PROJECT PLAN

FOR THE

2023 Water System Improvements

IN THE

CITY OF HOWELL

DWSRF PROJECT #7470-01

July 1, 2022 - DRAFT

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Section 1 - Executive Summary

A. Summary

The Project Plan was prepared in accordance with the Michigan Department of Environmental Quality (MDEQ) Drinking Water Revolving Fund Project Plan Preparation Guidance (DWRF) (May 2016). The Project Plan is based substantially on the Water System Master Plan Update and Reliability Study prepared by Hubbell, Roth & Clark, Inc. (HRC) in March 2020 and can be found in Appendix A of this Project Plan. Financial assistance for this project is being sought through the Michigan Department of Environment, Great Lakes, and Energy (EGLE), formerly known as the Michigan Department of Environmental Quality (MDEQ). The Drinking Water State Revolving Fund (DWSRF), formerly known as DWRF, provides for financial assistance in the form of low interest loans. DWSRF rules call for compliance with basic Federal planning requirements of the National Environmental Policy Act (NEPA). The Final Project Plan serves as a basis for project prioritization by EGLE.

The project is submitted as a single project and would require approximately five (5) years to implement and complete, including design, permit acquisition, bidding, financing, construction, and final restoration.

The Study Area consists of the City of Howell. Portions of the City's water system is undersized and have a considerable amount of water main breaks in areas that are still serviced by 4 and 6-inch mains with suspected lead and galvanized services, which have been in use since the 1950s. Water test results to date do not show signs of problems with lead, but the City would like to be proactive and remove the last known remaining lead components from the water system. This has led to water system reliability uncertainties, water quality concerns, and safety concerns. A thorough analysis of the Project Area was prepared for this Project Plan and recommendations for resolving the problems within this area are presented herein. Implementing the recommended improvements will effectively provide the required level of service and improve the water system reliability and water quality.

B. Conclusions

This Project Plan concludes the following:

1. A portion of the components within the existing distribution system are undersized and have reached their useful design life.
2. Over 200 leads have been determined to be lead and/or galvanized services or likely contain lead and/or galvanized services and must be replaced.
3. A portion of water main at the water treatment plant has reached its useful design life and needs replacement to ensure system reliability.
4. The city has experienced increased frequency of water main breaks in the system over recent years along Brooks Street and Warbler Way.
5. Water main improvements along Lucy Road will improve system reliability and performance by creating a looped system from Lucy Road to D-19, to allow for future developments throughout the vacant land area just north of I-96.

C. Recommendations

1. Replace approximately 800 feet of old, undersized 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability, water quality, and address safety concerns.
2. Replace approximately 1,300 feet of 4-inch diameter water main with 8-inch diameter water main along Brooks Street from Gregory Street to Isbell Street to improve the system reliability, water quality, and address safety concerns.
3. Complete removal and replacement of known lead and galvanized water services throughout the city. This includes work within the public road right-of-way and up to the building.
4. Installation of approximately 6,000 feet of 12-inch diameter water main along Lucy Road from the train tracks approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19.
5. Replace approximately 400 feet of old 12-inch diameter water main at the City of Howell's Water Treatment Plant from the storage tank to Pinckney Road to improve the system reliability, water quality, and address safety concerns.
6. Implement the Project over five (5) years to minimize disruption to the community at large. The project cost estimate is $8,850,000, which includes construction costs, plus 10% construction contingency costs, plus 30% administration, engineering, bonding, and legal costs.
7. The City of Howell should apply for a low-interest loan under the State's DWSRF Program for all eligible project costs.

Section 2 - Project Background

A. Project Need

Portions of the City of Howell water system have a significant number of water main breaks in areas that are still serviced by 4-inch, 6-inch and 8-inch mains and which have been in service for over 50 years. Water test results do not show signs of any lead problems to date, but the city would like to be proactive and remove the last known remaining lead components from the water system. As the system has grown and aged throughout the years, these water mains cannot provide an adequate level of service. Within a water system that is undersized and exhibits lower distribution system flows and breaks, it is conceivable that the quality of water in the distribution system could be compromised. Secondarily, areas of undersized mains within a water system also reduce the system's level of service as required flows for service and firefighting are usually not available. The City of Howell's hydraulic model was updated in 2020, as part of the Water Master Plan Update and Reliability Study, which evaluated the existing system performance and water main improvements required to meet the City's desired level of service. Since the release of the Reliability Study, the 4-inch water main along Clinton Street and North National Street has been replaced with 8-inch water main and the 4 and 6-inch water main along East Grand River from Barnard Street to Lucy Road is scheduled to be replaced in the summer of 2022.

A Water Master Plan Update and Reliability Study was completed in March of 2020 for the City of Howell to satisfy the requirements of Part 12 of the Michigan Safe Drinking Water Act, 1976 PA 399, as Amended. The City of Howell's Water Master Plan Update and Reliability Study is included in Appendix A for reference.

A thorough analysis of the Project Area was prepared for this Project Plan and recommendations for improving system deficiencies within this area are presented herein. Implementing the recommended improvements will effectively address the reliability, quality, and safety concerns. The Project Plan Study Area is shown on Figure 2-1.

1. Compliance with the Drinking Water Standards

Upgrades to the existing City of Howell water system are necessary at this time to fulfill the recommendations expressed in the completed Water System Master Plan Update and Reliability Study. This reliability study was completed to satisfy the Michigan Safe Drinking Water Act, 1976 PA 399, as Amended and substantiates water supply needs and outlines deficiencies that warrant correction.

2. Orders or Enforcement Actions

There are no current or archived court or enforcement orders against the City of Howell.

3. Drinking Water Quality Problems

The City of Howell does not currently experience any drinking water quality issues. However, the City does experience issues with the distribution system during higher flow demands. Consistent delivery and quality of the drinking water can only be achieved with proper operation and maintenance of the existing aging distribution system. When a water main breaks, or a hydrant is opened or gate valve turned, scale and tuberculated matter is dislodged from the main walls and sent through mains in the subject area producing red cloudy water. The city intends to maintain consistent delivery and quality of drinking water and therefore, will address the water quality and reliability concerns.

4. Project Needs for the Next 20 Years

The reliability study and hydraulic model recommended replacing the 4-inch and 6-inch diameter water mains with a minimum 8-inch and 12-inch diameter water mains as a viable solution for eliminating water main breaks, and restricted flow during peak demand periods due to pipe size and accumulation of tuberculation.

B. Study Area Characteristics

1. Delineation of Study Area

The City of Howell is located in the central portion of Livingston County. It is bounded on the north and west by Howell Township, on the east by Oceola and Genoa Townships, and on the south by Marion Township (refer to Figures 2-1 and 2-2). The city consists of approximately 5.3 square miles of land area and approximately 0.4 square miles of surface water, for a total of 5.9 square miles. According to SEMCOG, as of July 2021, the current estimated population for the City of Howell is 10,084.

Figure 2-1 shows an approximate delineation of the project study area and project service area. Figure 2-2 shows the existing water system and the proposed DWSRF improvements.

2. Land Use

The largest three (3) land use types within the City of Howell (excluding open space and utilities) are residential (26.6%), government/institutional (16.0%) and industrial (13.1%). The existing and proposed land use within the City of Howell are shown in Figure 2-3 and 2-4 and summarized as follows:

Table 2-1: Study Area Land Cover

	City of Howell	
Land Cover Type	Acreage	Percent of Total Area
Residential	903	26.6%
Commercial	289	8.5%
Industrial	446	13.1%
Institutional	541	16.0%
Agricultural	0	0.0%
Water/Wetlands	257	7.6%
Transportation	597	17.6%
Outdoor Recreation	359	10.6%
Total	3,392	100.0%

3. Water Demand

Historical total water uses, and metering records were supplied by the city. A summary of the meter records is provided in Table 2-2.

Table 2-2: Water System Demands

Year	Average Day (gpm)
2015	738.4
2016	756.5
2017	737.0
2020	756.0
Average	*747.0*

C. Population Data

Historical population data and projections for the city were obtained from the Southeastern Michigan Council of Governments (SEMCOG) database. Based on July 2021 SEMCOG estimates, the existing population of the city is approximately 10,084 people and the average household size is 2.16 persons per household. As shown in Table 2-3, SEMCOG projects the population to increase by the year 2045.

Table 2-3: Population Projections

Year	City of Howell Population
2010	9,489
2020	10,068
2021	10,084
2040	*10,951**
2045	*11,256**

** SEMCOG projections*

The 2020 U.S. Census population for the City of Howell was 10,068 persons, which was an increase of 6.1% from the 2010 Census.

The seasonal change of the population in the study area is not large enough to influence the water demand in the city. Also, regions just outside of the current service area are already being provided by the MHOG water system and should not be considered in the future service area.

For the purposes of the Drinking Water State Revolving Fund (DWSRF) project plan, a 20-year projection is required for calculations of future system demand and total present worth. Interpolating the data from SEMCOG to the year 2045 results in a population of approximately 11,256 people with an average of 2.29 people per household. A draft copy of the project plan was submitted to SEMCOG for review when the draft plan was submitted to EGLE. The correspondence with SEMCOG can be found in Appendix C.

D. Existing Water System

The original water distribution system for the city was constructed in the 1940s through the 1970s and some sections of the original system are still in use today. Over the years, as the city grew, numerous additions and modifications were made to the original system. The existing water distribution system consists of transmission and local distribution mains, varying in size from 4-inches to 16-inches in diameter and totaling over 41 miles, for conveyance of water to its residents.

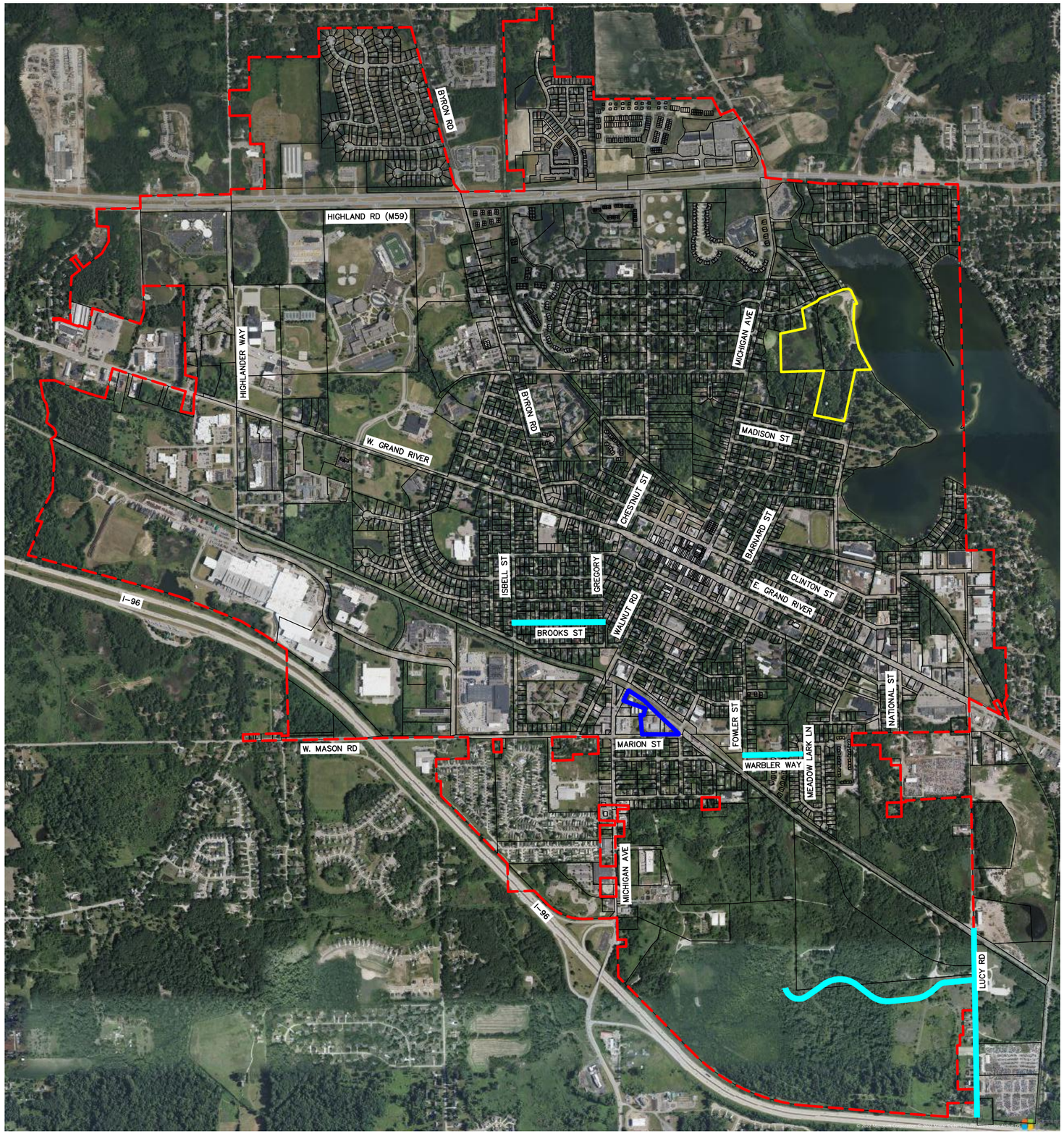
During the late 1950s a well field and raw water main were installed outside the city, in Marion Township. The City of Howell obtains water from five (5) production wells. Four (4) wells, each with a capacity of 1,000 gallons per minute (gpm), are located approximately two (2) miles southwest of the City in Section 4 of Marion Township. Raw, untreated water is pumped to the City's WTP from these wells via a 20-inch transmission main along Norton Road. The fifth production well, with a capacity of 350 gpm, is located just east of Pinckney Road and south of Marion Road. There is a sixth well that is reserved for emergency back-up and is located at the City's WTP. Combined, the wells provide a total capacity of 4,700 gpm with a firm capacity of 3,350 gpm.

In 1992 the current lime softening water treatment plant was completed with a rated treatment capacity of 2,150 gpm or 3.1 MGD. The treated water from the WTP is discharged into a 25,000-gallon clear well which is interconnected with a 630,000-gallon ground storage reservoir. Water from the ground storage reservoir is pumped to the distribution system through four (4) high service pumps. Each pump is rated for 1,100 gpm, at a maximum head of 150 feet. The city also maintains a 300,000-gallon elevated water storage tank in the City of Howell Park referred to as the North Tower.

The City water system has three (3) emergency connections to the Marion, Howell, Oceola, and Genoa Sewer & Water Authority (MHOG) in locations near the edge of the City limits (connection tie-ins: M-59 and Byron Road, Indiana Street and Illinois Drive, East Grand River Avenue and Lucy Road). The MHOG water treatment plant is located three and a half miles west of the City along Norton Road.

Many distribution mains, raw water main, water storage tank, and water treatment plant were upgraded to produce a more reliable water system for the residents of the city from 2009 to 2011. Reference can be made to Figure 2-5 for a map of the City's existing distribution system.

Currently, maintenance of the distribution system is performed on a reactionary basis to problems that may occur because of undersized or aging water mains within the distribution system. The sections of water main on Brooks Street and Warbler Way are undersized and have experienced water main breaks recently.



Howell
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LEGEND

- CITY LIMITS
- HOWELL CITY PARK
- PROJECT SERVICE AREA
- WATER TREATMENT PLANT

SHEET TITLE:
PROJECT PLAN STUDY AREA

PROJECT TITLE:
CITY OF HOWELL
2023 WATER SYSTEM IMPROVEMENTS DWSRF PROJECT PLAN

HRC JOB NO.	FIGURE NO.
20220254	Figure 2-1
DATE: 4/15/22	AUTHOR: TJP

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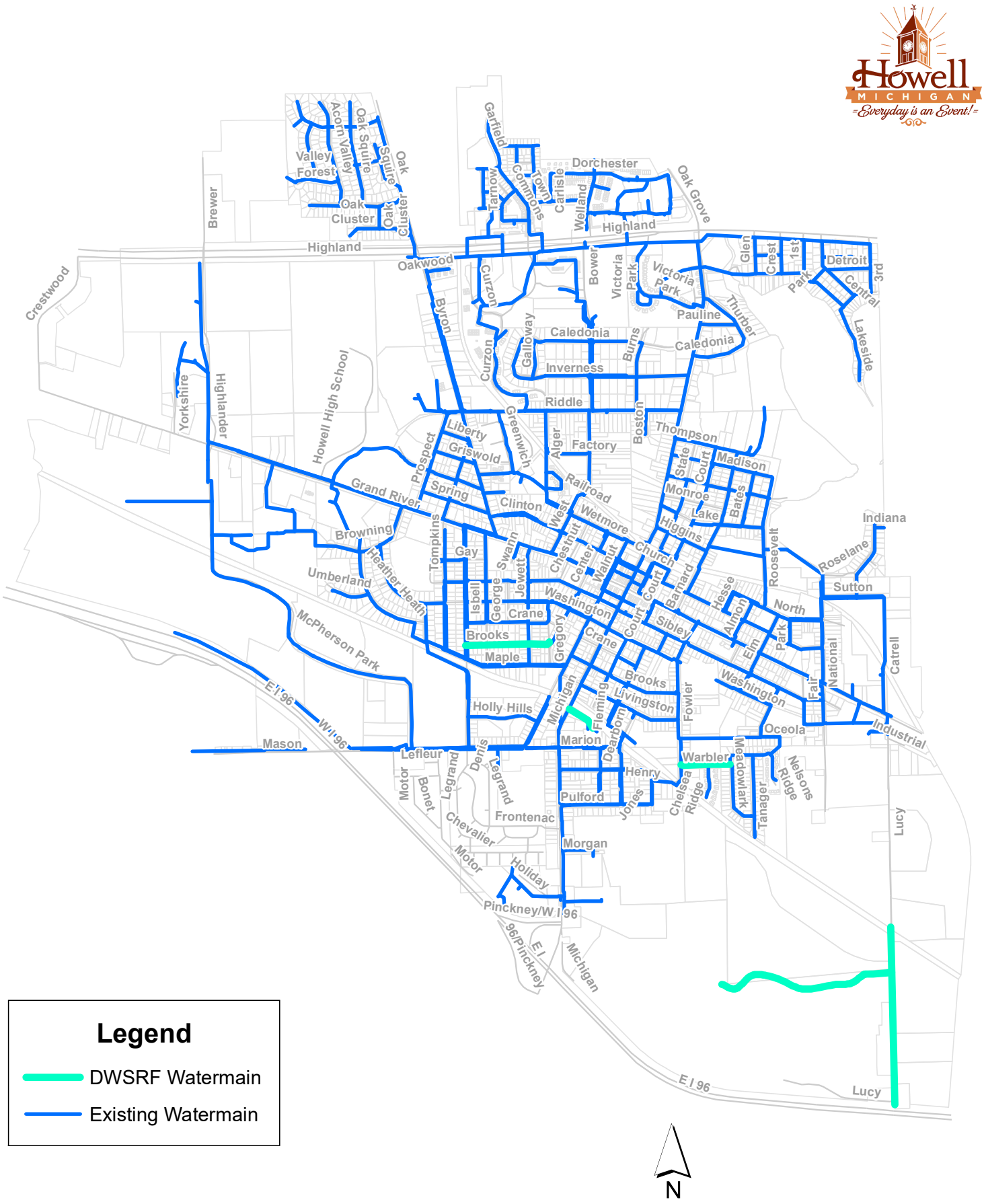
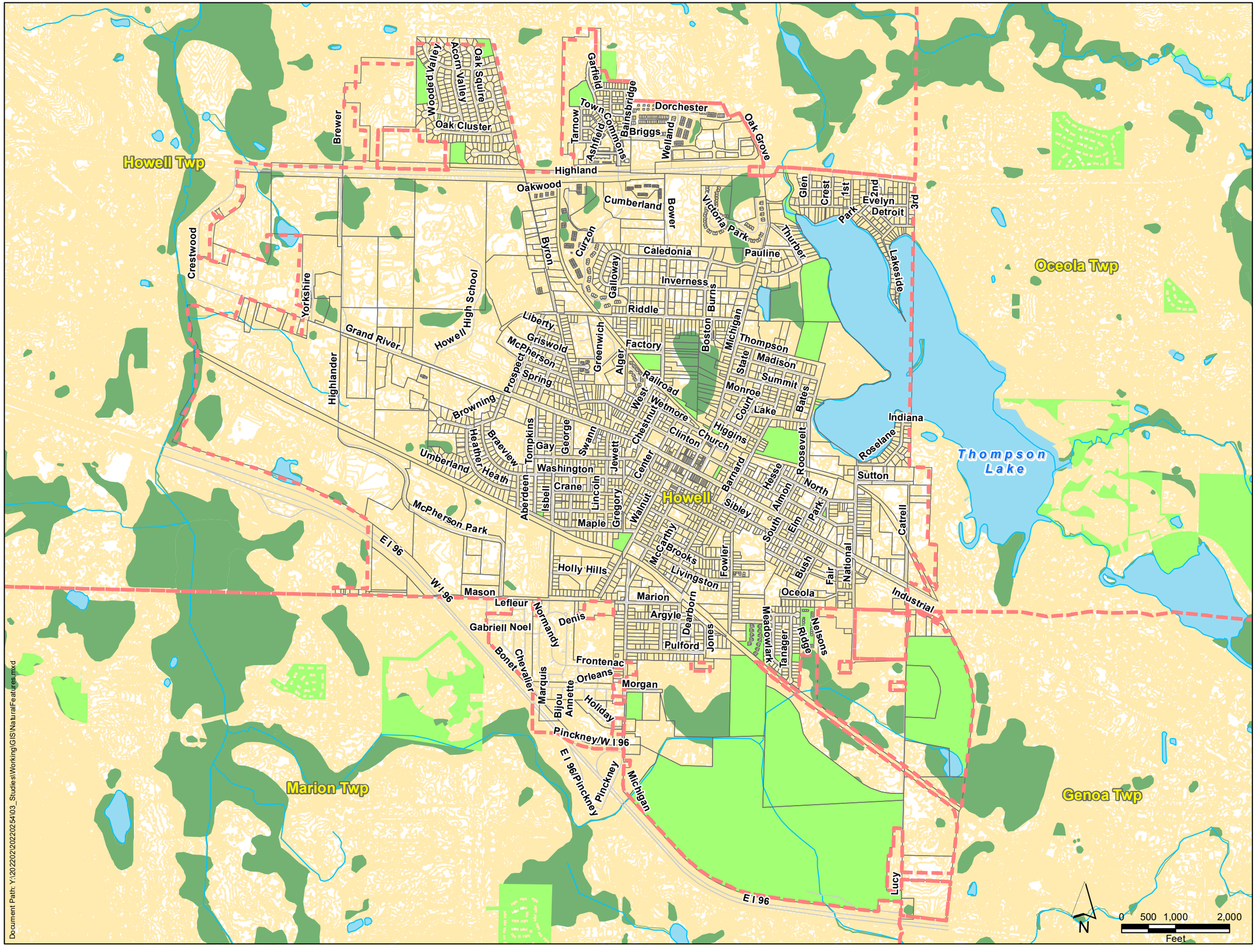


HRC	**City of Howell - DWSRF Project Plan** **Existing Conditions** **2023 Recommended Water Main Improvements**	Job No. 20220254 Date 5/3/2022 Figure 2-2



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Howell MICHIGAN "Everyday is an Event!"

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CONSULTING ENGINEERS SINCE 1915

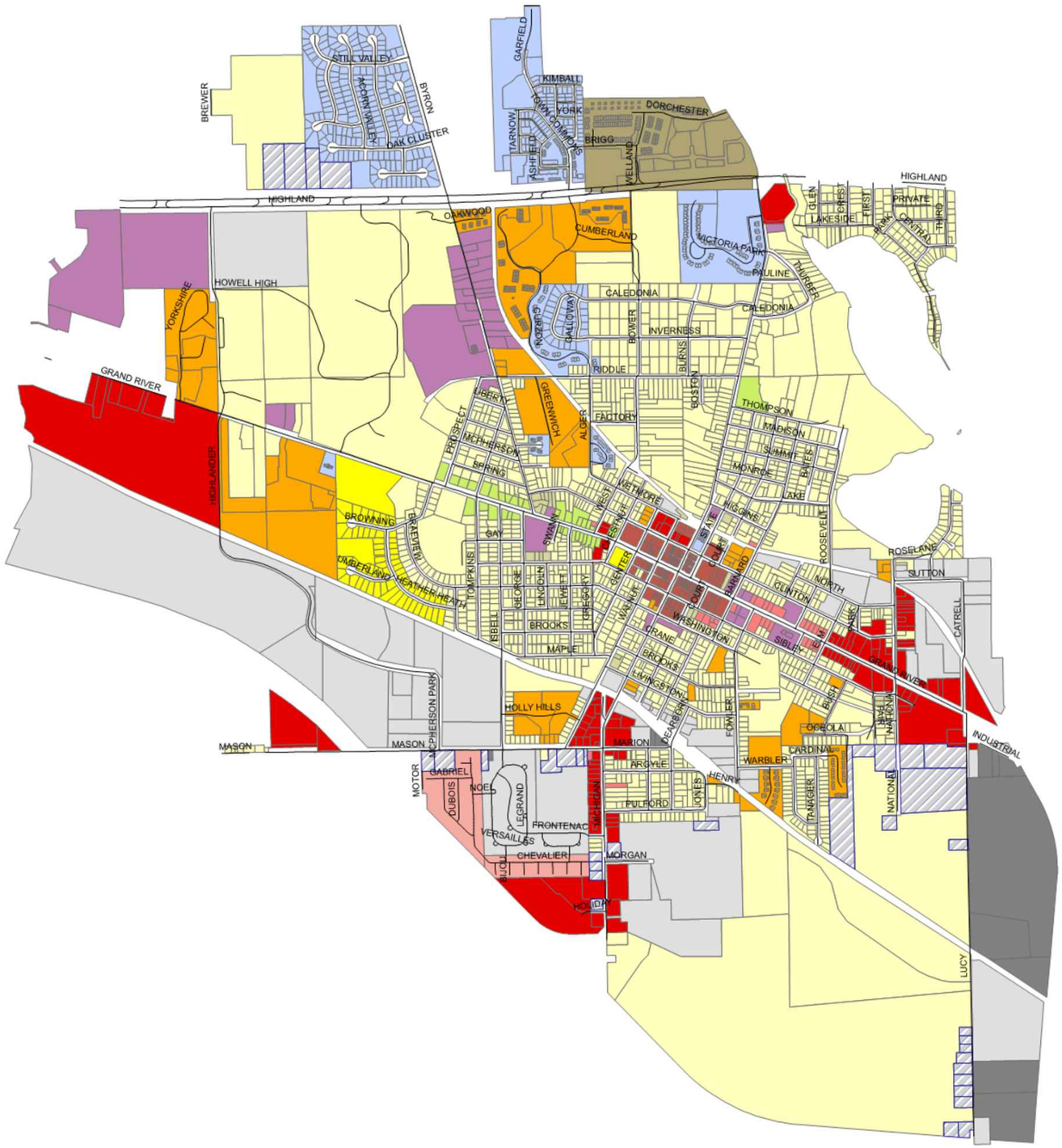
Legend

- Municipal Boundary
- Tax Parcel
- Parks, Recreation, and Open Space
- Water
- Wetlands
- 1 Foot Contours

SHEET TITLE: Natural Features

PROJECT TITLE: CITY OF HOWELL 2023 WATER SYSTEM IMPROVEMENTS DWSRF PROJECT PLAN

HRC JOB NO.	FIGURE NO.
20220254	Figure 2-3
DATE: 5/3/2022	AUTHOR: JLL



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SHEET TITLE:
ZONING MAP

PROJECT TITLE:
CITY OF HOWELL
2023 WATER SYSTEM IMPROVEMENTS
DWSRF PROJECT PLAN

HRC JOB NO.	FIGURE NO.
20220254	Figure 2-4
DATE: 4/22/22	AUTHOR: TJP

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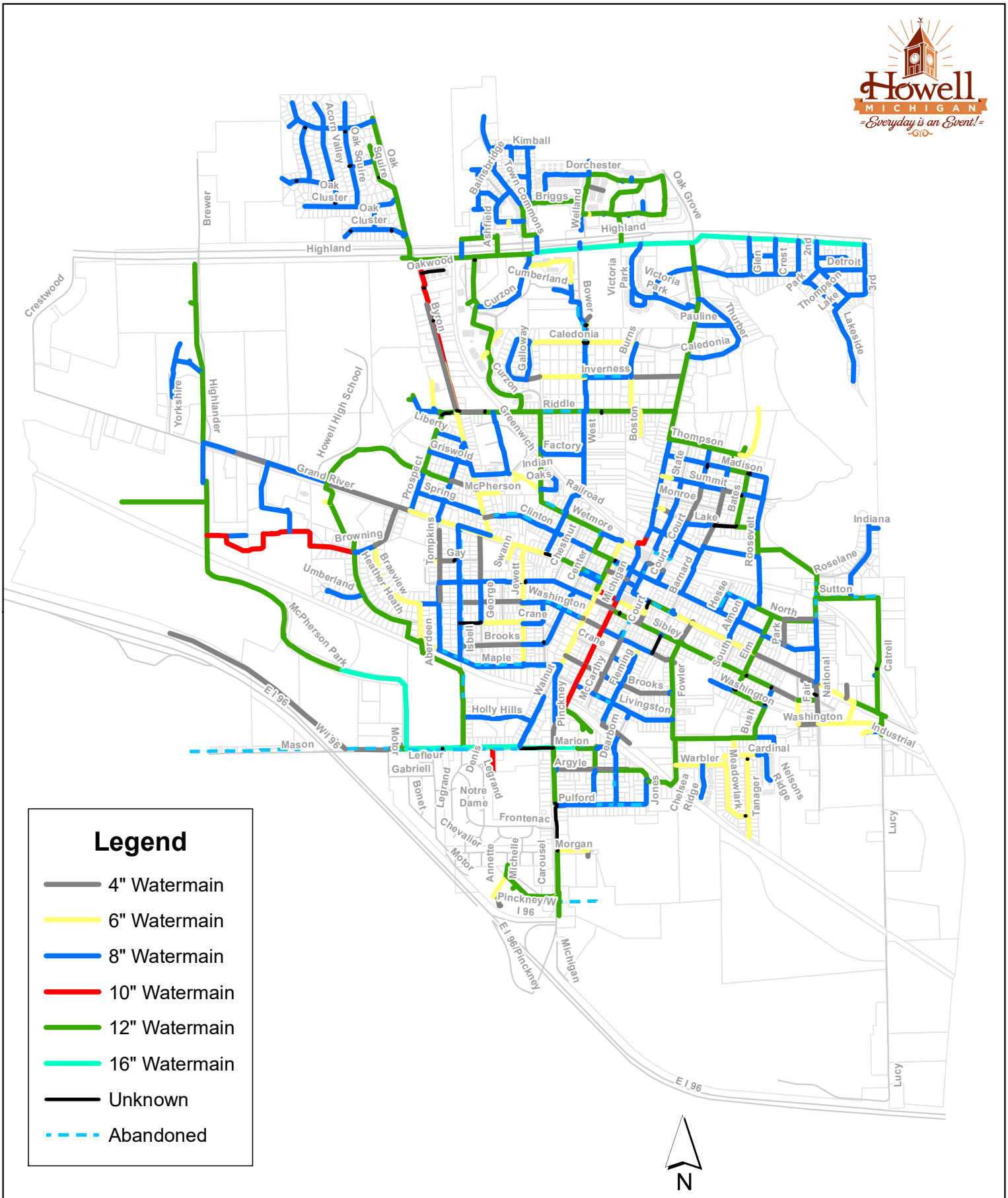
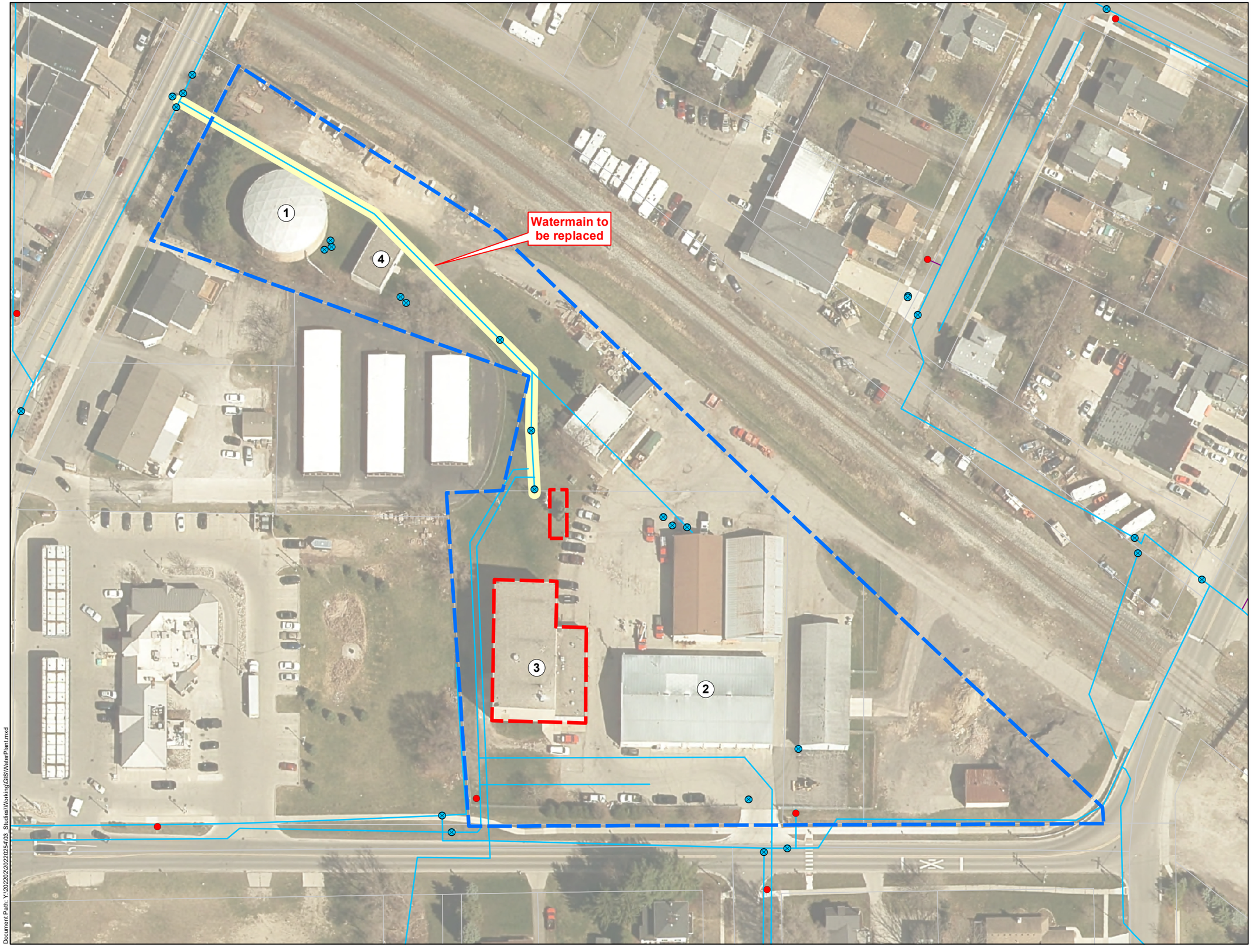


HRC	**City of Howell - DWSRF Project Plan** **2022 Existing Water System Pipe Sizes**	Job No. 20220254 Date 5/4/2022 Figure 2-5



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Legend

Building

1. 630,000 Gallon Ground Storage Reservoir
2. DPW Building 150 Marion St.
3. Water Treatment Plant
4. High Service Pumps

- Property Boundary
- Proposed Improvement
- Water Hydrant
- Water System Valve
- Water Storage Tank
- Water Main
- Water Hydrant Lead

N

0 25 50 100
Feet

SHEET TITLE:
Water Treatment Plant

PROJECT TITLE:
CITY OF HOWELL
2023 WATER SYSTEM IMPROVEMENTS
DWSRF PROJECT PLAN

HRC JOB NO.	FIGURE NO.
20220254	2-6
DATE: 5/4/2022	AUTHOR: JLL

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Section 3 - Analysis of Alternatives

A. Identification of Potential Alternatives

The potential alternatives available to the City of Howell are:

1. "No-Action"
2. Replace Existing System
3. Rehabilitate Existing System
4. Regional Alternatives

1. "No-Action"

For the distribution system replacement this alternative will result in continued use of water system components that are at or near the end of their useful life, unaccounted for water losses, and unnecessary fuel consumption and greenhouse gas emissions. There would still be a potential for water main breaks, low flow conditions, and continued water quality and fire safety concerns for the City of Howell.

The "no-action" alternative is not practical and not considered a favorable option for the proposed sections of the distribution system replacement.

2. Replace Existing System

This alternative would consist of replacing the older water main with 8-inch and 12-inch diameter mains and installing new 12-inch water main to create a looped system. The total length of water mains to be replaced is 2,500 feet, along with 6,000 feet of new water main installation. This water main improvement will reduce friction losses through the distribution system, decrease costs and energy consumption through reduced pumping, and improve reliability and water quality by reducing potential for breaks.

The Replace Existing System alternative is feasible and is the Selected Alternative.

3. Rehabilitate Existing System

This alternative would consist of rehabilitating the existing 4, 6 and 8-inch water main pipes with a structural lining system, such as cured-in-place pipe (CIPP) or close-fit slip lining. The 4-inch pipes would need to be replaced because these lining systems are not practical for small diameter pipes due to difficulty in fully deploying the liner material through the host pipe, and the hydraulic effect due to reduction in diameter from the liner being more pronounced. Preparing the interior pipe surfaces for the lining system is critical to the success of this method. An aggressive cleaning program using multiple passes of metal scrapers and polyurethane pigs is expected to be necessary to prepare the pipes for lining. Where the city has examined the existing pipe, sections removed during repairs or for connections, evidence of significant tuberculation in the pipes was found. Furthermore, water systems that historically distributed water from groundwater well sources, such as the case in the city, commonly have significant tuberculation and scaling. The time, effort, and inconvenience to the water customers, whose water service is disrupted during the cleaning process, for pipe cleaning and preparation will add to the cost of this method. The rehabilitation of the existing system using structural lining systems will reduce friction losses through the distribution system, decrease costs and energy consumption through reduced pumping, and improve reliability and water quality by reducing potential for breaks. However, the cost to implement this alternative would not be expected to be less than the system replacement alternative and may result in a longer period of disruption to water customers. The Lucy Road installation would not fit under the rehabilitate existing system alternative because it is a new installation.

Therefore, while feasible, the Rehabilitate Existing System is not considered a favorable option.

4. Regional Alternatives

The Regional alternatives examine the potential for the water system to serve outside areas or to be served by neighboring water systems. Under this alternative, the City would most likely rely on the Marion, Howell, Oceola, and Genoa Sewer & Water Authority (MHOG) to provide water to the City of Howell.

The existing MHOG water treatment plant is located three and a half miles west of the City of Howell and has a capacity of about 10.0 MGD. Current average day demand for the MHOG plant, per MHOG officials, is about 1.6-1.7 MGD and the current maximum day demand is about 5.0 MGD. Due to the considerable spare capacity at the MHOG WTP, Howell should be able to continue to rely on their system for emergency flow. A permanent reliance on MHOG for the entire City Water Supply, however, is not feasible due to future water demands in the MHOG service area.

B. Analysis of Principle Alternatives

The principal alternative consists of replacing the existing 4-inch and 6-inch water mains with 8-inch and 12-inch water mains and installing new water main to create a looped system and improve system reliability. As previously discussed, the City of Howell's 2020 Water Reliability Study was updated as part of the 2019 DWSRF Project Plan preparation. The hydraulic model was updated with all new/replaced water main between 2012-2020. Approximately 6,600 linear feet (lft) of 8-inch water main and 400 lft of 12-inch water main were constructed from 2012-2020. Since then, the 4-inch water main on Clinton Street and North National Street were replaced with 8-inch water main (Completed in Summer 2021). Also, the water main replacement on East Grand River Ave from Barnard Street to Lucy Street has been designed and is expected to be constructed in the summer of 2022. Figure 3-1 shows the water main improvements completed since 2020. Refer to Figure 3-2 for existing water system pipe sizes and Figure 3-3 for with year built (in decades).

In addition to updating the water main, the system demands from 2012 were reviewed against the recent annual WTP daily flows as listed in Table 3-1.

Table 3-1: 2012 Demand Versus Recent Annual WTP Production

Year	Average Day Demand (gpm)	Max Day Demand (gpm)	Peak Hour (gpm)
2012	965	1,631	2,804
2015	738	1,301	Not Available
2016	756	1,314	
2018	737	1,145	
2020	756	1,314	2,203

Upon review, the system demands were adjusted to reflect the largest demand from the recent available data.

Calibration of the system (via pipe roughness values) was achieved based on data recorded from 39 hydrant flow tests conducted in 2015. The general calibration process is described in detail in the 2020 Water Reliability Study Update. Table 3-2 lists the pipe roughness from 2012 and the calibrated 2019 pipe roughness.

Table 3-2: Calibrated Pipe Roughness

Size	Pipe Group	Year Built	2012 Calibrated Roughness	2019 Calibrated Roughness
4-8	0	1918-1985	86	81
	1	1986-1995	101	108
	2	1996-2005	122	96
	3	>2005	133	127
10-12	4	1918-1985	96	64
	5	1986-1995	108	87
	6	1996-2005	124	125
	7	>2005	138	135
16	8	1918-1985	103	80
	9	>1986	139	136

Figure 3-4 shows the resultant pressure contours for the updated 2019 model and Figure 3-5 shows the recommended water main improvements to provide an adequate level of service. Figure 3-6 shows the resultant pressure contours based on the proposed water main replacement project.

This alternative includes the following principal items of work and estimated costs:

Table 3-3: Project Cost Estimate

Item		Estimated Cost
Lucy Road Extension	$	4,200,000
Brooks Street Water Main Improvements	$	550,000
Warbler Way Water Main Improvements	$	550,000
Lead Service Line Replacements	$	3,250,000
Water Treatment Plant Water Main	$	300,000
TOTAL ESTIMATED PROJECT COSTS*	**$**	**8,850,000**

* Project Costs include Construction Cost, 10% Construction Contingency, and 30% Administration, Engineering & Legal Costs

Table 3-4 represents a comparison of the estimated capital costs, present worth, and equivalent costs related to the distribution system improvements. Present worth computations are based on a 0.200% EPA discount rate over the 20-year planning period. A salvage value for all structural components was calculated using a 50-year life expectancy and equipment components using a 20-year life expectancy. Salvage value was calculated using straight line depreciation. Operation, maintenance, and replacement (OM&R) costs were estimated from the City of Howell's Department of Public Works O&M budget.

Table 3-4: Present Worth Costs

	Present Worth Amt	
Capital Costs	$	8,850,000
Annual OM&R Costs	$	42,400
PW of Salvage Value	$	3,540,000
Net Present Worth	$	5,361,000
Equiv. Annual Cost of PW	$	268,050

Notes:

Net Present Worth is the sum of capital costs, OM&R costs, less salvage value.

Present Worth Costs are based on Straight Line Depreciation and no inflation.

Cost is based on a study period of 20 years and a discount rate of 0.200%.

C. Environmental Factors

The principal alternative presented describes replacement of existing undersized water mains that have reached their design life and have been experiencing numerous breaks in recent years. The proposed replacement methods would include horizontal directional drilling (HDD), and open cut. While the HDD method is considered to be "trenchless" technologies and most of the pipe would be installed without surface disturbance, open cut excavations are necessary at the daily starting/stopping points during installation, at tees, bends and other fittings, at hydrant locations, utility crossings, and each service connection. The possible replacement method carries the same potential environmental impacts related to open cut excavation, and the following synopsis of the environmental setting and potential environmental and public health impacts apply to each. Where one method or another poses a unique potential impact, it will be addressed separately.

1. Cultural Resources

There are no anticipated permanent impacts on any historical, archeological, geological, cultural, or recreational areas due to this construction. The Howell Downtown Historic District is roughly bounded by Clinton Street, Barnard Street, Sibley Street and Chestnut Street. The proposed work is outside of this area. The water main replacement work will not have a permanent effect on the historic nature of this area. The relatively shallow excavations needed to complete the proposed work will be contained within public road rights-of-way and dedicated easements. Water main replacement work generally occurs

at the same location as the existing water main or in proximity for HDD or open cut methods. Restoration of surface features disturbed by construction will match existing conditions as much as practicable. When construction plans are prepared for work in this area, the appropriate agencies/authorities will be contacted to ensure provisions in the contract documents address restoration efforts to maintain the aesthetic and historic feel of the district.

2. The Natural Environment

Climate

The project area's climate is controlled by its location with respect to major storm tracks that pass through the Midwest and by the influence of the Great Lakes. The normal wintertime storm track is southeast of the Study Area, and most passing storms bring periods of snow or rain. The Great Lakes tend to moderate and smooth out most climate extremes. Precipitation is distributed through all months of the year. The most pronounced effect on the climate by the Great Lakes occurs in the colder part of the winter. Arctic air moving across the lakes is warmed and moistened. Cold waves approaching from the northern plains are reduced in intensity, which lessens the severity of these events. However, there is also an excess of cloudiness and very little sunshine in the winter.

Summers in the Detroit metropolitan area are warm and sunny. Showers usually occur every few days, but often fall on only part of the Metropolitan Detroit area. Extended periods of drought are unusual. Each year, there are two or three series of days with temperatures in the nineties. The highest temperatures are often accompanied by high humidity. In winter, skies are cloudy and temperature averages near the freezing point. Day to day changes are typically not significant. The temperature drops to near or a little below zero once or twice each year. Winter storms may bring rain, snow, or both. Freezing rain and sleet are not unusual. Snowstorms average about three (3) inches of accumulation, but heavier amounts are generally recorded several times each year.

The growing season averages 180 days in length and has ranged from 145 days to 205 days. Average date of the last freezing is April 23; average date of the first freezing temperature is October 21. A freeze has occurred as late as May 12 and as early as September 23.

Climatological data is collected by the National Oceanic and Atmospheric Administration (NOAA) at Detroit Metropolitan Wayne County Airport. This project, and the alternatives discussed, will have no impact on the climate of the project area.

Air Quality

In general, air quality in Livingston County follows all applicable standards. This project, and the alternatives discussed will have no impact on the quality of the air in the Project Area.

Wetlands

The major water body in the City of Howell is Thompson Lake, which is fed by natural springs and the local watershed. Thompson Lake is located in the northeast portion of the city. There are localized wetlands associated with the lake and the Marion-Genoa Drain in the southern portion of the city. The Lucy Road water main extension includes work within wetland limits, but HDD will be used to limit earth disruption. For final design, any impacts to wetlands will be flagged and the appropriate permits will be applied for.

Wetland maps are shown in Figure 3-7.

Coastal Zones

There are no coastal zones located with the Project Area and therefore no impacts are anticipated.

Floodplains

The Lucy Road water main extension includes work within a 100-year floodplain, but Horizontal Directional Drilling will be used so earth disruption will be minimized. This was determined by reviewing the FEMA Floodplains map for the City of Howell. Steps will be taken to minimize impact on the floodplain, including but not limited to, silt fences, turbidity curtains, stone check dams, gravel access drives, riprap, etc. Excavations will be filled with appropriate backfill materials and compacted and restored to grade. Any work that does impact a floodplain will not be undertaken until the appropriate permits are obtained from EGLE.

FEMA floodplain areas are shown on Figure 3-7.

Natural or Wild and Scenic Rivers

The rivers within the study area have recreational and aesthetic value but are not classified as "Natural" or "Wild and Scenic" by the Michigan Department of Natural Resources (MDNR).

Major Surface Waters

Major surface water bodies in the City of Howell include Thompson Lake on the east boundary and other miscellaneous small lakes scattered throughout the city. Other surface water bodies include the southwest branch of the Shiawassee River, the Marion & Genoa Drains, and miscellaneous drains throughout the city.

Topography

The terrain within the City of Howell is characterized by rolling topography and scattered small lakes. The lowest elevation is 835 feet (above sea level), and the highest point is 1,070 feet. The largest body of water, Thompson Lake static water level is approximately 904 feet with the majority of the City of Howell between 910 and 950 feet.

