Conditions Exist
- Visual Inspection Required
- Not a Wetland
- Possibly a Wetland
- Unsure

**SEMCOG**

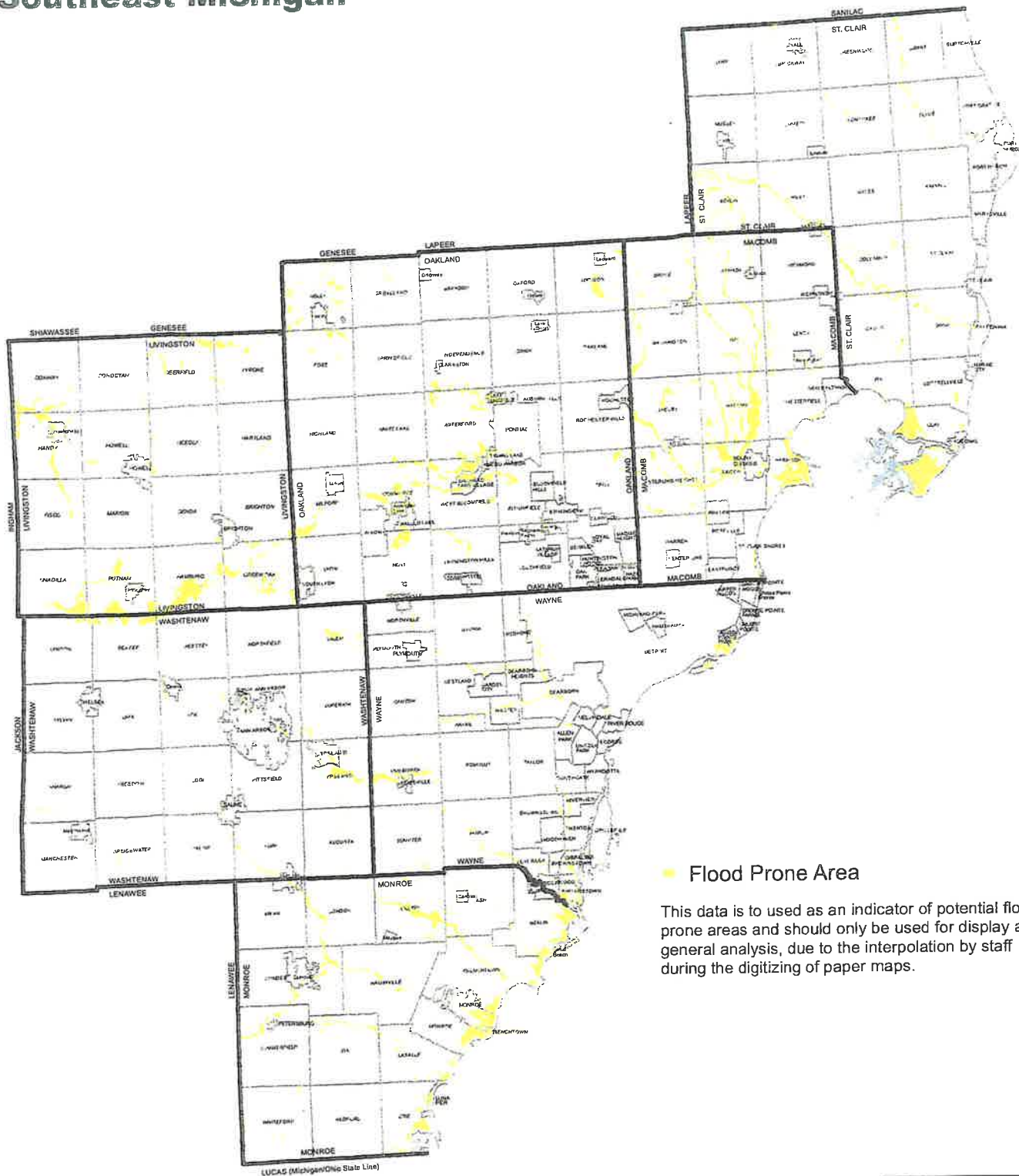
Southeast Michigan Council of Governments  
535 Griswold Street, Suite 300, Detroit, Michigan 48226-3602  
Phone (313) 961-4266, Fax (313) 961-4869  
www.semcog.org Copyright: SEMCOG, 2009



