Hazen *Technical Memorandum*

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# PWW&SB Asset Evaluation Technical Memorandum

Final

Job no

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## List of Acronyms

| Abbreviation | Definition |
| --- | --- |
| AACE | Association for the Advancement of Cost Engineering |
| ADEM | Alabama Department of Environmental Management |
| ATS | Automatic Transfer Switch |
| AWWA | American Water Works Association |
| CCTV | Closed-Circuit Television |
| CIP | Capital Improvement Project |
| CoF | Consequence of Failure |
| CSAP | Continuous Sewer Assessment Program |
| CY | Calendar Year |
| DEM | Digital Elevation Model |
| DO | Dissolved Oxygen |
| DWF | Dry Weather Flow |
| EUL | Estimated Useful Life |
| fps | Feet Per Second |
| ft | Feet |
| GIS | Geographic Information System |
| GPD | Gallons Per Day |
| GPM | Gallons Per Minute |
| HDPE | High Density Polyethylene Pipe |
| hr | Hour |
| HVAC | Heating, Ventilation, and Air Conditioning |
| I&I | Infiltration and Inflow |
| in | Inches |
| KPI | Key Performance Indicator |
| LF | Linear Foot |
| LOS | Levels of Service |
| LS | Lift Station |
| M | Million |
| MAWSS | Mobile Area Water & Sewer System |
| MCC | Motor Control Center |
| MCL | Maximum Contaminant Level |
| MDD | Maximum Day Demand |
| MG | Million Gallons |
| MGD | Million Gallons Per Day |
| mi | Miles |
| min | Minute |
| NHD | National Hydrography Dataset |
| NPDES | National Pollutant Discharge Elimination System |
| NRW | Non-Revenue Water |
| NSD | National Structures Dataset |
| NTD | National Transportation Dataset |
| O&M | Operations and Maintenance |
| PF | Peak Flow |
| PoF | Probability of Failure |

| Abbreviation | Definition |
| --- | --- |
| PRV | Pressure Reducing Valve |
| PVC | Polyvinylchloride |
| PWW&SB | Prichard Water Works and Sewer Board |
| QC | Quality Control |
| R&R | Renewal and Replacement |
| RAS | Return Activated Sludge |
| RDII | Rain-Derived Infiltration and Inflow |
| RUL | Remaining Useful Life |
| SCADA | Supervisory Control and Data Acquisition |
| SME | Subject Matter Experts |
| SSO | Sanitary System Overflows |
| TDH | Total Dynamic Head |
| UPS | Uninterrupted Power Supply |
| USGS | United States Geological Survey |
| VFD | Variable Frequency Drive |
| WAS | Waste Activated Sludge |
| WWTP | Wastewater Treatment Plant |
| yr | Year |

# Executive Summary

The Prichard Water Works and Sewer Board (PWW&SB) drinking water system serves both the residents of the City of Prichard and the neighboring Town of Chickasaw, while the sewer system serves only the residents of Prichard. Collectively, the systems serve approximately 25,700 people across 9,664 customer accounts. Significant infrastructure issues have led to multiple Notices of Violations and a Wastewater and Water Consent Orders from the Alabama Department of Environmental Management (ADEM). As a result, an Asset Management Plan (AMP) was required to address these issues and ensure reliable water and sewer infrastructure for the communities served by PWW&SB.

The AMP addresses all of the requirements identified by ADEM Admin Code, Section 335-7-4-04(f)(1-5). The AMP includes recommended sustainable Level of Service (LOS) for PWW&SB; a comprehensive asset inventory; hydraulic assessment of the water distribution and sanitary sewer systems, risk assessment of all assets accounting for physical mortality and performance to determine Probability of Failure (PoF) and triple bottom line factors to determine asset Consequence of Failure (CoF) or “criticality”; 20-year projected capital needs; and recommendations for sustainable replacement and renewal planning. The projected capital replacement needs for the PWW&SB’s system is approximately **$404.7M** for the 20-year period not including inflation or **$551.6M** including inflation. **Table ES- 1** summarizes the specific findings for the water and wastewater systems.

Hazen developed a comprehensive set of recommendations to support PWW&SB navigate the significant cost and challenge of addressing the projected capital replacement needs. These recommendations focus on the systematic assessment, maintenance, and renewal of both linear and vertical assets within the water distribution and sanitary sewer systems. Hazen’s key recommendations are summarized below:

1. Leverage leak detection assessments of water mains and inspect 10% of the collection system annually to validate the risk assessment results and prioritize replacements.

2. Perform routine vertical asset condition assessments to keep an up-to-date understanding of renewal and replacement needs.

3. Enhance PWW&SB’s asset management practices by improving and maintaining a detailed asset inventory and implementing a computerized maintenance management system (CMMS).

By implementing these recommendations, PWW&SB can improve service reliability, attain regulatory compliance, and optimize capital expenditures. These findings and recommendations in this report are intended to guide PWW&SB in achieving a more sustainable and resilient water and sewer infrastructure over the next two decades through proactive and informed decision making.

**Table ES- 1. Summary of System Renewal Findings**[1]

| System | Asset Class | Key Findings | 20-yr Capital Expenditure Needs (Present $) | 20-yr Capital Expenditure Needs (Inflated $) | 20-yr Average Capital Expenditure Needs / Year (Present $) |
|---|---|---|---|---|---|
| Water Distribution | Water Mains | Recommend replacing 70% (188 miles) of water mains over next 20 years. | $249.8M | $342.6M | $12.5M |
| | Water Storage Tanks | 4 of 5 tanks require near-term recoating and 1 tank is recommended for demolition. | $10.0M | $11.1M | $0.5M |
| Sanitary Sewer | Sewer Gravity Mains | Recommend replacing 28% (37 miles) of gravity mains over next 20 years. | $87.6M | $124.0M | $4.4M |
| | Sewer Force Mains | Recommend replacing 89% (9 miles) of force mains over next 20 years. | $15.9M | $19.9M | $0.8M |
| | Wastewater Lift Stations | 15 of 29 lift stations have only one working pump and 2 lift stations with no working pumps are on permanent bypass. | $7.5M | $9.3M | $0.4M |
| Wastewater Treatment | Carlos Morris WWTP | Influent bar screen not functional; Degritter 1 inoperable; Degritter 2 stressed; Final Clarification Basin deficient. | $15.5M | $20.2M | $0.8M |
| | Stanley Brooks WWTP | No functional degritters and Trickling Filter 1 not providing secondary treatment. | $18.4M | $24.5M | $0.9M |
| | | **TOTAL** | **$404.7M** | **$551.6M** | **$20.3M** |

[1] Capital expenditure needs include the cost of projects submitted to ADEM for funding approval.

# 1. Introduction

Prichard Water Works and Sewer Board's (PWW&SB) public drinking water system serves both the residents of the City of Prichard and the neighboring Town of Chickasaw, while the sewer system serves only the residents of Prichard. The extents of Prichard and Chickasaw are included on the map in **Figure 1-1**.

Based on the 2020 Census, Prichard's population was approximately 19,300 and Chickasaw had a population of 6,400 residents. The total population served by PWW&SB in 2020 was approximately 25,700 people across 9,664 customer accounts. However, the area has experienced a notable decline in population in recent years. In 2010, the City of Prichard had about 22,700 residents which decreased to 19,300 in 2020. The census estimates that Prichard's population has continued to decrease in recent years with the latest, 2023, population estimated to be 18,816.[2]

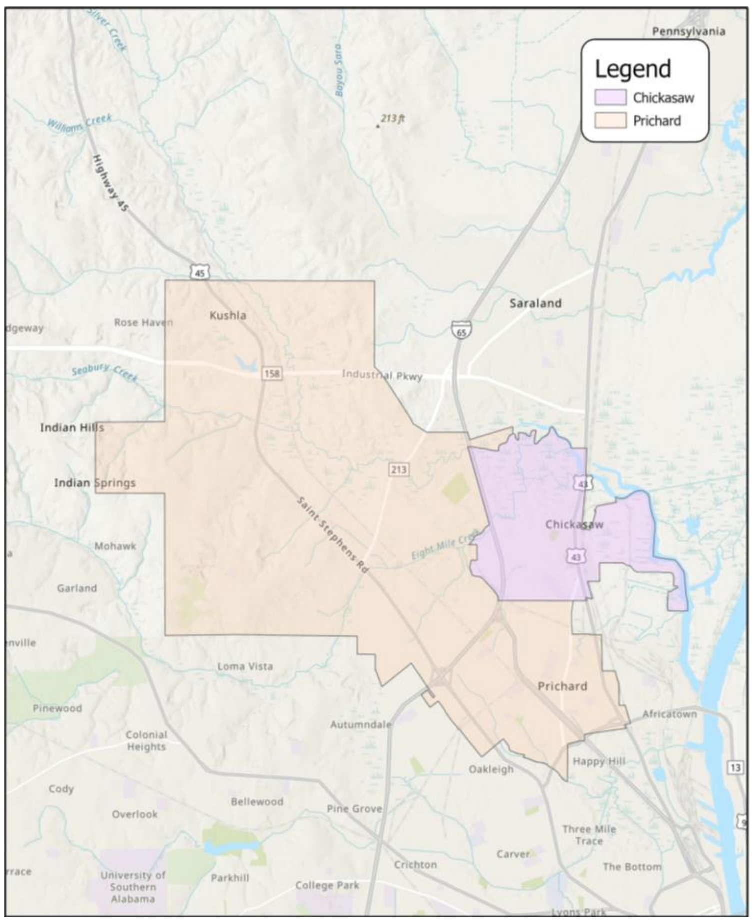



**Figure 1-1. Map of Prichard and Chickasaw City Limits**

[2] U.S. Census Bureau QuickFacts: Prichard City, Alabama

After issuing multiple Notices of Violations issued by between 2019 through 2021, the Alabama Department of Environmental Management ADEM issued PWW&SB a Consent Order on their wastewater treatment and collection system on September 12, 2022. Then, on November 11, 2023, the Circuit Court of Mobile County, Alabama (Court) granted the Receiver Motion and appointed John Young to serve as the receiver of the PWW&SB system. The Court cited PWW&SB's recent default on its $55M bond, a history of mismanagement, 60% water losses, and the current state of PWW&SB's assets as findings in their decision to appoint a receiver. ADEM completed multiple sanitary surveys of PWW&SB water system and found significant deficiencies including: poor condition of water storage tanks, insufficient free chlorine residual levels, and substantial water loss. Finally, a Consent Order was issued by ADEM on PWW&SB's drinking water system on January 25, 2024.

To comply with the stipulations of the Consent Orders and Receiver Order, PWW&SB is required to develop a "Draft Master Plan" by July 31, 2024, that will evaluate and address the capital improvement and infrastructure needs of PWW&SB's water and sewer system. As a result, PWW&SB has requested that Hazen and Sawyer (Hazen) develop an Asset Management Plan (AMP) to assess each of the major PWW&SB facilities and asset systems with respect to asset condition, remaining useful life (RUL), and risk assessment score inclusive of Probability of Failure (PoF) and Consequence of Failure (CoF). This AMP includes the identification of capital renewal and replacement needs to address existing deficiencies and long-term improvements over the next 20 years to bring the water and sewer systems back into a reliable state of operations.

This technical memorandum summarizes the methodology and findings of the AMP with respect to PWW&SB's water storage tanks, water distribution system, wastewater gravity and force mains, wastewater lift stations, the Carlos Morris Wastewater Treatment Plant, and the Stanley Brooks Wastewater Treatment Plant. The primary goal of the project is to ensure reliable water and sewer infrastructure for the communities served by PWW&SB. This report adheres to the Alabama Department of Environmental Management (ADEM) Admin Code Section 335-7-4-.04(f)(1-5), fulfilling the requirements of an Asset Management Plan comprised of the following elements:

- Asset inventory; (see Section 3.3.2, Section 3.4.1, and Section 3.4.1)
- The required sustainable level-of-service; (see Section 3.1)
- Determination of critical assets; (see Section 3.3.3.1.3, Section 3.3.3.2, Section 3.4.2.1.2, Section 3.4.2.2.2, and Section 3.4.2.3.2)
- Determination of the lowest life-cycle cost options for providing the highest level-of-service over time; (see Section 3.3.5, Section 3.4.4, Section 3.5, and Section 4)
- Long-term financing strategy.(see Section 3.5 for the comprehensive asset renewal and replacement needs; additionally, affordability and rate studies are ongoing to determine the appropriate long-term financial plan necessary to address these identified needs)

The purpose of this AMP is to assess the existing condition of water and sewer infrastructure to develop a 20-year projection of capital replacement needs.

# 2. Hydraulic Assessment

In order to inform capital improvement projects and operational improvements required in the PWW&SB systems, Hazen used the existing water system hydraulic model that was developed and calibrated in 2020. The model was used to identify deficiencies and improvement areas, as described herein. In addition, a static routing model of the PWW&SB sewer system was developed using currently available information to facilitate an understanding of the sewer system's hydraulic performance.

## 2.1 Water Distribution System Hydraulic Evaluation

This section outlines the data sources, methodology, and modeling results associated with the PWW&SB water system hydraulic evaluation, inclusive of the water distribution system piping network and water storage tanks.

### 2.1.1 Data Sources

Data sources used for the water distribution system hydraulic evaluation included the following:

- 2020 Calibrated Water Distribution Hydraulic Model
- 2020 Distribution System Model Development and Calibration Presentation
- PWW&SB Water Storage Tank Data Sheet
- Shapefiles of PWW&SB's water distribution system 2020
- Field investigation reports
- 2020 Storage Analysis (performed by Hazen)
- 2020 Tank Condition Assessment Reports

### 2.1.2 Methodology

#### *2.1.2.1 Background*

The water model was developed as part of Hazen's Water Supply and Treatment Facilities Preliminary Study Phase 1. The water distribution system hydraulic model was calibrated based on field data collected in 2020, and the model demands were based on 2019 through 2020 customer billing data. A summary of the 2020 water model development can be found in **Appendix A: Hydraulic Assessment**.

For this study, the model demands used were 3.6 MGD, the maximum day demand (MDD) developed as part of the 2020 hydraulic model calibration effort. Due to the required timeline, this study relied upon the 2020 calibrated water model to conduct capacity and fire flow analyses. Recalibrating a water distribution model requires significant effort to collect accurate field data, update parameters, and validate the model against observed system performance. While the 2020 water model is suitable for conducting a high-level hydraulic analysis and identifying key distribution system deficiencies, Hazen recommends model recalibration and validation with current usage data before proceeding with recommended water main improvements.

The PWW&SB water distribution system is supplied by Mobile Area Water and Sewer System (MAWSS) and is divided into two pressure zones, as shown in **Figure 2-1**.

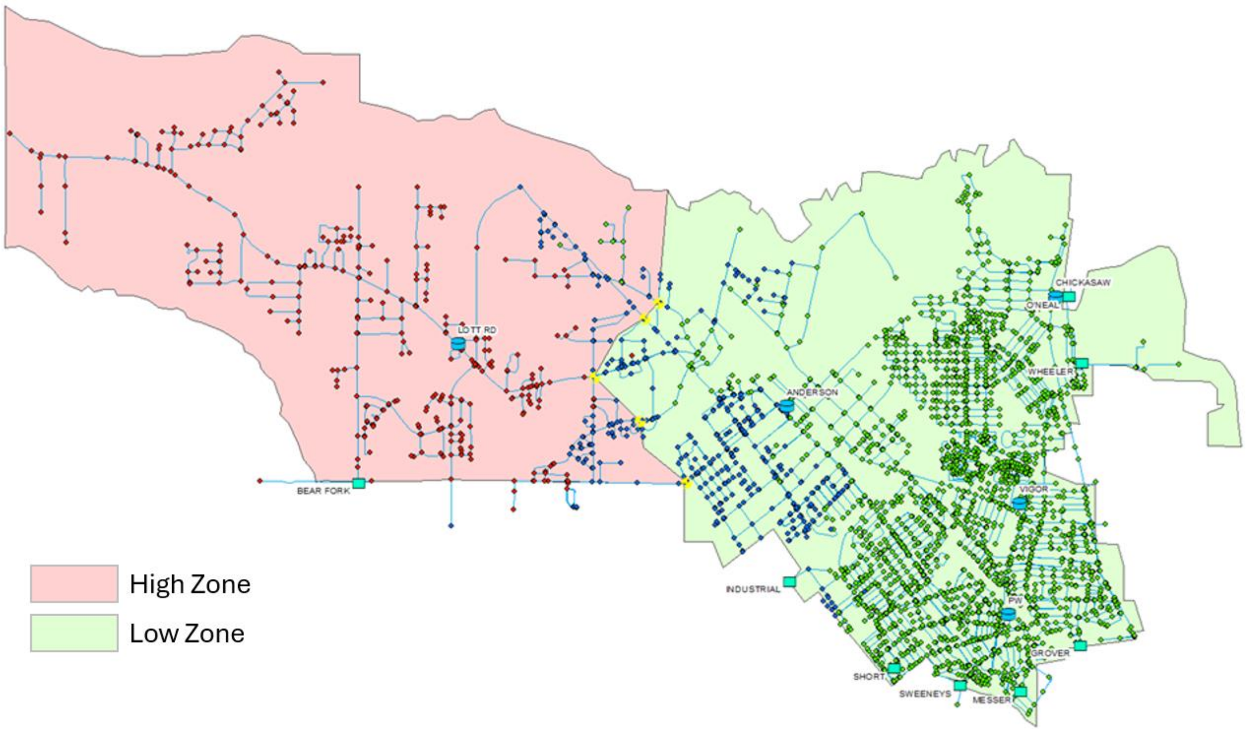



**Figure 2-1. Map of PWW&SB Water Distribution Pressure Zones**

The High Zone is supplied by the Bear Fork pump station, which is owned by MAWSS. The Low Zone is supplied through six valves, although field investigations indicated that four of these are possibly valved off from the rest of the Low Zone. Due to the high supply head from MAWSS to the Low Zone, the Chickasaw, Vigor, and Office Standpipe tanks consistently remain full and are not floating. At times this results in the tanks overflowing, which results in water loss. Also, the inability of water in these tanks to cycle on a regular basis can cause water quality concerns due to stagnant water. Additionally, a storage analysis completed by Hazen during the 2020 model calibration task indicated that the High Zone requires 1 million gallons (MG) of storage to provide equalization for the system, fire flow, and emergency supply. However, the High Zone currently only has 0.25 MG of storage. Conversely, the Low Zone has 1 MG surplus storage.

#### *2.1.2.2 Water Distribution System Asset Evaluation*

The 2020 existing system model with MDD was used to run an extended period simulation and a fire flow simulation to provide data for the probability of failure calculations for the water distribution system assets.

#### 2.1.2.3 Tank Evaluation

Hazen evaluated various alternatives using the 2020 MDD to resolve the known storage and water age issues in the water distribution system, including the addition of pump stations to help force water out of the existing tanks, replacing the existing tanks with larger ground or elevated tanks, and the creation of a new Medium Pressure Zone to utilize the existing storage with optimized controls on MAWSS supply points. System level of service, cost effectiveness, and system uncertainty were considered when selecting the final alternatives as described in **Section 2.1.3.2.**

### 2.1.3 Results

#### 2.1.3.1 Water Distribution System Results

Results from the water distribution hydraulic model were used to inform the probability of failure calculations for the water distribution system assets. The model-predicted available fire flow and headloss were two metrics used to assess water main capacity and performance. The Probability of Failure (PoF) scoring system for water mains is described in more detail in **Section 3.4.2.1**.

#### 2.1.3.2 Tank Evaluation Results

The selected improvements include tank rehabilitation, existing tank removal, and new tank construction. In the High Zone, the Lott Road tank will first be rehabilitated and then replaced in the future with a larger 1 MG tank. In the Low Zone, the Office Standpipe tank will be removed, which the model results indicate will have no adverse impact on the system pressure and available fire flow compared to the existing system. Removal of this tank would also reduce future operation and maintenance costs.

To improve the tank performance in the Low Zone, the creation of a new pressure zone is recommended and is in the design phase around the Anderson tank. This zone can be developed by installing a new pressure reducing valve (PRV) and several gate valves. The new pressure zone would be fed from the High Zone via an existing PRV and a new PRV proposed along the 12-inch main near St. Stephens Road and Annette Avenue. This would allow better utilization of the Anderson Tank storage volume, which is currently limited by the maximum water levels of the three other tanks in the Low Zone. Additionally, installation of control valves with Supervisory Control and Data Acquisition (SCADA) at major supply points in the Low Zone is recommended for improved management and control of the supply from MAWSS by allowing both tanks to turnover 20 to 30% on a daily basis. These valves would allow PWW&SB to control the supply pressure from MAWSS and allow the Low Zone tanks to float. The proposed improvements are shown in **Figure 2-2**.

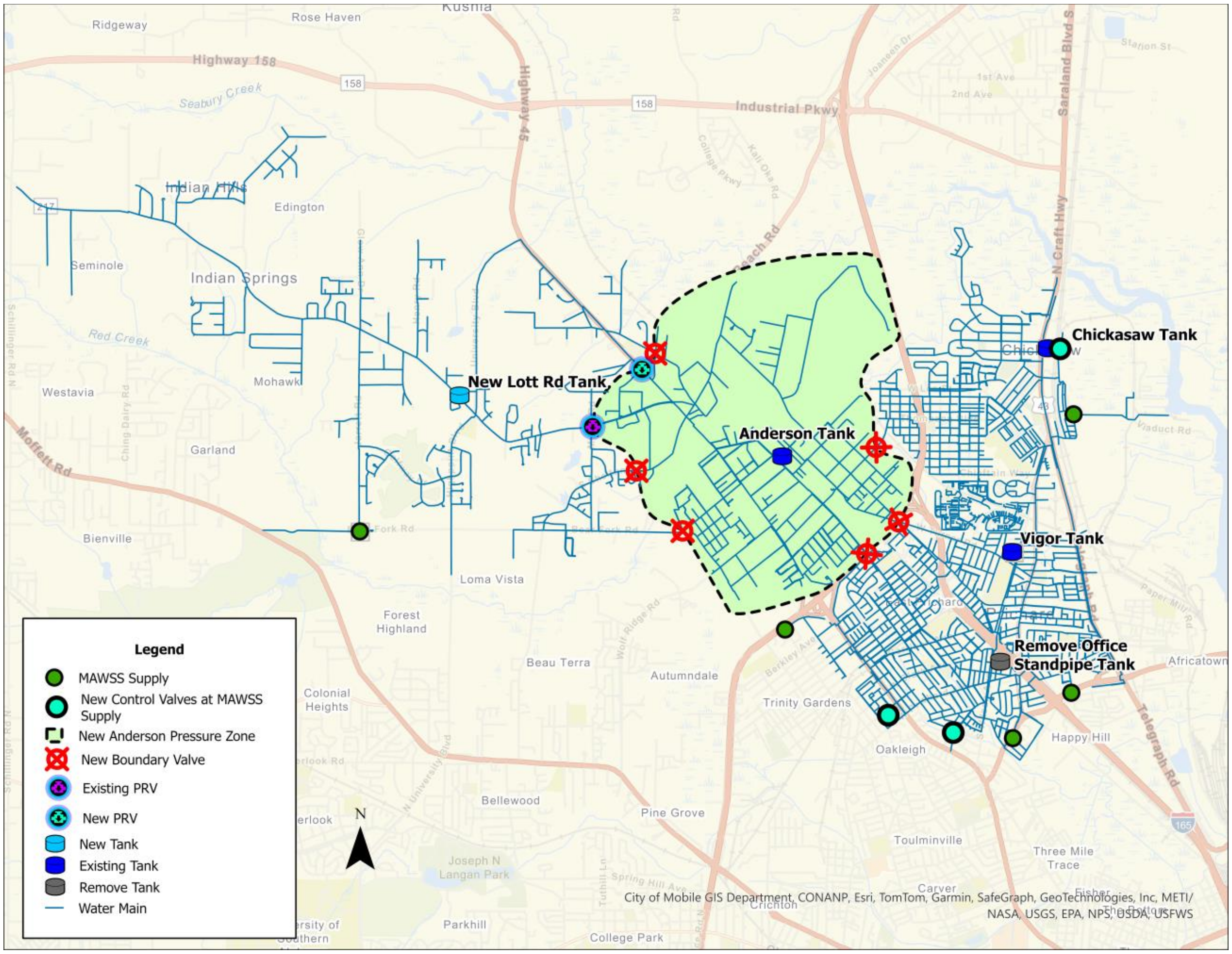



**Figure 2-2. Map of Proposed Water Distribution System Improvements.**

Completion of these projects will eliminate regular tank overflows and help reduce water loss in the system. The projects will also help the tanks to turn over, therefore improving water age and water quality.

## 2.2 Sanitary Sewer System Evaluation

This section outlines the data sources, methodology, and modeling results associated with the PWW&SB sewer system hydraulic evaluation, including the gravity and force main sewer piping networks and sewer lift stations.

### 2.2.1 Data Sources

Data sources used for the sanitary sewer system evaluation included the following:

- Shapefiles of PWW&SB's sanitary sewer system assets from previous projects.
- Digital elevation model (DEM) from previous projects.
- Scanned record drawings and other drawings from previous projects.
- Lift station data from Hydra Service, Inc.
- PWW&SB February 2024 plant daily average flow summary
- Water distribution system model demands
- 2018 flow monitoring data.
- 2024 iTracker data.
- Sanitary System Overflow (SSO) records since 2019.
- United States Geological Survey (USGS) rain gauge data.
- 2014 Recommended Standards for Wastewater (Ten State Standards)
- Measured Annual Average Flow (2.8 MGD April 2023 – March 2024)

### 2.2.2 Methodology

#### *2.2.2.1 Background*

A static routing model of the PWW&SB sewer system was developed to facilitate a high-level understanding of the system's performance using currently available data. In essence, the static routing model acts as a foundational tool, offering an overview and laying the groundwork for further analysis and refinement with a fully dynamic model. **Figure 2-3** illustrates Hazen's proposed approach to eventually achieve a fully dynamic model.

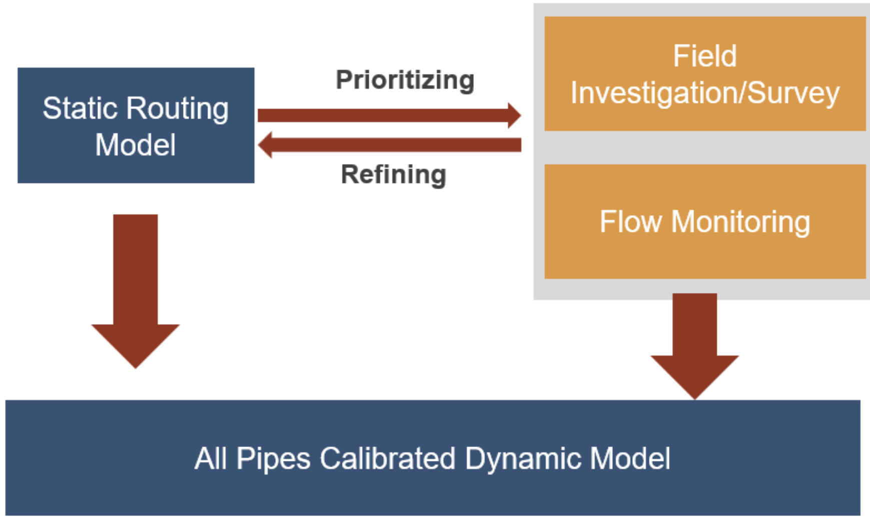



**Figure 2-3. Proposed Sewer Modeling Approach**

The following summarizes the static model limitations and benefits:

Limitations:

- Not calibrated.
- Does not simulate RDII (Rain-Derived Infiltration and Inflow).

Benefits:

- Requires minimal processing time and data inputs.
- Facilitates a high-level understanding of system performance by assembling the "pieces of the puzzle", offering insights into the "Big Picture."
- Provides clarity on the intended capacity of the system.
- Serves as an intermediate model, guiding future efforts toward the development of a fully dynamic model.

#### *2.2.2.2 Sanitary Sewer System Evaluation*

The sewer system static model includes pipes (gravity and force mains), manholes, and lift stations (pumps and wet wells) and was constructed with Autodesk InfoWorks ICM software using data from PWW&SB's Geographic Information System (GIS). The model network includes pipes greater than or equal to 10-inches in diameter and extends to areas that experienced recorded overflows in the past five years. The model network is shown in **Figure 2-4**.

iTrackers were installed in thirty-five locations to help determine potential problem areas within the sanitary sewer system. These iTracker devices are installed inside manholes to measure water depth in five-minute increments. They are typically used to help determine areas of quick response to rainfall as it is suspected that there may be some direct connections to the storm sewer. However, a large portion of the iTrackers indicated that the sewer is surcharged even in dry weather. The iTracker data were used with the static model results to investigate potential causes of the surcharge.

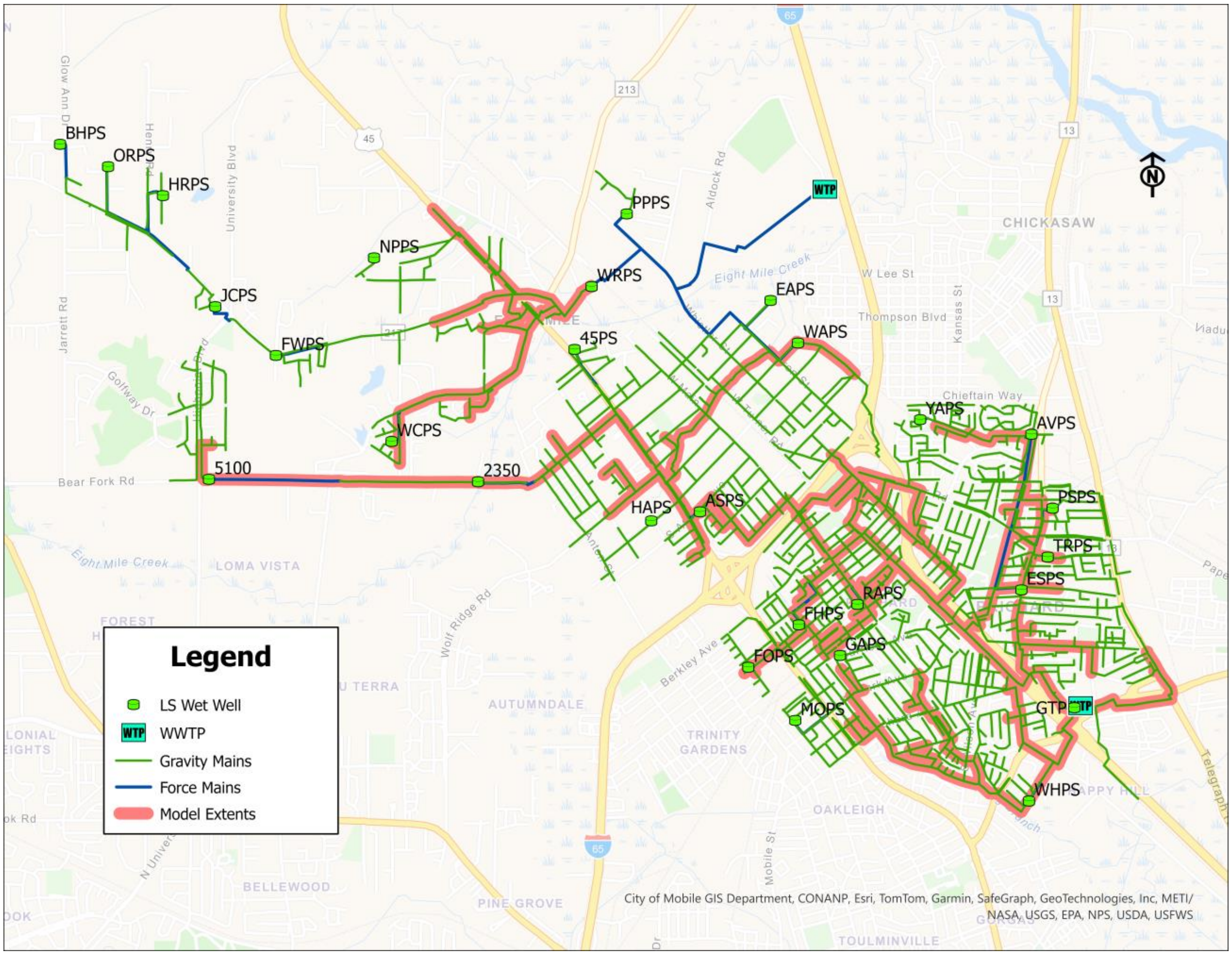



**Figure 2-4. Map of Static Sewer Model Extents**

Elevation and pipe size data were imported into the model from the GIS. Pipe invert and manhole rim elevations from available record drawings were used for critical areas that are missing data in the GIS. The remaining missing invert elevations were inferred from the known elevations, and missing manhole rim elevations were estimated from the DEM. Pump performance in the model is based on the design points from the manufacturer's representative (Hydra Service) data.

Dry weather flow (DWF) in the model is estimated based on the February 2024 plant daily average flows. The DWF was distributed proportionally to the selected loading manholes per the water demands used in the water distribution model. Historical flow monitoring data was used to verify model predicted potential capacity restrictions and understand potential causes of observed system capacity issues.

### 2.2.3 Results

#### *2.2.3.1 Sewer Model Results*

The model indicates two major areas that experience surcharging during simulated DWF. Surcharge, shown as d/D, refers to the ratio of the flow depth (d) to the pipe diameter (D). d/D ratios > 1 indicate that the flow depth exceeds the pipe diameter. When this occurs, sewer flows will begin filling nearby manholes increases the risk of an SSO at that location. These areas are shown on the map in **Figure 2-5**.

- One is along Bear Fork Road between the Bear Creek Lift Station (LS) force main discharge and St. Stephens Road.
- The other is along Meaher Avenue and Grover Avenue.

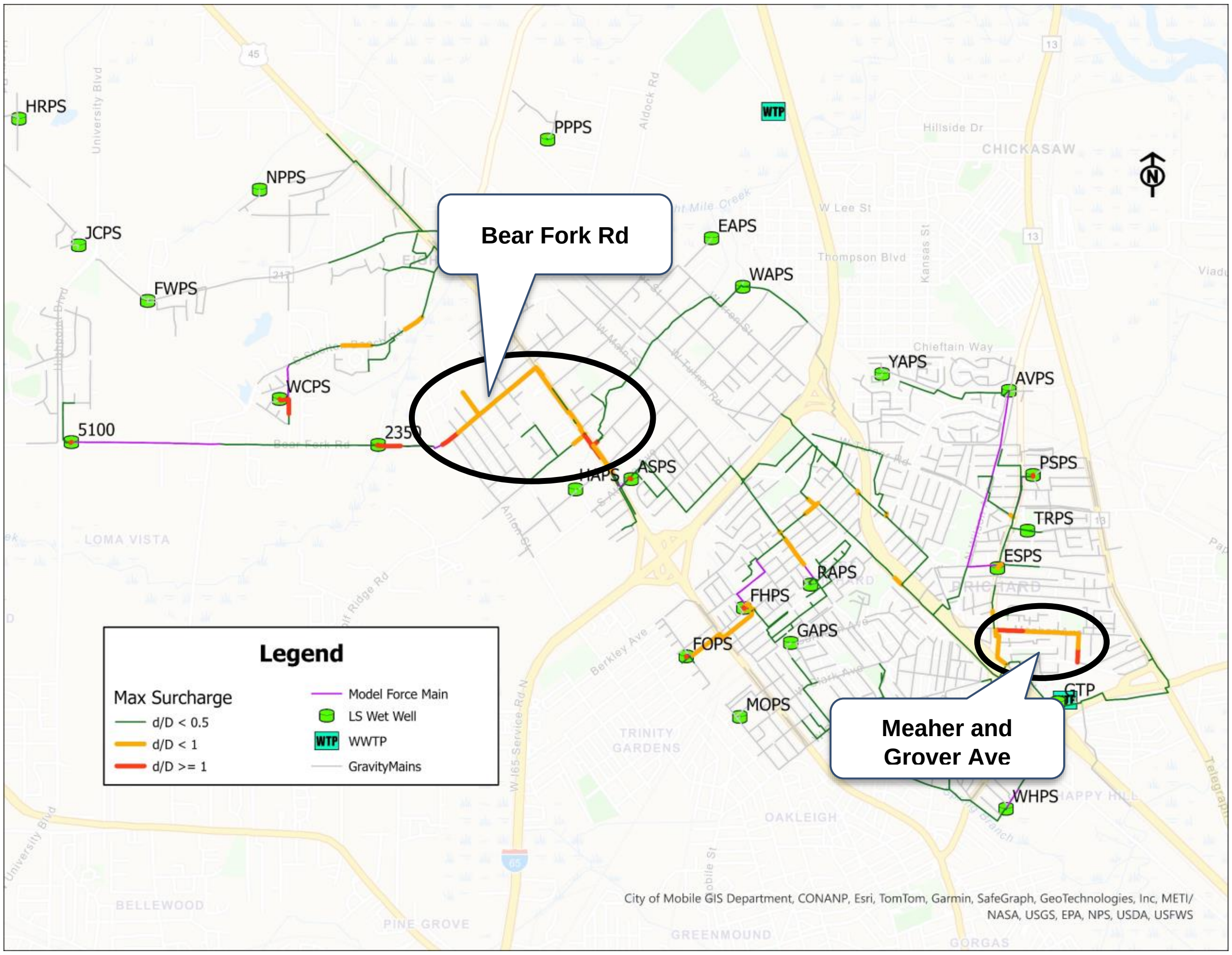



**Figure 2-5. DWF Capacity Analysis**

The iTracker data along Bear Fork Road agrees with the model results and suggests there may be DWF capacity limitations. The level data in **Figure 2-6** shows that the minimum water level throughout the monitoring period is higher than the top of the pipe. There is no iTracker data available to verify the Meaher/Grover Avenue model-predicted capacity limitation. Several other areas in the model experience surcharging over limited stretches of pipes, but these are likely due to uncertainty regarding pipe slopes and pump operations.

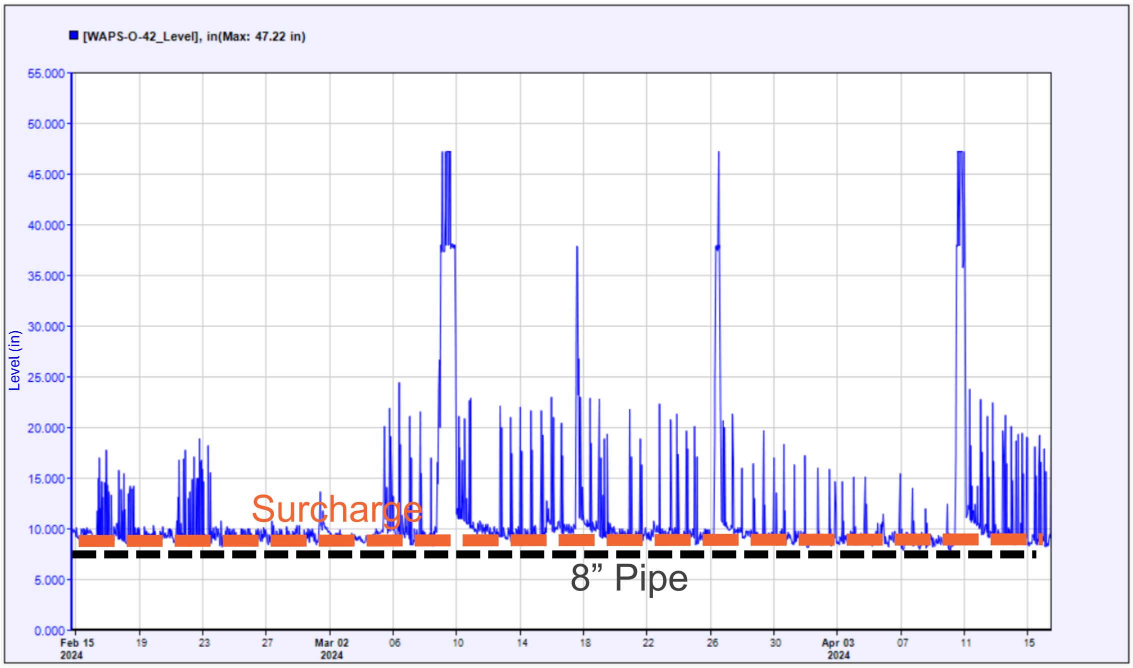



**Figure 2-6. Bear Fork Road iTracker Level Data**

The same two areas show potential SSOs during the peak flow model simulation (**Figure 2-7**). However, the model does not predict SSOs in any other part of the system, indicating that overall, the system should have capacity to convey the estimated peak flows based on the available sewer network data.

Actual observed SSOs and surcharging may be due to excessive RDII, blockages, lift stations, and general maintenance issues. The map in **Figure 2-8** shows some potential areas recommended for smoke testing for inflow sources based on the iTracker data. **Figure 2-9** shows an example of surcharging that is likely due to the West Highland Avenue Lift Station. The measured water level is consistently at the top of the 15-inch pipe, even during DWF. **Figure 2-10** shows the scatterplot from the 2018 flow monitoring study on Whistler Street. It indicates that the pipe begins to experience surcharging when the water level is around 10 inches deep, which is lower than the top of the pipe. This is evidence of a downstream blockage that may cause the water to back up and ultimately result in SSOs.

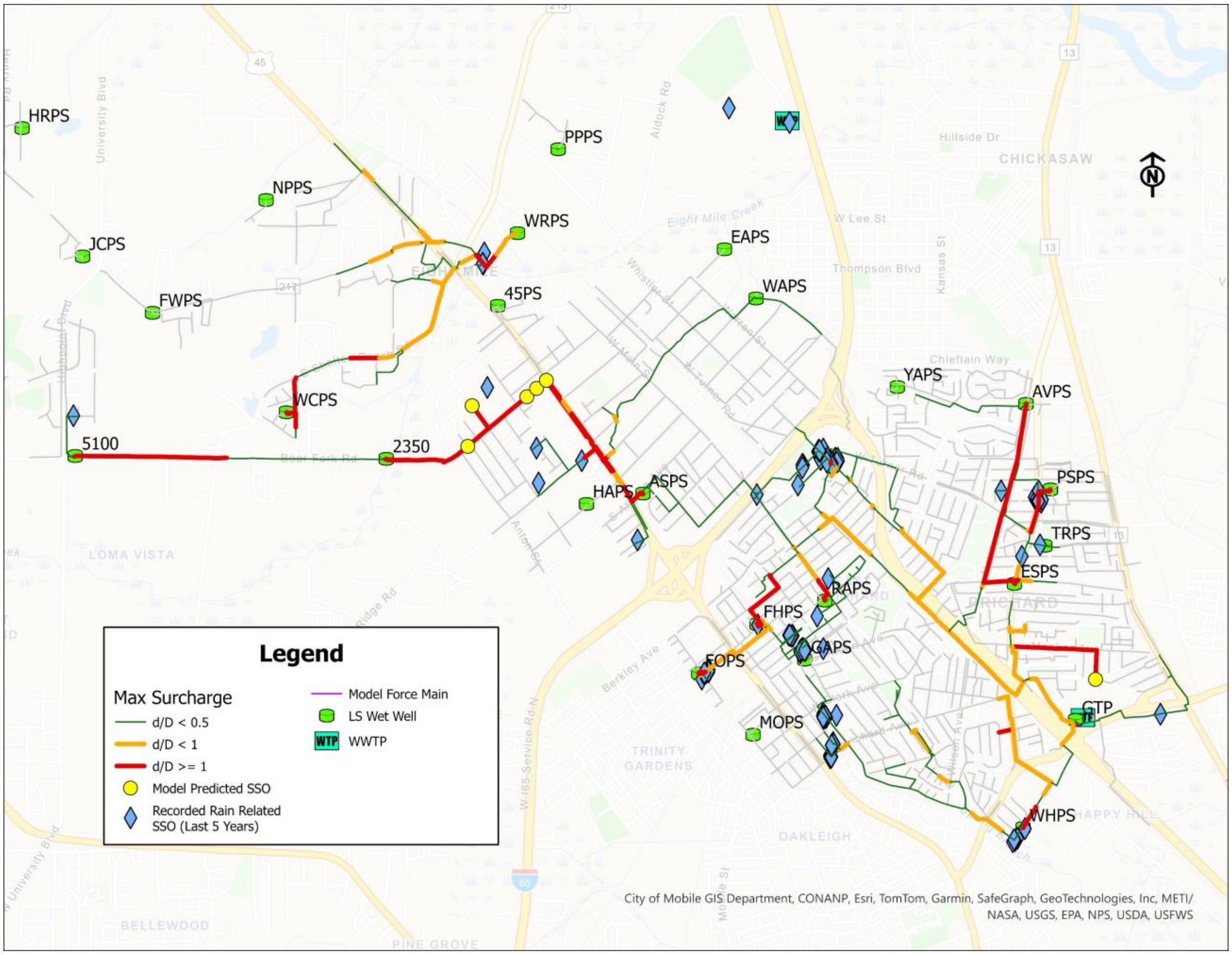



**Figure 2-7. Peak Flow Capacity Analysis**

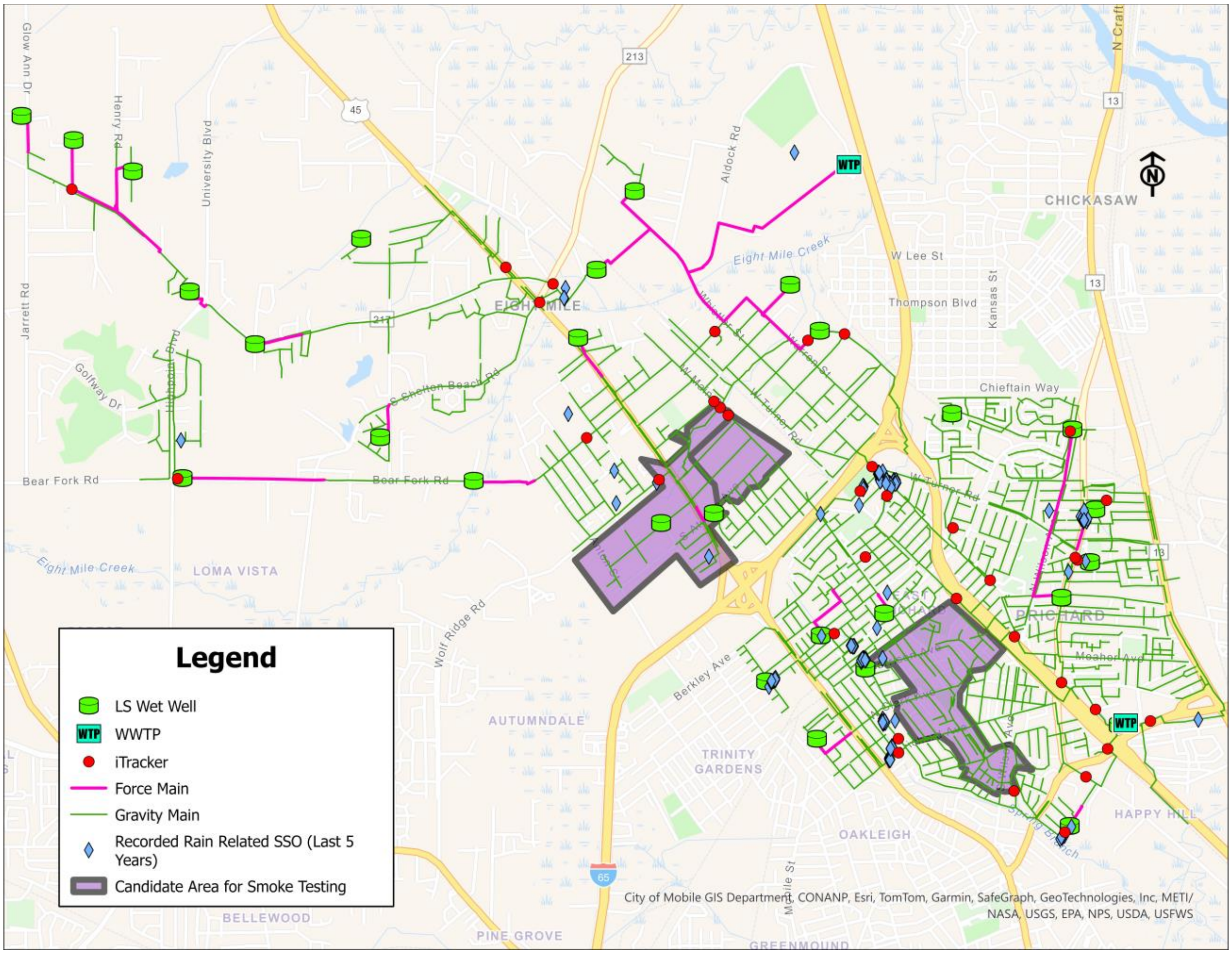



**Figure 2-8. Map of Candidate Areas for Smoke Testing (shown in purple)**

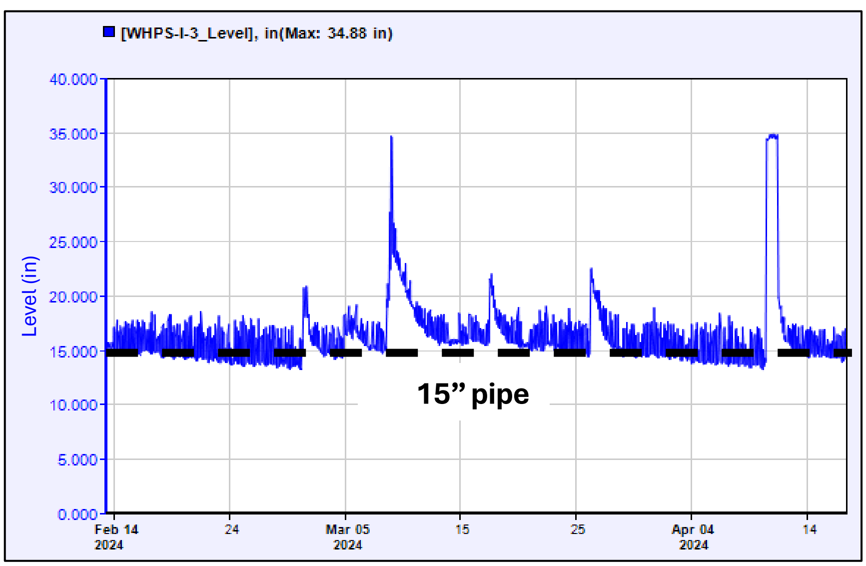



**Figure 2-9. Surcharge Caused by a Downstream Lift Station.**

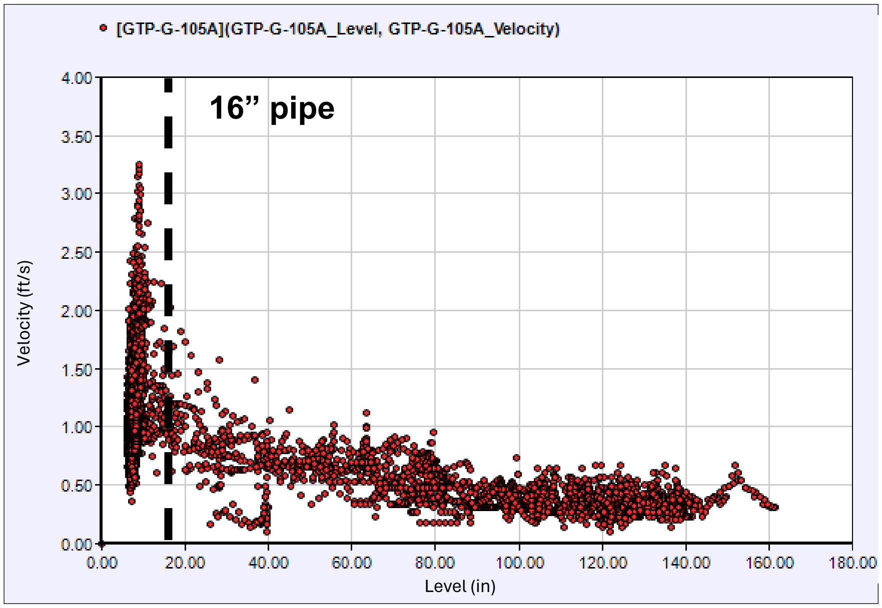



**Figure 2-10. Surcharge Caused by a Downstream Blockage**

#### *2.2.3.2 Sanitary Sewer System Asset Evaluation*

Results from the sanitary sewer hydraulic model were used to inform the probability of failure calculations for the sewer gravity and force main assets. The model-predicted SSOs and surcharge state were used to assess sanitary sewer system capacity and performance. The PoF scoring system for sewer mains is described in more detail in **Section 3.4.2**.