Geology

Livingston County mainly consists of outwash deposits. This glacial material, referred to as glacial drift, was deposited as the glaciers receded from this area of the continent approximately 18,000 years ago. Underlying the glacial drift is bedrock, which consists

of gently to rolling sedimentary rock formation. Four types of bedrock make up the bedrock surface in Livingston County, which include Marshall Sandstone, Coldwater Shale, Michigan Shale, and Saginaw Shale.

Soils

According to the Michigan Geographic System Soils layer, the project area mainly consists of four types of soils, Boyer-Fox-Wasepi, Miami-Conover-Brookston, Miami-Hillsdale-Edwards and Spinks-Houghton-Boyer.

As part of the final design process, soil borings will be taken near the proposed work areas to determine if any special construction methods will be needed.

Agricultural Resources

There is no agricultural land located within the city limits. Since all the proposed work is within the City of Howell, no agricultural resources will be impacted by the proposed work.

Existing Plant/Animal Communities

Wildlife within the study area includes animals and birds normally associated with urban or agricultural environments.

The Michigan Natural Feature Inventory and U.S. Fish and Wildlife (USFW) Technical Assistance website was reviewed for federally or state listed threatened and endangered species. According to the USFW website, two (2) endangered species, the Indiana bat and Snuffbox mussel, are listed as being located within Livingston County. The Indiana bat usually lives in wooded areas. The Snuffbox mussel lives in medium sized creeks with swift currents. In addition to the two (2) endangered species, there is also one candidate species, the Eastern Massasauga rattlesnake, known to occur in Livingston County. The usual habitat for this type of snake is wetland areas and prairie fens. Since a significant portion of the work is to take place on land, which is already developed, not much impact is expected to these types of habitats. During the design phase, a rare species review request was submitted through section 7 of the Endangered Species Act.

According to the USFW Technical Assistance website, there is one (1) threatened plant species, the East Prairie Fringed Orchid, known to occur in Livingston County. Again, most of the work takes place on already developed land, so endangered plants should not be an issue. Also, the one wetland impacted by the new installation on this project is classified as a Freshwater Forested/Shrub wetland which is not the habitat this plant species is found in. The US Fish and Wildlife and the Michigan Natural Features Inventory (MNFI) were contacted regarding endangered species.

All correspondence regarding endangered/threatened plants or animals is included in Appendix C.

Recreational/Unique Features

The City of Howell and surrounding communities has 21 parks which offer a wide selection of activities, including ball fields, a boat launch, tennis courts, and walking/biking trails. In addition to these parks, the city has several other publicly owned facilities including an Aquatic Center, Teen Center, and Senior Center. However, the work is limited to existing road right-of-way or dedicated easements on undeveloped lands. Therefore, no parks or other publicly owned facilities will be impacted by the proposed work.

D. Implementability

The City of Howell Water System is a stand-alone distribution system. Implementation of the alternative chosen does not require inter-municipal agreements or creation of an operating authority. The city owns and operates the entire system. The work as described in the chosen alternative will take place within the existing road rights-of-way or dedicated easements. The City of Howell is familiar with the technical, financial, legal, and administrative aspects of this type of project.

Portions of the proposed project will occur in the road rights-of-way under the jurisdiction of the city. When construction plans are prepared, the necessary permits for working in their right-of-way will be applied for.

The implementation of the alternative is predicated on receipt of DWSRF funding for all proposed items of work. Should funds not be made available for the City of Howell to pursue the improvements, the City would likely choose to delay until a DWSRF loan is obtained or divide the project into smaller parts and implement them over a significantly longer duration.

As required by the DWSRF guidelines the public will be provided an opportunity to comment on the alternative chosen. The public participation is detailed in Section 7.

E. Technical & Other Considerations

The principal alternative will comply with Act 399 and will be designed to meet the standard recommended guidelines established in the "Recommended Standards for Waterworks" as published by the Great Lakes and Upper Mississippi Board of State Sanitary Engineers (also known as 10-States Standards).

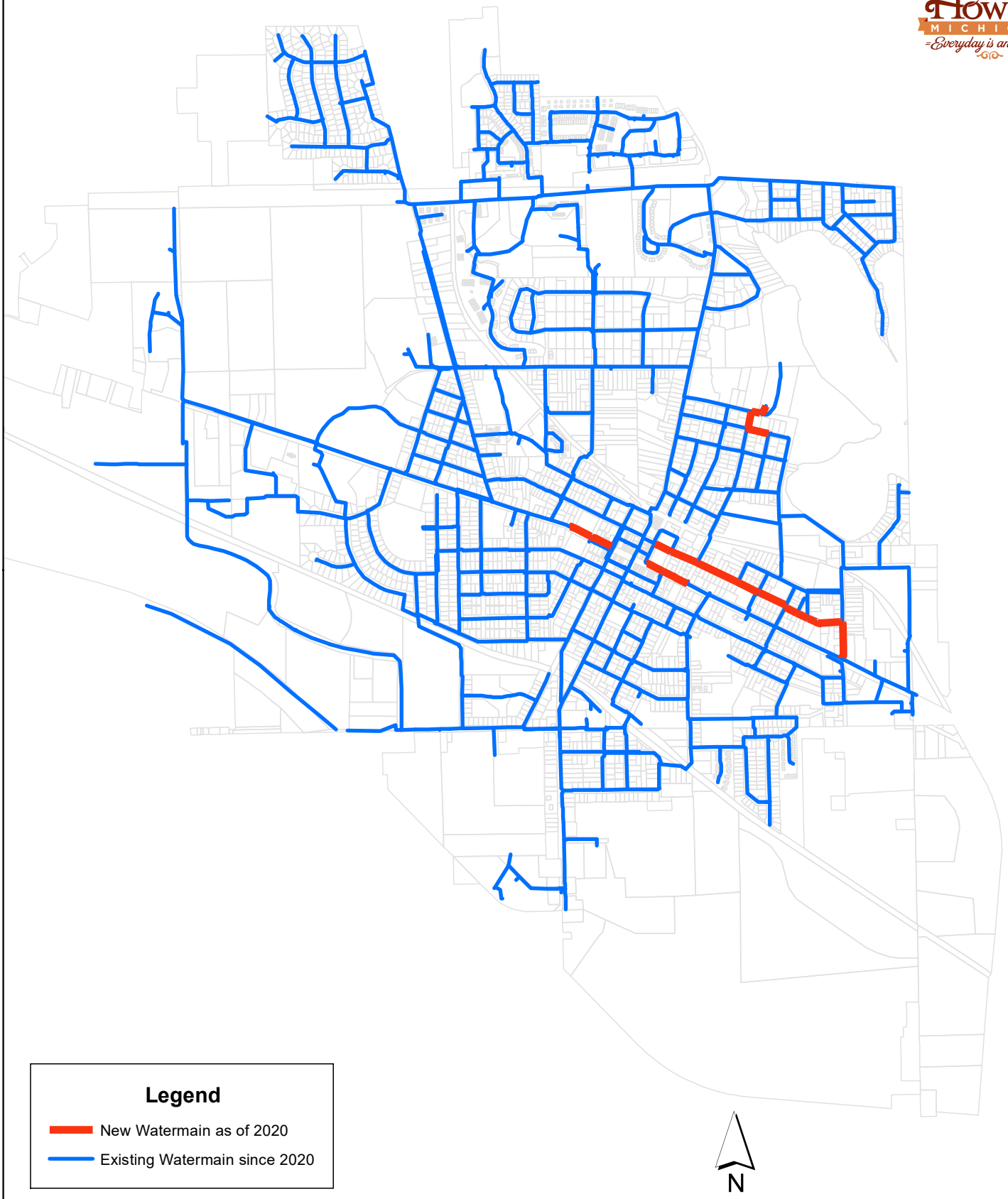
1. Reliability

A Water Master Plan Update and Reliability Study was completed in March of 2020 for the City of Howell to satisfy the requirements of Part 12 of the Michigan Safe Drinking Water Act, 1976 PA 399, as Amended. Implementation of this alternative will improve reliability of the system because water mains have experienced more breaks recently and are designated for replacement. Service interruptions will be reduced as well as the water system's exposure to soil and groundwater that could possibly affect the quality of the water being supplied to customers.

2. Contamination

The principal alternative includes replacement of water mains in public road rights-of-way that are adjacent to several parcels that are included on the current EGLE RRD Facilities List. During preparation of construction plans in these areas, the potential impact of these facilities will be further investigated. Construction projects will include provisions in the contract documents related to handling and disposal of suspected contaminated soils and groundwater, and precautions for workers and others to take who may be exposed to the contamination. If the investigation during preparation of the plans confirms the presence of contaminated soil and groundwater in the proposed work area, the nature of the contamination will be characterized and appropriate design measures

will be taken, such as selection of water main and gasket materials that are impermeable to the type of contaminants that may be present. EGLE will be notified of this work as part of the Act 399 permit application process. In either case, the proposed work will not worsen any existing contamination that may be found. Excavated contaminated soils will be segregated, stockpiled, and protected until they can be properly disposed of, such as at a Type II landfill. The listed facilities are shown on Figure 3-8.



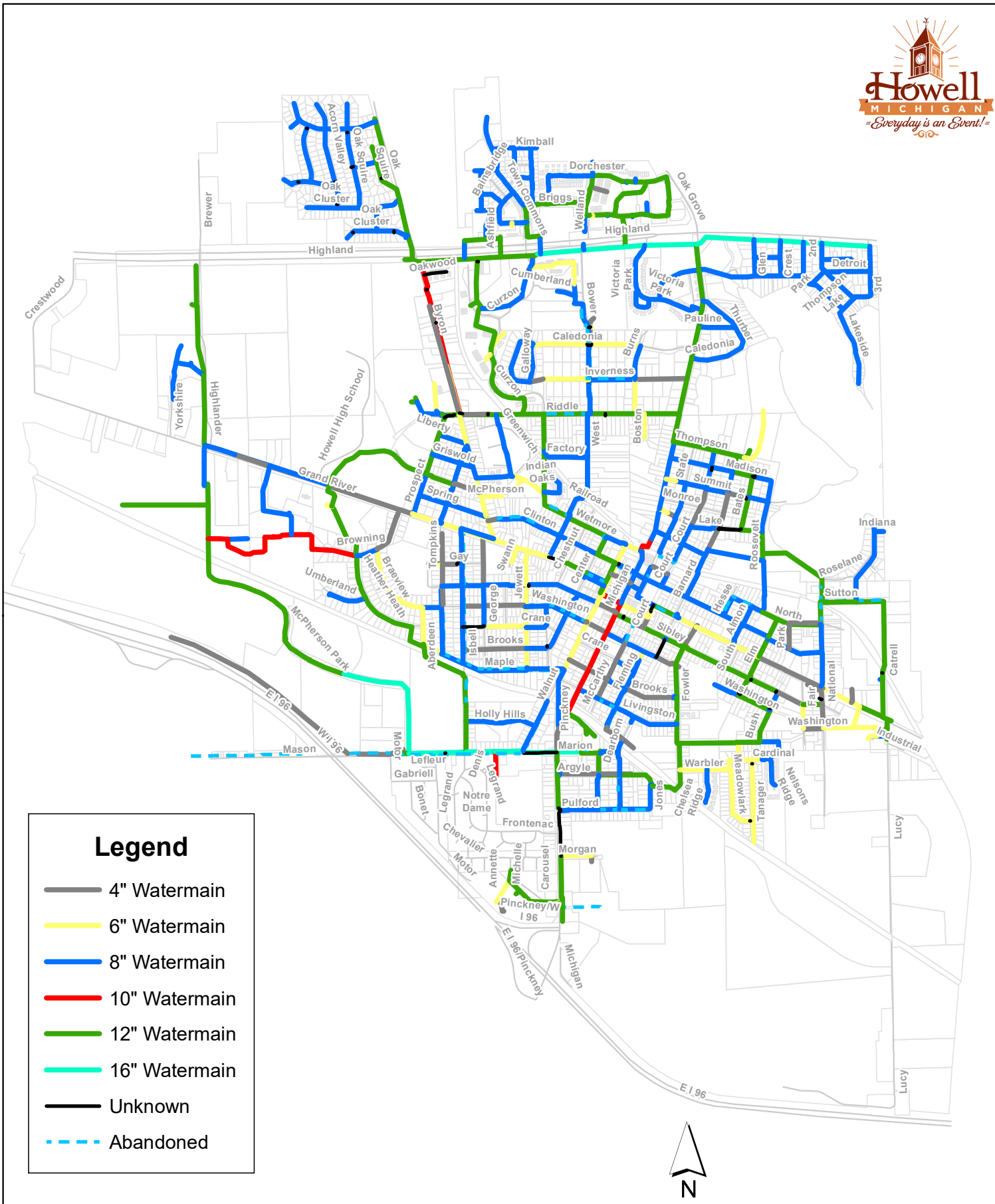
City of Howell - DWSRF Project Plan

Water System Improvements Since 2020

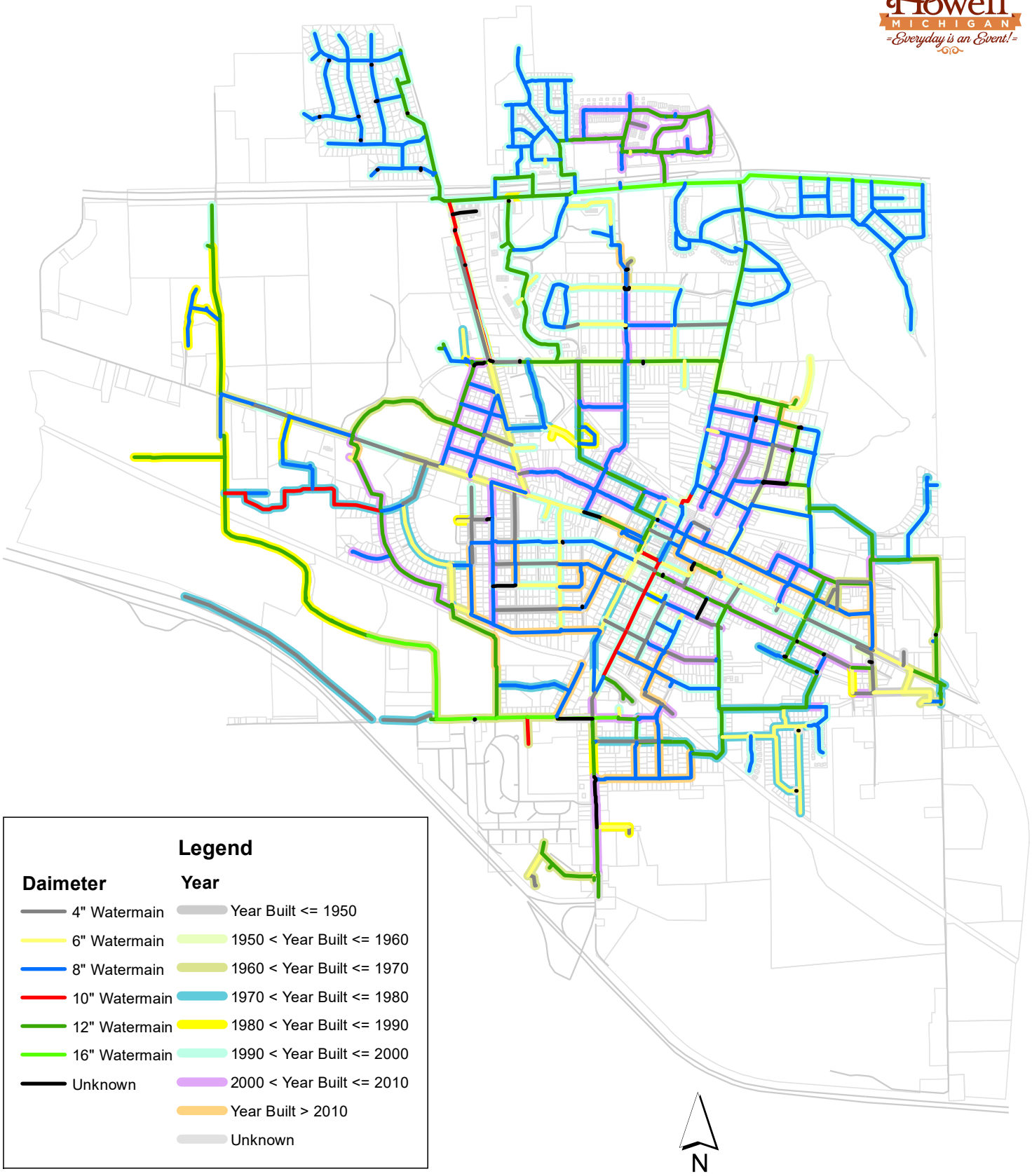
Job No. 20220254

Date 5/4/2022

Figure 3-1



HRC	**City of Howell - DWSRF Project Plan**	Job No. 20220254
	2022 Existing Water System Pipe Sizes	Date 5/4/2022
		Figure 3-2



City of Howell - DWSRF Project Plan

Pipe Size and Year Built

Job No. 20220254

Date 5/4/2022

Figure 3-3

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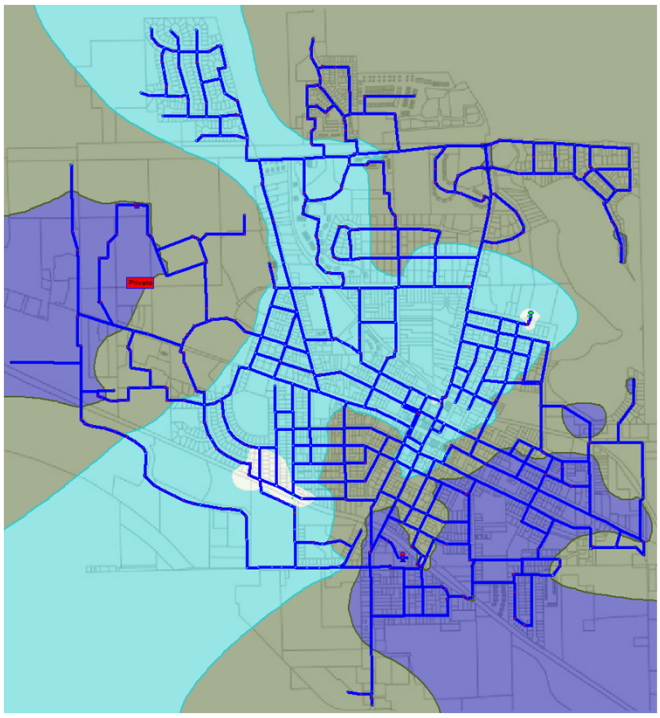
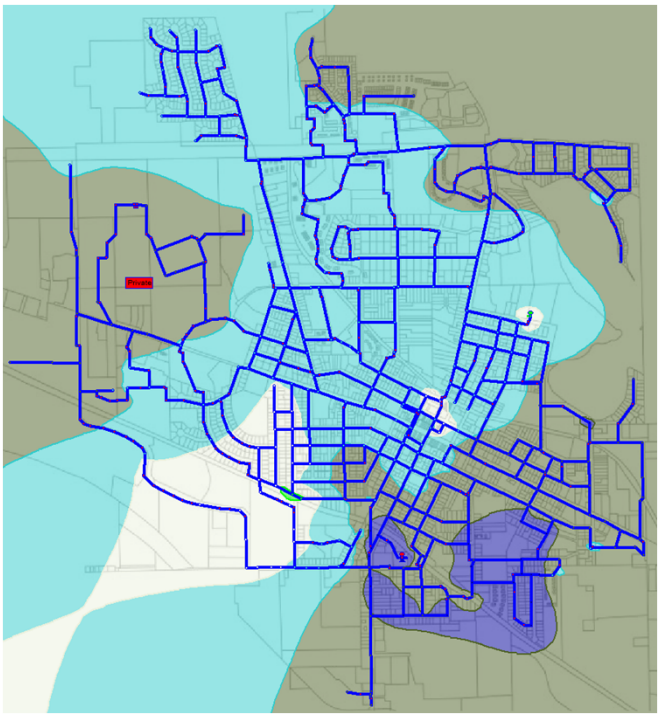
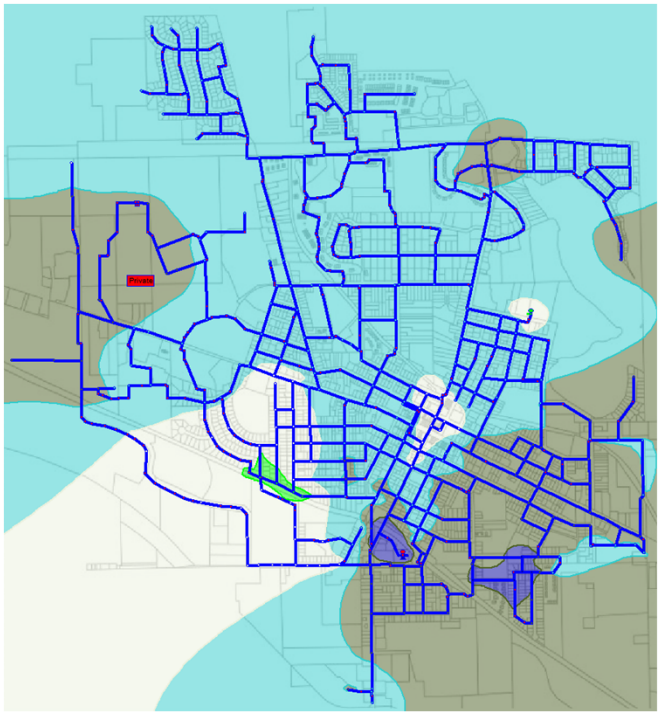
Average Day Demand



Maximum Day Demand



Peak Hour Demand

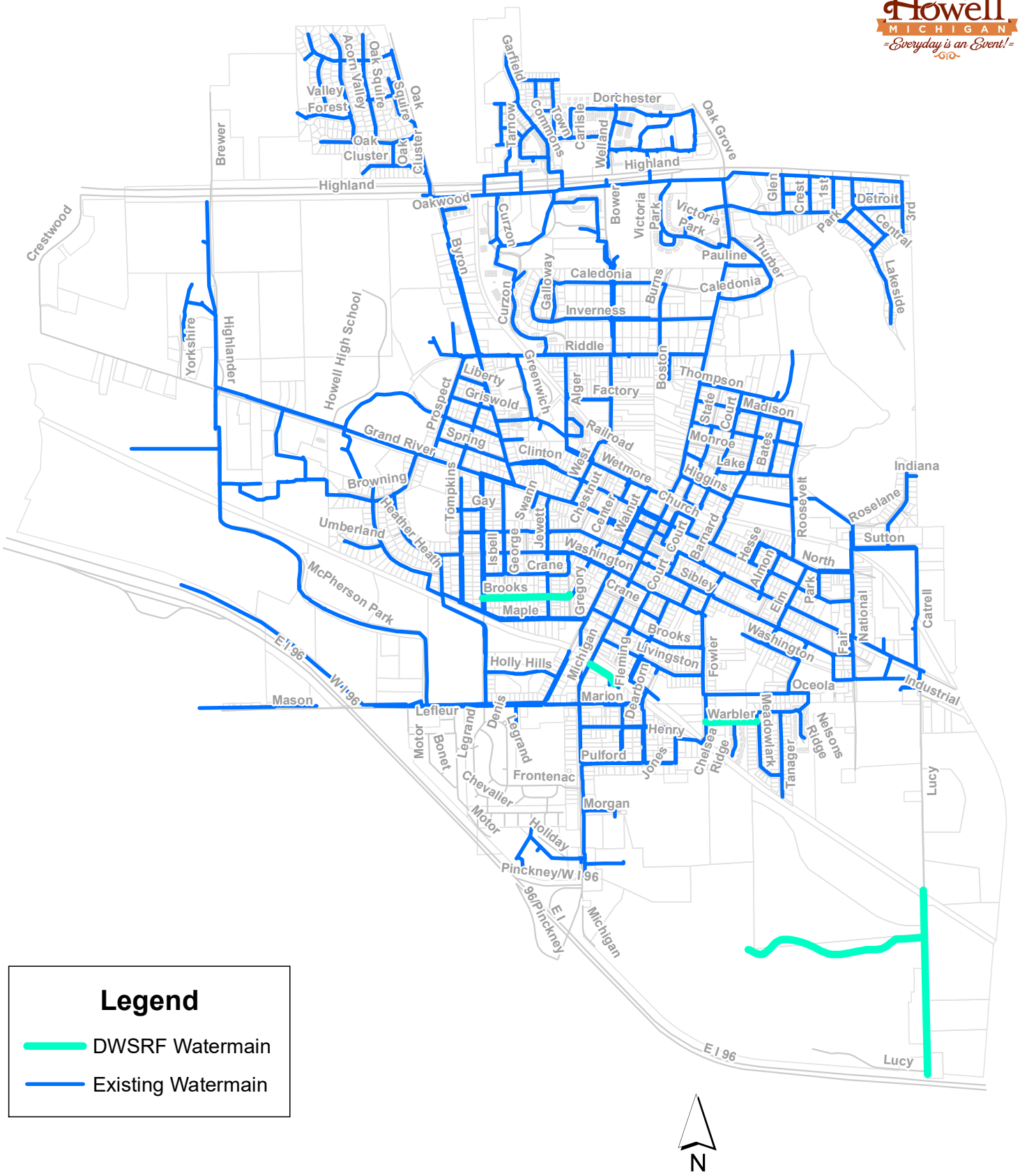


Legend

- Pressure (psi) < 20
- 20 < Pressure (psi) < 35
- 35 < Pressure (psi) < 40
- 40 < Pressure (psi) < 45
- 45 < Pressure (psi) < 50
- 50 < Pressure (psi) < 55
- 55 < Pressure (psi) < 60
- Pressure (psi) > 60
- Node
- Pipe
- Booster Station
- North Tower

N

HRC	**City of Howell – DWSRF Project Plan**	Job No. 20220254
	2019 Existing Conditions Pressure Contours	Date April 2022
		Figure No. 3-4



HRC	**City of Howell - DWSRF Project Plan** **Existing Conditions** **2023 Recommended Water Main Improvements**	Job No. 20220254 Date 5/3/2022 Figure 3-5

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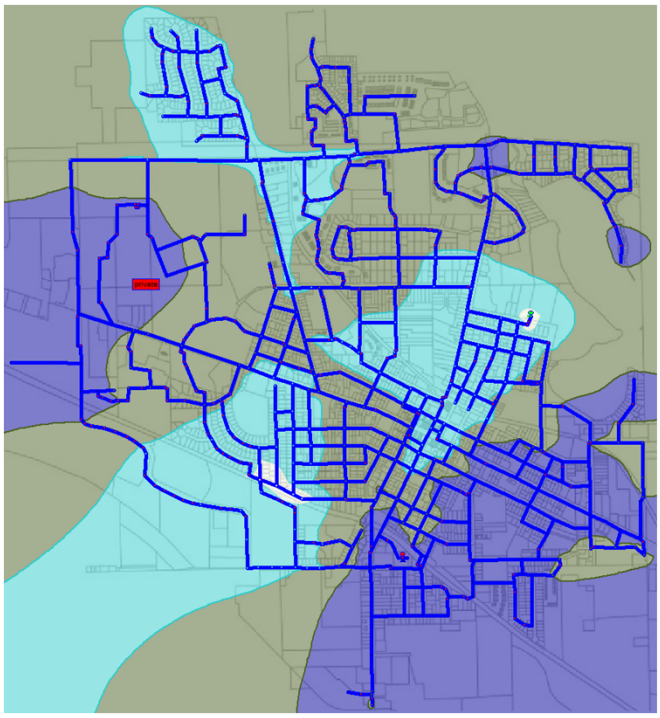
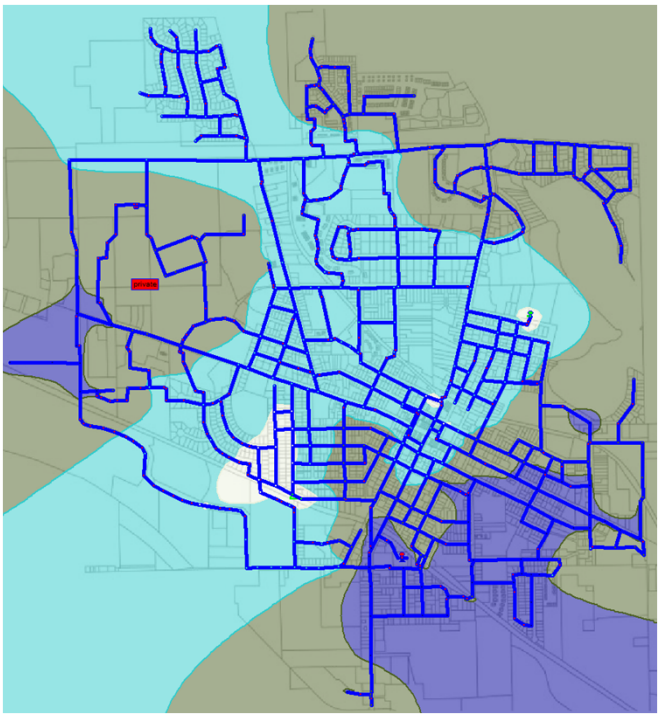
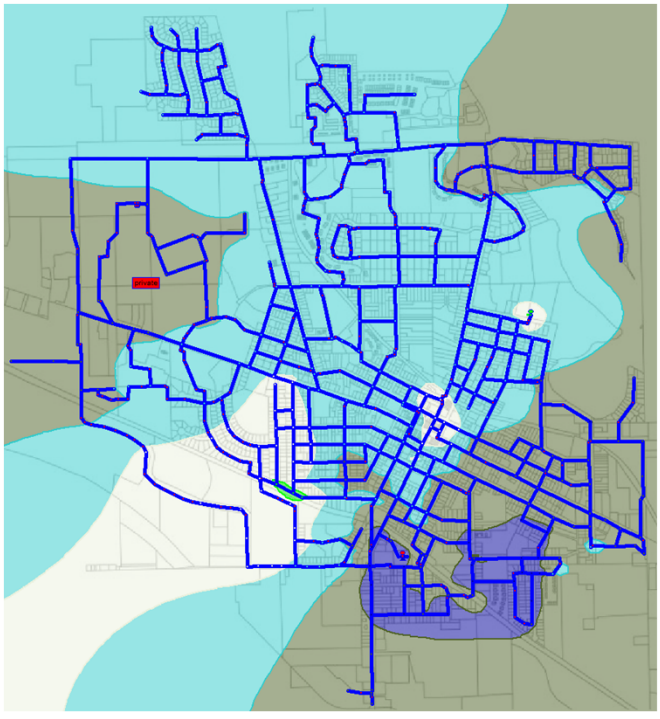
Average Day Demand



Maximum Day Demand



Peak Hour Demand



Legend

- Pressure (psi) < 20
- 20 < Pressure (psi) < 35
- 35 < Pressure (psi) < 40
- 40 < Pressure (psi) < 45
- 45 < Pressure (psi) < 50
- 50 < Pressure (psi) < 55
- 55 < Pressure (psi) < 60
- Pressure (psi) > 60
- Node
- Pipe
- Booster Station
- North Tower

Howell MICHIGAN Everyday is an Event!

N

HRC

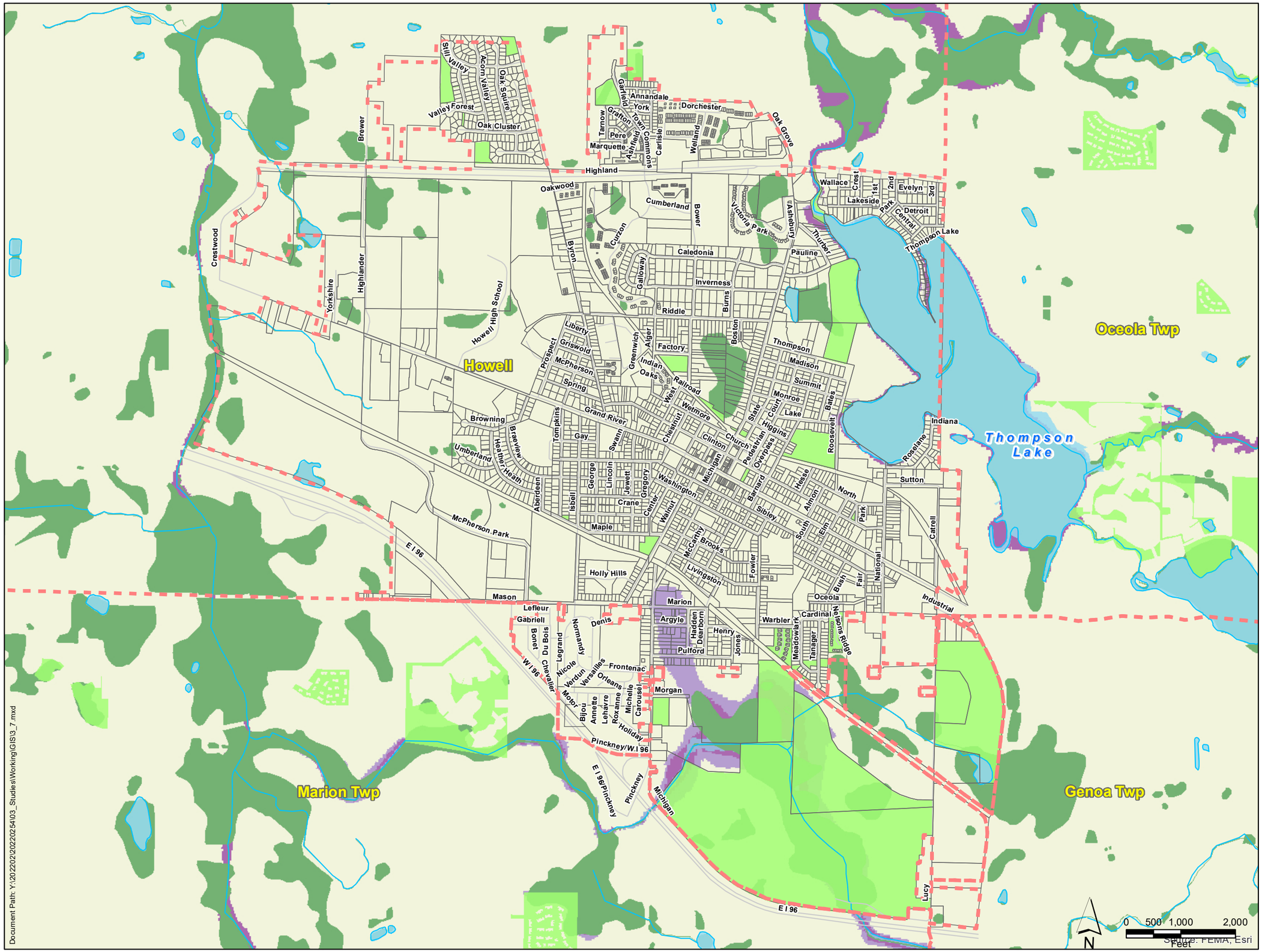
City of Howell – DWSRF Project Plan

2019 Improved Conditions Pressure Contours

Job No. 20220254

Date April 2022

Figure No. 3-6



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CONSULTING ENGINEERS SINCE 1915

Legend

- Municipal Boundary
- Tax Parcel
- Roads
- HowellCity_River
- Parks, Recreation, and Open Space
- Water
- Wetlands

USA Flood Hazard Areas

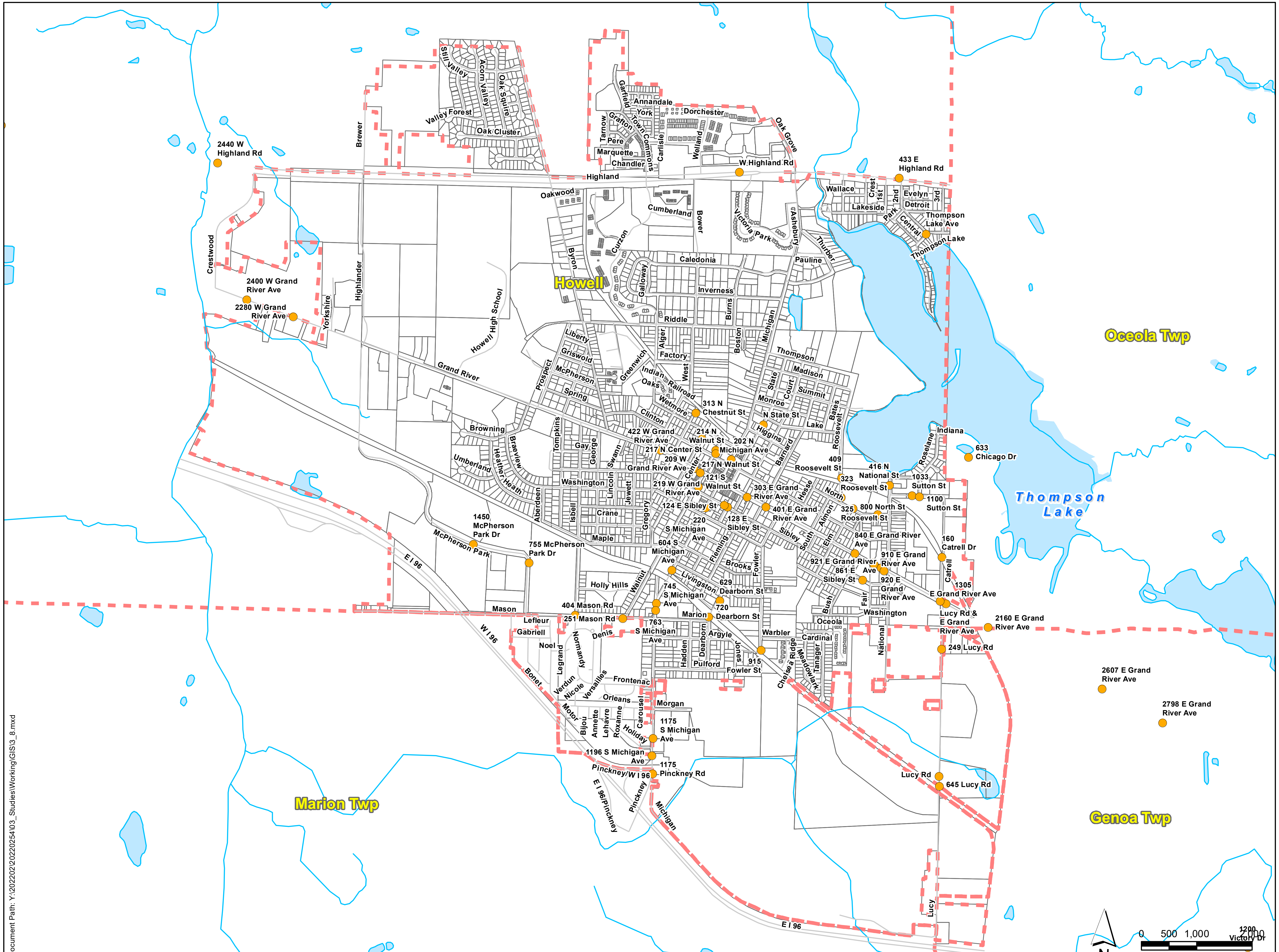
ClassName

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Area with Reduced Risk Due to Levee
- Special Floodway
- Area of Undetermined Flood Hazard
- Area of Minimal Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard

SHEET TITLE:
Environmental Factors

PROJECT TITLE:
CITY OF HOWELL
2023 WATER SYSTEM
IMPROVEMENTS
DWSRF PROJECT PLAN

HRC JOB NO.	FIGURE NO.
20220254	Figure 3-7
DATE: 5/4/2022	AUTHOR: JLL



Legend

- EGLE Inventory List
- Roads
- HowellCity_River
- Municipal Boundary
- Tax Parcel
- Water

SHEET TITLE:
EGLE Listed Facilities

PROJECT TITLE:
CITY OF HOWELL
2023 WATER SYSTEM
IMPROVEMENTS
DWSRF PROJECT PLAN

HRC JOB NO.	FIGURE NO.
20220254	Figure 3-8
DATE:	AUTHOR:
5/4/2022	JLL

HUBBELL, ROTH & CLARK, INC
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Section 4 - Selected Alternative

A. Description

The Replace Existing System alternative is preferred for the implementation of the Water System Improvements. The following improvements are recommended:

Distribution System:

- Install a new 12-inch water main along Lucy Road and west to the future development north of I-96 on D-19.
- Remove the existing 4-inch water main along Warbler Way and replace with 8-inch main.
- Remove the existing 4-inch water main along Brooks Street and replace with 8-inch main.
- Remove the existing old, outdated 12-inch water main at the City of Howell's Water Treatment Plant and replace with new 12-inch main.
- Full replacement of lead or galvanized water services throughout the city, in accordance with current Lead and Copper rules.

Portions of the City of Howell water system have a considerable amount of water main breaks in areas that are still serviced by 4-inch, 6-inch and 8-inch mains which have been in service for over 50 years. This has led to water system reliability uncertainties, water quality concerns and safety concerns. Within a water system that exhibits water main breaks, it is conceivable that the quality of water in the distribution system could be compromised. Secondarily, areas of low flow within a water system also causes safety concerns as required flows for firefighting are usually not available. Implementing the recommended improvements identified in the 2020 Water Master Plan Update and Reliability Study will effectively address the reliability, quality, and safety concerns.

B. Design Parameters & Project Schedule

Proposed water main will be designed to meet Act 399 requirements. The City of Howell follows their own design standards for their water distribution system, which requires water mains to have a minimum 8-inch diameter in residential areas and 12-inch diameter in commercial and industrial areas. Implementation of the recommended improvements will achieve this standard. Hydraulic modeling of the water system indicated that replacement of the existing 4-inch and 6-inch water mains will improve the system flows. Results from the water system modeling are presented in the 2020 Water System Master Plan Update and Reliability Study, which is included in Appendix A for reference.

1. Installation Methods

The methods for the proposed water main replacement will include horizontal directional drilling (HDD) and open cut. The site conditions and constraints vary in different parts of the city and may dictate the optimum method of replacement that balances impacts to the public and environment, and construction efficiencies. The city expects that a large portion of the water main replacement will be by HDD method. Open-cut methods may be feasible in areas where the water main replacement is coordinated with street paving activities, where appropriate clearances to other underground utilities is not provided, or when many service connections, tees, bends, and other fittings are present along a particular length of main.

2. Pipe Materials

New water main installed by the HDD method will be AWWA C906 HDPE. The pipe wall thickness will be DR11 at a minimum. Water main installed by open cut methods will be AWWA C151 ductile iron pipe, thickness class 52 in accordance with City of Howell Standards.

3. Project Phasing & Schedule

Preliminary planning for the project outlines that the proposed water main replacement improvements would be completed in three (3) phases. The lead service line replacements will be completed in a separate phase. Following approval for the DWSRF loan, the city would proceed with a design and construction schedule for the water main

expansion of Lucy Road, as well as the water main replacements in following years. Table 4-1 shows the proposed DWSRF project plan schedule and Table 4-2 outlines the expected timeline and expenditures for design and construction of each phase.

Table 4-1: Proposed DWSRF Project Schedule

Task	Complete on or Before
Public Hearing Notice	May 13, 2022
Place Draft Project Plan on Public Record	May 13, 2022
Formal Public Hearing	June 13, 2022
Council Resolution of Project Plan Adoption	June 13, 2022
Submit Final Project Plan to EGLE for DWSRF Consideration	July 1, 2022

Table 4-2: Project Phasing

	Design Year	Const Year	DWSRF FY	Project Cost by Phase
Phase 1 – Lucy Road	2022	2023	Q3 2023	$ 4,200,000
Phase 2 – LSLR's	2022*	2023*	Q3 2023	$ 3,250,000
Phase 3 – Brooks Street	2023	2024	Q3 2024	$ 550,000
Phase 3 – Warbler Way	2023	2024	Q3 2024	$ 550,000
Phase 4 – WTP Main	2024	2025	Q3 2025	$ 300,000
			Total Project	$ 8,850,000

*Lead Service Line Replacement work is proposed to start in 2023 and be completed in separate phases over multiple years

The design period for each phase would likely start in October of the year noted and be completed by February of the next calendar year. The project would be advertised and bid upon receipt of all necessary permits, with contract award expected by May. Construction would start by June and be completed by November. Specific dates would be adjusted to meet the DWSRF Financing and Milestone Schedules adopted for each year of the project.

C. Monetary Cost Estimate

The capital cost estimate for the replacing the water mains as presented herein was based on sound engineering judgment and past project experience. The estimated project cost breakdown of each construction phase in this Project Plan is listed in Table 4-2.

The estimated capital costs provided herein do not include any potential credits this project may be eligible for. The city would use the award of any credits to reduce the amount of the DWSRF loan required to complete the project as presented.

D. User Costs

User costs will be developed to recover the additional costs necessary to implement the Project Plan. Actual user charges are developed and adopted by the City of Howell on an annual basis, and may vary with such factors as:

- The availability and receipt of a Drinking Water State Revolving Fund (DWSRF) loan.
- Actual operational maintenance costs experienced by the upgraded water systems.
- Actual future increases in wholesale water prices.
- Additional charges to establish a fund for future replacement of the system.

Estimates of user costs have been developed based on the capital cost estimates for the Project presented herein, and current flat rate user charges for existing facilities. Note that annual operating costs are not included because they will not be more than the current costs to the city for operating the distribution system. The entire amount of debt retirement will be allocated to the water rate charged to customers based on their units of water (1,000 gallons) consumed. Fixed charges and other non-flow related fees associated with the utility are not changed due to this project. The annual equivalent cost for the project is $534,730 (20-year DWSRF loan amount of $8,850,000, with an annual interest rate of 1.875%).

The City's residential customer base currently represents approximately 44.4% of the total water usage with 2,532 residential accounts. The user cost estimate is presented below in Table 4-3.

Table 4-3: Estimated User Costs

Total Yearly Project Cost	$534,730
Total Yearly Project Cost – Residential	$237,369
Estimated Monthly Cost – Residential	$7.81

E. Disadvantaged Community Information

The City of Howell is considered a disadvantaged community. According to SEMCOG, the current estimate median annual household income (MAHI) is $47,255. Census data from 2020 states that 7.8% of persons living in the City of Howell, are in poverty. The cost of construction for the proposed projects, will have an impact on the residents billed monthly costs. As shown in Table 4-3: Estimated User Costs, the estimated monthly cost increase for residential users is $7.81 per month using the 20-year DWSRF loan with an annual interest rate of 1.875%.

F. Ability to Implement Selected Alternative

The City of Howell DWSRF Project Plan is made up of basic water infrastructure and maintenance projects in which no foreseeable problems are attributable. Any adverse impacts will be minimized through enforcement of contract provisions and the beneficial impacts of the improvements encourage implementation. Additionally, there is no opposition within the city to the improvements associated with Selected Alternative. Therefore, the City of Howell can implement this Project Plan without difficulty.

Section 5 - Evaluation of Environmental Impacts

A. General

Following is a comprehensive overview and evaluation of potential impacts that may occur because of the selected alternative. Beneficial and adverse impacts for both the long and short-term are discussed, as well as the direct and indirect impacts.

B. Beneficial Long-Term Impacts

The principal beneficial long-term impacts resulting from the replacement of existing water mains will be attained minimum pipe sizing standards (8-inch diameter residential and 12-inch diameter commercial/industrial), reduced frequency of water main breaks and increased water quality, system reliability and flow consistency. This will strengthen consumer confidence, enhance the quality control of the drinking water, and minimize potential water quality problems for the residents of the City of Howell.

C. Adverse Long-Term Impacts

No significant adverse long-term impacts have been identified and impacts due to actual construction of the project will be short-term.

D. Beneficial Short-Term Impacts

The principal beneficial short-term environmental impacts that will result from this project are similar to the long-term; see beneficial long-term impacts list in Section 5B above.

E. Adverse Short-Term Impacts

Short term adverse environmental impacts of the water main replacements are similar to those of any construction project and include noise, dust, traffic disruption, and soil erosion; however, all replacements of the water mains as part of this project will be within existing structures, road rights-of-way and easements. In this way the replacement of the water main itself will not add

significantly to these impacts. In addition, adverse impacts due to the construction process will be minimized by enforcement of the contract provisions for noise, dust, traffic, and soil erosion control.

Due to the nature of water main replacement projects, isolated excavations for drilling pits and open cut pipe trenches are expected. As was described in Section 2, no long-term impacts are expected to floodplains, wetlands and river or lake crossings as a result from the water main replacement project.

Any short-term negative impacts of both aspects of this project will by far be surpassed by the long-term environmental benefits.