o:\support\environment\wetland\data\wetland\_indicators.mxd

# Flood Prone Areas

## Southeast Michigan

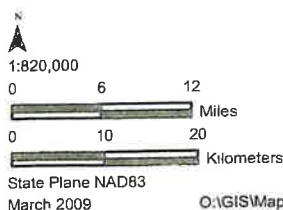


### Flood Prone Area

This data is to be used as an indicator of potential flood prone areas and should only be used for display and general analysis, due to the interpolation by staff during the digitizing of paper maps.

**SEMCOG**

Southeast Michigan Council of Governments  
535 Griswold Street, Suite 300, Detroit, Michigan 48226-3602  
Phone (313) 961-4266, Fax (313) 961-4869  
www.semcog.org Copyright: SEMCOG. 2009

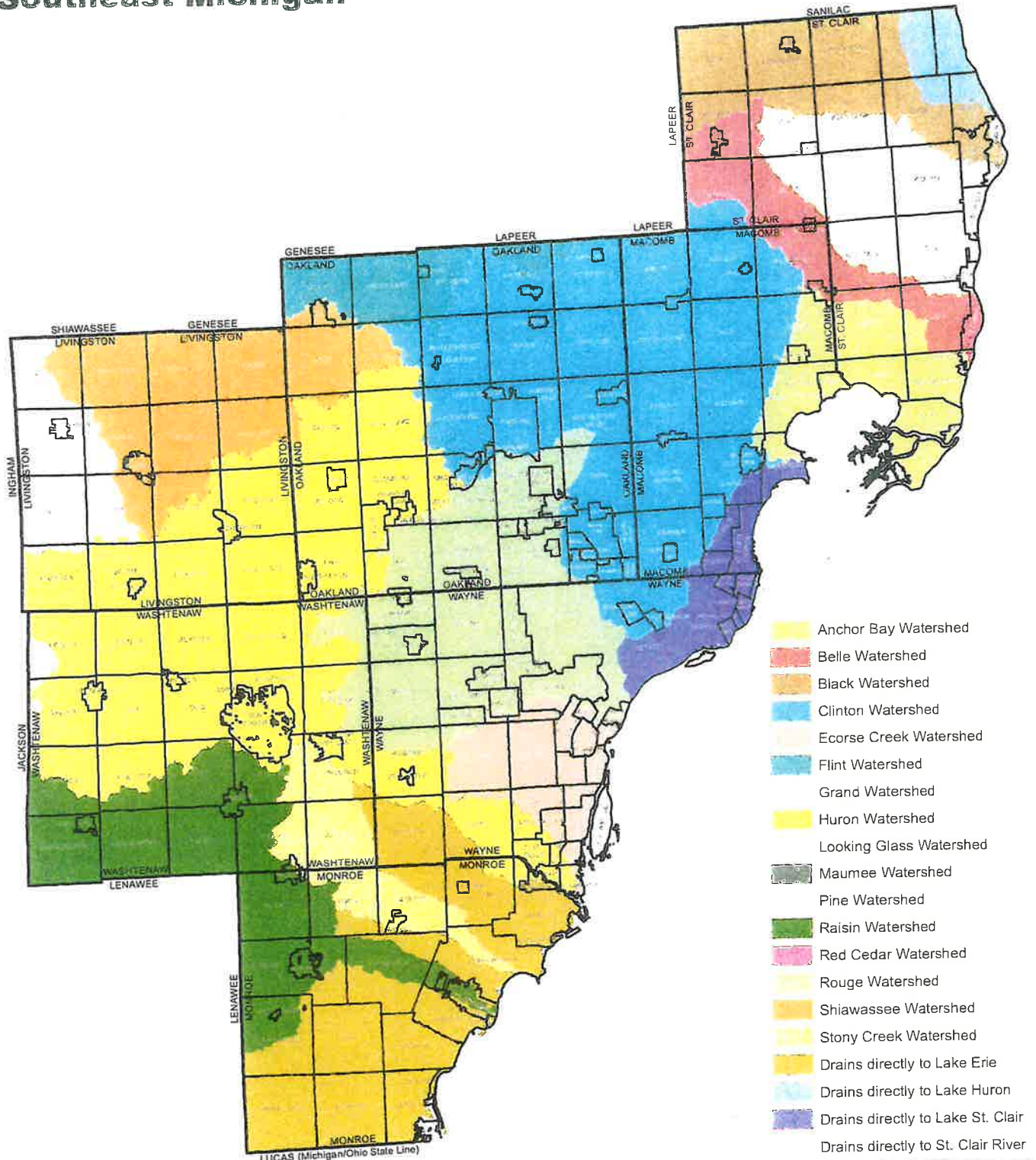


O:\GIS\Maps\WebEnvironment\_Landuse\Mapdocuments\ifloodprone\_small.mxd



# Historic Watersheds

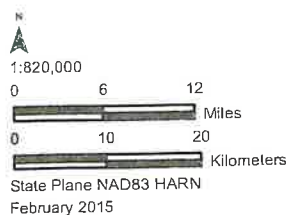
## Southeast Michigan



- Anchor Bay Watershed
- Belle Watershed
- Black Watershed
- Clinton Watershed
- Ecorse Creek Watershed
- Flint Watershed
- Grand Watershed
- Huron Watershed
- Looking Glass Watershed
- Maumee Watershed
- Pine Watershed
- Raisin Watershed
- Red Cedar Watershed
- Rouge Watershed
- Shiawassee Watershed
- Stony Creek Watershed
- Drains directly to Lake Erie
- Drains directly to Lake Huron
- Drains directly to Lake St. Clair
- Drains directly to St. Clair River

**SEMCOG**

Southeast Michigan Council of Governments  
1001 Woodward Avenue, Suite 1400, Detroit, Michigan 48226-1904  
Phone (313) 961-4266, Fax (313) 961-4869  
www.semcog.org Copyright: SEMCOG, 2015