## 2.3 University of Mobile Expansion Evaluation

The University of Mobile (University) has plans for future growth that would require increased water and sewer service capacity for the campus. The University's campus is located north of the PWWS&B water distribution and sewer collection systems. The campus currently produces an average of 40,000 gallons per day (GPD) of wastewater and expects future expansions of the campus to increase that amount by 50%. Evaluations of both the PWW&SB sewer collection and water distribution systems are currently in progress to determine what improvements, if any, are necessary to provide utility services to the campus. The evaluation is expected to be completed in early June 2024.

A possible option for connecting the campus sewer system to the PWW&SB system is through the Ponderosa Pines Lift Station. By mid-June, a desktop analysis will be completed by Hazen to determine what volume the existing lift station and force mains can handle and what improvements and alternatives may be necessary to meet the University's current and future requirements.

Using a wastewater return rate of 75%, the current estimated drinking water demand of the campus is projected to be approximately 53,000 GPD. This demand and expected future demands will need to be evaluated using the PWW&SB calibrated water distribution model. Once the evaluation is complete, recommendations can then be made regarding tie-in locations and necessary system improvements to supply the additional demands from the university.

# 3. Infrastructure Asset Evaluation

PWW&SB requested that Hazen conduct a comprehensive asset evaluation of its water and wastewater systems. The asset evaluation aimed to validate the existing condition of the systems and to identify the assets that require renewal or replacement over the 20-year planning period. The asset evaluation included both vertical and linear assets.

The following sections discuss the recommended levels of service, risk assessment methodology, vertical asset evaluation results, linear asset evaluation results, and a comprehensive 20-year asset renewal and replacement capital needs identification.

## 3.1 Levels of Services and Performance Indicators

Levels of Service (LOS) are statements of desired performance outcomes that reflect high priorities from stakeholders, end users, the public, the environment, or are required by regulators. They are the way in which a utility describes the expected outcomes of an asset management program (AMP) to customers and stakeholders. As part of the ADEM's Asset Management Plan requirements, Hazen has proposed LOS categories (see **Table 3-1**) and associated key performance indicators (KPIs) (see **Table 3-2**) for PWW&SB, which can be found in the following sections. By monitoring these KPIs, PWW&SB can track the effectiveness of its infrastructure improvements and its ability to consistently meet established LOS.

**Table 3-1: Level of Service Categories & Statements**

| LOS Category | LOS Statement |
|---|---|
| **Environmental Protection** | Maintain environmental protection through high quality wastewater effluent, the prevention of sanitary sewer overflows, and compliance with regulatory requirements. |
| **Infrastructure Improvement** | Improve infrastructure condition in the water and wastewater systems through capital renewal and replacement and operations and maintenance activities. |
| **Financial Stewardship** | Make sound financial decisions balanced with affordable rates and critical asset renewal. |
| **Safe & Reliable Service** | Supply drinking water for consumption, commerce, fire flow and irrigation and convey and treat wastewater every minute of the year. Prevent issues that impact our customers and address customer concerns when they do occur. |

### 3.1.1 Environmental Protection

Environmental protection LOS are important for assessing the performance and compliance of wastewater collections and treatment systems. The following metrics are recommended to track the wastewater system's effectiveness operating within regulatory standards, while protecting public health and the environment.

- Count of National Pollutant Discharge Elimination System (NPDES) permit non-compliance violations for the PWW&SB's wastewater treatment plants
- Count of sanitary system overflows (SSOs) per 100 miles of pipe

### 3.1.2 Infrastructure Improvement

Infrastructure improvement LOS are important for maintaining and improving the condition of water and wastewater systems. The following metrics are recommended to highlight infrastructure improvement rates, proactive maintenance, and to ensure that the system is efficient and resilient.

- Count of breaks and leaks per 100 miles of water main
- Percent of water main system miles replaced
- Percent of sewer pipe miles replaced or rehabilitated
- Percent of sewer pipe miles Closed-Circuit Television (CCTV) inspected and cleaned

### 3.1.3 Financial Stewardship

Financial stewardship LOS are key indicators of the fiscal health and efficiency of a water and wastewater utility. The following metrics are proposed for PWW&SB. These will reflect the utility's credit worthiness, financial stability, cost management, and operational efficiency. These indicators will ensure that the utility is managing its fiscal responsibilities in good faith, while reaching for higher service standards.

- Bond ratings (Fitch/Moody's/S&P)
- Percent of programmed capital investment versus budget
- Total treatment O&M costs per volume of wastewater processed (per MG)
- Total collection system O&M costs per 100 miles of pipe
- Total distribution system O&M costs per 100 miles of pipe

### 3.1.4 Safe & Reliable Service

Safe and reliable service LOS are important metrics for ensuring the effectiveness and dependability of a water system. The following metrics are proposed for PWW&SB to highlight water loss management, the utility's ability to meet safety standards and emergency preparedness, as well as to deliver consistent and safe water services to the community it serves.

- Percent of non-revenue water versus total system input
- Percent of customer complaints related to low or high pressure
- Percent of fire hydrant tests providing flows in accordance with fire flow recommendations
- Count of Maximum Contaminant Level (MCL) monitoring and reporting violations for the drinking water system

### 3.1.5 Recommended LOS Targets

Hazen recommends that PWW&SB adopt and begin tracking performance metrics to foster consistent delivery of favorable LOS. These performance metrics will allow PWW&SB to quantify current performance and develop a roadmap of future performance improvements in alignment with organizational goals. Hazen compiled available data to determine the current or latest value for each performance metric associated with the LOS categories. Additionally, Hazen used industry standards and best engineering judgment to develop recommendations for short-term and long-term targets, as shown in **Table 3-2**.

**Table 3-2. Summary of LOS Current Values and Proposed Targets**

| LOS Category – Performance Metrics | Latest PWW&SB Value | Proposed Short-term Target | Proposed Long-term Target |
|---|---|---|---|
| **Environmental Protection** | | | |
| Count of NPDES permit non-compliances violations for the PWW&SB's wastewater treatment plants | 546 (Calendar Year [CY] 2023) | 10 | 0 |
| Count of sanitary system overflows (SSOs) per 100 miles | 100 (CY 2022) | 10 | 2 |
| **Infrastructure Improvement** | | | |
| Count of breaks and leaks per 100 miles of water main | 32 (CY 2022) | 30 | 20 |
| Percent of miles of water main replaced of the total system length | No Data | 3.5% | 1.0% |
| Percent of miles of sewer pipe replaced or rehabilitated of the total system length | No Data | 1.6% | 1.0% |
| Percent of miles of sewer pipe CCTV inspected and cleaned of the total system length | No Data | 10% | 10% |
| **Financial Stewardship** | | | |
| Bond ratings (Fitch/Moody's/S&P) | C (Dec 2022) | BBB+ | AAA |
| Percent of programmed capital investment versus budgeted | No Data | 85% | 95% |
| Total treatment O&M costs per volume of wastewater processed (per MG) | No Data | $1,500 | $1,000 |
| Total collection system O&M costs per 100 miles of pipe | No Data | $1.03M | $600k |
| Total distribution system O&M costs per 100 miles of pipe | No Data | $1.08M | $670k |
| **Safe & Reliable Service** | | | |
| Percent of non-revenue water versus total system input | 56% (Mar 2021 – Dec 2022) | 35% | 20% |
| Percent of customer complaints related to low or high pressure | No Data | 5% | 0% |
| Percent of fire hydrant tests provide flows in accordance with fire flow recommendations | No Data | 75% | 100% |
| Count of MCL monitoring and reporting violations for drinking water system | 4 (CY 2023) | 1 | 0 |

## 3.2 Risk Assessment Methodology

Asset risk assessment was performed to prioritize the renewal and replacement of individual assets within the water distribution and sewer collection systems. During the asset evaluation process, assets were scored based on the product of their individual probability of failure (PoF) and consequence of failure (CoF) scores. PoF scores were determined based on a weighted combination of data used to estimate the physical condition and hydraulic performance of each asset. CoF scores were determined based on a weighted score of financial, environmental, and social impacts of asset failure. The PoF and CoF criteria and weightings are discussed in more detail for vertical assets in **Section 3.3** and for linear assets in **Section 3.4** of this memorandum.

Following the determination of PoF and CoF scores, an overall risk score was calculated for each asset based on the product of PoF and CoF, as shown in the equation below:

**Risk Score = PoF Score x CoF Score**

Additionally, four risk levels were defined based on the combination of PoF and CoF score: Low, Medium Low, Medium High, and High. A matrix of PoF and CoF scores used to determine asset risk level is shown in **Figure 3-1**.

| | | PoF | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| CoF | 1 | Low | Low | Low | Medium Low | Medium Low |
| | 2 | Low | Low | Medium Low | Medium Low | Medium High |
| | 3 | Low | Medium Low | Medium Low | Medium High | High |
| | 4 | Medium Low | Medium Low | Medium High | High | High |
| | 5 | Medium High | Medium High | High | High | High |

**Figure 3-1. Risk Level Matrix**

The following describes the data sources and methodology used to estimate the timing and cost of replacement for each asset. Renewal and Replacement (R&R) projections were developed based on the remaining useful life (RUL) methodology described below.

### 3.2.1 Remaining Useful Life

The remaining useful life (RUL) is a calculation that approximates the number of years an asset is expected to continue to function effectively before needing to be replaced. To project future R&R needs, the RUL was calculated for each asset. The PoF score was used to determine the RUL based on a straight-line degradation of the estimated useful life (EUL) of each asset. For each asset, a degradation curve was developed based on its EUL and PoF score. An example of these degradation curves is shown in **Figure 3-2**. However, for any asset with a physical condition score of 5, the asset was assumed to be at the end of its useful life and was assigned a RUL of zero years. The RUL was calculated based on the formula below.

$$\mathbf{RUL = EUL * \left(1 - \frac{PoF\ Score - 1}{4}\right)}$$

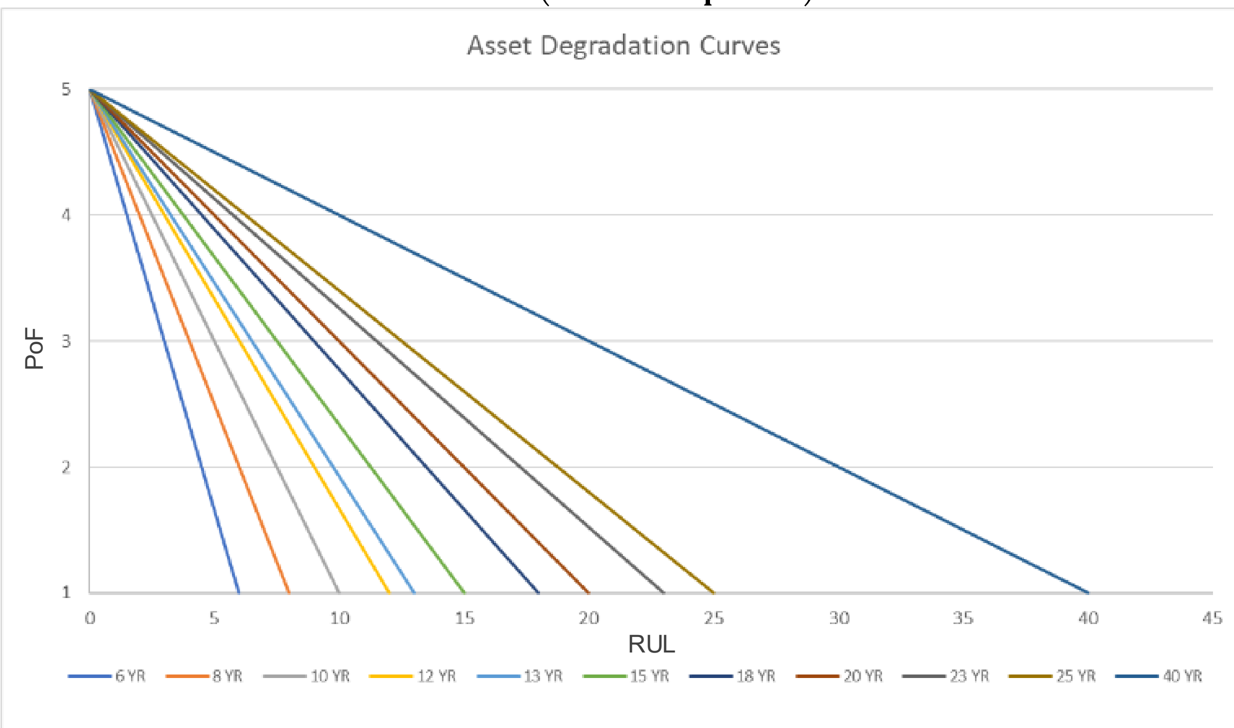



**Figure 3-2. Example of Asset Degradation Curves**

## 3.3 Vertical Asset Evaluation

Hazen was tasked with conducting a comprehensive evaluation of the vertical assets in PWW&SB's infrastructure portfolio, including its wastewater treatment plants, wastewater lift stations, and water storage tanks.

The goal of this assessment was to identify facility rehabilitation and replacement (R&R) needs over the next 20 years. This assessment involved developing an asset inventory for each facility, evaluating asset PoF (physical and performance condition assessment), evaluating asset CoF (criticality), and determining the RUL of each asset.

### 3.3.1 System Overview

PWW&SB's system is comprised of two (2) wastewater treatment plants (WWTP), twenty-nine (29) wastewater lift stations, and five (5) water storage tanks. **Figure 3-3** shows the locations of the facilities across the water distribution and wastewater collections systems. The following sections provide an overview of each of the facilities included in the vertical asset evaluation.

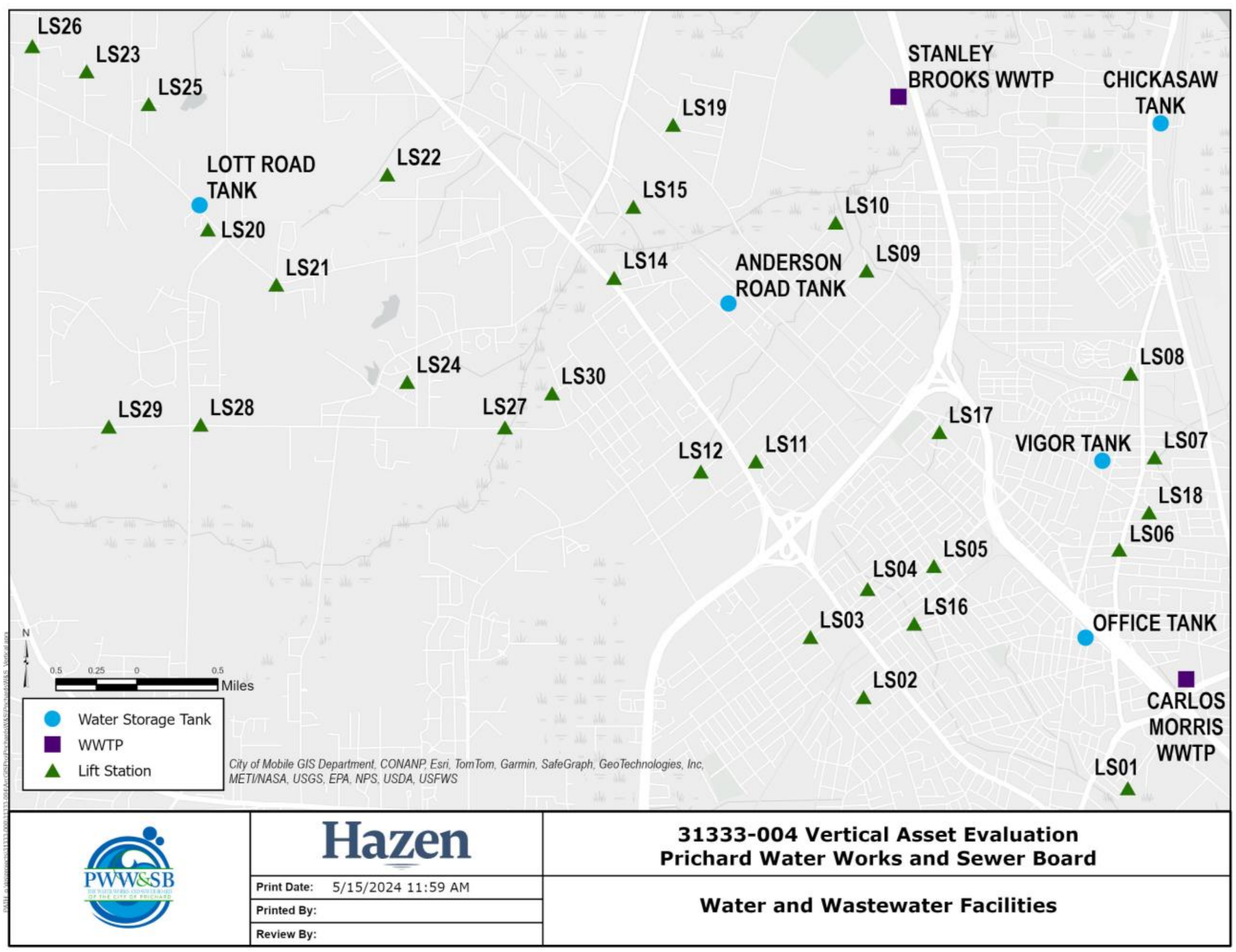



**Figure 3-3. PWW&SB Facility Locations**

#### 3.3.1.1 Carlos Morris WWTP

Carlos Morris WWTP ("Grover Street WWTP") is a 4 million gallons per day (MGD) activated sludge treatment plant located at 54 Grover Street in southern Prichard. The plant effluent discharges by gravity to Outfall 001 into Three Mile Creek. **Figure 3-4** provides a site map of the plant.

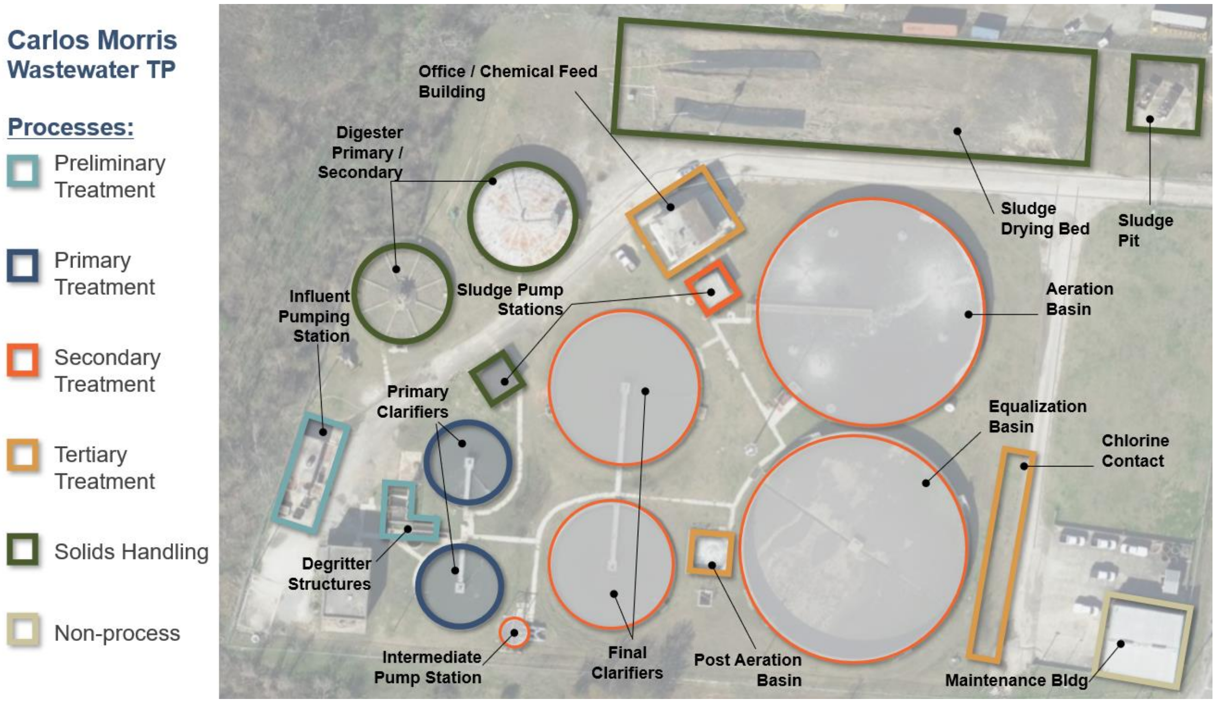



**Figure 3-4. Carlos Morris WWTP Site Map**

#### 3.3.1.2 Stanley Brooks WWTP

Stanley Brooks WWTP is a 4 MGD trickling filter plant located at the end of Aldock Road in northern Prichard. The plant effluent discharges by force main to Outfall 002, Outfall 003, and Outfall 004 into Eight Mile Creek. **Figure 3-5** provides a site map of the plant.

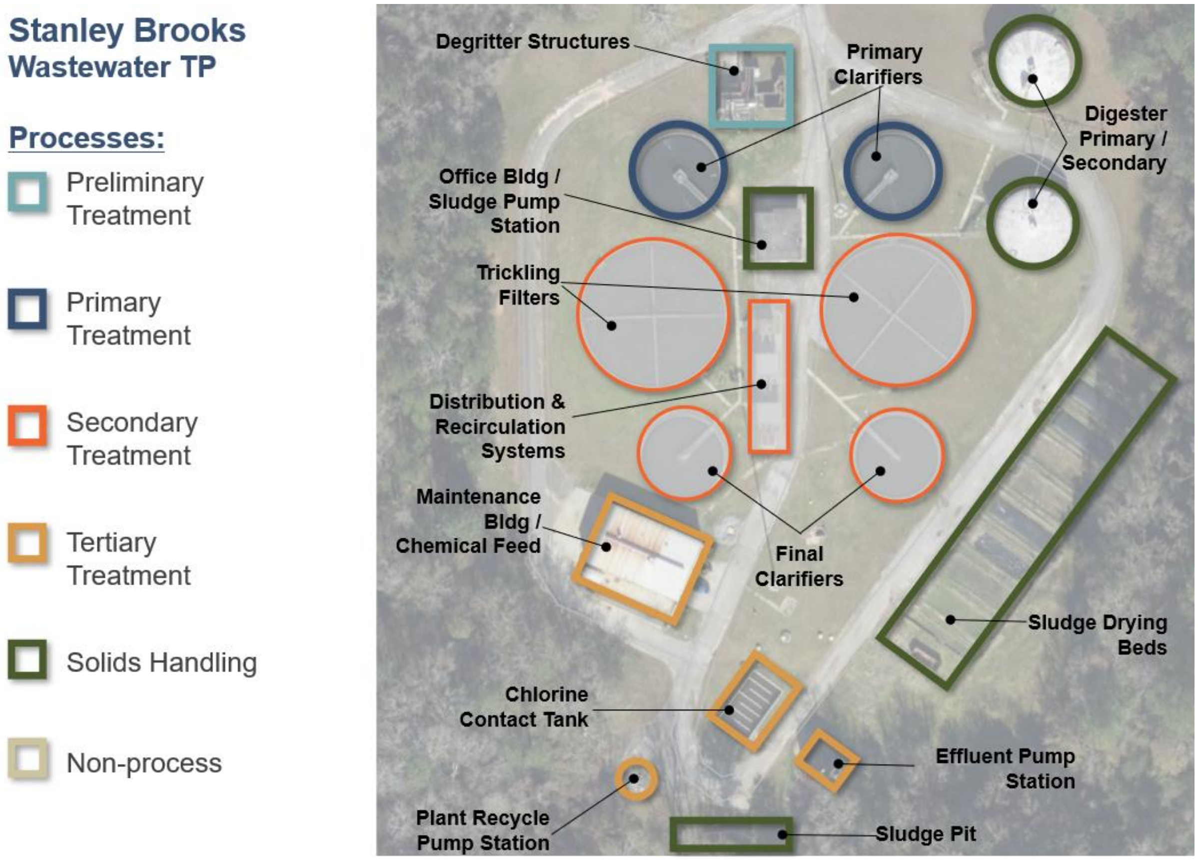



**Figure 3-5. Stanley Brooks WWTP Site Map**

*3.3.1.3 Wastewater Lift Stations*

PWW&SB owns and maintains twenty-nine (29) lift stations. Most of the stations are duplex submersible with one (1) triplex submersible, one (1) dry well, and two (2) above grade pump stations. Each station is numbered between 1 and 30 (except 13) and named after the adjoining street. A summary of each lift station is presented in **Table 3-3**, including each station's expected design capacity for pumping – number of pumps, pump flow (GPM), and pump total dynamic head (TDH).

**Table 3-3. Lift Station Summary**

| Facility | Lift Station Type | Number of Pumps | GPM | TDH (FT) |
|---|---|---|---|---|
| 01 - WEST HIGHLAND AVENUE | Dry Well Pump Up | 2 | 1000 | 35 |
| 02 - MCCANTS AND OWENS | Submersible | 2 | 290 | 27 |
| 03 - FIRST AND OWENS | Submersible | 2 | 260 | 20 |
| 04 - FIRST AND HANES | Submersible | 2 | 430 | 27 |
| 05 - RICH AVENUE | Submersible | 2 | 270 | 20 |
| 06 - CRAFT HWY AND ELM STREET | Submersible | 2 | 740 | 34 |
| 07 - PERSHING STREET | Above Grade | 2 | 230 | 35 |
| 08 - ALABAMA VILLAGE | Submersible | 2 | 1060 | 30 |
| 09 - WHATLEY AVENUE | Submersible | 3 | 1000 | 164 |
| 10 - EMILY AVENUE | Submersible | 2 | 80 | 60 |
| 11 - ATMORE AVENUE | Submersible | 2 | 200 | 27 |
| 12 - HAND AVENUE | Submersible | 2 | 230 | 25 |
| 14 - HIGHWAY 45 | Submersible | 2 | 230 | 30 |
| 15 - WINCHESTER ROAD | Above Grade | 3 | 325 | 96 |
| 16 - GARRISON AVENUE | Submersible Grinder | 2 | 25/31 | 82/75 |
| 17 - WHISTLER STREET | Submersible | 2 | 110 | 12 |
| 18 - TURNER ROAD | Submersible | 1 | 21 | 87 |
| 19 - PONDEROSA PINES | Submersible | 2 | 70 | 112 |
| 20 - HIGHPOINT AND LOTT ROAD | Submersible | 2 | 395 | 28 |
| 21 - LOTT ROAD AND SUNCREST | Submersible | 2 | 395 | 28 |
| 22 - NORWOOD POINTE | Submersible | 2 | 189 | 47 |
| 23 - OUTLAW ROAD | Submersible | 2 | 213 | 63 |
| 24 - ONTARIO DRIVE | Submersible | 2 | 250 | 35 |
| 25 - PINERIDGE DRIVE | Submersible | 2 | 690/500 | 90/110 |
| 26 - BLOUNT HIGH SCHOOL/GLOANN | Submersible | 2 | 102 | 29 |
| 27 - BEAR CREEK | Submersible | 2 | 700 | 19 |
| 28 - BEARFORK AND HIGHPOINT | Submersible | 2 | 600 | 75 |
| 29 - BEARFORK AND JARRETT ROAD | Submersible | 2 | 740 | 18 |
| 30 - SALEM AVENUE | Submersible Grinder | 2 | Unknown | Unknown |

#### *3.3.1.4 Water Storage Tanks*

The PWW&SB owns and maintains five (5) water storage tanks as a part of its water distribution system, as shown in **Table 3-4** These five tanks are filled with water currently purchased from MAWSS via several master meters. The Office Tank is set to be demolished, as it has been determined unusable from a hydraulic perspective. For that reason, it was not assessed as a part of the evaluation; however, the expenditure of the removal has been incorporated in the 20-year capital renewal plan.

**Table 3-4. Water Storage Tank Information**

| Facility | Type | Material | Capacity (MG) | Install Year |
|---|---|---|---|---|
| Anderson Tank (West Main St) | Elevated | Steel | 1.00 | 1960 |
| Chickasaw Tank (O'Neal Ln) | Elevated | Steel | 1.00 | 1984 |
| Lott Road Tank ("Blount Tank") | Elevated | Steel | 0.25 | 1968 |
| Vigor Tank (Pershing St) | Elevated | Steel | 1.00 | 1972 |
| Office Tank ("Standpipe Tank") | Standpipe | Steel | 1.00 | Unknown |

### 3.3.2 Asset Inventory

To complete a comprehensive risk assessment of PWW&SB facilities, Hazen developed an asset inventory of the major equipment found within the systems' facilities. Inventory development was initiated with a desktop assessment, which was completed with field validation and enhancements. For standardized vertical asset inventory, asset hierarchy nomenclature was developed for the various facility types throughout the system. The following section describes the inventory development, confirmation, standardization, and hierarchy in more detail. The vertical asset inventory can be found in **Appendix B: Vertical Asset Evaluation.**

#### *3.3.2.1 Asset Inventory Development & Validation*

A preliminary inventory of assets was generated for the PWW&SB facilities using record drawings and O&M manuals provided by PWW&SB. To complete and validate the inventory, Hazen performed on-site asset validation. This was included as part of the field efforts for condition assessments completed the weeks of February 19, March 4, and March 18, 2024. The goal of asset validation was to verify the existence of assets that were gathered from record drawings and O&M manuals, collect additional assets not found in those resources but physically present at facilities, and gather additional attribute information to compile a complete and detailed asset register. Asset attribute data was collected according to each asset's class and subclass, accounting for the unique attributes for different assets in the system. Once fieldwork was completed, Hazen standardized asset naming, verification of asset assembly completeness, and population of attribute data not available in the field.

#### *3.3.2.2 Asset Hierarchy Development*

As a part of the asset inventory creation, asset hierarchies were developed to assist in organizing, sorting, and reviewing the data that would be collected for the various facilities throughout the water and wastewater systems. The wastewater plants are comprised of several complex systems driving the need for process, subprocess, and assembly level designations, which is shown in **Figure 3-6**.

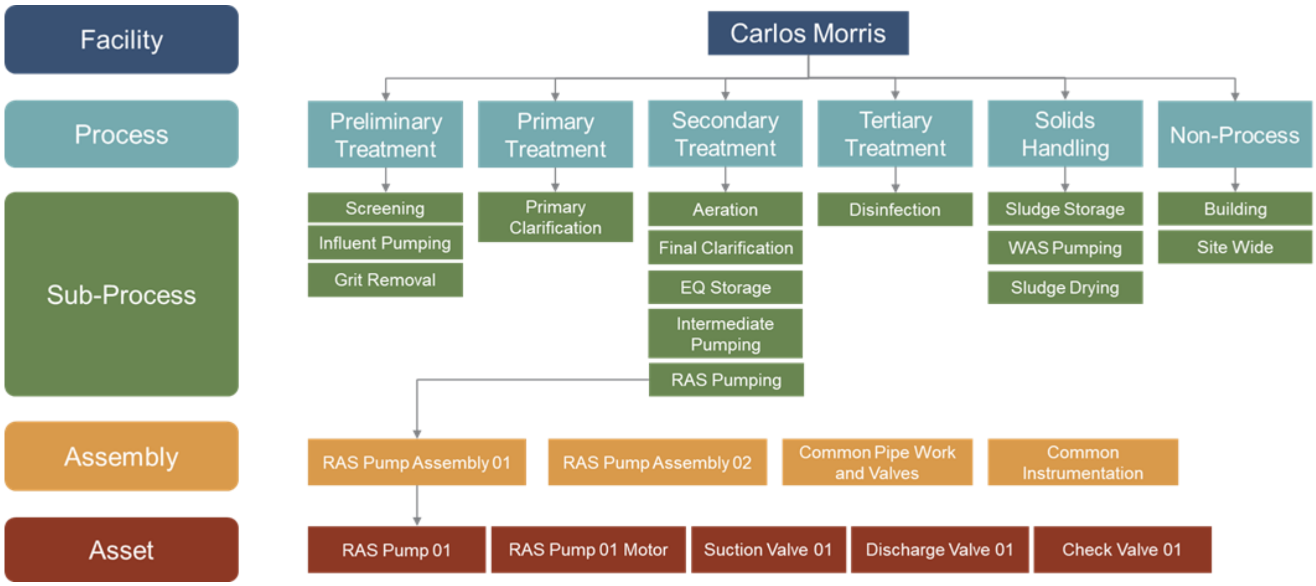



**Figure 3-6. Example Asset Hierarchy for Wastewater Treatment Plant**

Facility hierarchy for wastewater lift stations and water storage tanks was applied based on asset discipline and classification due to the lower complexity of assets and systems at these facilities. The hierarchy approach for wastewater lift stations and water storage tanks is shown in **Figure 3-7.**

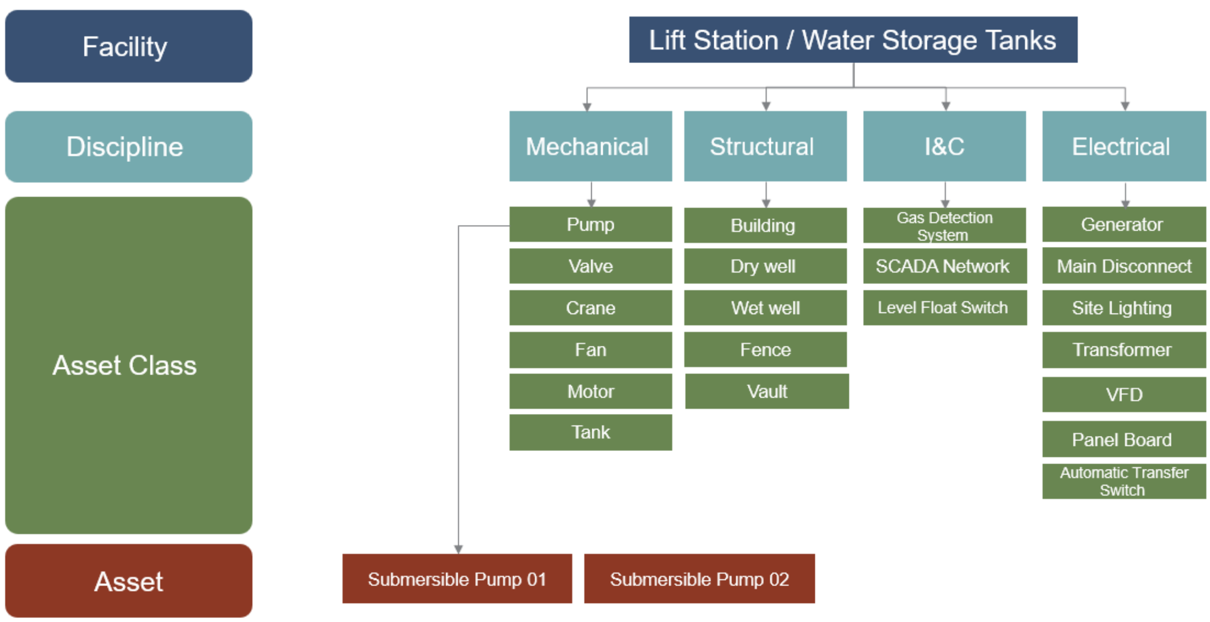



**Figure 3-7. Example Asset Hierarchy for Wastewater Lift Station / Water Storage Tank**

These asset hierarchies were applied to the inventory that Hazen developed from desktop and field assessments, as described in the previous section.

### 3.3.3 Risk Framework

Asset risk assessment was performed to prioritize the renewal and replacement of individual assets at the facilities throughout PWW&SB's system. During the asset evaluation process, asset risk was determined based on a combination of the probability of failure (PoF) and consequence of failure (CoF) scores. The scores for PoF were determined through field inspections and through on-site staff interviews with operations and maintenance staff, discussed in more detail in **Section 3.3.3.1**. The CoF scores were determined by a weighted multi-criterion scoring system, discussed in more detail in **Section 3.3.3.1.3**. Weighting and scoring methodologies were defined and applied to all assets in the same manner for a consistent analysis of infrastructure risk prioritization.

Following determination of PoF, CoF, and asset risk, the remaining useful life (RUL) of each asset was determined. This RUL was defined as a function of each asset's effective useful life (EUL) and PoF and was computed using the degradation curves that were previously explained in **Section 3.2.1**.

#### *3.3.3.1 Probability of Failure*

An asset's PoF considers its various modes of failure: physical mortality and performance condition. Physical mortality quantifies the observed condition of the asset during visual inspections. Performance condition evaluates the capacity and reliability of the asset. The PoF is developed based on an asset's physical mortality and performance condition (capacity and reliability) scores. The following sections discuss the methodology used to evaluate an asset's physical mortality, performance condition, and calculate the overall PoF.

##### 3.3.3.1.1 Physical Mortality

Hazen assessed the physical mortality (condition) of each vertical asset through on-site condition assessments. These assessments were completed the weeks of February 19, March 4, and March 18, 2024. The goal of the condition assessments was to assess physical mortality and quantify the condition of each vertical asset through visual, auditory, and (where applicable) thermal inspections in alignment with an industry standard approach.

Hazen developed condition assessment criteria for each asset type based on vertical asset maintenance expertise and industry standard condition assessment program experience. These criteria were intended to provide a systematic framework for investigating the physical condition of the asset in a non-invasive, repeatable, consistent manner. Questions were formulated for each criterion through the identification of common failure modes for components of an asset and predictive indicators that failures could occur. The physical mortality of each asset was assessed by questions that were selected specifically for the asset's class and subclass and scored (using a 1 to 5 scale, with 1 indicating "excellent" condition and 5 indicating "poor or failed" condition). An example of physical mortality questions specified for a centrifugal pump, are presented in **Table 3-5**.

**Table 3-5. Example Physical Mortality Criteria: Centrifugal Pump**

| Criteria | Criteria Score (1) | Criteria Score (2) | Criteria Score (3) | Criteria Score (4) | Criteria Score (5) |
|---|---|---|---|---|---|
| Acceptable Level of Noise | Yes | - | - | - | No |
| Acceptable Vibration | Yes | - | - | - | No |
| Absence of Leaks | Yes | - | - | - | No |
| Acceptable Smell or Heat | Yes | - | - | - | No |
| Coating or Paint Condition | Like New | Minor Chipping or Bare Spots | Moderate Chipping or Bare Spots | Significant Chipping or Bare Spots | Coating Failure |
| Corrosion | Like New | Minor Corrosion | Pitting And Some Metal Loss | Significant Metal Loss | Severe Pitting |
| Electrical Cable / Conduit Condition | Like New | Minor Defects | Moderate Defects | Significant Defects | Failure Imminent |
| Acceptable Oil/Grease | Yes | - | - | - | No |
| Belt / Direct Drive / Couplings | Like New | Minor Defects | Moderate Defects | Significant Defects | Failure Imminent |
| Drive Shaft | Like New | Minor Defects | Moderate Defects | Significant Defects | Failure Imminent |
| Gauges Operational | Yes | - | - | - | No |
| Installation / Accessibility | Installed properly, easy to access | - | Moderate installation problems or access obstructions | - | Improperly installed or access obstructed |
| Packing Gland / Mechanical Seal | Like New or Acceptable Leaks | Minor Leaks | Moderate Leaks | Significant Leaks | Complete Failure |
| Pipe Alignment | Straight | - | Moderate Deviation | - | Severe Deviation |
| Mounting | Securely mounted, well supported | - | Moderate issues with mounting or support | - | Improperly mounted or not secured |
| Control Gauges | Like New | Minor Defects | Moderate Defects | Significant Defects | Failure Imminent |

The overall physical mortality score is calculated by averaging the worst physical mortality criteria score and the average physical mortality criteria score. This was necessary to calibrate the calculated condition scores to the observed conditions on-site. Thus, the physical mortality score accounts for both the overall condition of the asset and the most severe individual condition criterion, which may in fact be the ultimate driver of asset failure.

$$\textbf{Physical Mortality} = \frac{\textbf{max}(\textbf{Criteria Score}) + \textbf{avg}(\textbf{Criteria Score})}{\textbf{2}}$$

Field inspection data were collected using ESRI's ArcGIS Survey123 mobile application. This approach set up a structured method for gathering data in a digital format to ensure data accuracy, completeness, and quality. Hazen staff took photos of each inspected asset to capture the visual condition and any notable items that should be documented.

#### 3.3.3.1.2 Performance Condition

Capacity and reliability were both evaluated based on anecdotal evidence from plant staff. This was considered the only source of performance-related data due to lack of documentation from more traditional performance data sources such as work order historic data or performance testing (i.e., pump draw down tests). **Table 3-6** provides additional detail on performance condition scoring.

*Capacity* – Considered whether an asset was appropriately sized and capable of meeting its designed intent and demands.

*Reliability* – Considered the work order history of an asset over the past 12 months, where assets with numerous corrective work orders would be considered unreliable.

**Table 3-6: Performance Criteria**

| Criteria | Criteria Score 1 | Criteria Score 2 | Criteria Score 3 | Criteria Score 4 | Criteria Score 5 |
|---|---|---|---|---|---|
| **Capacity** | Sufficient capacity to meet average and peak flow requirements. Appropriate utilization and function | Under-utilized or oversized, potentially causing O&M issues. | Meets current functional demand but limited capacity availability | - | Unable to meet current average capacity needs. |
| **Reliability** | No unscheduled corrective work order events within 12 months | - | 1-3 unscheduled corrective work order events within 12 months | - | > 3 unscheduled corrective work order events within 12 months<br><br>or<br><br>Asset inoperable on-site |

Hazen's assessment approach was designed to maximize the value of the field inspections while on site to account for a broad range of factors when surveying and scoring an asset's risk. Other factors noted during the field inspections include capacity, reliability, redundancy, obsolescence, and safety. For the purpose of performance condition assessment, only capacity and reliability were considered for PoF. Other captured data points from field assessments included:

- *Redundancy* – Identified the presence of back-up systems if the assembly were to fail.
- *Obsolescence* – Identification of assets which are no longer supported by manufacturers, or which would be likely to have issues in obtaining replacement parts are considered obsolete. This criterion was collected for informational purposes only and does not impact condition scoring.

- *Safety* – Identification of assets presenting an active safety concern. This criterion was collected for situational awareness and does not factor into condition scoring.

##### 3.3.3.1.3 PoF Scoring

The PoF score was calculated as a combination of the three previously mentioned factors and was calculated as follows:

$$\mathbf{PoF = \max(Physical\ Mortality, Capacity, Reliability)}$$

Each asset's PoF was the highest value of the asset's physical mortality score, capacity score, or reliability score.

#### *3.3.3.2 Consequence of Failure*

An asset's CoF considers the impacts of its failure to levels of service, safety, the environment, regulatory compliance, and finances. The criteria considered for CoF are described below.

*Level of Service* – Measures the impact of the asset failure on the ability for the facility to meet its intended level of service to the public. This was measured by evaluating the asset's role in a facility and the effect that it would have on the intended facility's function.

*Environmental & Regulatory Compliance* – Measures the impact of an asset failure on the facility's ability to comply with regulatory requirements. Assets were scored based on the failure of the specific process and the effects on regulatory compliance and then individually on which asset would have impact in the failure of the process.

*Safety* – Measures the impact of asset failure on the safety of the public or on PWW&SB staff when operating or maintaining equipment at the time of failure.

*Financial Impact* – Measures the economic impact from the failure of an asset. This is determined by evaluating the replacement cost for an asset, the typical downtime associated with the failure of the asset, as well as the repairability and need for outside expertise and support.

##### 3.3.3.2.1 Redundancy

Redundancy was an additional CoF factor that was evaluated to modify the asset risk. This factor quantifies redundant systems that provide back-up in the case of failure or that allow for flexibility in operations. The redundancy for assets was evaluated at the asset assembly level. The assembly was only considered to have redundancy if there were other assemblies providing the same function within a lift station or plant process. An asset assembly with no redundancy received a score of 5, an assembly with partial redundancy received a score of 3, and an assembly with full redundancy received a score of 1. This factor was not evaluated for structural assets or assets that would not typically have redundant systems built into a facility. The CoF scores were modified to reflect redundancy scores.