F. Direct Impacts

Direct impacts are environmental impacts directly attributed to the construction and operation of the project. This may include impacts to historically, archaeologically, geologically, culturally, or recreationally significant areas; existing and future air quality, waste management and contaminations; land-water interfaces; sensitive ecosystems; agricultural land; and the economy and human society.

1. Historical/Archaeological/Tribal Resources

The Tribal Historical Preservation Officers and State Historic Preservation Office were contacted, requesting reviews of the project area and notification of impacts of the water main replacement project on historically, archaeologically, geologically, culturally, or recreationally significant areas in the project vicinity. As of Wednesday, May 4, 2022, no responses have been received regarding any impacts of the project on any historically, archaeologically, geologically, culturally, or recreationally significant areas. However, all correspondence with these offices can be found in Appendix C.

The National Register of Historic Places lists the Howell Downtown Historic District as a historic area. None of the proposed water main replacement work will occur in this area. The historic district is roughly bounded by Chestnut Street on the west, Clinton Street on the north, Barnard Street on the east, and Sibley Street on the south. The water main replacement work does not occur in this area; therefore, construction will not have

a permanent effect on the historic nature of this area. The relatively shallow excavations needed to complete the proposed work will be contained within public road rights-of-way and dedicated easements. Water main replacement work generally occurs in close proximity for HDD or open cut methods. Restoration of surface features disturbed by construction will match existing conditions as much as practicable. When construction plans are prepared for work in this area, the appropriate agencies/authorities will be contacted to ensure provisions in the contract documents address restoration efforts to maintain the aesthetic and historic feel of the district.

2. Air Quality/Soil & Groundwater Contamination

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) National Emissions Standard for Hazardous Air Pollutants (NESHAP) Asbestos Program, Office of Waste Management and Radiological Protection Division, and Remediation and Redevelopment Division were contacted, requesting reviews of the project area and notification of impacts of the water main replacement project on the air quality, disposal of waste materials and contaminated sites, respectively. As of Wednesday, May 4, 2022, no response has been received regarding any impacts of the project on air quality, disposal of waste materials and contaminated sites. All correspondence with these offices can be found in Appendix C.

The proposed project includes replacement of water mains in public road rights-of-way that are adjacent to several parcels that are included on the current EGLE RRD Facilities List. During preparation of construction plans in these areas, the potential impact of these facilities will be further investigated. Construction projects will include provisions in the contract documents related to handling and disposal of suspected contaminated soils and groundwater, and precautions for workers and others to take who may be exposed to the contamination. If the investigation during preparation of the plans confirms the presence of contaminated soil and groundwater in the proposed work area, the nature of the contamination will be characterized and appropriate design measures will be taken, such as selection of water main and gasket materials that are impermeable to the type of contaminants that may be present. EGLE will be notified of this work as part of the Act 399 permit application process. In either case, the proposed work will not worsen any existing contamination that may be found. Excavated contaminated soils will

be segregated, stockpiled, and protected until they can be properly disposed of, such as at a Type II landfill. The listed facilities are shown on Figure 3-8.

3. Land/Water Interface

The EGLE Lansing District Office and the DNR Fisheries Division were contacted, requesting a review of the project area and notification of impacts of the water main replacement project on wild and scenic rivers, inland lakes and streams, 100-year floodplains, wetlands, Great Lakes shorelands, navigable waters and Army Corps of Engineers Regulated Activities in the project vicinity. Copies of the correspondence with these offices can be found in Appendix C.

4. Endangered Species

The U.S. Fish and Wildlife Service Office and the Michigan Natural Features Inventory (MNFI) Office were contacted, requesting a review of the project area and notification of impacts of the water main replacement project on any sensitive ecosystems, protected plants, and animals in the project vicinity. See Appendix C for the correspondence with this office. If specific mitigation techniques are recommended by the MNFI to protect the identified species, they will be reviewed and applied when necessary. Additionally, all required endangered species permits will be obtained before the commencement of any construction.

5. Agricultural Land

The USDA Natural Resources Conservation Service and the Michigan Department of Agriculture & Rural Development were contacted, requesting a review of the project area and notification of impacts of the water main replacement project on any significant farmland or agricultural lands in the project vicinity. As of Wednesday, May 4, 2022, no response has been received regarding any impacts of the project on prime or unique farmland as the study area is identified as an urbanized area. Copies of the correspondence with these offices can be found in Appendix C.

6. Social/Economic Impact

The Michigan Department of Transportation (MDOT) Bureau of Aeronautics, Livingston County Health Department, Howell Township, Marion Township and Southeast Michigan Council of Governments (SEMCOG) were contacted, requesting a review of the project area and notification of impacts of the water main replacement project on any airports; on-site septic systems; local development plans; or regional development plans, area wide waste treatment management plans and regional water quality management plans, respectively. Copies of the correspondence with these offices can be found in Appendix C.

7. Construction/Operational Impact

Additionally, human society can be impacted in the form of inconvenience to residents and business owners. This is possible as construction and drilling pits for the pipe replacements may be located within road rights-of-way and existing traffic flow. Traffic will be redirected accordingly. The environmental disruption that could occur during the replacements of undersized mains would include increased traffic, noise, soil erosion, fumes, etc. due to typical construction activity. This will have minimal effect on air quality, water quality or residents as all water main replacements included in this project are within existing utilities and road rights-of-way and easements. After construction of the water mains no additional adverse impacts to the environment are expected.

Materials and energy consumption will be similar to any construction project and will be minimized during the replacements of undersized water main. All installations as part of this project are a replacement of existing facilities and/or are located on or within existing roadways or structures, therefore no additional land consumption or disturbance of previously undisturbed areas will result.

G. Indirect Impacts

Indirect impacts are those caused by the proposed project which may be removed in time. Indirect impacts are often secondary in nature and are generally caused by residential and/or commercial development made possible by the project. The following discusses possible indirect

impacts that may be caused by the proposed project. All work to replace the water mains as part of this project will be within existing structures and road rights-of-way and easements.

No long-term adverse changes to historically, archaeologically, geologically, culturally, or recreationally significant areas; air quality, waste management or contaminations; land-water interfaces; or agricultural land are expected. Water quality is expected to increase as a result of the project.

Wildlife populations that inhabit the immediate construction areas of the undersized water main replacement work may flee from the increased traffic, noise, fumes, and dust typical to construction activity. This may result in the temporary displacement of some species from the area which may then impact the aesthetics and natural setting. If the appropriate mitigation measures for this wildlife are applied, this displacement will only be temporary. All short-term impacts will be indirect in nature, and duration of water main replacement work will be minimized to reduce the total disruption in the immediate construction areas. The project is not expected to permanently affect any natural habitats or sensitive ecosystems within, or the development of, the community and therefore should cause no secondary impacts.

The increased traffic, noise, fumes, and dust may also decrease commercial and residential convenience within the City of Howell but will only be temporary and will not cause secondary impacts. In addition, because all water main replacements are within existing structures and existing road rights-of-way and easements this impact should be minimal.

There are no plans for any significant future development; land within the City of Howell is almost fully utilized. The land use within the city is established and drastic land use changes or undirected growth are not anticipated because of this project.

Section 6 - Mitigation

This section describes structural and non-structural measures that can be taken to avoid, eliminate or mitigate adverse impacts on the environment. Structural measures relate to the specific design and construction of the project. Non-structural measures relate to regulatory, institutional, governmental, or private plans, policies, and regulations, or phasing of the project construction over the planning period.

A. Mitigation of Short-Term Impacts

Environmental disruption that will occur as a result of replacements of the water mains will be minimal as most construction will take place within existing structures, road rights-of-way and easements in developed areas. Mitigation techniques that will be used to minimize construction impacts will be standard procedures included in construction contracts. Guidelines will be established for cover, vegetation removal, dust reduction, maintaining traffic, and accident prevention. Construction traffic from the replacements of water mains will primarily be confined to the existing easement areas where the work will be taking place. Once construction is completed these short-term effects will cease and the area will be returned, as much as practical, to its original conditions.

OSHA has strict standards that must be followed for noise control on work sites. Noise control will be primarily achieved on the water main replacement sites through proper equipment maintenance, restricted work times according to the City of Howell noise ordinances and staging of work to eliminate the need for several loud pieces of machinery to run simultaneously. During construction, sites will be maintained to minimize the aesthetic impacts on the surrounding area. Litter will be collected regularly.

As described above in Section 5, isolated excavations for drilling pits will be installed away from land-water interfaces, wetlands, 100-year floodplains or wild and scenic rivers; however, if these excavations must be located near or within these areas, mitigation measures and soil erosion efforts will be undertaken to protect these areas. These measures and efforts include but are not limited to silt fences, turbidity curtains, stone check dams, gravel access drives, riprap, etc.

Additionally, excavations will be filled with appropriate backfill materials, compacted and restored to existing grade with surface restoration matching existing vegetation.

Soil erosion impacts will be mitigated through the Contractor's required compliance with a program for control of soil erosion and sedimentation, as specified in Michigan Act 347, P.A. of 1972. The Michigan Department of Environment, Great Lakes, and Energy will also review design plans to ensure compliance with the Acts 346 and 347, P.A. of 1972.

B. Mitigation of Long-Term Impacts

No new above ground facilities or impervious pavements are being constructed as a part of this project. The proposed project entails the replacement of existing facilities in which the site locations have been established for over 50 years and a new water main installation using HDD. Horizontal Directional Drilling reduces the amount of earth disruption. Therefore, no damage to sensitive features is anticipated. Any construction related impacts will be short-term and returned to original or better condition.

C. Mitigation of Indirect Impacts

The indirect environmental impacts recognized in the previous section are short-term in nature and require the minimal mitigation features shown in "Mitigation of Short-Term Impacts". No new development or change in existing land use is expected because of this project. Additionally, growth within the vicinity is not expected nor would be attributable to the proposed project.

Section 7 - Public Participation

A. Opportunities for Public Input

The availability of the Draft Project Plan will be advertised in the May 13, 2022, Livingston Daily Press & Argus newspaper and beginning on May 13th at the City bulletin board. Copies of the Plan will be placed with the City Clerk at the City of Howell City Hall, Howell Carnegie District Library and online at cityofhowell.org (PDF version) for public review beginning on May 13, 2022.

A public hearing will be held on Monday, June 13, 2022, to review the information in the Project Plan and to receive public comments. The hearing will be held at a City of Howell Council Regular Meeting at the City of Howell Council Chambers.

B. Public Hearing

The following information relative to the Public Hearing is included in Appendix B:

- Public notification and affidavit of publication from the Livingston Daily Press & Argus.
- Public Hearing sign-in sheets (containing names and addresses).
- Agenda for the City of Howell Council Regular Meeting held on Monday, June 13, 2022, at 7:00pm.
- Copy of the slide presentation of the June 13, 2022, Public Hearing
- Verbatim transcript of the public hearing recorded by a stenographer.
- Copy of the resolution by the City of Howell formally adopting the Project Plan and designating an Authorized Project Representative.
- Description of changes made to the project as a result of the Public Participation process.

Appendix A

Reference Reports:

Water Reliability Study for the City of Howell

(HRC Report dated March 2020, Appendices available upon request)

TECHNICAL REPORT

FOR THE

2020 RELIABILITY STUDY UPDATE

IN THE

CITY OF HOWELL

March 2020 - Final

Prepared by:

HUBBELL, ROTH & CLARK, INC.
Consulting Engineers
105 W Grand River Ave
Howell, MI 48843

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Section 1 - Executive Summary

The City of Howell retained Hubbell, Roth & Clark, Inc. (HRC) to update the 2012 Water Reliability Study on the City's water distribution system. The update is a requirement of the Michigan Department of Environment, Great Lakes & Energy (EGLE) Safe Drinking Water Act that requires owners of water treatment and distribution systems to update their reliability study document every five (5) years or until it can be demonstrated that the water use projections are stable.

The City's 2012 hydraulic model was updated to represent the City's existing water distribution system and determine its performance under existing and future conditions. The model results indicate that the existing 2020 system and the future 2025 and 2040 systems generally operates adequately in terms of minimum pressures and majority of fire flow requirements. However, various upgrades are required for improved fire flow capabilities. Currently the existing well project, system storage and treatment plant capacity are adequate. Refer to Figure 1-1 for existing and future water main improvements (Figures are located at the end of each Section).

The following lists the recommendations of this Water Reliability Study (listed in order of priority):

1. Existing System and 2025 Future System Water Main Upgrades

Under the fire flow analysis it was determined that approximately $10,995,000 of water main upgrades are recommended of which, $7,925,000 of water main improvements are scheduled as part of the City's Drinking Water Revolving Fund (DWRF) loan projects and an additional $3,070,000 are estimated as future water main projects as shown in Figure 1-1.

2. 2040 Future System

There are marginal fire flow deficiencies under the 2040 system demands at dead-ends and pipe sizing shown in Figure 1-1, in the deficient areas, should be confirmed at the time of design.

3. Replace all Remaining 4- and 6-inch Water Main

In general, it is recommended to replace all the remaining water main that is less than 8-inch diameter with at least 8-inch pipe. Following the improvements shown in Figure 1-1, there will still remain

approximately 26,600 linear feet of 4- and 6-inch water main throughout the system. Replacing with 8-inch water main is estimated to cost approximately $5,400,000.

`

The recommended improvements with estimated time frame are listed in Table 1-1.

Table 1-1: Recommended Water Main Improvements

Item		Estimated Cost	Time Frame
DWRF Water Main Improvement Project (Total = $7,925,000)*	(DWRF Phase 2) Clinton Street, North Tower and National Water Main Improvements	$ 1,400,000	2020 - 2025
	(DWRF Phase 3) West Grand River Avenue Improvements	$ 2,675,000	
	(DWRF Phase 4) East Grand River Avenue Improvements	$ 3,850,000	
Future Projects throughout the City		$ 3,070,000	2025 - 2040
Replace all 4- and 6-inch Water Main		$ 5,400,000	On-Going**
TOTAL		$ 16,395,000	

* Note, the DWRF project also includes Water Treatment Plant improvements for an additional $975,000.

** Replacement to occur whenever there is a construction project that would expose the water main and allow for cost-effective replacement.

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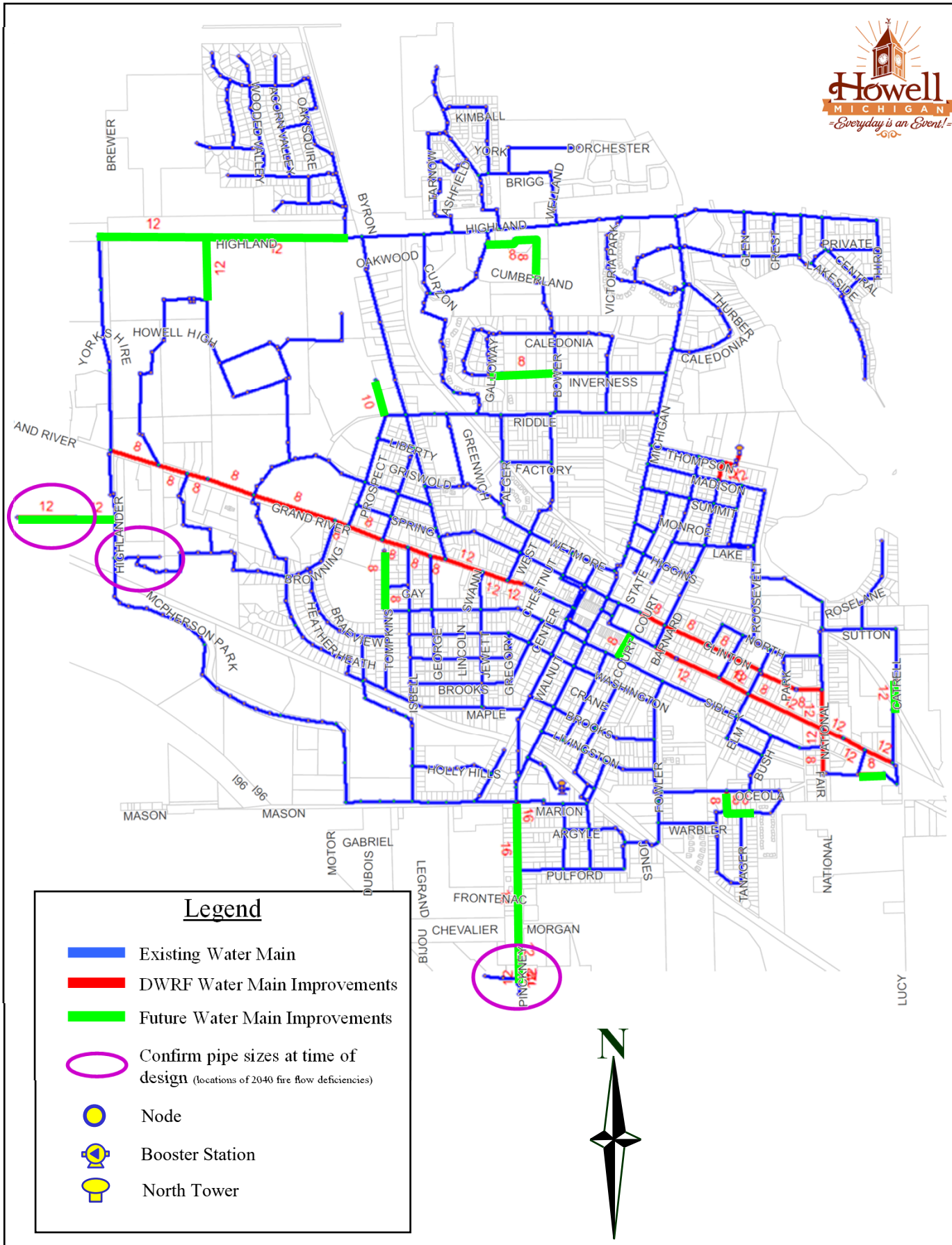

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City of Howell – 2020 Reliability Study

Recommended Water Main Improvements

Job No. 20190699

Date March 2020

Figure No. 1-1

Section 2 - Introduction

This Reliability Study serves as a guide for reviewing existing system pressures and available flows, prioritizing short-term water improvement needs and estimating future water system upgrades.

The primary purpose of this project is to update the City's Water Reliability Study which is required to be updated every five (5) years until it can be demonstrated that the water use projections are stable and the requirement is waived by the EGLE. The model projects the City's short-term water system improvement needs through 2025 and provides an estimate on the City's future water system needs through 2040. The goals of this study are to:

- Update the City's existing hydraulic model to represent existing conditions.
- Determine existing pressure conditions, fire flow supply and storage volume requirements.
- Determine any short-term water system improvement needs.
- Estimate the 5- and 20-year demand projection for future conditions.
- Estimate the 5- and 20-year future pressure conditions, fire flow supply and storage volume requirements.
- The City intends to keep the model up to date by adding new developments and system changes so that the model can be utilized on a continual basis.

A. Study Area Characteristics

1. Delineation of Study Area

The City of Howell is located in the central portion of Livingston County. It is bounded on the north and west by Howell Township, on the east by Oceola and Genoa Townships, and on the south by Marion Township (refer to Figures 2-1 and 2-2). The City consists of approximately 5.3 square miles of land area and approximately 0.4 square miles of surface water, for a total of 5.9 square miles.

2. Land Use

The largest three (3) land use types within the City of Howell (excluding open space and utilities) are residential (26.6%), government/institutional (16.0%) and industrial (13.1%). The existing land use within the City of Howell are shown in Figure 2-3 and listed in Table 2-1.

Table 2-1: Land Use

Land Use Type	City of Howell	
	Area (ac)	Percent of Total Area
Residential	903	27%
Commercial	289	9%
Industrial	446	13%
Institutional	541	16%
Agricultural	0	0%
Water/Wetlands	257	8%
Transportation	597	18%
Outdoor Recreation	359	11%
Total	3,392	100%

3. Population Data

Historical population data and projections for the City were obtained from the Southeastern Michigan Council of Governments (SEMCOG) database. Based on July 2019 SEMCOG estimates, the existing population of the City is approximately 9,459 and the average household size is 2.22 persons per household. Table 2-2 lists the population information from 2010 through 2040. The 2010 population is based on the 2010 Census data whereas the other years listed are a projected estimate by SEMCOG.

Table 2-2: Population

Year	Population
2010	9,489
2019	9,459
2025	10,054
2040	10,951

4. Service Connections and REUs

The number of service connection is 2,572.

The City does not bill based on the number of residential equivalent units (REUs) and therefore this value is unknown. However, utilizing the average water consumption data, a design rate of 120 gallons per capita per day (gpcd) and SEMCOG's 2019 household size of 2.22, the number of (design) REUs calculates to approximately 4,100. Utilizing the same values, except a typical "actual" water usage rate of 70 gpcd, the number of REUs calculates to approximately 7,000.

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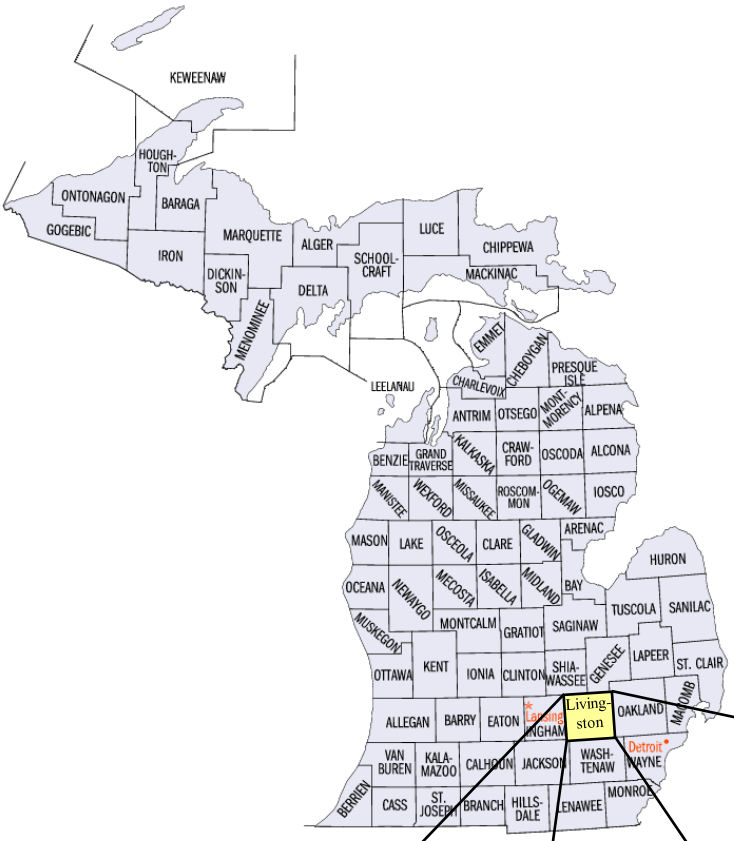
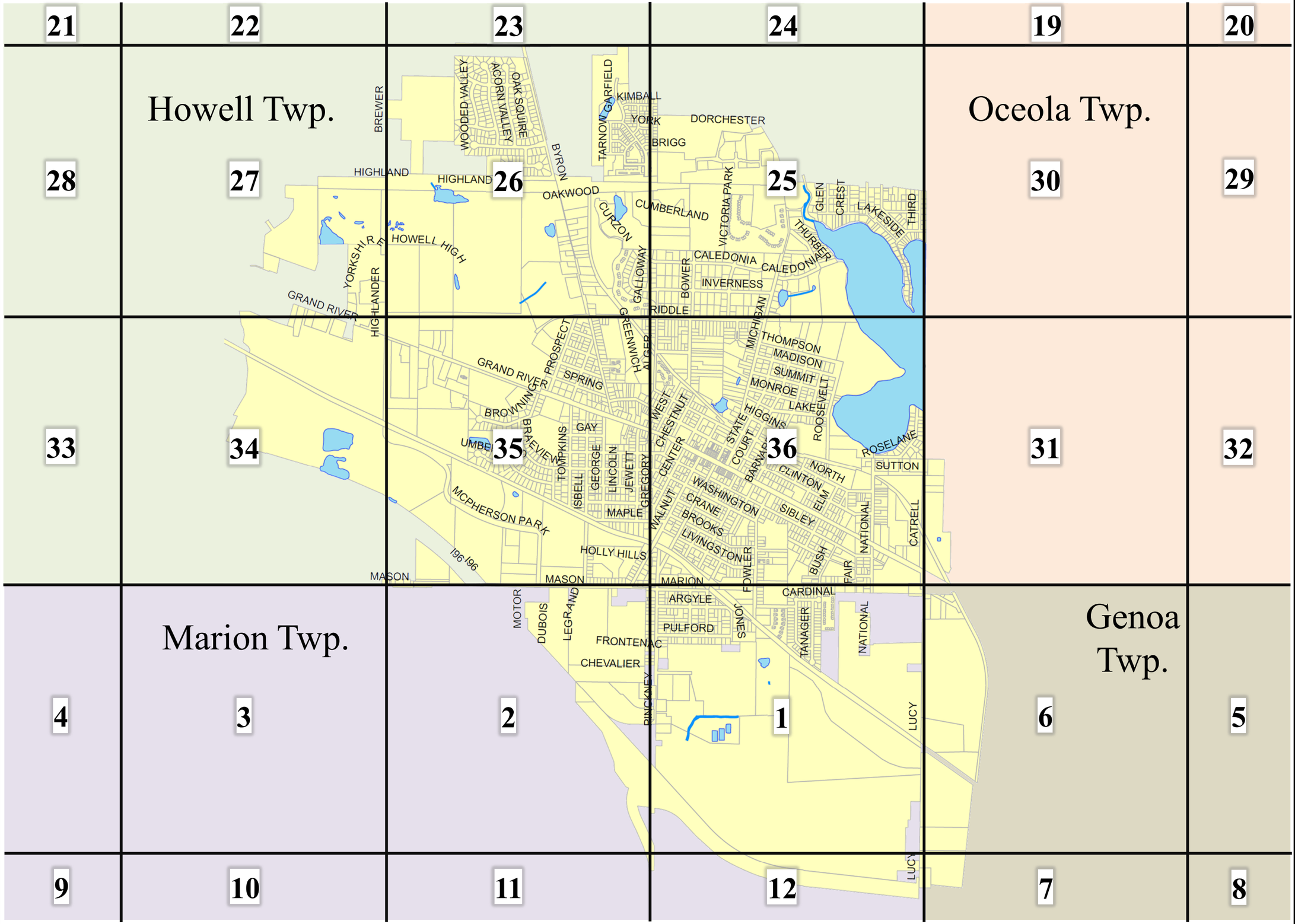


Conway Township	Cohoctah Township	Deerfield Township	Tyrone Township
Village of Fowlerville Handy Township	Howell Township City of Howell	Oceola Township	Hartland Township
Iosco Township	Marion Township	Genoa Township City of Brighton	Brighton Township
Unadilla Township	Putnam Township Village of Pinckney	Hamburg Township	Green Oak Township

HRC	City of Howell – 2020 Reliability Study	Job No. 20190699
	City of Howell Location	Date March 2020
		Figure No. 2-1



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32 Section Number

Howell Township
City of Howell
Oceola Township
Marion Township
Genoa Township

City of Howell
2020 Reliability Study Update

City of Howell Location & Surrounding Townships

HRC Job No:	Scale:
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Date: March 2020	Figure: Figure 2-2

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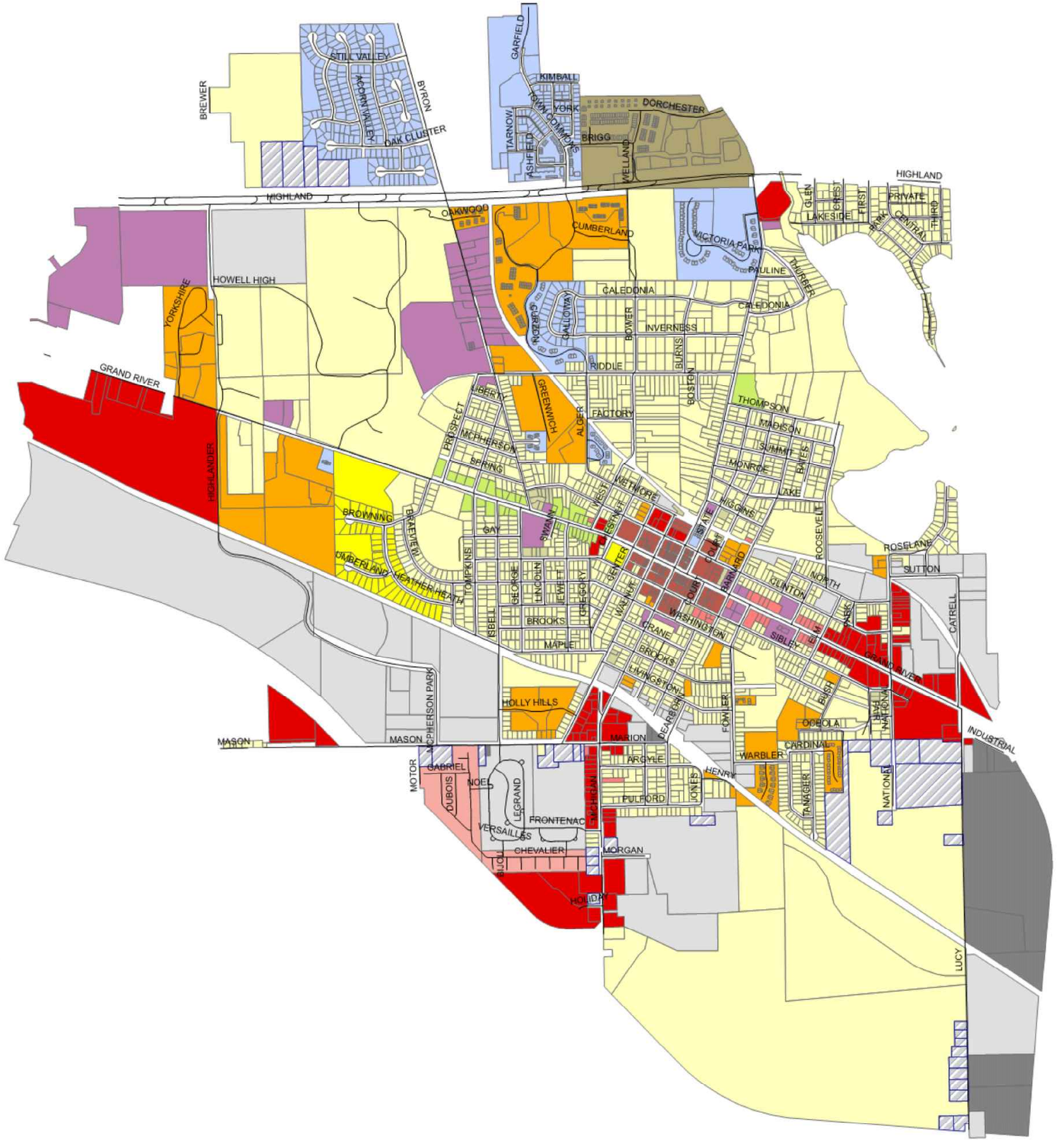


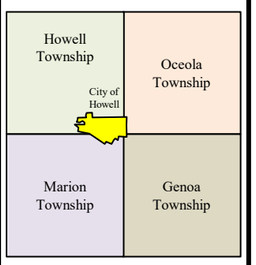
Zoning District

- B-1 Local Business
- B-2 General Business
- CBD - Central Business District
- H-L Historic Limited
- I-1 Light Industrial
- I-2 General Industrial
- MXD Mixed Use Development
- O-1 Office
- P-1 Parking
- PUD Planned Unit Development
- R-1 Single Family Residential
- R-2 Single Family Residential
- R-M Multiple Family Residential
- T-C Trailer Court
- Township

Howell MICHIGAN =Everyday is an Event!=

HRC

Notes



City of Howell
2020 Reliability Study Update

Zoning Map

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20190699	NTS
Date: March 2020	Figure: Figure 2-3

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Section 3 - Existing Conditions - 2020

A. Introduction

The original water distribution system for the City was constructed in the 1940s through the 1970s and some sections of the original system are still in use today. Over the years, as the City grew, numerous additions and modifications were made to the original system. The existing water distribution system consists of transmission and local distribution mains, varying in size from 4-inches to 16-inches in diameter and totaling over 41 miles, for conveyance of water to its residents.

During the late 1950s a well field and raw water main were installed outside the City, in Marion Township. The City of Howell obtains water from five (5) production wells. Four (4) wells, each with a capacity of 1,000 gallons per minute (gpm), are located approximately two (2) miles southwest of the City in Section 4 of Marion Township. Raw, untreated water is pumped to the City's WTP from these wells via a 20-inch transmission main along Norton Road. The fifth production well, with a capacity of 350 gpm, is located just east of Pinckney Road and south of Marion Road. There is a sixth well that is reserved for emergency back-up and is located at the City's WTP. Combined, the wells provide a total capacity of 4,700 gpm with a firm capacity of 3,350 gpm.

The WTP is located at 150 Marion Street, just east of Michigan Avenue. The WTP was built in 1992 with a rated treatment capacity of 2,150 gpm, or 3.1 MGD. The treated water from the WTP is discharged into a 25,000 gallon clear well which is interconnected with a 630,000 gallon ground storage reservoir.

Water from the ground storage reservoir is pumped to the distribution system through four high service pumps. Each pump is rated for 1,100 gpm, at a maximum head of 150 feet.

The City also maintains a 300,000 gallon elevated storage tank, known as the North Tower, located off of Thompson Street. Refer to Appendix A for water system map showing system appurtenances.

The City water system has three (3) emergency connections to the Marion, Howell, Oceola, and Genoa Sewer & Water Authority (MHOG) in locations near the edge of the City limits (connection tie-ins: M-59 and Byron Road, Indiana Street and Illinois Drive, East Grand River Avenue and Lucy Road). Refer to Figure 3-1.

B. Existing Model Development

The following sub-sections discuss; how the model was created, water demand assumptions, model calibration, existing system performance, additional system considerations and existing system improvements.

1. Model Selection

The City of Howell's water distribution system was hydraulically modeled using *Pipe2018* developed by the University of Kentucky (formerly known as *KYPipe*).

2. 2020 Model Updates

The model developed for the 2012 Water Master Plan & Reliability Study (2012 Study) was updated as part of a Drinking Water Revolving Fund (DWRF) Project Plan that was submitted in April 2019. This update included all new/replaced water main since 2012. The updates to the water system are shown in Figure 3-2; approximately 6,600 linear feet (lft) of 8-inch water main and 400 lft of 12-inch water main were constructed since 2012. Refer to Figure 3-3 for existing water system pipe sizes and Figure 3-4 for with year built (in decades). Table 3-1 lists the watermain inventory of the current 2020 system.

Table 3-1: 2020 Water Main Inventory

Size (in)	Total Length (ft)
4	13,930
6	23,210
8	101,460
10	8,000
12	63,240
16	9,800
Private	34,600
TOTAL (excluding Private)	219,640

3. 2020 Water Demand

In addition to updating the water main, the system demands from 2012 were reviewed against the recent annual WTP daily flows as listed in Table 3-2 (refer to Appendix B for 2015 to 2017 WTP consumption data).

Table 3-2: 2012 Demand Versus Recent Annual WTP Production

Year	Average Day Demand (gpm)	Max Day Demand (gpm)	Peak Hour (gpm)
2012	965	1,631	2,804
2015	738	1,301	Not Available
2016	756	1,314	
2017	737	1,145	

Upon review, the system demands were adjusted to reflect the largest demand from the recent three (3) years of data (specifically to 2016 data). As peak hour information is not available, the peak hour peaking factor developed from the 2012 study was applied to the current analysis. Table 3-3 lists the 2020 system demands and peaking factors from average day demand (ADD). Refer to the 2012 Study for demand distributions and other assumptions/model selections.

The annual usage for each customer class is listed in Table 3-3a.

Table 3-3: 2020 System Demand

Unit	Average Day Demand (gpm)	Max Day Demand (gpm)	Peak Hour (gpm)
GPM	756	1,314	2,203
MGD	1.09	1.89	3.17
Peaking Factor from ADD	1.00	1.74	2.91

Table 3-3a: 2018 Usage Per Class

Class	Water Usage (Gallons Used in 2018)
Churches	2,067,200
Commercial	80,992,100
Government	7,436,500
Industrial	42,244,301
Multi-Residential	64,367,700
Residential	102,194,239
School	11,323,650

4. Calibration

Calibration of the system (via pipe roughness values) was achieved based on data recorded from 39 hydrant flow tests conducted in 2015 (refer to Appendix B). The general calibration process is described in detail in the 2012 Study. Table 3-4 lists the pipe roughness from 2012 and the calibrated 2019 pipe roughness.

Table 3-4: Calibrated Pipe Roughness

Size	Pipe Group	Year Built	2012 Calibrated Roughness	2019 Calibrated Roughness
4-8	0	1918-1985	86	81
	1	1986-1995	101	108
	2	1996-2005	122	96
	3	>2005	133	127
10-12	4	1918-1985	96	64
	5	1986-1995	108	87
	6	1996-2005	124	125
	7	>2005	138	135
16	8	1918-1985	103	80
	9	>1986	139	136

5. Existing System Performance – Pressures

With City of Howell's water distribution system updated and the calibration process completed, the existing conditions model was simulated. Figure 3-5 shows the resultant pressure contours for ADD, maximum day demand (MDD) and peak hour demand (PHD). The resultant system pressures under all three (3) demand conditions are adequate. The lowest pressure of 41 pounds per square inch (psi) occurred during PHD in higher ground elevation area near the intersection of Isbell and Maple Street.

6. Existing System Performance – Fire Flow Evaluation

One final check on the adequacy of the system is the ability to provide the needed fire flow (NFF) at maximum day demand while maintaining a pressure of at least 20 psi. The NFF rates for the City of Howell is listed in Table 3-5.

Table 3-5: Needed Fire Flow Rates

NFF (gpm)	Category
1,500	Single-Family Residential*
2,000	Multi-Family Residential
3,000	Commercial**
4,000	Industrial

*NFF can be less based on spacing between houses

**Includes churches, government and schools uses

Table 3-6 lists the single-family residential NFF rates based on spacing between buildings.

Table 3-6: Single-Family Residential NFF Rates

Distance Between Buildings (ft)	NFF (gpm)
More than 100	500
31 - 100	750
30-11	1000
Less than 11	1500

The fire flow results and recommended improvements are as follows:

- Single-Family Residential – NFF = 1,500 gpm (or less based on house spacing)
    - Refer to Figure 3-6.
    - Fire flows in the Galloway and Inverness area are around 844 gpm. Based on existing house spacing, at least 1,000 gpm is required. Replace approximately 950 ft of existing 4" main with new 8" water main. The City DPW staff confirmed that the improvements are needed in this area as they have experienced multiple water main breaks on this section of main.
    - Fire flows at the north end of Tompkins to the intersection of Sibley are between 282 and 714 gpm. At least 1,000 gpm is required based on current house spacing. Replace approximately 850 ft of 4" main with 8" water main. Additionally, it is recommended, to loop Tompkins with Grand River as dead-end mains are undesirable.

- Multi-Family Residential – NFF = 2,000 gpm
    - Refer to Figure 3-7.
    - Fire flow on North Highlander Way and South Highlander Way are minimally deficient with available fire flow of approximately 1,875 gpm; this within 7% of the NFF and likely within the margin of error of this study.

- The fire flows in these areas will improve with the pending DWRF project (discussed below) and with future 12-inch looping along M-59.

- Commercial – NFF = 3,000 gpm
  - Refer to Figure 3-8.
  - Several improvements were required to provide adequate commercial fire flow protection. The majority were along the Grand River corridor, as well as the north end of Highlander Way. These deficiencies can be eliminated by upgrading the existing 4" and 6" water mains in the Grand River and Clinton area to 8" and 12". In addition, other recommended improvements include a water main extension along M-59 between Byron and Highlander Way.

- Industrial – NFF = 4,000 gpm
  - Refer to Figure 3-9.
  - Deficiencies were noted along McPherson Park Drive, Catrell Drive and Pinckney Road.
  - The fire flow deficiencies along McPherson Park Drive and Catrell Drive are eliminated with the improvements recommended in the commercial fire flow analysis above.
  - Pinckney Road water main improvements are required in order to increase available fire flow south of Morgan Street. Approximately 920 lft of 16" main is required in this area.

Overall, approximately 27,100 lft of water main, between 8" and 16" are required to provide adequate fire flow protection throughout the entire City. Refer to Figure 3-10 for the recommended improvements, Figure 3-11 for the updated fire flows after the improvements are made and Figure 3-12 for the resultant pressure contours.

7. DWRF Water Main Improvement Project

As previously discussed, in April 2019, the City applied to EGLE for a DWRF loan to construct the water main highlighted in red in Figure 3-10. The DWRF project plan also applied for improvements to the WTP and the North Tower; refer to the DWRF Project Plan for more information on the condition of the equipment, water main and water quality.

In 2019, the City was awarded the DWRF loan and will be constructing the projects per the following timeline:

- 2020 – Water Plant and Well Improvements
- 2021 – North Tower, East Clinton and National Water Main Improvements
- 2022 – West Grand River Water Main Improvements
- 2023 – East Grand River Water Main Improvements

The total estimated cost for water main improvements are approximately $10,995,000 of which, $7,925,000 of water main improvements are scheduled as part of the DWRF projects and an additional $3,070,000 are estimated as future water main projects as listed in Table 3-7.

Table 3-7: Fire Flow Improvements

Item		Estimated Cost
DWRF Water Main Improvement Project (Total = $7,925,000)*	(DWRF Phase 2) Clinton Street, North Tower and National Water Main Improvements	$ 1,400,000
	(DWRF Phase 3) West Grand River Avenue Improvements	$ 2,675,000
	(DWRF Phase 4) East Grand River Avenue Improvements	$ 3,850,000
Future Projects throughout the City		$ 3,070,000
TOTAL		$ 10,995,000

* Note, the DWRF project also includes Water Treatment Plant improvements for an additional $975,000.

8. Remaining 4-inch and 6-inch Water Main

In general, it is recommended to replace all water mains that are 4-inch and 6-inch diameter with at 8-inch pipe whenever there is a construction project that would expose the water main and allow for cost-effective replacement. Excluding the pipes that are proposed to be improved, there will still be approximately 7,000 linear feet (lft) of 4-inch and 19,600 lft of 6-inch water main in the City's distribution system. It is estimated that it would cost an additional $5,400,000 to replace these remaining 4- and 6-inch mains.

Therefore, Table 3-8 lists the total water main replacement projects for the City.

Table 3-8: Total Water Main Improvements

Item		Estimated Cost	Time Frame
DWRF Water Main Improvement Project (Total = $7,925,000)*	(DWRF Phase 2) Clinton Street, North Tower and National Water Main Improvements	$ 1,400,000	2020 - 2025
	(DWRF Phase 3) West Grand River Avenue Improvements	$ 2,675,000	
	(DWRF Phase 4) East Grand River Avenue Improvements	$ 3,850,000	
Future Projects throughout the City		$ 3,070,000	2025 - 2040
Replace all 4- and 6-inch Water Main		$ 5,400,000	On-Going**
TOTAL		$ 16,395,000	

* Note, the DWRF project also includes Water Treatment Plant improvements for an additional $975,000.

** Replacement to occur whenever there is a construction project that would expose the water main and allow for cost-effective replacement.

9. Emergency Connections/Water Shortage Response Plan

As previously discussed, there are three (3) emergency connections with the MHOG system as shown in Figure 3-1. Previous discussions with the MHOG indicated the following regarding the current status of these emergency connections:

- MHOG's distribution system hydraulic grade (HG) is generally higher than the City of Howell's in the areas where they interconnect.
- Byron Road Connection (1):
    - The Byron Road connection is the most reliable of the three emergency connections.
    - The pressure range at this connection is approximately 50 psi to 80 psi.
- Indian Road Connection (2):
    - The Indian Road connection is through a 6" pipe.
    - There is a PRV on the MHOG side of this line that reduces the pressure to the MHOG side of the connection.
    - MHOG personnel estimated that utilizing this emergency connection alone would not serve any supply benefit beyond the immediate local area in the City of Howell.
- Lucy Road Connection (3):

- The Lucy Road connection is in close proximity to an industrial booster station on the MHOG side. When the pumps turn on, the pressure in the upstream mains drops drastically (down to 25 to 30 psi).
- This station runs regularly. One of the main water users on the MHOG system is in this industrial park.
- MHOG personnel estimated that utilizing this emergency connection alone would result in low pressure issues at this location.

The improved existing conditions model was simulated with the Byron Road emergency connection only, assuming the pump station and north tower were off-line, and the supply from MHOG set at 50 psi. Under this scenario, the pressure supply from MHOG is adequate under ADD and MDD conditions. Under PHD conditions there is localized area near Isabel and the CSX Rail Road where pressures drop to 34 psi (refer to Figure 3-13). Under emergency conditions where the City's facilities are off-line, this level of service would be acceptable. Also, fire flows were reviewed and there is adequate supply from the Byron Road emergency connection to provide adequate fire protection for residential fires. Deficiencies would be encountered during a commercial or industrial fire under this scenario.

Refer to Appendix C for the City's water shortage response plan.

10. System Storage

The current system storage capacity consists of a 300,000 gallon elevated storage tank and a 630,000 gallon ground storage tank, totaling 930,000 gals. Refer to the 2012 Study for detailed discussion on system storage. As the 2020 (through 2040) demands are less than the 2012 demands, the conclusions regarding the available storage from the 2012 study remain; the available storage is greater than the required storage and therefore is currently adequate (for all conditions through 2040).

11. Unaccounted For Water

The City is current on their water audit and have determined that their unaccounted for water (UFW) is approximately 11.7% (refer to Appendix B for supporting info).

12. Well and WTP Capacities

The well capacities are listed in Figure 3-1 with a total capacity of 4,700 with a firm capacity of 3,350 gpm. This is sufficient capacity to meet all demand conditions (through 2040). The WTP is rated with a treatment capacity is 2,150 gpm; this is greater than the MDD of the system and is therefore adequate.

13. Backup Power Service

Wells #4, #5, #6, & #8 have permanent generators in each well house, well 4, 5 & 6 have Kohler 125 KW generators; well 8 has John Deere 150 KW. Each generator is powered by diesel driven engines and is set to operate at power failure. Well #7 has the capability of being operated via portable generators located at the DPS Complex. Well #1 is hooked up to the DPW compound generator.