Y:\Staff\Burns\Map Gallery\watershed2.mxd

# Appendix F





United States  
Department of  
Agriculture

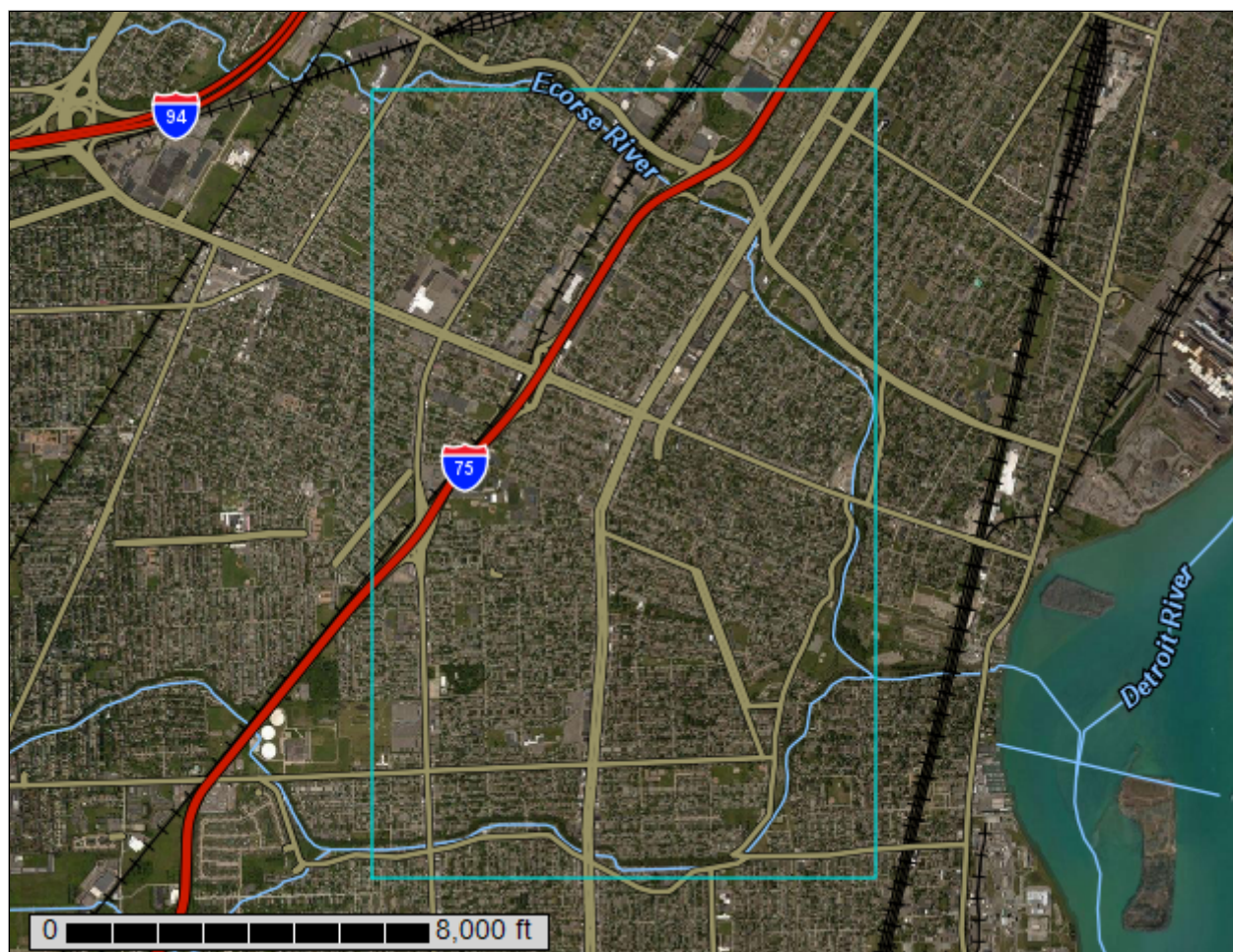
**NRCS**

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for **Wayne County Area, Michigan**

**City of Lincoln Park S2 Grant  
Program**



February 10, 2015

# Preface

---

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

---

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

---

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



# Custom Soil Resource Report Soil Map







# Custom Soil Resource Report


## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)


### Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

### Special Point Features

 Blowout

 Borrow Pit


 Clay Spot


 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water


 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole


 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

### Water Features

 Streams and Canals


### Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Wayne County Area, Michigan  
Survey Area Data: Version 11, Sep 16, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 31, 2014—Jun 15, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Wayne County Area, Michigan (MI602)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
NM	Area not mapped	4,510.0	100.0%
<b>Totals for Area of Interest</b>		<b>4,510.0</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

## Custom Soil Resource Report

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## Wayne County Area, Michigan

### **NM—Area not mapped**

#### **Map Unit Setting**

*National map unit symbol:* pnxw

*Elevation:* 570 to 720 feet

*Mean annual precipitation:* 28 to 34 inches

*Mean annual air temperature:* 45 to 52 degrees F

*Frost-free period:* 140 to 160 days

*Farmland classification:* Not prime farmland

#### **Map Unit Composition**

*Area not mapped:* 100 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

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---

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United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