3.3.3.2.2 CoF Scoring

The CoF was scored on a scale of 1 to 5 for all sub-criteria previously described and then an overall calculated CoF score was produced based on the applied weightings shown in **Table 3-7**. The CoF score was calculated as follows:

$$\mathbf{CoF} = [(\mathbf{LOS} * \mathbf{30}\%) + (\mathbf{Safety} * \mathbf{10}\%) + (\mathbf{Env}\ \&\mathbf{Reg} * \mathbf{40}\%) + (\mathbf{O}\&\mathbf{M} * \mathbf{20}\%) * \mathbf{75}\%] * [\boldsymbol{Redundancy} * \mathbf{25}\%]$$

**Table 3-7. CoF Criteria and Weighting Summary**

| CoF Criteria | Modified CoF Weights | CoF Weights | Description | Methodology / Source | Details | Negligible = 1 | Minor = 2 | Moderate = 3 | Major = 4 | Critical = 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Level of Service** | 75% | 30% | Score stations and critical assets based on their impact to failure of vertical assets and their function. | Desktop exercise – scored for the pump station and applied to critical asset classes | Other | No impact to public | - | Failure creates indirect impact to public (i.e., causes discharge non-compliance, odor issues, etc.) | - | Failure creates direct impact to public (i.e., full disruption to plant capacity and upstream collection system) |
| | | | | | LS | Pump ≤ 50 gpm<br><br>Failure of asset has no impact on Level of Service of LS | Pumps > 50 - 200 gpm | Pumps > 200 - 500 gpm | Pumps > 500 - 750 gpm | Pumps > 750 gpm |
| **Safety** | | 10% | Score based on the potential severity injury to staff or the public due to asset failure | Desktop exercise, based on asset class | All | No Impact | - | Failure creates potential for damage to surrounding equipment and would require medical attention if person was in close proximity during failure | - | Failure creates potential for injury to staff or the public (i.e., significant bodily injury and may damage environment such as chemical leak/fire/explosion |
| **Regulatory Compliance** | | 40% | This criterion is used to understand the impact of an asset's failure on meeting environmental and regulatory requirements. Scoring based on proximity to waterways, wetlands, raw water basins, wildlife areas, and potential fines associated with the consequences of an asset's failure | Desktop exercise, NHD Hydrography, based on asset class | All | No Impact<br><br>Failure of asset that has insignificant impact to facility function | Results in event that will have a minimal negative environmental (fishing/swimming locations, etc.) or public heath impact | Non-compliance if no response, resulting in minor enforcement action from regulatory agencies. Results in event that will have a moderate negative environmental (fishing/swimming locations, etc.) or public heath impact | Results in discharge that will have a significant negative environmental (fishing/swimming locations, etc.) or public heath impact and flow to surface water | Immediate widespread impact before response, resulting in enforcement w/extensive fines from regulatory agencies. Discharge of raw sewage to a drinking water source and/or impact on potable water reservoirs |
| **O&M Impacts** | | 20% | This criterion served to identify assets that would have difficult, lengthy, and/or expensive repairs. | Desktop exercise, based on asset class | All | No Impact, easy repair<br><br>OR<br><br>Cost < $5,000 | Can be repaired by in-house staff. Cannot be down a month.<br><br>OR<br><br>Cost > $5000 – 25,000 | Can be repaired by in-house staff. Cannot be down a week.<br><br>OR<br><br>Cost > $25,000 – 75,000 | Requires outside expertise in addition to in-house staff. Cannot be down a day.<br><br>OR<br><br>Cost > $75,000 – 300,000 | Requires outside expertise in addition to in-house staff. Cannot be down 8 hours.<br><br>OR<br><br>Cost > $300,000 |
| **Redundancy** | 25% | 100% | This criterion served as a modifier to overall consequence of failure. This was scored based on an asset's available redundancy at the asset assembly level. | Field assessed, and desktop validated | All | >= 100% redundancy | - | partial redundancy ( i.e.. 2 pumps are needed for ADF, but there are 3 pumps for rotation) >0% redundancy but <100% | - | no redundancy |

#### *3.3.3.3 Estimated Useful Life Assumptions*

The estimated useful life (EUL) of an asset reflects the typical service life, or the expected number of years that the asset will remain in service, from start-up to decommissioning, under normal operating conditions. EUL is an important metric in asset management planning, as it determines the timeline for future asset renewal and replacement work. EULs can vary depending on asset class, duty, specific use case, and the environment in which the asset is located. Thus, the EUL of an asset is a rough order of magnitude estimate for planning purposes only.

To account for this variability, Hazen assigned EULs to vertical assets in this asset evaluation by asset class and subclass, considering the application of asset classes and subclasses within the water and wastewater systems. To generate these estimates, Hazen relied on past project experience with utility clients, the engineering judgment of internal subject matter experts (SMEs), and industry standards and benchmarks, including the American Water Works Association (AWWA) Effective Useful Life Tool. The range of EUL values used for asset management planning in this evaluation is presented in **Table 3-8**.

**Table 3-8. EUL (Years) by Asset Class and Subclass**

| Asset Class (Subclass) | EUL Range | Asset Class (Subclass) | EUL Range |
|---|---|---|---|
| Bar Screen | 20 | Motor | 20 |
| Collector | 20 | Overhead Door | 35 |
| Compactor | 25 | Piping (Piping_ Buried) | 70 |
| Compressor | 20 | Piping (Piping_ Exterior Process) | 50 |
| Cranes (Davit) | 30 | Piping (Piping_ Interior Process) | 50 |
| Cranes (Monorail) | 25 | Pump (Pump_ Centrifugal) | 20 |
| Degritter | 25 | Pump (Pump_ Double Disc) | 20 |
| Detector | 5 | Pump (Pump_ Metering_ Diaphragm) | 10 |
| Distributor Arm | 25 | Pump (Pump_ Peristaltic) | 20 |
| Electrical (Automatic Transfer Switch (ATS)) | 30 | Pump (Pump_ Submersible) | 15 |
| Electrical (Breaker) | 35 | Pump (Pump_ Vertical Turbine) | 30 |
| Electrical (Control Panel) | 20 | Safety (Safety_ Alarm) | 15 |
| Electrical (Distribution Panel) | 20 | Safety (Safety_ Railings And Walkways) | 30 |
| Electrical (Motor Starters) | 15 | Sampler | 15 |
| Electrical (Transformer) | 20 | SCADA | 10 - 15 |
| Electrical (Uninterrupted Power Supply (UPS)) | 20 | SCADA Cabinet | 10 |
| Feeder | 10 | Sludge Drying Bed | 50 |
| Fence | 25 | Structure | 50 - 75 |
| Filter | 15 | Tank (Tank_ Chemical) | 25 |
| Gate | 25 | Tank (Tank_ Fuel) | 45 |
| Gearbox | 30 | Tank (Tank_ Pressurized) | 45 |
| Generator | 25 | Tank (Tank_ Water Elevated) | 50 |
| HVAC (Condensing Units) | 20 | Valve (Valve_ Altitude) | 35 |
| HVAC (Fans and Blowers) | 25 | Valve (Valve_ Ball) | 25 |
| HVAC (Heat Pump) | 20 | Valve (Valve_ Check) | 25 |
| HVAC (Heaters) | 15 | Valve (Valve_ Gate) | 25 |
| HVAC (Louvers and Dampers) | 20 | Valve (Valve_ Knife Gate) | 25 |
| Instrument | 10 - 15 | Valve (Valve_ Plug) | 20 |
| Lighting | 25 | Valve (Valve_ Pressure Nozzle) | 20 |
| Manhole | 40 | Valve (Valve_ Vacuum/Air Relief) | 20 |
| Motor Control Center (MCC) | 40 | Vehicle Gate | 25 |
| Media | 20 | Variable Frequency Drive (VFD) | 15 |
| Mixer | 15 | | |

### 3.3.4 Risk Results

The methodology discussed in **Section 3.3.3** was used to assess asset PoF, CoF, risk, and RUL. The following sections provide summaries of the asset condition assessment field findings, PoF, CoF, and risk profiles for Carlos Morris WWTP, Stanley Brooks WWTP, Wastewater Lift Stations, and Water Storage Tanks. Based on the outcomes of PoF and CoF scores, assets were categorized into risk levels: Low, Medium Low, Medium High, and High as shown previously in **.** The findings from the subsequent section drove the ultimate timing of recommended asset replacement and, ultimately, project replacement recommendations for the next 20 years. It is noted that these results are a data point relevant to findings from February and March of 2024 and PoF, CoF, or risk may change, causing results to shift for the assets accounted for in the vertical asset evaluation. The risk results for individual vertical assets can be found in **Appendix B: Vertical Asset Evaluation.**

#### *3.3.4.1 Carlos Morris WWTP*

Hazen staff inspected the Carlos Morris Wastewater Treatment Plant as part of the vertical asset evaluation. The following sections summarize the key field findings, PoF scoring, CoF scoring, and risk results for the assets at the plant.

##### 3.3.4.1.1 Probability of Failure

As described in **Section 3.3.3.1**, the on-site inspection began with a walk through of the plant with PWW&SB operations and maintenance staff to identify issues with unit processes and associated equipment. Key findings from assessments and conversations with PWW&SB staff are documented at the process area level in **Table 3-9**.

**Table 3-9: Carlos Morris WWTP Field Inspection Key Findings**

| Process | Key Findings | Projects to Address Deficiencies |
|---|---|---|
| Preliminary Treatment | • The only bar screen is often clogged and down for maintenance causing rags to bypass.<br>• A hand-raked metal grate is placed in Degritter 02 effluent channel to compensate.<br>• The staff indicated that the level transmitter reading is not accurate, causing staff to use workaround calculations to determine the correct level.<br>• Degritter 01 is not in service leaving Degritter 02 constantly running. | WW-02, WWCM-05 |
| Primary Treatment | • Primary clarifier scum and sludge valves are buried.<br>• Operators have a difficult time determining which valve to operate when draining solids | WW-02 |
| Secondary Treatment | • Maintenance staff state that Final Clarifier 01 center is misaligned due to a corrected repair in the past that cause the catwalk to twist.<br>• During the walkthrough the skimmer arm was observed to be submerged on one side and unable to remove scum from the settling area.<br>• Final Clarifier 01 is unable to waste sludge due to the piping configuration which leaves only Final Clarifier 02 to waste sludge to the digesters.<br>• The DO probe on the aeration tank is not functional.<br>• Two (2) of ten (10) floating aerators are out of service. This could lead to an insufficient oxygen supply which prevents the required nitrification.<br>• The Return Activated Sludge (RAS) meter vaults are flooded but are working. | WW-02, WWCM-08, WWCM-10, WWCM-STR1 |
| Tertiary Treatment | • Chlorine is used to disinfect effluent water even though a bleach tank is on-site.<br>• Staff stated that the chlorine gas system is more reliable than the sodium hypochlorite feed system.<br>• The effluent is dechlorinated with sodium bisulfate at discharge. | WWCM-17 |
| Solids Handling | • Maintenance staff state that the digesters have not been operational for quite some time and are left only acting as sludge storage tanks.<br>• Sludge is still able to be drained from the tanks to a strainer bag in the drying beds. | WWCM-MISC, WWCM-STR1, WWCM-STR3 |

The distribution of PoF scores at Carlos Morris WWTP is presented in **Figure 3-8,** with just under 30% of assets evaluated falling into the "poor" (score of 4) and "very poor" (score of 5) categories.

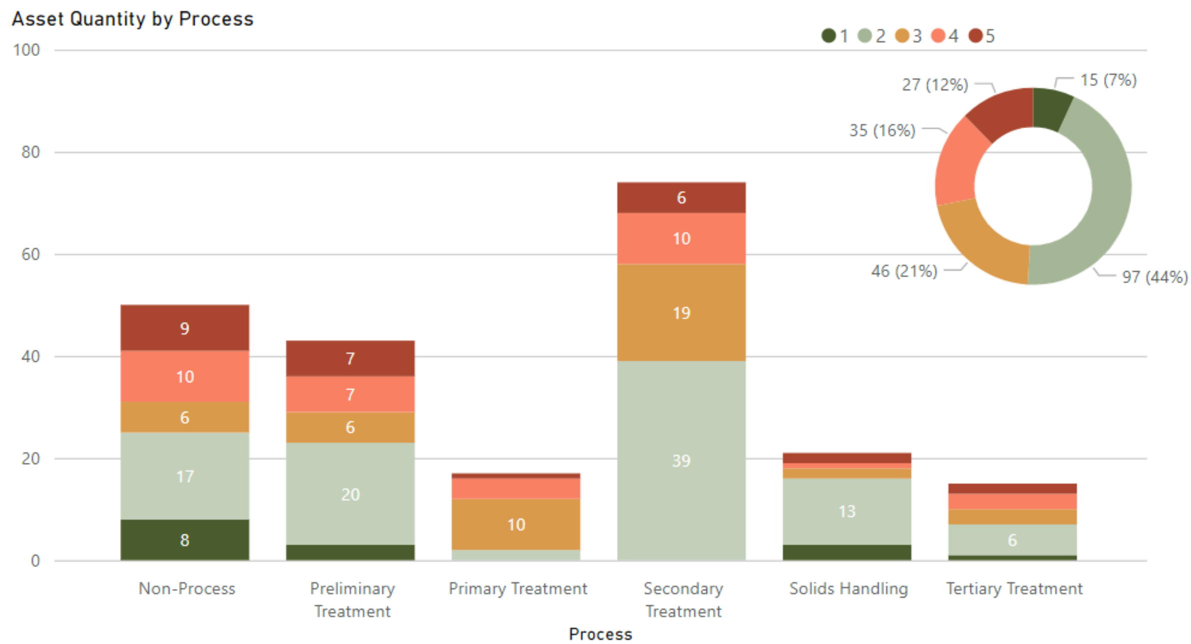



**Figure 3-8. Carlos Morris WWTP PoF Breakdown**

3.3.4.1.2 Consequence of Failure

The distribution of asset CoF scores within the Carlos Morris WWTP plant processes is shown in **Figure 3-9**. Nearly 35% of assets evaluated at the plant have a "major" (score of 4) to "critical" (score of 5) CoF score.

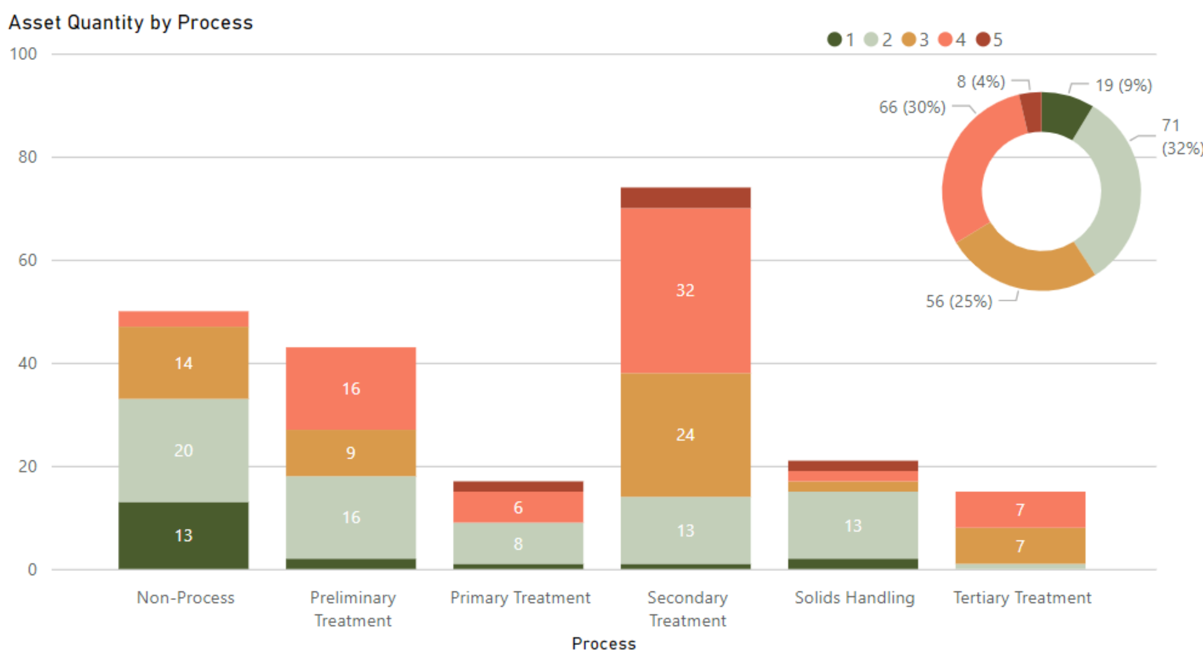



**Figure 3-9. Carlos Morris WWTP CoF Breakdown**

3.3.4.1.3 Risk Results

The distribution of overall asset risk within the Carlos Morris WWTP plant processes is shown in **Figure 3-10,** with just under 30% of assets evaluated falling into "medium high" and "high" risk categories. The most prominent asset processes that fell within the "medium high" and "high" risk categories throughout the Carlos Morris WWTP include primary and final clarifier structures and components and headworks. The prominent asset classes falling into those risk categories were found to be the pumps, motors, SCADA, degritter assets, electrical breakers, transformers, control panels, motor starters, and bar screens.

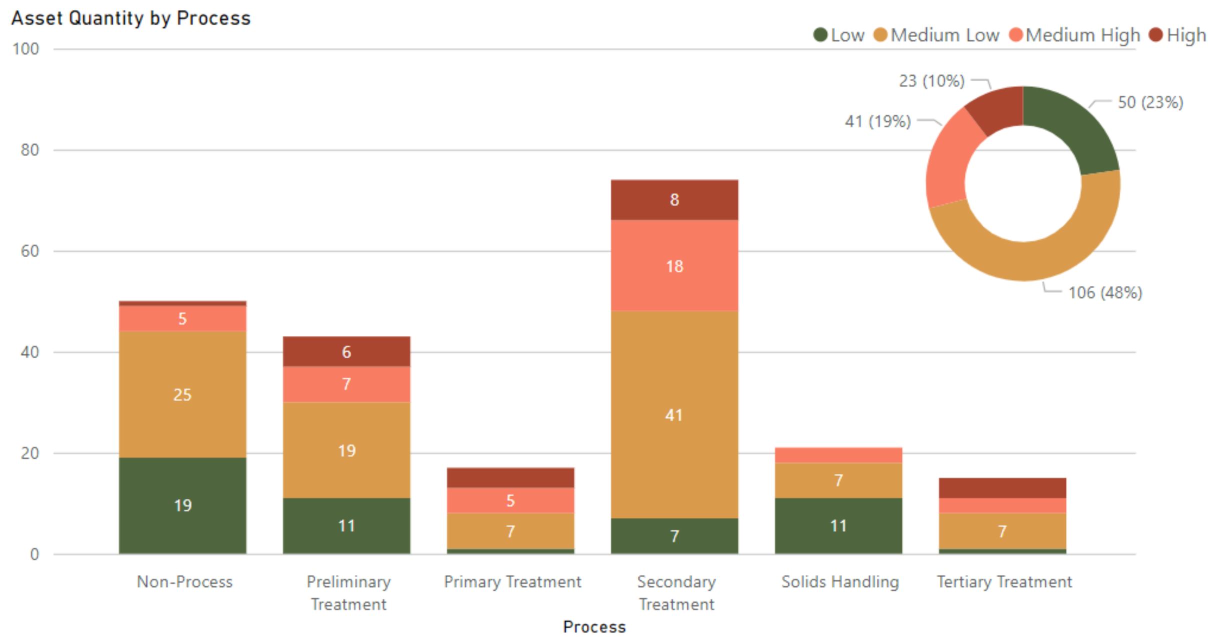



**Figure 3-10. Carlos Morris WWTP Risk Breakdown**

The risk matrix for the Carlos Morris WWTP is depicted in **Figure 3-11**.

| Risk Score =PoF*CoF | | PoF | | | | | CoF Totals |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | |
| CoF | 1 | 0.0% | 1.4% | 1.4% | 2.7% | 3.2% | **8.6%** |
| | 2 | 1.8% | 15.5% | 6.8% | 4.5% | 3.6% | **32.3%** |
| | 3 | 2.7% | 11.8% | 3.6% | 4.5% | 2.7% | **25.5%** |
| | 4 | 1.4% | 14.1% | 8.2% | 3.6% | 2.7% | **30.0%** |
| | 5 | 0.9% | 1.4% | 0.9% | 0.5% | 0.0% | **3.6%** |
| PoF Totals | | **6.8%** | **44.1%** | **20.9%** | **15.9%** | **12.3%** | **100.0%** |

**Figure 3-11. Carlos Morris WWTP Risk Matrix**

**Table 3-10** summarizes the PoF, CoF, and useful life metrics by process and subprocess at Carlos Morris WWTP.

**Table 3-10. Carlos Morris WWTP Risk Summary**

| Process Area | Avg. PoF Score | Avg. CoF Score | Avg. RUL | Avg. % Life Consumed | Avg. Risk Score |
|---|---|---|---|---|---|
| **Preliminary Treatment** | | | | | |
| Grit Removal | 3.2 | 2.4 | 14 | 56% | 7.8 |
| Influent Pumping | 2.4 | 3.1 | 14 | 34% | 7.8 |
| Screening | 3.8 | 3.4 | 7 | 71% | 13.0 |
| **Primary Treatment** | | | | | |
| Flow Control | 1.8 | 1.2 | 33 | 18% | 2.1 |
| Primary Clarification | 3.2 | 3.1 | 12 | 55% | 9.6 |
| **Secondary Treatment** | | | | | |
| Aeration | 2.8 | 4.1 | 13 | 44% | 11.0 |
| EQ Storage | 2.5 | 3.1 | 21 | 36% | 7.5 |
| Final Clarification | 2.6 | 3.6 | 17 | 40% | 9.3 |
| Intermediate Pumping | 2.7 | 3.2 | 13 | 43% | 8.8 |
| RAS Pumping | 2.7 | 3.4 | 12 | 42% | 9.1 |
| **Solids Handling** | | | | | |
| Sludge Drying | 4.8 | 1.0 | 3 | 94% | 4.8 |
| Sludge Storage | 2.4 | 2.8 | 45 | 36% | 7.0 |
| WAS Pumping | 1.8 | 2.9 | 16 | 21% | 4.9 |
| **Tertiary Treatment** | | | | | |
| Disinfection | 2.9 | 3.6 | 15 | 46% | 10.3 |
| **Non-Process** | | | | | |
| Building | 2.7 | 2.3 | 16 | 43% | 5.5 |
| Site-Wide | 3.2 | 1.6 | 12 | 53% | 4.6 |

*3.3.4.2 Stanley Brooks WWTP*

Hazen staff inspected the Stanley Brooks Wastewater Treatment Plant as part of the vertical asset evaluation. The following sections summarize the key field findings, PoF scoring, CoF scoring, and risk results for the assets at the plant.

3.3.4.2.1 Probability of Failure

The Stanley Brooks Wastewater Treatment Plant was inspected by Hazen staff. The on-site inspection began with a walk through of the plant with operations and maintenance staff to identify issues with unit processes and associated equipment. Key findings from assessments and conversations with PWW&SB staff are documented at the process area level in **Table 3-11**.

**Table 3-11: Stanley Brooks WWTP Field Inspection Key Findings**

| Process | Key Findings | Projects to Address Deficiencies |
|---|---|---|
| Preliminary Treatment | • Degritter 01 is fully out of service with internals removed with only Degritter 02 left to process influent flow.<br>• The slurry pump on Degritter 02 has been removed from service leaving the plant unable to remove grit. | WWSB-02 |
| Primary Treatment | • Both primary sludge pumps are out of service due to accumulation of grit. This result is that the clarifiers need to be emptied to manually remove sludge.<br>• The maintenance staff has placed a portable pump at the scum box to pump it out and discharge it into the clearwell through the downstream processes. | WWSB-13, WWSB-14 |
| Secondary Treatment | • Trickling Filter 01 rotating arm assembly is not functional leaving the biological growth to die off causing the treatment to be ineffective.<br>• Trickling Filter 01 deficiencies are causing water quality in Final Clarifier 01 to be noticeably worse compared to Final Clarifier 02. | WWSB-08 |
| Tertiary Treatment | • Non-potable water pump system that provides water for cleaning tanks has been removed.<br>• A hydrant is now hooked up to provide water to the non-potable system, but the hydrant standpipe is broken and gushing water from underneath. Water Board staff say they have been aware of this issue for at least seven months. | WWSB-12, WWSB-STR3 |
| Solids Handling | • Maintenance staff state that the digesters have not been operational for quite some time and are left only acting as sludge storage tanks.<br>• Sludge is still able to be drained from the tanks to a strainer bag in the drying beds | WWSB-13, WWSB-14, WWSB-17, WWSB-STR4 |

The distribution of PoF scores at Stanley Brooks WWTP is presented in **Figure 3-12** with nearly 40% of assets evaluated falling into the “poor” (score of 4) and “very poor” (score of 5) categories.

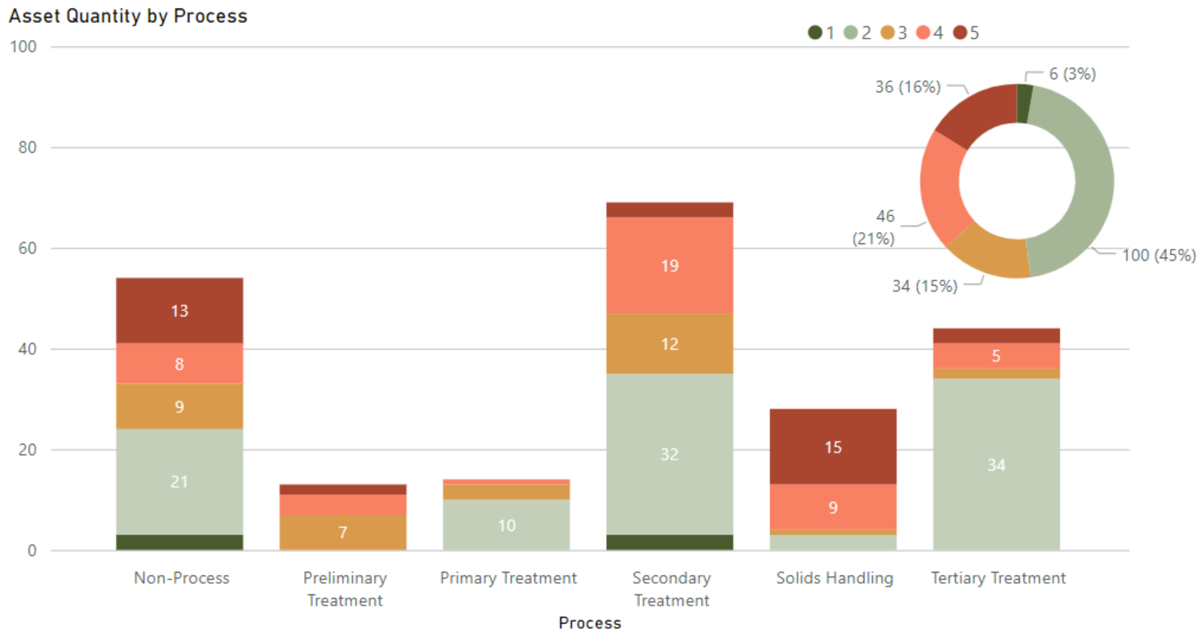



**Figure 3-12. Stanley Brooks WWTP PoF Breakdown**

3.3.4.2.2 Consequence of Failure

The distribution of CoF scores at Stanley Brooks is presented in **Figure 3-13**. Approximately 25% of assets were scored as major or critical CoF.

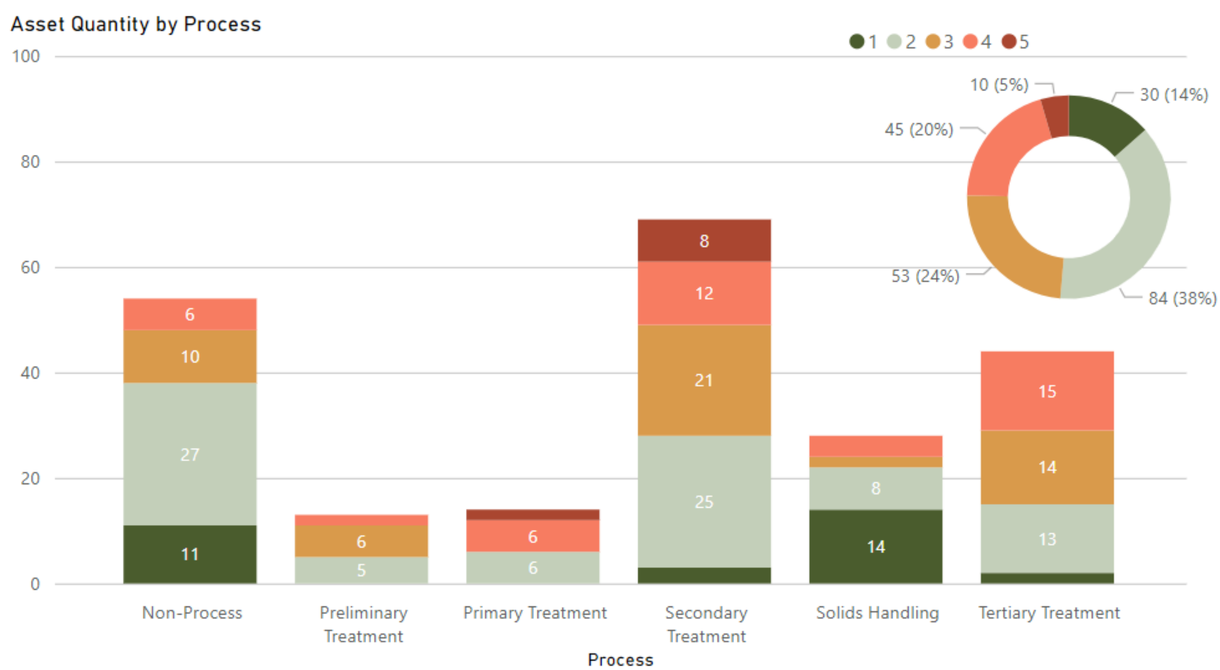



**Figure 3-13. Stanley Brooks WWTP CoF Breakdown**

3.3.4.2.3 Risk Results

The distribution of asset risk within the Stanley Brooks WWTP plant processes is shown in **Figure 3-14**, with just under 30% of assets evaluated falling into “medium high” and “high” risk categories. The most prominent asset processes that fell within the “medium high” and “high” risk categories throughout the WWTP include pumps and motors for the Waste Activated Sludge (WAS) pumping system, the RAS pumps, and all assets associated with Degritter 02.

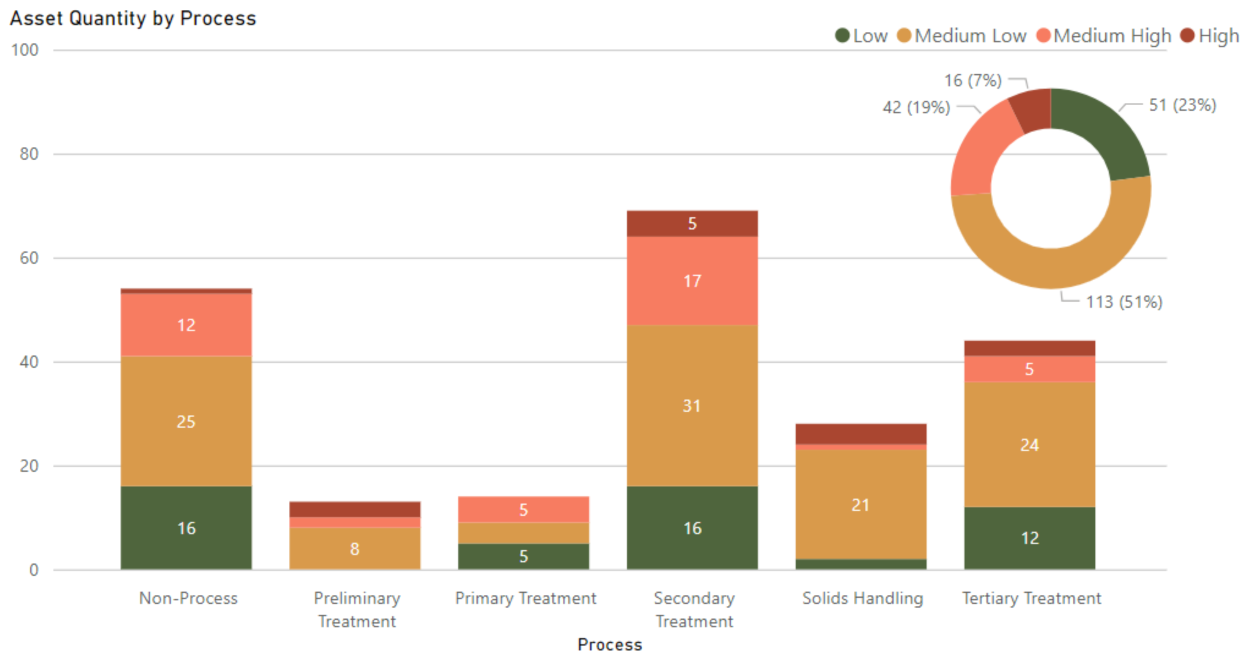



**Figure 3-14: Stanley Brooks WWTP Risk Breakdown**

The risk matrix for Stanley Brooks appears in **Figure 3-15**. The percentages represent the count of assets that received each corresponding PoF and CoF score.

| Risk Score =PoF*CoF | | PoF | | | | | CoF Totals |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | |
| CoF | 1 | 0.0% | 3.2% | 0.9% | 3.2% | 6.3% | **13.5%** |
| | 2 | 1.4% | 17.6% | 3.6% | 9.0% | 6.3% | **37.8%** |
| | 3 | 0.0% | 10.8% | 5.9% | 6.3% | 0.9% | **23.9%** |
| | 4 | 0.9% | 11.3% | 3.6% | 2.3% | 2.3% | **20.3%** |
| | 5 | 0.5% | 2.3% | 1.4% | 0.0% | 0.5% | **4.5%** |
| PoF Totals | | **2.7%** | **45.0%** | **15.3%** | **20.7%** | **16.2%** | **100.0%** |

**Figure 3-15. Stanley Brooks WWTP Risk Matrix**

A breakdown of risk by process area is presented in **Table 3-12**.

**Table 3-12. Stanley Brooks WWTP Risk Summary**

| Process Area | Avg. PoF Score | Avg. CoF Score | Avg. RUL | Avg. % Life Consumed | Avg. Risk Score |
|---|---|---|---|---|---|
| **Preliminary Treatment** | | | | | |
| Grit Removal | 3.6 | 2.7 | 10 | 65% | 10.0 |
| Screening | 3.2 | 2.9 | 10 | 55% | 9.1 |
| **Primary Treatment** | | | | | |
| Primary Clarification | 2.3 | 3.2 | 20 | 33% | 7.3 |
| **Secondary Treatment** | | | | | |
| Final Clarification | 2.2 | 4.0 | 22 | 32% | 8.7 |
| Flow Control | 2.9 | 2.5 | 27 | 48% | 7.7 |
| RAS Pumping | 3.2 | 2.7 | 11 | 56% | 8.6 |
| Recirculation Pumping | 2.6 | 2.2 | 12 | 41% | 5.9 |
| Trickling Filtration | 2.1 | 4.6 | 24 | 28% | 9.8 |
| **Solids Handling** | | | | | |
| Sludge Drying | 4.5 | 1.0 | 5 | 88% | 4.5 |
| Sludge Storage | 1.7 | 2.8 | 57 | 18% | 4.8 |
| WAS Pumping | 4.4 | 3.0 | 4 | 83% | 13.2 |
| **Tertiary Treatment** | | | | | |
| Disinfection | 3.0 | 3.1 | 15 | 51% | 9.0 |
| Effluent Pumping | 2.0 | 3.8 | 16 | 23% | 7.5 |
| Plant Recycle Pumping | 2.2 | 2.0 | 15 | 31% | 4.4 |
| **Non-Process** | | | | | |
| Building | 2.9 | 2.4 | 14 | 49% | 6.7 |
| Site-Wide | 4.4 | 1.5 | 4 | 84% | 6.4 |

### *3.3.4.3 Wastewater Lift Stations*

Hazen staff inspected the PWW&SB's 29 Wastewater Lift Stations as part of the vertical asset evaluation. The following sections summarize the key field findings, PoF scoring, CoF scoring, and risk results for the assets in the collection's system.

#### 3.3.4.3.1 Probability of Failure

Hazen assessed PWW&SB's 29 wastewater lift stations. The on-site inspections included conversations with operations and maintenance staff to identify issues with the lift stations. Key findings from assessments and staff conversations are documented in **Table 3-13**.

**Table 3-13: Lift Station Field Inspection Key Findings**

| Category | Key Findings | Projects to Address Deficiencies |
|---|---|---|
| Power Outage Station Failures | • Stations do not re-energize after power outages and surges causing operators to manually reset stations to avoid SSOs.<br>• While on-site, an SSO was observed at 27 – Bear Creek on March 5, 2024 likely due to power surge failure causing the wet well to overflow into surrounding area. | WWLS-01, WWLS-02, WWLS-03, WWLS-04, WWLS-05, WWLS-06, WWLS-07, WWLS-00, WWLS-MISC |
| Site Lighting | • Poorly working/insufficient site lighting provides poor working conditions at night. A portable floodlight must be used to perform nightwork. | WWLS-01, WWLS-02, WWLS-03, WWLS-04, WWLS-08, WWLS-09, WWLS-MISC |
| Control Panel Housekeeping | • Poor control panel housekeeping at most stations including missing rodent screens providing incoming conduit, mouse droppings inside box, and no wiring diagrams. | WWLS-01, WWLS-02, WWLS-03, WWLS-04, WWLS-05, WWLS-06, WWLS-07, WWLS-09, WWLS-MISC |
| Undocumented Lift Stations | • Stations 29 – Bearfork and Jerrett Rd and 30 – Salem Ave are not in the PWW&SB's GIS<br>• Hazen staff relied on Prichard staff to locate these stations. | WWLS-05, WWLS-07, WWLS-04, WWLS-08, WWLS-STR1 |
| Station 07 – Pershing Street | • Station's above grade structure is in poor shape with a hole in roof system, asbestos shingles broken, and stair fountain undermined.<br>• A large tree leaning toward the lift station that poses a risk of falling from a heavy storm. | WWLS-03 |
| Station 01- West Highland Ave | • Station has a drywell configuration with a dry well that is flooded with at least one foot of water and is inaccessible. | WWLS-MISC |
| Out of Service Pumps | • 15 of 29 lift stations had only one (1) operational pump on site<br>• See details in **Table 3-14** | WWLS-01, WWLS-02, WWLS-04, WWLS-MISC |
| Bypass Pumping | • Three (3) lift stations with only 1 operational pump were being supported by bypass pumping to relieve pump stress<br>• Two (2) lift stations had NO functional pumps and were on permanent bypass pumping<br>• See details in **Table 3-14** | WWLS-01, WWLS-02, WWLS-04, WWLS-MISC |

**Table 3-14** shows the number of pumps per station that were out of service during assessment and those that were relying on a portable bypass pump to function. These are reflective of conditions based on the assessment performed in February and March of 2024.

**Table 3-14: Lift Station Non-Functional Pumps**

| Facility | Lift Station Type | Number of Pumps | Working Pumps | On-site Bypass |
|---|---|---|---|---|
| 01 - West Highland Avenue | Dry Well Pump Up | 2 | 1 | |
| 02 - Mccants and Owens | Submersible | 2 | 1 | |
| 03 - First and Owens | Submersible | 2 | 1* | Yes |
| 04 - First and Hanes | Submersible | 2 | 0 | Yes |
| 05 - Rich Avenue | Submersible | 2 | 1 | |
| 06 - Craft Hwy and Elm Street | Submersible | 2 | 1* | Yes |
| 07 - Pershing Street | Above Grade | 2 | 2 | |
| 08 - Alabama Village | Submersible | 2 | 0 | Yes |
| 09 - Whatley Avenue | Submersible | 3 | 2 | |
| 10 - Emily Avenue | Submersible | 2 | 1* | |
| 11 - Atmore Avenue | Submersible | 2 | 1* | Yes |
| 12 - Hand Avenue | Submersible | 2 | 1 | |
| 14 - Highway 45 | Submersible | 2 | 2 | |
| 15 - Winchester Road | Above Grade | 3 | 2 | |
| 16 - Garrison Avenue | Submersible Grinder | 2 | 2 | |
| 17 - Whistler Street | Submersible | 2 | 1 | |
| 18 - Turner Road | Submersible | 1 | 1 | |
| 19 - Ponderosa Pines | Submersible | 2 | 1 | |
| 20 - Highpoint and Lott Road | Submersible | 2 | 2 | |
| 21 - Lott Road and Suncrest | Submersible | 2 | 2 | |
| 22 - Norwood Pointe | Submersible | 2 | 2 | |
| 23 - Outlaw Road | Submersible | 2 | 1* | |
| 24 - Ontario Drive | Submersible | 2 | 2 | |
| 25 - Pineridge Drive | Submersible | 2 | 1 | |
| 26 - Blount High School/Gloann | Submersible | 2 | 2 | |
| 27 - Bear Creek | Submersible | 2 | 2 | |
| 28 - Bearfork and Highpoint | Submersible | 2 | 1 | |
| 29 - Bearfork and Jarrett Road | Submersible | 2 | 2 | |
| 30 - Salem Avenue | Submersible Grinder | 2 | 1 | |

*Pump found to have capacity issues

The distribution of PoF scores for all lift station assets is presented in **Figure 3-16** with nearly 25% of assets evaluated falling into the “poor” (score of 4) and “very poor” (score of 5) categories.

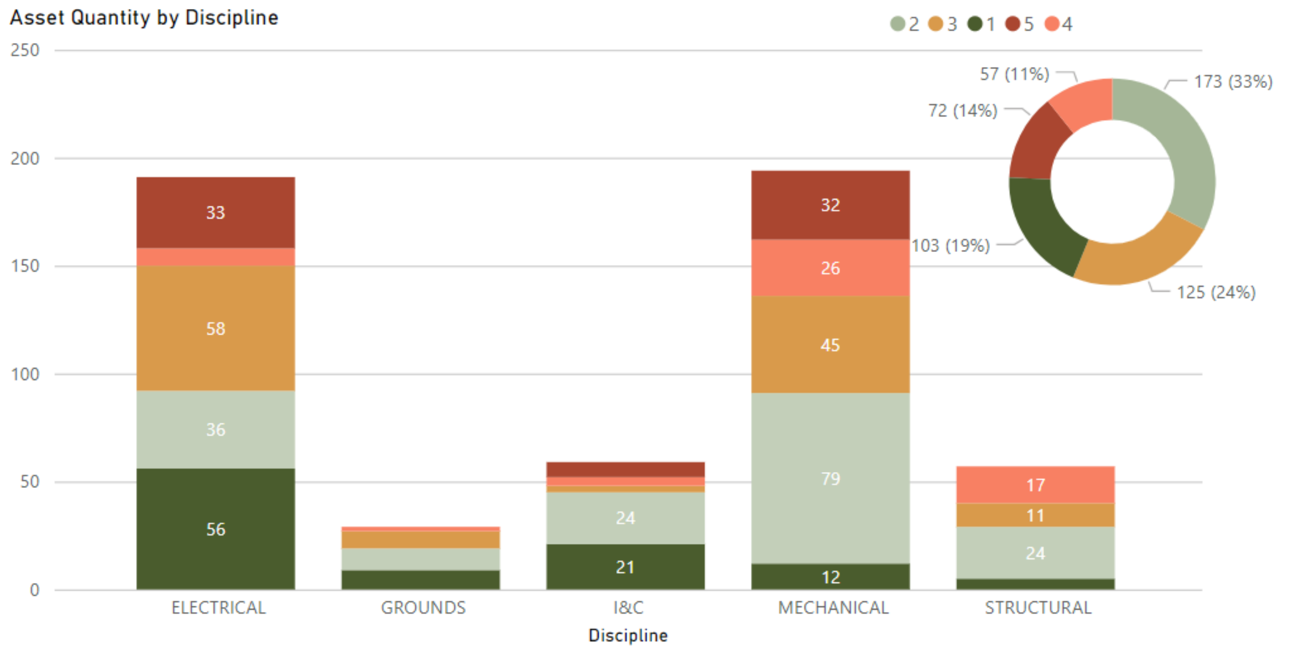



**Figure 3-16. Lift Station PoF Breakdown**

### 3.3.4.3.2 Consequence of Failure

The distribution of CoF scores for all lift station assets is presented in **Figure 3-17**. Nearly 25% of all assets were determined to have a major or critical CoF score.

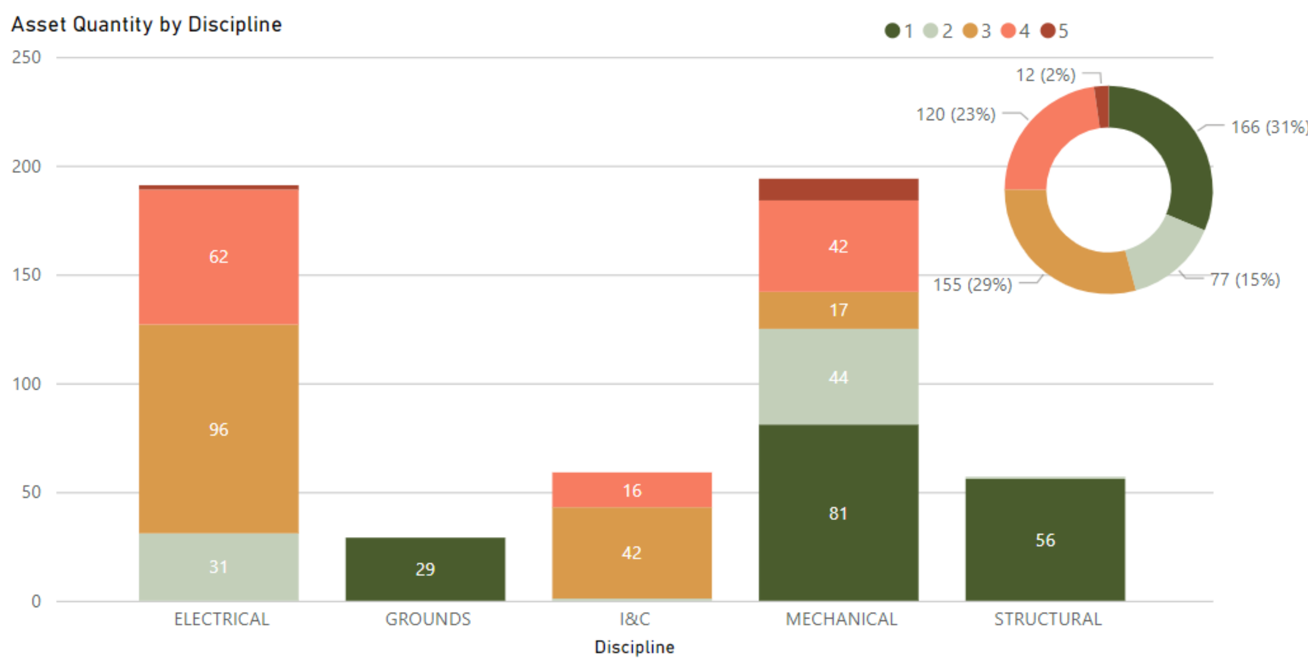



**Figure 3-17. Lift Station CoF Breakdown**

3.3.4.3.3 Risk Results

The distribution of asset risk within the wastewater lift station asset discipline groups is shown in **Figure 3-18,** with just under 20% of assets evaluated falling into "medium high" and "high" risk categories. High risk assets include both pumps at LS08 – Alabama Village and LS10 – Emily Avenue, two of three pumps at LS09 – Whatley Avenue, and several other pumps at lift stations in the network. The most prominent asset classes that fell within the "medium high" and "high" risk categories throughout the wastewater lift station system were found to be the pumps, SCADA RTUs, electrical breakers, transformers, control panels, motor starters, lighting, and wet well level switches.