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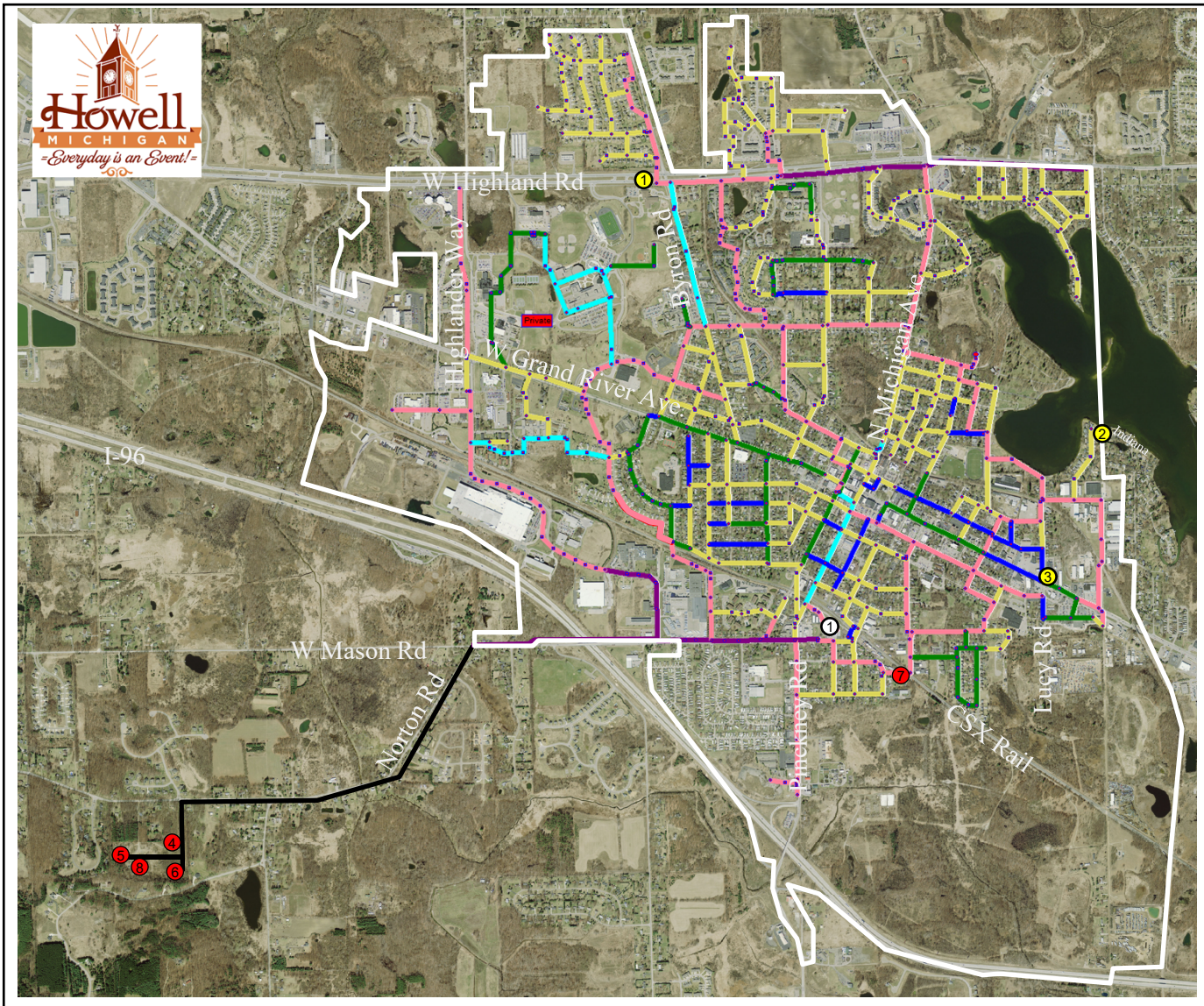

Legend

- 4" Water Main
- 6" Water Main
- 8" Water Main
- 10" Water Main
- 12" Water Main
- 16" Water Main
- 20" Raw Water Main
- Production Well
- Emergency Well
- Emergency MHOG Connection

N

Well Location Address and Capacity

Well #	Address	Capacity (gpm)
1	150 Marion Street	350
4	3145 Norton Road	1,000
5	3255 Norton Road	1,000
6	3147 Norton Road	1,000
7	601 Henry Street	350
8	3175 Norton Road	1,000
Total Well Pumping Capacity		4,700
Firm Well Pumping Capacity		3,350

HRC

City of Howell – 2020 Reliability Study

Well & Emergency MHOG Connection Locations

Job No. 20190699

Date March 2020

Figure No. 3-1

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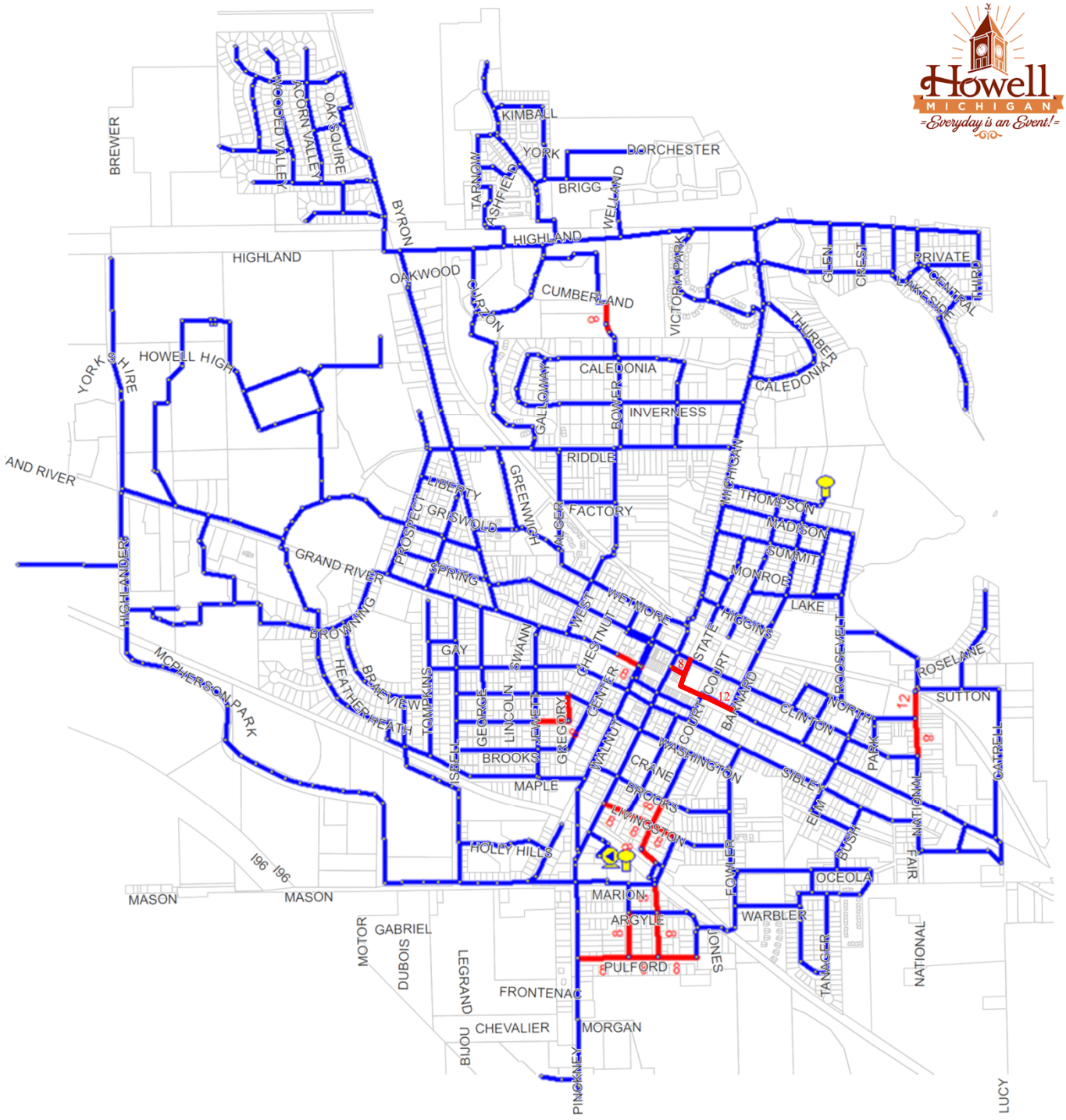

Legend

- Existing Water Main as of 2012
- New Water Main since 2012
- Node
- Booster Station
- North Tower

N

HRC

City of Howell – 2020 Reliability Study

Water System Improvements Since 2012

Job No. 20190699

Date March 2020

Figure No. 3-2

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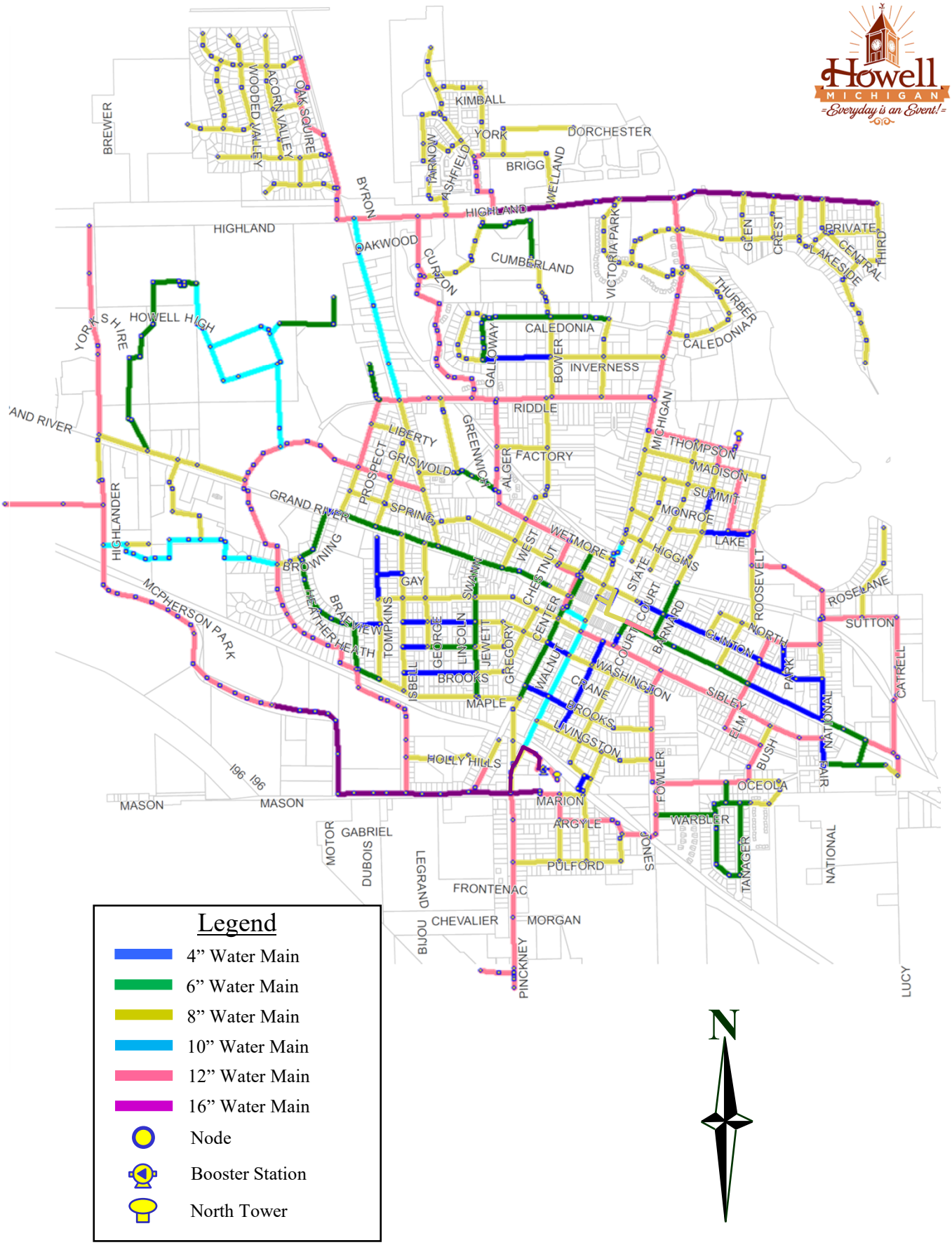

	City of Howell – 2020 Reliability Study	Job No. 20190699
HRC	2020 Existing Water System Pipe Sizes	Date March 2020
		Figure No. 3-3

Y:\20190612019069903_Studies\Working\ReportFigures\working\20200131_PortraitHowell_2020Reliability.pptx

Howell MICHIGAN
Everyday is an Event!

Legend

- 4” Water Main
- 6” Water Main
- 8” Water Main
- 10” Water Main
- 12” Water Main
- 16” Water Main
- WTP — Water Treatment Plant
- North Tower

- Year Built ≤ 1950
- 1950 < Year Built ≤ 1960
- 1960 < Year Built ≤ 1970
- 1970 < Year Built ≤ 1980
- 1980 < Year Built ≤ 1990
- 1990 < Year Built ≤ 2000
- 2000 < Year Built ≤ 2010
- Year Built > 2010

N

HRC

City of Howell – 2020 Reliability Study

Pipe Size and Year Built

Job No. 20190699

Date March 2020

Figure No. 3-4

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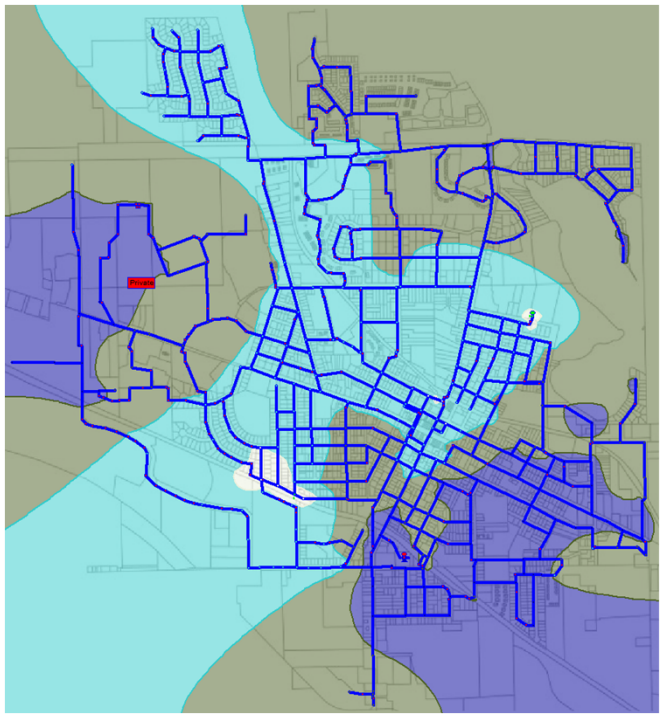
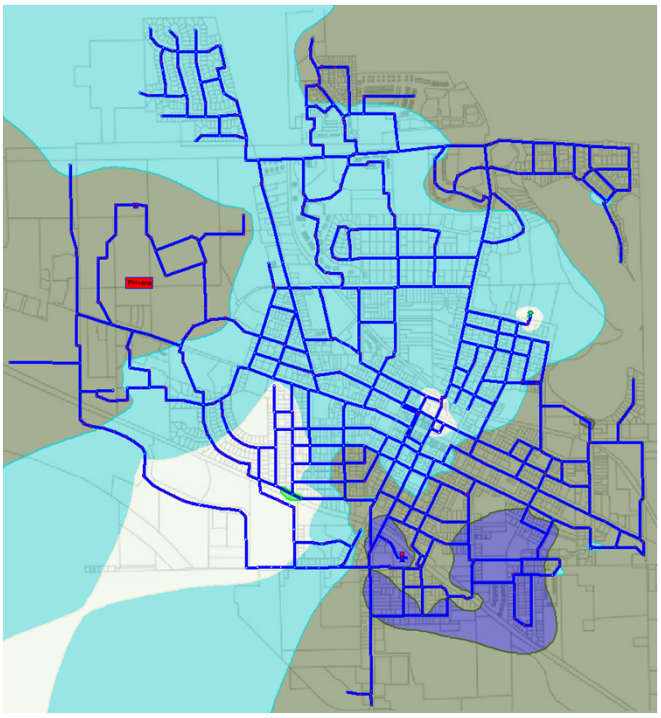
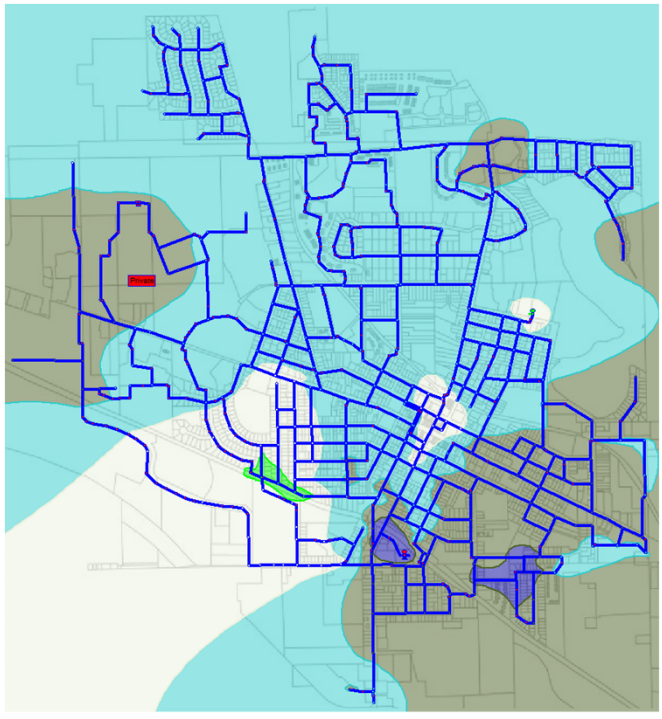
Average Day Demand



Maximum Day Demand



Peak Hour Demand



Legend

- Pressure (psi) < 20
- 20 < Pressure (psi) < 35
- 35 < Pressure (psi) < 40
- 40 < Pressure (psi) < 45
- 45 < Pressure (psi) < 50
- 50 < Pressure (psi) < 55
- 55 < Pressure (psi) < 60
- Pressure (psi) > 60
- Node
- Pipe
- Booster Station
- North Tower

N

HRC	City of Howell – 2020 Reliability Study	Job No. 20190699
	2020 Existing Conditions Pressure Contours	Date March 2020
		Figure No. 3-5

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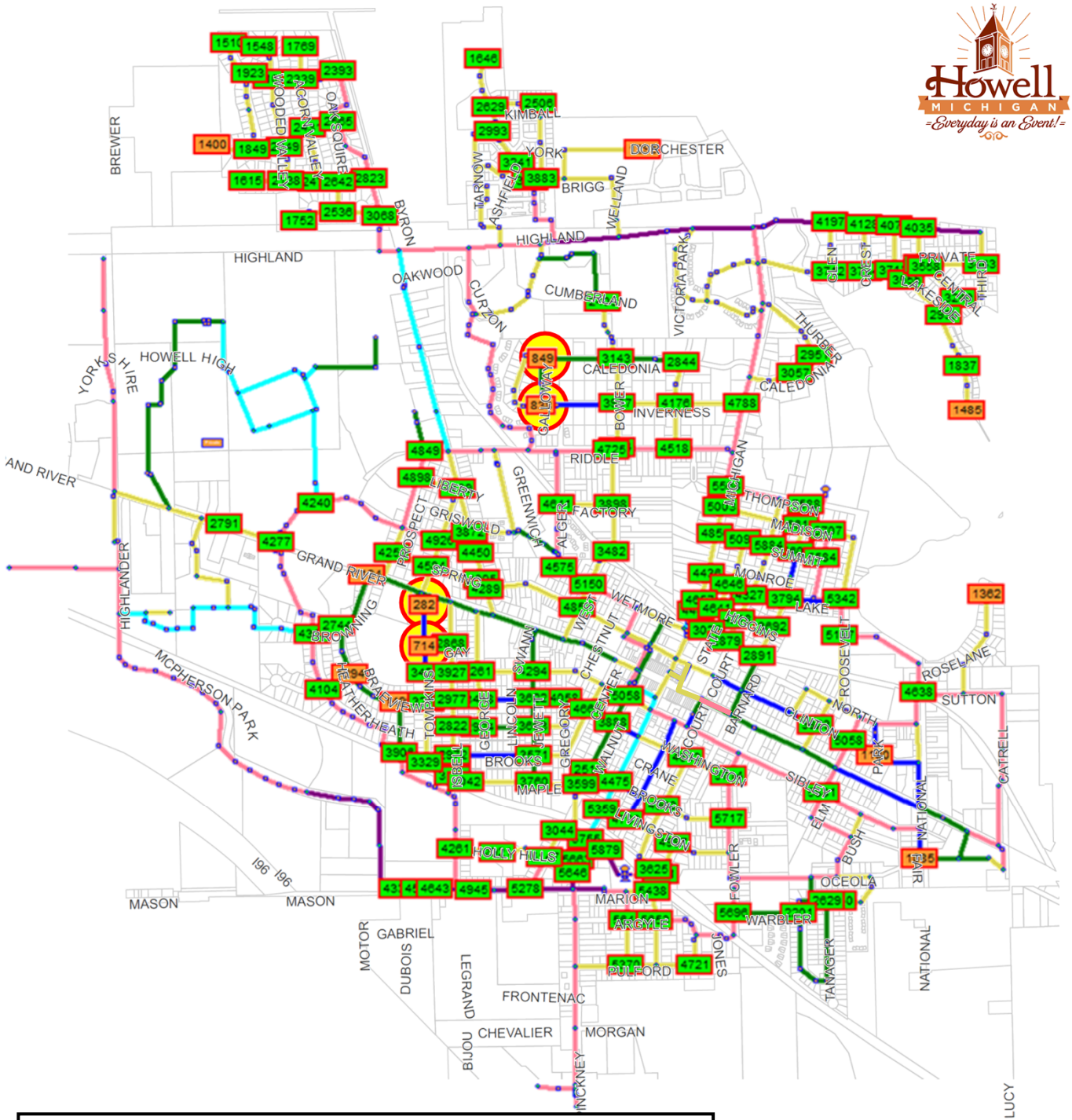

Legend

- 4” Water Main
- 6” Water Main
- 8” Water Main
- 10” Water Main
- 12” Water Main
- 16” Water Main
- Node

- 4579 — NFF > 1500 gpm
- 1480 — NFF < 1500 gpm
  Acceptable due to spacing b/w homes
- 280 — NFF < 1500 gpm
  NOT Acceptable
- Booster Station
- North Tower

N

HRC

City of Howell – 2020 Reliability Study

2020 Existing Conditions
Single-Family Residential Fire Flow Analysis

Job No.	20190699
Date	March 2020
Figure No.	3-6

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Legend

- 4" Water Main
- 6" Water Main
- 8" Water Main
- 10" Water Main
- 12" Water Main
- 16" Water Main
- 4579 — NFF > 2000 gpm
- 1480 — NFF < 2000 gpm
- Node
- Booster Station
- North Tower

N

HRC

City of Howell – 2020 Reliability Study

2020 Existing Conditions
Multi-Family Residential Fire Flow Analysis

Job No. 20190699

Date March 2020

Figure No. 3-7

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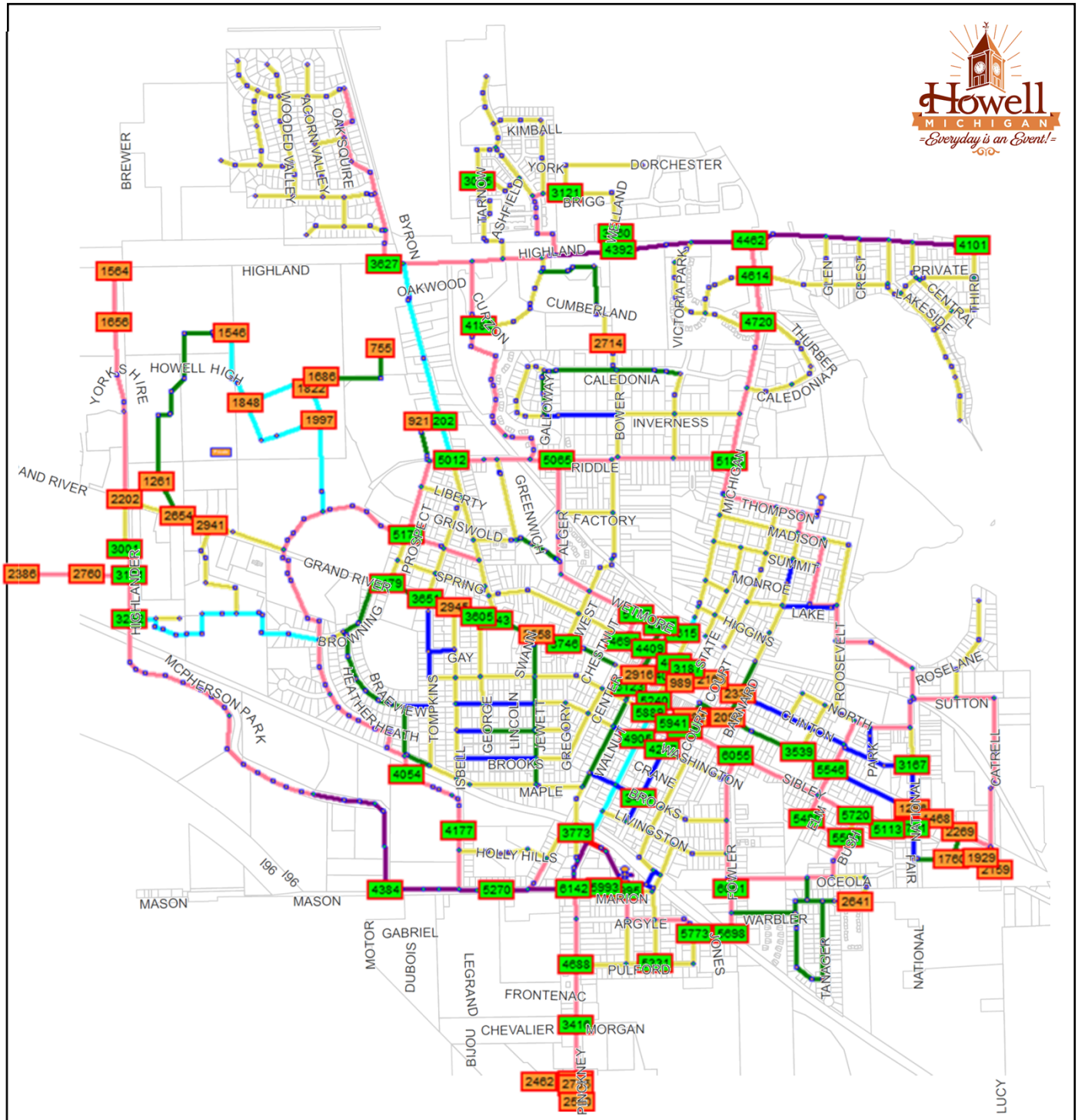

Legend

- 4” Water Main
- 6” Water Main
- 8” Water Main
- 10” Water Main
- 12” Water Main
- 16” Water Main

- 4579 — NFF > 3000 gpm
- 1480 — NFF < 3000 gpm
- Node
- Booster Station
- North Tower

N

HRC

City of Howell – 2020 Reliability Study

2020 Existing Conditions
Commercial Fire Flow Analysis

Job No. 20190699

Date March 2020

Figure No. 3-8

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Legend

- 4” Water Main
- 6” Water Main
- 8” Water Main
- 10” Water Main
- 12” Water Main
- 16” Water Main
- 4579 — NFF > 4000 gpm
- 1480 — NFF < 4000 gpm
- Node
- Booster Station
- North Tower

N

HRC

City of Howell – 2020 Reliability Study

2020 Existing Conditions
Industrial Fire Flow Analysis

Job No. 20190699

Date March 2020

Figure No. 3-9

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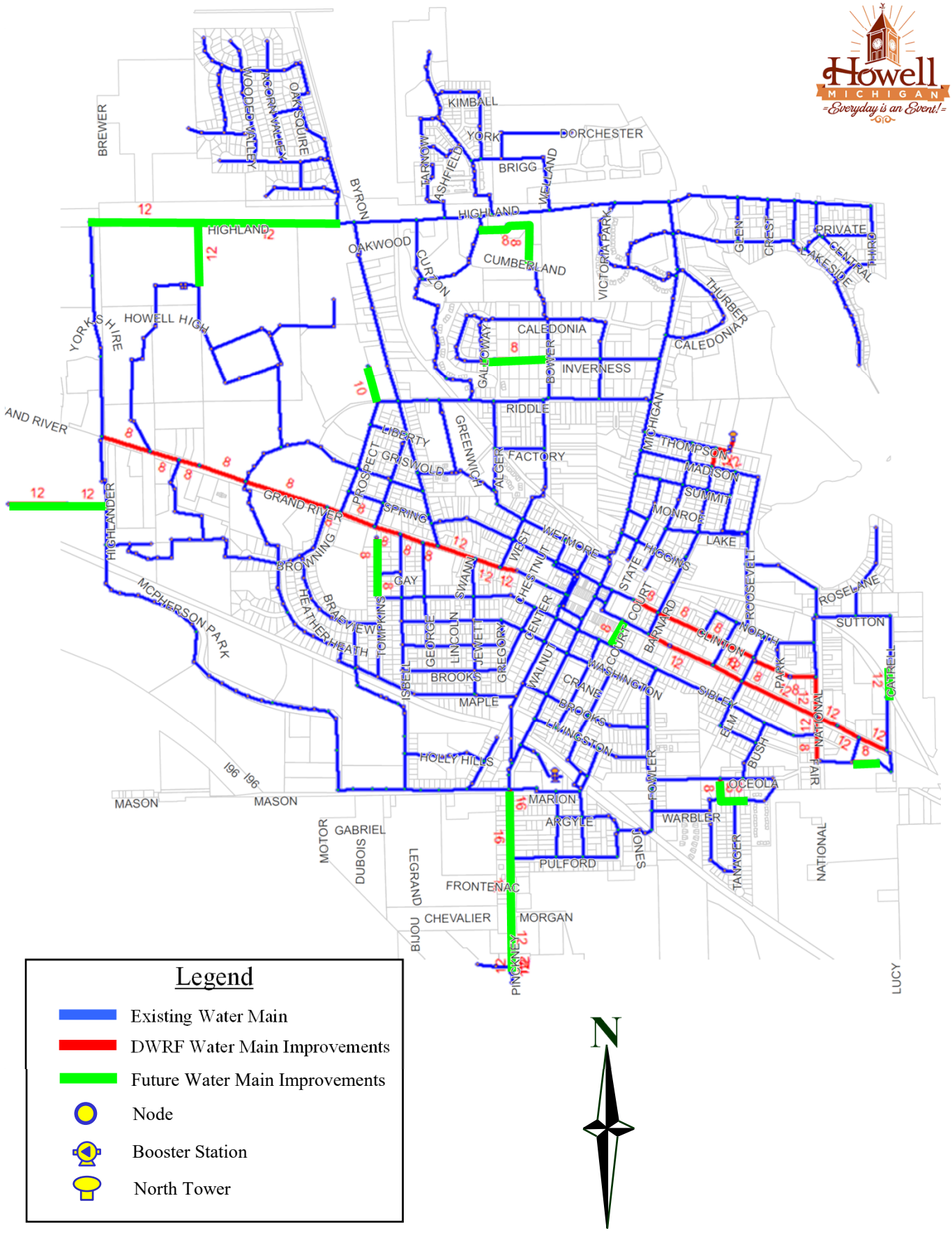

HRC	City of Howell – 2020 Reliability Study	Job No. 20190699
	Recommended Water Main Improvements	Date March 2020
		Figure No. 3-10

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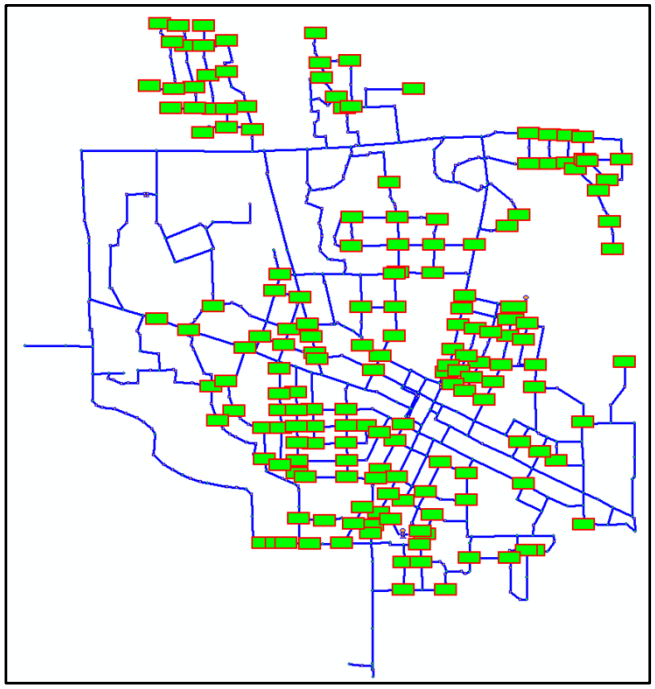
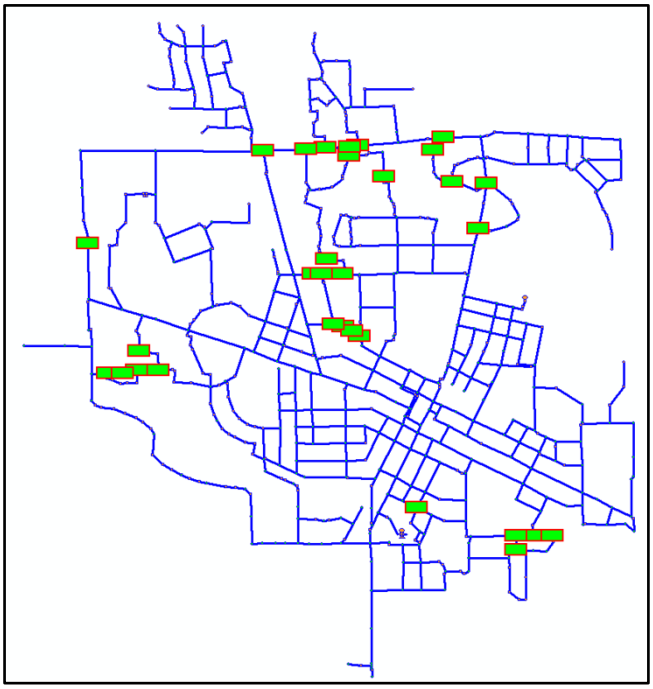
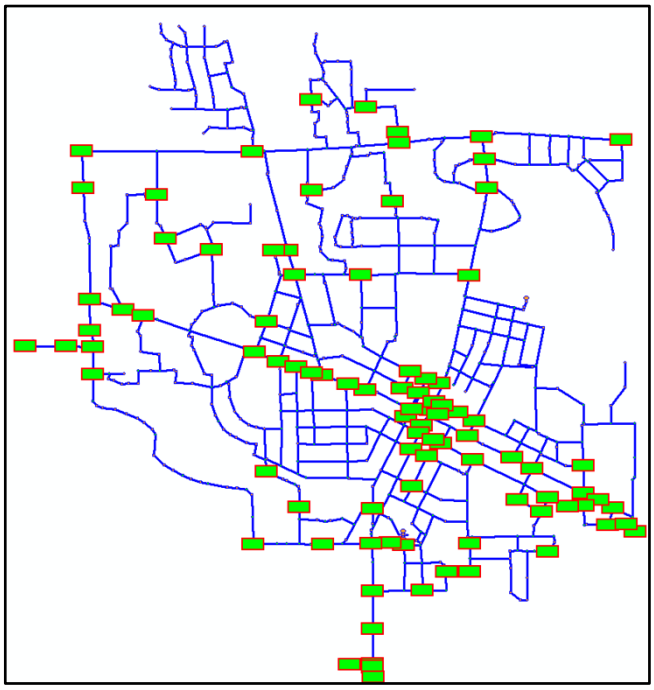
Single-Family Residential NFF > 1500 gpm



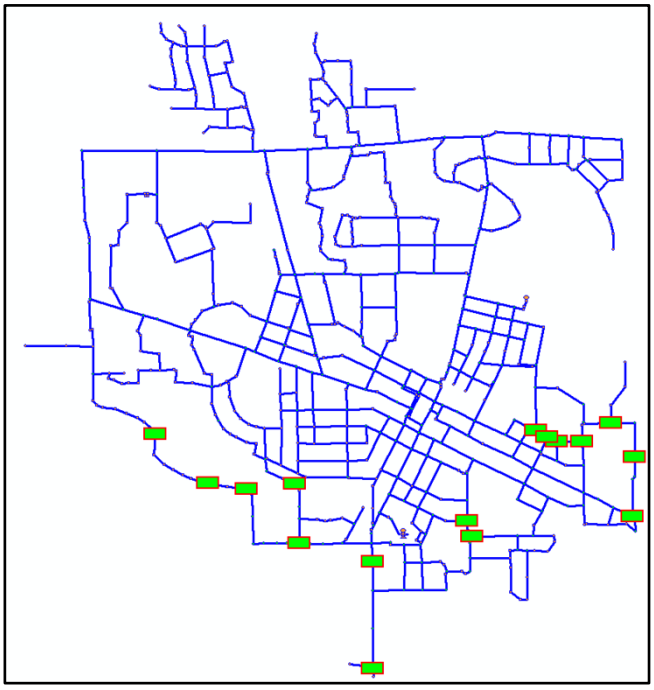
Multi-Family Residential NFF > 2000 gpm



Commercial NFF > 3000 gpm



Industrial NFF > 4000 gpm



Legend

- NFF > Required
- Node
- North Tower
- Pipe
- Booster Station

N

Howell MICHIGAN Everyday is an Event!

HRC

City of Howell – 2020 Reliability Study

2020 Fire Flow with Water Main Improvements

Job No. 20190699

Date March 2020

Figure No. 3-11

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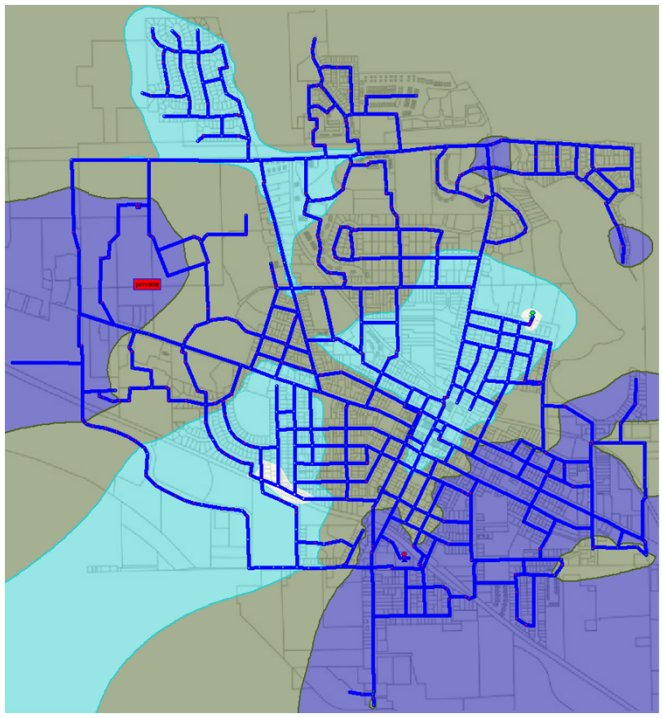
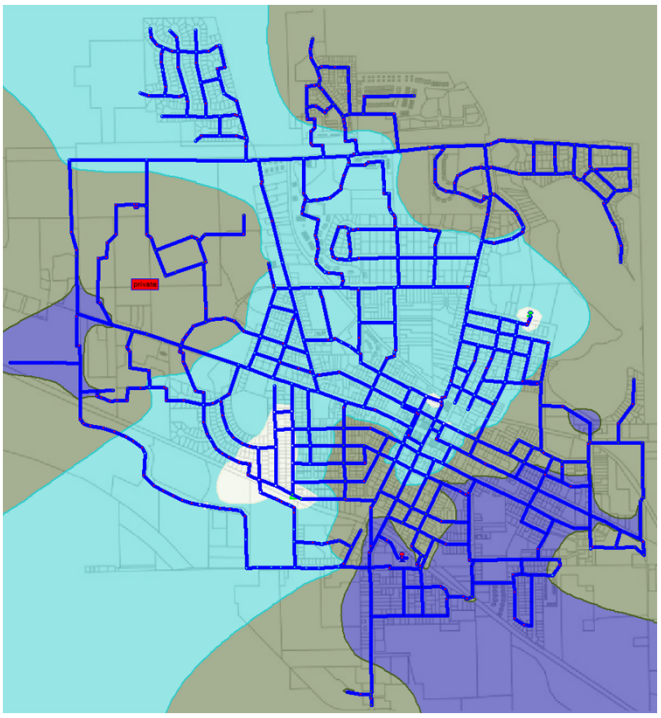
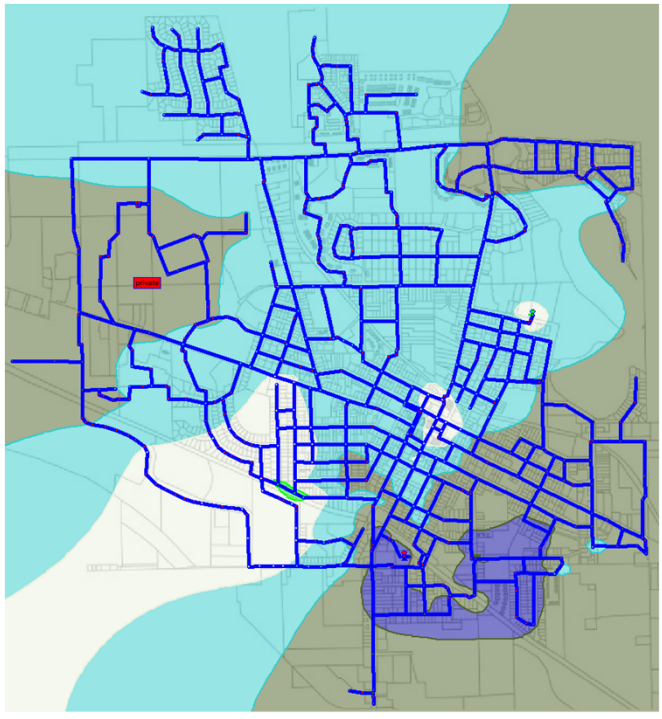
Average Day Demand



Maximum Day Demand



Peak Hour Demand



Legend

- Pressure (psi) < 20
- 20 < Pressure (psi) < 35
- 35 < Pressure (psi) < 40
- 40 < Pressure (psi) < 45
- 45 < Pressure (psi) < 50
- 50 < Pressure (psi) < 55
- 55 < Pressure (psi) < 60
- Pressure (psi) > 60
- Node
- Pipe
- Booster Station
- North Tower

Howell MICHIGAN *Everyday is an Event!*

N

HRC

City of Howell – 2020 Reliability Study

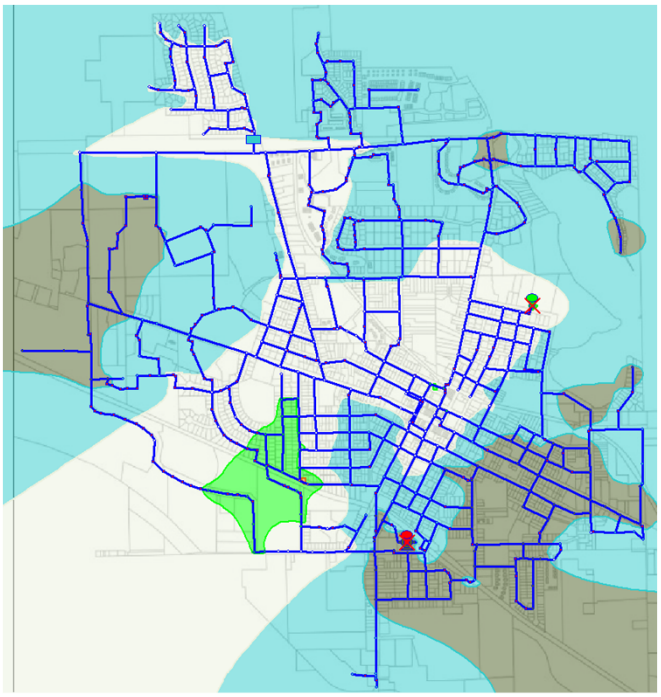
2020 Improved Conditions Pressure Contours

Job No. 20190699

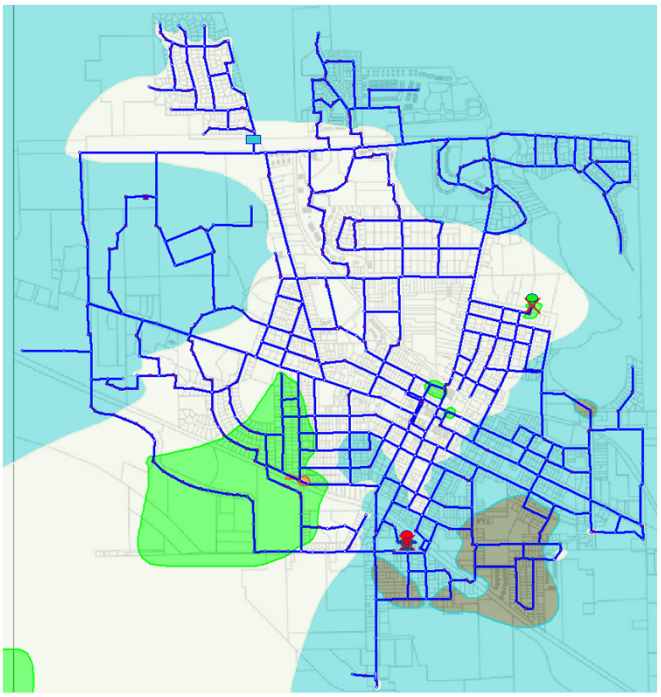
Date March 2020

Figure No. 3-12

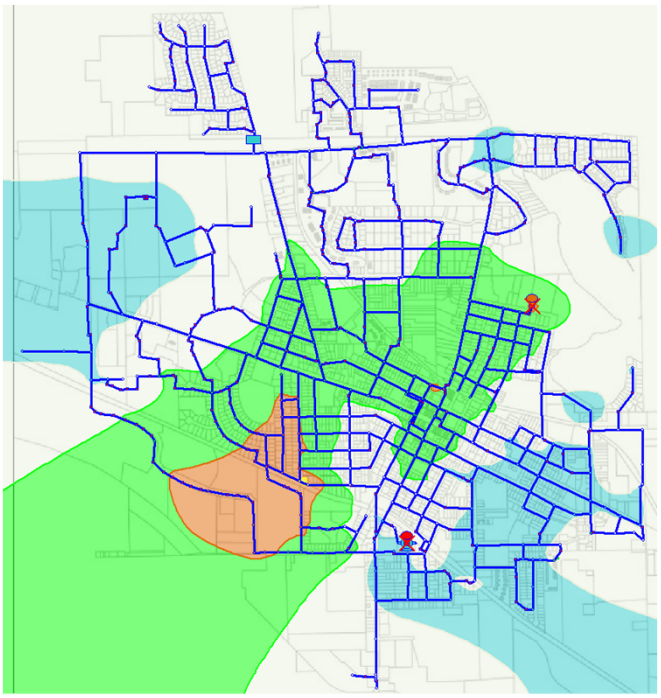
Average Day Demand



Maximum Day Demand



Peak Hour Demand



Legend

- Pressure (psi) < 20
- 20 < Pressure (psi) < 35
- 35 < Pressure (psi) < 40
- 40 < Pressure (psi) < 45
- 45 < Pressure (psi) < 50
- 50 < Pressure (psi) < 55
- 55 < Pressure (psi) < 60
- Pressure (psi) > 60
- Node
- Pipe
- Booster Station
- North Tower
- MHOG Emergency Connection

N

HRC	City of Howell – 2020 Reliability Study	Job No. 20190699
	Existing Conditions MHOG Emergency Connection Pressure Contours	Date March 2020
		Figure No. 3-13

Section 4 - Future Conditions - 2025

A. Introduction

As required by the EGLE's Safe Drinking Water Act, the reliability study is to identify consumption trends for both the 5-year and 20-year planning periods.

B. 2020 Model Development

The following sub-sections discuss changes to the model and corresponding results for the 2025 future conditions.

1. Model Updates

The 2025 model assumes all the recommended improvements as shown in Figure 3-10.

2. 2025 Water Demand

Per Table 2-2, utilizing the 2025 SEMCOG population projection of 10,054, which is an increase of 595 between 2019 and 2025, results in an overall increase from 2020 demand values of 6.3%. Applying this increase to the 2020 water demand results in values listed in Table 4-1.

Table 4-1: 2025 System Demand

Unit	Average Day Demand (gpm)	Max Day Demand (gpm)	Peak Hour (gpm)
GPM	804	1,397	2,341
MGD	1.00	2.01	3.37
Peaking Factor from ADD	1.00	1.74	2.91

3. 2025 System Performance – Pressures

Figure 4-1 shows the resultant pressure contours for ADD, MDD and PHD. The resultant system pressures under all three demand conditions are adequate. The lowest pressure of 41 psi occurred during PHD in higher ground elevation area near the intersection of Isbell and Maple Street.

4. 2025 System Performance – Fire Flows

The fire flow analysis under 2025 demand, assuming all the improvements shown in Figure 3-10, result in adequate fire flows under all demand types (refer to Figure 4-2).