## Custom Soil Resource Report

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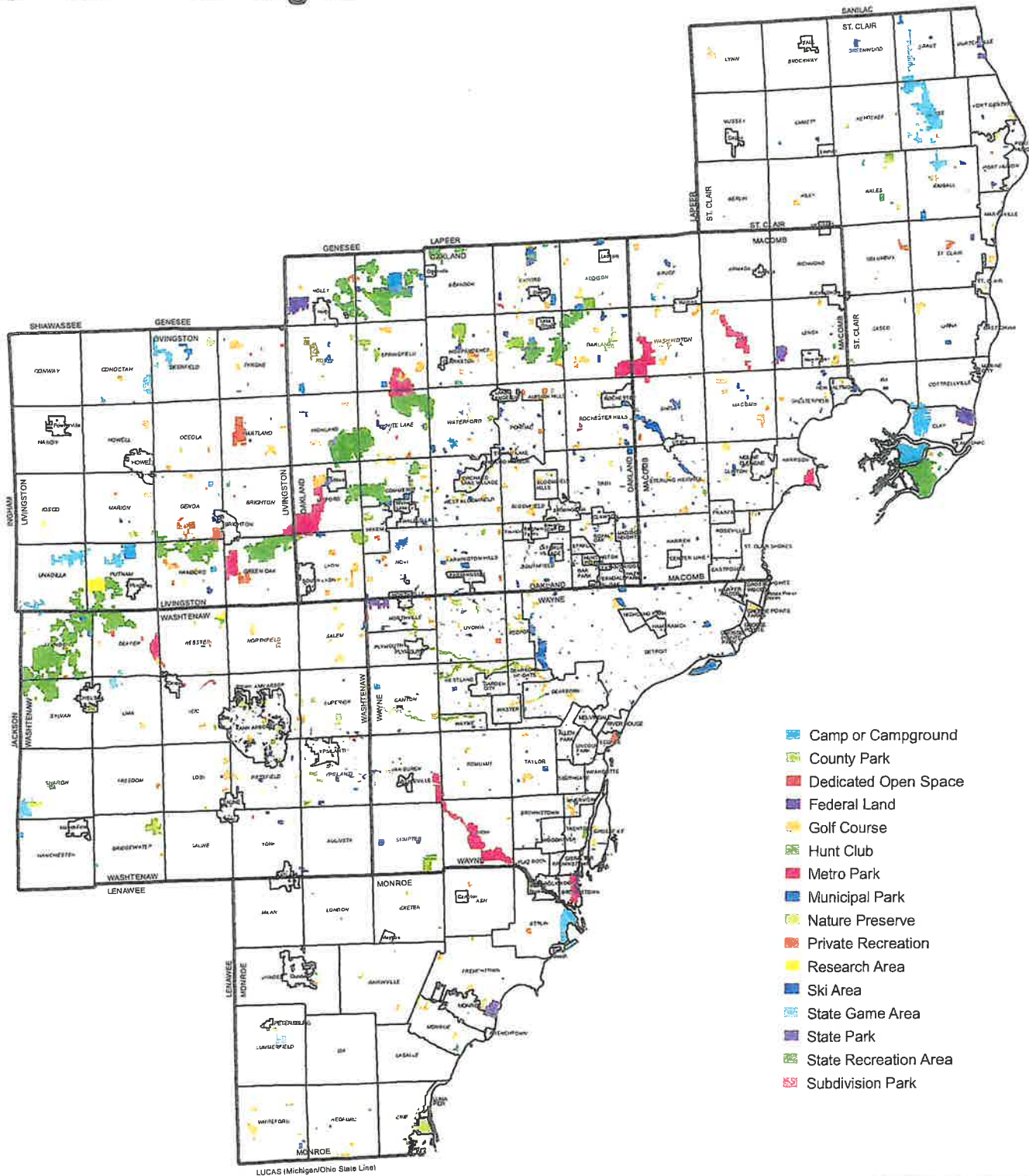
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United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_052290.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf)

# Appendix G

# Recreation and Open Space

## Southeast Michigan



- Camp or Campground
- County Park
- Dedicated Open Space
- Federal Land
- Golf Course
- Hunt Club
- Metro Park
- Municipal Park
- Nature Preserve
- Private Recreation
- Research Area
- Ski Area
- State Game Area
- State Park
- State Recreation Area
- Subdivision Park

**SEMCOG**

Southeast Michigan Council of Governments  
535 Griswold Street, Suite 300, Detroit, Michigan 48226-3602  
Phone (313) 961-4266, Fax (313) 961-4889  
www.semcog.org Copyright: SEMCOG, 2009

N  
1:820,000  
0 6 12  
Miles  
0 10 20  
Kilometers  
State Plane NAD83  
April 2009



©2009 MapInfo Software. Land use data from various sources and open space data from SEMCOG.