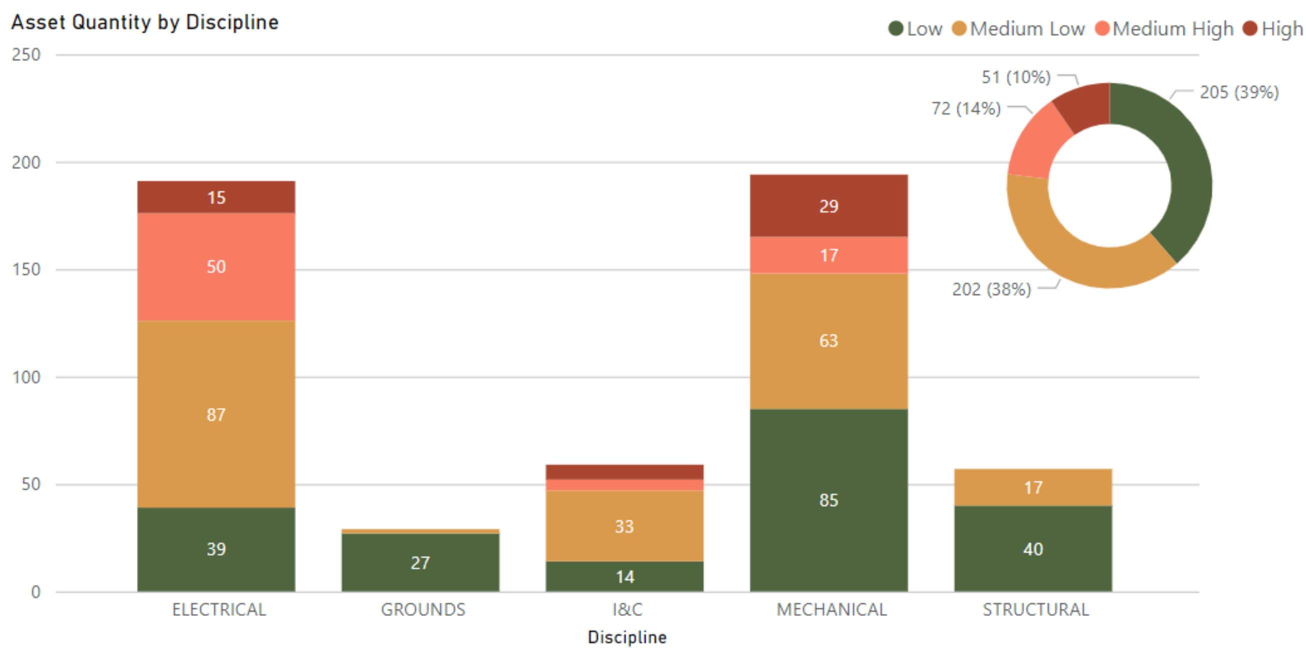



**Figure 3-18. Lift Station Risk Breakdown**

A risk matrix for all lift station assets is depicted in **Figure 3-19**.

| Risk Score =PoF*CoF | | PoF | | | | | CoF Totals |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | |
| CoF | 1 | 4.2% | 14.5% | 7.5% | 4.9% | 0.2% | **31.3%** |
| | 2 | 1.3% | 1.9% | 1.9% | 3.6% | 5.8% | **14.5%** |
| | 3 | 9.2% | 8.9% | 7.2% | 0.9% | 3.0% | **29.2%** |
| | 4 | 4.5% | 7.0% | 6.2% | 1.3% | 3.6% | **22.6%** |
| | 5 | 0.2% | 0.4% | 0.8% | 0.0% | 0.9% | **2.3%** |
| PoF Totals | | **19.4%** | **32.6%** | **23.6%** | **10.8%** | **13.6%** | **100.0%** |

**Figure 3-19. Lift Station Risk Matrix**

A summary of risk and useful life metrics by lift station appears in **Table 3-15**.

**Table 3-15. Lift Station Risk Summary**

| Lift Station | Avg. PoF Score | Avg. CoF Score | Avg. RUL | Avg. % Life Consumed | Avg. Risk Score |
|---|---|---|---|---|---|
| 01 - West Highland Avenue | 2.6 | 2.7 | 16 | 40% | 6.7 |
| 02 - McCants and Owens | 2.4 | 2.5 | 16 | 35% | 6.0 |
| 03 - First and Owens | 2.3 | 2.5 | 18 | 33% | 6.1 |
| 04 - First and Hanes | 2.4 | 2.5 | 17 | 34% | 6.1 |
| 05 - Rich Avenue | 2.3 | 2.5 | 17 | 33% | 5.8 |
| 06 - Craft Hwy and Elm Street | 2.5 | 2.8 | 17 | 38% | 7.4 |
| 07 - Pershing Street | 2.6 | 2.3 | 15 | 39% | 5.5 |
| 08 - Alabama Village | 3.3 | 2.9 | 12 | 57% | 10.3 |
| 09 - Whatley Avenue | 3.4 | 3.0 | 10 | 60% | 9.8 |
| 10 - Emily Avenue | 3.1 | 2.5 | 15 | 51% | 8.4 |
| 11 - Atmore Avenue | 2.2 | 2.3 | 19 | 31% | 5.6 |
| 12 - Hand Avenue | 3.0 | 2.3 | 12 | 50% | 7.1 |
| 14 - Highway 45 | 2.3 | 2.4 | 18 | 31% | 5.7 |
| 15 - Winchester Road | 3.0 | 2.5 | 13 | 50% | 7.7 |
| 16 - Garrison Avenue | 2.3 | 2.4 | 15 | 32% | 5.5 |
| 17 - Whistler Street | 2.3 | 2.7 | 18 | 32% | 6.2 |
| 18 - Turner Road | 2.3 | 2.3 | 18 | 33% | 5.2 |
| 19 - Ponderosa Pines | 2.3 | 2.7 | 16 | 32% | 6.0 |
| 20 - Highpoint and Lott Road | 2.3 | 2.3 | 15 | 33% | 5.0 |
| 21 - Lott Road and Suncrest | 2.5 | 2.3 | 16 | 38% | 5.6 |
| 22 - Norwood Pointe | 2.6 | 2.1 | 17 | 39% | 5.4 |
| 23 - Outlaw Road | 3.0 | 2.4 | 15 | 48% | 7.8 |
| 24 - Ontario Drive | 2.2 | 2.3 | 20 | 29% | 5.1 |
| 25 - Pineridge Drive | 2.9 | 2.6 | 15 | 48% | 7.7 |
| 26 - Blount High School/Gloann | 2.4 | 2.2 | 19 | 35% | 5.5 |
| 27 - Bear Creek | 2.6 | 2.7 | 17 | 40% | 6.5 |
| 28 - Bearfork and Highpoint | 2.5 | 2.8 | 18 | 37% | 6.7 |
| 29 - Bearfork and Jarrett Road | 2.7 | 2.9 | 13 | 42% | 6.7 |
| 30 - Salem Avenue | 2.9 | 2.7 | 13 | 47% | 8.1 |

#### *3.3.4.4 Water Storage Tanks*

Hazen staff inspected 4 of the 5 Water Storage Tanks in PWW&SB's water distribution system as part of the vertical asset evaluation. The following sections summarize the key field findings, PoF scoring, CoF scoring, and risk results for the assets at the Water Storage Tank sites.

#### 3.3.4.4.1 Probability of Failure

Observations were made while performing the field assessments of the water storage tank system appear in **Table 3-16**.

**Table 3-16: Water Storage Tank Field Inspection Key Findings**

| Category | Key Findings | Projects to Address Deficiencies |
|---|---|---|
| **Exterior Coatings** | • Tanks were last painted between 2005 and 2007 and are chalking and fading. Near term recoating is recommended. | W-01, W-02, W-03 |
| **Interior Linings** | • Tank interiors were last lined between 2005 and 2007. They are showing spot failures and evidence of corrosion. Lining replacement is recommended. | W-01, W-02, W-03, W-07 |
| **Valves** | • Altitude valves are to be inspected and repaired as needed at the Chickasaw and Vigor tanks. The Anderson Road tank may require an altitude valve depending on final design of the tank control system. | W-01, W-02, W-05 |
| **Overflow Piping** | • Overflow piping is currently discharging underground for all tanks. It is recommended to re-route overflow piping outside the tank for the Chickasaw and Vigor tanks and install additional valves and air-gaps on overflow piping on all tanks. | W-01, W-02, W-05, W-07 |
| **SCADA Systems** | • SCADA Omnisite systems not operational for remote monitoring or control. | W-06 |
| **Site** | • Fencing is in poor general condition.<br>• Several sites were overgrown. | WST-MISC |

The distribution of PoF scores for water storage tank assets is presented in **Figure 3-20.** Although this system had a smaller quantity of assets, it had several asset condition scores indicating progressed condition degradation, with nearly 50% of assets evaluated falling into the poor and very poor categories.

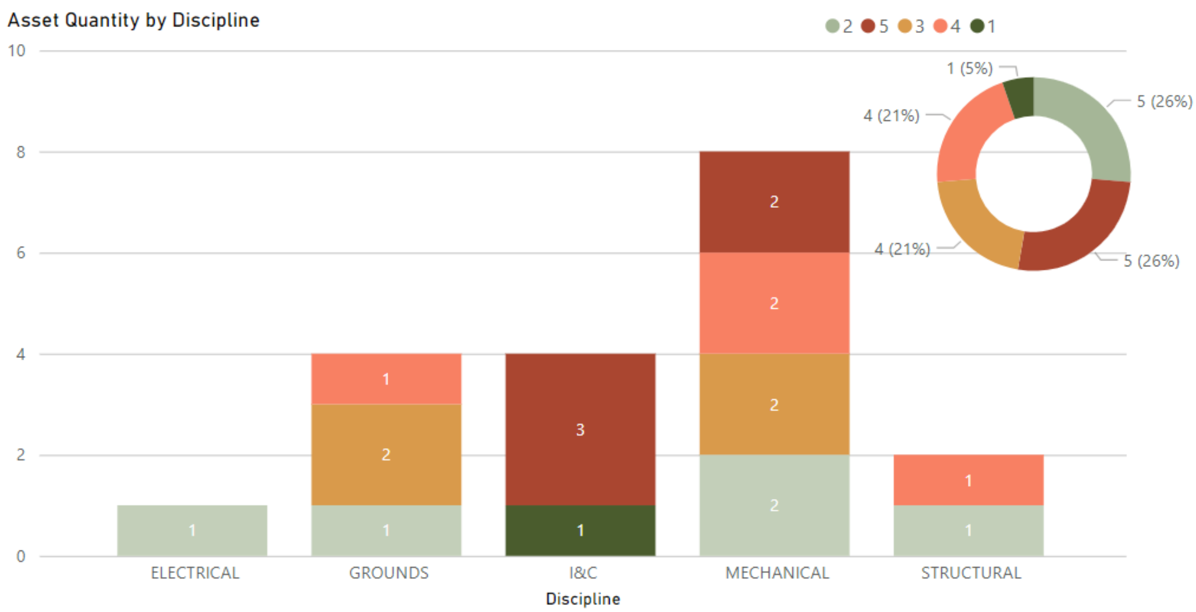



**Figure 3-20. Water Storage Tank Assets PoF Breakdown**

#### 3.3.4.4.2 Consequence of Failure

The distribution of CoF scores for water storage tank assets is presented in **Figure 3-21**. Critical assets include the tank structures for each tank.

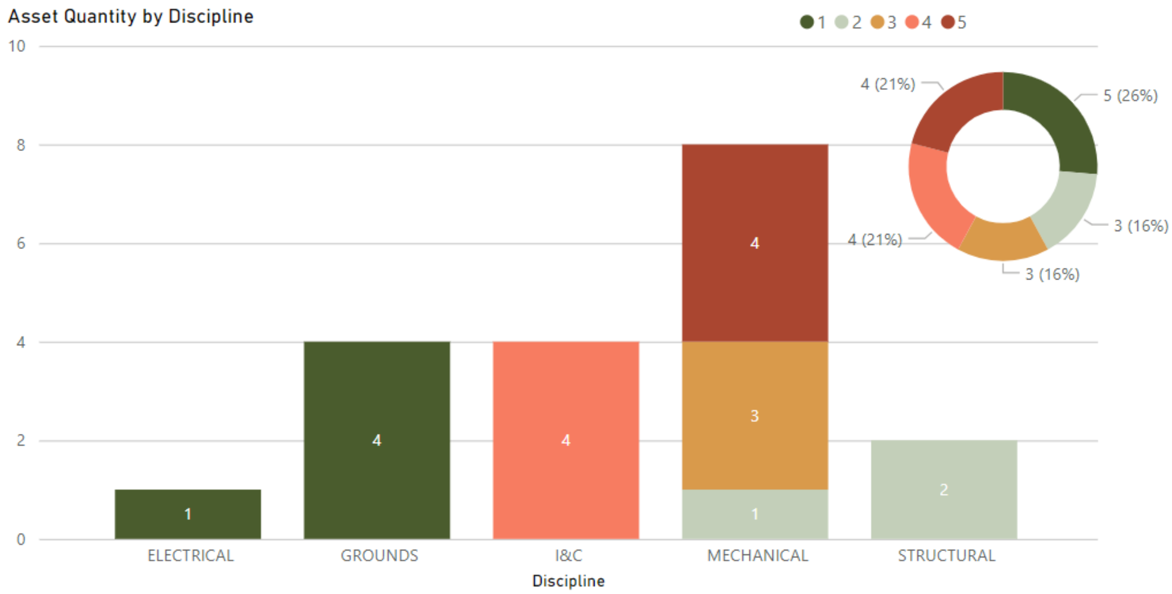



**Figure 3-21. Water Storage Tank Asset CoF Breakdown**

#### 3.3.4.4.3 Risk Results

The distribution of asset risk within the water storage tank asset discipline groups is shown in **Figure 3-22,** with over 40% of assets evaluated falling into medium high- and high-risk categories. High risk assets include tank structures at Lott Road and Chickasaw Tanks, as well as SCADA systems at the Vigor, Lott Road, and Chickasaw Tanks.

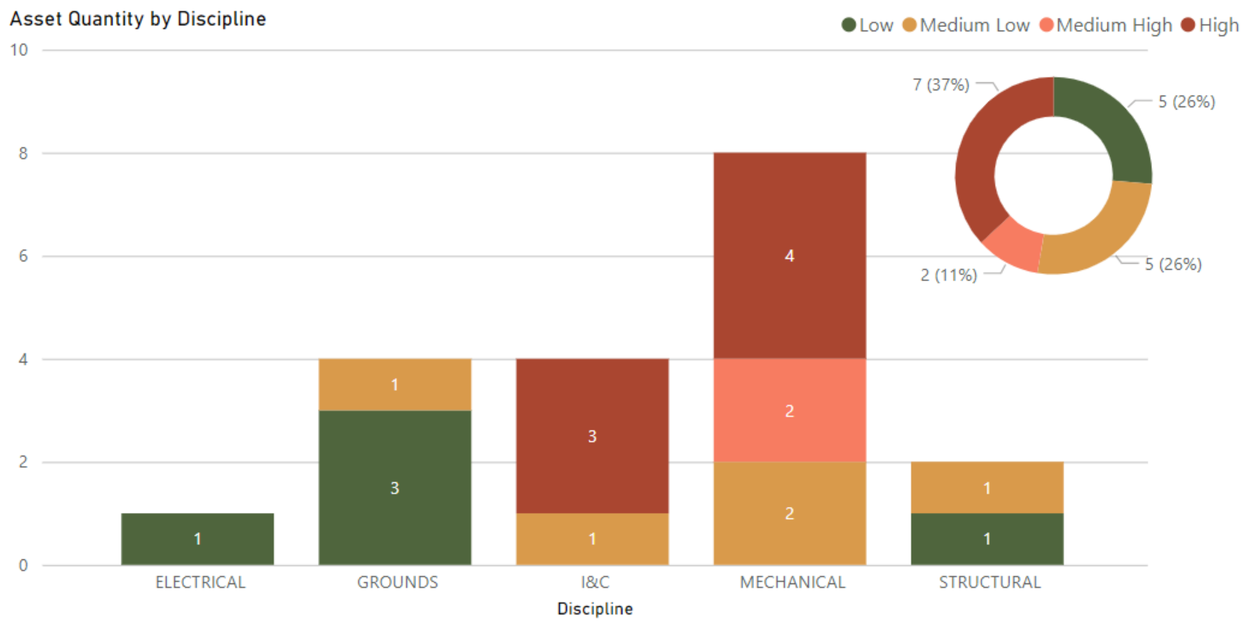



**Figure 3-22. Water Storage Tank Assets Risk Breakdown**

The risk matrix for water storage tank assets is presented in **Figure 3-23**.

| Risk Score =PoF*CoF | | PoF 1 | PoF 2 | PoF 3 | PoF 4 | PoF 5 | CoF Totals |
|---|---|---|---|---|---|---|---|
| CoF | 1 | 0.0% | 10.5% | 10.5% | 5.3% | 0.0% | **26.3%** |
| | 2 | 0.0% | 5.3% | 5.3% | 5.3% | 0.0% | **15.8%** |
| | 3 | 0.0% | 5.3% | 0.0% | 5.3% | 5.3% | **15.8%** |
| | 4 | 5.3% | 0.0% | 0.0% | 0.0% | 15.8% | **21.1%** |
| | 5 | 0.0% | 5.3% | 5.3% | 5.3% | 5.3% | **21.1%** |
| PoF Totals | | **5.3%** | **26.3%** | **21.1%** | **21.1%** | **26.3%** | **100.0%** |

**Figure 3-23. Water Storage Tank Assets Risk Matrix**

A summary of risk and useful life metrics for each water storage tank is presented in **Table 3-17**.

**Table 3-17. Water Storage Tank Risk Summary**

| Water Storage Tank | Avg. PoF Score | Avg. CoF Score | Avg. RUL | Avg. % Life Consumed | Avg. Risk Score |
|---|---|---|---|---|---|
| **Anderson Tank** | 3.4 | 3.3 | 15 | 61% | 11.5 |
| **Chickasaw Tank** | 3.5 | 2.9 | 17 | 62% | 11.0 |
| **Lott Road Tank** | 2.6 | 3.3 | 12 | 40% | 10.3 |
| **Vigor Tank** | 3.6 | 2.6 | 13 | 64% | 9.6 |

### 3.3.5 Asset Renewal and Replacement Recommendations

In addition to risk assessment, Hazen was tasked with forecasting recommended replacement timing and the associated costs for vertical asset replacements across all facilities. The following sections detail both the current and projected needs for renewing and replacing vertical assets, as well as the assumptions and methodology for developing asset and project level costs.

#### *3.3.5.1 Asset Replacement Cost*

The replacement costs developed for this asset management plan were prepared as Class V estimates, with an expected accuracy range of -50% to +100%. Replacement costs were gathered for the various asset classes from vendor quotes, RSMeans, and recent geographically similar bid tabs specified for the Mobile, AL region. To account for the range of asset sizing, capacities, and materials – parametric cost estimating methods were used to scale costs appropriately, where required. The replacement cost of structural assets was generally estimated by performing calculations to approximate the quantity of materials in the structure. To obtain these approximations, available record drawings were reviewed, with particular attention paid to structural steel and concrete details. In addition, Hazen made several assumptions as part of renewal cost planning, including:

- All assets were estimated as replace-in-kind, unless specified otherwise.
- Permanent structures were assigned a rehabilitation task and associated cost, as they were unlikely to require total replacement in the 20-year horizon. The cost of rehabilitation for vaults and wet wells was based on an associated unit rate per square footage for a restorative coating. For remaining permanent structures, the cost of rehabilitation was estimated as 25% of the material replacement value of the structure.
- Temporary structures such as canopies and prefabricated metal buildings were assigned a full replacement cost.

Asset replacement costs are intended to represent material costs only, for the individual asset. The replacement cost of an asset is dependent on many variables, including location, availability, vendor selection, project timing, and project scope. These costs do not include additional project components (described in **Section 3.3.5.2**) that integrate the asset into a system, such as piping or conduit. They also do not include construction, contingency, or engineering. Present value calculations include mark ups for the additional components, construction, contingency, and engineering aspects of an asset renewal project.

#### *3.3.5.2 Project Cost Development*

Expanding the asset costs to comprehensive project costs included additional cost components outside of the material cost to replace an asset in-kind. Assets likely to be replaced together were bundled when developing projects to account for project scope considerations to achieve economies of scale, where appropriate. The Capital Improvement Program (CIP) project cost projections account for the sum of asset replacement values included in the bundled project, along with the additional factors, as detailed in **Table 3-18**.

**Table 3-18. Replacement Cost Contingencies**

| Cost Category | Escalation Factor |
|---|---|
| Project Components | 25% |
| Construction | 30% |
| Contingency | 30% |
| Engineering | 15% |

Based on projected project timing, the total project cost was inflated to the anticipated year of implementation. The inflated project cost was determined based on the 2024 project cost, assuming an inflation rate of 3%, and the proposed project year as shown in the formula below.

$$\textbf{Inflated Project Cost} = \textbf{PC} * (\mathbf{1} + \textbf{IR})^{(PPY - CY)}$$

**PC = 2024 Project Cost ($)**
**IR = Inflation Rate (%)**
**PPY = Proposed Project Year**
**CY = Current Year**

A comprehensive set of project costs developed using the values from this table are available in **Appendix B: Vertical Asset Evaluation**. Final costs of the projects will depend on actual labor and material cost, competitive market conditions, final project scope, implementation schedule, and other variable conditions. It is noted that the market is currently experiencing large price fluctuations and supply chain issues for both materials and labor. These price fluctuations may have a material impact on overall costs, depending on when the project is released for implementation.

#### *3.3.5.3 Consent Order Driven CIP Projects – Ongoing & Proposed*

After initial on-site assessment of the vertical assets, Hazen assisted PWW&SB with identifying initial projects to address immediately. **Table 3-19** summarizes the ongoing and recommended CIP projects which are considered regulatory-driven projects, as they involve systems specifically identified in the ADEM water and wastewater consent orders. Given the time-sensitive nature of the regulatory action, several of these projects that have been prioritized to be performed early in the projection period have already been approved by ADEM for funding. Funding approved projects are underway.

**Table 3-19. Consent Order Driven CIP Projects (Ongoing & Proposed)**

| Project ID | Project Name | Cost Estimate |
|---|---|---|
| **Ongoing ADEM Approved Projects** | | |
| WW-01 | SCADA System Upgrades - Morris WWTP and Lift Stations | $1,300,000 |
| WW-02 | Morris WWTP Upgrades (Screens, Grit Removal, Aeration DO probe, Clarifier valves) | $3,235,000 |
| W-01 | Vigor Tank Improvements with Control Valves for Low Zone Supply | $1,154,400 |
| W-02 | Chickasaw Tank Improvements | $980,400 |
| W-03 | Anderson Tanks Improvements | $1,154,400 |
| W-04 | Office Tank Improvements | $150,000 |
| W-05 | Control Valves for Low Supply Zone and Boundary Valves at Anderson Tank | $437,500 |
| W-06 | Distribution System SCADA | $687,500 |
| W-07 | Lott Road Tank Improvements | $46,900 |
| | **Total – Ongoing ADEM Approved Projects** | **$ 9,146,100** |
| **Proposed Projects** | | |
| WWLS-01 | Alabama Village LS Rehabilitation | $345,000 |
| WWLS-02 | Whatley Ave LS Improvements | $486,000 |
| WWLS-04 | Lift Station Pump Replacement | $794,700 |
| WWLS-05 | Bearfork and Jerratt Road LS Mechanical Improvements | $124,000 |
| W-08 | Lott Road New 1MG Elevated Storage Tank | $6,360,000 |
| WWCM-01 | Carlos Morris Preliminary Treatment Degritter 02 Rehabilitation | $1,718,500 |
| WWCM-08 | Carlos Morris Aeration Basin Aerator Replacement Phase I | $88,600 |
| WWCM-10 | Carlos Morris Final Clarifier 01 Rehab | $1,463,200 |
| WWCM-20 | Carlos Morris Sludge Drying Bed Replacement | $12,200 |
| WWSB-02 | Stanley Brooks Preliminary Treatment Degritters Rehabilitation | $4,162,500 |
| WWSB-07 | Stanley Brooks Trickling Filter 02 Rehabilitation | $3,231,300 |
| WWSB-08 | Stanley Brooks Trickling Filter 01 Rehabilitation | $2,073,600 |
| WWSB-13 | Stanley Brooks Office/Sludge Pump System 01 Rehabilitation | $84,300 |
| WWSB-14 | Stanley Brooks Office/Sludge Pump System 02 Rehabilitation | $63,000 |
| WWSB-17 | Stanley Brooks Sludge Drying Bed Rehabilitation | $83,400 |
| WWSB-18 | Stanley Brooks Final Clarifier 01 Rehab | $771,400 |
| WWSB-19 | Stanley Brooks Final Clarifier 02 Rehab | $691,800 |
| | **Total – Proposed Projects** | **$22,553,500** |
| | **Total – Consent Order Driven CIP Projects** | **$31,699,600** |

### 3.3.5.4 All Proposed Vertical Facilities CIP Projects

In projecting rehab and replacement needs for the next 20 years, assets were evaluated at an assembly level for plants and a discipline level for lift stations and water storage tanks. When grouping assets into projects the following guidelines were followed:

- The project year was determined by the remaining useful life of the most high-risk asset within the group.
- If two or more projects in the same subprocess were determined to have the same project year, they were combined into one project.
- Assemblies such as clarifiers, trickling filters, and degritters contain structural and mechanical assets that have a considerable difference in estimated useful life. If the structural asset had a remaining useful life of less than 20%, the structure was included in the assembly project. If over 20%, the structural asset would be included in a rehab project with other structures with a similar remaining useful life.

Altogether, Hazen developed 74 projects across all facilities. **Table 3-20** through **Table 3-23** show the project needs for each of the wastewater treatment plants, wastewater lift stations, and water storage tanks. These tables do not include the projects that are specified previously in **Table 3-19** as ongoing ADEM approved projects. The details of all project costs can be found in **Appendix B: Vertical Asset Evaluation.**

**Table 3-20. Carlos Morris WWTP Recommended CIP Projects**

| Project ID | Project Name | Average Risk Score | Project Start Year | Replacement Cost Estimate | Replacement Cost Estimate, (Inflated) |
|---|---|---|---|---|---|
| WWCM-08 | Aeration Basin Aerator Replacement Phase I | 22.00 | 2025 | $86,000 | $89,000 |
| WWCM-22 | Priority Building Assets Rehabilitation | 8.19 | 2025 | $82,000 | $84,000 |
| WWCM-02 | Influent Pump 02 and 03 Rehabilitation | 7.89 | 2026 | $363,000 | $385,000 |
| WWCM-20 | Sludge Drying Bed Replacement | 4.75 | 2026 | $12,000 | $12,000 |
| WWCM-05 | Influent Instrumentation Replacement | 9.24 | 2027 | $10,000 | $11,000 |
| WWCM-10 | Final Clarifier 01 Rehab | 12.36 | 2028 | $1,300,000 | $1,463,000 |
| WWCM-17 | Disinfection System and Chlorine Contact Chamber Replacement | 11.55 | 2028 | $648,000 | $729,000 |
| WWCM-STR1 | Treatment Process Structure Rehabilitation Phase I | 6.36 | 2028 | $264,000 | $297,000 |
| WWCM-15 | Intermediate PS Instrumentation Replacement | 13.40 | 2029 | $11,000 | $13,000 |
| WWCM-18 | Outfall Box Instrumentation and NPWP Replacement | 12.40 | 2029 | $40,000 | $46,000 |
| WWCM-04 | Influent Pump 01 Rehabilitation | 7.85 | 2030 | $181,000 | $217,000 |
| WWCM-13 | Intermediate Pump 02 Replacement | 9.04 | 2031 | $277,000 | $341,000 |
| WWCM-07 | Primary Clarifier 02 Rehab | 12.14 | 2032 | $599,000 | $759,000 |

| Project ID | Project Name | Average Risk Score | Project Start Year | Replacement Cost Estimate | Replacement Cost Estimate, (Inflated) |
|---|---|---|---|---|---|
| WWCM-16 | Recirculating Sludge Pump Replacement | 9.06 | 2032 | $502,000 | $636,000 |
| WWCM-03 | Influent Pump 04 Rehabilitation | 6.83 | 2033 | $181,000 | $237,000 |
| WWCM-14 | Intermediate Pump 03 Replacement | 8.22 | 2033 | $212,000 | $277,000 |
| WWCM-STR2 | Treatment Process Structure Rehabilitation Phase II | 5.11 | 2033 | $427,000 | $558,000 |
| WWCM-01 | Preliminary Treatment Degritter 02 Rehabilitation | 5.68 | 2034 | $1,279,000 | $1,718,000 |
| WWCM-19 | Post Aeration Basin Instrumentation Replacement | 7.17 | 2034 | $52,000 | $70,000 |
| WWCM-21 | EQ Basin Improvement | 8.45 | 2034 | $97,000 | $131,000 |
| WWCM-06 | Primary Clarifier 01 Rehab | 10.80 | 2035 | $643,000 | $890,000 |
| WWCM-09 | Aeration Basin Aerator Replacement Phase II | 8.95 | 2035 | $553,000 | $766,000 |
| WWCM-STR3 | Treatment Process Structure Rehabilitation Phase III | 6.82 | 2037 | $1,175,000 | $1,725,000 |
| WWCM-12 | Intermediate Pump 01 Replacement | 7.49 | 2038 | $251,000 | $379,000 |
| WWCM-23 | Building HVAC Replacement | 3.37 | 2041 | $19,000 | $31,000 |
| WWCM-11 | Final Clarifier 02 Rehab | 6.66 | 2042 | $1,963,000 | $3,342,000 |
| WWCM-STR4 | Treatment Process Structure Rehabilitation Phase IV | 3.46 | 2043 | $531,000 | $931,000 |
| WWCM-MISC | Carlos Morris Misc Replacements | 5.58 | Misc. | $336,000 | $536,000 |
| | **TOTAL** | | | **$12,094,000** | **$16,673,000** |
| | **TOTAL, LOW RANGE (-50%)** | | | **$6,047,000** | **$8,337,000** |
| | **TOTAL, HIGH RANGE (+100%)** | | | **$24,188,000** | **$33,346,000** |

**Table 3-21. Stanley Brooks WWTP Recommended CIP Projects**

| Project ID | Project Name | Average Risk Score | Project Start Year | Replacement Cost Estimate | Replacement Cost Estimate, (Inflated) |
|---|---|---|---|---|---|
| WWSB-08 | Trickling Filter 01 Rehabilitation | 12.84 | 2025 | $2,013,000 | $2,074,000 |
| WWSB-13 | Office/Sludge Pump System 01 Rehabilitation | 11.35 | 2025 | $82,000 | $84,000 |
| WWSB-14 | Office/Sludge Pump System 02 Rehabilitation | 14.24 | 2025 | $61,000 | $63,000 |
| WWSB-16 | Chlorine Contact Chamber Rehabilitation | 10.07 | 2025 | $97,000 | $99,000 |
| WWSB-02 | Preliminary Treatment Degritters Rehabilitation | 10.97 | 2026 | $3,924,000 | $4,163,000 |
| WWSB-15 | Office/Sludge Pump Station Building Improvements | 5.90 | 2026 | $42,000 | $45,000 |
| WWSB-STR1 | Treatment Process Structures Rehabilitation Phase I | 11.51 | 2028 | $32,000 | $36,000 |
| WWSB-24 | Chemical Feed System Replacement | 11.08 | 2029 | $346,000 | $402,000 |
| WWSB-17 | Sludge Drying Bed Rehabilitation | 4.49 | 2030 | $70,000 | $83,000 |
| WWSB-18 | Final Clarifier 01 Rehab | 8.19 | 2030 | $646,000 | $771,000 |
| WWSB-19 | Final Clarifier 02 Rehab | 8.13 | 2030 | $579,000 | $692,000 |
| WWSB-STR2 | Treatment Process Structures Rehabilitation Phase II | 7.20 | 2032 | $895,000 | $1,134,000 |
| WWSB-01 | Preliminary Treatment Screening Rehabilitation | 7.67 | 2033 | $177,000 | $230,000 |
| WWSB-04 | Primary Clarifier 02 Rehabilitation | 7.61 | 2033 | $540,000 | $705,000 |
| WWSB-05 | Sludge Recirculation Pump 01 Replacement | 6.82 | 2035 | $97,000 | $135,000 |
| WWSB-06 | Sludge Recirculation Pump 02 Replacement | 8.17 | 2035 | $97,000 | $135,000 |
| WWSB-12 | Plant Recycle Pump Station Rehabilitation | 5.52 | 2035 | $170,000 | $235,000 |
| WWSB-26 | Maintenance Building Electrical and HVAC Rehabilitation | 6.92 | 2035 | $193,000 | $267,000 |
| WWSB-20 | Effluent Pump 01 Replacement | 5.97 | 2036 | $175,000 | $249,000 |
| WWSB-21 | Effluent Pump 02 Replacement | 7.07 | 2036 | $246,000 | $350,000 |
| WWSB-22 | Effluent Pump 03 Replacement | 7.40 | 2036 | $193,000 | $275,000 |
| WWSB-STR3 | Treatment Process Structures Rehabilitation Phase III | 7.80 | 2036 | $599,000 | $854,000 |
| WWSB-09 | Trickling Filter Recirculation Pump 01 Replacement | 6.00 | 2039 | $158,000 | $246,000 |
| WWSB-10 | Trickling Filter Recirculation Pump 02 Replacement | 6.12 | 2039 | $148,000 | $231,000 |
| WWSB-11 | Trickling Filter Recirculation Pump 03 Replacement | 6.81 | 2039 | $120,000 | $186,000 |
| WWSB-07 | Trickling Filter 02 Rehabilitation | 8.71 | 2040 | $2,014,000 | $3,231,000 |
| WWSB-23 | Effluent Pump Station Building Electrical and HVAC Rehabilitation | 6.42 | 2040 | $68,000 | $109,000 |

| Project ID | Project Name | Average Risk Score | Project Start Year | Replacement Cost Estimate | Replacement Cost Estimate, (Inflated) |
|---|---|---|---|---|---|
| WWSB-03 | Primary Clarifier 01 Rehabilitation | 6.43 | 2041 | $540,000 | $892,000 |
| WWSB-25 | Generator and Fuel Tank Replacement | 9.29 | 2043 | $178,000 | $312,000 |
| WWSB-STR4 | Treatment Process Structures Rehabilitation Phase IV | 5.26 | 2044 | $1,624,000 | $2,932,000 |
| WWSB-MISC | Stanley Brooks Misc Replacements | 5.67 | Misc. | $140,000 | $2,923,000 |
| | **TOTAL** | | | **$16,264,000** | **$24,143,000** |
| | **TOTAL, LOW RANGE (-50%)** | | | **$8,132,000** | **$12,072,000** |
| | **TOTAL, HIGH RANGE (+100%)** | | | **$32,528,000** | **$48,286,000** |

**Table 3-22. Lift Station Recommended CIP Projects**

| Project ID | Project Name | Average Risk Score | Project Start Year | Replacement Cost Estimate | Replacement Cost Estimate, (Inflated) |
|---|---|---|---|---|---|
| WWLS-04 | Lift Station Pump Replacement | 14.18 | 2025 | $772,000 | $795,000 |
| WWLS-01 | Alabama Village LS Rehabilitation | 14.50 | 2026 | $325,000 | $345,000 |
| WWLS-08 | Lift Station Lighting Replacement | 10.00 | 2026 | $93,000 | $99,000 |
| WWLS-02 | Whatley Ave LS Improvements | 14.48 | 2027 | $445,000 | $486,000 |
| WWLS-STR1 | LS Wet Well Rehab Phase I | 5.21 | 2027 | $676,000 | $738,000 |
| WWLS-STR2 | LS Wet Well Rehab Phase II | 2.71 | 2029 | $571,000 | $662,000 |
| WWLS-05 | Bearfork and Jerratt Road LS Mechanical Improvements | 9.65 | 2031 | $101,000 | $124,000 |
| WWLS-STR3 | LS Wet Well Rehab Phase III | 3.63 | 2031 | $672,000 | $826,000 |
| WWLS-06 | Lift Station Control Panel Replacement Phase I | 7.66 | 2032 | $183,000 | $231,000 |
| WWLS-07 | Lift Station Control Panel Replacement Phase II | 7.64 | 2034 | $447,000 | $600,000 |
| WWLS-09 | Winchester Road LS Conversion | 6.97 | 2034 | $393,000 | $528,000 |
| WWLS-03 | Pershing Street Station Conversion | 6.36 | 2038 | $279,000 | $422,000 |
| WWLS-MISC | Lift Station Misc Replacements | 6.36 | Misc. | $1,943,000 | $2,774,000 |
| | **TOTAL** | | | **$6,900,000** | **$8,630,000** |
| | **TOTAL, LOW RANGE (-50%)** | | | **$3,450,000** | **$4,315,000** |
| | **TOTAL, HIGH RANGE (+100%)** | | | **$13,800,000** | **$17,260,000** |

**Table 3-23. Water Storage Tank Recommended CIP Projects**

| Project ID | Project Name | Average Risk Score | Project Start Year | Replacement Cost Estimate | Replacement Cost Estimate, (Inflated) |
|---|---|---|---|---|---|
| W-08 | Lott Road New 1MG Elevated Storage Tank | 25.00 | 2029 | $5,486,000 | $6,360,000 |
| WST-MISC | Water Storage Misc Replacements | 3.31 | Misc. | $75,000 | $112,000 |
| | **TOTAL** | | | **$5,561,000** | **$6,472,000** |
| | **TOTAL, LOW RANGE (-50%)** | | | **$2,780,500** | **$3,236,000** |
| | **TOTAL, HIGH RANGE (+100%)** | | | **$11,122,000** | **$12,944,000** |

#### *3.3.5.5 20-year Projected Capital Replacement Needs Based on Condition*

Project packaging and costs that were explained in **Section 3.3.5.2** involved asset replace in-kind, condition-driven, projected timing, and packaging assumptions. Developing a capital investment plan from this information requires that individual asset replacements are bundled into cohesive projects through careful consideration of scope to achieve economies of scale, where appropriate. It is noted that project packaging and costs should typically consider technical solutions other than asset replacement in-kind, including upgrades or enhancements, ahead of implementing the proposed projects. **Figure 3-24** shows the rehabilitation and replacement (R&R) needs per year for the next twenty fiscal years. These costs indicate inflated replacement needs at the wastewater treatment plants, wastewater lift stations, and water storage tanks. The estimated R&R expenditure over the next twenty years is projected to be approximately $51.5M with an annual projected expenditure of $2.6M (both values presented in 2024 dollars). This forecast is driven by condition-based asset RULs and the projected replacement costs for assets that reach their RUL over the twenty-year period. These costs include replacement of all major assets at the various facilities, and rehabilitation of all structures over the twenty-year period. Based on a 3% inflation factor to escalate capital project costs, the total estimated spending for the next twenty years is projected to be approximately $65M.

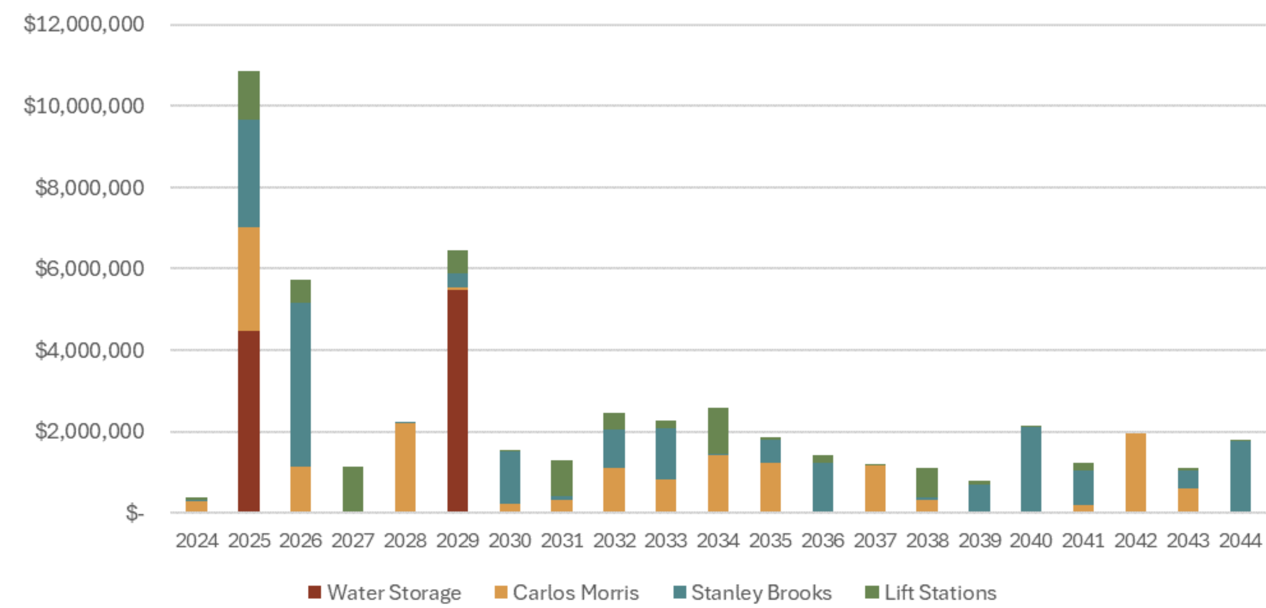



**Figure 3-24. Proposed 20-Year Capital Spending Needs by System**

The detailed spending requirements for each of the systems is show in **Table 3-24**. The inflated spend for five-year periods is shown, in addition to the existing ADEM projects, for an understanding of the total needs for existing and newly proposed projects.

**Table 3-24. Summary of 20-Year Capital Spending Needs**

| CIP Bucket | Years 0-5 | Years 6-10 | Years 11-15 | Years 16-20 | Total 20-yr CIP |
|---|---|---|---|---|---|
| Lift Station Projects | $3,770,000 | $3,390,000 | $1,620,000 | $490,000 | **$9,280,000** |
| Morris WWTP Projects | $6,690,000 | $4,990,000 | $3,860,000 | $4,700,000 | **$20,230,000** |
| Brooks WWTP Projects | $7,470,000 | $4,550,000 | $3,740,000 | $8,710,000 | **$24,470,000** |
| Water Storage Tank Projects | $10,970,000 | $30,000 | $30,000 | $50,0000 | **$11,080,000** |
| **Total 20-yr CIP** | **$28,900,000** | **$12,960,000** | **$9,250,000** | **$13,950,000** | **$65,060,000** |

## 3.4 Linear Asset Evaluation

Hazen was tasked with conducting a comprehensive evaluation of PWW&SB's water distribution system and sewer collection system. The objective was to identify preliminary short and long-term renewal and replacement (R&R) needs for the linear assets within PWW&SB's water distribution and sewer collection systems.

A desktop assessment of risk was conducted for both systems to identify and prioritize R&R needs. Risk analysis was based on the probability of failure (PoF) and consequence of failure (CoF). As discussed in **Section 3.2**, PoF informed the determination of remaining useful life (RUL). PoF, CoF, Risk, and RUL informed the projection of 20-year capital replacement needs and prioritization of water and sewer main replacement projects.

### 3.4.1 System Overview

PWW&SB provided Hazen with GIS files for the water distribution and sewer collection systems. Those files were reviewed, and a data gap analysis was performed which is summarized in **Section 3.4.1**. **Sections 3.4.1.1** and **3.4.1.2** discuss the current configuration of the water distribution and sewer collection system, respectively.

#### *3.4.1.1 Water Distribution System*

The water distribution system consists of approximately 268 miles of water mains ranging from 1 inch to 24 inches in diameter. PWW&SB water distribution system provides service to the City of Prichard and the adjacent town of Chickasaw. A map showing PWW&SB's water distribution system is shown in **Figure 3-25.**

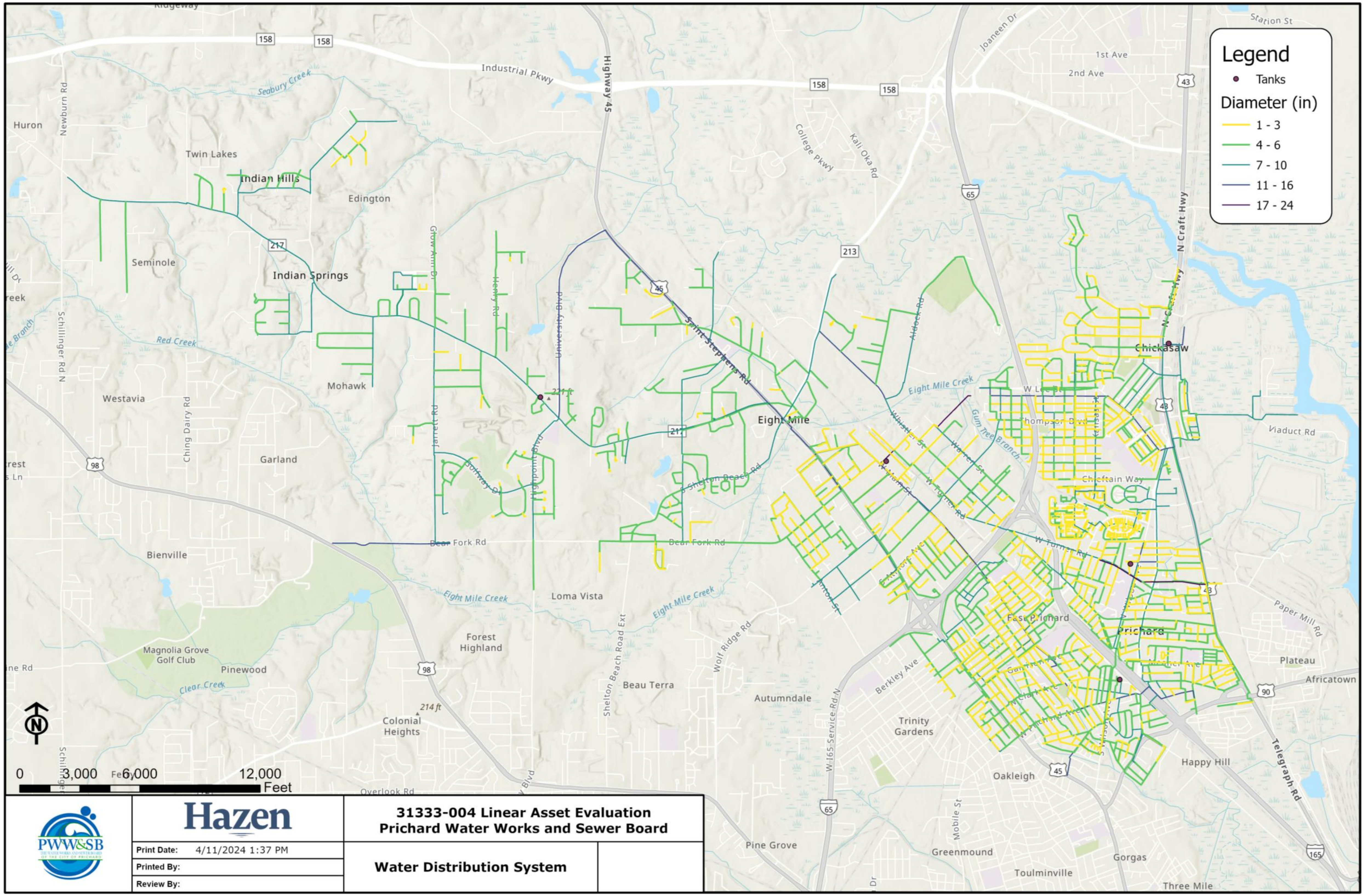



Figure 3-25. Map of PWW&SB's Water Distribution System

A graph illustrating the distribution of diameter sizes of the water distribution system pipes is shown in **Figure 3-26**. As shown in the graph, the majority of water mains are either 2-inch or 6-inch diameter pipes.