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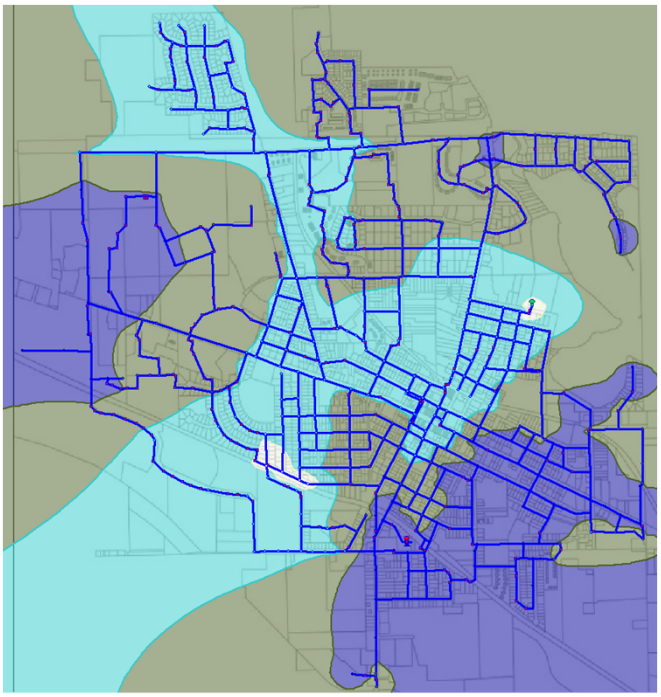
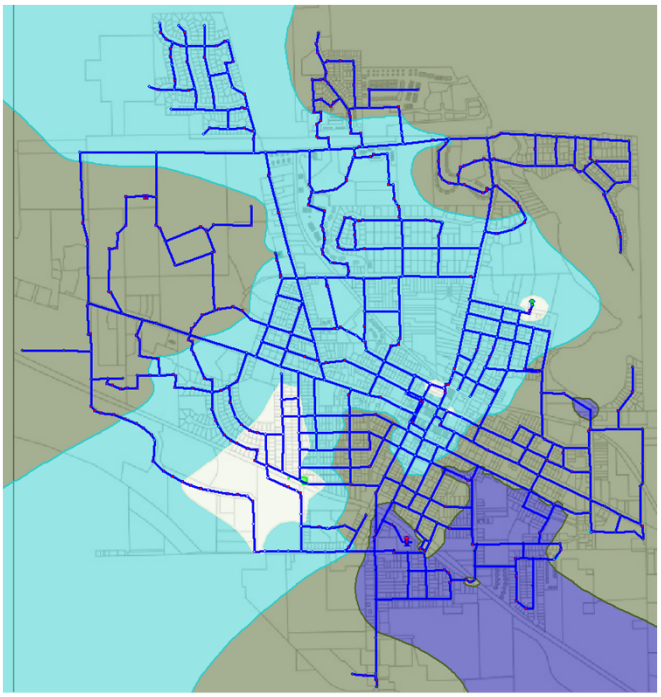
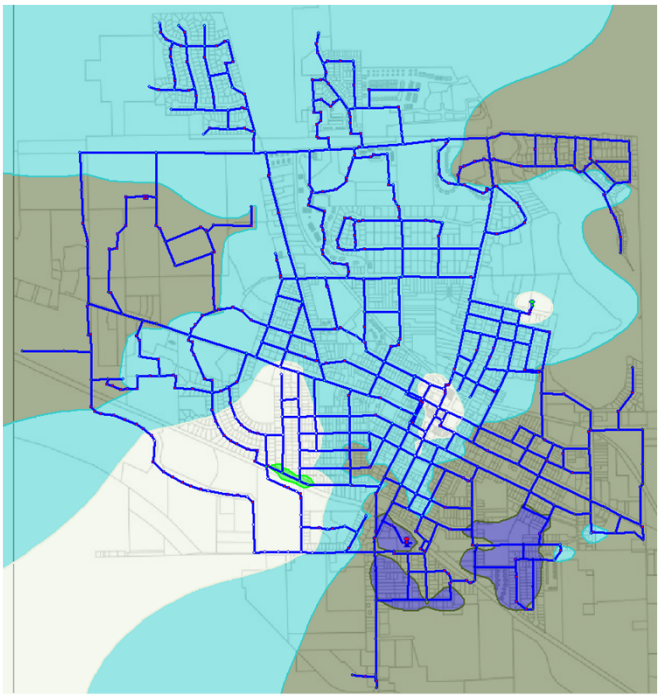
Average Day Demand



Maximum Day Demand



Peak Hour Demand



Legend

- Pressure (psi) < 20
- 20 < Pressure (psi) < 35
- 35 < Pressure (psi) < 40
- 40 < Pressure (psi) < 45
- 45 < Pressure (psi) < 50
- 50 < Pressure (psi) < 55
- 55 < Pressure (psi) < 60
- Pressure (psi) > 60
- Node
- Pipe
- Booster Station
- North Tower

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N

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City of Howell – 2020 Reliability Study

2025 Future Conditions Pressure Contours

Job No.	20190699
Date	March 2020
Figure No.	4-1

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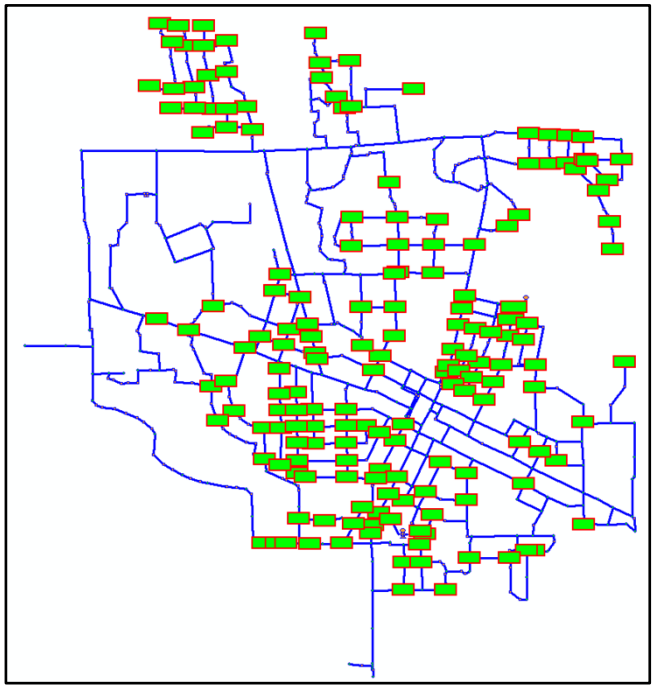
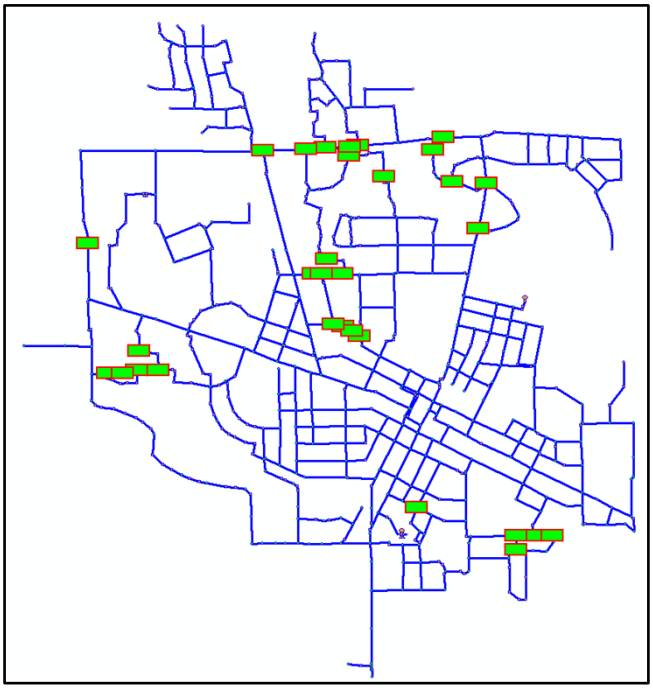
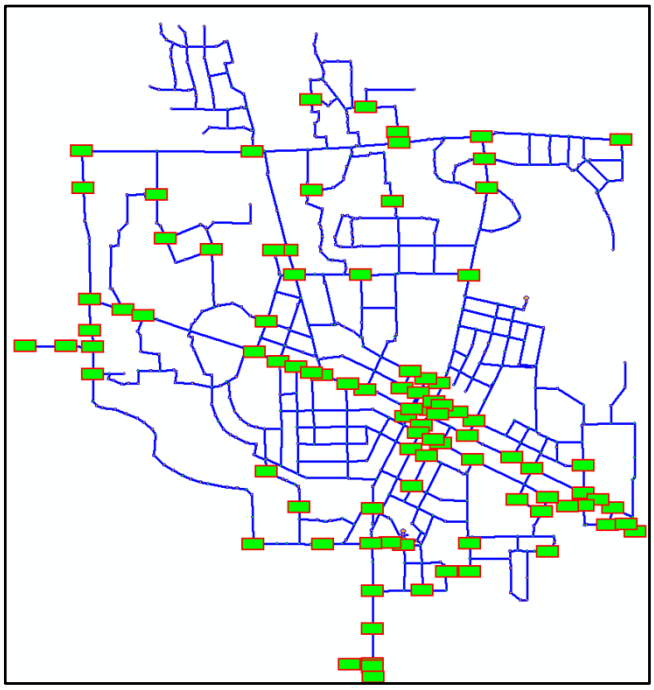
Single-Family Residential NFF > 1500 gpm



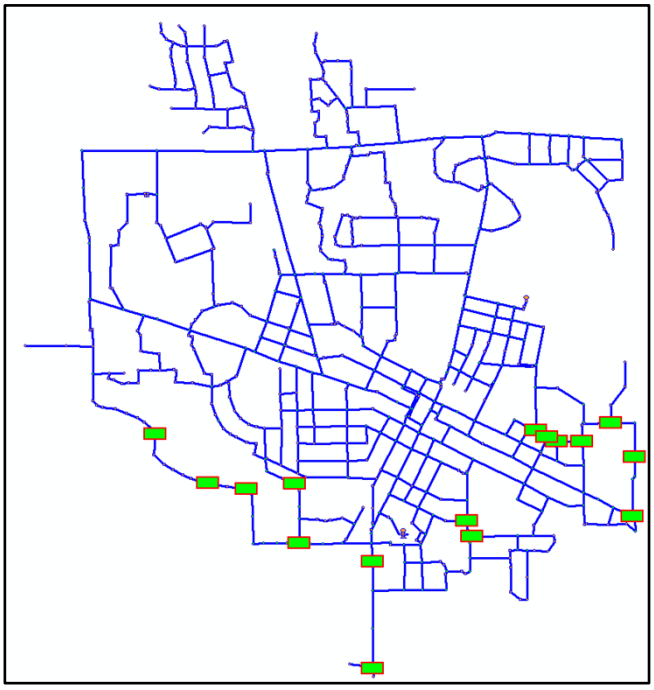
Multi-Family Residential NFF > 2000 gpm



Commercial NFF > 3000 gpm



Industrial NFF > 4000 gpm



Legend

- NFF > Required
- Node
- North Tower
- Pipe
- Booster Station

N

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City of Howell – 2020 Reliability Study

2025 Fire Flow with Water Main Improvements

Job No. 20190699

Date March 2020

Figure No. 4-2

Section 5 - Future Conditions – 2040

A. 2040 Model Development

The following sub-sections discuss changes to the model and corresponding results for the 2040 future conditions.

1. Model Updates

The 2040 model assumes all the recommended improvements as shown in Figure 3-10.

2. 2040 Water Demand

Per Table 2-2, utilizing the 2040 SEMCOG population projection of 10,951, which is an increase of 1,492 between 2019 and 2040, results in an overall increase from 2020 demand values of 15.8%. Applying this increase to the 2020 water demand results in values listed in Table 5-1.

Table 5-1: 2040 System Demand

Unit	Average Day Demand (gpm)	Max Day Demand (gpm)	Peak Hour (gpm)
GPM	875	1,521	2,550
MGD	1.09	2.19	3.68
Peaking Factor from ADD	1.00	1.74	2.91

3. 2040 System Performance – Pressures

Figure 5-1 shows the resultant pressure contours for ADD, MDD and PHD. The resultant system pressures under all three demand conditions are adequate. The lowest pressure of 41 psi occurred during PHD in higher ground elevation area near the intersection of Isbell and Maple Street.

4. 2040 System Performance – Fire Flows

The fire flow analysis under 2040 demand result as follows:

- Single-Family Residential
    - All fire flows under single-family residential demands are adequate (refer to Figure 5-2).

- Multi-Family Residential
    - All fire flows for the multi-family residential demands, except for one (1) location, are adequate. The single location is less than 1% deficient and within the margin of error of this study (refer to Figure 5-3).

- Commercial
    - All fire flows for the commercial demands, except for two (2) locations, are adequate (refer to Figure 5-4). The two (2) locations are at dead-end mains and are less than 4% deficient (within the margin of error of this study). At the time of designing the water main improvements in those areas, it is recommended to confirm the proposed improvements based on updated system demands.

- Industrial – NFF = 4,000 gpm
    - All fire flows for the industrial demands, except for one (1) location, are adequate. The single location is near a dead-end and is approximately 12% deficient (refer to Figure 5-5). At the time of designing the water main improvements in this area, it is recommended to confirm the proposed improvements based on updated system demands.

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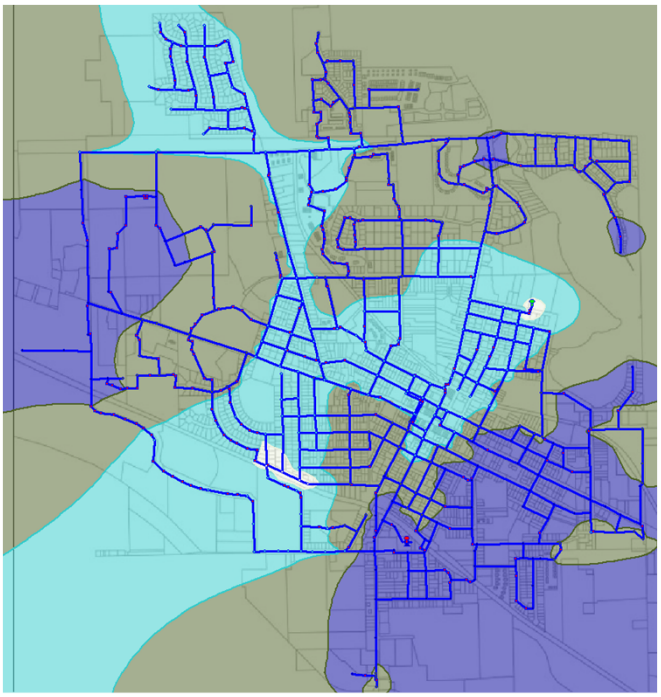
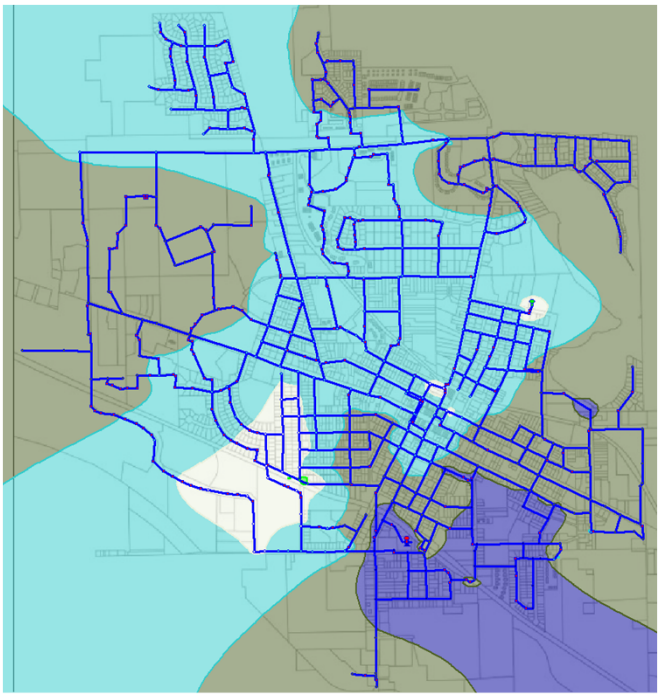
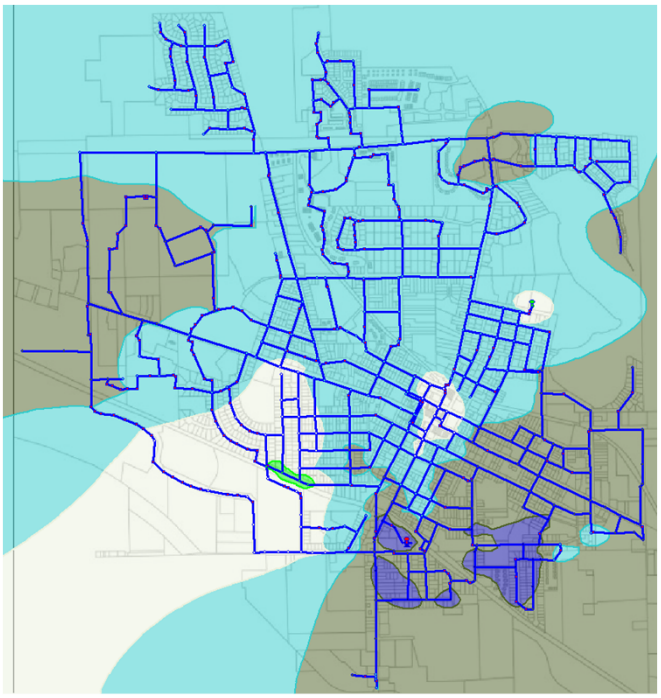
Average Day Demand



Maximum Day Demand



Peak Hour Demand



Legend

- Pressure (psi) < 20
- 20 < Pressure (psi) < 35
- 35 < Pressure (psi) < 40
- 40 < Pressure (psi) < 45
- 45 < Pressure (psi) < 50
- 50 < Pressure (psi) < 55
- 55 < Pressure (psi) < 60
- Pressure (psi) > 60
- Node
- Pipe
- Booster Station
- North Tower

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City of Howell – 2020 Reliability Study

2040 Future Conditions Pressure Contours

Job No. 20190699

Date March 2020

Figure No. 5-1

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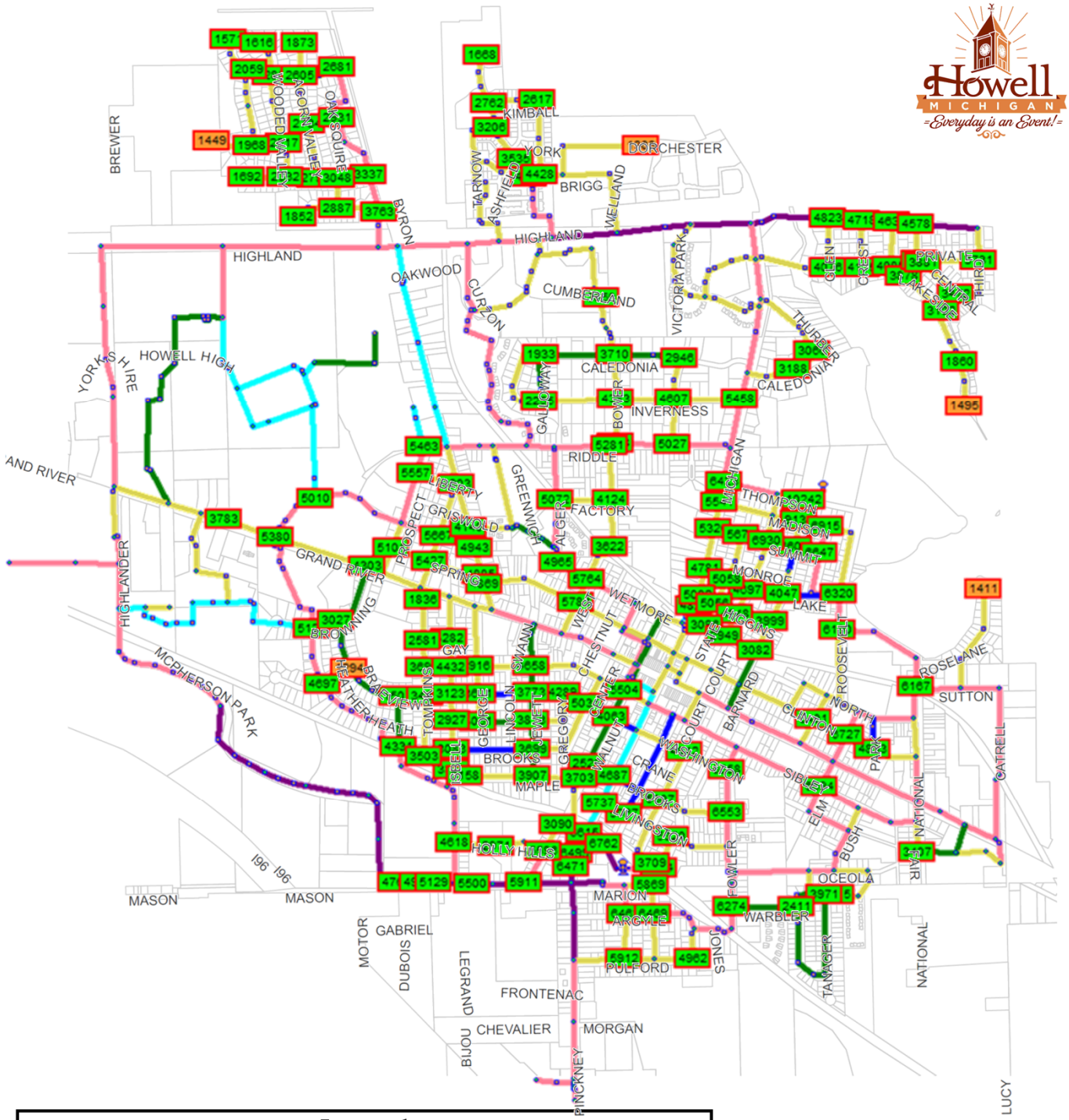

Legend

- 4" Water Main
- 6" Water Main
- 8" Water Main
- 10" Water Main
- 12" Water Main
- 16" Water Main
- Node

- 4579 — NFF > 1500 gpm
- 1480 — NFF < 1500 gpm
  Acceptable due to spacing b/w homes
- 280 — NFF < 1500 gpm
  NOT Acceptable
- Booster Station
- North Tower

N

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City of Howell – 2020 Reliability Study

2040 Future Conditions
Single-Family Residential Fire Flow Analysis

Job No.	20190699
Date	March 2020
Figure No.	5-2

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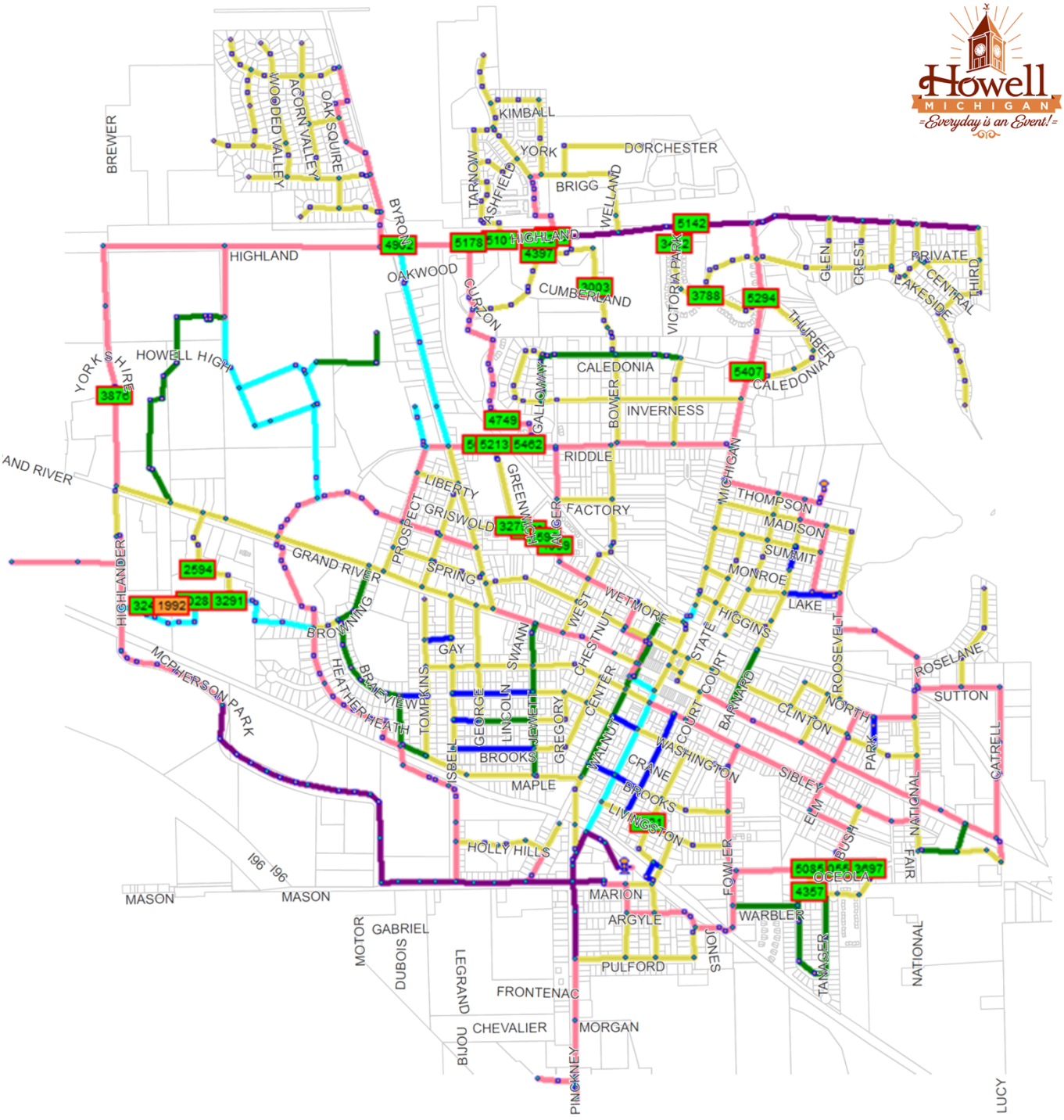

Legend

- 4” Water Main
- 6” Water Main
- 8” Water Main
- 10” Water Main
- 12” Water Main
- 16” Water Main
- 4579 — NFF > 2000 gpm
- 1480 — NFF < 2000 gpm
- Node
- Booster Station
- North Tower

N

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City of Howell – 2020 Reliability Study

2040 Future Conditions
Multi-Family Residential Fire Flow Analysis

Job No. 20190699

Date March 2020

Figure No. 5-3

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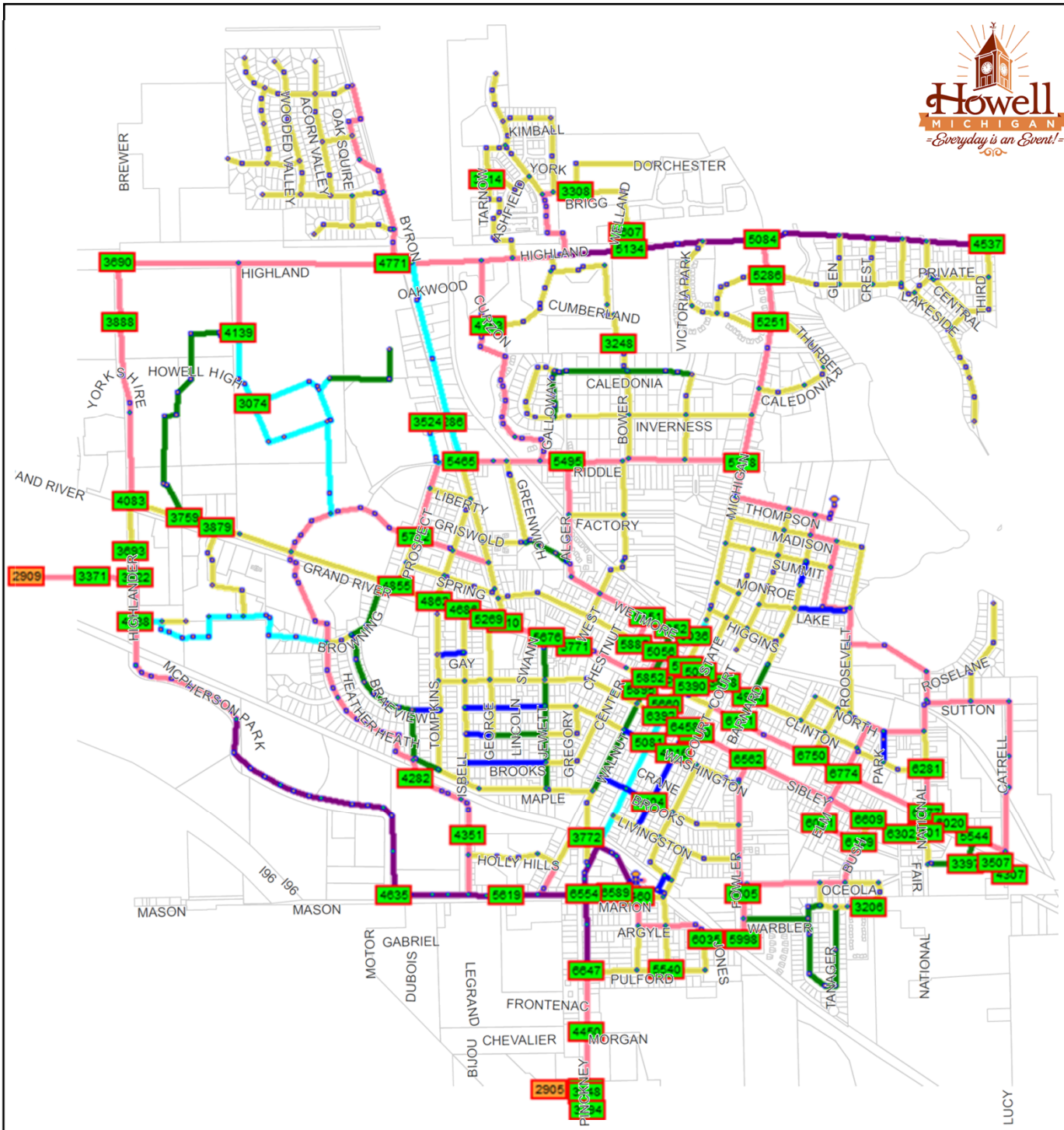

Legend

- 4” Water Main
- 6” Water Main
- 8” Water Main
- 10” Water Main
- 12” Water Main
- 16” Water Main
- 4579 — NFF > 3000 gpm
- 1480 — NFF < 3000 gpm
- Node
- Booster Station
- North Tower

N

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City of Howell – 2020 Reliability Study

2040 Future Conditions
Commercial Fire Flow Analysis

Job No.	20190699
Date	March 2020
Figure No.	5-4

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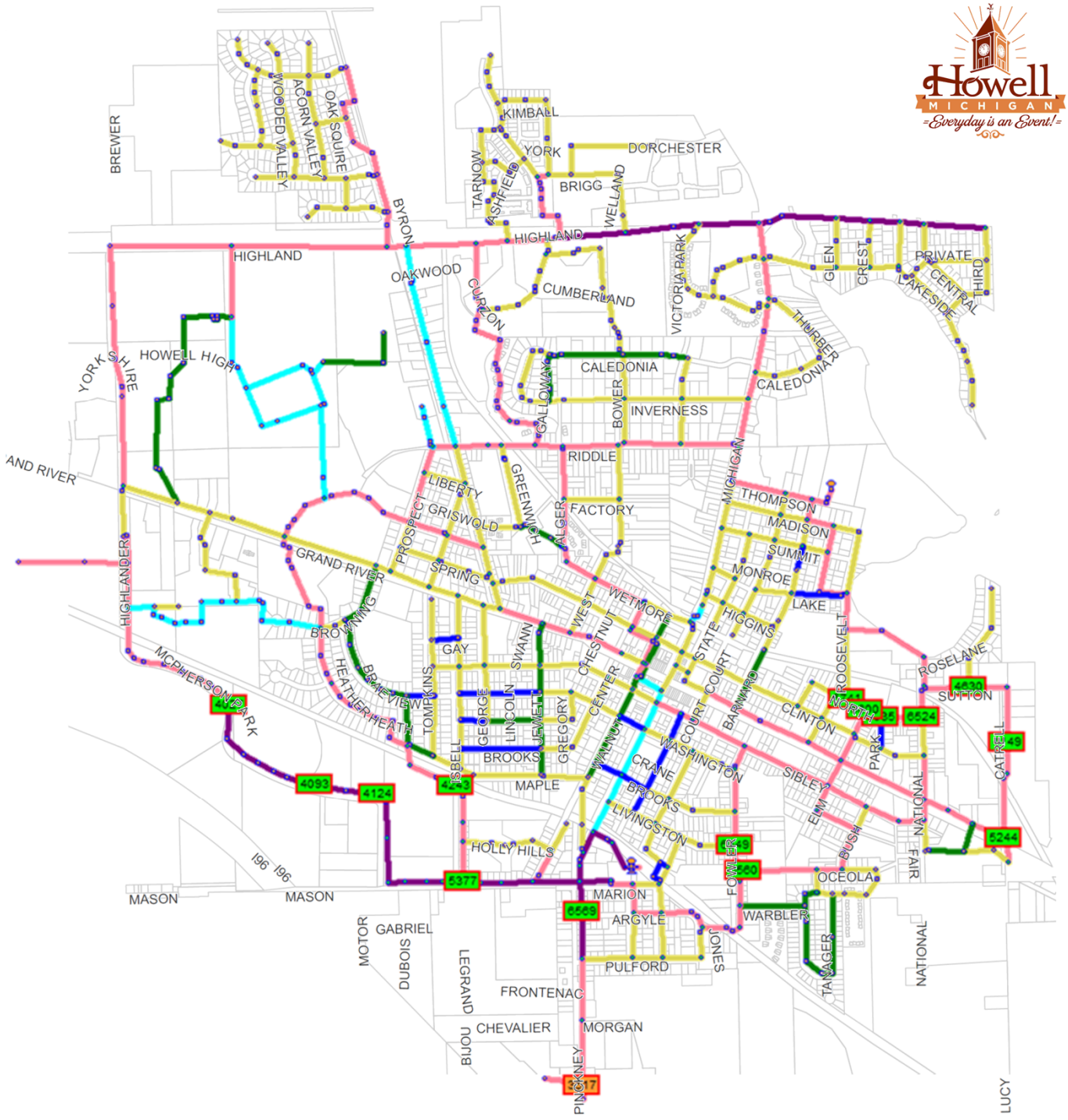

Legend

- 4” Water Main
- 6” Water Main
- 8” Water Main
- 10” Water Main
- 12” Water Main
- 16” Water Main

- 4579 — NFF > 4000 gpm
- 1480 — NFF < 4000 gpm
- Node
- Booster Station
- North Tower

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HRC

City of Howell – 2020 Reliability Study

2040 Future Conditions
Industrial Fire Flow Analysis

Job No. 20190699

Date March 2020

Figure No. 5-5

Section 6 - Conclusions and Recommendations

Under existing demand conditions and the 2025 demand conditions, the City of Howell's water distribution system currently:

- Supplies water at adequate pressures to its users under ADD, MDD and PHD scenarios.
- The existing storage facilities provide adequate volume of storage, meeting *Ten States Standards*.
- Approximately $10,995,000 of water main upgrades are required within the future to provide adequate fire flow projection throughout the entire City, of which, $7,925,000 of water main upgrades are already planned for under the City's DWRF improvement projects.

It is recommended to continue to replace and 4-inch and 6-inch water main with 8-inch water main whenever possible; there is approximately 26,600 linear feet of 4- and 6-inch water main remaining and the replacement with 8-inch is estimated to be approximately $5,400,000.

Under future 2040 demand conditions, assuming all the improvements shown in Figure 6-1, it is projected that the City of Howell's water distribution system will:

- Supply water at adequate pressures to its users under ADD, MDD and PHD scenarios.
- Supply generally adequate fire flows to the majority of the City under all demand types. There are marginal deficiencies noted and the recommended pipe sizing shown in Figure 6-1 in the deficient areas should confirmed at the time of design.

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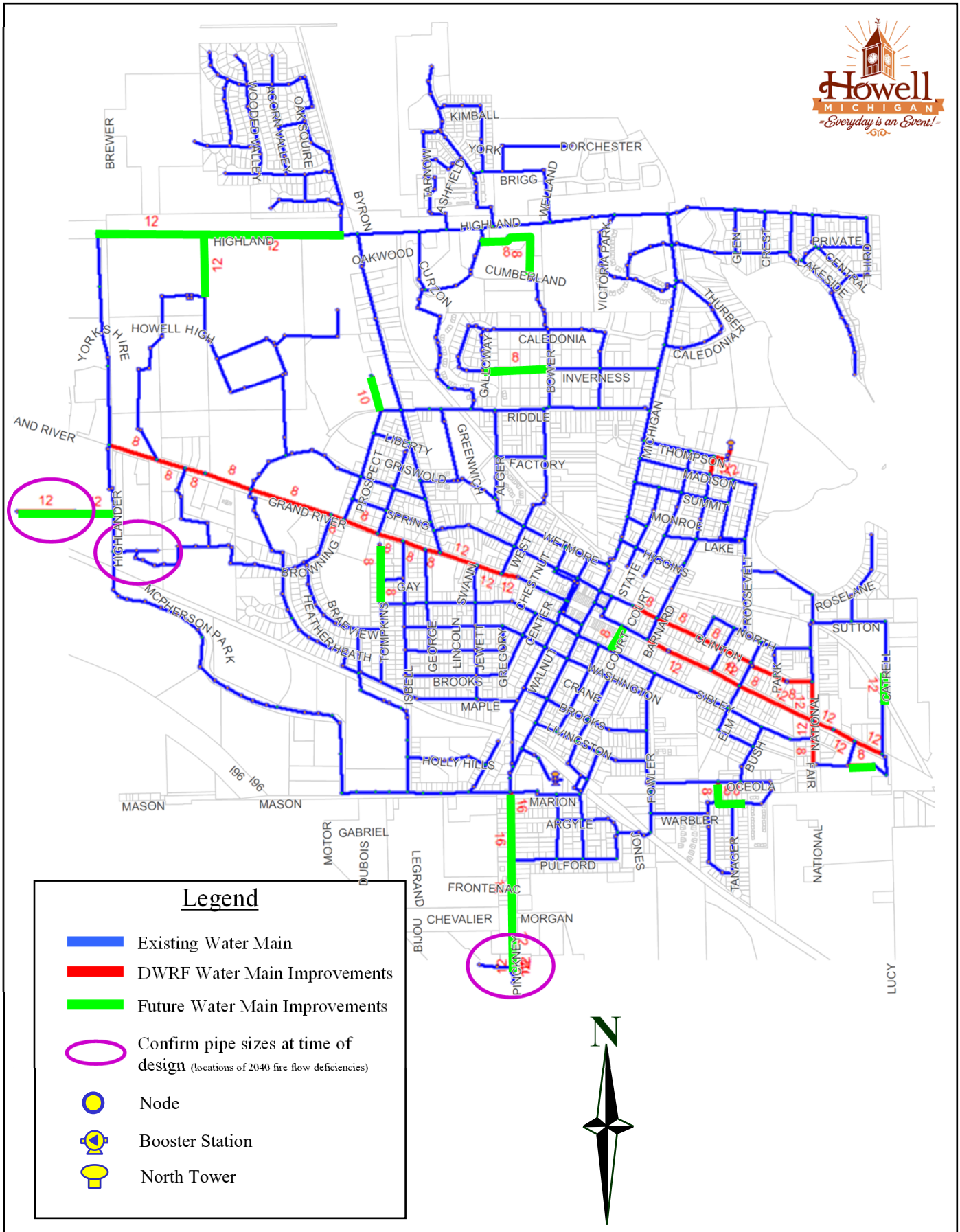

HRC

City of Howell – 2020 Reliability Study

Recommended Water Main Improvements

Job No. 20190699

Date March 2020

Figure No. 6-1

Appendix A
Existing Water Distribution System

Howell
MICHIGAN
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HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

N
W E
S

0 250 500 1,000 Feet

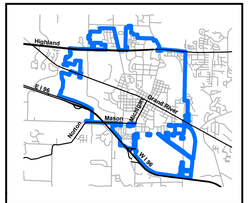
Notes:

Legend

- WTP — Water Treatment Plant
- Elevated Storage Tank
- Hydrants
- Valves

Watermains
Diameter (INCHES)

- 4-6
- 8
- 10
- 12
- 16
- Unknown
- Abandoned
- Private
- Raw Water Intake
- Lime Sludge



City of Howell
2020 Reliability Study
Existing Water Distribution System

HRC JOB NO.	SCALE
20190699	1 inch = 600 feet
DATE	
February, 2020	Apendix A

Y:\2009\05\2009051\3\Design\Project\Data\GIS\GISFiles\7_20102010_plot.mxd

Appendix B
Supporting Information

SEMCOG | Southeast Michigan Council of Governments

Community Profiles

YOU ARE VIEWING DATA FOR:

City of Howell

611 E Grand River Ave Ste 201
Howell, MI 48843-2388
http://www.cityofhowell.org/

SEMCOG MEMBER

Census 2010 Population: 9,489
Area: 4.3 square miles

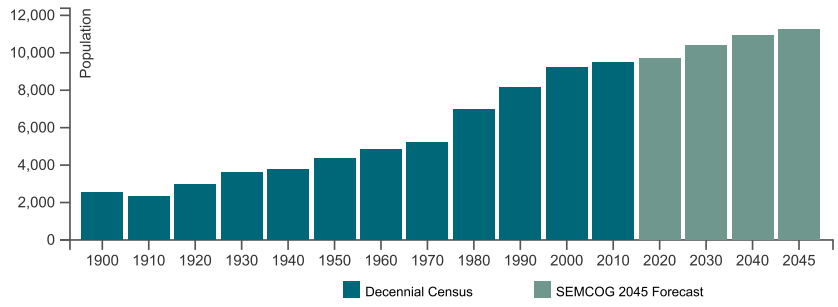
VIEW COMMUNITY EXPLORER MAP

Population and Households

Link to American Community Survey (ACS) Profiles: **Select a Year** 2014-2018 ▼ **Social** | **Demographic**

Population and Household Estimates for Southeast Michigan, 2019

Population Forecast



Note for City of Howell : Incorporated in 1910 from Village of Howell. Population numbers prior to 1910 are of the village.

Population and Households

Population and Households	Census 2010	Change 2000-2010	Pct Change 2000-2010	SEMCOG Jul 2019	SEMCOG 2045
Total Population	9,489	257	2.8%	9,459	11,256
Group Quarters Population	426	33	8.4%	430	689
Household Population	9,063	224	2.5%	9,029	10,567
Housing Units	4,551	463	11.3%	4,332	-
Households (Occupied Units)	4,028	171	4.4%	4,072	4,620
Residential Vacancy Rate	11.5%	5.8%	-	6.0%	-
Average Household Size	2.25	-0.04	-	2.22	2.29

Source: **U.S. Census Bureau**, **SEMCOG Population and Household Estimates**, and **SEMCOG 2045 Regional Development Forecast**

Components of Population Change

Components of Population Change	2000-2005 Avg.	2006-2010 Avg.	2011-2015 Avg.
Natural Increase (Births - Deaths)	190	156	82
Births	321	301	208
Deaths	131	145	126
Net Migration (Movement In - Movement Out)	-110	-184	-92
Population Change (Natural Increase + Net Migration)	80	-28	-10

Source: **Michigan Department of Community Health Vital Statistics**, **U.S. Census Bureau**, and SEMCOG

ISO Information March 2018

Consumption:

Average daily consumption by service zone: The City has one zone.

AVERAGE	MONTHLY AVERAGE DAILY FLOWS (in M.G.D.) TREATED WATER (PLANT TAP)			
	Month	2015	2016	2017
		Flow	Flow	Flow
	January	0.943	0.926	0.942
	February	0.944	0.939	0.935
	March	1.004	0.898	0.938
	April	0.945	0.925	0.942
	May	1.130	1.129	1.108
	June	1.174	1.480	1.323
	July	1.243	1.502	1.250
	August	1.339	1.317	1.272
	September	1.216	1.142	1.214
	October	0.978	0.969	1.026
	November	0.937	0.927	0.913
	December	0.911	0.930	0.884
	Yearly Avg	**1.064**	**1.090**	**1.062**

Highlighted Yellow = Highest average for the year.

Highest Consumption for 24 hr. period by service zone: The City has one zone.

MAXIMUM	MONTHLY MAXIMUM FLOWS (in Million Gallons) Peak Day Demand TREATED WATER (PLANT TAP)						
	Month	2015		2016		2017	
		Flow	Date	Flow	Date	Flow	Date
	January	1.101	1/7/15	1.096	1/13/16	1.079	1/14/17
	February	1.146	2/25/15	1.048	2/16/16	1.032	2/3/17
	March	1.135	3/11/15	0.973	3/9/16	1.016	3/15/17
	April	1.167	4/23/15	1.078	4/5/16	1.165	4/24/17
	May	1.375	5/18/15	1.371	5/25/16	1.456	5/17/17
	June	1.385	6/4/15	1.885	6/30/16	1.650	6/13/17
	July	1.874	7/30/15	1.893	7/13/16	1.487	7/31/17
	August	1.601	8/19/15	1.636	8/10/16	1.457	8/9/17
	September	1.397	9/2/15	1.280	9/6/16	1.330	9/25/17
	October	1.160	10/1/15	1.067	10/5/16	1.255	10/2/17
	November	1.109	11/13/15	1.049	11/4/16	1.072	11/2/17
	December	1.009	12/4/15	1.018	12/19/16	0.985	12/20/17

Highlighted Yellow = Highest maximum day for the year.

Supply Source:

We have 6 production wells:

Well Name	Location	Type	Capacity
Well # 1	DPS Complex	Emergency Water Supply	400 gpm
Well # 4	Norton Road Site	Primary Water Supply	1,000 gpm
Well # 5	Norton Road Site	Primary Water Supply	1,000 gpm
Well # 6	Norton Road Site	Primary Water Supply	1,000 gpm
Well # 7	SE of WTP End of Henry Street	Emergency Water Supply Due to pressure issues, water quality in Safe Drinking Water Act. With the MI-DEQ this well meets the requirements as a Primary Water Supply.	400 gpm
Well # 8	Norton Road Site	Primary Water Supply	1,000 gpm

Processing:

We are a groundwater system supplied by 6 wells. A 20" transmission line transports the water to the treatment plant. The plant is a complete treatment system that utilized a Claricone to treat the water. Lime is used to soften the water, dual media filters with sand and anthracite for filtration, and chlorine to disinfect. We can treat 3.1 MGD. The filters consist of a four-cell dual media gravity filter with combination air/water backwash. Each of the cells is 12' x 14' and under normal flow conditions 2.7 gpm/sq. ft. passes through the filter.

Pumps:

Well Pumps = All wells (except for well #1) can be started from the water plant via a cellular SCADA system. The larger wells pump 1,000 gpm (#4, #5, #6 & #8) are all turbine 100 HP motors and the smaller wells pump 400 gpm #1 (turbine 40 HP) & #7 (submersible 30 HP). NOTED: The water quality and pressure supplied by the Norton Rd. wells meets Safe Drinking Water Act regulations, therefore the Water Treatment Plant can by bypassed and the City water distribution system will still be supplied with potable water at sufficient pressures.

High Service Pumps = We have 4 horizontal split case centrifugal pumps –each capable in pumping 1,100 gpm. During summer flows we could have 2 pumps on at one time. They are controlled by a SCADA system which cycles through them based on north tower level. With the 2009 system upgrades - converted two of them with VFD's (High Service Pumps #1 & 4). This allow us better distribution system pressure control, especially when the North Tower is out of service. The system switches from level mode to pressure mode automatically.

Storage:

Total Storage for the City of Howell: 955,700 gallons.

Ground Storage Reservoir = 70 feet diameter, 22 feet tall with a capacity of 630,000 gallons. Installed 1990-91, the tank is an Aquastore – Glass lined (glass fused to steel); 630,000 gallon capacity. Completely cleaned, inspected and re-grouted the seams (inside & outside) in 2010. Dimensions: 70 ft. diameter, 22 ft. deep.

North Elevated Tank = is a Double Ellipse manufactured by Graver supported by six tubular columns and central riser of welded construction was installed 1959, has 300,000 gallon capacity. Completely cleaned, inspected and repainted in 2009. Dimensions: 105 ft. tall, Roof hatch: 18 inches. Side hatch: 18 inches.
Elevations: Overflow = 1047.0; base = 942.0

Clearwell (Inside water plant) = 25,700 gallon tank interconnected via gravity to the ground storage reservoir.