# CITY MAP

## CITY OF LINCOLN PARK

### LEGEND

#### LINCOLN PARK CITY LIMITS

##### SCHOOLS

- 1 Calvary Lutheran Church and Private School
- 2 Mixer Elementary School
- 3 Foote Elementary School
- 4 Carr Elementary School
- 5 Raupp Elementary School
- 6 Lincoln Park Senior and Middle High School
- 7 Lafayette Elementary School
- 8 Hoover Elementary School
- 9 Christ the Good Shepherd Catholic Church and School
- 10 Keppen Elementary School
- 11 Board Of Education
- 12 Paun Elementary School
- 13 Crowley School

##### PUBLIC BUILDINGS

- 1 Community Center
- 2 Guidance Center
- 3 City Hall
- 4 Fire Station
- 5 Library
- 6 25th District Court
- 7 Police Station
- 8 Post Office
- 9 Dog Pound
- 10 D.P.S.
- 11 Historical Museum/ Chamber of Commerce
- 12 Senior Tower
- 13 Kennedy Memorial Building and Senior Center

##### PUBLIC PARKS

- 1 Braverman Park
- 2 Council Point Park
- 3 Exchange Park
- 4 Ford Motor Co. Park
- 5 Ford Park
- 6 Forest Park
- 7 Jaycee Park
- 8 John Papalas Park
- 9 Kiwanis Park
- 10 Maple Park
- 11 Marion Park
- 12 Memorial Park
- 13 Paun Park
- 14 Quandt Park
- 15 V.F.W. Park
- 16 Willow Park
- 17 Youth Center Park
- 18 Prop. Spinner Park
- 19 Lions Park



SCALE: 1"=1400'