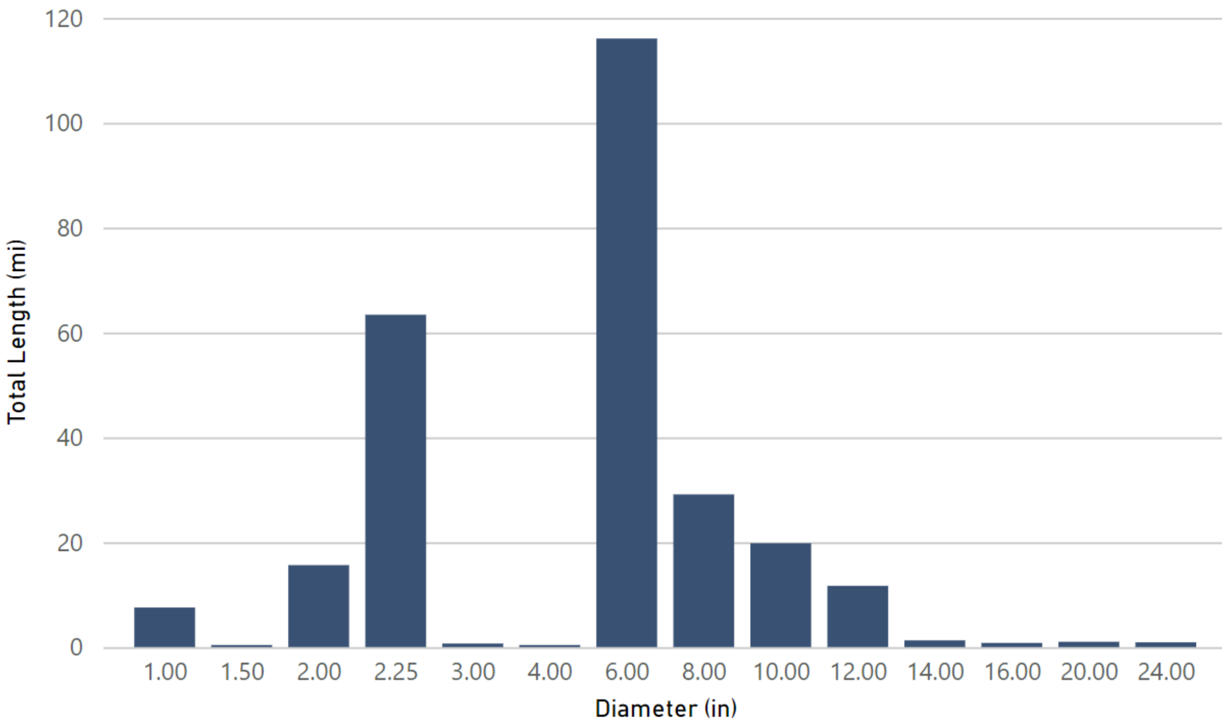



**Figure 3-26. Distribution of Water Pipes by Diameter**

The water distribution system consists of a variety of materials with the majority of water mains (83%) being cast iron. A chart of material composition of the water distribution system is shown in **Figure 3-27.**

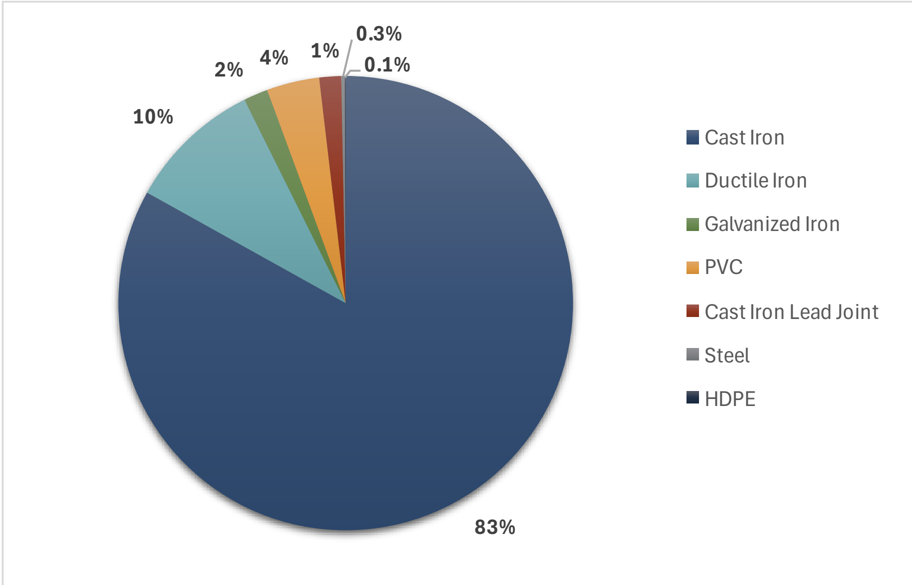



**Figure 3-27. Material Composition of the Water System Distribution by Length**

The GIS files provided by the PWW&SB for the water distribution system pipe inventory did not include installation years. Therefore, installation dates were estimated based on available data sources and assumptions discussed in **Section 3.4.1.2.** Estimates indicate that the water mains were installed between 1915 and 2023. **Figure 3-28** summarizes the estimated install year distribution of water mains by length.

Installed year estimates show the initial system installation immediately preceding and around 1920. The most significant expansion of the water distribution system was between 1960 and 1980.

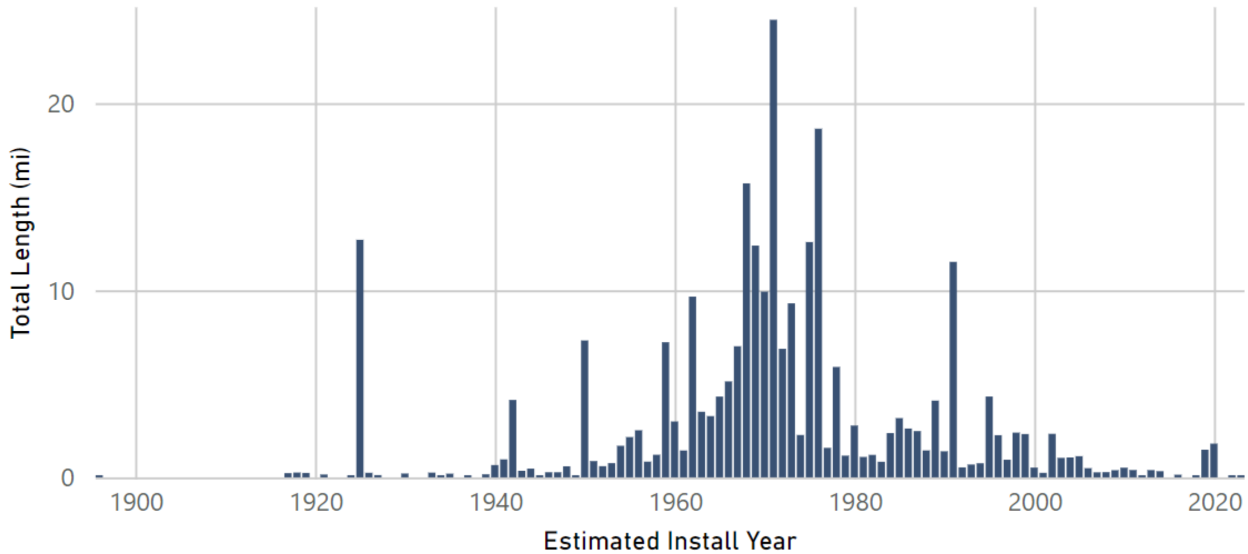



**Figure 3-28. Distribution of Water Pipes by Installed Year**

#### *3.4.1.2 Sewer Collection System*

The sewer collection system consists of approximately 10 miles of force mains and approximately 132 miles of gravity mains. A map showing PWW&SB's sewer collection system is shown in **Figure 3-29**.

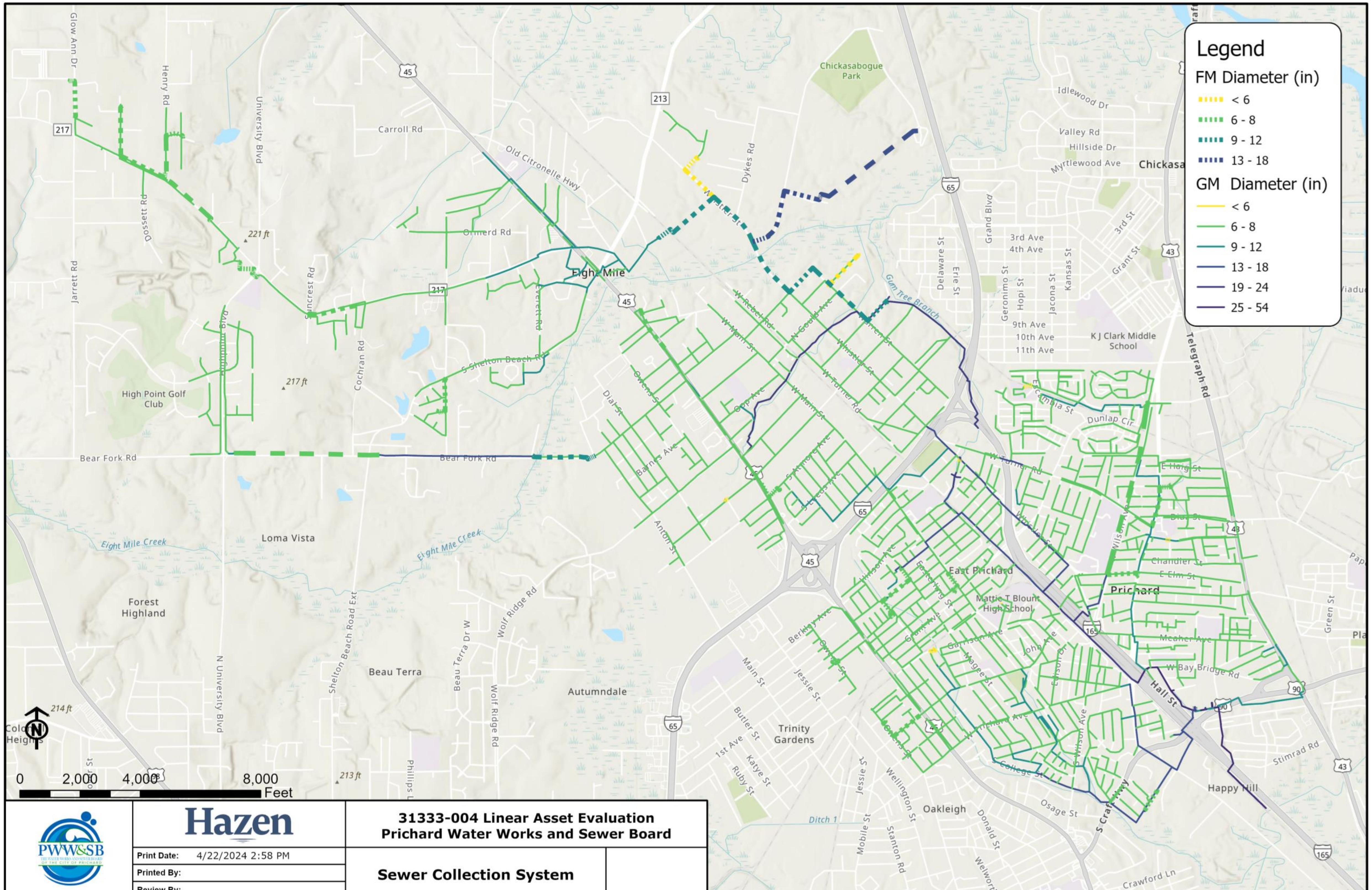



Figure 3-29. PWW&SB's Sewer Collection System Map

Force main diameters range from 1 inch to 14 inches and gravity main diameters range from 4 to 54 inches. A graph with the distribution of the diameter sizes of the sanitary sewer system pipes is shown in **Figure 3-30.**

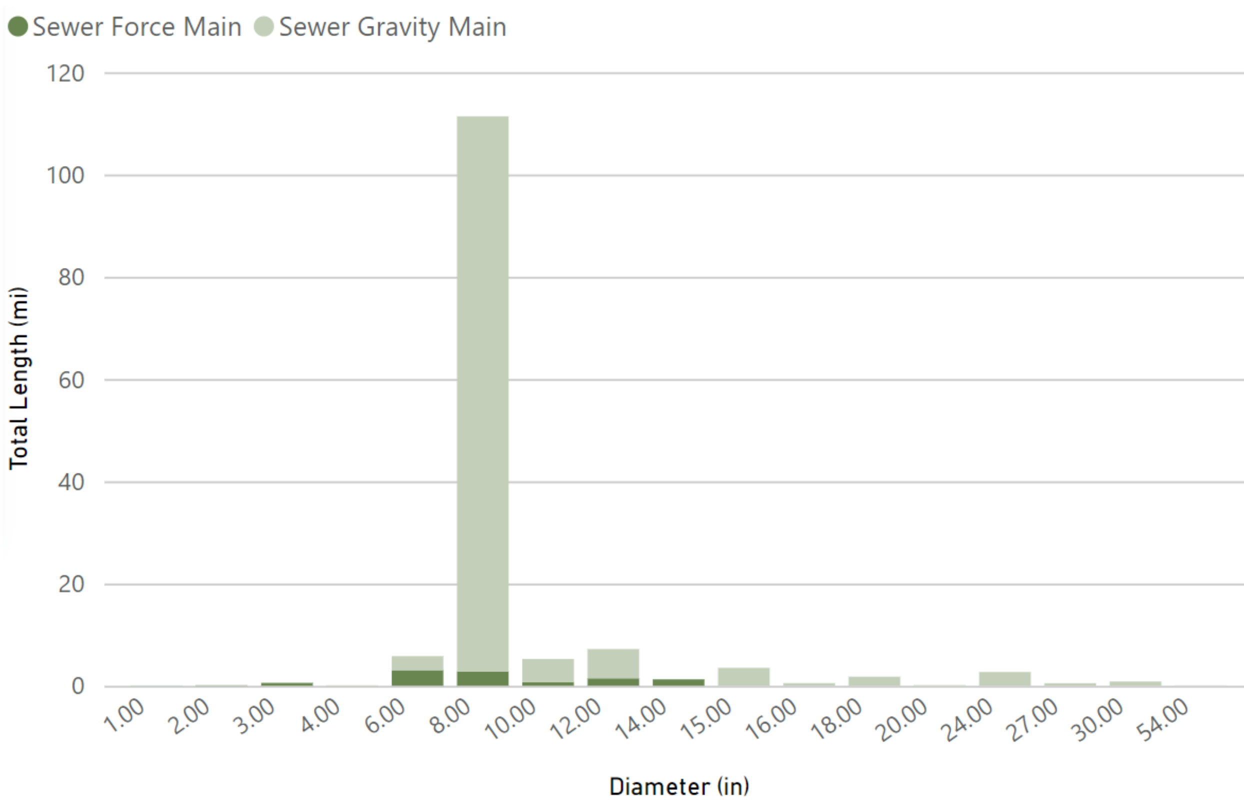



**Figure 3-30. Distribution of Sewer Pipes by Diameter**

Additionally, the sewer collection system is comprised of a variety of materials; however, the majority of the sewer main material is unknown. Filling asset attributes such as missing diameters and materials based on specific assumptions is discussed in **Section 3.4.1**. A graph of material composition of the sanitary sewer system is included in **Figure 3-31**.

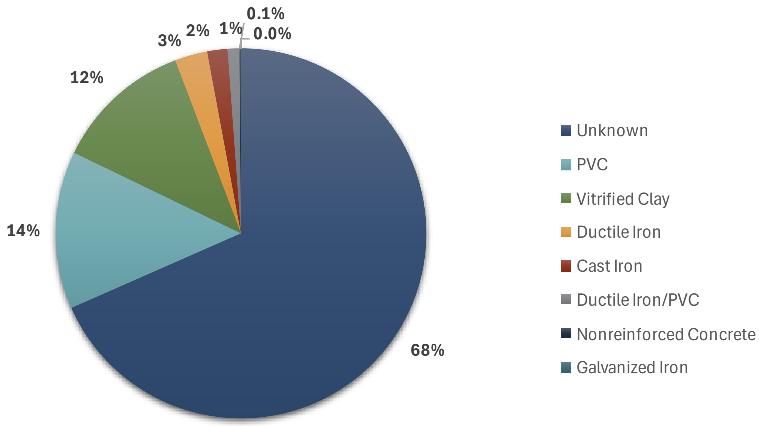



**Figure 3-31. Material Composition of the Sanitary Sewer System by Length**

The GIS files provided for the PWW&SB sewer collection system pipe inventory did not include installation years. Therefore, installation years were estimated based on available data sources and assumptions discussed in **Section 3.4.1.2.** Estimates indicate that the sewer system was installed between 1943 and 2023. Based on the installation year estimates, it appears that a large portion of the sewer system was installed between 1959 to 1964. **Figure 3-32** shows the distribution of the sewer collection system's estimated installation year.

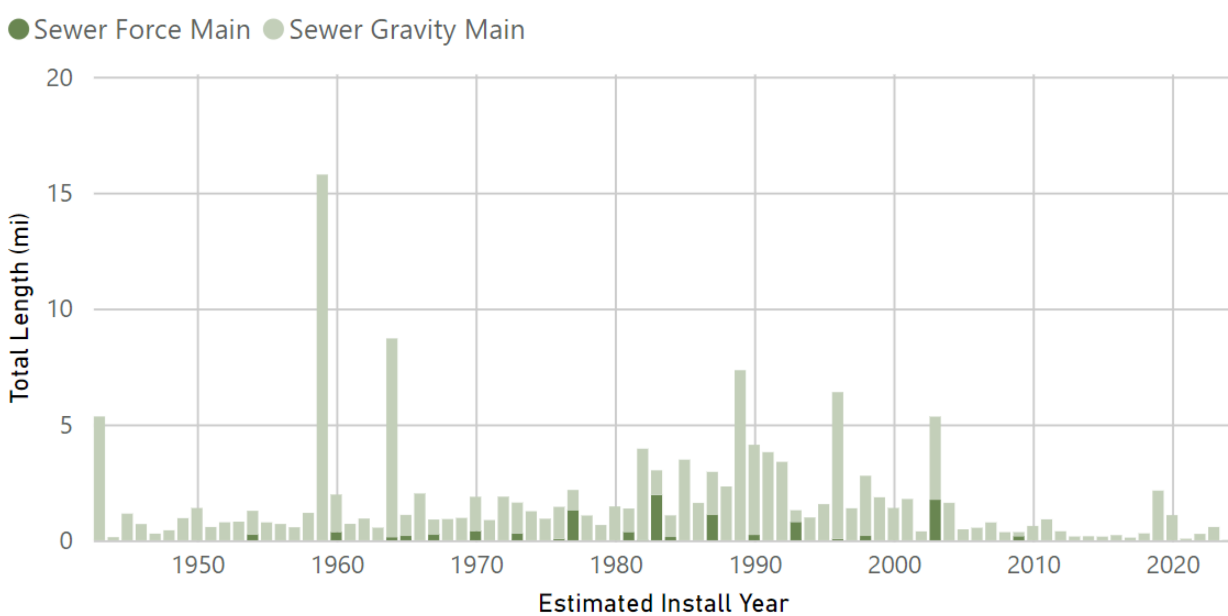



**Figure 3-32. Distribution of Sewer Pipes by Estimated Installed Year**

### 3.4.1 Data Sources & Assumptions

Several data sources were compiled to calculate the PoF and CoF of PWW&SB's water distribution and sanitary sewer system assets. The primary data sources for the linear asset risk evaluation included:

- PWW&SB staff interviews
- Shapefiles of PWW&SB's water distribution system and sanitary sewer system assets dated December 10, 2019.
- Scanned record drawings
- Hydraulic Water Model and Static Sewer Model Results (refer to **Section 1** for more information).
- Water distribution system financial asset register for the City of Chickasaw from June 29, 2023.
- Monthly leak reports from January 2022 and December 2023.
- Lift Station Data from Hydra Service, Inc.
- Previous reports related to PWW&SB's water distribution and sanitary sewer systems completed by ADEM and Waggoner Engineering, Inc.

In addition to these data sources, Hazen compiled publicly available datasets to support the asset evaluation. These include:

- Mobile County Tax Assessor Data
- Sanborn Mobile County Fire Maps from 1925
- USGS National Transportation Dataset (NTD)
- USGS National Structures Dataset (NSD)
- USGS National Hydrography Dataset (NHD)
- Natural Resources Conservation Center
  - GIS Soil Corrosion Potential for Steel
  - GIS Soil Corrosion Potential for Concrete
- Alabama Open Data Portal
  - Alabama Colleges and Universities GIS Layer
  - Alabama Private Schools GIS Layer
  - Alabama Public Schools GIS Layer
  - Alabama Firehouses GIS Layer
  - Alabama Law Enforcement Locations GIS Layer
  - Alabama Nursing Homes GIS Layer
  - Alabama Hospitals GIS Layer

In addition to the data sources cited above, Hazen requested the following datasets; however, they were not available for this evaluation.

- Leak detection and correction program reports (ASTERRA)
- Historical maintenance work order and main break data for the sanitary sewer system
- Customer complaint/service request data (discolored water, sewer backup, odor complaint, etc.)
- CCTV inspection records for sanitary sewer gravity mains

Hazen used the available shapefiles of the water distribution and sewer collection systems to establish the inventory of pipes for the risk assessment. The asset evaluation was limited to PWW&SB-owned, active water distribution and sanitary sewer system linear assets. Hazen excluded any pipes with material labeled "ABANDONED" from the evaluation.

Hazen reviewed the GIS data for completeness of key attribute information including material, age, and diameter. A summary of attribute completeness by layer is provided in **Table 3-25**. This table does not include any linear assets that were noted to be abandoned.

**Table 3-25. Summary of Sewer Gravity and Water Main Attribute Completeness**

| GIS Layer | Total Pipe Segments | Total Length (mi) | Material (% complete) | Age (% complete) | Diameter (% complete) |
|---|---|---|---|---|---|
| **Water Mains** | 2,078 | 268.2 | 99% | 0% | 100% |
| **Sewer Gravity Mains** | 2,856 | 132.2 | 27% | 0% | 95% |
| **Sewer Force Mains** | 29 | 10.0 | 86% | 0% | 97% |

The following sections summarize the assumptions and analysis that was used to fill in the data gaps for missing material, diameter, and age data.

#### *3.4.1.1 Material Assumptions*

Material data for water mains and sewer force mains were mostly complete. However, the majority of materials for sewer gravity mains were unknown. Based on interviews with PWW&SB staff, unknown gravity sewers were assumed to be vitrified clay, unknown force mains were assumed to be PVC, and unknown water mains were assumed to be cast iron.

#### *3.4.1.2 Age Assumptions*

Date of installation, which is used to calculate asset age, was not available for any of the linear assets. The following sections describe how age was assumed for each linear asset type.

##### 3.4.1.2.1 Water Mains Age Assumptions Criteria

To estimate the installation year of water mains, the following assumptions were made:

1. If an installation year was available from the Chickasaw financial register, that year was estimated as the pipe installation year.
2. If the pipe was found in the Sanborn Fire Maps from 1925 and more recent drawings do not show that the pipe has been replaced, then the install year was assumed to be 1925.
3. If a water main had a completed Document ID to identify the as-built drawing, the date of that document was used as the asset age.

4. For water mains that did not fit assumptions 1-3, the average installation year of parcels within 100 feet of the pipe was used to estimate the water main age.
5. For the remaining water main age data, the nearest water main with a known documented year was used to calculate age.
6. Additionally, any PVC water mains were assumed to have been installed after 1960 based on when PVC pipes became commonly available.

The steps taken with the associated assumptions made to calculate the age of water mains are illustrated in **Figure 3-33**, along with the incremental percentage of the system age populated within each step.

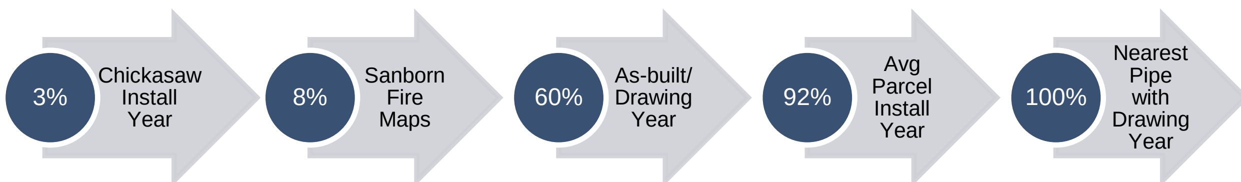



**Figure 3-33. Methodology to Estimate Water Main Installation Year**

#### 3.4.1.2.2 Sewer Gravity Mains and Force Mains Age Assumptions Criteria

To estimate the installation year of sewer mains, the following assumptions were made:

1. If a sewer main had a completed Document ID to identify the as-built drawing, the date of that document was used as the asset age.
2. The average installation year of parcels within 100 feet of the pipe was used to estimate the sewer main age.
3. For the remaining sewer main age data, the nearest sewer main with a known documented year was used to calculate age.
4. Additionally, it was assumed that sanitary sewer assets were not installed prior to 1943 based on the earliest available records of the system.

The steps taken with the associated assumptions made to calculate the age of sewer mains are illustrated in **Figure 3-34**, along with the incremental percentage of the system age populated within each step.

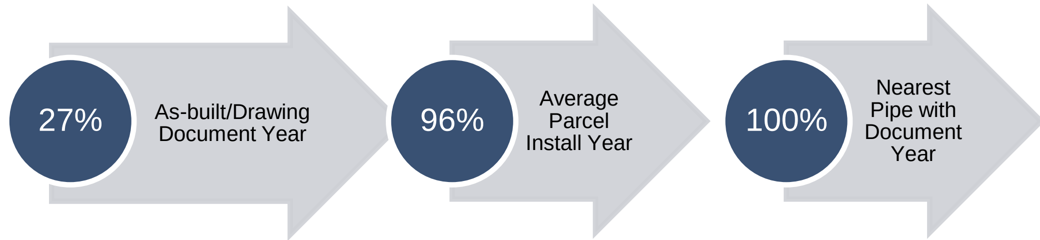



**Figure 3-34. Methodology to Estimate Sanitary Sewer Main Installation Year**

#### 3.4.1.2.3 Diameter Assumptions

Diameter data was complete for over 97% of assets in the water main, sewer gravity main, and sewer force main datasets. For any asset with missing diameters, the diameter of the adjacent asset was presumed to apply.

### *3.4.1.3 Estimated Useful Life Assumptions*

An asset's Estimated Useful Life (EUL) refers to the projected duration over which an asset is expected to remain operational and provide its intended value. It is an estimate of the period of time during which an asset is anticipated to be economically feasible and function effectively for its intended purpose before needing significant repairs, maintenance, or replacement. The EUL of an asset is tied to various factors such as conditions of use, maintenance, the original construction techniques, surrounding environment, and material of construction. Considering these factors allows for a more comprehensive understanding of an asset's EUL and enables better decision-making regarding maintenance, repair, and replacement strategies to optimize asset performance and minimize lifecycle costs.

An EUL was assigned to each linear asset based on industry knowledge and research, engineering judgement, input from the PWW&SB staff, and the AWWA Buried No Longer Report[3] for water mains. **Table 3-26** shows the assumed EULs of assets by type and material.

[3] Buried No Longer (awwa.org)

**Table 3-26. Estimated Useful Life by Material and Type**

| Material | Water Main Useful Life | Sewer Gravity Main Useful Life | Sewer Force Main Useful Life |
|---|---|---|---|
| **Unknown** | 100 | 75 | 40 |
| **Cast Iron** | 100 | 75 | 40 |
| **Cast Iron Lead Joint** | 100 | N/A | N/A |
| **Ductile Iron** | 55 | 50 | 40 |
| **Ductile Iron/PVC** | N/A | 40 | 40 |
| **Galvanized Iron** | 50 | N/A | 40 |
| **High Density Polyethylene Pipe (HDPE)** | 75 | N/A | N/A |
| **Nonreinforced Concrete** | N/A | 40 | N/A |
| **Polyvinylchloride (PVC)** | 55 | 75 | 50 |
| **Steel** | 70 | N/A | N/A |
| **Vitrified Clay** | N/A | 50 | N/A |

### 3.4.2 Risk Framework

As previously discussed, risk is a combination of probability of failure (PoF) and consequence of failure (CoF) of a particular asset. An asset-by-asset analysis to determine the PoF and CoF was performed. The PoF provides a relative indication of the likelihood of failure, which considered known hydraulic, operations and maintenance (O&M) history, and asset condition. The CoF provides a relative indication of the level of impact a failure may have, based on potential financial, customer, and operational considerations related to pipeline failure. The following sections outline the framework developed to calculate PoF and CoF scores for PWW&SB water mains, gravity mains, and force mains.

#### *3.4.2.1 Water Main Risk Framework*

The following section details the criteria, scoring rubric, weightings, and data sources used to calculate PoF and CoF scores for the water distribution system linear assets.

##### 3.4.2.1.1 Probability of Failure

The framework developed to determine the PoF of water mains considered the condition of assets by combining age data, work order history, modeling results, and corrosive soil data. Hydraulic performance was evaluated using the 2020 calibrated water model as discussed in **Section 2.1**. While the model is suitable for conducting a high-level hydraulic analysis and identifying key distribution system deficiencies, Hazen recommends updating and verifying the model results before proceeding with recommended water main improvements. The PoF score informs the severity of asset condition and can determine the asset replacement timeline. To account for the two main failure modes of pipes, mortality and capacity, the PoF criteria were separated into these two categories. Each PoF criterion was assigned a score from 1 to 5 to describe the condition or performance, ranging from excellent to very poor. Additionally, each parameter was assigned a weighting that defines the typical relative importance of each criterion in estimating the overall PoF.

To determine the overall PoF Score, a PoF Mortality score was determined by averaging the calculated weighted average of PoF Mortality criteria and the maximum PoF Mortality criteria score. Then, a PoF Capacity score was determined by averaging the calculated weighted average of PoF Capacity criteria and the maximum PoF Capacity criteria score. Finally, the overall PoF score was determined by taking the average of the weighted average of the PoF Mortality score and the PoF Capacity score and the maximum of the two scores, as shown in the equation below. This process ensures that pipes with either mortality or capacity issues are identified and the overall PoF score matches their true condition.

$$\mathbf{PoF} = \frac{(\mathbf{0.65} * \mathbf{PoF\ Mortality} + \mathbf{0.35} * \mathbf{PoF\ Capacity}) + \mathbf{max}\,(\mathbf{PoF\ Mortality}, \mathbf{PoF\ Capacity})}{\mathbf{2}}$$

The PoF categories, criteria, weightings, and scoring framework for water mains are shown in **Table 3-27**. Detailed maps showing the water main scoring for each PoF criteria can be found in the maps included in **Appendix C: Linear Asset Evaluation**. Additionally, the water main PoF scoring results are displayed geospatially in **Figure 3-35.**

**Table 3-27. Water Main PoF Scoring Guidelines**

| Category | Weight (%) | Criteria | Description | Weight (%) | Data Source | 1 – Excellent | 2 | 3 | 4 | 5 – Very Poor | Analysis Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mortality** | **65** | **Age & Material** | Determine the percentage of remaining useful life based on EUL and age. EUL determined based on asset material as shown in **Table 3-26**. | **40** | • GIS attribute data<br>• As-builts and drawings<br>• Chickasaw Water Distribution Asset Register<br>• Mobile County parcel age data | > 75% | 75% ≥ x > 50% | 50% ≥ x > 30% | 30% ≥ x > 10% | ≤ 10% | 1. Estimate installed year for all pipes.<br>2. Calculate age based on current year (2024).<br>3. Estimate material for all pipes.<br>4. Determine EUL by material.<br>5. Calculate remaining useful life (RUL) for each pipe. |
| | | **Reactive Work Order History** | Assess pipes by number of work orders within 100ft that may indicate frequent issues and a deteriorated condition. | **35** | Monthly water main leak reports between January 2022 - December 2023. | 0 WOs | N/A | 1 WO | N/A | > 1 WOs | 1. Geocode locations from map in GIS<br>2. Remove service line work orders<br>3. Assign work order to closest pipe<br>4. Count number of work orders per pipe |
| | | **Corrosive Soils** | Identify metallic and concrete pipes that may be impacted by corrosive soils. | **25** | USA SSURGO Soil Corrosivity for Steel and Concrete | No soil corrosion potential. | Low soil corrosion potential. | Moderate soil corrosion potential. | N/A | High soil corrosion potential. | 1. Corrosive soils were downloaded from the SSURGO ArcGIS Online Download Application.<br>2. Metallic Pipes were intersected with soils corrosive to steel to determine PoF criteria score.<br>3. Concrete/Cement pipes were intersected with corrosive to concrete to determine PoF. |
| **Capacity** | **35** | **Fire Flow (gpm)** | Assess the hydraulic capacity of the system to meet necessary fire flow. Based on modeling results from the 2020 calibrated water model. More details on the water model are included in **Section 2.1**. | **60** | Preliminary Water Model results | > 1000 | N/A | 500-1000 | N/A | < 500 | 1. GIS polyline layer from hydraulic water model with modeled results mapped to pipes based on largest overlap. |
| | | **Headloss (ft per 1000 ft)** | Identify pipes with lower hydraulic performance due to headloss. Based on modeling results from the 2020 calibrated water model. More details on the water model are included in **Section 2.1**. | **40** | Preliminary Water Model results | ≤ 0.002 | 0.002 < x ≤ 0.02 | 0.02 < x ≤ 0.2 | 0.2 < x ≤ 2.0 | > 2.0 | 1. GIS polyline layer from hydraulic water model with modeled results mapped to pipes based on largest overlap. |

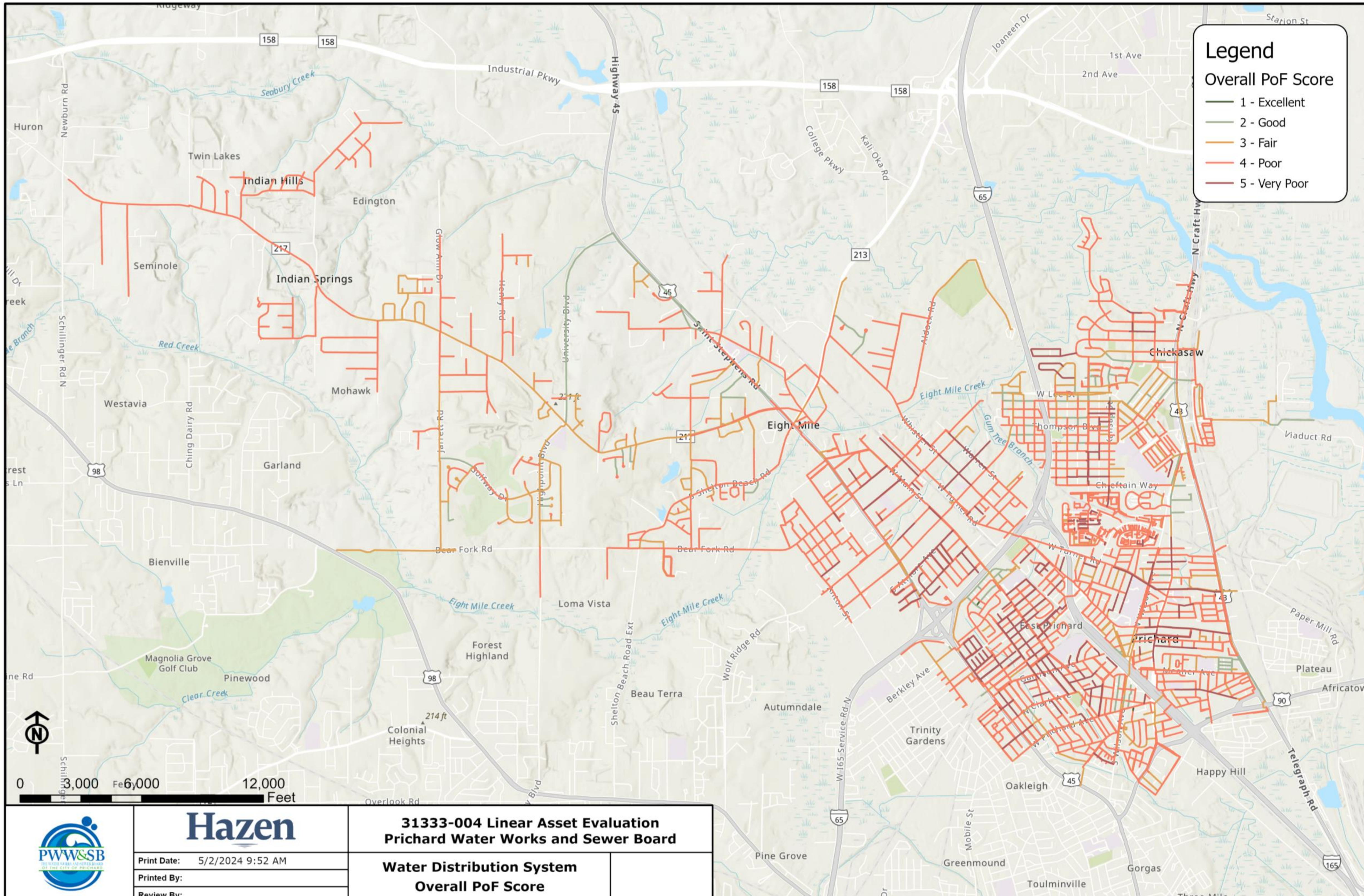



**Figure 3-35. Map of Water Distribution System Overall PoF Scores**

After each of the PoF criteria were scored using the rubric presented in **Table 3-27**, the criteria weights were applied to the scores and totaled to determine the overall PoF score. The overall PoF scores were then adjusted to be between 1 and 5. The distribution of water main PoF scores by length is summarized in **Figure 3-36**.

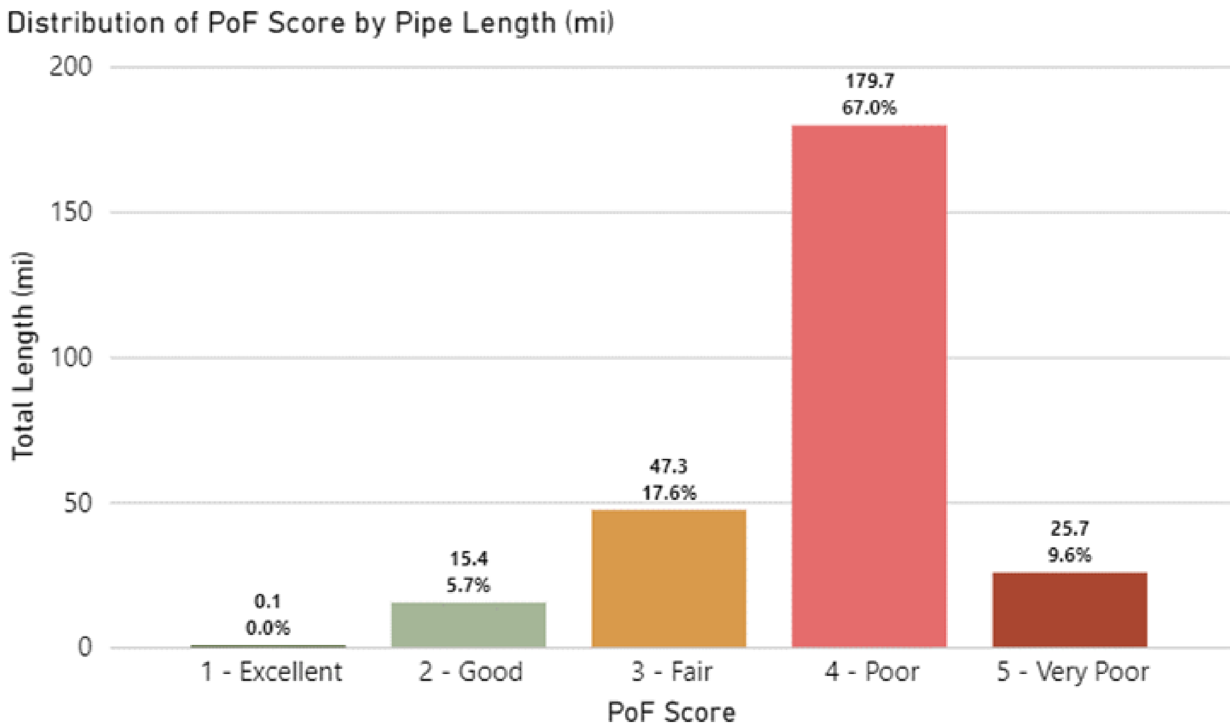



**Figure 3-36. Water Main PoF Scores by Length (mi)**

#### 3.4.2.1.2 Consequence of Failure

The consequences of failure in a water distribution system can be significant and can impact various aspects of society, public health, and the economy. When water main assets fail, the consequence can vary depending on the size of the water main, the criticality of impacted customers, degree of impact to transportation within the city and the environment, and the cost and time to repair the failure. The consequences of failure (CoF) can vary from a minor inconvenience to a major disruption of customer service and endangerment of public health.

Each CoF criterion was assigned a score from 1 to 5 to describe the impact of failure, ranging from negligible to severe. Additionally, each criterion was given a weighting that defined its relative significance. **Table 3-28** presents a guideline for scoring each criterion from 1 to 5, along with the criteria weightings used in the evaluation. Detailed maps showing the water main scoring for each CoF criterion can be found in the maps included in **Appendix C: Linear Asset Evaluation**. Additionally, the water main CoF scoring results can be reviewed geospatially in **Figure 3-37**.

**Table 3-28. Water Main CoF Scoring Guidelines**

| Criteria | Description | Weight (%) | Data Source(s) | 1- Negligible | 2 | 3 | 4 | 5 – Critical | Analysis Notes |
|---|---|---|---|---|---|---|---|---|---|
| **Critical Customers** | Score mains based on the proximity of the pipes to critical infrastructure. Including:<br>- Schools & elder care facilities<br>- Hospitals and medical centers<br>- Police stations, fire stations, City Hall | **25** | Alabama Open GIS layers<br>- Alabama Colleges and Universities<br>- Alabama Private Schools<br>- Alabama Public Schools<br>- Alabama Firehouses<br>- Alabama Law Enforcement Locations<br>- Alabama Nursing Homes<br>- Alabama Hospitals | Distance to critical infrastructure > 500 ft | N/A | 250 ft < Distance to critical infrastructure ≤ 500 ft | N/A | Distance to critical infrastructure ≤ 250 ft | 1. Combined multiple feature layers into one Critical Infrastructure layer.<br>2. Calculated minimum distance between each pipe and the Critical Infrastructure.<br>3. Scored each pipe based on calculated distance. |
| **Transportation Impacts** | Pipes scores based on the level of impact to transportation. Road type used to evaluate the level of impact. | **10** | NTD Roads and Railroads GIS layers | ≥ 25 ft. away from all roadways or<br>< 25 ft. away from Vehicular Trails, Service Drive, or Private Road | < 25 ft from a Local Road | < 25 ft from a Secondary Road | < 25 ft from a Primary Road or Ramp | Within 25ft of railroad | 1. Used the MCTFCC code to determine road class.<br>2. Calculated distance between pipe and each road class type.<br>3. If multiple, highest score was applied. |
| **Environmental Impacts** | Criterion used to identify water mains that could impact the environment if a break led to contamination from chlorinated water. Scoring based on proximity to waterways, swamp/marsh, reservoir, and estuaries. | **10** | NHD Hydrography Flowlines, Areas & Waterbodies GIS layers | Proximity > 250 ft | 100 ft < Proximity ≤ 250 ft | 50 ft < Proximity ≤ 100 ft | 25 ft < Proximity ≤ 50 ft | Proximity ≤ 25 ft | 1. Merged the NRD Areas and NHD Waterbodies layers into one layer<br>2. Calculated the minimum distance between each pipe and the combined layer<br>3. Each pipe scored based on the calculated distance. |
| **Difficulty of Repair** | This criterion served to identify pipes that would have difficult, lengthy, and/or expensive repairs due to access issues. | **15** | FEMA Structures GIS layer | Distance to Building > 20 ft | 15 ft < Distance to Building ≤ 20 ft | 10 ft < Distance to Building ≤ 15 ft | Distance to Building ≤ 10 ft | Pipe is under a building | 1. Calculated the minimum distance between each pipe and the FEMA structures layer<br>2. Each pipe scored based on the calculated distance. |
| **Hydraulic Criticality** | Score water mains based on their hydraulic impact. Use pipe diameter as a proxy. | **40** | GIS attribute data | Diameter < 4" | 4" ≤ Diameter < 8" | 8" ≤ Diameter 12" | 12" ≤ Diameter < 18" | Diameter ≥18" | Used GIS attribute data to determine diameter. If missing, used nearest pipe to assign diameter. |

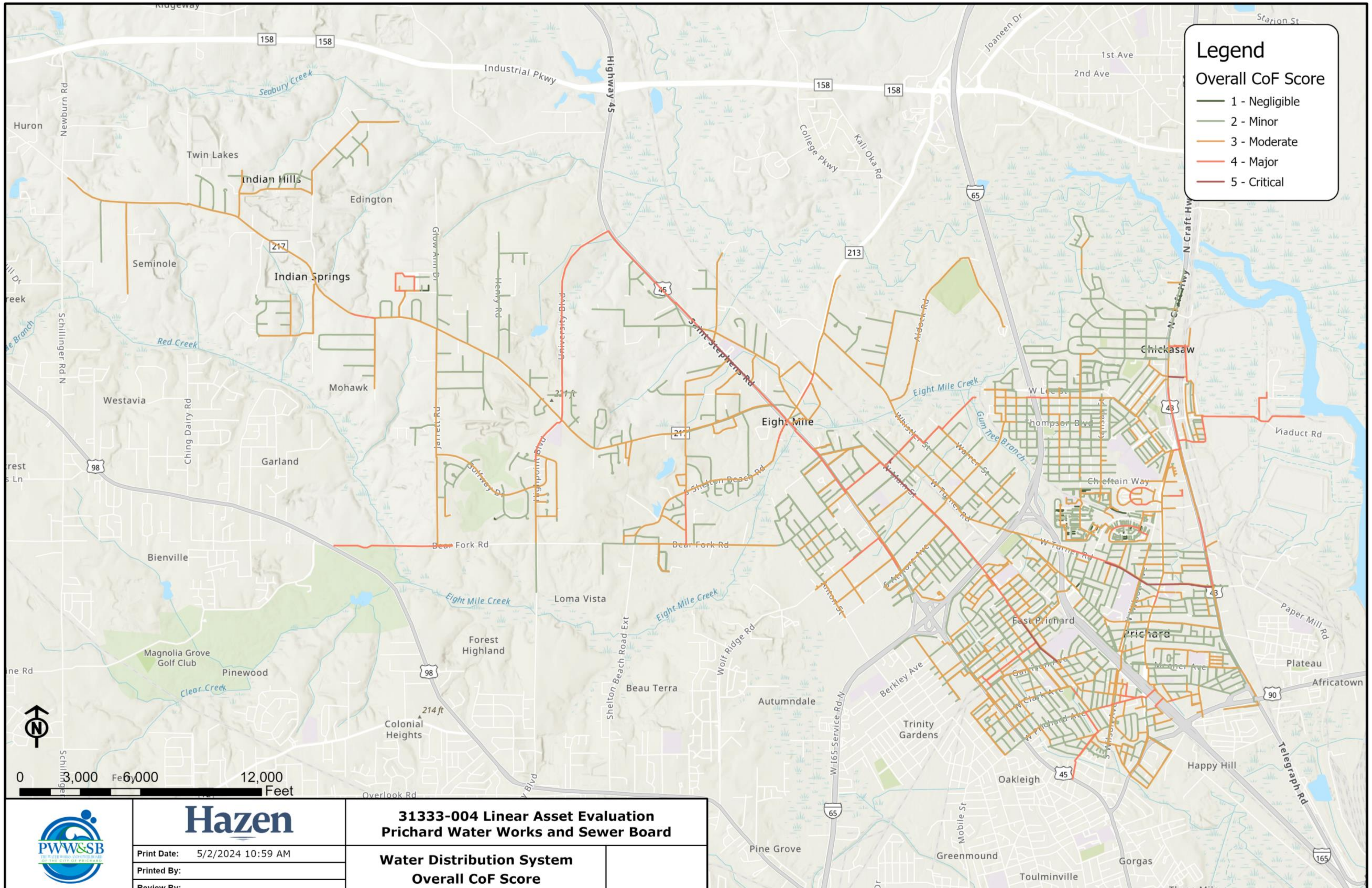



Figure 3-37. Map of Water Distribution System Overall CoF Scores

After each of the CoF criteria were scored using the rubric presented in **Table 3-28**, the criteria weights were applied to the scores and totaled to determine the overall CoF score. The overall CoF scores were then adjusted to be between 1 and 5. The distribution of water main CoF scores by length is summarized in **Figure 3-38**.