Emergency Supply:

We have 3 interconnections to the MHOG Water Authority water system. These are manual valves and could be brought on-line within 15 minutes. The main one we use is the Byron Rd. & M-59 location.
Locations:

Byron Rd. & M-59 (Highland Rd.) – 12 inch
Lucy Rd. & Industrial Drive – 12 inch
Roselane Dr. & Indiana St. – 8 inch

Fire Hydrant Flow Testing Form

HRC

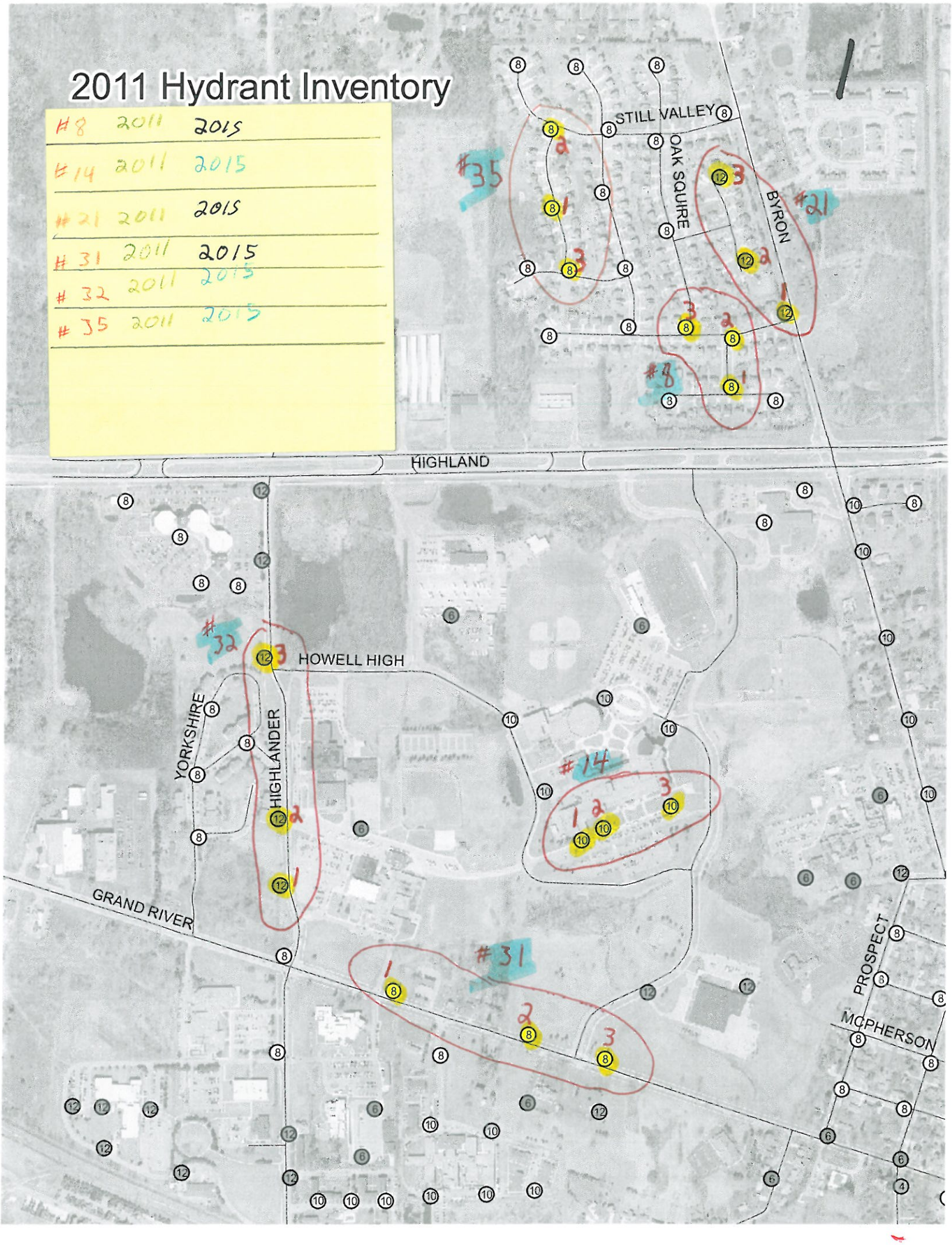
Date: June 2015 Weather: Crew: Page of

	Time	Residual Hydrant		Flowed Hydrant(s)						Notes
				1			2			
		Static Pressure (psi)	Residual Pressure (psi)	Opening Diam (in)	Opening Type (A, B or C)	Flow Rate (gpm) or Pressure (psi)	Opening Diam (in)	Opening Type (A, B or C)	Flow Rate (gpm) or Pressure (psi)	
#14	8:30	54	48/46	2.5	C	35/28	2.5	C	28	High School
#32	10:45	60	54/44	2.5	C	35/30	2.5	C	25	Highlander Way
#35	11:08	48	40/28	2.5	C	22/16	2.5	C	18	Rolling Oaks
#21	15:10	44	38/24	2.5	C	25/15	2.5	C	10	Rolling Oaks
#8	14:55	46	40/38	2.5	C	40/23	2.5	C	25	Rolling Oaks
#31	14:18	58	58/52	2.5	C	40/40	2.5	C	40	Freshman Campus
						Sheet #1				

Opening Types: A = Rounded, B = Square and Sharp, C = Projecting

2011 Hydrant Inventory

#8	2011	2015
#14	2011	2015
#21	2011	2015
#31	2011	2015
#32	2011	2015
#35	2011	2015



Fire Hy ant Flow Testing Form

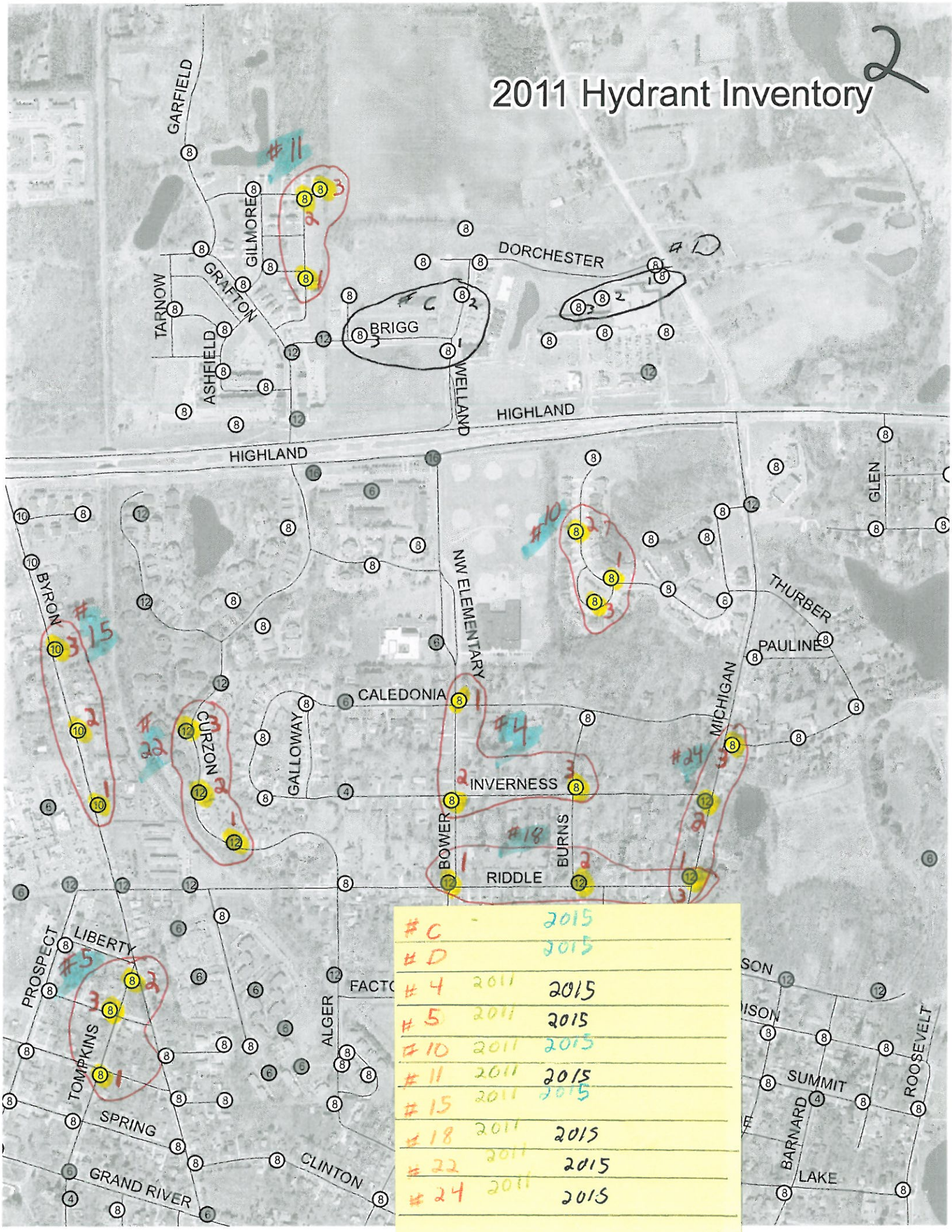
HRC

Date: June 2015 Weather: Crew: Page of

	Time	Residual Hydrant		Flowed Hydrant(s)						Notes
				1			2			
		Static Pressure (psi)	Residual Pressure (psi)	Opening Diam (in)	Opening Type (A, B or C)	Flow Rate (gpm) or Pressure (psi)	Opening Diam (in)	Opening Type (A, B or C)	Flow Rate (gpm) or Pressure (psi)	
#15	✓ 8:02	54	52/48	2.5	C	40/34	2.5	C	30	Byron Rd.
#C	✓ 9:10	54	52/48	2.5	C	45/38	2.5	C	48	Gallery Park
#D	✓ 9:20	56	54/48	2.5	C	45/38	2.5	C	35	Froger
#10	✓ 10:30	58	54/48	2.5	C	40/30	2.5	C	30	Victoria Park
#4	15:14	54	52/46	2.5	C	30/33	2.5	C	35	Morgage Heights
#5	14:35	52	50/44	2.5	C	25/25	2.5	C	37	Pie Area
#18	8:20	48	46/42	2.5	C	33/35	2.5	C	25	Riddle + Bower
#22	14:43	54	50/48	2.5	C	37/35	2.5	C	23	Curzon
#24	9:30	48	46/42	2.5	C	35/30	2.5	C	30	Mich + Caledonia
#11	15:03	54	46/40	2.5	C	37/37	2.5	C	36	Town Commons

Opening Types: A = Rounded, B = Square and Sharp, C = Projecting

Sheet #2


2011 Hydrant Inventory
2
GARFIELD
GILMORE
GRAFTON
TARNOW
ASHFIELD
BRIGG
DORCHESTER
WELLAND
HIGHLAND
HIGHLAND
GLEN
BYRON
NW ELEMENTARY
THURBER
PAULINE
MICHIGAN
CALEDONIA
GALLOWAY
CURZON
INVERNESS
BOWER
BURNS
RIDDLE
PROSPECT
LIBERTY
TOMPKINS
ALGER
SPRING
GRAND RIVER
CLINTON
SUMMIT
BARNARD
LAKE
ROOSEVELT
#11
#C
#D
#10
#15
#4
#22
#24
#18
#5
#C 2015
#D 2015
#4 2011 2015
#5 2011 2015
#10 2011 2015
#11 2011 2015
#15 2011 2015
#18 2011 2015
#22 2011 2015
#24 2011 2015

Fire Hy ant Flow Testing Form

HRC

Date: June 2015 Weather: Crew: Page of

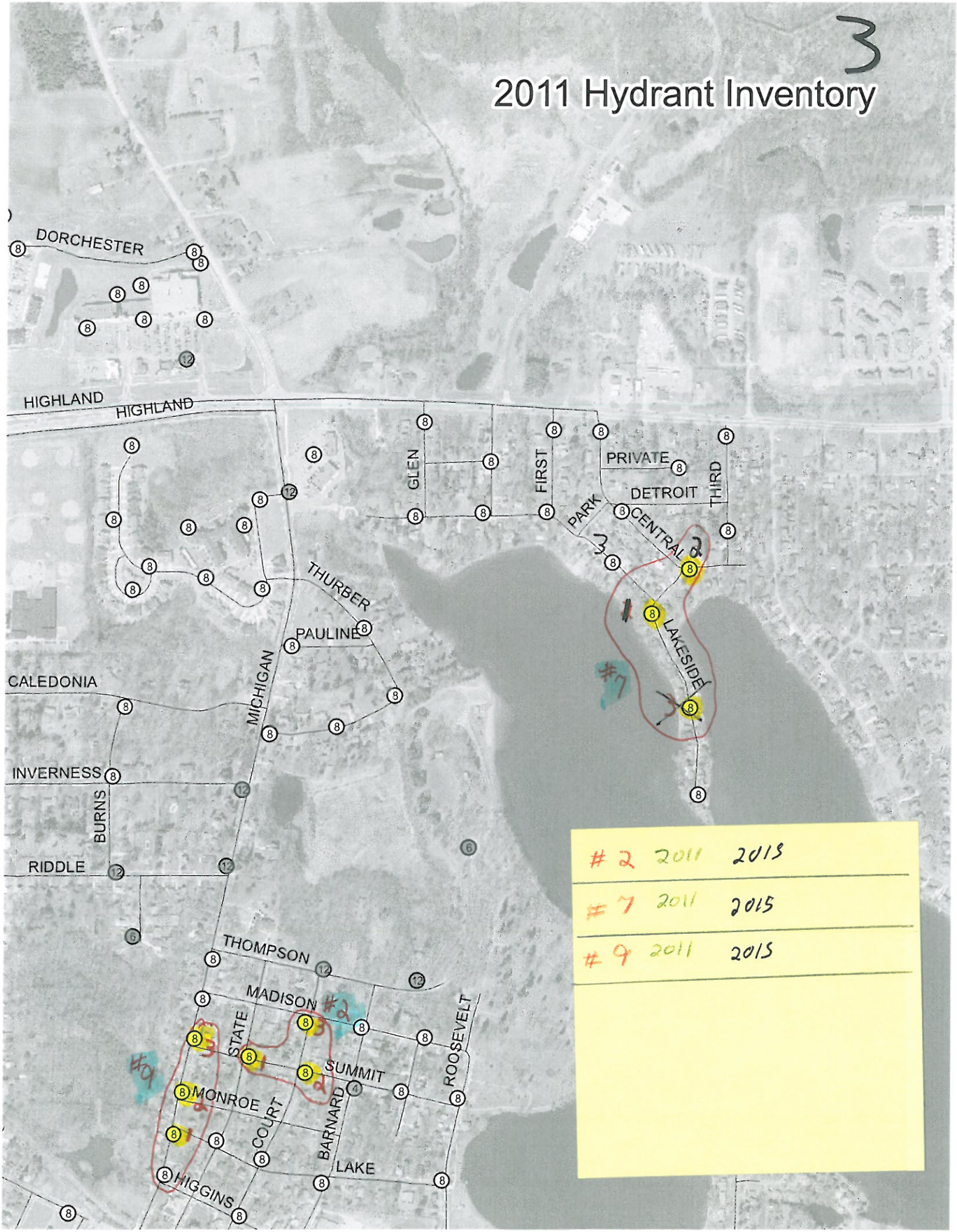
	Time	Residual Hydrant		Flowed Hydrant(s)						Notes
				1			2			
		Static Pressure (psi)	Residual Pressure (psi)	Opening Diam (in)	Opening Type (A, B or C)	Flow Rate (gpm) or Pressure (psi)	Opening Diam (in)	Opening Type (A, B or C)	Flow Rate (gpm) or Pressure (psi)	
#2	10:15	44	44/42	2.5	C	38/35	2.5	C	30	State + Summit
#7	9:05	50	46/40	2.5	C	28/23	2.5	C	25	North Side
#9	9:20	50	48/46	2.5	C	30/30	2.5	C	30	Mich + Monroe

Opening Types: A = Rounded, B = Square and Sharp, C = Projecting

Sheet #3

3

2011 Hydrant Inventory



#2	2011	2015
#7	2011	2015
#9	2011	2015

Fire Hy ant Flow Testing Form

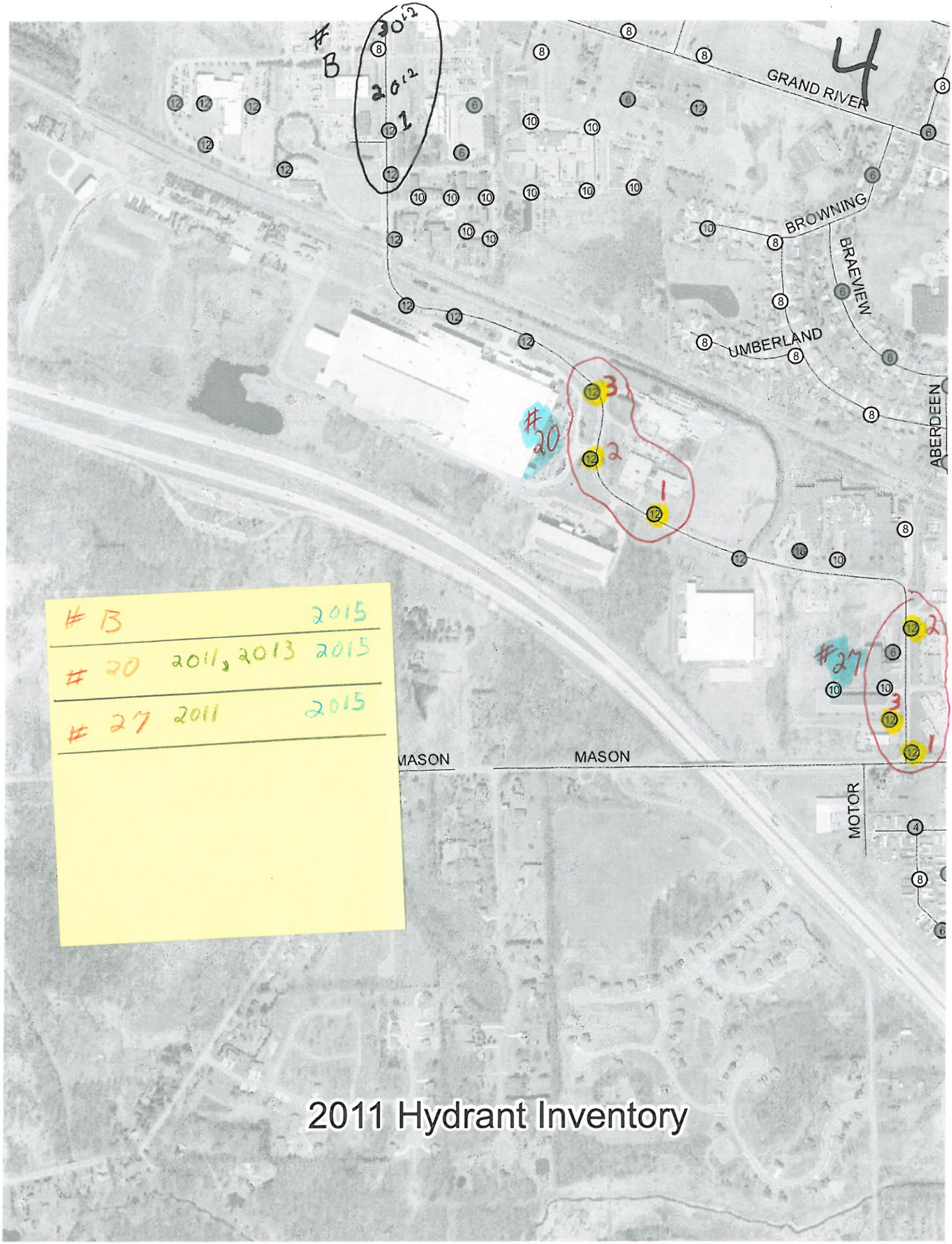
HRC

Date: June 2015 Weather: Crew: Page of

	Time	Residual Hydrant		Flowed Hydrant(s)						Notes
				1			2			
		Static Pressure (psi)	Residual Pressure (psi)	Opening Diam (in)	Opening Type (A, B or C)	Flow Rate (gpm) or Pressure (psi)	Opening Diam (in)	Opening Type (A, B or C)	Flow Rate (gpm) or Pressure (psi)	
#B	8:00	58	55/50	2.5	C	45/40	2.5	C	40	Grand Plaza Apt.
#20	8:30	44	42/40	2.5	C	34/40	2.5	C	35	Chemtrend
#27	8:50	46	44/38	2.5	C	23/20	2.5	C	18	Pepsi

Opening Types: A = Rounded, B = Square and Sharp, C = Projecting

Sheet #4



# B		2015
# 20	2011, 2013	2015
# 27	2011	2015

2011 Hydrant Inventory

Fire Hydrant Flow Testing Form

HRC

Date: 2015 Weather: Crew: Page of

Time	Residual Hydrant		Flowed Hydrant(s)						Notes
			1			2			
	Static Pressure (psi)	Residual Pressure (psi)	Opening Diam (in)	Opening Type (A, B or C)	Flow Rate (gpm) or Pressure (psi)	Opening Diam (in)	Opening Type (A, B or C)	Flow Rate (gpm) or Pressure (psi)	
#34 1:20	50	42/44	2.5	C	30/32	2.5	C	32	

Opening Types: A = Rounded, B = Square and Sharp, C = Projecting

Sheet #5

Fire Hydrant Flow Testing Form

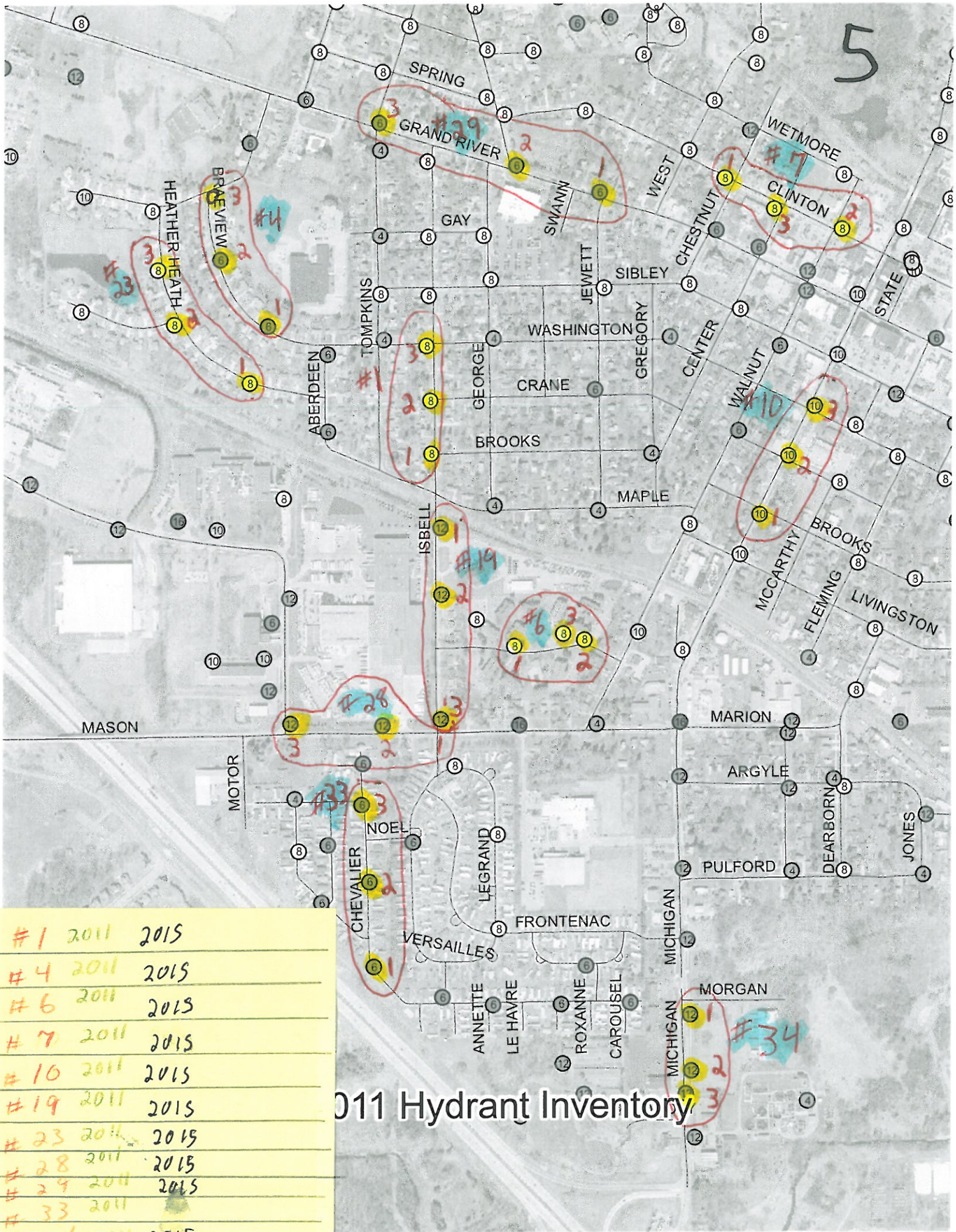
Date: 2015 Weather: Crew: Page of

HRC

	Time	Residual Hydrant		Flowed Hydrant(s)						Notes
				1			2			
		Static Pressure (psi)	Residual Pressure (psi)	Opening Diam (in)	Opening Type (A, B or C)	Flow Rate (gpm) or Pressure (psi)	Opening Diam (in)	Opening Type (A, B or C)	Flow Rate (gpm) or Pressure (psi)	
#1	11:10	42	40/36	2.5	C	27/25	2.5	C	28	Isbell
#4	10:47	52	50/42	2.5	C	30/25	2.5	C	25	Braeview
#6	12:40	60	54/50	2.5	C	36/33	2.5	C	35	Pine Hills
#7	10:30	52	48/46	2.5	C	35/30	2.5	C	32	Library
#10	12:30	54	42/38	2.5	C	32/27	2.5	C	22	S. Michigan
#19	12:45	40	38/34	2.5	C	32/30	2.5	C	32	Armory
#23	11:00	52	50/44	2.5	C	25/25	2.5	C	25	Heather Health
#28	1:00	46	46/44	2.5	C	33/35	2.5	C	30	Pepsi
#29	10:45	54	50/48	2.5	C	22/22	2.5	C	15	Citizens
#33					C					

Opening Types: A = Rounded, B = Square and Sharp, C = Projecting

Sheet #5



011 Hydrant Inventory

#1	2011	2015
#4	2011	2015
#6	2011	2015
#7	2011	2015
#10	2011	2015
#19	2011	2015
#23	2011	2015
#28	2011	2015
#29	2011	2015
#33	2011	
#34	2011	2015

Fire Hy ant Flow Testing Form

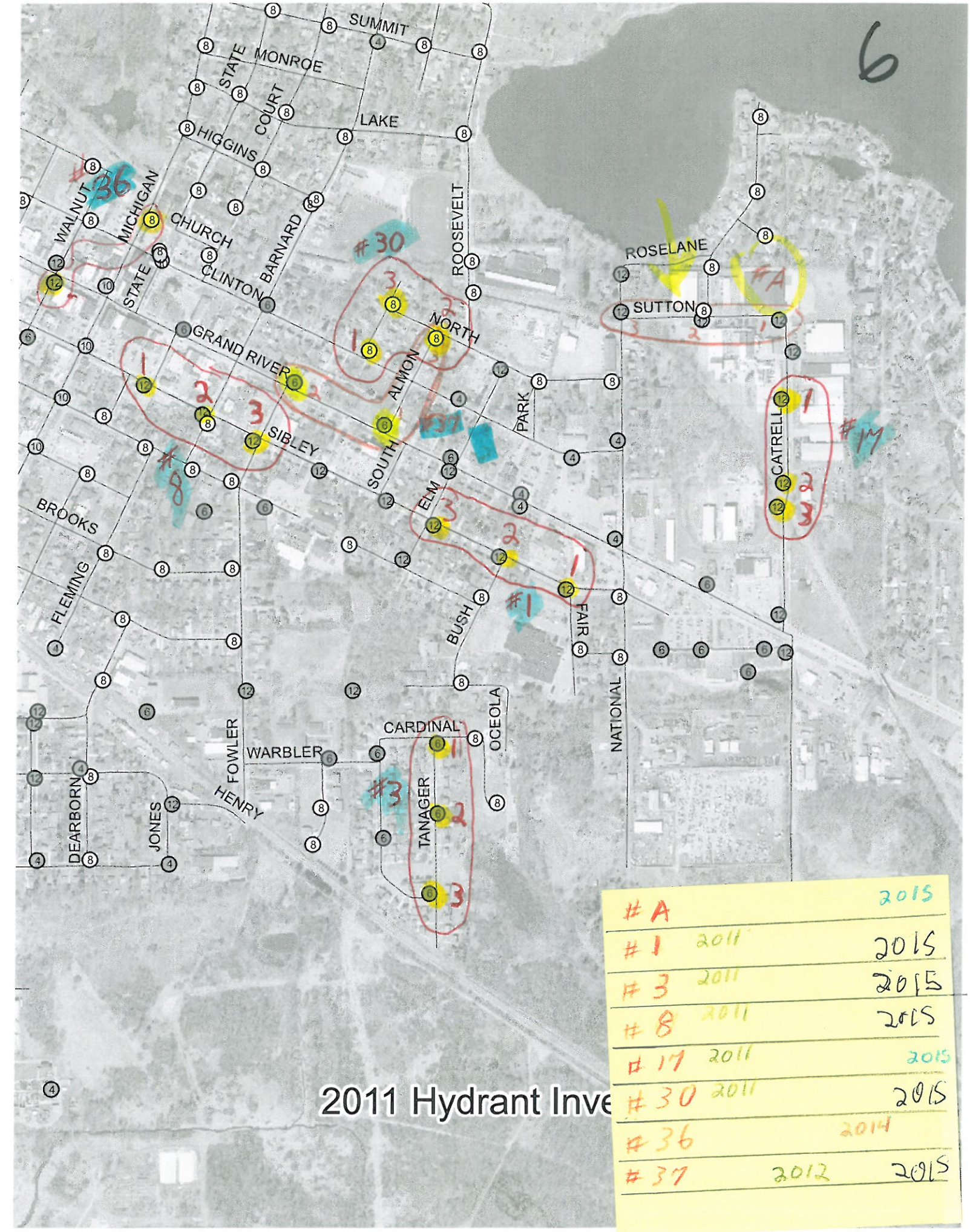
HRC

Date: June 2015 Weather: Crew: Page of

	Time	Residual Hydrant		Flowed Hydrant(s)						Notes
				1			2			
		Static Pressure (psi)	Residual Pressure (psi)	Opening Diam (in)	Opening Type (A, B or C)	Flow Rate (gpm) or Pressure (psi)	Opening Diam (in)	Opening Type (A, B or C)	Flow Rate (gpm) or Pressure (psi)	
#A	8:30	54	48/40	2.5	C	43/40	2.5	C	38	V.C.F.
#17	10:55	56	53/47	2.5	C	40/35	2.5	C	35	Marelco
#37	1:40	56	56/56	2.5	C	6/4	2.5	C	4	G.R. + Almon
#30	1:26	58	54/46	2.5	C	42/35	2.5	C	35	Hesse
#36										
#8	2:30	50	42/42	2.5	C	44/42	2.5	C	30	Sibley + Fowler
#1	2:45	58	58/52	2.5	C	40/40	2.5	C	42	Sibley + Busch
#3	3:00	60	50/40	2.5	C	33/22	2.5	C	20	Fowler Heights

Opening Types: A = Rounded, B = Square and Sharp, C = Projecting

Sheet #6



#A		2015
#1	2011	2015
#3	2011	2015
#8	2011	2015
#17	2011	2015
#30	2011	2015
#36	2014	
#37	2012	2015

CITY OF HOWELL
WATER LOSS
PER FISCAL YEAR

2004	7.53%
2005	10.93%
2006	11.91%
2007	10.46%
2008	14.39%
2009	11.82%
2010	2.85%
2011	1.51%
2012	8.81%
2013	2.69%
2014	8.05%
2015	15.47%
2016	9.65%
2017	15.09%
2018	12.21%
2019	11.69%

Appendix C
Emergency Response Plan

CITY OF HOWELL WATER SYSTEM

Emergency Communications Plan
&
Emergency Response Plan

City of Howell
Water Supply System
WSSN: 3250

Department of Public Services
Howell Water Treatment Plant
150 Marion Street
Howell, MI 48843

Originally Prepared: July 2004
Revised: October 2013
Information Updated: February 2020

Prepared by:

Hubble, Roth & Clark, Inc.
3399 E. Grand River, Suite 102
Howell, MI 48843

Revised & Updated by:
City of Howell Staff

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CITY OF HOWELL, MI
WATER SYSTEM

The City of Howell is served by a well water supply system which contains six (6) operational production wells, a Water Treatment Plant, a 630,000 gallon ground storage reservoir, a High Service Pump Building, 300,000 gallon elevated storage tank and over 50 miles of 4-inch to 16-inch asbestos cement, cast iron, ductile iron and reinforced concrete water main. The City of Howell water system currently serves a residential population of approximately 9,700 as well as businesses, commercial centers and a Pepsi bottling facility.

The City of Howell water system obtains its primary daily water supply from four (4) production wells at the Norton Road well site. Water is pumped from the well site via a 20-inch transmission main along Norton Rd. to the Water Treatment Plant located at the Department of Public Services Complex at 150 Marion St. Here the water is treated, stored and re-distributed into the distribution system. There is also one (1) back-up well in the water system to provide an additional water supply during emergencies and peak demand periods.

The City of Howell Water Treatment Plant personnel perform all operation and maintenance of water system facilities while the Department of Public Works conducts all operation and maintenance of the Township's water distribution system.

CITY OF HOWELL
DEPARTMENT OF PUBLIC SERVICES
150 Marion St. Howell, Michigan 48843
PHONE: (517) 546.7510 FAX: (517) 546.6019
Water Treatment Plant (517) 546.5309, Engineering (517) 546.3861

Water System Security
EMERGENCY COMMUNICATIONS PLAN

(Revised 08/2013)

In the event of an emergency relative to the security of the City of Howell's water supply system, the Emergency Manager (George Basar - Police Chief) or designee shall notify Primary Contact Ervin Suida, Director of Department of Public Services, immediately. Should the No. 1 Primary Contact be unavailable, the Emergency Manager shall then contact one of those listed in succession below.

- The specifics of the emergency shall be provided to the Primary Contact so that appropriate action can be taken. Such emergencies may include, but not limited to, a person(s) tampering with and/or opening a fire hydrant, manhole lid, etc. who are not employees of the City of Howell.

Note: The City's Emergency Response Manual supersedes this document, mobilize at the Emergency Command Center located in the Police Department.

PRIMARY CONTACTS

First, all emergencies shall be reported to the Police Dispatch at 517-546-1330
During Business Hours, 911 After Hours

Name	Work	Mobile	Other
(1) Ervin Suida	517-546-7510	517-404-2520	517-223-4745 (Home)
(2) Jim Webster	517-546-5309	517-204-4916	none
(3) Matt Davis	517-546-7510	810-285-1485	none
(3) Mike Luce	517-546-7510	517-294-0056	
(4) Brian Anderson	517-546-5309	517-294-0871	none
(5) Pat Keough	517-546-5309	517-404-0786	none
(6) Mike Spitler	517-546-6230	517-410-1085	
(7) DPW On-Call	-	517-404-1508	
(8) WTP On-Call	-	517-404-2527	
(9) WWTP On-Call	-	517-404-6814	810-312-6820 (Pager)

The Water and Sewer Department Primary Contact will then contact the DPW Director, the WTP Manager and commence calling in designated Public Works and Water Treatment Plant personnel, if required, to report to the Department of Public Services Complex to be assigned to their specific responsibilities. The Department of Public Services Complex will function as the "Home Base" during all Water and Sewer System emergencies. All other personnel will be on normal call back.

AREAS OF RESPONSIBILITY

Ervin Suida, Director Department of Public Services Cell= 517-404-2520		
Water Treatment Plant	**Department of Public Works**	**Wastewater Treatment Plant**
Jim Webster, Ops Manager Water Treatment Plant Cell= 517-204-4916	Mike Luce, Ops Manager Department of Public Works Cell= 517-294-0056	Mike Spitler, Ops Manager Wastewater Treatment Plant Cell= 517-410-1085
Pat Keough, Group Leader & Lab Coordinator Cell= 517-404-0786	Jake Mitchell, Group Leader - Water Distribution Cell= 810-626-8352	Dan Isles, Group Leader - & I.P.P. Cell= 810-266-6176
WTP On-Call Operator Cell= 517-404-2527	DPW On-Call Operator Cell= 517-404-1508	WWTP On-Call Operator Cell= 517-404-6814 Pager= 810-312-6820

* Specific and complete information is to be provided to the Department of Public Services Primary Contact relative to the location and reported time of the incident. If it is determined by the Director and one of the primary contacts that the security and integrity of the water system may have been compromised, the order shall then be given to DPW Personnel to isolate the water system in the affected area by closing gate valves servicing said area. DPW and Fire Department personnel will also start flowing fire hydrants adjacent to the affected area. Appropriate City personnel will then notify the Public of the shut-off by means of door to door notification, radio and television, and other appropriate means if warranted. Water Treatment Plant personnel will then take water samples at the incident location and analyze them at the Water Treatment Plant laboratory (results take 24 hours) to determine the condition of the water.

Depending on the results, appropriate notification and instruction shall be given to the public. Direction may include restrictions such as, prohibited water use, do not drink the water, boil water notice or no restrictions at all.

Once the emergency situation has ended, the public will again be notified that the system has been returned to normal operation, and if specific additional information is needed, it will be provided at that time by radio, television, etc.

The Department of Public Services Primary Contact will remain in radio and/or phone contact with the Police Department for the duration of the emergency.

All employees on duty are to be equipped with City of Howell issued cellular phone/2-way radio communications before leaving the building.

_____

Ervin Suida, Director, August 2013
Department of Public Services

Distribution List:

Vacant, City Manager
Andy Pless, Fire Chief – Howell Area Fire Authority
George Basar, Police Chief

HOWELL
MICHIGAN

EMERGENCY RESPONSE PLAN

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HOWELL
MICHIGAN

HOWELL
MICHIGAN

EMERGENCY RESPONSE PLAN

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Appendix B – Homeland Security Advisory System
Appendix C – Emergency Action Plans
Appendix D – Emergency Contacts for City Officials
Appendix E – Public Notifications - Including Tier 1, Tier 2 & Tier 3 Templates
Appendix F – Emergency Interconnection Locations
Appendix G – Site Investigation Forms
Appendix H – Emergency Response Plan Guidance

SECTION 1 – SYSTEM SPECIFIC INFORMATION

GENERAL WATER SYSTEM INFORMATION

System Name: City of Howell Water System

Public Water System I.D. #: 3250

Administrative Contact: Ervin Suida, DPS Director
W: (517) 546-7510 C: (517) 404-2520 H: (517) 223-4745

GENERAL WATER SYSTEM DESCRIPTION

The City of Howell water system is a well water system supplied by six (6) production wells, a Water Treatment Plant (WTP), a 630,000 gallon ground storage reservoir, a high service pumping building and a 300,000 gallon elevated storage tank.

The City of Howell water system obtains its primary daily water supply from four (4) production wells at the Norton Rd. well site located two (2) miles southwest of the City. A 20-inch transmission line carries the raw water to the WTP located at the Department of Public Services (DPS) Complex. Two (2) additional production wells provide the City of Howell water system with an additional water supply during emergency situations. Well #1 is located at the DPS Complex and Well #7 is located southeast of the Mason Road and Pinckney Road intersection in the City.

The six (6) production wells are as follows:

Well Name	Location	No. of DWSD Meters	Capacity
Well #1	DPS Complex	Emergency Water Supply	400 gpm
Well #4	Norton Rd. Site	Primary Water Supply	1,000 gpm
Well #5	Norton Rd. Site	Primary Water Supply	1,000 gpm
Well #6	Norton Rd. Site	Primary Water Supply	1,000 gpm
*Well #7	SE of Mason/Pinckney Rd. intersection	Emergency Water Supply	400 gpm
Well #8	Norton Rd. Site	Primary Water Supply	1,000 gpm

*NOTE: **Well #7** is an emergency well due to pressure issues, water quality in Safe Drinking Water Act. With MI-EGLE this well meets the requirements as a Primary Water Supply.

Water Treatment Plant (WTP) operator can start wells #4, #5, #6, #7, & #8 from the plant via a cellular control system. Well #1 is local control only. All wells are in manual (Hand) control. Well #6 & #8 utilizes a variable frequency drive (VFD) which will ramp the pump up and down to maintain a set-point pressure or flow set at the plant. Well #6 or #8 is left on overnight with the influent valve to the WTP closed and the VFD set low for supplying water to the Pepsi bottling facility.

The WTP provides chlorination and lime softening treatment. The effluent of the WTP is discharged into a 25,000 gallon clear well which is interconnected with a 630,000 gallon ground storage reservoir. The treated water is then pumped from the ground storage reservoir into the distribution system via the high service pumping building located at the DPS Complex. To by-pass the ground storage reservoir, both isolation vales on the 20" transmission main, influent and effluent sides of the reservoir, need's to be closed. Then a valve is opened feeding water directly from the WTP clear well to the high service pumping building, then to the distribution system.

GENERAL WATER SYSTEM DESCRIPTION (Cont.)

The high service building is located next to the ground storage reservoir at the DPS Complex. There are four (4) Allis-Chalmers single stage, double suction; horizontal split case centrifugal pumps available to pump water to the distribution system. Each pump has the capability of pumping 1,100 gallons per minute (gpm) at a total dynamic head of 150 feet. The pumps are operated by the PLC – Programmable Logic Controller located in the high service building, interconnected with the PLC & SCADA system in the WTP, with the number of pumps "on" based on the level of the elevated water tank. All pumps can also be operated manually, either at the WTP or in the high service building. High service pumps #1 & #4 utilizes a variable frequency drive (VFD). These pumps are used at 100% unless the SCADA system detects a loss of signal or an out of service mode to the north tower, where it then switches to pressure mode, controlled by setting in the plant SCADA.

It should be noted that the water quality and pressure supplied by the Norton Rd. wells meets Safe Drinking Water Act regulations, therefore the Water Treatment Plant can be bypassed and the City of Howell water distribution system will still be supplied with potable water at sufficient pressures. However the water supplied by the emergency wells (#1 & #7) are not of a high quality or sufficient pressure and should be treated.

The water distribution system consists of over 50 miles of 4-inch to 16-inch asbestos cement, cast iron, ductile iron and reinforced concrete water main and is supplemented by a 300,000 gallon elevated water tank located in the northeast portion of the City. The distribution system serves a residential population of approximately 9,700 and supplies an area of approximately four (4) square miles.

Additionally, the Pepsi bottling plant withdraws raw water directly from the Norton Road well field via our raw transmission line; at an average annual flow rate of 235 gpm (This number averages all days including weekends when there is no production). Pepsi has a maximum flow rate of 900 gpm. They currently work multiple shifts Monday – Saturday, and pull water on Sunday for cleaning & flushing their system.

Refer to Exhibit A at the end of Section 1 for a map of the City of Howell water distribution system.

Refer to Appendix A for detailed facility site plans of the six (6) production wells, Water Treatment Plant, Generator Room, Ground Storage Reservoir, High Service Building and the Elevated Storage Tank within the City of Howell's water system.

The City of Howell water distribution system also has three (3) emergency interconnections with the Marion, Howell, Oceola and Genoa Township (MHOG) Water Authority, refer to "Section 4 – Alternate Sources of Water", for more information.

AUXILIARY POWER

The Water Treatment Plant and DPS Complex have a permanent generator large enough to operate the entire complex. The generator is powered by a diesel driven engine set to automatically operate upon power failure or a drop in available power.

Wells #4, #5, #6, & #8 have permanent generators in each well house, well 4, 5 & 6 have Kohler 125 KW generators; well 8 has John Deere 150 KW. Each generator is powered by diesel driven engines and is set to operate at power failure. Well #7 has the capability of being operated via portable generators located at the DPS Complex. Well #1 is hooked up to the DPW compound generator.

TREATMENT PLANT OPERATIONS

The City of Howell Water Treatment Plant (WTP) utilizes conventional lime (single stage) softening treatment, where raw water passing through the Claricone is subjected to lime addition, mixing and settling. Sulfuric Acid and Poly-phosphate are added to control PH and stabilize the softened water. The water passes through a dual media gravity filter (anthracite and sand) to remove suspended matter present in the water or generated from the chemical reaction that occurred during the softening process. Chlorine is added at four (4) different injection points throughout the distribution system and fluoride is added for prevention of tooth decay. The level of Fluoride in the raw water is 0.40 mg/l, the addition of Hydrofluosilicic Acid increases the Fluoride concentrations to the 0.7 mg/l range.

DEPARTMENT OF PUBLIC SERVICES PERSONNEL

DPS Director:	**Office #**	**Cell #**	**Home #**
Ervin Suida, Director, DPS	(517) 546-7510	(517) 404-2520	(517) 223-4745
WTP Personnel:			
WTP On Call Cell = (517) 404-2527	**Office #**	**Cell #**	**Home #**
Jim Webster, Operations Manager, WTP	(517) 546-5309	(517) 204-4916	None
Pat Keough, Group Leader/Lab Coordinator		(517) 404-0786	None
Brian Anderson, Maint. Coordinator		(517) 294-0871	None
Jim Marzolf, Operator		(810) 599-1344	None
Chelsea White, Operator		(810) 923-8357	None
Dan Rilett, Operator		(810) 923-9563	None
DPW Personnel:			
DPW On-Call Cell = (517) 404-1508	**Office #**	**Cell #**	**Home #**
Matt Davis, DPW Project Technician	(517) 546-7510	(810)-285-1485	None
Mike Luce, DPW Operations Manager		(517) 294-0056	None
Karen Vince, Office Coordinator		(810) 599-1458	None
Jake Mitchell, Group Leader - Water		(810) 626-8352	None
David Wylie, Group Leader - Garage		(517) 404-2930	None
Greg Gardynik, Group Leader - Signs		(810) 923-6486	None
Jason McClanahan, Cemetery Ops Mgr.		(517) 376-1148	None
Robin Edmonds		(517) 505-8681	None
Tim Ford		(517) 304-7779	None
Alex Miklashek		(517) 375-4342	None
Tony Rutzel		(517) 404-7640	None
Steve Samkowiak		(734) 890-1865	None
Lance Troop		(810) 588-9620	None
Wastewater Personnel:			
WWTP On-Call Cell = (517) 404-6814	**Office #**	**Cell #**	**Home #**
Mike Spitler, Operations Manager, WWTP	(517) 546-6230	(517) 410-1085	None
Dan Isles, Group Leader – I.P.P.		(989) 627-1902	None
Dan Daniels		(810) 923-8179	None
Steve Sell		(517) 294-7548	None
Andrew Beduhn		(517) 376-0125	None

WATER SYSTEM INFORMATION LOCATIONS

An overall Water Distribution System Map is included in this Emergency Response Plan; quarter section maps of the water distribution system that identify the size, location, type of water main and locations of valves and hydrants are located in the City Engineer's office, the DPS Complex rear map room and the Miss Dig Vehicle (Unit 05) to assure the availability for use by all necessary waterworks personnel.

As-Built drawings, water system studies and other water system reports are located in City Hall office.

The manuals and specifications for specific water system equipment including; pumps, generators, well systems and water treatment process equipment, are located in the Water Treatment Plant maintenance office.

SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM OPERATIONS

The SCADA system that the City of Howell utilizes is for operational purposes only; intrusion alarms are handled by an outside security agency. The SCADA system allows the water system to operate independently based upon storage reservoir levels; the ground storage reservoir water level indicates the water supply being produced by the wells and the WTP, while the elevated storage tank indicates the approximate distribution pressures being established by the high service pumps. Therefore, if the ground storage reservoir water level exceeds its programmed high alarm level the wells will turn off and as the elevated storage tank water level fluctuates, the high service pumps will turn on and off in order to regulate distribution system pressures. In the event of loss of signal to the north tower the system switches to a pressure mode utilizing the high service pumps with VFD's. The SCADA system also has manual overrides which provide operators the ability to turn pumps and well systems on and off from the SCADA control room.

There is an operator at the WTP at least 12 hours a day, 365 days a year, however if an operational alarm is generated during non-working hours, the SCADA system is connected to an automatic dialer that will contact the on-call operator. Should the on-call operator not respond, the dialer will continue to dial out following Chain of Command beginning with Mr. Jim Webster. Refer to the Chain of Command diagram on the following page.