NOVEMBER 2004



City of Lincoln Park



13500 Reeck Road  
Southgate, Michigan  
48195

# Appendix H

**SUMMARY OF UNDERGROUND STORAGE TANK FACILITIES - CITY OF LINCOLN PARK**

Facility Name	Facility Address	Facility Owner	Active UST	Closed UST	Active LUST	Closed LUST
Galilee Corporation	3860 Dix Highway	Oasis Oil LLC	x		x	
A&Z Gas Inc.	682 Southfield Road	Kassem Boussi	x			x
A-1 Transmissions, Inc.	1271 Dix Highway	Frank A. Gallucci	x			
Alfa Enterprises, Inc.	2308 Fort Street	Alfa Enterprises, Inc.	x		x	
Anda Lusia	25520 Outer Drive	Rad Malar	x			x
Citgo	1727 Southfield Road	SRRS Investments, LLC	x			x
Dix Petro Mart	3883 Dix Highway	Dix Petro/Nazem Daher	x			x
Dixie Gas & Food, Inc.	3216 Dix Highway	Dixie Fuel and Food, Inc.	x		x	
Emmons Blvd Pump Station	3690 Wilson Street	City of Lincoln Park	x			
Goch and Sons	1855 Dix Highway	Gosh and Sons	x			x
Imad Dabaja	4124 Dix Highway	Imad Dabaja	x			x
JK Camps, Inc.	3564 Fort Street	JK Camps, Inc.	x			
K&H Saad No. 3	2207 Southfield Road	K&H Saad No. 4 LLC	x			x
Kroger No. D693	2060 Dix Highway	Kroger	x			
Lincoln Boulevard Pump Station	1035 Lincoln Boulevard	City of Lincoln Park	x			
Lincoln Park Company	1580 Southfield Road	AT&T Michigan	x			
LP Petro Mart	3869 Fort Street	LP Petro Mart	x		x	
M&N Food and Gas, Inc.	3570 Fort Street	M&N Food and Gas, Inc.	x		x	
Marathon	2472 Dix Highway	Green Dome Petroleum	x		x	
Michigan Fuels	4140 Fort Street	Michigan Fuels	x		x	
Quick Fuels, Inc.	905 John A. Papalas Drive	Quick Fuels, Inc.	x			
Shahab Moghul	3693 Dix Highway	Unknown	x		x	
Southfield Grant, Inc.	804 Southfield Road	Southfield Grant, Inc.	x		x	
Sunoco Gas Station	1312 Fort Street	John Kizi	x			x
Vencor Hospital Detroit	26400 Outer Drive	Unknown	x			x
Zita Auto LLC	3031 Fort Street	Ahimad Ghadish	x			x
Applewood Pump Station	605 Applewood Street	City of Lincoln Park		x		
APX International	1120 John A. Papalas Drive	APX International		x		x
Bailey Street Pump Station	3060 Bailey Street	City of Lincoln Park		x		
Bill and Sons Service	3562 Dix Highway	Bill Schook		x		x
Boat Shop	4180 Fort Street	Apex Associates		x		x
Bud's Towing	590 Southfield Road	Bud's Towing		x		x
Joseph Carsizales	2993 Fort Street	Unknown		x		
City of Lincoln Park	NW Corner of Fort and Arlington	City of Lincoln Park		x		x
City of Lincoln Park	500 Southfield Road	City of Lincoln Park		x		x
Clemente Italian Kitchen/Former Shell Station	2208 Fort Street	Clemente Corporation		x		x
Complete Auto Service	2580 Dix Highway	Dick Williams		x	x	
Continental Transmission	2328 Fort Street	Vernon and Aaron Conley		x		
Dix Block and Supply Company, Inc.	3250 Dix Highway	Dix Block and Supply Company, Inc.		x		x
Dix Mill Service	2357 Dix Highway	Unknown		x		