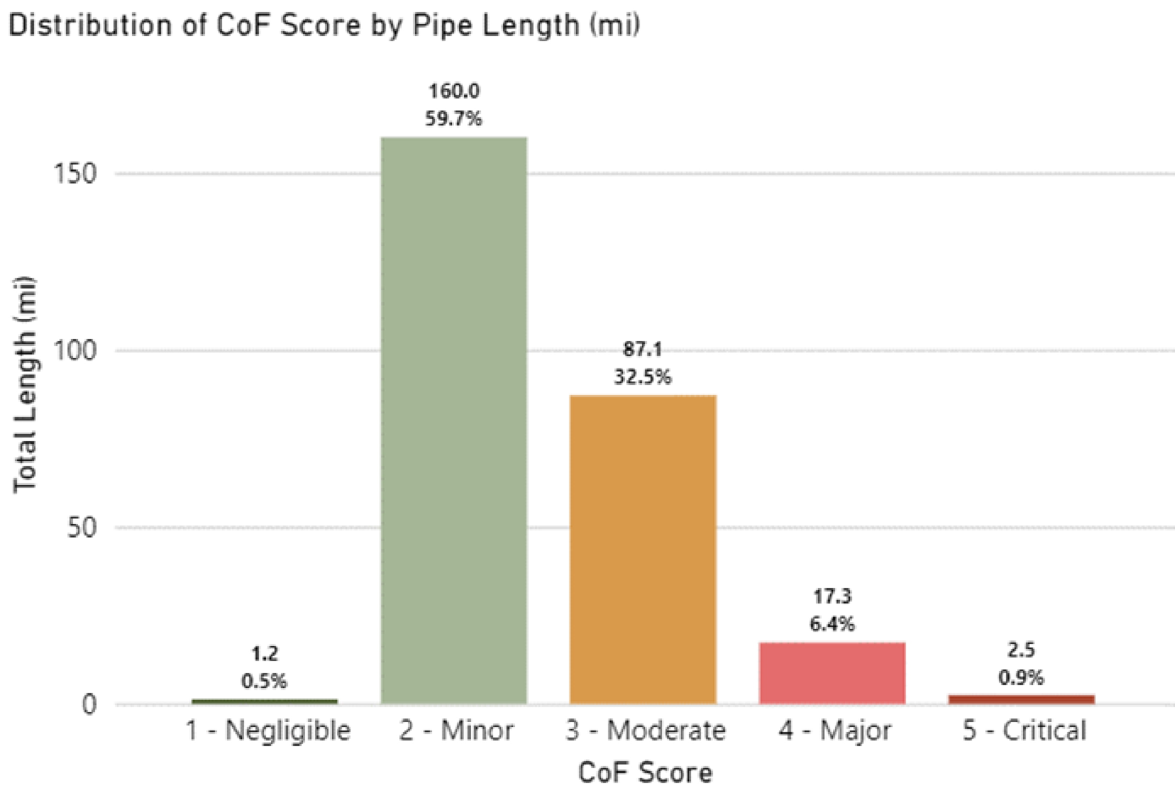



**Figure 3-38. Water Mains CoF Scores by Length (mi)**

#### *3.4.2.2 Sewer Gravity Main Risk Framework*

The following section details the criteria, scoring rubric, weightings, and data sources used to calculate PoF and CoF scores for the sewer gravity main assets.

##### 3.4.2.2.1 Probability of Failure

The frameworks developed to determine the PoF for sewer gravity mains considered the condition of these assets by combining age data, corrosivity potential due to location downstream of a force main discharge, historical sewer system overflow (SSO) data, and capacity issues determined through hydraulic modeling. The PoF score informs the severity of asset condition and can determine the asset replacement timeline. To account for the two main failure modes of pipes, mortality and capacity, the PoF criteria were separated into these two categories. Each PoF criterion was assigned a score from 1 to 5 to describe the condition or performance, ranging from excellent to very poor. Additionally, each parameter was assigned a weighting that defines the typical relative importance of each criterion in estimating the overall PoF.

To determine the overall PoF Score, a PoF Mortality score was determined by averaging the calculated weighted average of PoF Mortality criteria and the maximum PoF Mortality criteria score. Then, a PoF Capacity score was determined by taking the maximum of the PoF Capacity criteria. This is because the static model developed as part of the sanitary sewer system evaluation was high-level and did not include all of the sewer pipes. Finally, the overall PoF score was determined by averaging the weighted average of the PoF Mortality score and the PoF Capacity score and the maximum of the two scores, as shown in the equation below. This process ensures that pipes with either mortality or capacity issues are identified and the overall PoF score matches their true condition.

$$\mathbf{PoF} = \frac{(\mathbf{0.65} * \mathbf{PoF\ Mortality} + \mathbf{0.35} * \mathbf{PoF\ Capacity}) + \mathbf{max}\,(\mathbf{PoF\ Mortality}, \mathbf{PoF\ Capacity})}{\mathbf{2}}$$

The PoF criteria, weightings, and scoring framework for sewer gravity mains are shown in **Table 3-29**. Detailed maps showing the gravity main scoring for each PoF criteria can be found in the maps included in Appendix C: Linear Asset Evaluation. Additionally, the sewer gravity main PoF scoring results are displayed geospatially in the map below in **Figure 3-39.**

**Table 3-29. Sewer Gravity Mains PoF Scoring Guidelines**

| Category | Weight (%) | Criteria | Description | Weight (%) | Data Source | 1 – Excellent | 2 | 3 | 4 | 5 – Very Poor | Analysis Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mortality** | **65** | **Age & Material** | Determine the percentage of remaining useful life based on EUL and age. EUL determined based on asset material as shown in .EUL determined based on asset material as shown in . | **80** | Material - GIS, GM missing assumed to be Vitrified Clay based on staff interviews.<br>Age - as-built dates, use nearest parcel if no date, Chickasaw water main dates. | > 75% | 75% ≥ x > 50% | 50% ≥ x > 30% | 30% ≥ x > 10% | ≤ 10% | 1. Estimate installation year for all pipes.<br>2. Calculate age based on current year (2024).<br>3. Estimate material for all pipes.<br>4. Determine EUL by material.<br>5. Calculate remaining useful life (RUL) for each pipe. |
| | | **Downstream of FM Discharge** | Identify metallic gravity mains with increased corrosion potential due to location downstream of a force main discharge. | **20** | GIS | > 1500 linear feet of force main discharge | N/A | 750-1500 ft of force main discharge | N/A | < 750 ft of force main discharge | 1. Determine process of identifying GM downstream of FM |
| **Capacity** | **35** | **Sanitary Sewer Overflows (SSOs)** | Identify pipes within 500ft or less of historical SSOs which may indicate hydraulic capacity or O&M issues in the system. | **Max Value Applied** | ADEM Historical SSO Data between May 2012 - February 2024. | No SSOs within 500 ft | 1 SSO within 500 ft | 2 SSOs within 500 ft | 3 SSOs within 500 ft | 4+ SSOs within 500 ft | 1. Geocode SSO locations from map in GIS |
| | | **Modeled Surcharge** | Identify sanitary sewer mains with capacity issues based on static sewer model results. Sewer modeling assumptions are detailed in **Section 2.2**. | | Static Sewer Model | Dry weather flow (DWF) d/D < 0.75 OR Not Modeled | N/A | DWF pipe almost at capacity (d/D ≥ 0.75) | Peak flow (PF) pipe surcharged (d/D ≥ 1) AND Over full pipe capacity | Model predicted PF overflow | 1. GIS polyline layer from static sewer model with modeled results mapped to pipes based on largest overlap. |

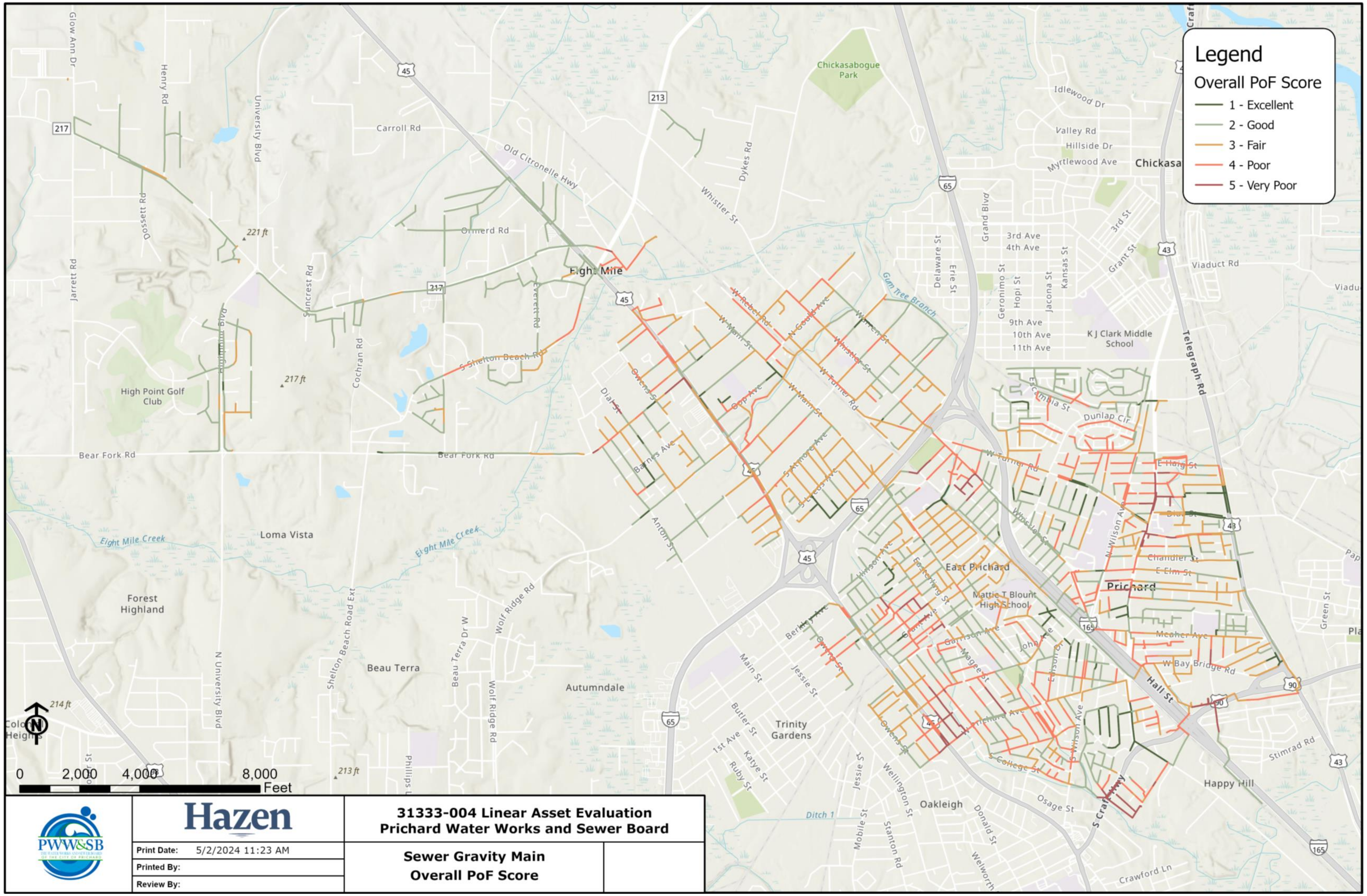



**Figure 3-39. Map of Sewer Gravity Main Overall PoF Scores**

After each of the PoF criteria were scored using the rubric presented in **Table 3-29**, the criteria weights were applied to the scores and totaled to determine the overall PoF score. The distribution of gravity main PoF scores by length is summarized in **Figure 3-40**.

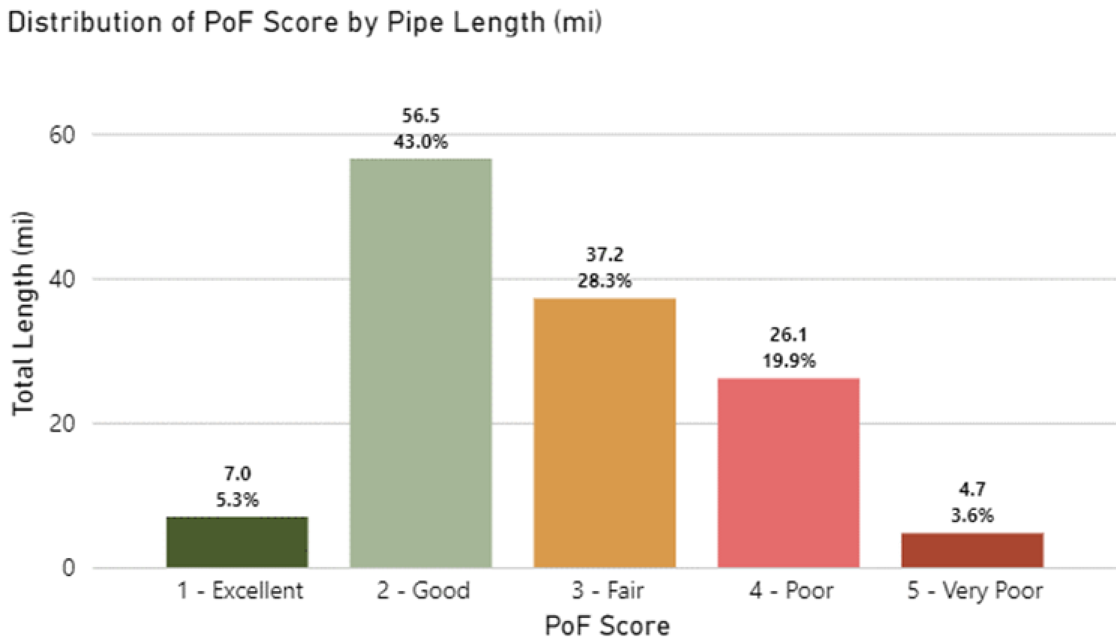



**Figure 3-40. Sewer Gravity Mains PoF Scores by Length (mi)**

###### 3.4.2.2.2 Consequence of Failure

The consequences of failure (CoF) in a sewer collection system can have significant impacts on public health, the environment, and infrastructure. When these assets fail, the consequences can vary depending on the size and accessibility of the sewer gravity main, the criticality of impacted customers, degree of impact to transportation within the city, potential for environmental impacts, and the cost and time to repair the failure. The CoF of sewer gravity mains can vary from a minor inconvenience to a major disruption of customer service and possible endangerment of public health.

Each CoF criterion was assigned a score from 1 to 5 to describe the impact of failure, ranging from negligible to severe. Additionally, each criterion was given a weighting that defined its relative significance. **Table 3-30** presents a guideline for scoring each criterion from 1 to 5, along with the criteria weightings used in the evaluation. Detailed maps showing the gravity main CoF scoring results are included in **Appendix C: Linear Asset Evaluation**. Additionally, the sewer gravity main CoF scoring results can be reviewed geospatially in **Figure 3-41**.

**Table 3-30. Sewer Gravity Main CoF Scoring Guidelines**

| Criteria | Description | Weight (%) | Data Source(s) | 1- Negligible | 2 | 3 | 4 | 5 – Critical | Analysis Notes |
|---|---|---|---|---|---|---|---|---|---|
| **Critical Customers** | Score mains based on the proximity of the pipes to critical infrastructure. Including:<br>- Schools & elder care facilities<br>- Hospitals and medical centers<br>- Police stations, fire stations, City Hall | **20** | Alabama Open GIS layers<br>- Alabama Colleges and Universities<br>- Alabama Private Schools<br>- Alabama Public Schools<br>- Alabama Firehouses<br>- Alabama Law Enforcement Locations<br>- Alabama Nursing Homes<br>- Alabama Hospitals | Distance to critical infrastructure > 500 ft | N/A | 250 ft < Distance to critical infrastructure ≤ 500 ft | N/A | Distance to critical infrastructure ≤ 250 ft | 1. Combined multiple feature layers into one Critical Infrastructure layer<br>2. Calculated minimum distance between each pipe and the Critical Infrastructure.<br>3. Scored each pipe based on calculated distance. |
| **Transportation Impacts** | Pipes scores based on the level of impact to transportation. Road type used to evaluate the level of impact. | **15** | NTD Roads and Railroads GIS layers | ≥ 25 ft. away from all roadways or < 25 ft. away from Vehicular Trails, Service Drive, or Private Road | < 25 ft from a Local Road | < 25 ft from a Secondary Road | < 25 ft from a Primary Road or Ramp | Within 25ft of railroad | 1. Used the MCTFCC code to determine road class.<br>2. Calculated distance between pipe and each road class type.<br>3. If multiple, highest score was applied. |
| **Environmental Impacts** | Criterion used to identify sewer mains that could impact the environment if a break led to a spill. Scoring based on proximity to waterways, swamp/marsh, reservoir, and estuaries. | **25** | NHD Hydrography Flowlines, Areas & Waterbodies GIS layers | Proximity > 250 ft | 100 ft < Proximity ≤ 250 ft | 50 ft < Proximity ≤ 100 ft | 25 ft < Proximity ≤ 50 ft | Proximity ≤ 25 ft | 1. Merged the NRD Areas and NHD Waterbodies layers into one layer<br>2. Calculated the minimum distance between each pipe and the combined layer<br>3. Each pipe scored based on the calculated distance. |
| **Difficulty of Repair** | This criterion served to identify pipes that would have difficult, lengthy, and/or expensive repairs due to access issues. | **10** | FEMA Structures GIS layer | Distance to Building > 20 ft | 15 ft < Distance to Building ≤ 20 ft | 10 ft < Distance to Building ≤ 15 ft | Distance to Building ≤ 10 ft | Pipe is under a building | 1. Calculated the minimum distance between each pipe and the FEMA structures layer<br>2. Each pipe scored based on the calculated distance. |
| **Hydraulic Criticality** | Score water mains based on their hydraulic impact. Use pipe diameter as a proxy. | **30** | GIS attribute data | Diameter ≤ 6" | 6" < Diameter ≤ 8" | 8" < Diameter ≤ 12" | 12" < Diameter ≤ 18" | Diameter >18" | Used GIS attribute data to determine diameter. If missing, used nearest pipe to assign diameter. |

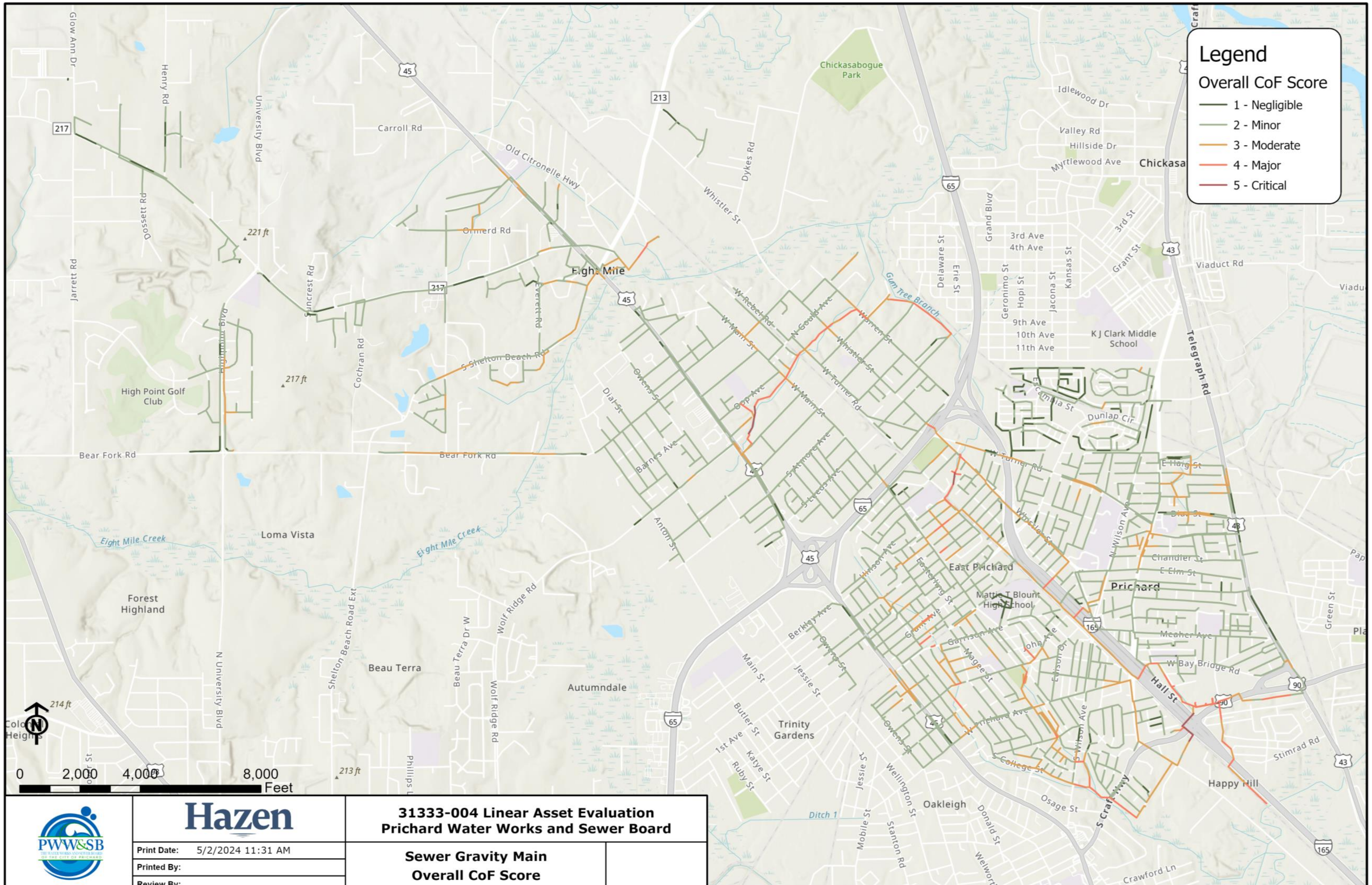



Figure 3-41. Map of Sewer Gravity Main Overall CoF Scores

After each of the CoF criteria were scored using the rubric presented in **Table 3-30**, the criteria weights were applied to the scores and totaled to determine the overall CoF score. The distribution of gravity main CoF scores by length is summarized in **Figure 3-42**.

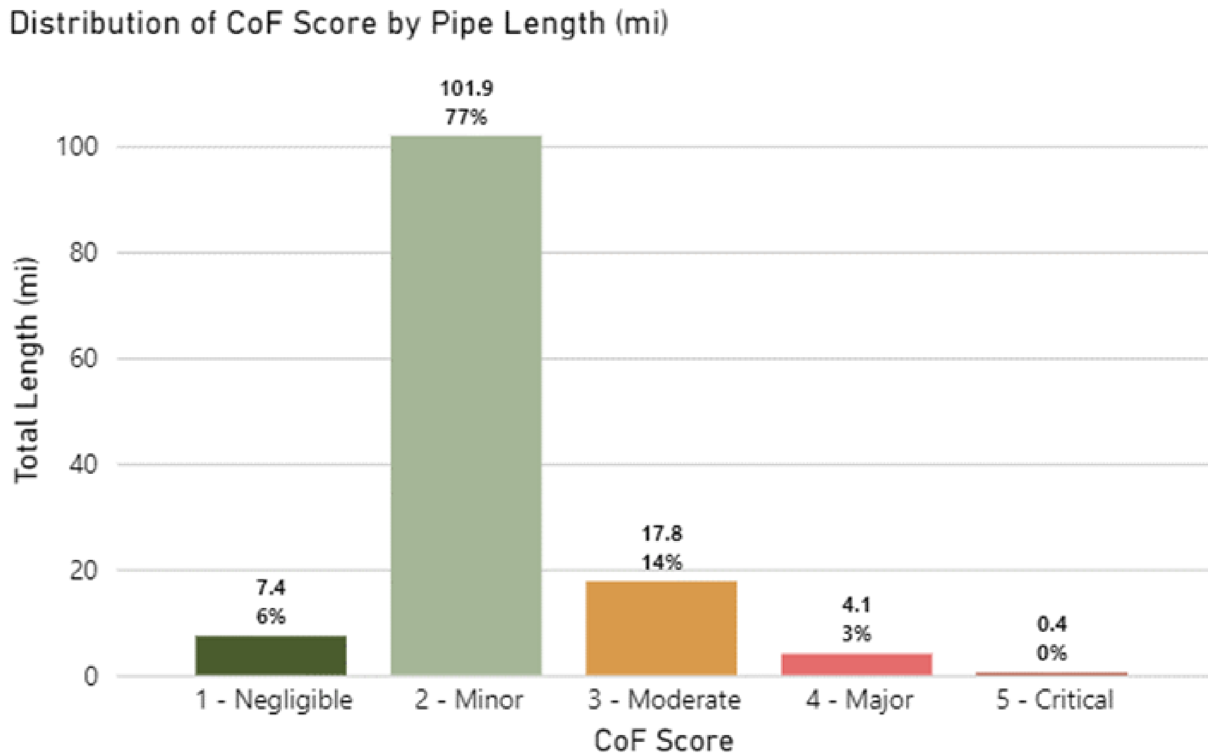



**Figure 3-42. Sewer Gravity Mains CoF Scores by Length (mi)**

### *3.4.2.3 Sewer Force Main Risk Framework*

The following section details the criteria, scoring rubric, weightings, and data sources used to calculate PoF and CoF scores for the sewer force main assets.

#### 3.4.2.3.1 Probability of Failure

Frameworks were developed to determine the PoF score for sewer force mains. The condition of these assets was assessed by combining age data, historical sewer system overflow (SSO) data, and force main velocity. The PoF score informs the severity of asset condition and can determine the asset replacement timeline. To account for the two main failure modes of pipes, mortality and capacity, the PoF criteria were separated into these two categories. Each PoF criterion was assigned a score from 1 to 5 to describe the condition or performance, ranging from excellent to very poor. Additionally, each parameter was assigned a weighting that defines the typical relative importance of each criterion in estimating the overall PoF.

To determine the overall PoF Score, a PoF Mortality score was determined by averaging the calculated weighted average of PoF Mortality criteria and the maximum PoF Mortality criteria score. Since there was only one PoF Capacity criterion, the criteria score was applied as the PoF Capacity score. Finally, the overall PoF score was determined by taking the average of the weighted average of the PoF Mortality score and the PoF Capacity score and the maximum of the two scores, as shown in the equation below. This process ensures that pipes with either mortality or capacity issues are identified and the overall PoF score matches their true condition.

$$\mathbf{PoF} = \frac{(\mathbf{0.65} * \mathbf{PoF\ Mortality} + \mathbf{0.35} * \mathbf{PoF\ Capacity}) + \mathbf{max}\,(\mathbf{PoF\ Mortality}, \mathbf{PoF\ Capacity})}{\mathbf{2}}$$

The PoF criteria, weightings, and scoring framework for sewer force mains are shown in **Table 3-31**. Detailed maps showing the force main scoring for each PoF criterion can be found in **Appendix C: Linear Asset Evaluation**. Additionally, the sewer force mains PoF scoring results can be reviewed geospatially in **Figure 3-43**.

**Table 3-31. Sewer Force Main PoF Scoring Guidelines**

| Category | Weight (%) | Criteria | Description | Weight (%) | Data Source | 1 – Excellent | 2 | 3 | 4 | 5 – Very Poor | Analysis Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mortality** | **65** | **Age & Material** | Determine the percentage of remaining useful life based on EUL and age. EUL determined based on asset material as shown in **Table 3-26**. | **60** | Material - GIS, GM missing assumed to be Vitrified Clay based on staff interviews Age - as-built dates, use nearest parcel if no date, Chickasaw water main dates. | > 75% | 75% ≥ x > 50% | 50% ≥ x > 30% | 30% ≥ x > 10% | ≤ 10% | 1. Estimate installation year for all pipes. 2. Calculate age based on current year (2024). 3. Estimate material for all pipes. 4. Determine EUL by material. 5. Calculate remaining useful life (RUL) for each pipe. |
| | | **Corrosive Soils** | Identify metallic and concrete pipes that may be impacted by corrosive soils. | **40** | USA SSURGO Soil Corrosivity for Steel and Concrete | No soil corrosion potential. | Low soil corrosion potential. | Moderate soil corrosion potential. | N/A | High soil corrosion potential. | 1. Corrosive soils were downloaded from the SSURGO ArcGIS Online Download Application. 2. Metallic Pipes were intersected with soils corrosive to steel to determine PoF criteria score. Concrete/Cement pipes were intersected with corrosive to concrete to determine PoF. |
| **Capacity** | **35** | **Force Main Velocity** | Calculates force main velocity based on lift station flow and force main diameter. | **100** | Lift Station Data from Hydra Service, Inc. | 2 feet per second (fps) < Velocity < 7 fps | N/A | N/A | N/A | Velocity ≤ 2 fps OR Velocity ≥ 7 fps | 1. Match force mains to their associated lift stations. 2. Calculate the velocity based on the lift station flow in gallons per minute and the force main diameter using this equation: $Velocity = \frac{0.408 * Flow(gpm)}{Diameter\ (in)^2}$ |

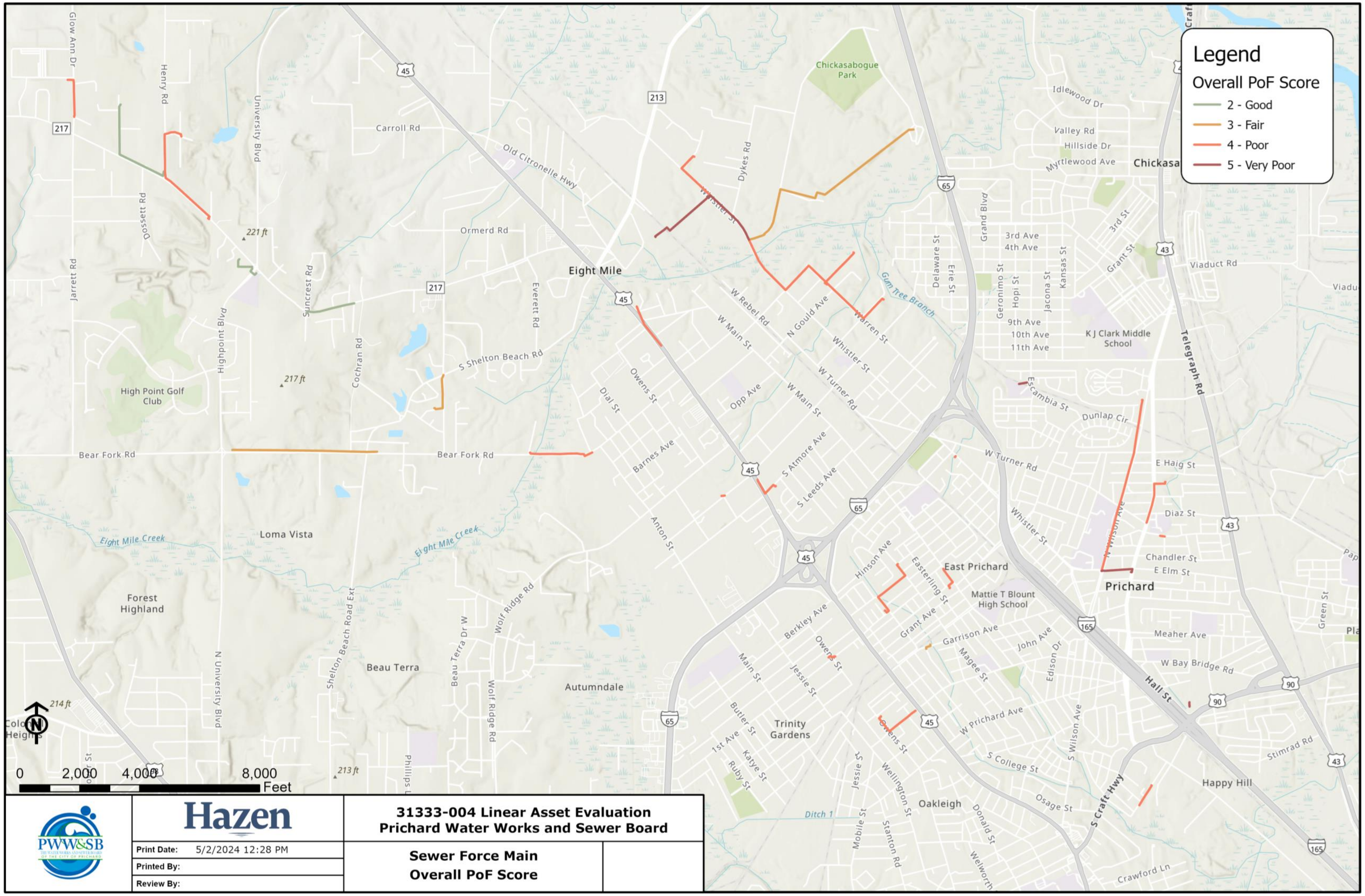



**Figure 3-43. Map of Sewer Force Main Overall PoF Scores**

After scoring each of the PoF criteria using the rubric presented in **Table 3-31**, the criteria weights were applied to the scores and totaled to determine the overall PoF score. The distribution of gravity main PoF scores by length is summarized in **Figure 3-44**.

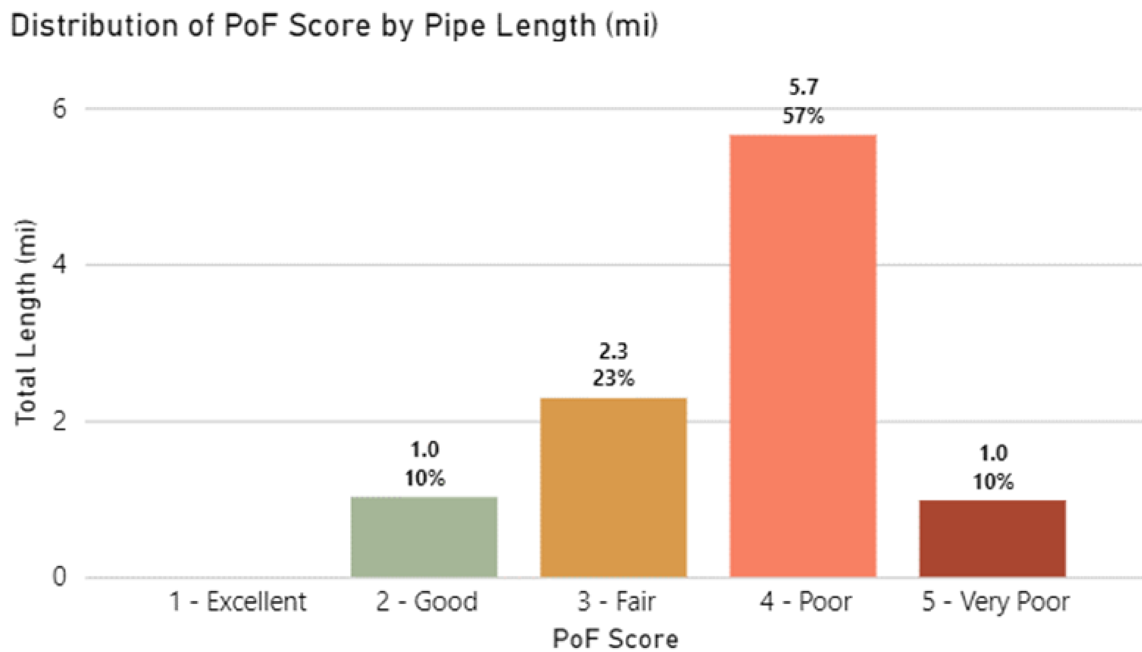



**Figure 3-44. Sewer Force Mains PoF Scores by Length (mi)**

### 3.4.2.3.2 Consequence of Failure

Frameworks were developed to determine the CoF score for sewer force mains. When these assets fail, the corresponding consequences depend on the size and accessibility of the sewer force main, the criticality of impacted customers, degree of impact to transportation within the city, potential for environmental impacts, and the cost and time to repair the failure. The CoF of sewer force mains can vary from a minor inconvenience to a major disruption of customer service and possible endangerment of public health.

Each CoF criterion was assigned a score from 1 to 5 to describe the impact of failure, ranging from negligible to severe. Additionally, each criterion was given a weighting that defined its relative significance. **Table 3-32** presents a guideline for scoring each CoF parameter from 1 to 5, along with the criteria weightings used in the evaluation. Detailed maps showing the force main scoring for each CoF criterion can be found in the maps included in **Appendix C: Linear Asset Evaluation**. Additionally, the sewer force mains CoF scoring results can be reviewed geospatially in **Figure 3-45**.

**Table 3-32. Sewer Force Main CoF Scoring Guidelines**

| Criteria | Description | Weight (%) | Data Source(s) | 1- Negligible | 2 | 3 | 4 | 5 – Critical | Analysis Notes |
|---|---|---|---|---|---|---|---|---|---|
| **Critical Customers** | Score mains based on the proximity of the pipes to critical infrastructure including schools, elder care facilities, hospitals, medical centers, police stations, and fire stations. | **20** | Alabama Open GIS layers<br>- Alabama Colleges and Universities<br>- Alabama Private Schools<br>- Alabama Public Schools<br>- Alabama Firehouses<br>- Alabama Law Enforcement Locations<br>- Alabama Nursing Homes<br>- Alabama Hospitals | Distance to critical infrastructure > 500 ft | N/A | 250 ft < Distance to critical infrastructure ≤ 500 ft | N/A | Distance to critical infrastructure ≤ 250 ft | 1. Combined multiple feature layers into one Critical Infrastructure layer<br>2. Calculated minimum distance between each pipe and the Critical Infrastructure.<br>3. Scored each pipe based on calculated distance. |
| **Transportation Impacts** | Pipes scores based on the level of impact to transportation. Road type used to evaluate the level of impact. | **15** | NTD Roads and Railroads GIS layers | ≥ 25 ft. away from all roadways or < 25 ft. away from Vehicular Trails, Service Drive, or Private Road | < 25 ft from a Local Road | < 25 ft from a Secondary Road | < 25 ft from a Primary Road or Ramp | Within 25ft of railroad | 1. Used the MCTFCC code to determine road class.<br>2. Calculated distance between pipe and each road class type.<br>3. If multiple, highest score was applied. |
| **Environmental Impacts** | Criterion used to identify sewer mains that could impact the environment if a break led to a spill. Scoring based on proximity to waterways, swamp/marsh, reservoir, and estuaries. | **25** | NHD Hydrography Flowlines, Areas & Waterbodies GIS layers | Proximity > 250 ft | 100 ft < Proximity ≤ 250 ft | 50 ft < Proximity ≤ 100 ft | 25 ft < Proximity ≤ 50 ft | Proximity ≤ 25 ft | 1. Merged the NRD Areas and NHD Waterbodies layers into one layer<br>2. Calculated the minimum distance between each pipe and the combined layer<br>3. Each pipe scored based on the calculated distance. |
| **Difficulty of Repair** | This criterion served to identify pipes that would have difficult, lengthy, and/or expensive repairs due to access issues. | **10** | Building Footprints - FEMA Structures GIS | Distance to Building > 20 ft | 15 ft < Distance to Building ≤ 20 ft | 10 ft < Distance to Building ≤ 15 ft | Distance to Building ≤ 10 ft | Pipe is under a building | 1. Calculated the minimum distance between each pipe and the FEMA structures layer<br>2. Each pipe scored based on the calculated distance. |
| **Hydraulic Criticality** | Score water mains based on the hydraulic impact of pipe failure using pipe diameter as a proxy. | **30** | GIS attribute data | Diameter ≤ 4" | 4" < Diameter ≤ 6" | 6" < Diameter ≤ 8" | 8" < Diameter ≤ 10" | Diameter >10" | Used GIS attribute data to determine diameter. If missing, used nearest pipe to assign diameter. |

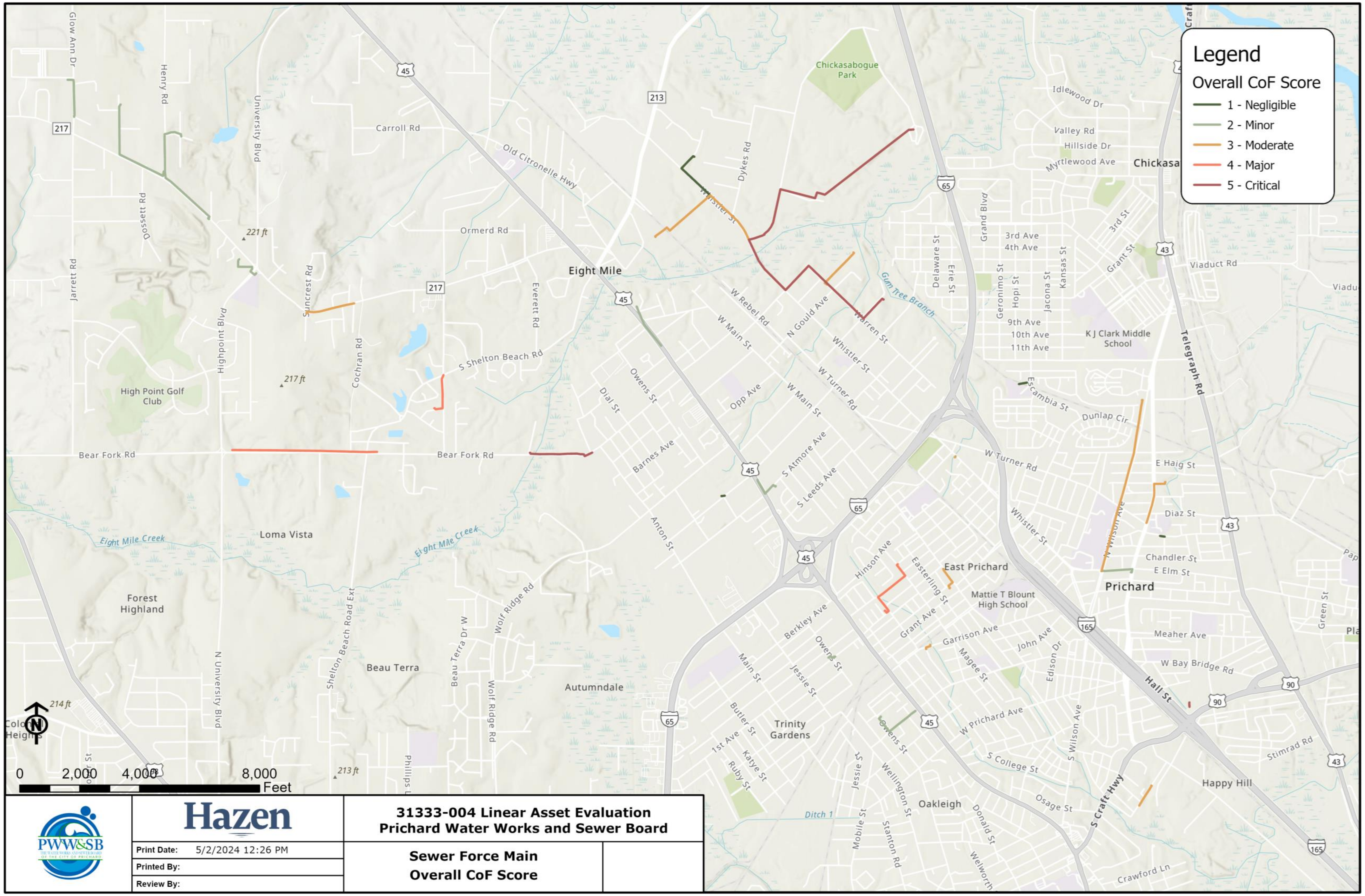



**Figure 3-45. Map of Sewer Force Main Overall CoF Scores**

After each of the CoF criteria were scored using the rubric presented in **Table 3-32**, the criteria weights were applied to the scores and totaled to determine the overall CoF score. The distribution of force main CoF scores by length is summarized in **Figure 3-46.**

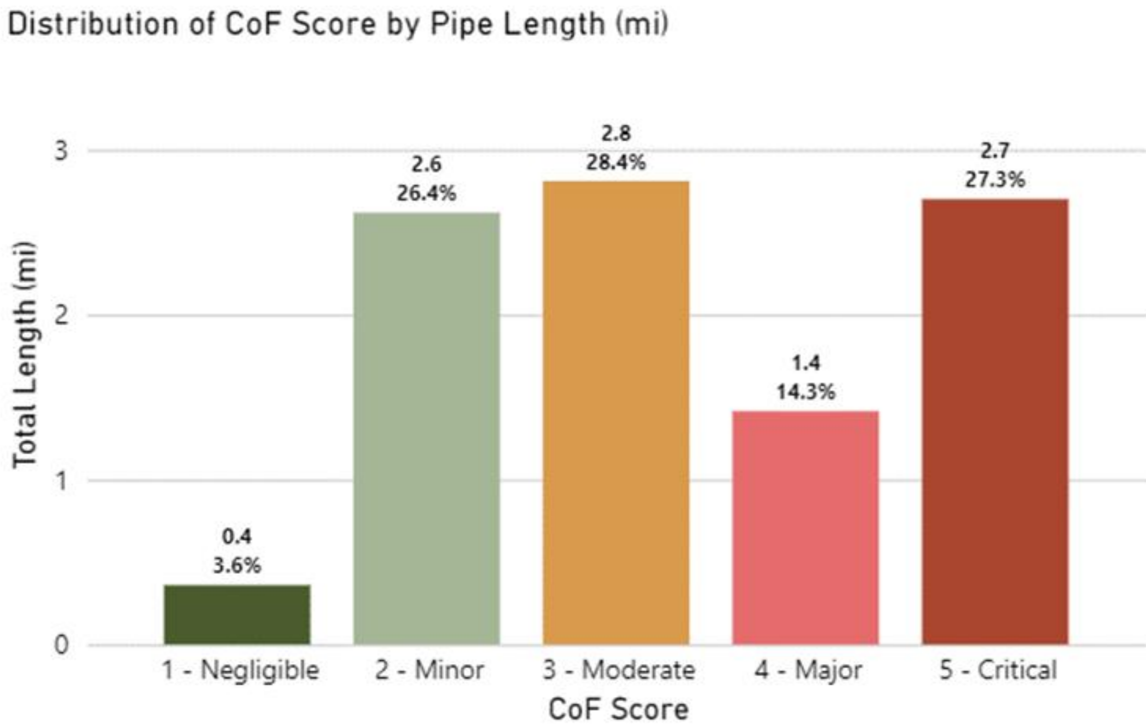



**Figure 3-46. Sewer Force Main CoF Scores by Length (mi)**

### 3.4.3 Risk Results

As discussed in previous sections, overall risk scores were calculated as the product of PoF and CoF. This section provides a summary of the water distribution system and sanitary sewer system asset risk profiles. Detailed tables of linear assets and their associated risk scores are included in **Appendix C: Linear Asset Evaluation**.

As discussed in **Section 3.1.5**, the water and sewer main assets were categorized into four risk levels: Low, Medium Low, Medium-High, and High. A matrix of PoF and CoF scores used to determine asset risk level is shown in **Figure 3-47** below.

| | | PoF Score | | | | |
|---|---|---|---|---|---|---|
| CoF Score | | 1 | 2 | 3 | 4 | 5 |
| | 1 | Low | Low | Low | Medium Low | Medium Low |
| | 2 | Low | Low | Medium Low | Medium Low | Medium High |
| | 3 | Low | Medium Low | Medium Low | Medium High | High |
| | 4 | Medium Low | Medium Low | Medium High | High | High |
| | 5 | Medium High | Medium High | High | High | High |

**Figure 3-47. Risk Level Matrix**

The subsequent sections discuss the results of the risk evaluation conducted for both the water distribution and sanitary sewer systems. It is important to note that the condition assessment data was not available to validate the results of the risk assessment. Therefore, it is important to understand that an overall PoF score of 5 does not inherently indicate asset failure. Rather, an overall PoF score of 5 should be interpreted as assets with a high likelihood of failure based on data analysis. The risk assessment outcomes of the linear assets should guide the identification of high priority assets. Hazen recommends that PWW&SB prioritize these assets for detailed condition assessments to validate the level of rehabilitation or replacement needs. A detailed summary of R&R recommendations can be found in **Section 3.4.4**.

#### 3.4.3.1 Water Main Risk Results

**Figure 3-48** summarizes the total length of the water distribution system assets within each risk level. Approximately 3% (7.8 mi) of the total length of the water distribution system consists of low risk assets, while approximately 4% (11.8 mi) of the water distribution system is comprised of assets with high risk. This evaluation allows PWW&SB to prioritize resources and planning efforts to target the high and medium-high risk linear assets. Hazen recommends that once the leak detection assessment is complete, PWW&SB review those results and use them to validate or update the risk assessment results presented herein to ensure that pipes with identified leaks are targeted for replacement.