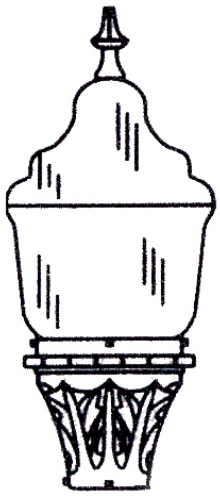
CRITICAL COMMUNICATION SYSTEM OPERATION

Refer to the Emergency Communications Plan at the beginning of the Emergency Response Plan.

EMERGENCY EXPENDITURES

Expenditures required for water system emergencies that exceed $5,000 must be presented before City Council in order for approval In the event a major emergency occurs and a large amount of funds are required to cover needed expenditures, the following individuals have been granted the authority to authorize large emergency activity expenditures without City Council approval:

Ervin Suida, Director, Department of Public Services
Vacant, City Manager



HOWELL
MICHIGAN

MISSION STATEMENT

It is the Mission of the City of Howell Water Department to continually serve our customers with an adequate volumetric supply of water at sufficient pressures for fire protection with an emphasis on providing high quality potable water and professional customer service, all at a cost that is reasonable and competitive.

To accomplish our Mission, we must strive to uphold the following objectives:

- ✓ Provide an adequate volumetric water supply to our customers.
- ✓ Maintain sufficient pressures for fire protection and other public safety uses.
- ✓ Uphold a citizen's right to high quality water, with an emphasis on delivering potable water.
- ✓ Provide proficient and professional customer service, promoting an environment of trust, respect and teamwork.

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SECTION 2 – CITY PERSONNEL; ROLES and RESPONSIBILITIES

This Section designates the roles and responsibilities of the City of Howell Department of Public Services personnel in the event of an emergency.

Ervin Suida, Director, Department of Public Services
Emergency Response Lead
Responsible for:

- Activating the Water System Emergency Response Plan.
  - Review Homeland Security Advisory System threat condition level (Appendix B)
  - Assemble information on "threat warning"
    (i.e. Security Breach, Witness Account, etc.)
  - Evaluate "Threat Warnings"
    - Is the threat possible?
    - Is the threat credible?
    - Has the incident been confirmed?
- Implement Emergency Action Plans (Refer to Appendix C).
- Communicating with the Public and Media.

Matt Davis, Project Technician & Mike Luce, Operations Manager, Department of Public Works
Alternate Emergency Response Lead
Responsible for:

- Duties of the Emergency Response Lead in their absence.
- Oversee the Department of Public Works and water distribution system operations and maintenance during emergency situations.

Jim Webster, Operations Manager, Water Treatment Plant
Responsible for:

- Oversee Water System Operations including: Water Treatment Plant, Wells, High Service Pump Building and Ground Storage Reservoir.
- Coordinate sampling procedures and notifications to Public Agencies (MI-EGLE & LCHD).

Pat Keough, Lab Coordinator & Group Leader, Water Treatment Plant
Responsible for:

- Coordinating and managing Water Treatment Plant operations during emergency situations.

Brian Anderson, Maintenance Coordinator, Water Treatment Plant
Responsible for:

- Coordinating and managing Water Treatment Plant operations during emergency situations.

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SECTION 3 – COMMUNICATIONS and PROCEDURES

IN THE EVENT OF AN EMERGENCY SITUATION, THE DEPARTMENT OF PUBLIC SERVICES COMPLEX AT 150 MARION ST. SHALL ACT AS BASE FOR ALL COMMUNICATIONS AND OPERATIONS.

INTERNAL NOTIFICATION LIST

The Director of the Department of Public Services and the Superintendent of the Department of Public Works should be the first persons notified in the event of a water system emergency. Should these contacts be unavailable refer to the Emergency Communications Plan for the list of Primary Contacts.

Other appropriate City personnel to notify in case of an emergency:

	Contact Number
City of Howell Police Department	(517) 546-1330
Emergency Contact	911
City of Howell Area Fire Authority	(517) 546-0561
Emergency Contact	911
Nick Proctor, Mayor	(517) 546-3502*
Steve Manor, Mayor Pro-Term	(517) 546-3502*
Vacant, City Manager	(517) 546-3502*
Jane Cartwright, City Clerk/Treasurer	(517) 546-3502*

* For emergency contact numbers, Refer to Appendix D

EXTERNAL NOTIFICATION LIST: Affected customers, critical users and appropriate first responders who should be notified in the event of an emergency.

Note: Not every organization on this list is required to be notified, consult the Director of the Department of Public Services to determine the appropriate parties to contact.

Michigan Department Environment, Great Lakes & Energy (EGLE)	Contact Number
Emergency:	1-800-292-4706
Jackson District:	
Supervising District Engineer: Pat Brennan	(517) 581-2769
District Engineer: Olivia Velzy	(517) 740-6574
Environmental Quality Analyst: Taryn Johnson	(517) 257-7465

Livingston County Health Department	Contact Number
2300 E. Grand River, Suite 102, Howell MI 48843	(517) 546-9858
Emergency:	
Director of Environmental Health	(517) 552-6865 (work)
Matt Bolang	(517) 404-9464 (cell)

Michigan Department of Agriculture & Rural Development (MDARD)
For boil water advisories and loss of pressure situations in areas where there are food establishments, the City should be contacting both the local health department and MDARD. [Food inspections, such as; restaurants, grocery stores, etc.]

East Region Supervisor: Tom Tederington	(517) 749-5849
Emergency Number (24 Hrs.)	(517) 373-0440

Local Emergency Planning Commission	Contact Number
City of Howell	
Emergency Management Coordinator	(517) 404-2505
George Basar - Police Chief	

Critical Water Customers **AS OF 2020**

Critical Water Customer List				
Industries / Businesses	**Name**	**Title**	**Office**	**Cell**
Pepsi Bottling Group	**Main Entrance**		**(517) 545-2610**	
755 McPherson Park	QC Lab		(517) 545-2611	
	Plant Security		(517) 333-3222	
NOTICE	Mike McDonald	Plant Manager	(517) 545-2635	(248) 379-9356
PEPSI uses Raw Water too.	John Hibbard	Production Manager	(517) 545-2621	
		QC Manager	(517) 545-2629	(517) 652-4713
Thai Summit – Ogihara	**Main Entrance**		(517) 548-4900	
1480 McPherson Park	Jason	Maintenance Mgr.	(517) 548-6067	
Chem-Trend Incorporated	**Main Entrance**		(517) 540-6764	
1445 McPherson Park	Reed Sparks	Maintenance Mgr.		
Key Plastics	**Main Entrance**		(517) 546-1900	
1301 McPherson Park	George McGoflin	Maintenance Mgr.		
Livingston County Sheriff Dept. (Jail)	**Sheriff Dept.**		(517) 546-2440	
150 S. Highlander Way	Chris Foltz	Liv. Co. Building Director	(517) 546-6491	
Livingston County Building Services	Chris Foltz	Liv. Co. Building Director		
420 S. Highlander Way	Chris Dunn			(517) 202-6549
Howell Public Schools	**Main Number**		(517) 548-6200	
1313 W. Highland Rd	Maintenance		(517) 548-6249	(517) 404-1661
	Mike Peterson	Director of Operations	(517) 548-6249	(517) 404-1661
(Chateau) Hometown Howell (Trailer Park)	**Club House**		(517) 546-6400	
515 Mason Road				
Tri-State	**Main Number**		(517) 546-2300	
1100 Sutton Street	Ron		(517) 546-5400	
Citizens				
Hospitals / Assisted Living Homes	**Name**	**Title**	**Office**	**Cell**
St. Joseph Mercy - Livingston	**Main Entrance**		(517) 545-6000	
620 Byron Rd.	Chip	Facilities Manager	(517) 545-6302	
	Dave Moen	Maintenance		
Greenwich – Village Apartments	**Main Entrance**		(517) 548-0031	
428 Greenwich Dr				
Livingston Care Center - Medilodge	**Main Entrance**		(517) 548-1900	
1333 W. Grand River Av.				
Town Commons - Assisted Living	**Main Entrance**		(517) 545-5930	
605 Pere Marquette Road				
Renaissance Community Home	**Main Entrance**		(517) 548-4495	
802 Tanager Trail				

Apartments / Trailer Parks	Name	Title	Office	Cell
Burwick Apartments	**Club House**		(517) 548-5755	
406 Cumberland Road				
(Chateau) Hometown Howell	**Club House**		(517) 546-6400	
515 Mason Road				
Golden Triangle Condo's	**Main Entrance**		(517) 546-1804	
505 W. Highland Road				
Grand Plaza Apartments	**Main Entrance**		(517) 546-7773	
401 S. Highlander Way				
Pine Hill Apartments	**Main Entrance**		(517) 546-7660	
307 Holly Hills Drive				
Town Commons Apartments	**Main Entrance**		(517) 545-5930	
1601 Town Commons Drive, Suite 104				
Victoria Park Subdivision	**Main Entrance**			
Yorkshire Apartments	**Main Entrance**		(517) 546-5900	
1504 Yorkshire Drive				

PUBLIC/MEDIA NOTIFICATION LIST

Effective public and media communications is a key element when responding to an emergency; all questions from the media should be deferred to the Director of the Department of Public Services.

General Tips on Working with the Media

- Be truthful and up-front.
- Answer questions as well as you can, but don't be afraid to say that you need to check on something if there is a question you can't answer (once you find the information, quickly report back on what you've found).
- Keep in mind that reporters are not familiar with State or Federal requirements for safe drinking water – avoid technical jargon!
- Provide additional sources of information (for instance, referrals to State contacts).
- Be sensitive to the fact that reporters may be working on tight deadlines.
- Provide a list of elements that should be addressed.
- Don't be upset if a newspaper article or news isn't exactly as you would want it, but politely tell a reporter if a significant piece of information is wrong or missing.
- Don't be defensive when answering questions.

Methods of notifying customers that an emergency exists are as follows:

1) If the emergency situation is isolated to one geographic location, the Department of Public Services will utilize door tags to inform residents
2) Should the emergency situation be mass spread, then the Department of Public Services will notify media contacts.

Refer to Appendix E for the official press releases and water restriction notices to be distributed and frequently asked questions about boil water notices.
Refer to the following tables for a list of media to contact in the case of a mass spread emergency:

PUBLIC/MEDIA NOTIFICATION LIST

News Papers	Phone	Fax	Email
Livingston County Press & Argus	**(517) 548-7187**	(313) 222-5981	LCP-legals@gannett.com
Detroit Free Press **City / Metro Desk - Local News**	**(313) 222-6600**	(313) 222-5981	localnews@freepress.com;
Detroit News	**(313) 222-2300**	(313) 496-5400	newsroom@detnews.com
Radio Stations	**Phone**	**Fax**	**Email**
WHMI - Howell MI. **93.5 FM**	**(517) 546-0860**	(517) 546-1758	news@whmi.com
WJR - Detroit **760 AM**	**(313) 875-4400**		
WWJ - Detroit **950 AM**	**(248) 945-9950**	(248) 304-4970	wwjnewsroom@cbsradio.com
Television Stations	**Phone**	**Fax**	**Email**
CBS 6 - WLNS - LANSING **news phone:**	**(517) 372-1300**	(517) 372-1507	news@wlns.com
NBC 10 - WILX - LANSING	**(517) 393-0110**	(517) 393-9180	newstips@wilx.com
ABC 53 - WLAJ - LANSING **same as CBS 6 - WLNS - ABOVE**	**(517) 372-1300**	(517) 372-1507	news@wlns.com **same as CBS 6 - WLNS ABOVE**
FOX 2 - WJBK - DETROIT **newsroom:**	**(248) 552-5103**		
NBC 4 - WDIV - DETROIT **newsroom:**	**(313) 222-0500**		newsrelease@clickondetroit.com
ABC 7 - WXYZ - DETROIT **breaking news hotline:**	**(248) 827-7777**		
Channel 15 - via Howell City Hall **Howell Community Access**	**(517) 546-3502**		

Nearby Water Utilities:	Phone	Fax	Email
MHOG Water Authority: Marion, Howell, Oceola Genoa Townships **3 Interconnections at Byron Rd & M-59; Lucy Rd & Industrial Dr.; Roselane Dr. & Indiana St.**			
Water Treatment Plant 4288 Norton Road	**(517) 545-5098**	(517) 545-5097	alex@genoa.org
Howell MI 48843	Alex Chimpouras Deputy Utility Director Alex's Cell: **(810) 588-7900**		

EMERGENCY SERVICES: The following Contractors, Suppliers and Nearby Laboratories have provided services to the City of Howell during emergency situations:

EMERGENCY SERVICES

Excavators	Phone	Cell	Email
Fonson, Inc. **Craig (Butch) Fons**	**(810) 231-5188**	(810) 217-9482 Butch's Cell	
KVC (Kensington Valley Excavating) **Don Egbert, Tim Heeg**	**(517) 223-8915**	(517) 404-0963 (517) 404-0888	= Don Egbert cell = Tim Heeg cell
Haslock & Sons Excavating **Rick Haslock**	**(517) 546-1518**	(517) 202-0146 Rick's Cell	
Electricians	**Phone**	**Cell**	**Email**
Crampton Electric Inc. **Bruce Campbell**	**(517) 223-9691**	(517) 202-5239 Bruce's Cell	bcampbell@cramptonelectric.com
K & J Electric **Mike Sturm**	**(517) 546-6245**	(248) 755-2105 Mike's Cell	mike.sturm@k-jelectric.com
Craig Douglas **Craig Douglas**	**(517) 223-9139**	(517) 404-8894 Craig's Cell	
Instrumentations	**Phone**	**Cell**	**Email**
Commerce Controls Inc.	(248) 476-1442	Installed Allen Bradley PLC & SCADA system 2009 DWRF	
Steve Sherwood – System Integrator		(248) 310-8366	scsherwood@commercecontrols.com
RS Technical Services **Rod Parks**	(800) 800-0836	(517) 749-7509 Rod's Cell	rod@parks-ave.com
Kennedy Industries Inc. (Well Comm.)	**(248) 684-1200**	Installed the Cellular Communication system to Wells	
Mark Hemeyer – VP & Sales Mgr.	Installed the Cellular Communication system to Wells	(248) 240-0701	mjh@kennedyind.com
Ben Manlongat – Controls Mgr.		(248) 770-0784	bjm@kennedyind.com
Chemical Suppliers	**Phone**	**Cell**	**Email**
Haviland Products Company **Gas Chlorine, Fluoride & Phosphate**	**(800) 627-2111**		
Darlene Devereaux		(517) 719-1140	darlened@havilandusa.com
Univar USA Inc. (Bulk Sulfuric Acid) **Derek Feldkamp**	**(734) 941-7140**	(419) 327-0565	Derek.feldkamp@univarusa.com
Chemco Products **- (Supplies Polymer)**	**(517) 546-7800**		
Graymont (formally Western Lime) **Biju Daniel - (Supplies Lime)**	**(800) 433-0036** Biju Ext. 109	(262) 707-6877	bdaniel@graymont.com
Well Drilling Companies	**Phone**	**Cell**	**Email**
Peerless-Midwest (owned by Suez) **Steve Studer**	**(616) 527-0050**	(248) 996-2721	steve.studer@suezcom
Northern Pump & Well Dale Stewart **Dave Stinson**	**(877) 477-1757**	(517) 242-8949 (248) 421-9659	dstewart@northernpwco.com Dstinson@northernpwco.com
Brown Well Drilling **Gary Sunderland**	**(517) 546-0600**		gary@browndrlllingco.com

System Repair Suppliers	Phone	Cell	Email
Michigan Pipe & Valve **Tom Mikko**	**(517) 322-0300**	**(**517) 204-6307 Tom's Cell	
National Waterworks / HD Supply **Ty Johnson**	**(248)**		
Municipal Supplies Co. **Rocky Sampson**	**(517) 647-6997**	(517) 526-1056 Rocky's Cell	
Nearby Water Laboratories	**Phone**	**Fax**	**Website**
Water Tech **718 S. Michigan Ave., Howell MI 48843**	**(517) 548-2505**	(517) 548-3434	http://watertech-inc.com
Paragon Laboratories **12649 Richfield Ct., Livonia MI 48150**	**(734) 462-3900**	(734) 462-3911	http://paragonlaboratories.com **This has been our primary testing water lab since 2009**
Brighton Analytical **2105 Pless Dr., Brighton MI 48114**	**(810) 229-7575**	(810) 229-8650	http://brightonanalytical.net/
Water Haulers - Bulk	**Phone**	**Cell**	**Misc. Information**
Aqua Haul / **Brad Hitchcock**	**(517) 546-1991**		
Michigan Water Transport – Waterford **Randy Harris**	**(888) 733-3959**	(810) 223-1614 after hours number	http://www.michiganwatertransport.net/
Blue Water Transport – Saline **Ken Stegenga**	**(734) 429-9185**	(734) 564-7079	http://www.bluewatertransportinc.com/ MI-EGLE Certified
Aqua Fill **Dave / Matt (son)**	**(248) 684-5008**		
Stevenson Water Hauling – Clinton **Paul Stevenson**	**(989) 710-0381**	(989) 710-0381	http://www.stevensonwaterhauling.com/
Bottled Water Suppliers	**Phone**		**Misc. Information**
American Aqua (Livingston Water Care) **704 S. Michigan Ave. Howell**	**(517) 546-1750** **5 gallon bottles**		Website: americanaqua.com Have approx. 20 locally, but can get more from other Michigan locations quickly.
Pepsi Bottling Group **755 McPherson Park**	**(517) 546-1750** **Bottled Water**		Aquafina = 16.9 oz - 24pks. Should be able to supply 800 cases at minimum & can get more from Detroit as needed.

Utilities & Generator Info	Phone	Misc. Information
MISS DIG	**(800) 482-7171**	
DTE – Detroit Edison – Electricity	**(313) 235-1300** **For outages, tree trimming**	Well 4 = 3145 Norton Rd. Well 5 = 3255 Norton Rd.
Water Plant Address = 148 Marion St. Water Plant is on Genoa Circuit # 8217 High Service Meter address = 144 Marion St.	**(313) 715-4509** **Acct. Rep Stephanie Beau cell**	Well 6 = 3147 Norton Rd Well 8 = 3175 Norton Rd. Well 7 = 601 Henry St. North Tower = 416 Thompson St.
Consumers Energy – Gas **DPW & WTP Address = 150 Marion St.** **High Service = 707 S. Michigan Ave.**	**(800) 477-5050** **For All Gas Emergencies**	DPW&WTP Acct # = 1000 2272 2209 High Service Acct # = 1000 2276 9549
Corrigan Oil - Diesel Fuel **All Generators – Wells & Compound**	**(810) 229-6323** **Main Number & Emergencies**	Emergency – Use same number City Account # = **02 CIT 0040**
GenPower - Generator **Service Manager- Dave Spring**	**(877) 927-9797** Dave office =(248) 624-7230 Ext. 106	For Part, Service & Generator Rentals
Michigan CAT - Generator **Compound Generator –** For Part, Service & Generator Rentals	**(888) 642-4228** Office = (248) 349-7050 **Emergencies:** (248) 318-6812 (Mark)	Complex Generator : Engine= 3406 B DL Serial #= 4RG01069 Arrangement #= 9Y1547
W.W. Williams - Generator **Well 8 Generator Supplier & Service**	**(800) 468-6832** Office = (313) 584-6150	Well 8 Generator = Detroit Diesel Model= 150DSEJB, Spec= GM20148

SECTION 4 - ALTERNATE SOURCES OF WATER

Boil Water Notice
No alternative water source required.

Do Not Drink Order
Suspect water can still be used for activities that do not involve ingestion of water (customers are not at risk to inhalation or dermal exposure). In this situation, it will only be necessary to provide an alternate drinking water supply for consumption and related activities such as food preparation.

Do Not Use Order
Sufficient alternate water sources to supply water for consumption, hygiene and emergency needs are required. Alternate sources of firefighting water may also be necessary.

Refer to Appendix E for the Design Process for Public Notification, frequently asked questions about boil water notices, official press releases and water restriction notices to be distributed.

SHORT TERM OUTAGES

In case of a DO NOT USE or DO NOT DRINK order, the City of Howell has arrangements made to supply bottled water to meet the needs for drinking and cooking purposes in the short term.

The City of Howell has 955,000 gallons of stored water in the water system that (after being tested) can be used to supply water to residents.

LONG TERM OUTAGES

1) If the City of Howell aquifer IS NOT contaminated, the Norton Rd. wells meets Safe Drinking Water Act regulations, therefore the WTP can be bypassed and the City of Howell water distribution system can still be supplied with potable water at sufficient pressures

2) If the City of Howell aquifer IS contaminated, bottled water shall be supplied by the City for drinking and cooking purposes in the short term while the distribution system is flushed and chlorinated.

   Note: Refer to Well Head Protection Program for ground water capture zone and transmissivity rates.

   The City of Howell Water System has a total of three (3) interconnections with a nearby water system (MHOG Water Authority) that could provide supplemental flows into the City of Howell Water System during emergency situations. Representatives of the MHOG Water Authority will be contacted prior to any effort to utilize any water from the MHOG system*. Arrangements will be made to account for the volume and the method used to insure adequate pressures in both systems. Monitoring of the volumes and pressures will be the responsibility of the individual system operators. On the following page is a list of the location and size of the emergency connections, including the telephone number of the representative to contact:

LONG TERM OUTAGES (Cont.)

Emergency Connections to the MHOG Water Authority
(Refer to Section 3, Page 5 for a list of MHOG personnel).

Location	Size	
Byron Rd. and M-59 (Highland Rd.)	12”	Preferred location
Lucy Rd. and Industrial Drive	12”	
Roselane Drive and Indiana Street	8”	

* Refer to Appendix F for the procedure for the utilization of the emergency interconnections.

With the interconnections between the City of Howell and the MHOG Water Authority, water could be made available under emergency conditions through the two systems. However, because of the demands imposed by both systems, restrictions would be put in place on the residents of Howell to ensure adequate water supplies. Future projections include the co-operation between the City of Howell, MHOG Water Authority and the City of Brighton to provide interconnections between all three units.

Refer to Appendix F for a detailed location map of each Emergency Connection.

Refer to Appendix F for the Emergency Water Connection Agreement with the MHOG Water Authority; additional copies can be found in the Water Treatment Plant, Supervisor’s office.

SECTION 5 – DEPARTMENT OF PUBLIC SERVICES EQUIPMENT

The City of Howell Department of Public Services maintains an updated inventory of:

- Current equipment (e.g. pumps, valves, water main pipe, etc.)
- Repair parts
- Department of Public Service Vehicles
- Stock Parts
- Mutual Aid Contacts

The current list of equipment, as of August 2013

CITY OF HOWELL EQUIPMENT LIST

AS OF AUGUST 2013

Asset ID	Asset Type	Group	Description
EP-013-02	TRUCK	BUILDING DEPT.	F-150 1/2 TON PICKUP
EP-021-05		CEMETERY	ONE TON DUMP TRUCK
EP-022-10			2010 F-250 3/4 TON PICKUP
EP-043-08			F-250 3/4 TON PICKUP
EP-047-06			F-250 3/4 TON PICKUP
EP-049-10			ONE TON DUMP TRUCK
EP-003-21		DPW	2010 3/4 TON PICKUP
EP-008-11			F-150 SUPER CREW 1/2 TON PICKUP
EP-010-07			ONE TON DUMP TRUCK
EP-014-06			2006 3/4 TON LIFTGATE TRUCK
EP-015-07			ONE TON DUMP TRUCK
EP-016-12			F-250 3/4 TON PICKUP
EP-019-10			2010 250 4X4 EXTENDED CAB PICKUP
EP-027-04			2004 F-650 BRUSH TRUCK
EP-028-07			5 YD. DUMP TRUCK
EP-029-02			5 YD. DUMP TRUCK
EP-032-06			5 YD. DUMP TRUCK
EP-034-03			F-450 AERIAL TRUCK
EP-036-03			5 YD. DUMP TRUCK
EP-050-07			VACTOR TRUCK
EP-017-69	TRUCK-MISS DIG	DPW	F-150 EXT CAB - MISS DIG
EP-009-04	TRUCK-SEW/STORM	DPW	2004 UTILITY TRUCK - SEWER/STORM
EP-011-12	TRUCK-WATER DIST.	DPW	2012 UTILITY TRUCK - WATER DIST
EP-020-05	TRUCK	WTP	2005 4X4 EXTENDED CAB PICKUP
EP-007-11		WWTP	2011 UTILTY TRUCK WITH HOIST
EP-012-12			F-250 3/4 TON PICKUP
EP-025-12			2012 3/4 TON PICKUP

Asset ID	Asset Type	Group	Description
	ATTACHMENTS		
EP-432-08			FRONT PLOW
EP-472-06			FRONT SNOW PLOW
EP-492-10			FRONT PLOW - 9FT WESTERN
EP-102-07		DPW	FRONT PLOW
EP-103-07			TAILGATE SALT SPREADER
EP-142-06			V-PLOW
EP-152-07			FRONT PLOW
EP-153-07			TAILGATE SPREADER
EP-192-10			FRONT -WESTERN 8' POLY PRO PLOW
EP-271-04			BRUSH COLLECTOR BOX
EP-281-07			UNDERBODY SCRAPER
EP-282-10			2010 HENKE FRONT PLOW 10 FT
EP-291-02			2002 UNDERBODY SCRAPER
EP-292-02			2002 FRONT PLOW 11"
EP-293-02			2002 V-BOX SPREADER
EP-321-06			UNDERBODY SCRAPER
EP-322-09			SNOW PUSHER - 10'
EP-323-06			V-BOX SPREADER
EP-341-07			ARM LIFT
EP-352-97			7' FRONT PLOW SNOW BLADE
EP-353-97			AUGER
EP-355-97			HYDRAULIC HAMMER
EP-361-03			UNDERBODY SCRAPER
EP-363-03			REAR MOUNT SALT SPREADER
EP-373-97			HOE-PAC
EP-411-04			48" FORKS
EP-414-04			68" ANGLE BROOM
EP-501-07			SEWER JET CLEANER
EP-502-07			CATCH BASIN CLEANER
EP-202-05		WTP	FRONT PLOW
EP-072-11		WWTP	WESTERN FRONT PLOW
EP-122-12			FRONT PLOW
EP-351-97			42" FORKS
EP-354-97			ANGLE BROOM
EP-382-04			BACKHOE
EP-058-05			LEAF VAC - CEMETERY/PARKS
EP-037-10		DPW	SKID STEER W/ BUCKET
EP-041-04			SKID STEER W/ BUCKET
EP-052-04			LEAF VAC

Asset ID	Asset Type	Group	Description
EP-053-02	LARGE EQUIPMENT		BRUSH CHIPPER
EP-054-97			HOT PATCHER
EP-055-01			LEAF VAC
EP-057-07			LEAF VAC (GIANT VAC)
EP-059-02			6'x6' TRENCH BOX
EP-060-10			VALVE TRAILER
EP-061-04			COMPACTOR-RIDE ON
EP-066-96			AIR COMPRESSOR
EP-391-09			BACKHOE/FRONT END LOADER
EP-392-09			BACKHOE
EP-422-09			2009 - 350 MINI BACKHOE
EP-024-01		WATER PLANT	2001 FRAZA FORK LIFT
EP-035-97		WWTP	SKID STEER W/ BUCKET
EP-062-95			TRASH PUMP 4"
EP-089-09	MISC. EQUIPMENT	CEMETERY	JD GATOR
EP-068-96		DPW	WALK-BEHIND COMPACTOR
EP-078-08			PAINT STRIPER
EP-090-09			CONCRETE SAW - 2009 HUSQVARNE
EP-093-04			WALK-BEHIND CONCRETE SAW
EP-084-89	TRACTOR	CEMETERY	JD 2155 TRACTOR WITH CAB
EP-085-06			JD 4720 TRACTOR
EP-411-00	TRAILER	CEMETERY	RED TRAILER 14 X 7 FT
EP-412-05			BLACK TRAILER 16 X 7 FT
EP-018-97		DPW	12' TANDEM TRAILER
EP-331-90			COMPACTOR TRAILER
EP-350-99			SKID TRAILER
EP-410-10			ENCLOSED EQUIP TRAILER 8.5X16
EP-420-10			EQUIP TRAILER WOOD TILT/7K AXLE/
EP-551-90			12' CONC. SAW TRAILER
EP-781-98			PAINT STRIPER TRAILER 4x8 RAMP

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SECTION 6 – WATER SAMPLING & MONITORING

NORMAL SAMPLING PROCEDURES

The City of Howell Water Department continuously samples the Water Treatment Plant (WTP) effluent and twice a month takes five (5) distribution system samples; samples require 24 hours to complete.

Bad Sample NOT in Violation

Should the City of Howell discover a bad sample that is NOT in violation of the Safe Drinking Water Act but is not up to normal City standards, the sampling of the WTP effluent should take place immediately as well as the sampling of at least three (3) distribution system sampling locations located nearest to the High Service Pump Building. Should a second similar sample result a confirmation notification should then be sent to the MI-EGLE for them to assess the situation.

Bad Sample IN Violation

Should the City of Howell discover a bad sample that is IN violation of the Safe Drinking Water Act, the MI-EGLE should be contacted immediately to confirm the failed sample. Meanwhile, WTP personnel will conduct further sampling upstream and downstream of the location the original bad sample was taken (just further downstream if sample was taken at the WTP). During the sampling and testing, MI-EGLE and the City of Howell will assess the situation and coordinate any water restrictions and public notifications that are needed while the "bracket" sample test results are completed.

Refer to Appendix C for the "Intentional Contamination" Emergency Action Plan

Refer to Appendix E for the "Decision Process for Public Notifications"

THREATS OF CONTAMINATION

In the event of a contamination threat, refer to Appendix 3 Emergency Action Plan for Contamination Threats and Appendix G for Site Characterization forms required for response to a contamination threat.

EMERGENCY CHLORINATION

Any emergency chlorination shall be provided in accordance with the current American Water Works (AWWA) standard specification for chlorination, in such a manner that the residual free chlorine shall be at least 10 parts per million.

Standard Specification for Chlorination

Chlorination shall be in conformity with current AWWA standards for disinfection, AWWA C-651. After satisfactory hydrostatic tests are obtained, the new main shall be chlorinated. A chlorine gas-water mixture shall be applied by means of a solution-feed chlorinating device. The chlorine solution shall be applied through a corporation stop at the beginning of the main. A slow flow of water shall be let into the main approximately at the point of injection of the chlorine solution, at a rate such that the chlorine dosage of the entering water shall be at least 50 parts per million. An open discharge shall be maintained at the far end of the main, and the introduction of chlorine solution and water shall continue until the water discharging at the far end shall carry the required dosage of chlorine. As the main is filled with chlorinated water each outlet from the main shall be opened and sufficient water drawn off to assure that the full dosage of chlorine reaches each outlet.

The chlorine treated water shall remain in the main at least 24 hours, and at the end of that time the chlorine residual at pipe extremities and other representative points shall be at least 10 p.p.m. If the chlorine residual shall be less that 10 p.p.m. at the end of 24 hours, further application of chlorine shall be made and the retention period repeated until the required 10 p.p.m. residual is obtained.

Following chlorination, all treated water shall be thoroughly flushed from the main. The treated water will be considered flushed when the residual chlorine content is less than 0.7 p.p.m. Prior to the water main being placed in service, two consecutive sets of water samples for bacteriological analysis shall be collected 24 hours apart and each analysis shall not indicate the presence of coliform. The engineer shall determine the number and location of the sampling points. Analysis of other contaminants may be required if the engineer has reason to believe that these contaminants are present.

If the initial treatments of all or any section of the main, in the opinion of the Engineer, prove ineffective, the chlorination procedure shall be repeated until confirmed tests show that water sampled from the new main conforms to the foregoing requirements. If the system is not activated within two (2) weeks after initial testing, bacteriological tests shall be repeated to assure a safe water supply system.

Developing a Public Communication Strategy

Developing a public communications strategy will prepare you to effectively communicate with the public and media at the time of an emergency or crisis. As a CWS, you should remember that any public notification or communication will have an immediate and direct impact on your customers and consumers. Consumers may be instructed to boil water, limit their water uses to activities that do not involve consumption, or not use the water at all. A good public communications strategy will help you get your message out effectively and outline who needs to do what and when. Item that should be considered in a public communications strategy include:

- Designating a spokesperson and any alternate spokespersons (should the main spokesperson be unavailable).
- Organizing basic facts about the CWS and the situation the CWS is facing.
- Having a method in place to develop key messages to use with the media that are clear, brief and accurate.
- Making sure the messages are carefully planned and have been coordinated with other appropriate officials and organizations.
- Making sure the messages are targeted to reach different audiences such as residential and business customers, local health professional, etc.
- Having methods in place for delivering messages.
- Determining how to reach the largest number of customers and key stakeholders by selecting delivery methods that are likely to produce the best results. The reach and impact of the message and information will increase if the same message is distributed via different delivery methods more than one time.

While it may seem that developing a public communications strategy may be a lot of work and effort, you should already have experience with public and media communications through your compliance with the public notification requirements of the 1996 Safe Drinking Water Act (SDWA) amendments. In fact, many of the suggestions found in this appendix on developing and implementing a public communications strategy are excerpts from the "Public Notification Handbook" (EPA 816-R-00-010, 2010) (http://www.epa.gov/safewater/pws/pn/handbook.pdf). For example, the sample public notices shown on the following pages are taken from the handbook. Additionally, other publications and tools are available that can assist you in developing and implementing a public communications strategy not only in response to major events, but also in improving your public and media communications in general.

From The EPA Revised Public Notification Handbook: Document: EPA 816-R-09-013, March 2010

1. Introduction

The purpose of this handbook is to explain the US Environmental Protection Agency's (EPA's) Public Notification (PN) Rule and provide examples of effective public notices. This handbook is designed to meet the needs of public water systems (PWSs) of all sizes, including suggestions and instructions targeted to very small community systems (systems that serve 500 people or fewer). Suggestions, along with other useful hints for creating effective notices for all systems, are set aside in boxes throughout the handbook. This version of the handbook updates the March 2007 version (EPA 816-R-07-003). It reflects necessary changes in light of recent EPA regulations, including the Ground Water Rule (GWR) and other rule-related updates. New templates for some violations and situations of these rules are included.

Why is Effective Public Notification Important?
Public notification is designed to protect public health. As a public water supplier, you are required by law to prepare and distribute public notification to consumers. One of the best ways water systems can contribute to community health is to make sure people within a service area know about water quality

issues and how to protect themselves from potential risks. Public notification of drinking water violations and other situations provides a way to educate the public, protect public health, build trust with consumers through open and honest sharing of information, and establish an ongoing, positive relationship with your community. The greater the effort your water system makes to reach and inform everyone in your service area using your system, the more they will trust your commitment to delivering safe water and protecting public health.

This guidance is designed to help water systems understand public notification requirements ***and*** deliver effective information to educate their public and protect community health. Throughout this document tips and suggestions are provided to help you create an effective communication strategy for meeting the public notification requirements under the PN Rule. The suggestions contained in this document are based on the guiding principles for good risk communication and public education, including:

1. Accept and involve the public as a legitimate partner.
2. Plan carefully and evaluate your efforts.
3. Listen carefully to the public's concerns.
4. Be honest, frank, and open.
5. Coordinate and collaborate with other credible sources.
6. Meet the needs of the media.
7. Speak clearly and with compassion.[1]

The communication strategy outlined in this document will help water systems plan for effective public notification by analyzing the population they serve, determining the best ways to reach consumers, and creating effective channels for distributing public notices.

[1]From: Covello, V.T. and Sandman, P.M. 2001. "Risk Communication: Evolution and Revolution." In: Wolbarst, A, ed. Solutions to and Environment in Peril. Baltimore, MD: Johns Hopkins Univ. Press. pp 164-178.

In addition to increasing the effectiveness of public notices, this handbook will help public water system owners and operators comply with federal and state requirements. State and tribal primacy agencies will find this handbook useful as well. The PN Rule also provides flexibility to primacy agencies, allowing them to set different, perhaps more stringent, requirements on both a case-by-case and a rule-by-rule basis. Systems should keep this in mind when using the handbook.

Finally, as you read, you will notice references in parentheses throughout the document. These are references to the appropriate federal regulatory requirement found in the federal PN Rule (see Appendix D) and are included to help you understand the particular requirement being discussed.

2. How to Use This Handbook

This handbook contains information to help you prepare and issue a public notice. ***Before you are faced with a violation or situation requiring public notification, you should read this handbook.*** You should also check with your state to determine if there are additional public notification requirements or if more stringent public notification requirements apply. The steps to take to respond to a drinking water violation or other situation requiring notice are listed below:

1. **Determine what tier your violation or situation falls into**. Use Table 1 in Chapter 3 for a summary of violations and situations requiring notice and your deadline for providing public notice. You can also refer to Appendix A for a listing by contaminant [40 CFR 141.201(a)].
2. **Consult your primacy agency** if required. **For Tier 1 violations and situations, consult with your primacy agency as soon as practical, but no later than 24 hours after you learn of the violation or situation** [40 CFR 141.202(b)]. You must issue the notice within 24 hours, even if you are unable to contact the primacy agency. **For single exceedances of turbidity limits or for a two-day turbidity maximum contaminant level (MCL) violation, immediately consult with**

your primacy agency when you learn of the violation. Your primacy agency will determine whether the violation needs to be elevated to Tier 1 [40 CFR 141.203(b)(3)].

3. **Review the requirements for public notices.** Read Chapter 3 "Summary of Requirements" in this Guidance, which describes content, mandatory language, formatting, and the distribution requirements that are applicable to all notices. Chapter 4 provides guidance on effective public communication.
4. **Determine the appropriate method(s) of delivery.** Chapters 5, 6, and 7 describe required delivery methods for Tier 1, 2, and 3 notices, respectively, as well as ideas for creating the most effective notice possible. Required methods vary based on system type and tier. If you operate a transient non-community water system (TNCWS), read the "Public Notification Handbook for Transient Non-community Water Systems" (EPA 816-R-09-009) for assistance on delivery methods.
5. **Develop a notice;** you can use the templates that fit your situation or write your own. A list of templates is provided in the table of contents. At the ends of Chapters 5, 6, and 7 are templates for commonly occurring violations and situations, along with specific instructions for modifying each template. The instructions for each template are on the front of the page; the corresponding template is on the back. These templates are also available in Microsoft Word format on EPA's Web site at http://www.epa.gov/safewater/publicnotification/compliancehelp_templates.html. If there is no template for your specific violation or situation, write your own notice using the list of required elements in Chapter 3 or other applicable requirements provided in Chapter 3, and follow the suggestions on layout in Chapters 5 through 7. You can also use a Web-based tool developed by EPA (PNiWriter) to create your notice. This tool is located on the EPA Web site at http://www.pniwriter.com. Most violations and situations have required language regarding health effects [40 CFR 141.205(d)]. This language is discussed in Chapter 3, is found in Appendix B, and is included in the templates provided in this document.
6. **Translate the notice.** If a large proportion of the population you serve does not speak English [40 CFR 141.205(c)], translate the notice into the appropriate languages. See Chapter 3 for more on how to determine if you need translations and how to get help translating notices. See Appendix C of this document for a few important and relevant phrases translated into various languages.
7. **Provide your notice to persons served as soon as practical,** but within the required time frame. Use the method of delivery chosen in step 4 above.
8. **Send a copy of each notice issued (including repeat notices) to your primacy agency** within ten days after you distribute the notice, along with a statement certifying that all public notification requirements have been met [40 CFR 141.31(d)]. See the sample certification statement in Chapter 3.

Appropriate Use of the Templates

The templates in this handbook are designed to help operators create public notices for a variety of violations. **However, it is important to note that the templates included here are not all-inclusive and may not be appropriate for all violations and situations**. Depending on the severity of your violation or situation, it may be necessary to modify the instructions you give to consumers or to change the timing of the notice. For instance, if contaminant levels are ten times the standard (rather than a slight exceedance), you may want to tell your consumers they should not drink the water. In these cases, you should issue a notice immediately, rather than waiting up to 30 days. It is important to consult your local health department or primacy agency in such situations. In some cases, your primacy agency may instruct you to modify the timing or the notice to fit the situation.

Note that the public notice requirements described in this handbook are based on federal regulations. States or tribes may have alternate public notice requirements or more stringent drinking water standards. **You should consult with the primacy agency in order to meet its specific requirements.**

3. Summary of Requirements

This Chapter summarizes the federal PN Rule requirements. This Chapter discusses the types of violations or situations that require public notice, the required elements of a public notice, and the timing and method of delivery of the notice based on the severity of the potential health risk. Except where noted, all requirements in this Chapter can be found in the Code of Federal Regulations (CFR) at 40 CFR 141, Subpart Q, beginning at section 40 CFR 141.201. See Appendix D for a copy of this regulation. Check with your primacy agency to see if more stringent requirements apply.

What kinds of violations and situations require public notice?

In general, public notice is required for any of the following violations:

- Exceedance of maximum contaminant levels (MCLs) or maximum residual disinfectant levels (MRDLs).
- Violations of treatment techniques.
- Monitoring and testing procedure violations.
- Failure to comply with the schedule of a variance or exemption.

Other situations (not violations) which require notice include:

- Occurrence of a waterborne disease outbreak or other waterborne emergency.
- Ground Water Rule fecal indicator-positive source samples.
- Exceedance of the nitrate MCL in non-community systems that have been granted permission by the primacy agency to continue to exceed the nitrate MCL of 10 milligrams per liter (mg/L) (although they must not exceed 20 mg/l).
- Exceedance of the secondary maximum contaminant level (SMCL) for fluoride (community water systems only).
- Operation under a variance or exemption.
- Availability of unregulated contaminant monitoring results.

Primacy agencies may also require notice for other violations and situations.

EPA has assigned each violation and situation requiring notice to one of three categories, or tiers, based on the risk of adverse health effects (see Appendix A). Tier 1 notice is for violations and situations with significant potential to have serious adverse health effects on human health as a result of short term exposure. Tier 2 notice is for violations and situations with potential to have serious adverse health effects on human health. Tier 3 notice is for all other violations and situations not included in Tier 1 or Tier 2. Table 1 on the next page shows the organization of violations and situations into tiers based on the seriousness of potential adverse health effects. For a complete list of contaminants and their appropriate tiers, refer to Appendix A.

Table 1. Violations and Situations Requiring Public Notice

Tier 1 Violations and Other Situations Requiring Notice within 24 Hours*

- Violation of the MCL for total coliform, when ***fecal coliform or E. coli*** are present in the water distribution system, or failure to test for fecal coliform or *E. coli* when any repeat sample tests positive for coliform.
- Violation of the MCL for ***nitrate or nitrite,*** or when a confirmation sample is not taken within 24 hours of the system's receipt of the first sample showing exceedance of the nitrate or nitrite MCL.
- Exceedance of the ***nitrate MCL*** (10 mg/l) by non-community water systems (NCWSs), where permitted to exceed the MCL (up to 20 mg/l) by the primacy agency.
- Violations of the MRDL for ***chlorine dioxide*** when one or more of the samples taken in the distribution system on the day after exceeding the MRDL at the entrance of the distribution system or when required samples are not taken in the distribution system.
- Violation of the ***turbidity MCL*** of 5 NTU, where the primacy agency determines after consultation that a Tier 1 notice is required or where consultation does not occur in 24 hours after the system learns of violation.
- Violation of the ***treatment technique*** (TT) requirement resulting from a single exceedance of the maximum allowable ***turbidity*** limit, where the primacy agency determines after consultation that a Tier
- 1 notice is required or where consultation does not take place in 24 hours after the system learns of violation.
- Occurrence of a ***waterborne disease outbreak***, as defined in 40 CFR 141.2, or ***other waterborne emergency.***
- Detection of ***E. coli, enterococci,*** **or** ***coliphage*** in a ground water source sample.
- Other violations or situations with significant potential for serious adverse effects on human health as a result of short term exposure, ***as determined by the primacy agency*** either in its regulations or on a case-by-case basis.

* If your system has any of these violations or situations, in addition to issuing public notice, you must initiate consultation with your primacy agency as soon as practical but within 24 hours after you learn of the violation or situation. See Chapter 5 for more details.

Tier 2 Violations and Other Situations Requiring Notice within 30 Days**

- All violations of the ***MCL, MRDL, and treatment technique*** (TT) requirements except where Tier 1 notice is required.
- Violations of ***monitoring requirements where the primacy agency determines that a Tier 2*** public notice is required, taking into account potential health impacts and persistence of the violation.
- Failure to comply with the terms and conditions of any variance or exemption in place.
- For ground water systems providing 4-log treatment for viruses, failure to **maintain required treatment** for more than 4 hours.
- Failure to take **corrective action** within the required timeframe or be in compliance with a state-approved **corrective action plan** and schedule for a **fecal indicator-positive ground water source sample** under the Ground Water Rule.
- Failure to take **corrective action** within the required timeframe or be in compliance with a state-approved **corrective action plan** and schedule for a **significant deficiency** under the Ground Water Rule.
- Special public notice for repeated failure to conduct **monitoring for *Cryptosporidium*** (40 CFR 141.211)**.**

** If you exceed the maximum allowable turbidity level, as identified in Appendix A, you must consult with your primacy agency as soon as practical but no later than 24 hours after learning of the violation. See Chapter 6 for more details.

Tier 3 Violations and Other Situations Requiring Notice within 1 Year

- ***Monitoring violations***, except where Tier 1 or Tier 2 notice is required or the primacy agency determines that the violation requires a Tier 2 notice.
- ***Failure to comply with an established testing procedure*** , except where Tier 1 notice is required or the primacy agency determines that the violation requires a Tier 2 notice.
- ***Operation under a variance*** granted under section 1415 or exemption granted under section 1416 of the Safe Drinking Water Act.
- Availability of ***unregulated contaminant monitoring results***.
- Exceedance of the secondary maximum contaminant level for ***fluoride*** (community water systems only).

SPECIAL NOTICE FOR UNCORRECTED SIGNIFICANT DEFICIENCIES

Under the Ground Water Rule, if the primacy agency identifies a significant deficiency and it is uncorrected (after a specified amount of time), special notice is required.

For community water systems, this notice would be provided in your Consumer Confidence Report (CCR). Please see the CCR guidance document "Preparing Your Drinking Water Consumer Confidence Report - Guidance for Water Suppliers – 2nd Revision" (EPA 816-R-09-011).

For non-community water systems, this special notice is required if the significant deficiency has not been completely corrected within 12 months of notification of the deficiency. This notice is required regardless of whether the violation in Table 1 has occurred. This special notice is not a public notification requirement and, therefore, the content, form and manner requirements do not apply. However, the special notice must include the nature of the significant deficiency, the date it was identified by the primacy agency, and the primacy agency-approved plan and schedule for correction (including interim measures, progress to date, and any interim measures completed) [40 CFR 141.403(a)(7)(ii)]. If you have a large proportion of non-English speaking consumers, as determined by the primacy agency, you must include information in the appropriate language(s) regarding the importance of the notice or a telephone number or address where consumers may contact you to obtain a translated copy of the notice or assistance in the appropriate language.

The following text illustrates an example of special notice for this violation:

On September 14, 2013, we were informed by the State Department of Public Health that a significant deficiency, two leaking septic tanks near our source water supply, had been identified during a September 1, 2013, sanitary survey.

As required, we contacted the State Department of Public Health and were directed to make arrangements with the owner of the property on which the septic tanks are located to have the tanks replaced. We did not do so within the established deadline. Since being informed of the deficiency, we have been conducting regular testing of our source water and we are implementing the corrective action plan established by the Department of Public Health. Under this plan, the leaking tanks will be replaced by October 20,2014.

What information do I need to include in each notice for a violation or situation?

Your public notice must include specific information in order to be considered complete. For each violation and situation requiring notice (except for fluoride secondary maximum contaminant level (SMCL) exceedances, availability of unregulated contaminant monitoring data, and operation under a variance or exemption), you must provide a clear and easy-to-understand explanation of the following 10 elements [40CFR 141.205(a)]:

1. Description of the violation or situation, including the contaminant(s) of concern, and (as applicable) the contaminant level(s).
2. When the violation or situation occurred (e.g., date the sample was collected or was supposed to be collected).
3. Any potential adverse health effects from the violation or situation, using standard language for health effects provided in Appendix B to Subpart Q or for monitoring or testing procedure violations provided in 40 CFR 141.205(d)(2) or later in this Chapter.
4. The population at risk, including subpopulations that may be particularly vulnerable if exposed to the contaminant in their drinking water.