Downriver Springs Service	3377 Dix Highway	Rick Turnbull		x		x
Fast Auto Service	3881 Fort Street	Fajzeh Harajli		x	x	x
Former Apex International Inc.	1080 John A. Papalas Drive	Dynamic Associates LP		x		
Former Gas Station	1380 Southfield Road	City of Lincoln Park		x	x	x
Former Liquor Control Warehouse	2251 Dix Highway	State of Michigan		x		x
Former Master Car Wash Site	2056 Dix Highway	Unknown		x		
Jerome E. Hoffman Trust	1780 Southfield Road	Jerome E. Hoffman Trust		x		
JMT Manufacturing	1719 Ferris Street	John Racey		x		x
KFC of LP, Inc.	1217 Dix Highway	KFC of LP, Inc.		x		
Kurtis Kitchen and Bath Center	1491 Southfield Road	Leslie J. Stanford		x		
Mark Street Pump Station	2863 Bailey Street	City of Lincoln Park		x		x
United States Postal Service	1515 Fort Street	United States Postal Service		x		x
M61104 LP Garage	1700 Cicotte Avenue	AT&T Michigan		x		x
Marathon Unit No., 1339	900 Fort Street	John Kizi		x		
Merchants Detective Agency	1378 Dix Highway	Merchants Detective Agency		x		x
Oakwood Downriver Medical Center	25750 Outer Drive	Oakwood Downriver Medical Center		x		x
Old Royal Ascot Hotel Site	1190 Southfield Road	City of Lincoln Park		x		
Prime Oil and Lube, Inc.	4242 Fort Street	John Kratsas		x		
Sears Roebuck No. 1250	2100 Southfield Road	Sears Roebuck		x	x	
Silk Screen Printing	1030-46 Southfield Road	Henry L. Meyer		x		x
Total Petroleum No. 2645	3164 Dix Highway	Total Petro, Inc.		x		x
VI Properties	3169-71 Dix Highway	VI Properties		x		
Vacant Building	970 Fort Street	Leslie J. Stanford		x		x
Vacant Building	25900 Outer Drive	Leslie J. Stanford		x		x
Vacant Land	Fort and Council	Leslie J. Stanford		x	x	
White Star Trucking, Inc.	1750 Southfield Road	White Star Trucking, Inc.		x		
Zubor Motors	2077 Southfield Road	Walker Strauss		x		x
Citgo	Dix and Allard	Unknown			x	

# Appendix I

**CITY OF LINCOLN PARK**  
**WATERMAIN REPLACEMENT PROGRAM (DWRF)**  
**Various Locations**  
**PRELIMINARY ENGINEERS ESTIMATE**

April 26, 2021

Item	Quantity	Unit	Unit Price	Total
2022 WATERMAIN PROJECTS	9610	LF	\$ 165.00	\$ 1,585,580.00
2022 WATERMAIN LEADS	93	EA	\$ 5,150.00	\$ 478,950.00
2023 WATERMAIN PROJECTS	9662.4	LF	\$ 170.00	\$ 1,642,610.00
2023 WATERMAIN LEADS	201	EA	\$ 5,305.00	\$ 1,066,310.00
2024 WATERMAIN PROJECTS	9081.6	LF	\$ 176.00	\$ 1,598,360.00
2024 WATERMAIN LEADS	36	EA	\$ 5,465.00	\$ 196,740.00
<i>CONSTRUCTION TOTAL</i>				\$ 6,568,550.00
ENGINEERING AND DESIGN (5.5%)				\$ 361,270.25
BONDING AND FINANCIAL ADVISOR SERVICES (5%)				\$ 328,427.50
CONSTRUCTION OBSERVATION AND INSPECTION (5%)				\$ 328,427.50
CONSTRUCTION ADMINISTRATION (2.5%)				\$ 164,213.75
CONTINGENCY (10%)				\$ 656,855.00
<b><i>GRAND TOTAL</i></b>				<b><i>\$ 8,407,744.00</i></b>