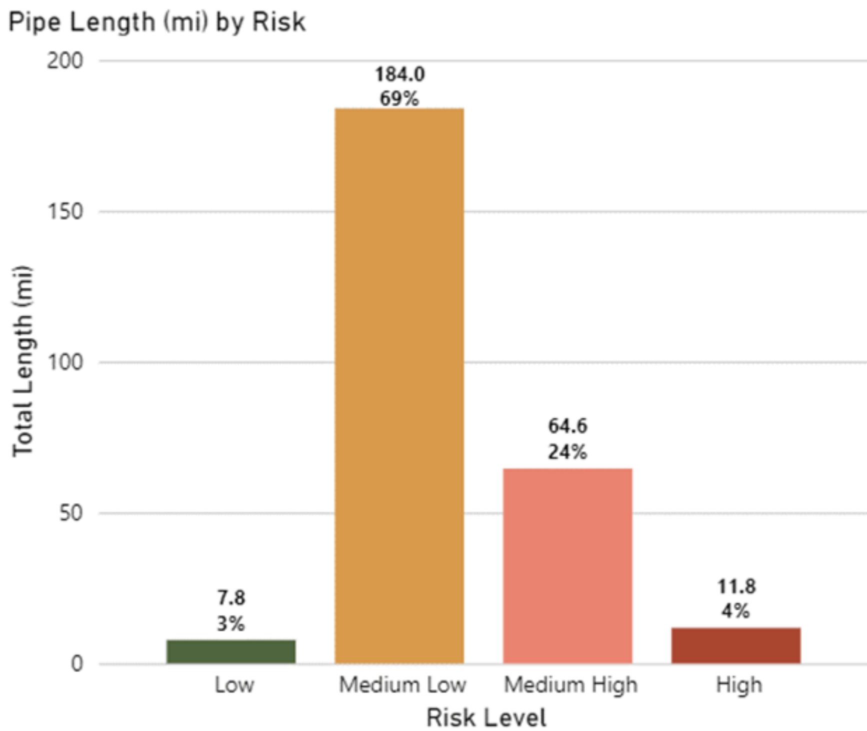



**Figure 3-48. Water Distribution System Length by Risk Level**

The risk matrix presented in **Figure 3-49** shows the percent distribution of water main assets by length based on PoF and CoF scores. The majority of the water distribution system assets have moderate to high PoF scores and low to moderate CoF scores and are within the Medium-Low risk level. However, approximately 28% of water main assets were classified as having medium-high or high risk. Hazen recommends targeting these assets for condition assessment and future renewal and replacement. Water distribution renewal and replacement recommendations including cost projections and implementation strategies are included in **Section 3.4.4.2.**

| Risk Score =PoF*CoF | | PoF | | | | | CoF Totals |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | |
| CoF | 1 | 0.0% | 0.0% | 0.0% | 0.4% | 0.0% | **0.5%** |
| | 2 | 0.0% | 2.4% | 8.0% | 42.1% | 7.2% | **59.7%** |
| | 3 | 0.0% | 1.9% | 7.7% | 20.8% | 2.0% | **32.5%** |
| | 4 | 0.0% | 1.4% | 1.9% | 3.2% | 0.0% | **6.5%** |
| | 5 | 0.0% | 0.0% | 0.0% | 0.5% | 0.3% | **0.9%** |
| PoF Totals | | **0.0%** | **5.7%** | **17.6%** | **67.0%** | **9.6%** | **100.0%** |

**Figure 3-49. Water System Risk Matrix by Percentage of Total Linear Feet**

To better understand where the high-risk assets in the water distribution system are located, a map of water main assets designated by risk level is provided in **Figure 3-50**.

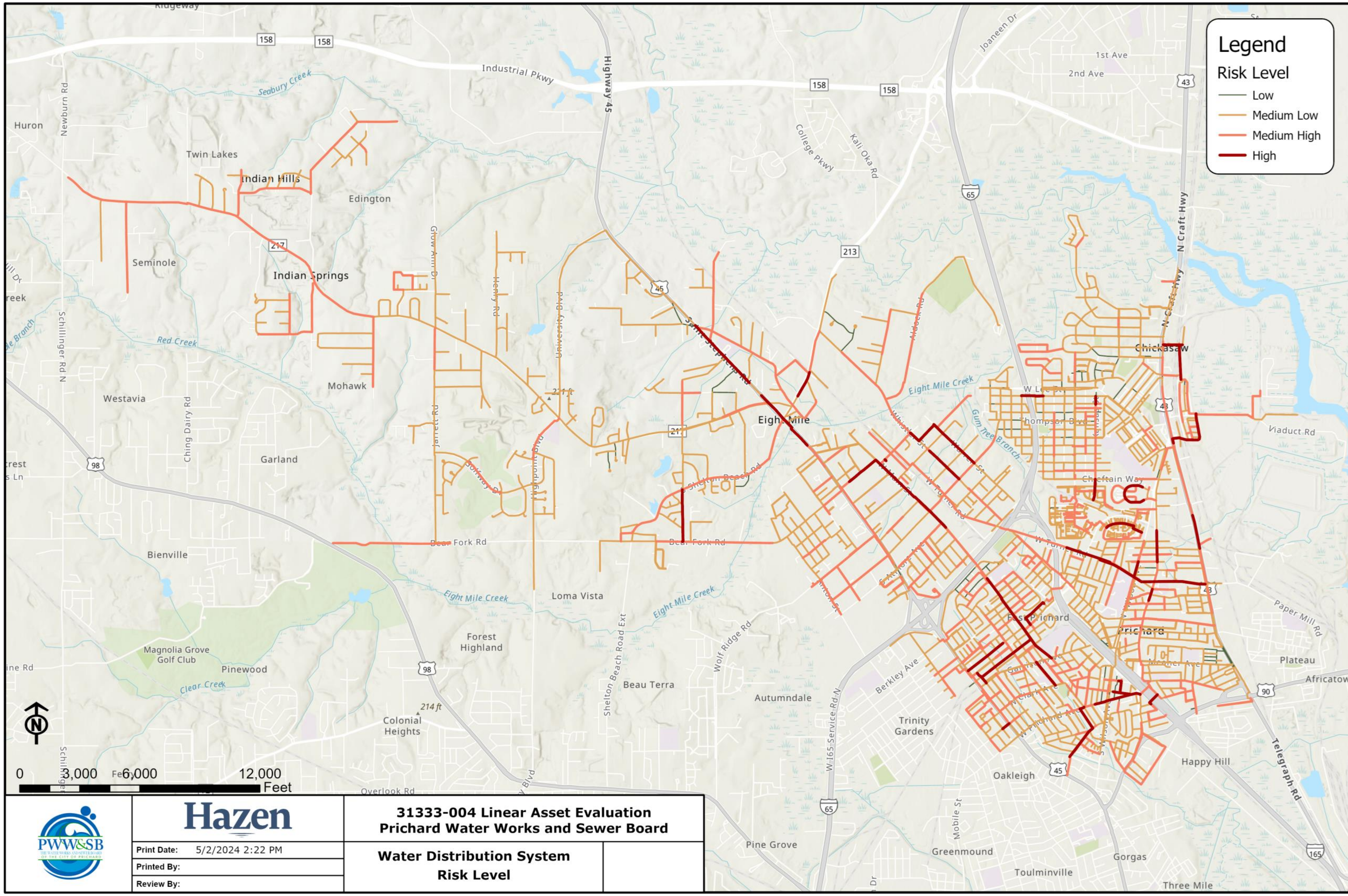



**Figure 3-50. Map of Water Distribution System Risk Level**

#### 3.4.3.2 Sewer Gravity & Force Main Risk Results

**Figure 3-51** summarizes the total length of the sanitary system assets within each risk level. Approximately 41% (58 mi) of the total length of sanitary sewer system (gravity and force mains combined) includes assets with low risk and approximately 5% (6.7 mi) is comprised of assets with high risk. This evaluation allows PWW&SB to prioritize resources and planning efforts to target the high and medium-high risk linear assets. Hazen recommends performing CCTV inspections for all gravity main assets, prioiritizing inspections by risk. The findings from these inspections will validate the risk analysis, adjust risk scores, as needed, and validate areas for future rehabilitation and replacements.

As shown, the sewer force mains have the largest system percentage of high-risk assets, 38%. Additionally, the high-risk force mains make up approximately 54% of the 7 miles of high-risk pipes across the sanitary sewer system. This is because force mains have high criticality due to their potential to significantly impact system conveyance and upstream customers if a failure were to occur. A significant portion of PWW&SB's force mains are nearing the end of their useful life, with 45% of force mains either at or past their EUL. **Section 4.2.2** provides additional recommendations to monitor these high-risk assets through hydraulic modeling and field testing.

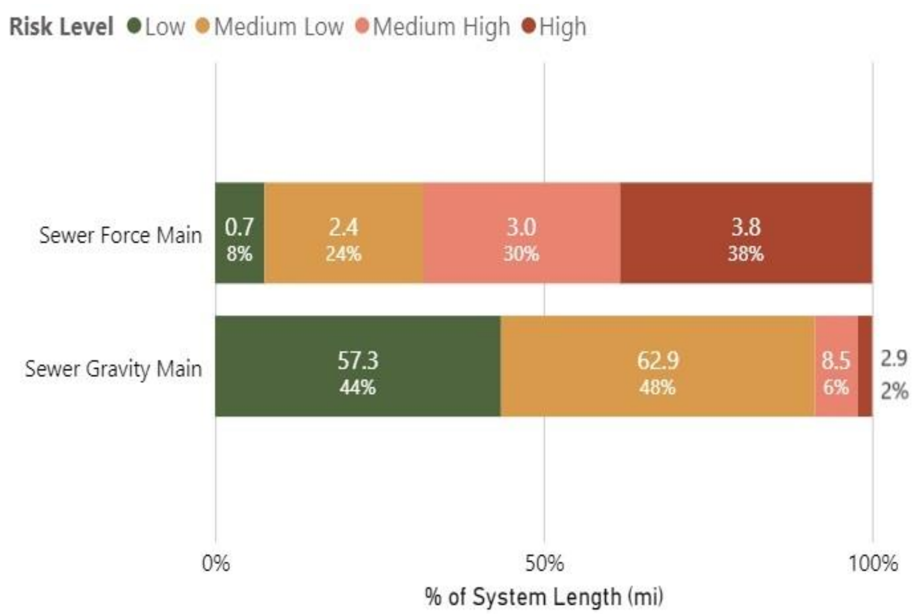



**Figure 3-51. Risk Distribution of Gravity Mains and Force Mains**

The risk matrix presented in **Figure 3-52** shows the percent distribution of sewer gravity and force main assets by length based on PoF and CoF scores. The majority of the sanitary sewer system assets have low to moderate PoF scores and low to moderate CoF scores and are within the Low or Medium-Low risk level. However, approximately 13% of sewer main assets were classified as having medium-high or high risk. Hazen recommends targeting these assets for CCTV inspection to inform future renewal and replacement. Further information regarding sewer gravity main and force main renewal and replacement recommendations and implementation strategies are included in **Section 4.2.2.**

| Risk Score =PoF*CoF | | PoF | | | | | CoF Totals |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | |
| CoF | 1 | 0.2% | 3.0% | 1.2% | 1.0% | 0.1% | **5.5%** |
| | 2 | 3.7% | 31.9% | 21.0% | 15.0% | 2.3% | **73.9%** |
| | 3 | 0.9% | 4.7% | 3.4% | 4.3% | 1.3% | **14.5%** |
| | 4 | 0.1% | 1.0% | 1.5% | 0.9% | 0.4% | **3.9%** |
| | 5 | 0.0% | 0.0% | 0.9% | 1.3% | 0.0% | **2.2%** |
| PoF Totals | | **4.9%** | **40.7%** | **27.9%** | **22.5%** | **4.0%** | **100.0%** |

**Figure 3-52. Sanitary Sewer Risk Matrix by Percentage of Total Linear Feet**

To better understand the locations of the high-risk assets in the sanitary sewer system, two maps of gravity and force main assets by risk level are provided in **Figure 3-53** and **Figure 3-54**.

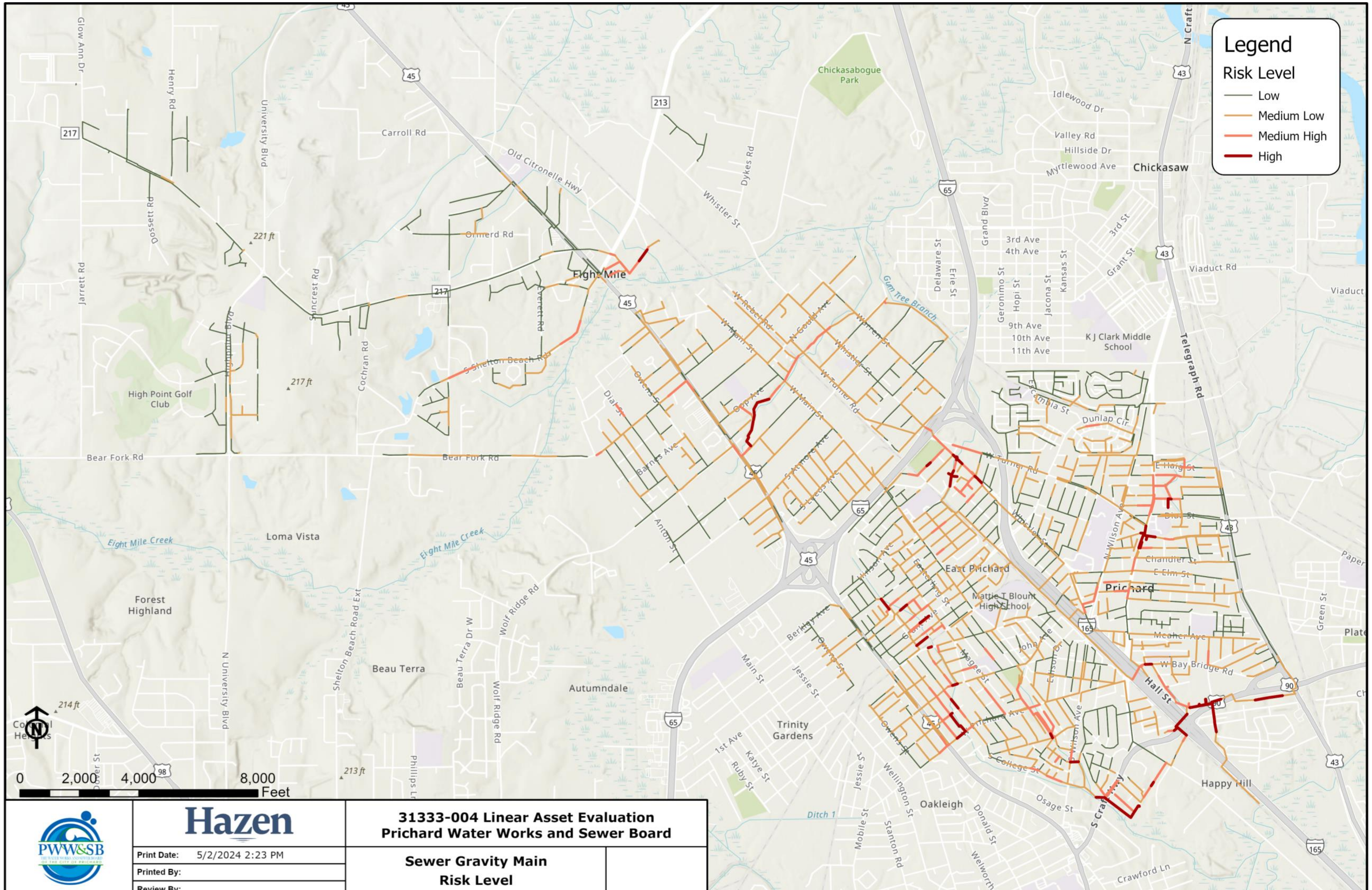



Figure 3-53. Map of Sewer Gravity Mains by Risk Level

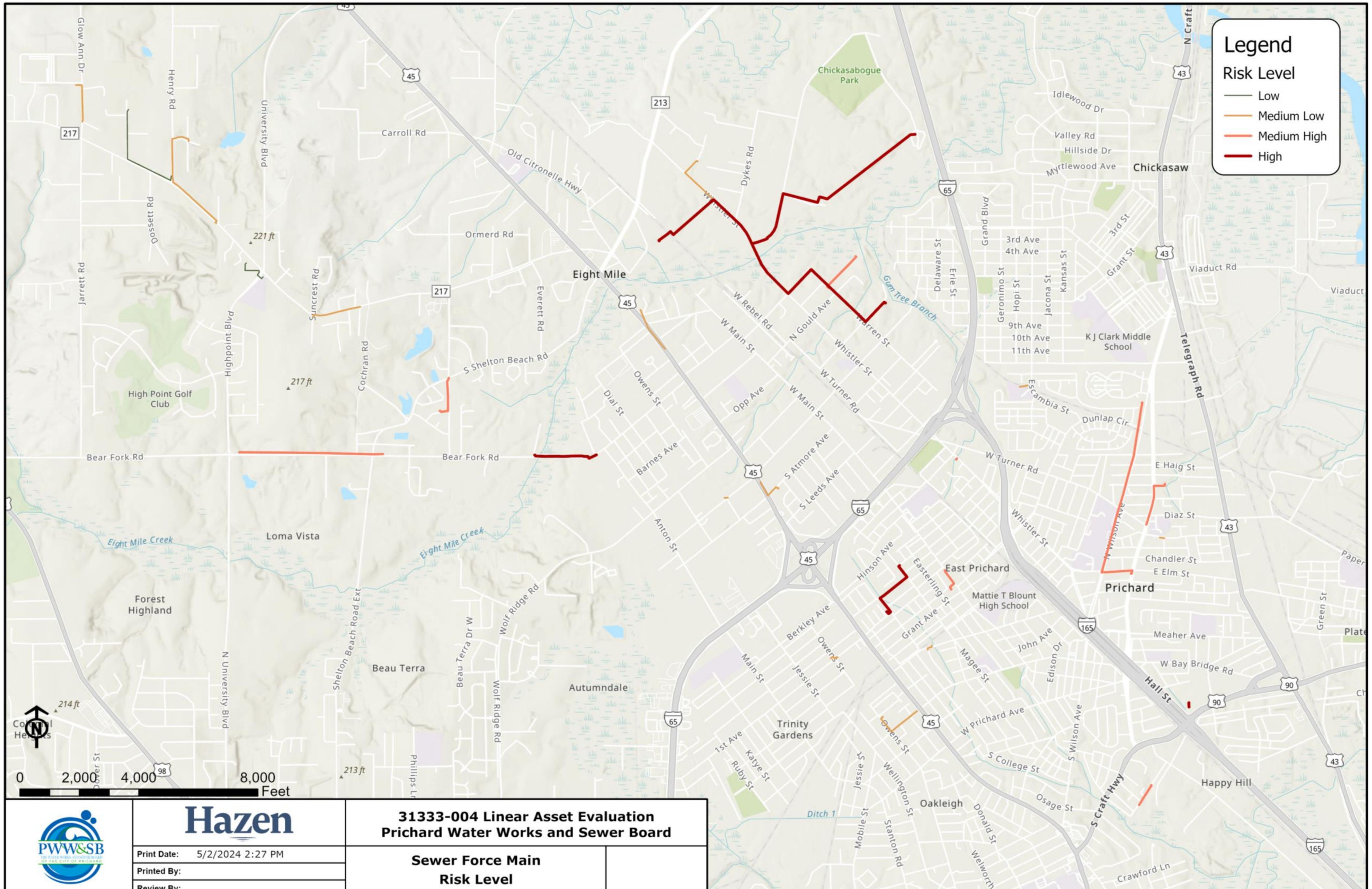



**Figure 3-54. Map of Sewer Force Mains by Risk Level**

### 3.4.4 Asset Renewal and Replacement Recommendations

The following sections detail both the current and projected needs for renewing and replacing both the water distribution system and sanitary sewer system.

#### *3.4.4.1 Replacement Costs*

Replacement cost estimates were developed for each linear asset based on the Association for the Advancement of Cost Engineering (AACE) Class 5 long-term capital planning (accuracy range -50% through +100% of the estimated amount). Construction costs can increase significantly if there are site-specific installation issues such as high groundwater, rock excavation, or for water mains, a high number of valves and fittings. To estimate the replacement costs of each pipeline asset, Hazen compiled recent bid data for water and sewer main replacement in surrounding areas. The estimated replacement costs assumed PVC material for water mains and sewer gravity mains and HDPE for sewer force mains and are graphed by diameter in **Figure 3-55**. The replacement costs also include appurtenances such as valves, fire hydrants, and manholes. Force main and water main replacement costs are nearly identical. However, gravity main replacement costs are much higher than water mains or force mains due to the depth of gravity mains and cost of manhole structures. It should be noted that these replacement costs represent asset-level replacement in-kind and do not account for other asset renewal solutions such as spot repairs, partial replacement, and rehabilitation. These costs consider only construction costs and do not include any engineering cost.

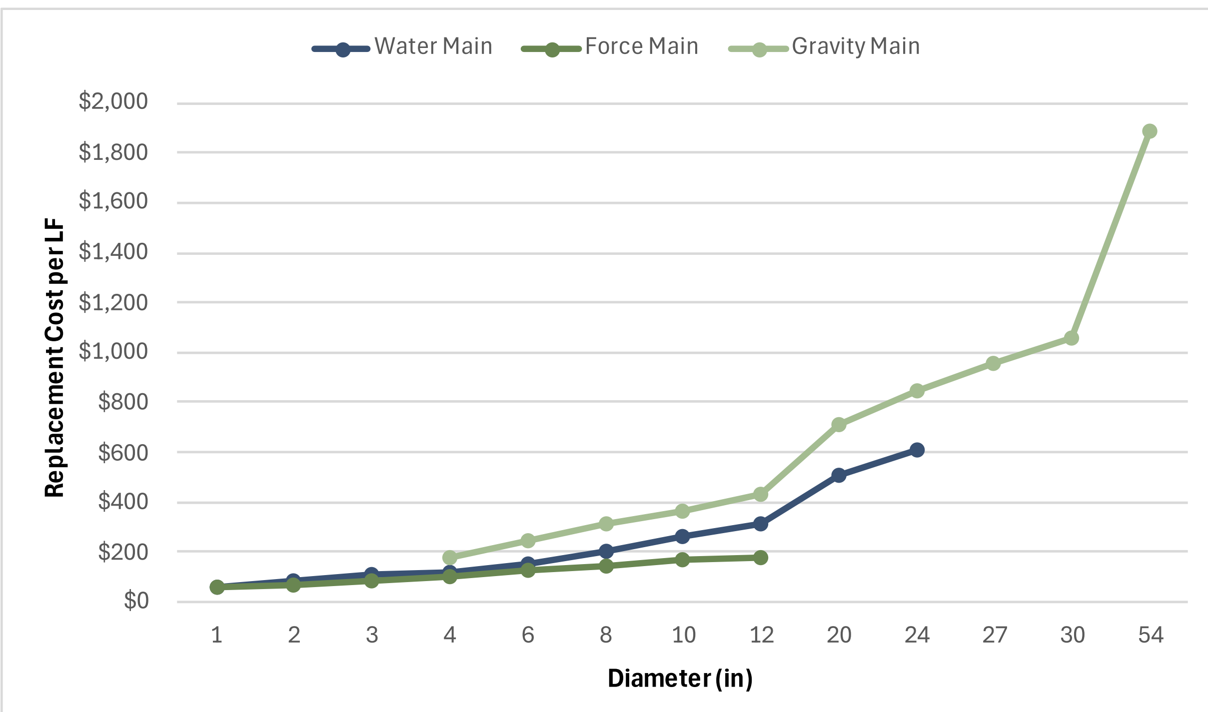



**Figure 3-55. Replacement Cost per Linear Foot (LF) by Diameter and Linear Asset Type**

Apart from material and construction costs, the costs considered in the CIP projections also include escalation factors and inflation. These escalation factors cover engineering costs and other related contingencies, as detailed in **Table 3-33**.

**Table 3-33. Replacement Cost Contingencies**

| Cost Category | Escalation Factor |
| --- | --- |
| Engineering | 15% |
| Contingency | 30% |

The adjusted replacement cost was determined based on the 2024 replacement cost, assuming an inflation rate of 3%, and the proposed replacement year as shown in the formula below.

$$\textbf{Inflated Replacement Cost} = \textbf{RC} * (\mathbf{1} + \textbf{IR})^{(PRY - CY)}$$

**RC = 2024 Replacement Cost ($)**

**IR = Inflation Rate (%)**

**PRY = Proposed Replacement Year**

**CY = Current Year**

#### *3.4.4.2 Water Distribution System*

The subsequent sections provide an overview of the current and planned CIP projects for the water distribution system. Furthermore, these projects are summarized into a projection of 20-year replacement costs to address identified water main replacement needs.

##### 3.4.4.2.1 Ongoing CIP Projects

The PWW&SB is currently in the planning phase for two water distribution projects, summarized in the following sections.

###### 3.4.4.2.1.1 Lovejoy Loop Pipe Replacement

The purpose of this project is to replace a significant portion of 4-inch through 12-inch water mains, prompted by the high frequency of repairs and leaks. Many water mains in this area are over 80 years old and have deteriorated to a state necessitating replacement to ensure uninterrupted service and mitigate ongoing water loss problems. The project will be divided into two construction phases, denoted by Area 1 and Area 2, as shown in **Figure 3-56**.

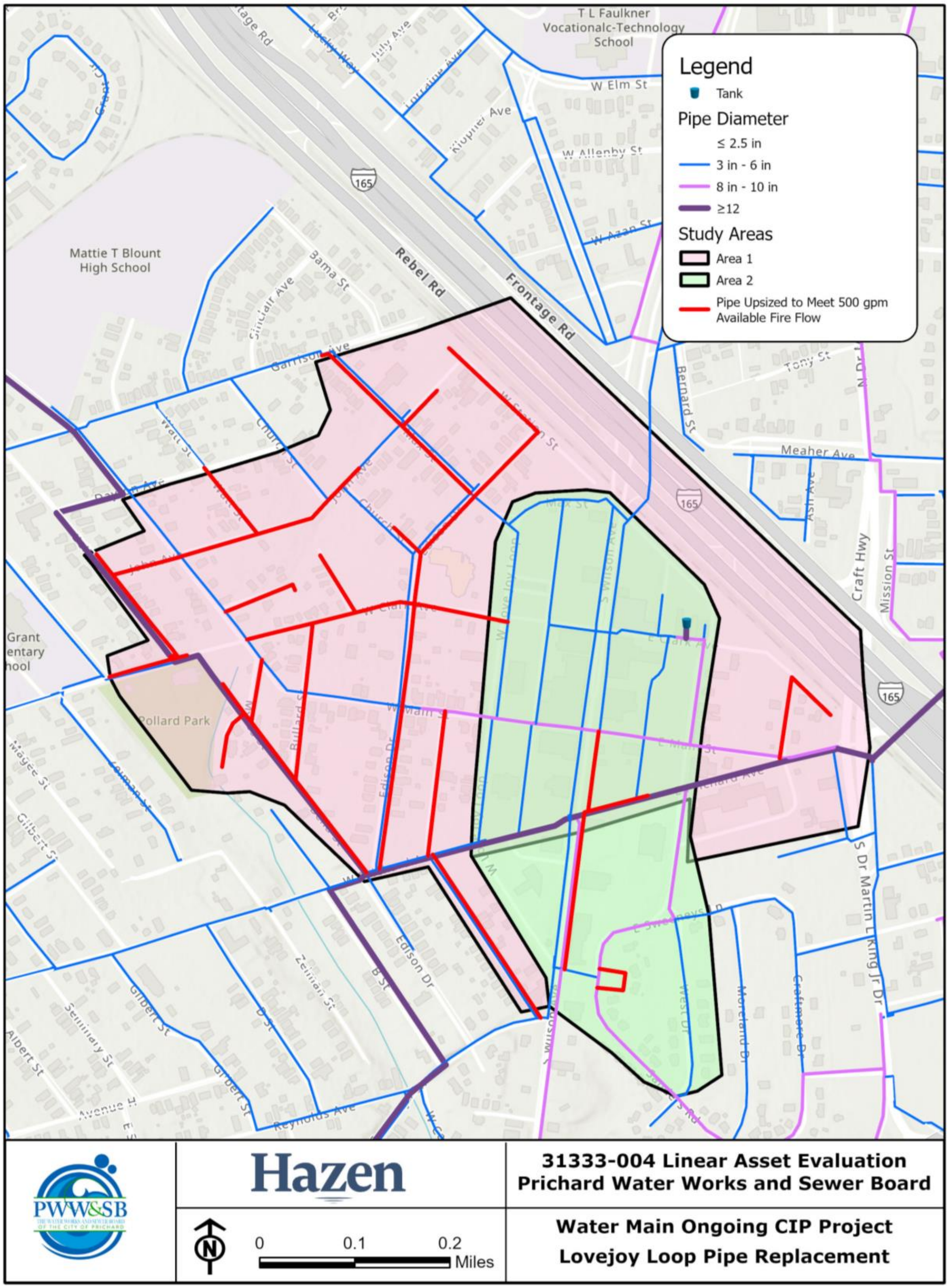



**Figure 3-56. Lovejoy Loop Pipe Replacement Project Map**

#### 3.4.4.2.1.2 Alabama Village System Isolation

PWW&SB has identified the following project to reduce water loss. The ADEM Water System Sanitary Survey Report dated January 25, 2023, stated that “there is high water loss in an area of old military housing where the integrity of the pipes has greatly deteriorated. It is recommended that the high-water loss be addressed.” It has been reported that the water lines in this area are over 80 years old. At one time the area served over four hundred customers but now only serves about forty customers. Waggoner Engineering, Inc. reported in its April 2023 technical memorandum to the PWW&WB, that leaks in this area are costing the utility $75,000 per month in water loss and it is more cost effective to relocate the 40 customers in lieu of replacing the water lines and associated infrastructure in this area. The cost to isolate the water system in this area is estimated to be $62,500 with plugs, valves, and blowoffs. This project would require relocation of current Alabama Village residents. Relocation costs are not reflected in the project cost since relocation costs would be funded by The Prichard Housing Authority and/or the City of Prichard and not the PWW&SB. A project map of the area of proposed isolation is shown in **Figure 3-57**.


**Figure 3-57. Alabama Village System Isolation Project Map**

The total length and costs associated with these two ongoing projects are summarized in **Table 3-34** below.

**Table 3-34. Ongoing Water Main Project Summary**

| Project Phase | Project Start Year | Total Length of Pipe (LF) | Total Project Cost |
|---|---|---|---|
| **Lovejoy Loop Pipe Replacement – Areas 1&2** | 2025 | 49,000 | $9,720,000 |
| **Alabama Village Isolation – Water System** | Project date has not been determined. | N/A | $62,500 |
| | **TOTAL** | **$9,782,500** | |

3.4.4.2.2 Proposed CIP Projects

In projecting the water main replacement needs for the next 20 years, all water main assets rated with a PoF score of 4 or 5, along with any assets identified as "High" risk during the desktop analysis, were grouped into proposed CIP replacement projects. Assets with a PoF score equal to or greater than 4 were assumed to be approaching the end of their useful lives and are slated for replacement within the next 20 years. Additionally, high-risk assets were prioritized for proactive replacement to minimize the likelihood of failure.

The following method was employed to group water main assets identified for replacement into 20-year project recommendations:

- Limit project selections to only include water mains with a PoF of 4 or higher OR water mains in the "High" risk level.
- Group water main assets meeting the above criteria into projects based on their proximity within neighborhoods and/or replacements along the same street.
- Projects were sized to include roughly 10,000 LF of water main replacement. This was done to avoid large replacement projects that would cause more than a 4-month disturbance to residents.

Altogether, Hazen developed 110 proposed water main replacement project packages. The order of rehabilitation and proposed project start year were determined based on the project's average risk score. The average risk score was calculated as the length-weighted average of water main risk scores. Replacement costs were determined based on the assumptions outlined in **Section 3.4.4.1**.

The 110 water main replacement projects recommended over the next 20 years are shown in **Figure 3-58**.

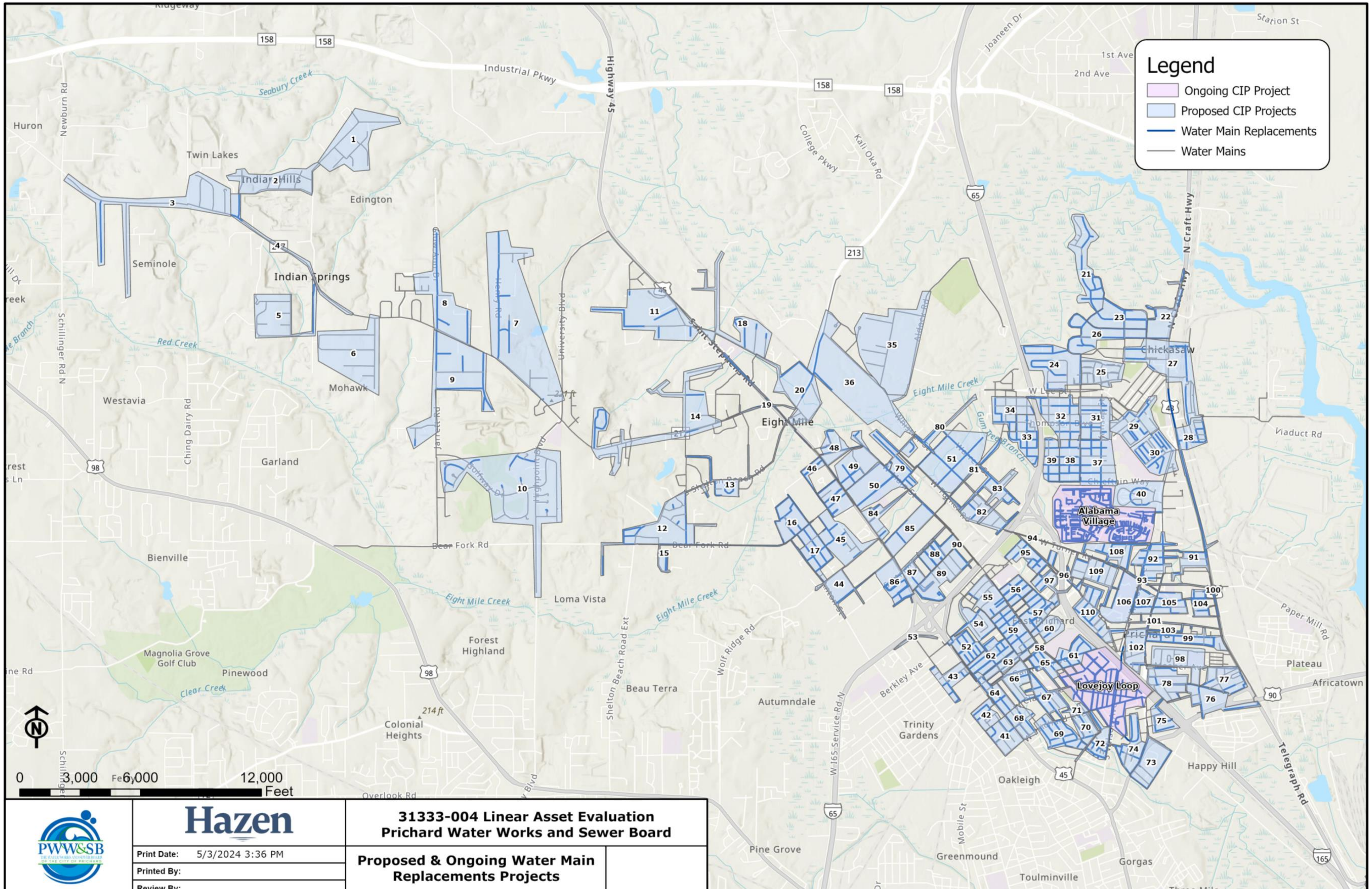



Figure 3-58. Proposed and Ongoing Water Main Replacement Projects

The top ten proposed water main replacement projects are summarized in **Table 3-35** by total length, average risk score, recommended project start year, and total present value replacement cost. The table summarizing all 110 projects, along with the proposed project area maps, is included in **Appendix C: Linear Asset Evaluation**.

**Table 3-35. Summary of 20-year Water Main Recommended Top Ten CIP Projects**

| Project Name | Average Risk Score | Project Start Year | Total Replacement Length (mi) | Replacement Cost Estimate | Replacement Cost Estimate, Inflated |
|---|---|---|---|---|---|
| **PRJ-WM-093** | 17.87 | 2025 | 1.85 | $6,560,000 | $6,760,000 |
| **PRJ-WM-019** | 13.51 | 2025 | 1.84 | $3,820,000 | $3,930,000 |
| **PRJ-WM-081** | 12.84 | 2025 | 1.38 | $2,220,000 | $2,290,000 |
| **PRJ-WM-058** | 12.34 | 2026 | 1.70 | $2,670,000 | $2,830,000 |
| **PRJ-WM-028** | 11.98 | 2026 | 2.03 | $3,620,000 | $3,840,000 |
| **PRJ-WM-080** | 11.96 | 2026 | 1.14 | $3,260,000 | $3,460,000 |
| **PRJ-WM-004** | 11.69 | 2027 | 1.49 | $3,610,000 | $3,940,000 |
| **PRJ-WM-094** | 11.61 | 2027 | 0.50 | $800,000 | $870,000 |
| **PRJ-WM-036** | 11.27 | 2027 | 2.04 | $4,270,000 | $4,670,000 |
| **PRJ-WM-020** | 11.14 | 2027 | 1.80 | $2,110,000 | $2,310,000 |

#### 3.4.4.2.3 20-year Projected Capital Replacement Needs for Water Distribution System

Based on the proposed water main replacement projects, the estimated R&R expenditure over the next 20 years, factoring in inflation, is projected to be approximately $332.8M with an annual projected expenditure of $12M starting in 2024. A summary of the total length and cost of proposed water main replacement is presented in **Table 3-36**. Ongoing projects are not included in these summary values.

**Table 3-36. Water Main 20-year Replacement Projection Summary**

| Total Length of Pipe | Total 2024 Replacement Cost | Total Inflated Replacement Cost |
|---|---|---|
| 188.2 miles (70% of system) | $240.3M | $332.8M |

Approximately 70% of the water main system is recommended for replacement over the next 20 years. Therefore, to meet the projected needs of the water main system, PWW&SB will need to plan and budget for a renewal rate of 3.5% of total water main length per year.

**Figure 3-59** shows the projected R&R funding needs over the next 20 years, which include the inflated project replacement costs of the proposed projects and the two ongoing projects, Lovejoy Loop Pipe Replacement and Alabama Village Isolation. These costs indicate estimated annual replacement needs of the water distribution system and have not been adjusted to meet a specified budget.

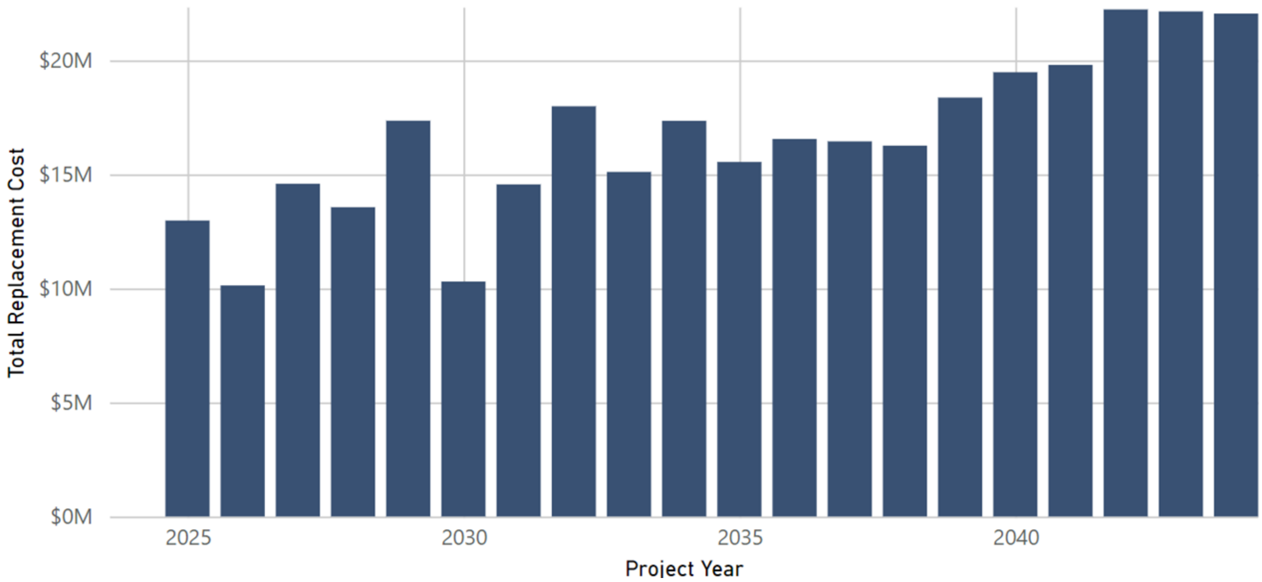



**Figure 3-59. 20-year Water Main R&R Cost Projection**

### *3.4.4.3 Gravity Main Sewer System*

The subsequent sections provide an overview of the current and planned CIP projects for gravity mains. Furthermore, these projects are summarized into a projection of 20-year replacement costs to address identified gravity main replacement needs.

#### 3.4.4.3.1 Ongoing CIP Projects

PWW&SB is currently in the planning phase for a sanitary sewer system project, summarized in Subsection 4.3.5.3.1.1.

##### 3.4.4.3.1.1 Alabama Village System Isolation

In coordination with the Alabama Village System Isolation water distribution project to reduce water loss, PWW&SB has identified the need to also isolate the sewer system in the Alabama Village area. It is estimated that many of the water and sewer lines in this area are past their useful life. At one time the area served over four hundred customers but now only serves approximately forty customers. To isolate the Alabama Village area the two connecting manholes will need to be plugged, which is estimated to cost $10,000. This project would require relocation of the current residents. Relocation costs are not reflected in the project cost and would not be performed or funded by PWW&SB. A project map of the area of proposed isolation is shown in **Figure 3-60**.


**Figure 3-60. Alabama Village Sewer System Isolation Project Map**

3.4.4.3.2 Proposed CIP Projects

To estimate the replacement requirements and associated costs for the gravity main sewer system, all gravity main assets with an RUL less than or equal to 20 years were assumed to be approaching the end of their useful life and considered for replacement. Furthermore, assets classified as “High” risk and with an RUL less than or equal to 20 years should also be considered for proactive replacement to mitigate potential system risk associated with asset failure.

In projecting the cost of sewer gravity main replacements, priority was given to RUL rather than PoF scores of 4 and 5. This choice was made due to the generally shorter estimated useful life of sanitary sewer main assets compared to water main assets. For example, if a force main has an EUL of 40 years and a PoF of 3, its calculated RUL would be 20 years. Despite the anticipated need for replacement within the next 20 years, it would not be included in the recommendations if only assets with a PoF of 4 or 5 were considered.

The following method was employed to group gravity main assets identified for replacement into 20-year project recommendations:

- Limit project selections to only include gravity mains with a RUL of 20 or lower OR gravity mains in the “High” risk level.
- Group gravity main assets meeting the above criteria into projects based on their proximity within neighborhoods and/or replacements along the same street.

- Projects were sized to include roughly 10,000 LF of gravity main replacement. This was done to avoid large replacement projects that would cause more than a 4-month disturbance to residents.

Altogether, Hazen developed 18 proposed gravity main replacement project packages. The order of rehabilitation and proposed project start year were determined based on the projects' average risk scores. The average risk score was calculated as the length-weighted average of gravity main risk scores. Replacement costs were determined based on the assumptions outlined in **Section 3.4.4.1**.

The 18 gravity main replacement projects recommended over the next 20 years are shown in **Figure 3-61**.

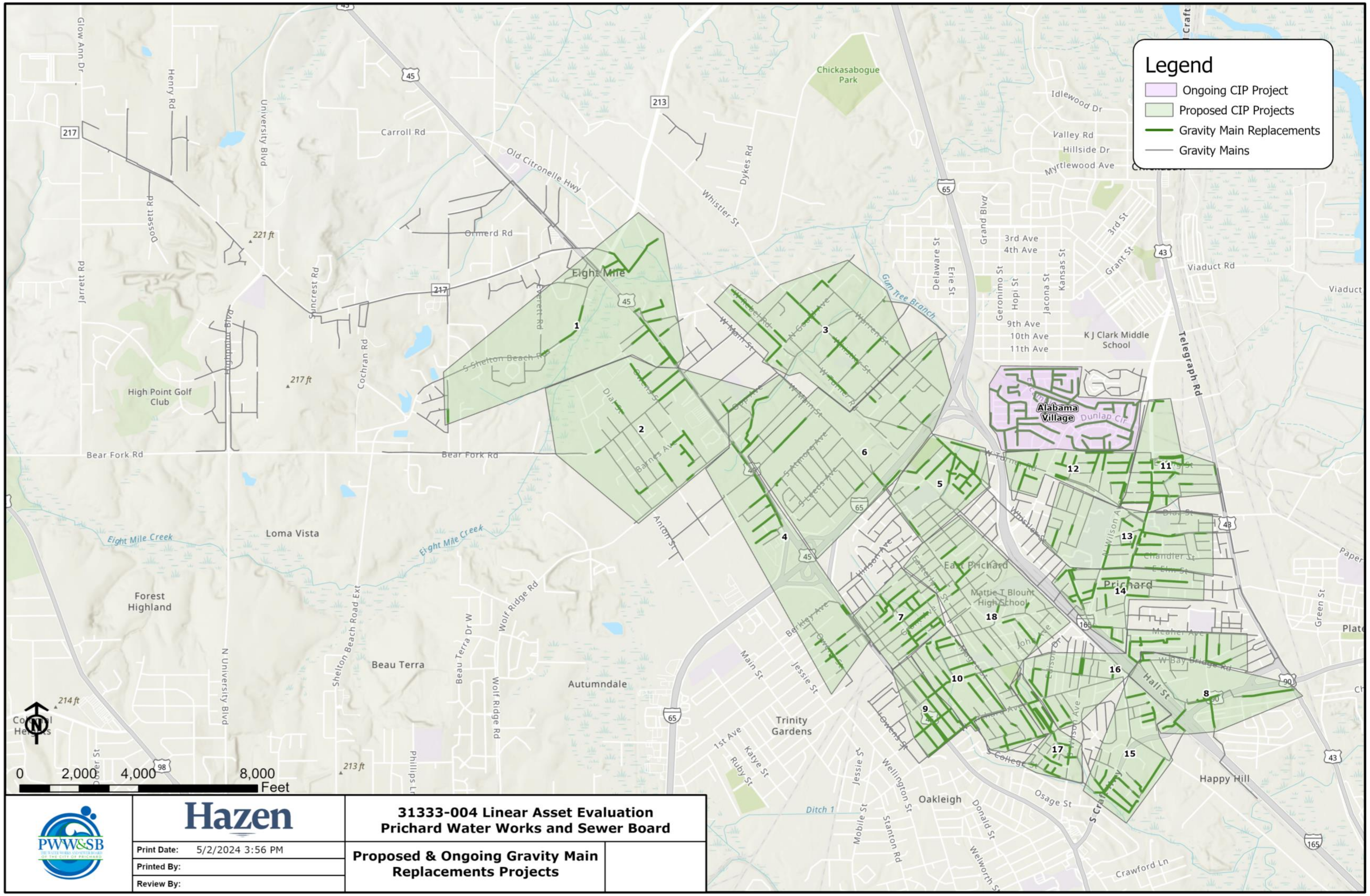



**Figure 3-61. Proposed and Ongoing Gravity Main Replacement Projects**

The top ten proposed gravity main replacement projects are summarized in **Table 3-37** by total length, average risk score, recommended project start year, and total present value replacement cost. The table summarizing all 18 projects, along with the proposed project area maps, is included in **Appendix C: Linear Asset Evaluation**.

**Table 3-37. Top Ten Summary of 20-year Gravity Main Recommended CIP Projects**

| Project Name | Average Risk Score | Project Start Year | Total Replacement Length (mi) | Replacement Cost Estimate | Replacement Cost Estimate, Inflated |
|---|---|---|---|---|---|
| **PRJ-GM-008** | 14.55 | 2026 | 1.20 | $6,510,000 | $6,910,000 |
| **PRJ-GM-017** | 10.44 | 2028 | 1.58 | $4,390,000 | $4,940,000 |
| **PRJ-GM-005** | 10.41 | 2029 | 1.82 | $5,950,000 | $6,900,000 |
| **PRJ-GM-015** | 10.01 | 2030 | 1.62 | $4,980,000 | $5,950,000 |
| **PRJ-GM-007** | 9.71 | 2031 | 1.99 | $4,940,000 | $6,080,000 |
| **PRJ-GM-010** | 9.36 | 2032 | 1.67 | $4,610,000 | $5,840,000 |
| **PRJ-GM-004** | 9.04 | 2033 | 1.90 | $6,260,000 | $8,170,000 |
| **PRJ-GM-001** | 8.91 | 2034 | 1.93 | $5,250,000 | $7,060,000 |
| **PRJ-GM-011** | 8.47 | 2036 | 1.96 | $4,990,000 | $7,110,000 |
| **PRJ-GM-013** | 8.37 | 2037 | 1.84 | $4,860,000 | $7,140,000 |

3.4.4.3.3 20-year Projected Capital Replacement Needs for Gravity Mains

The total estimated R&R expenditure need over the next 20 years, factoring in inflation, is projected to be approximately $124M, with an annual projected expenditure of $4.4M starting in 2024. A summary of the total length and cost of sewer gravity main replacement is presented in **Table 3-38**.