5. Whether alternate water supplies should be used.
6. Actions consumers should take, including when they should seek medical help, if known.
7. What you are doing to correct the violation or situation.
8. When you expect to return to compliance or resolve the situation.
9. Your name, business address, and phone number or those of a designee of the public water system as a source of additional information concerning the notice.
10. A statement encouraging notice recipients to distribute the notice to others, where applicable, using the standard language given in this chapter.

Figure 1 contains an example showing how all the required elements fit into a public notice. Some required elements may not apply to every violation or situation. However, you must still address these elements in your notice. For example, consider item 6 - actions consumers should take. If it is unnecessary for consumers to boil their water or drink bottled water, do not leave this item out. Instead, tell them they do not need to do so. This is especially important for Tier 2 notices, where a violation may have been resolved by the time the notice is issued or may not be an immediate health risk. You should ask your primacy agency or a local health department for the appropriate information for some elements of the notice, such as actions consumers should take to protect their health. The local health department also can help you identify other system-specific information, such as vulnerable populations (e.g., children, dialysis patients) and effective communication channels for reaching them. It would be valuable to acquire contacts and have these discussions prior to an event.

If you do not know when your system will return to compliance, state that honestly and give your consumers an idea of how long it may take. For example, an *E. coli* violation might be addressed within days, whereas installation of corrosion control might take months. When talking about potential health risks, you should always be straightforward even if that means admitting the cause of the problem is not completely understood. If you are overly optimistic in your estimate of the time required to address a problem and your system does not meet your estimate, you may see public trust erode.

Some situations, such as waterborne emergencies, may not have mandatory health effects language. In these cases you must provide system-specific wording that describes potential health effects. You may be able to adapt the language from another treatment technique or MCL violation.

When and how do I need to notify my consumers?

After you learn of a violation or situation, public notice must be provided within the required timeframe and using the specified delivery methods as summarized in Table 2 below. The tier to which a violation or situation is assigned determines the timeframe and delivery method of the public notice. Delivery requirements for community water systems (CWSs) and non-community water systems (NCWSs) differ, as indicated in Table 2. Transient non-community water system owners and operators should refer to the "Public Notification Handbook for Transient Non-community Water Systems" (EPA 816-R-09-009) to see requirements that are specific to them.

Figure 1
The Required Elements of a Public Notice

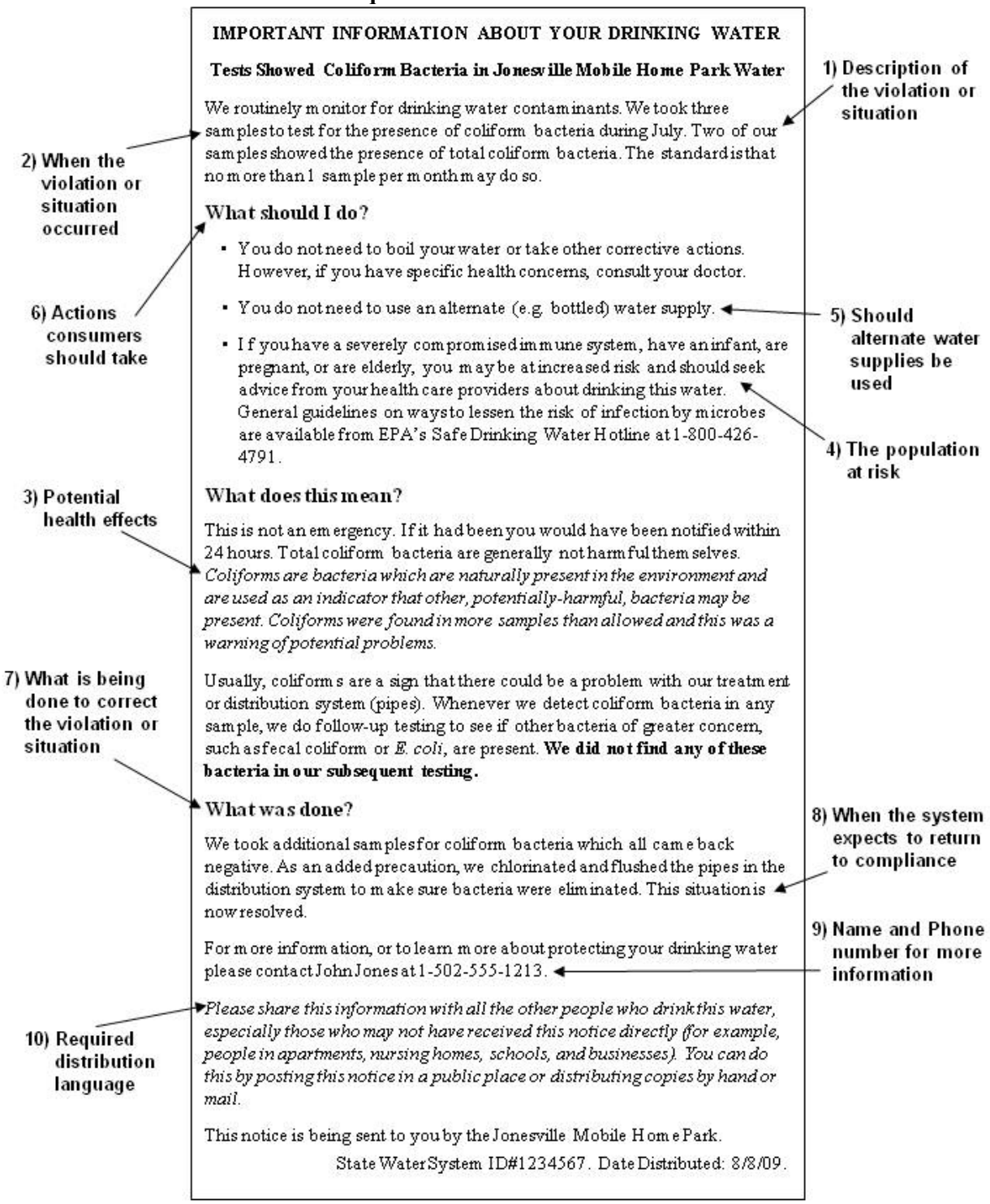

Table 2. Requirements for Issuing a Public Notice

Violation Tier	Deadline for Initial Notice	Repeat Notices *	Delivery Methods to Use	Go To…
1	24 hours **	As directed by the Michigan EGLE (primacy agency)	1. Broadcast media (radio or television), posting or hand delivery. 2. In consultation with the primacy agency, additional methods may be required.	Tier 1 Notice Requirements & Suggestions. (next section)
2	30 days ***	Every 3 months	CWS (Community Water Supply) 1. Mail or hand delivery. 2. Another method as needed to reach consumers not likely to receive a notice from methods noted in item #1.	Tier 2 Notice Requirements & Suggestions. (two sections below)
3	1 year ****	Annually	CWS (Community Water Supply) 1. Mail or hand delivery (public notice delivery may be provided by CCR if one year requirement is met). 2. Another method as needed to reach consumers not likely to receive a notice from methods noted in item #1.	Tier 3 Notice Requirements & Suggestions. (three sections below)

* Repeated notices are required if the violation or situation persists, unless otherwise directed by the primacy agency.
** For Tier 1 notices, systems must also initiate consultation with the primacy agency within 24 hours.
*** Systems with turbidity MCL violations based on the average of samples over two days or with turbidity single exceedance treatment technique violations must consult with the primacy agency within 24 hours after learning of the violation.
**** EPA recommends consolidating all Tier 3 violations and situations occurring within a given year into an annual notice.

Whom must I inform when a violation or situation occurs?

If you are faced with a violation or situation requiring public notification, you must provide the notice to persons served by your system. This means you must take all reasonable steps to inform people if they would not be reached by the most commonly used methods of notification. This does not mean that every person in the area served by the system must be notified (this may be impossible), but you must identify different types of consumers and make an effort to reach them. Additionally, every new billing customer or unit must be notified of any ongoing violations or situations for which notice has previously been issued. A non-community system's notices must be posted for as long as a violation or situation lasts. Remember that the most effective public notices—those that protect public health and build consumer understanding and trust—reach the largest possible group of people.

For example, if a community water system mails a notice to its billing customers only, people who do not receive water bills, such as tenants whose utilities are included in their rent or people who work in the area served by the system but live elsewhere, would not receive a notice. Publishing a notice in the newspaper and providing copies of the notice to landlords to distribute to their tenants would help reach those people. At a non-community system, hand delivery of notices would reach only those consumers who are present when the notices are distributed. Posting would reach visitors or newcomers.

You are required to include standard language in your notices that encourages distribution of the notice, where applicable. This language is included in Chapter 3 (page 12) and is intended to increase public awareness of the situation. Use of this language does not relieve you of your obligation to notify persons served, however.

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Example Boil Water Questions and Answers

1. When is it safe to cook, wash, drink and clean with the water?
    - *After the boil water advisory has been lifted. You can wash and clean with water under a boil water notice (see #2 below) without boiling it first.*
2. Is it safe to shower under a boil water advisory?
    - *Yes, unless you have an open wound, etc… that could let bacteria into your body.*
3. How long should you boil the water?
    - *The water should reach a rolling boil and boil for 5 minutes.*
4. Is it safe to brush your teeth under a boil water advisory?
    - *You should use boiled water.*
5. Is it safe to wash the dished in a dish washer or by hand under a boil water advisory?
    - *Use heat dry in the dishwasher / pour hot boiled water over hand washed dishes to rinse.*
6. Do you have to let it stand after you boil the water, why?
    - *You should let is stand for about 15 minutes to minimize the chance of burning yourself.*
7. What infectious organisms might be present in contaminated water?
    - *Disease transmission from contaminated water occurs principally by ingesting water. The major organisms of concern are protozoa such as Giardia and Cryptosporidium, and bacteria, such as Shigella, E. coli and viruses. These organisms primarily affect the gastrointestinal system, causing diarrhea, abdominal cramps, nausea, and vomiting with or without fever. Most of these illnesses are not usually serious or life threatening except in the elderly, the very young or those who are immunocompromised.*
8. Why is my water milky or cloudy looking? Is it safe to use this water? How can I remove?
    - *If the water is milky/cloudy colored and clears in a few minutes when put into a glass (from the bottom up), then it is air in the water and is safe to drink. You can help by flushing your lines, starting with the outside hose bib closest to where the service line enters your home. Flush out side about 15 minutes, then flush your inside faucets, etc… for a few minutes each.*
9. What if my water is discolored, what should I do to get rid of the discoloring? Is it safe to use the water (cook, wash, drink, etc…)?
    - *For cloudy/milky color, see #7 above.*
    - *If the water is yellow, orange, red or brown, it may be due to iron in the well/distribution piping. Iron is not a health concern but the discolorations are a nuisance problem. If you have a softener or filter on the line, bypass it and then check the color. If it is clear, then you should follow equipment maintenance requirements (check your salt level and regenerate the softener, clean or replace filters, etc…). If the bypassed water is discolored, it may be due to increased velocity in the water mains (lots of water sprinkling, running a lot of water in the home by clothes washing/ dish washing/ showering at the same time or system fire hydrant use. Check and flush your outside hose bib, closest to where the service line enters your home, to try and clear the discoloring. If a fire hydrant was used, it may take a day to settle down. If this does not reduce the discoloring, call the City of Howell Water Treatment Plant (517-546-5309) or Howell DPW (517-546-7510).*
10. When trying to flush your water lines, does it matter if you are running the inside taps or the outside spigots? Should you drain your hot water heater?

- *See #7 above for water flushing.*
- *You do NOT need to drain your hot water heater for a "precautionary boil water advisory" as you shouldn't drink or cook with water drawn from your hot water tap.*

11. What can be done when there is air in the water lines?
    - *See #7 answers above.*
12. Does the use of bleach purify your water? How much bleach should I add? Under a boil water notice, can you use bleach to disinfect your water without boiling it first?
    - *Yes, when boiling is not practical, chemical disinfection should be used. You can use bleach to disinfect drinking water.*
    - *See below for Environmental Protection Agency (EPA) recommendations.*

    Taken from EPA's "Emergency Disinfection of Drinking Water" Office of Water 4606-M
    EPA 816-F-06-027 Aug 2006 www.epa.gov/safewater

    Chlorine Bleach: Common household bleach contains a chlorine compound that will disinfect water. The procedure to be followed is usually written on the label. When the necessary procedure is not given, find the percentage of available chlorine on the label and use the information in the following table as a guide:

% Available Chlorine	Drops per **Quart** of Clear Water	Drops per **Gallon** of Clear Water	Drops per **Liter** of Clear Water
1 %	10 drops	40 drops	10 drops
4 - 6 %	2 drops	8 drops	2 drops
7 - 10 %	1 drop	4 drops	1 drop

    If the strength of the bleach is unknown, add ten drops per quart or liter of filtered and settled water. Double the amount of chlorine for cloudy, murky or colored water or water that is extremely cold.

    Mix the treated water thoroughly and allow it to stand, preferably covered, for 30 minutes. The water should have a slight chlorine odor. If it does not, repeat the dosage and allow the water to stand for an additional 15 minutes. If the treated water has too strong a chlorine taste, allow the water to stand exposed to the air for a few hours or pour it from one clean container to another several times.

13. What should homeowners do when the Boil Water Notice is lifted?
    - Flush household pipes/faucets: follow the directions of your water utility (in the newspaper, radio, or television, or as general guidance, run cold water faucets for 3 minutes each if they have not been used in the last 24 hours.
    - Flush home automatic ice makers: make three batches of ice cubes and discard all three batches.
    - Drain and refill your hot water heater if set at a low temperature (below 113° F).
    - Run water softeners through a regeneration cycle.

Appendix B

Public Participation Documentation

Appendix C

Project Plan Correspondence

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Michigan Department of Environment, Great Lakes, and Energy (EGLE) – Air Quality
NESHAP Asbestos Program
PO Box 30260
Lansing, MI 48909

Attn: Ms. Karen Kajiya-Mills, Program Manager

Re: Impact Review
Water System Improvement Program
City of Howell

HRC Job No. 20220254

Dear Ms. Kajiya-Mills:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires a review to determine any potential impacts to removal of building materials containing asbestos in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
- Removal and replacement of 1,300 feet of 4-inch diameter water main with 8-inch diameter water main along Brooks Street from Gregory Street to Isbell Street to improve the system reliability and water quality.
- Removal and replacement of existing lead and galvanized services located throughout the city.
- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any NESHAP regulations. On behalf of the City of Howell, we are requesting a review to confirm that the above referenced project follows the Clean Air Act and will not cause an impact to NESHAP regulations in the project vicinity.

We request, on behalf of the City of Howell, your concurrence with this determination. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require any additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

State Historic Preservation Office (SHPO)
Environmental Review Office, Michigan Historical Center
702 W. Kalamazoo Street
P.O. Box 30740
Lansing, MI 48909

Re: Historic Review
Water System Improvement Program
City of Howell

HRC Job No. 20220254

To Whom it may Concern:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires a review to determine any potential impacts on any historic properties with religious and/or cultural significance in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the potential impacts of the above referenced proposed project upon any historic properties with religious and/or cultural significance in the vicinity of the project. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
- Removal and replacement of 1,300 feet of 4-inch diameter water main with 8-inch diameter water main along Brooks Street from Gregory Street to Isbell Street to improve the system reliability and water quality.
- Removal and replacement of existing lead and galvanized services located throughout the city.
- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The existing water system service area for the city encompasses almost the entire area within the boundaries of the city. Please see attached figure map for the Project Area.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project that could cause irreparable loss or destruction of significant scientific, prehistoric, historical, or archeological data in the vicinity of the project. To comply with the Archeological and Historic Preservation Act of 1974, your office must be notified as part of the development of the Project Plan. Attached is an application for Section 106 review and all its necessary attachments to fulfill this obligation. On behalf of the City of Howell, we are requesting your determination of the potential for irreparable loss or destruction of significant scientific, prehistoric, historical, or archeological data that may be caused by this project.

We request your concurrence with this determination. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require any additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map
Localized USGS Topo Map with APE
Copy of Application for Section 106 Review
Photographs for Section V. of Application
Register of Historic Places Map
Historic District Photographs

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Bay Mills Indian Community
12140 W. Lakeshore Drive
Brimley, MI 49715

Attn: Ms. Paula Carrick, THPO

Re: Notice and Opportunity to Comment
Water System Improvement Program
City of Howell, Livingston County, Michigan

HRC Job No. 20220254

Dear Ms. Carrick:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires fulfillment of a review process through Section 106 of the National Historic Preservation Act. During this process a federal agency or applicant is required to consult with Tribal Historic Preservation Officers (THPO) and federally recognized Indian tribes to determine the potential impacts on any historic properties with religious and/or cultural significance in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon any historic properties with religious and/or cultural significance in the vicinity of the project. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
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- Removal and replacement of existing lead and galvanized services located throughout the city.
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The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any historic properties with religious and/or cultural significance.

On behalf of the City of Howell, we are providing you with the opportunity to comment on the above referenced project to assure that it will not cause an impact to any historical properties with religious and/or cultural significance in which you may be aware. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Grand Traverse Band of Ottawa and Chippewa Indians
2605 NW Bayshore Drive
Peshawbetown, MI 49682

Attn: Ms. Cindy Winslow

Re: Notice and Opportunity to Comment
Water System Improvement Program
City of Howell, Livingston County, Michigan

HRC Job No. 20220254

Dear Ms. Winslow:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires fulfillment of a review process through Section 106 of the National Historic Preservation Act. During this process a federal agency or applicant is required to consult with Tribal Historic Preservation Officers (THPO) and federally recognized Indian tribes to determine the potential impacts on any historic properties with religious and/or cultural significance in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon any historic properties with religious and/or cultural significance in the vicinity of the project. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
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- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any historic properties with religious and/or cultural significance.

On behalf of the City of Howell, we are providing you with the opportunity to comment on the above referenced project to assure that it will not cause an impact to any historical properties with religious and/or cultural significance in which you may be aware. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Hannahville Potawatomi Indian Community
N-14911 Hannahville B-1 Road
Wilson, MI 49896

Attn: Mr. Earl Meshigaud

Re: Notice and Opportunity to Comment
Water System Improvement Program
City of Howell, Livingston County, Michigan

HRC Job No. 20220254

Dear Mr. Meshigaud:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires fulfillment of a review process through Section 106 of the National Historic Preservation Act. During this process a federal agency or applicant is required to consult with Tribal Historic Preservation Officers (THPO) and federally recognized Indian tribes to determine the potential impacts on any historic properties with religious and/or cultural significance in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon any historic properties with religious and/or cultural significance in the vicinity of the project. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
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The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any historic properties with religious and/or cultural significance.

On behalf of the City of Howell, we are providing you with the opportunity to comment on the above referenced project to assure that it will not cause an impact to any historical properties with religious and/or cultural significance in which you may be aware. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Keweenaw Bay Indian Community
16429 Bear Town Road
Baraga, MI 49908

Attn: Mr. Gary Loonsfoot, Jr., THPO

Re: Notice and Opportunity to Comment
Water System Improvement Program
City of Howell, Livingston County, Michigan

HRC Job No. 20220254

Dear Mr. Loonsfoot, Jr.:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires fulfillment of a review process through Section 106 of the National Historic Preservation Act. During this process a federal agency or applicant is required to consult with Tribal Historic Preservation Officers (THPO) and federally recognized Indian tribes to determine the potential impacts on any historic properties with religious and/or cultural significance in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon any historic properties with religious and/or cultural significance in the vicinity of the project. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
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The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any historic properties with religious and/or cultural significance.

On behalf of the City of Howell, we are providing you with the opportunity to comment on the above referenced project to assure that it will not cause an impact to any historical properties with religious and/or cultural significance in which you may be aware. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Lac Vieux Desert Band of Lake Superior Chippewa Indians
P.O. Box 249
Watersmeet, MI 49969

Attn: Mr. Giiwegiizhigookway Martin, THPO

Re: Notice and Opportunity to Comment
Water System Improvement Program
City of Howell, Livingston County, Michigan

HRC Job No. 20220254

Dear Mr. Martin:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires fulfillment of a review process through Section 106 of the National Historic Preservation Act. During this process a federal agency or applicant is required to consult with Tribal Historic Preservation Officers (THPO) and federally recognized Indian tribes to determine the potential impacts on any historic properties with religious and/or cultural significance in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon any historic properties with religious and/or cultural significance in the vicinity of the project. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
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The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any historic properties with religious and/or cultural significance.

On behalf of the City of Howell, we are providing you with the opportunity to comment on the above referenced project to assure that it will not cause an impact to any historical properties with religious and/or cultural significance in which you may be aware. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Little River Band of Ottawa Indians
2608 Government Center Drive
Manistee, MI 49660

Attn: Mr. Jay Sam, Director

Re: Notice and Opportunity to Comment
Water System Improvement Program
City of Howell, Livingston County, Michigan

HRC Job No. 20220254

Dear Mr. Sam:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires fulfillment of a review process through Section 106 of the National Historic Preservation Act. During this process a federal agency or applicant is required to consult with Tribal Historic Preservation Officers (THPO) and federally recognized Indian tribes to determine the potential impacts on any historic properties with religious and/or cultural significance in the vicinity of the project.

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If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Little Traverse Bay Band of Odawa
7500 Odawa Circle
Harbor Springs, MI 49740

Attn: Mr. Wes Andrews

Re: Notice and Opportunity to Comment
Water System Improvement Program
City of Howell, Livingston County, Michigan

HRC Job No. 20220254

Dear Mr. Andrews:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires fulfillment of a review process through Section 106 of the National Historic Preservation Act. During this process a federal agency or applicant is required to consult with Tribal Historic Preservation Officers (THPO) and federally recognized Indian tribes to determine the potential impacts on any historic properties with religious and/or cultural significance in the vicinity of the project.

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- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
- Removal and replacement of 1,300 feet of 4-inch diameter water main with 8-inch diameter water main along Brooks Street from Gregory Street to Isbell Street to improve the system reliability and water quality.
- Removal and replacement of existing lead and galvanized services located throughout the city.
- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any historic properties with religious and/or cultural significance.

On behalf of the City of Howell, we are providing you with the opportunity to comment on the above referenced project to assure that it will not cause an impact to any historical properties with religious and/or cultural significance in which you may be aware. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Match-e-be-nash-shee-wish Gun Lake Band of Potawatomi Indians
2872 Mission Drive
Shelbyville, MI 49344

Attn: Ms. Heather Bush

Re: Notice and Opportunity to Comment
Water System Improvement Program
City of Howell, Livingston County, Michigan

HRC Job No. 20220254

Dear Ms. Bush:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires fulfillment of a review process through Section 106 of the National Historic Preservation Act. During this process a federal agency or applicant is required to consult with Tribal Historic Preservation Officers (THPO) and federally recognized Indian tribes to determine the potential impacts on any historic properties with religious and/or cultural significance in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon any historic properties with religious and/or cultural significance in the vicinity of the project. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
- Removal and replacement of 1,300 feet of 4-inch diameter water main with 8-inch diameter water main along Brooks Street from Gregory Street to Isbell Street to improve the system reliability and water quality.
- Removal and replacement of existing lead and galvanized services located throughout the city.
- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any historic properties with religious and/or cultural significance.

On behalf of the City of Howell, we are providing you with the opportunity to comment on the above referenced project to assure that it will not cause an impact to any historical properties with religious and/or cultural significance in which you may be aware. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Nottawaseppi Band of Huron Potawatomi
1485 Mno-Bmadzewen Way
Fulton, MI 49052

Attn: Mon-ee Zapata, Cultural Specialist

Re: Notice and Opportunity to Comment
Water System Improvement Program
City of Howell, Livingston County, Michigan

HRC Job No. 20220254

Dear Mon-ee Zapata:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires fulfillment of a review process through Section 106 of the National Historic Preservation Act. During this process a federal agency or applicant is required to consult with Tribal Historic Preservation Officers (THPO) and federally recognized Indian tribes to determine the potential impacts on any historic properties with religious and/or cultural significance in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon any historic properties with religious and/or cultural significance in the vicinity of the project. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
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- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any historic properties with religious and/or cultural significance.

On behalf of the City of Howell, we are providing you with the opportunity to comment on the above referenced project to assure that it will not cause an impact to any historical properties with religious and/or cultural significance in which you may be aware. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Pokagon Band of Potawatomi
58620 Sink Road
Dowagiac, MI 49047

Attn: Mr. Marcus Winchester, THPO

Re: Notice and Opportunity to Comment
Water System Improvement Program
City of Howell, Livingston County, Michigan

HRC Job No. 20220254

Dear Mr. Winchester:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires fulfillment of a review process through Section 106 of the National Historic Preservation Act. During this process a federal agency or applicant is required to consult with Tribal Historic Preservation Officers (THPO) and federally recognized Indian tribes to determine the potential impacts on any historic properties with religious and/or cultural significance in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon any historic properties with religious and/or cultural significance in the vicinity of the project. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
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The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any historic properties with religious and/or cultural significance.

On behalf of the City of Howell, we are providing you with the opportunity to comment on the above referenced project to assure that it will not cause an impact to any historical properties with religious and/or cultural significance in which you may be aware. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Saginaw Chippewa Indian Tribe of MI
6650 E. Broadway
Mt. Pleasant, MI 48858

Attn: Mr. William Johnson, Interim THPO

Re: Notice and Opportunity to Comment
Water System Improvement Program
City of Howell, Livingston County, Michigan

HRC Job No. 20220254

Dear Mr. Johnson:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires fulfillment of a review process through Section 106 of the National Historic Preservation Act. During this process a federal agency or applicant is required to consult with Tribal Historic Preservation Officers (THPO) and federally recognized Indian tribes to determine the potential impacts on any historic properties with religious and/or cultural significance in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon any historic properties with religious and/or cultural significance in the vicinity of the project. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
- Removal and replacement of 1,300 feet of 4-inch diameter water main with 8-inch diameter water main along Brooks Street from Gregory Street to Isbell Street to improve the system reliability and water quality.
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- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any historic properties with religious and/or cultural significance.

On behalf of the City of Howell, we are providing you with the opportunity to comment on the above referenced project to assure that it will not cause an impact to any historical properties with religious and/or cultural significance in which you may be aware. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Sault Ste. Marie Tribe of Chippewa
523 Ashmun
Sault Ste. Marie, MI 49783

Attn: Ms. Colleen Medicine

Re: Notice and Opportunity to Comment
Water System Improvement Program
City of Howell, Livingston County, Michigan

HRC Job No. 20220254

Dear Ms. Medicine:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires fulfillment of a review process through Section 106 of the National Historic Preservation Act. During this process a federal agency or applicant is required to consult with Tribal Historic Preservation Officers (THPO) and federally recognized Indian tribes to determine the potential impacts on any historic properties with religious and/or cultural significance in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon any historic properties with religious and/or cultural significance in the vicinity of the project. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
- Removal and replacement of 1,300 feet of 4-inch diameter water main with 8-inch diameter water main along Brooks Street from Gregory Street to Isbell Street to improve the system reliability and water quality.
- Removal and replacement of existing lead and galvanized services located throughout the city.
- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any historic properties with religious and/or cultural significance.

On behalf of the City of Howell, we are providing you with the opportunity to comment on the above referenced project to assure that it will not cause an impact to any historical properties with religious and/or cultural significance in which you may be aware. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Michigan Department of Agriculture & Rural Development
Farmland Preservation Program
Environmental Stewardship Division
P.O. Box 30499
Lansing, MI 48909

Re: Impact Review
Water System Improvement Program
City of Howell

HRC Job No. 20220254

To Whom it may Concern:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires a review to determine any potential impacts on significant farmland or agricultural lands in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon The Farmland and Open Space Preservation Act (Part 361 of the NREPA) or PA 116. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
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- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any significant farmland or agricultural lands. Please see attached aerial images and zoning maps which show a lack of existing significant farmlands in the project area. Both the City of Howell and Howell Township zoning maps from their websites are referenced. We are requesting a review to confirm that the above referenced project will not cause an impact to any significant farmland or agricultural lands in the project vicinity.

We request, on behalf of the City of Howell, your concurrence with this determination. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map
City of Howell Zoning Map
Project Area Aerial Images

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Farmland Preservation Program
USDA Natural Resources Conservation Service
3001 Coolidge Road, Suite 250
East Lansing, MI 48823

Re: Impact Review
Water System Improvement Program
City of Howell

HRC Job No. 20220254

To Whom it may Concern:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires a review to determine any potential impacts on prime and unique farmland in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon the Farmland Protection Policy Act regulations. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
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- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No conversions of farmland to nonagricultural uses are expected. Please see attached zoning map which shows a lack of existing significant farmlands and agricultural zones within the project area. We are requesting a review to confirm that the above referenced project will not cause an impact to any significant farmland or agricultural lands in the project vicinity.

We request, on behalf of the City of Howell, your concurrence with this determination. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map
City of Howell Zoning Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Livingston County Health Department
2300 East Grand River Ave, Suite 102
Howell, MI 48843

Re: Impact Review
Water System Improvement Program
City of Howell

HRC Job No. 20220254

To Whom it may Concern:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires a review to determine any potential impacts to on-site septic systems in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the acceptability of the proposed action as it relates to on-site septic systems. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
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The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any on-site septic systems. We are requesting a review to confirm that the above referenced project will not cause an impact to any on-site septic systems.

We request, on behalf of the City of Howell, your concurrence with this determination. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Michigan Department of Environment, Great Lakes, and Energy (EGLE)
Remediation and Redevelopment Division
Lansing District Office
PO Box 30242
Lansing, MI 48909

Attn: Mr. David LaBrecque, Environmental Manager

Re: Impact Review
Water System Improvement Program
City of Howell

HRC Job No. 20220254

Dear Mr. LaBrecque:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires a review to determine any potential impacts to contaminated sites in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon contaminated sites based on Part 201 and Part 213 of Michigan's Natural Resources and Environmental Protection Act (NREPA). The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
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- Removal and replacement of existing lead and galvanized services located throughout the city.
- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any NREPA regulations. We are requesting a review to confirm that the above referenced project will not cause an impact to Part 201 or Part 213 of the NREPA.

We request, on behalf of the City of Howell, your concurrence with this determination. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require any additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Michigan Department of Environment, Great Lakes, and Energy (EGLE)
Office of Waste Management and Radiological Protection Division
PO Box 30242
Lansing, MI 48909

Re: Impact Review
Water System Improvement Program
City of Howell

HRC Job No. 20220254

To Whom it may Concern:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires a review to determine any potential impacts to the disposal of waste materials in accordance with Michigan's Natural Resources and Environmental Protection Act (NREPA) as a result of the project.

On behalf of the City of Howell, we are requesting information regarding the potential impacts of the above referenced project based on Part 111, Part 115, and Part 121 of Michigan's Natural Resources and Environmental Protection Act (NREPA) and the Hazardous Materials Transportation Act. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
- Removal and replacement of 1,300 feet of 4-inch diameter water main with 8-inch diameter water main along Brooks Street from Gregory Street to Isbell Street to improve the system reliability and water quality.
- Removal and replacement of existing lead and galvanized services located throughout the city.
- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any NREPA regulations. No removal or disposal of building materials which contain lead, mercury, PCB's, or similar contaminants is expected. Therefore, there are no anticipated impacts from the proposed project upon any NREPA regulations. We are requesting a review to confirm that the above referenced project will not cause an impact to Part 111, Part 115, or Part 121 of the NREPA.

Additionally, since all replacements and pipe cleaning will be performed on the water system throughout the city, liquid industrial waste (LIW) is not an anticipated byproduct of the project. Therefore, knowledge of proper transportation and disposal requirements for LIW is not expected for this project.

We request, on behalf of the City of Howell, your concurrence with this determination. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require any additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Michigan Natural Features Inventory
P.O. Box 13036
Lansing, MI 48901

Re: Protected Plants and Animals Review
Water System Improvement Program
City of Howell

HRC Job No. 20220254

To Whom it may Concern:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires a review to determine any potential impacts on protected plants and animals in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon protected plants and animals. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
- Removal and replacement of 1,300 feet of 4-inch diameter water main with 8-inch diameter water main along Brooks Street from Gregory Street to Isbell Street to improve the system reliability and water quality.
- Removal and replacement of existing lead and galvanized services located throughout the city.
- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The existing water system service area for the city encompasses almost the entire area within the boundaries of the city. The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the repair work required for this project. The Lucy Road extension will cross the Marion-Genoa Drain through undeveloped, forested wetlands. Please see attached figure of the project area.

The proposed Lucy Road extension will cross the Marion and Genoa County Drain and the extension will be directionally drilled to limit earth disruption. There will still need to be excavations in areas of HDD for boring pits, hydrants, gate valves, and connections to existing mains. Mitigation measures and soil erosion efforts will be undertaken to protect the floodplain, including but not limited to silt fences, turbidity curtains, stone check dams, gravel access drives, riprap, etc. Additionally, excavations will be filled with appropriate backfill materials, compacted and restored to grade. Attached is a figure showing the location of the proposed water main improvements.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. We have reviewed the U.S. Fish and Wildlife Service streamlined review process and determined that endangered species could potentially be present in the City of Howell, but there are no critical habitats in the City of Howell. Therefore, we do not anticipate any effect on any endangered species in the project vicinity. We are requesting a review from the U.S. Fish and Wildlife Service to indicate if the above referenced project will cause an impact to any protected plants and animals in the project vicinity.

Using the U.S. Fish & Wildlife Service's Environmental Conservation Online System's online mapper, the City of Howell does not contain any critical habitats which would impact endangered species. See attached screenshots showing no critical habitats in the area. The link for the online mapper is shown below:
(https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77)

We request, on behalf of the City of Howell, your concurrence with this determination. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Overview of Project Area Map
Documentation of Review Process
Site Images

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

U.S. Fish and Wildlife Service
East Lansing Field Office
2651 Coolidge Road Suite 101
East Lansing, MI 48823

Attn: Ms. Martha Williams, Director

Re: Protected Plants and Animals Review
Water System Improvement Program
City of Howell

HRC Job No. 20220254

Dear Ms. Williams:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires a review to determine any potential impacts on protected plants and animals in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon protected plants and animals. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
- Removal and replacement of 1,300 feet of 4-inch diameter water main with 8-inch diameter water main along Brooks Street from Gregory Street to Isbell Street to improve the system reliability and water quality.
- Removal and replacement of existing lead and galvanized services located throughout the city.
- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed Lucy Road extension will cross the Marion and Genoa County Drain and the extension will be directionally drilled to limit earth disruption. There will still need to be excavations in areas of HDD for boring pits, hydrants, gate valves, and connections to existing mains. Mitigation measures and soil erosion efforts will be undertaken to protect the floodplain, including but not limited to silt fences, turbidity curtains, stone check dams, gravel access drives, riprap, etc. Additionally, excavations will be filled with appropriate backfill materials, compacted and restored to grade. Attached is a figure showing the location of the proposed water main improvements.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. We have reviewed the U.S. Fish and Wildlife Service streamlined review process and determined that endangered species could potentially be present in the City of Howell, but there are no critical habitats in the City of Howell. Therefore, we do not anticipate any effect on any endangered species in the project vicinity. We are requesting a review from the U.S. Fish and Wildlife Service to indicate if the above referenced project will cause an impact to any protected plants and animals in the project vicinity.

Using the U.S. Fish & Wildlife Service's Environmental Conservation Online System's online mapper, the City of Howell does not contain any critical habitats which would impact endangered species. See attached screenshots showing no critical habitats in the area. The link for the online mapper is shown below:
(https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77)

We request, on behalf of the City of Howell, your concurrence with this determination. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map
ECOS Endangered Species Documentation
Site Images

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Howell Township
3525 Byron Road
Howell, MI 48855

Attn: Mr. Mike Coddington, Supervisor

Re: Project Notification
Water System Improvement Program
City of Howell

HRC Job No. 20220254

Dear Mr. Coddington:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires a review to determine any potential impacts on planning or local development plans in the area.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon any planning or local development plans in the vicinity of the project. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
- Removal and replacement of 1,300 feet of 4-inch diameter water main with 8-inch diameter water main along Brooks Street from Gregory Street to Isbell Street to improve the system reliability and water quality.
- Removal and replacement of existing lead and galvanized services located throughout the city.
- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any planning or local developments. We are requesting a review to confirm that the above referenced project will not cause an impact to any planning or local development plans.

We request, on behalf of the City of Howell, your concurrence with this determination. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Marion Township
2877 W Coon Lake Road
Howell, MI 48843

Attn: Mr. Bob Hanvey, Supervisor

Re: Project Notification
Water System Improvement Program
City of Howell

HRC Job No. 20220254

Dear Mr. Hanvey:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires a review to determine any potential impacts on planning or local development plans in the area.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon any planning or local development plans in the vicinity of the project. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
- Removal and replacement of 1,300 feet of 4-inch diameter water main with 8-inch diameter water main along Brooks Street from Gregory Street to Isbell Street to improve the system reliability and water quality.
- Removal and replacement of existing lead and galvanized services located throughout the city.
- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any planning or local developments. We are requesting a review to confirm that the above referenced project will not cause an impact to any planning or local development plans.

We request, on behalf of the City of Howell, your concurrence with this determination. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

Southeast Michigan Council of Governments (SEMCOG)
1001 Woodward Avenue, Suite 1400
Detroit, MI 48226

Re: Regional Environmental Planning Review
Water System Improvement Program
City of Howell

HRC Job No. 20220254

To Whom it may Concern:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires a review to determine any potential impacts on any local development plans, area wide waste treatment management plans and/or regional water quality management plans.

On behalf of the City of Howell, we are requesting information regarding the potential impacts of the above referenced proposed project based upon any local development plans, area wide waste treatment management plans and/or regional water quality management plans in the vicinity of the project. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
- Removal and replacement of 1,300 feet of 4-inch diameter water main with 8-inch diameter water main along Brooks Street from Gregory Street to Isbell Street to improve the system reliability and water quality.
- Removal and replacement of existing lead and galvanized services located throughout the city.
- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

All population figures and projections referenced in the project plan will be collected from the Southeast Michigan Council of Governments (SEMCOG) Community Profiles, which can be found at the following web address: (http://www.semcog.org/Data-and-Maps/Community-Profiles#People).

On behalf of the City of Howell, we request notification if an alternative source for the population data is recommended.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon local development plans, area wide waste treatment management plans and/or regional water quality management plans. We

are requesting a review to confirm that the above referenced project will not cause an impact to any local development plans, area wide waste treatment management plans and/or regional water quality management plans.

On behalf of the City of Howell, we request your concurrence with this determination. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

Additionally, a copy of the Project Plan Draft will be sent to your office upon completion for your review and approval.

If you have any questions or require any additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map
Site Images

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 27, 2022

Natural River Administration
DNR Fisheries Division
P.O. Box 30446
Lansing, MI 48909

Attn: Mr. Jim Dexter, Chief, Fisheries Division

Re: Wild and Scenic Rivers Review
Water System Improvement Program
City of Howell

HRC Job No. 20220254

Dear Mr. Dexter:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires a review to determine any potential impacts on state or federally designated wild, scenic, or natural rivers or tributaries in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon the Michigan Scenic Rivers Act of 1991 and protected state or federally designated wild, scenic, or natural rivers or tributaries. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
- Removal and replacement of 1,300 feet of 4-inch diameter water main with 8-inch diameter water main along Brooks Street from Gregory Street to Isbell Street to improve the system reliability and water quality.
- Removal and replacement of existing lead and galvanized services located throughout the city.
- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. According to the Nationwide Rivers Inventory on the National Park Service Website, the Huron River watershed runs through Livingston County but has no impact on the City of Howell. Also, the City of Howell doesn't contain any rivers that are considered a state-designated river segment. Please see attached documentation of the Nationwide Rivers Inventory and the National Wild Fish Healthy Survey Database Map for more information. In conclusion, it does not appear that the project will interface with any impact on local rivers.

We are requesting a review to confirm that the above referenced project will not cause an impact to any state or federally designated wild, scenic, or natural rivers or tributaries.

We request, on behalf of the City of Howell, your concurrence with this determination. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map
National River Inventory Documentation
National Wild Fish Healthy Survey Database Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
WEBSITE: hrcengr.com

April 26, 2022

MDOT Bureau of Aeronautics
2700 Port Lansing Road
Lansing, MI 48906

Attn: Ms. Molly Lamrouex, Aeronautics Environmental Specialist

Re: Impact Review
Water System Improvement Program
City of Howell

HRC Job No. 20220254

Dear Ms. Lamrouex:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires a review to determine any potential impacts on airspace and airports in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon Federal Aviation Administration (FAA) regulations (14 CFR 77.13) and the Michigan Tall Structure Act (1959 PA 259). The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
- Removal and replacement of 1,300 feet of 4-inch diameter water main with 8-inch diameter water main along Brooks Street from Gregory Street to Isbell Street to improve the system reliability and water quality.
- Removal and replacement of existing lead and galvanized services located throughout the city.
- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. No impacts are expected from the proposed project upon any airspace and airports. On behalf of the City of Howell, we are requesting a review to confirm that the above referenced project will not cause an impact to any airspace or airports in the project vicinity.

We request, on behalf of the City of Howell, your concurrence with this determination. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

STREET: 105 W. Grand River
Howell, MI 48843
PHONE: 517-552-9199
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April 27, 2022

Michigan Department of Environment, Great Lakes, and Energy (EGLE)
Water Resources Division
Lansing District Office
PO Box 30242
Lansing, MI 48909

Attn: Ms. Mary Vanderlaan, District Supervisor

Re: Regional Environmental Planning Review
Water System Improvement Program
City of Howell

HRC Job No. 20220254

Dear Ms. Vanderlaan:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires a review to determine any potential impacts on land-water interfaces, including Inland Lakes and Streams, Floodplains, Wetlands, Great Lakes Shorelands, Navigable Waters and Army Corps of Engineers (ACE) Regulated Activities.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon the previously detailed land-water interfaces in the vicinity of the project. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
- Removal and replacement of 1,300 feet of 4-inch diameter water main with 8-inch diameter water main along Brooks Street from Gregory Street to Isbell Street to improve the system reliability and water quality.
- Removal and replacement of existing lead and galvanized services located throughout the city.
- Removal and replacement of 400 feet of a 12-inch diameter water main at the City of Howell's Water Treatment Plant, located at 150 Marion Street, from the water storage tank to Pinckney Road to improve the system reliability and water quality.

The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The project site covers mainly urban areas. Please see attached figure for locations of the proposed improvements.

Horizontal directional drilling (HDD) of the proposed water main is anticipated to take place for much of the water main along Lucy Road from the train tracks south to just north of I-96, as well as the connection at the development west of Lucy Road. There will still need to be excavations in areas of HDD for boring pits, hydrants, gate valves, and connections to existing mains. The Lucy Road water main installation will cross the Marion and Genoa County drain. Horizontal directional drilling will minimize disruption to the county drain. Mitigation measures and soil erosion efforts will be

undertaken to protect the floodplain, including but not limited to silt fences, turbidity curtains, stone check dams, gravel access drives, riprap, etc. Additionally, excavations will be filled with appropriate backfill materials, compacted and restored to grade. Attached is a figure showing the location of the proposed water main improvements. Open cut construction is anticipated to take place for Warbler Way and Brooks Street. On behalf of the City of Howell, we are requesting a review to confirm that the above reference project will not cause an impact to any Inland Lakes and Streams or land-water interfaces.

On behalf of the City of Howell, we have identified that the water treatment plant is within floodplain limits based on the FEMA Floodplain Maps. Attached is a figure of the exact location. The isolated excavation locations will be planned to not occur near the floodplains, so we do not expect to impact the floodplains. However, if isolated excavations must be located within the 100-year floodplain, mitigation measures and soil erosion efforts will be undertaken to protect the floodplains influenced by the project. The Lucy Road water main extension is anticipated to take place within the floodplain limits from the Marion and Genoa County drain, thus mitigation measures and soil erosion efforts, including but not limited to silt fences, turbidity curtains, stone check dams, gravel access drives, riprap, etc. must be undertaken to protect the floodplains influenced by the project. Additionally, excavations will be filled with appropriate backfill materials, compacted and restored to existing grade. On behalf of the City of Howell, we are requesting a review to confirm that the above referenced project will not cause any permanent impacts to any floodplains in the project vicinity.

Sections of the proposed water main near Lucy Road are in areas that appear to be out of the road right-of-way. An in-depth review of existing rights-of-way will need to take place during the design phase to determine if an existing easement is already in place or if easement acquisition will be necessary. There are also portions of the project that will require temporary access rights for performing service lead work. Attached is a map of the known wetlands in the project area. Wherever project work is required within an existing wetland, necessary mitigation measures will be undertaken to protect the wetlands influenced by the project. On behalf of the City of Howell, we are requesting a review to confirm that the above referenced project will not cause any permanent impacts to any wetlands in the project vicinity.

Since the proposed project mainly involves improvements to existing facilities that are not located along a shoreline or within navigable waters of the United States, no impacts are expected from the proposed project upon Great Lakes Shorelands, Navigable Waters or ACE Regulated Activities. On behalf of the City of Howell, we are requesting a review to confirm that the above referenced project will not cause an impact to any Great Lakes Shorelands, Navigable Waters or ACE Regulated Activities.

If not already obtained, the appropriate joint permit applications will be completed, and the necessary permits obtained prior to any construction activities in this project area.

We request, on behalf of the City of Howell, your concurrence with this determination. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require any additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Overview Project Area Map
FEMA Floodplain Project Area Map
Wetlands Project Area Map
Site Photos

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

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April 27, 2022

USDA Forest Service
1400 Independence Ave., SW
Washington, D.C. 20250

Re: Federal Wild and Scenic Rivers Review
Water System Improvement Program
City of Howell, Livingston County, Michigan

HRC Job No. 20220254

To Whom it may Concern:

The City of Howell is submitting a Project Plan to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for acceptance into the Drinking Water State Revolving Fund (DWSRF) Loan Program. The Project Plan requires a review to determine any potential impacts on state or federally designated wild, scenic, or natural rivers or tributaries in the vicinity of the project.

On behalf of the City of Howell, we are requesting information regarding the impacts of the above referenced proposed project upon protected state or federally designated wild, scenic, or natural rivers or tributaries. The project construction will involve the following:

- Installation of 6,000 feet of 12-inch diameter water main along Lucy Road from approximately 0.65 miles south of Grand River, to just north of I-96, as well as west to the future development north of I-96, to create a looped system from Lucy Road to D-19 and improve system reliability.
- Removal and replacement of 800 feet of 4-inch diameter water main with 8-inch diameter water main along Warbler Way from Fowler Street to Meadow Lark Lane to improve the system reliability and water quality.
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The project areas are in Section 35 and 36 of the City of Howell (Howell Township) and Section 1 of the City of Howell (Marion Township), Michigan, T3N, R4E. The location of the water system improvements and the areas of the City of Howell that will be impacted are provided in the attached figures.

The proposed project site covers mostly urban areas and will utilize existing roads, easements, and right-of-way to complete the replacement work required for the project. According to the Nationwide Rivers Inventory on the National Park Service Website, no rivers run through the project area in Howell. According to the National Wild Fish Healthy Survey Database, the Marion and Genoa Drain runs through the City of Howell and will directly impact one section of the project. The proposed Lucy Road water main extension is anticipated to take place within the Marion and Genoa Drain limits, thus mitigation measures and soil erosion efforts, including but not limited to silt fences, turbidity curtains, stone check dams, gravel access drives, riprap, etc. must be undertaken to protect the Marion and Genoa County drain. Horizontal Directional Drilling (HDD) of the proposed water main is anticipated for Lucy Road to limit the disruption to existing floodplains and wetlands. There will still be isolated excavations in open cut sections in areas of HDD for boring

pits, hydrants, gate valves, and connections to existing mains. Please see attached documentation of the Nationwide Rivers Inventory and the National Wild Fish Health Survey Map for more information.

On behalf of the City of Howell, we are requesting a review to confirm that the above referenced project will not cause an impact to any federally designated wild, scenic, or natural rivers or tributaries.

We request your concurrence with this determination. We appreciate your review and would be grateful for a response by Friday, May 27, 2022, so that we may meet program deadlines.

If you have any questions or require additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Michael P. Darga

Michael P. Darga, P.E.

MPD/mpd

Attachments
Project Location Map
National River Inventory Documentation
National Wild Fish Healthy Survey Database Map

pc: City of Howell; E. Suida, M. Davis, M. Spitler
HRC; N. Faught, A. Malczewski, T. Pietila File