**PRESENT WORTH ANALYSIS SUMMARY**

***City of Lincoln Park***

		Alternative 1 Project	
		Relief Sewer System	
Improvements	Life	Cost	Salvage
Water Pipes/Valves	50 yrs	\$ 6,568,550.00	\$ 3,941,130.00
Structures	40 yrs		
Equipment	20 yrs		
Total Construction Cost		\$ 6,568,550.00	
Engineering and Contingencies		\$ 1,839,194.00	
Easements and Land Acquisition			
Present Worth Estimated Capital Costs (2021)		\$ 8,407,744.00	
Salvage Value at 20 Years			\$ 3,941,130.00
Present Worth of Salvage Value (4.125% at 20 Years)			\$ 1,755,983.67
Total Annual O&M Costs		\$ -	
Present Worth of O&M Costs (4.125% at 20 Years)		\$ -	
Total Present Worth of Project (Capital+O&M-Salvage)		\$ 6,651,760.33	

LOAN CALCULATOR	MONTHLY LOAN PAYMENT \$42,037	
--------------------	----------------------------------	--

LOAN DETAILS	VALUES	KEY STATISTICS	TOTALS	Monthly Cost per User
Loan Amount	\$8,407,744	Monthly Loan Payments	\$42,037	\$2.63
Interest Rate	1.875%	Total Monthly Payments*	\$42,037	\$2.63
Duration of Loan (in months)	240	Total Loan Payments	\$10,075,893	\$2.63
Loan Amount	\$8,407,744	Total Interest Paid	\$1,668,149	\$2.63
Loan Start Date	9/10/2021	Fees	\$0	\$2.63

Total Yearly USER COST	Total ANNUAL DEBT
---------------------------------	-------------------------

\$31.53

\$504,449

[To Amortization Table](#)

# Appendix J



## **NOTICE OF PUBLIC HEARING CITY OF LINCOLN PARK**

### **PROPOSED WATER IMPROVEMENTS PROGRAM**

The City of Lincoln Park will hold a public hearing for the Drinking Water State Revolving Fund (DWRP) loan for the City of Lincoln Park lead service line replacement and Watermain improvements. The purpose of the meeting is to present the Water System Improvements and to receive comments from interested parties. The hearing will be held at a Special Meeting of the Lincoln Park City Council starting at 6:00 p.m. on Monday, June 21, 2021 using Zoom, interested persons may attend either on-line or by phone.

Topic: City of Lincoln Park Council - Public Hearing

Time: June 21, 2021 06:00 PM Eastern Time (US and Canada)

Join Zoom Meeting online: <https://us02web.zoom.us/j/86173300364>

By phone: Dial by your location: Meeting ID: 861 7330 0364

+1 312 626 6799 US

+1 646 558 8656 US

The purpose of the proposed project is to provide eleven (11) watermain replacement projects, this work will include lead service line replacement as required by the Lead and Copper Rule (LCR) in June 2018 requiring all cities in Michigan to replace all lead water service lines. The water service lines must be replaced from the City-owned water mains within the street to 18 inches inside individual houses and upgrading valves and hydrants along these watermains. The estimated cost of all the projects is approximately \$7,226,000.

Copies of the project plan detailing the proposed projects will be available for inspection by the general public at the Office of the City Clerk, 1355 Southfield Rd., Lincoln Park, Michigan starting Tuesday, May 18, 2021. Written comments received before the public hearing is closed on June 21, 2021 will be reviewed for incorporation into the final project plan. Written comments should be sent to the City of Lincoln Park's Clerk's Office located at 1355 Southfield Rd., Lincoln Park, Michigan.

Kerry A. Kehrer  
City Clerk