**Table 3-38. Gravity Main 20-year Replacement Projection Summary**

| Total Length of Pipe | Total 2024 Replacement Cost | Total Inflated Replacement Cost |
|---|---|---|
| 37.1 miles<br>(28% of system) | $87.6M | $124.0M |

Approximately 28% of the gravity main sewer system is recommended for replacement over the next 20 years. Therefore, to meet the projected needs of the sewer system PWW&SB will need to plan and budget for a 1.4% renewal rate of gravity main assets per year.

**Figure 3-62** shows the projected R&R funding needs over the next 20 years, which include the inflated project replacement costs of the eighteen proposed projects. These costs indicate the estimated annual replacement needs of the force main system and have not been adjusted to meet a specified budget.

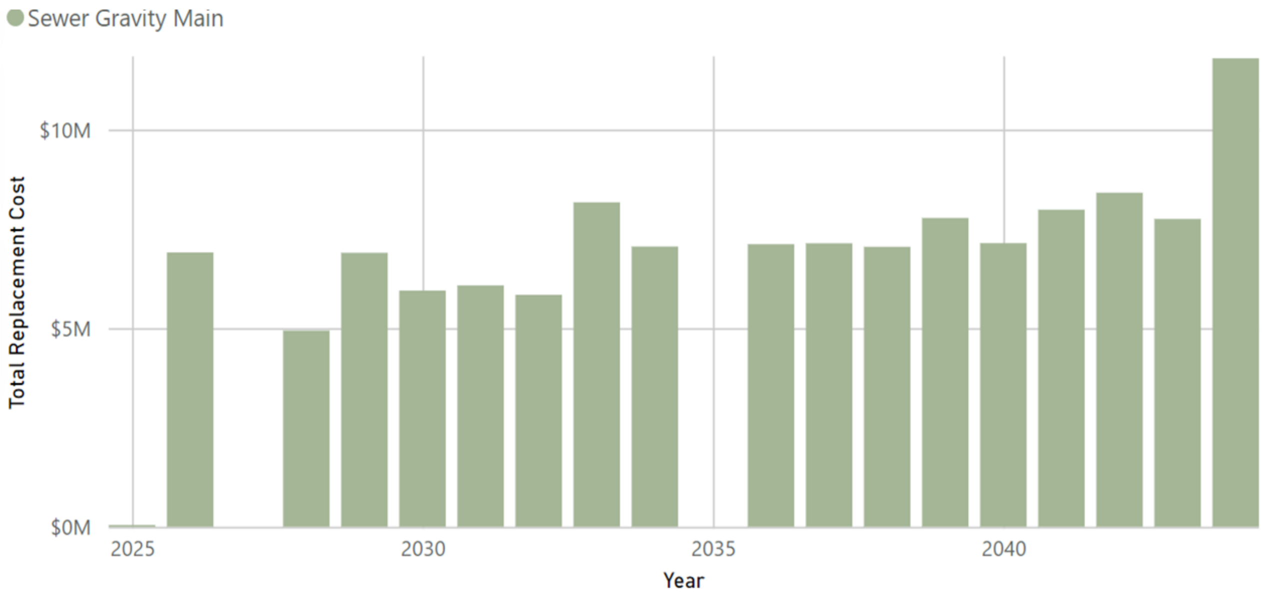



**Figure 3-62. 20-year Sanitary Sewer Gravity Main Projected Capital Needs**

#### *3.4.4.4 Force Main Sewer System*

The subsequent sections provide an overview of the current and planned CIP projects for force mains. Furthermore, these projects are summarized into a projection of 20-year replacement costs to address identified force main replacement needs.

##### 3.4.4.4.1 Proposed CIP Projects

To estimate the replacement requirements and associated costs for the force main sewer system, all force main assets with an RUL less than or equal to 20 years were assumed to be approaching the end of their useful life and considered for replacement. Furthermore, assets classified as “High” risk and with an RUL less than or equal to 20 years should also be considered for proactive replacement to mitigate potential system risk associated with asset failure. In projecting the cost of sewer force main replacements, priority was given to RUL rather than PoF scores of 4 and 5. This choice was made due to the generally shorter estimated useful life of sanitary sewer main assets compared to water main assets. For example, if a force main has an EUL of 40 years and a PoF of 3, its calculated RUL would be 20 years. Despite the anticipated need for replacement within the next 20 years, it would not be included in the recommendations if only assets with a PoF of 4 or 5 were considered.

Altogether, Hazen developed 22 proposed force main replacement projects. Projects were developed for each force main so that force main projects could be aligned with any full lift station replacement projects. The order of rehabilitation and proposed project start year were determined based on the project’s risk score and any full lift station rehabilitation projects. Replacement costs were determined based on the assumptions outlined in **Section 3.4.4.1**.

The 22 force main replacement projects recommended over the next 20 years are shown in **Figure 3-63**.

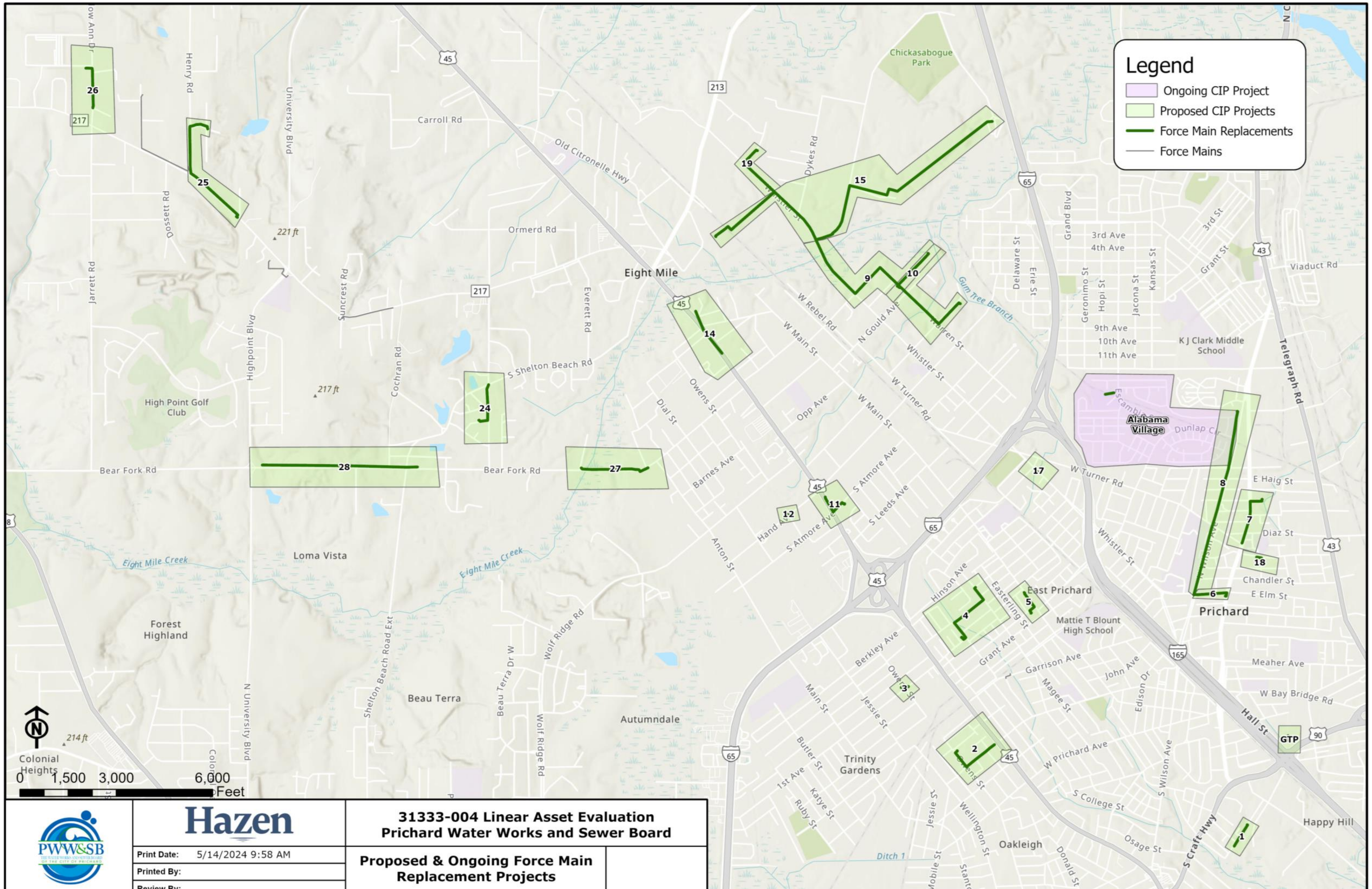



**Figure 3-63. Proposed and Ongoing Force Main Replacement Projects**

The top ten proposed force main replacement projects are summarized in **Table 3-37** by total length, risk score, recommended project start year, and total present value replacement cost. The table summarizing all 22 projects, along with the proposed project area maps, is included in **Appendix C: Linear Asset Evaluation**.

**Table 3-39. Summary of 20-year Force Main Recommended Top Ten CIP Projects**

| Project Name | Risk Score | Project Start Year | Total Replacement Length (mi) | Replacement Cost Estimate | Replacement Cost Estimate, Inflated |
|---|---|---|---|---|---|
| **PRJ-FM-LS27** | 22.00 | 2025 | 0.35 | $830,000 | $850,000 |
| **PRJ-FM-GTP** | 21.00 | 2025 | 0.02 | $70,000 | $70,000 |
| **PRJ-FM-LS04** | 18.00 | 2025 | 0.40 | $660,000 | $680,000 |
| **PRJ-FM-LS09** | 18.00 | 2025 | 1.09 | $2,580,000 | $2,660,000 |
| **PRJ-FM-LS08** | 14.00 | 2027 | 0.96 | $1,590,000 | $1,740,000 |
| **PRJ-FM-LS15*** | 13.26 | 2035 | 1.95 | $4,950,000 | $6,850,000 |
| **PRJ-FM-LS24** | 13.00 | 2027 | 0.23 | $290,000 | $320,000 |
| **PRJ-FM-LS28** | 13.00 | 2027 | 0.79 | $1,300,000 | $1,420,000 |
| **PRJ-FM-LS07** | 12.00 | 2040 | 0.29 | $370,000 | $590,000 |
| **PRJ-FM-LS01*** | 11.00 | 2027 | 0.13 | $210,000 | $230,000 |

*Note: Force main replacement project timing aligns with full lift station replacement recommendation.

#### 3.4.4.4.2 20-year Projected Capital Replacement Needs for Force Mains

The total estimated R&R expenditure needs over the next 20 years, factoring in inflation, is projected to be approximately $19.9M, with an annual projected expenditure of $0.8M starting in 2024. A summary of the total length and cost of sewer force main replacement is presented in **Table 3-40**.

**Table 3-40. Force Main 20-year Replacement Projection Summary**

| Total Length of Pipe | Total 2024 Replacement Cost | Total Inflated Replacement Cost |
|---|---|---|
| 8.8 miles (89% of system) | $15.9M | $19.9M |

Approximately 89% of the force main sewer system is recommended for replacement over the next 20 years. Therefore, to meet the projected needs of the sewer system PWW&SB will need to plan and budget for a 4.5% renewal rate of force main assets per year.

**Figure 3-64** shows the projected R&R funding needs over the next 20 years, which include the inflated project replacement costs of the twenty-two proposed projects. These costs indicate the estimated annual replacement needs of the force main system and have not been adjusted to meet a specified budget.

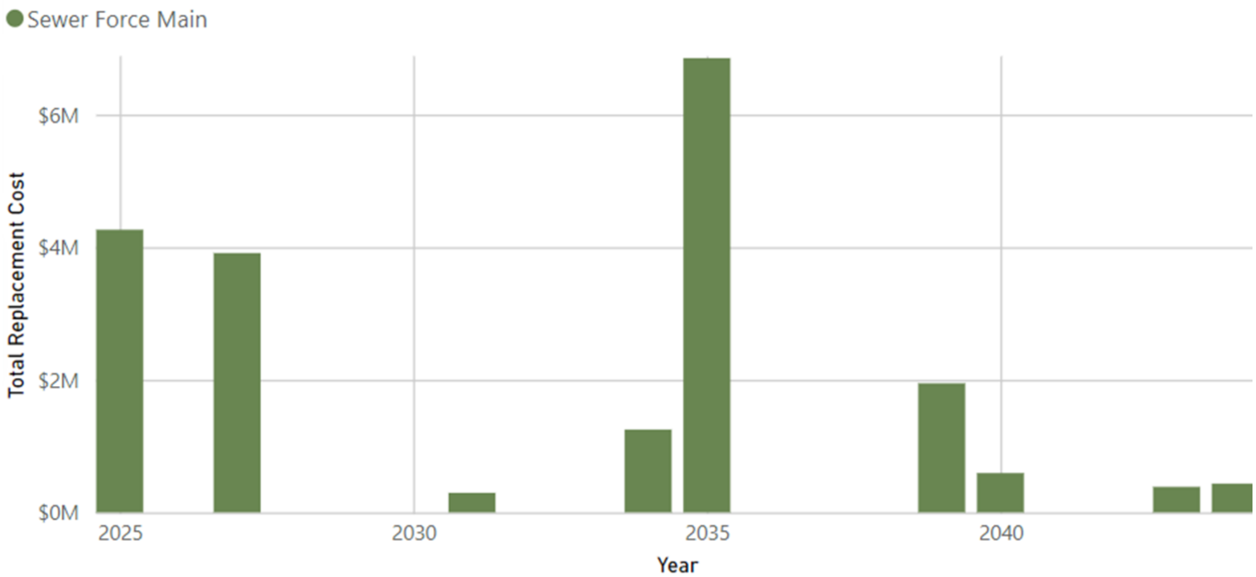



**Figure 3-64. 20-year Sanitary Sewer Force Main R&R Cost Projection**

## 3.5 Comprehensive Asset Renewal & Replacement Needs

Hazen compiled the 20-year projected capital replacement needs recommendations for water storage tanks, lift stations, wastewater treatment plants, water mains, and sanitary sewer mains presented in the previous sections. Replacement timing is determined based on the current asset condition and estimated lifespan; therefore, the capital replacement needs fluctuate year to year.

The costs summarized in **Table 3-41** represent the projected capital needs over the next 20 years for all of PWW&SB's systems, with the exception of any new water source or treatment options. The table provides the present value of 20-year capital needs of replacement and the inflated cost of project capital replacement needs over the next 20 years. The total 20-year capital replacement needs of existing assets in present value is approximately $405M; factoring in inflation, it is projected to be approximately $552M. This equates to approximately $20M annually of capital expenditure that would be inflated over time.

**Table 3-41. Summary of 20-yr Capital Expenditure Needs**

| System | Asset Class | 20-yr Capital Expenditure Needs (Present $) | 20-yr Capital Expenditure Needs (Inflated $) | 20-yr Average Capital Expenditure Needs / Year (Present $) |
|---|---|---|---|---|
| Water Distribution | Water Mains | $249.8M | $342.6M | $12.5M |
| | Water Storage Tanks | $10.0M | $11.1M | $0.5M |
| Sanitary Sewer | Sewer Gravity Mains | $87.6M | $124.0M | $4.4M |
| | Sewer Force Mains | $15.9M | $19.9M | $0.8M |
| | Wastewater Lift Stations | $7.5M | $9.3M | $0.4M |
| Wastewater Treatment | Carlos Morris WWTP | $15.5M | $20.2M | $0.8M |
| | Stanley Brooks WWTP | $18.4M | $24.5M | $0.9M |
| | **TOTALS** | **$404.7M** | **$551.6M** | **$20.3M** |

Additionally, Hazen assumed that replacement costs would escalate by 3% annually due to inflation. **Figure 3-65** visualizes the capital replacement needs by year and the impact of inflation over the 20-year period.

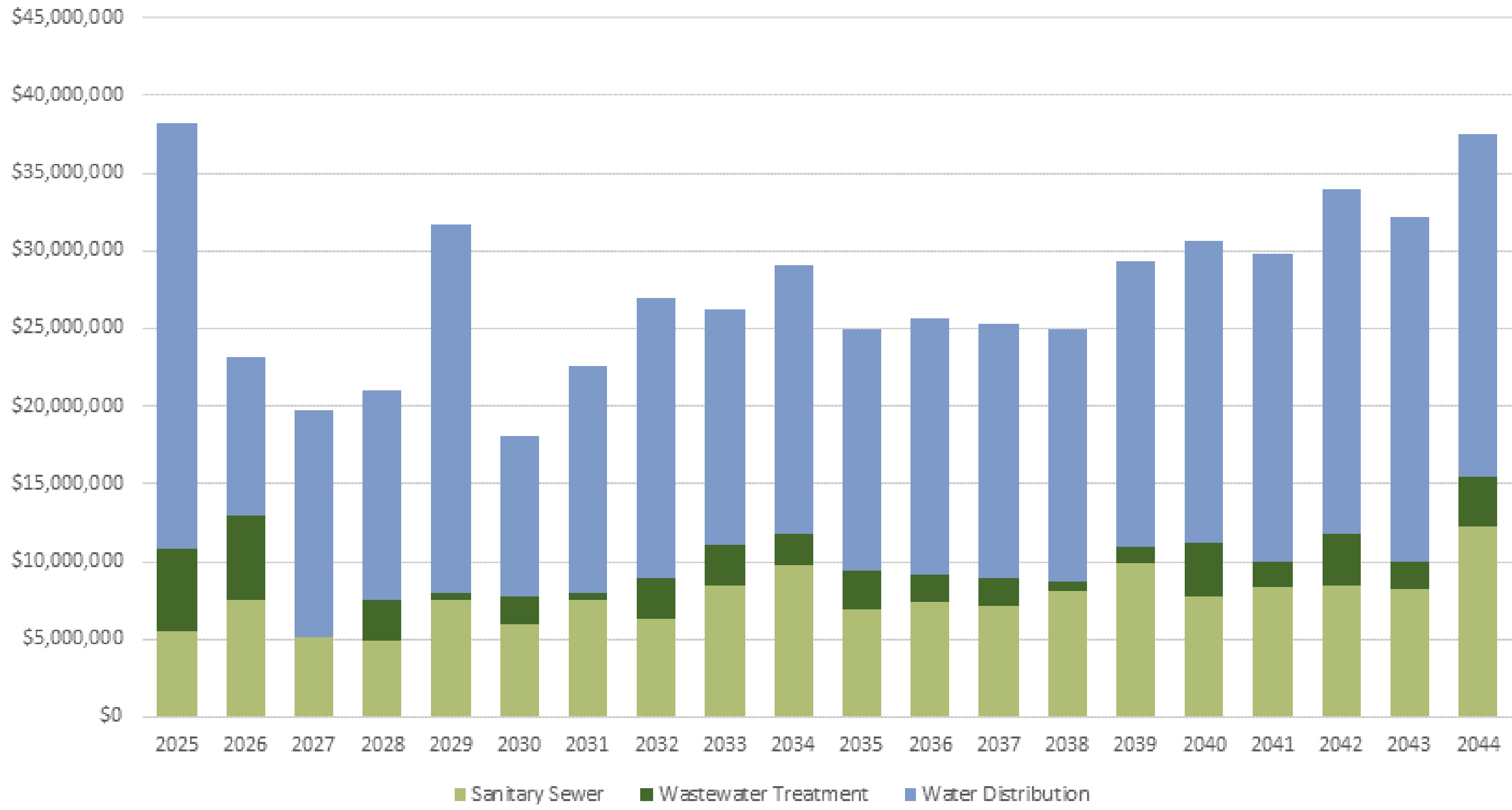



**Figure 3-65. 20-yr Asset Renewal & Replacement Capital Need**

# 4. Recommendations

The infrastructure asset evaluation discussed herein provides a basis for both near-term and long-term actions. In the near term, Hazen recommends several efforts to refine and target costly rehabilitation efforts and improve long-term funding needs. While these efforts are beginning, Hazen recommends PWW&SB proceed with replacement projects for high-risk assets.

Hazen's recommendations for capital replacement needs, O&M and asset renewal strategies, O&M expenditures, and asset management improvements are presented in the following sections.

## 4.1 Water Distribution System

The following section summarizes the recommendations for water distribution capital replacement needs, water main replacement, water storage tanks, and water distribution O&M expenditures.

### 4.1.1 Capital Replacement Needs

Based on the risk assessment of the five water storage tanks and 268 miles of water mains, the capital replacement needs were determined over the next 20 years. The total 20-year capital replacement needs of existing water distribution assets is approximately $260M (present value), or $354M (inclusive of inflation impacts over the 20-year period), as shown in **Table 4-1**. This equates to approximately $13M annually of water distribution capital expenditures that would be inflated over time.

**Table 4-1. Summary of 20-yr Water Distribution Capital Expenditure Needs**

| System | 20-yr Capital Expenditure Needs (Present $) | 20-yr Capital Expenditure Needs (Inflated $) |
|---|---|---|
| **Water Distribution** | $ 259.8M | $ 353.7M |

Water distribution projects were developed as part of the infrastructure asset evaluation. Each proposed project was scheduled over the next 20 years based on the PoF, RUL, and risk of the assets included within each project. The projected capital replacement needs over the next 20 years presented in **Figure 4-1** combines the proposed water distribution project costs and project year.

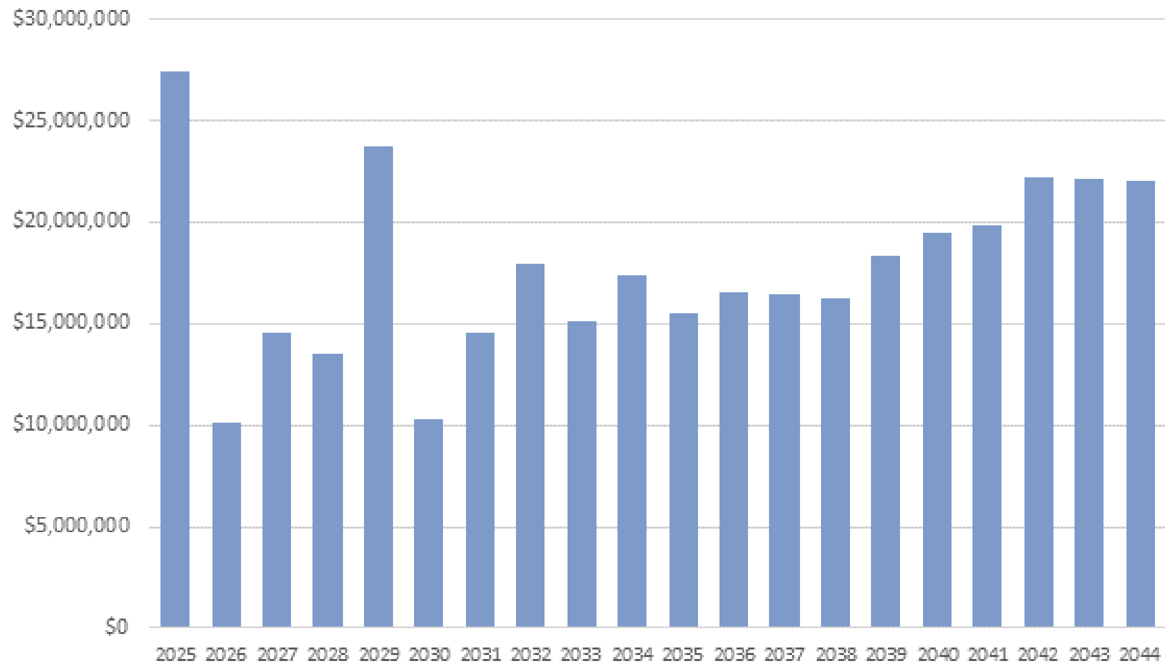



**Figure 4-1. Water Distribution 20-yr Capital Replacement Needs**

### 4.1.2 Water Mains

Hazen recommends that PWW&SB begin planning for the three highest risk proposed CIP projects recommended to begin in 2025. Additionally, Hazen recommends that once the leak detection assessment is complete, PWW&SB review those results and use them to validate or update the risk assessment results presented herein to ensure that pipes with major leaks identified are targeted for replacement. To further support and refine water main replacement recommendations, Hazen suggests updating the water distribution system hydraulic model as better information is obtained. The water model verification process should include:

- Verifying the closed valves assumed with the 2020 model calibration.
- Confirming the small pipe size (less than 4-inch diameter) and connectivity around the areas where the model predicted low-pressure and fire flow.
- Updating the model water demand, specifically non-revenue water (NRW), if any system improvements have been made to reduce the system water loss.

It is important to note that the capital replacement projections assume that all the water mains identified for replacement will be entirely replaced with a new water main. However, some of the water mains identified for replacement could be cleaned, lined, or repaired to improve condition and performance, which would incur significantly lower costs compared to full replacement cost and subsequently reduce the overall projected replacement costs. Determining whether a pipe should be cleaned, lined, repaired, or replaced depends on several factors, including:

- **Joint type:** Lead and leadite joints were commonly used in pipes installed before 1956. Despite cleaning and lining, these joints can continue to leak. For pipes at the end of their useful life, replacement typically proves to be the better option.
- **Available Fire Flow:** For any water mains with a modeled fire flow less than 500 gpm, it is recommended that these water mains are considered for upsizing to improve fire flow. The replacement cost for these water mains was assumed to be one diameter size larger than the current diameter. If a particular pipe segment contributes to localized deficient fire flow (not corresponding to previously identified areas) and has a low roughness coefficient, two solutions are viable: (1) The pipe could be rehabilitated (cleaned and lined), improving the available fire flow by reducing head loss; or (2) Pipe replacement. If rehabilitation does not eliminate deficient fire flows and indicates inadequate pipe diameter, then the pipe should be replaced with a larger diameter pipe. Any water mains with fire hydrants should be upsized to a minimum diameter of 6 inches to ensure sufficient fire flows. Alternatively, fire flows in certain locations can be improved without cleaning, lining, or replacing pipes by installing new connecting pipes to improve looping and taking advantage of nearby existing mains.
- **Site Restrictions:** Replacing pipes in most cases requires digging a trench and installing new laterals (or service lines from each residence). Logistically, with respect to construction, this can be difficult at some locations. Downtown areas with busy streets are typically problematic due to other utilities, pedestrians, and traffic. Cleaning and lining avoid many site constraints; however, temporary service to each residence must be installed above-ground while the pipes are cleaned and lined. Above-ground temporary connections could be a problem at some locations.
- **Cost:** The difference in unit cost between rehabilitation and replacement depends on several variables. However, many utilities have found that on an overall unit cost basis, there is not much difference between pipe replacement and cleaning and lining. On an annual basis, performing spot repair on pipes that leak or break may appear less expensive in the short term. Yet, with aging pipes, the frequency of repairs generally increases, gradually consuming a larger portion of the annual budget. Additional costs associated with pipe breaks include water loss (unbilled water), public safety, and staff exposure to hazardous conditions. Moreover, water quality remains an important factor – while repairing main breaks does not improve water quality, cleaning and lining or replacing a tuberculated pipes can greatly improve water quality.

In addition, there could be cost savings based on specific site conditions for rehabilitating certain pipes as part of another project in a localized area, even if those pipes are not high on the priority list.

#### 4.1.3 Water Storage Tanks

There are currently improvements planned for all five of the existing water storage tanks. Hazen recommends PWW&SB continues with the planned tank improvements summarized below:

- All tanks require near term recoating.
- The Chickasaw Tank and Vigor Tank have altitude valves installed. Lott Road Tank and Anderson Tank do not have altitude valves, but the Lott Road Tank does not need an altitude valve since this tank is fed from the Bear Fork Booster Station owned by MAWSS. The Anderson Road Tank may need an altitude valve depending on the final design of the tank control system.
- Overflow piping is currently discharging underground for all tanks. The tank overflow piping is inside the center riser for the Chickasaw and Vigor Tanks and will be re-routed outside the tank with the planned improvement project. All tanks will be fitted with a check valve and air gap on the overflow piping prior to the piping going underground.
- The Office Tank will be demolished.

In addition, Hazen recommends that PWW&SB continues to perform routine detailed tank inspections after draining on a five-year cycle including inspections on the interior dry, interior wet, and exterior dry surfaces. After inspections, addressing point repairs, coating replacements, and interior cleaning and disinfection should be completed. This will ensure the continuous monitoring of tank condition and will minimize unexpected urgent repairs.

In addition to detailed tank inspections, Hazen recommends that visual condition assessment be performed on a third of all vertical assets at water storage tanks each year. This will account for asset condition updated on a three-year cycle. The results from updated assessments are recommended to be used to refine prioritization of short-term R&R projects and to modify projections for long-term capital replacement needs.

### 4.1.4 O&M Expenditures

The FY2024 budget allocated by PWW&SB for water system repairs stands at $245,000, covering potential repairs to water storage tanks and other components of the water system infrastructure. Furthermore, the total operating expenses for Fiscal Year 2023 for water and sanitary sewer system, including both linear and vertical assets, is $11.8M.

According to the 2022 AWWA Benchmarking Survey[4], the median annual expenditure on water distribution Operations and Maintenance (O&M) activities for combined water and wastewater utilities was approximately $600,000 per 100 miles of pipe. The annual water distribution O&M expenditure for the top 25% of combined utilities included in the 2022 AWWA Benchmarking Survey was approximately $1.1M per 100 miles of pipe. Hazen recommends using the 25th percentile value to apply the level of reactive and preventative maintenance needed to address the severe water loss issues in the water distribution system. Based on the PWW&SB distribution system length of 268 miles, this would equate to a total of $2.9M of water distribution system O&M expenditures. Hazen recommends this significant increase to the current O&M spending for the water distribution system to ensure that the system is proactively maintained. The proposed level of O&M funding should be used to implement a comprehensive water distribution O&M program that should include backflow prevention device testing, routine valve exercising, water main flushing, and storage tank inspections.

[4] Benchmarking | American Water Works Association (awwa.org)

## 4.2 Sanitary Sewer System

The following section summarizes Hazens recommendations for sanitary sewer capital replacement needs, sewer mains, lift stations, and sanitary sewer or collection system O&M expenditures.

### 4.2.1 Capital Replacement Needs

Based on the risk assessment of the 29 lift stations and 142 miles of sewer mains, the capital replacement needs were determined over the next 20 years. The total 20-year capital replacement needs of existing assets is approximately $111M in present value, or $153M if factoring in inflation, as shown in **Table 4-2**. This equates to approximately $6M annually of sanitary sewer capital expenditures that would be inflated over time.

**Table 4-2. Summary of 20-yr Sanitary Sewer Capital Expenditure Needs**

| System | 20-yr Capital Expenditure Needs (Present $) | 20-yr Capital Expenditure Needs (Inflated $) |
|---|---|---|
| **Sanitary Sewer** | $ 111.02 M | $ 153.21 M |

Sanitary sewer projects were developed as part of the infrastructure asset evaluation. Each proposed project was scheduled over the next 20 years based on the PoF, RUL, and risk of the included assets. The projected capital replacement needs for sanitary sewers over the next 20 years is presented in **Figure 4-2**.

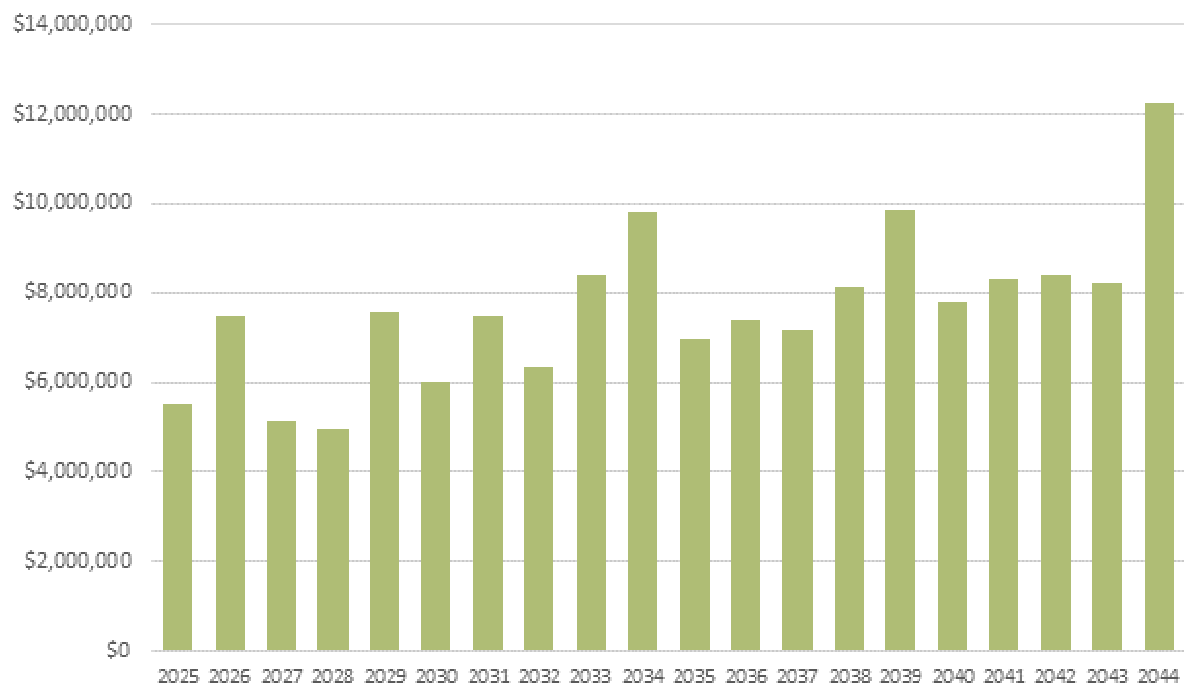



**Figure 4-2. Sanitary Sewer 20-yr Capital Replacement Needs**

### 4.2.2 Sanitary Sewer Pipes

The 20-year capital replacement needs presented above include the costs associated with replacing sewer gravity mains and force mains. This was estimated based on the remaining useful life of the asset and the findings of a desktop risk analysis. While this preemptive approach aims to replace aging assets before they fail, it requires significant initial investment and may result in premature replacements if the actual condition of the asset differs from its estimated useful life. It is crucial to note that a high-risk score does not necessarily imply imminent asset failure. The outcomes of the risk assessment for linear assets should guide the prioritization of high-risk assets.

Therefore, Hazen recommends validating the risk assessment outcomes with more detailed condition assessments. These assessments serve as vital data sources for asset management programs, ensuring that rehabilitation and replacement activities are appropriately scheduled for high-risk assets.

This data-driven approach facilitates informed decisions regarding asset prioritization for replacement based on their actual condition, thereby reducing the risk of premature replacements.  Hazen recommends that PWW&SB conduct condition assessments of a portion of its sanitary sewer system annually, prioritized by risk, to gather cost effective insights. These inspections are anticipated to incur a small percentage of overall replacement cost, while providing crucial data to mitigate risk of catastrophic failures. PWW&SB should evaluate its specific needs, budget constraints, and risk tolerance to choose the suggested approach for sewer asset renewal projects.

#### *4.2.2.1 Gravity Mains*

The following sections summarize programs that Hazen recommends PWW&SB implement to optimize capital investments on gravity mains prolong asset lifespan and reduce I&I in the system.

- Continuous Sewer Assessment Program (CSAP) – Conduct condition assessments of 10 % of collection system to identify Structural and O&M issues. These assessments may include CCTV inspections, smoke testing, dye testing etc. Inspections should inform a find and fix program that addresses urgent needs and a sewer pipe cleaning effort to remove any observed blockages in the system.
- Annual Rehabilitation and Replacement Program – After initial years of condition assessments, assets with significant structural defects can be earmarked for repair, rehabilitation, or replacement.
- Infiltration and Inflow (I&I) Reduction Program – Deploy flow monitors in specific locations within the collection system to identify high I&I areas. Utilize data collected to update the static sewer model and pinpoint areas with capacity issues due to high Rainfall-derived infiltration and inflow (RDII). These areas should be validated through field investigation and targeted for comprehensive rehabilitation to reduce I&I.

#### *4.2.2.2 Force Mains*

Hazen recommends PWW&SB implement the following multi-step condition assessment approach to optimize capital investment and prolong asset lifespan.

- Force Main Hydraulic Analysis – Review historical failures, identify regions prone to pressurized or gravity flow conditions, predict locations along the force mains susceptible to corrosion.
- Perform condition assessment on the entire force main or specific locations using various technologies such as ultrasonic testing, soil sampling and analysis, acoustic testing, coupon testing etc. Since only portions of the force mains are considered at risk for failure due to internal corrosion from air and hydrogen sulfide, assessment can be divided into segments.
- Determine if a portion or the entire force main needs repair, rehabilitation, or replacement based on the results of these condition assessments.

#### 4.2.3 Lift Stations

Hazen recommends that PWW&SB begin planning for the Lift Station Pump Replacement project recommended to begin in 2025. Additionally, Hazen recommends that PWW&SB staff perform regular preventative maintenance at the 29 lift stations to maximize the useful life of pumps in the system. It is recommended that certified pump drawdown performance tests be completed and maintained on existing and new pumps replaced in the system. This pump performance testing will inform the condition of the pumps in the system, as well as provide more accurate sewer network modeling data points for long term system improvement planning.

Hazen recommends that condition assessment be performed on a third of all vertical assets at lift stations each year. This will account for asset condition updated on a three-year cycle. The results from updated assessments are recommended to be used to refine prioritization of short-term R&R projects and to modify projections for long-term capital replacement needs.

#### 4.2.4 Capacity Study

Once the major O&M issues and I&I sources are resolved from short-term efforts, Hazen recommends the following activities be completed to comprise a system-wide capacity study and the development of a calibrated dynamic model:

- Perform System-wide flow monitoring program.
- Conduct field survey for missing or questionable pipe size and inverts.
- Update the static model to dynamic model for system-wide capacity evaluation
- Develop and prioritize comprehensive I/I reduction alternatives per capacity evaluation findings.

#### 4.2.5 O&M Expenditures

As of FY2024, the annual budget allocated by PWW&SB for sanitary sewer system repairs stands at $245,000, covering potential repairs to lift stations and other components of the sanitary sewer system infrastructure.

According to the 2022 AWWA Benchmarking Survey, the median O&M expenditure per 100 miles of pipe for a combined water and wastewater utility was approximately $670,000 on collection system. The top 25% of combined utilities included in the 2022 AWWA Benchmarking Survey was approximately $1.03M per 100 miles of pipe. Hazen recommends using the 25th percentile value to ensure that PWW&SBs sanitary sewer system O&M budget is sufficient to perform typical O&M activities, in addition to the recommended continuous sewer assessment program and force main evaluation detailed in **Sections 3.4.4.3.1** and **3.4.4.3.3**. It is estimated that the annual cost of gravity main CCTV inspections, assuming 10% of the system is inspected each year, would be approximately $250,000. The costs for force main evaluation depend on the extent and technology used for testing, but Hazen assumes if 10% of force mains are evaluated, the cost would be approximately $150,000 annually. Therefore, Hazen recommends an annual O&M budget of $1.5M to properly operate and maintain PWW&SB's 142 miles of collection system.

## 4.3 Wastewater Treatment

The following section summarizes Hazens recommendations for wastewater treatment capital replacement needs, wastewater treatment plants, and wastewater treatment O&M expenditures.

### 4.3.1 Capital Replacement Needs

The total 20-year capital replacement needs of Carlos Morris WWTP and Stanley Brooks WWTP assets is approximately $34M (present value) or $45M (inflated), as shown in **Table 4-3**. This equates to approximately $2M annually of wastewater treatment capital expenditures that would be inflated over time.

**Table 4-3. Summary of 20-yr Wastewater Treatment Capital Expenditure Needs**

| System | 20-yr Capital Expenditure Needs (Present $) | 20-yr Capital Expenditure Needs (Inflated $) |
|---|---|---|
| **Wastewater Treatment** | $ 34.0M | $ 44.7M |

Wastewater treatment projects were developed as part of the infrastructure asset evaluation. Each proposed project was scheduled over the next 20 years based on the PoF, RUL, and risk of the assets included within each project. The projected wastewater treatment capital replacement needs over the next 20 years are presented in **Figure 4-3**.

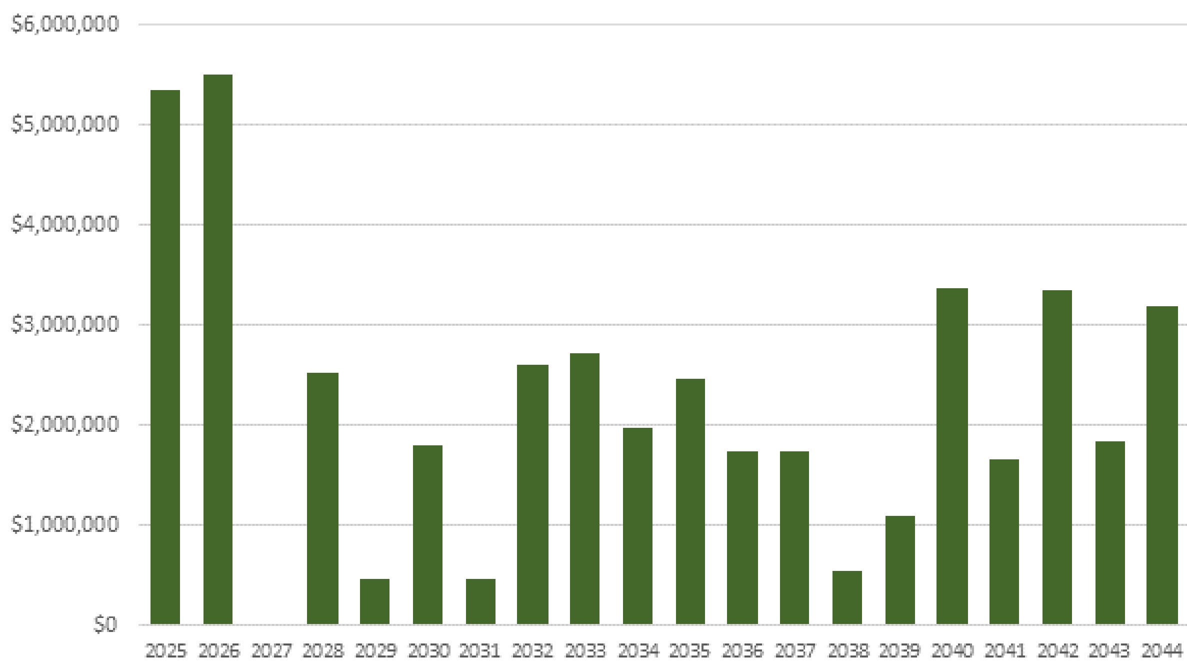



**Figure 4-3. Wastewater Treatment 20-yr Capital Replacement Needs**

### 4.3.2 Wastewater Treatment Plants

Hazen recommends that PWW&SB begin planning for the two high priority wastewater treatment plant projects at Carlos Morris WWTP and four high priority wastewater treatment plant projects at Stanley Brooks WWTP recommended to begin in 2025. Additionally, Hazen recommends that PWW&SB staff perform regular preventive maintenance at the WWTPs based on manufacturers' recommended maintenance schedules.

Hazen recommends that condition assessment be performed on a third of all vertical assets at the wastewater treatment plants each year. This will account for asset condition updated on a three-year cycle. In addition to a condition assessment program, it is recommended that PWW&SB conduct detailed structural assessments of all permanent structures on the plant sites to confirm that full structure demolitions and replacements are not required as part of the R&R needs. The results from updated assessments are recommended to be used to refine prioritization of short-term R&R projects and to modify projections for long-term capital replacement needs.

### 4.3.3 O&M Expenditures

Historical total operating costs for PWW&SB's wastewater treatment plants was not available. According to the 2022 AWWA Benchmarking Survey, the median wastewater treatment O&M expenditure per MG for a combined water and wastewater utility was approximately $1,049 per MG. The top 25% of combined utilities included in the 2022 AWWA Benchmarking Survey was approximately $1,495 per MG. Hazen recommends using the 25$^{th}$ percentile value to ensure that PWW&SB's wastewater treatment plant O&M budget is sufficient to cover expected operational costs for fuel, utilities, chemicals, preventative maintenance programs for the plant assets, as well as corrective maintenance activities for reactive events. Therefore, Hazen recommends an annual O&M budget of $1.5M to properly operate and maintain PWW&SB's 2.8 MG of wastewater flows.

## 4.4 Ongoing Asset Management

PWW&SB currently does not have a central inventory of record for water and wastewater asset information. The use of asset data to support decision-making is currently limited, primarily because it is not readily available for analysis.

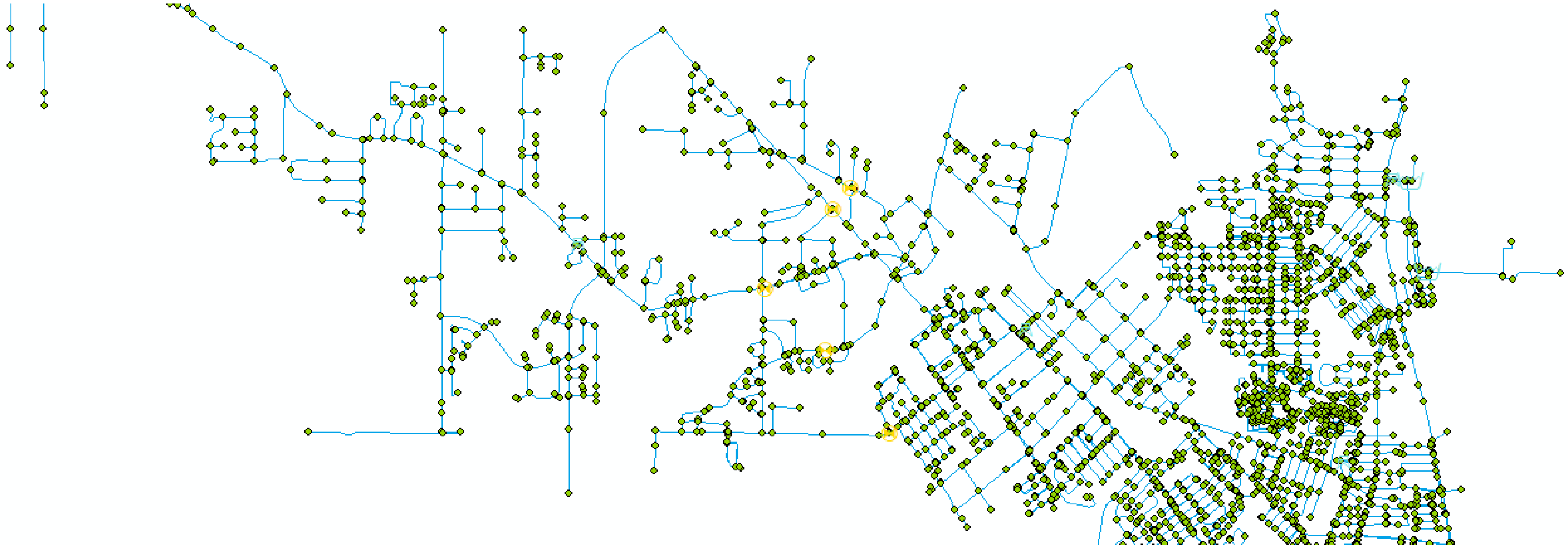
As part of the infrastructure asset evaluation, Hazen developed a preliminary inventory of PWW&SB's portfolio of infrastructure assets. Hazen recommends that PWW&SB evaluate and update this asset inventory to ensure completeness and accuracy. For example, Lift Station 29 – Bearfork and Jerrett Rd and Lift Station 30 – Salem Ave are not in the PWW&SB's GIS lift station inventory. Hazen also recommends that PWW&SB formalize a process for consistent asset inventory updates on a recurring basis. Additionally, PWW&SB does not have a procedure for updating the asset inventory to reflect capital improvement projects that have been completed. As such, a formalized onboarding process for new assets is recommended so all necessary asset attribute information is properly recorded within the central inventory of record and appropriate preventive maintenance activities are scheduled to ensure equipment warranties are not voided. This will be a critical process for PWW&SB to define before the completion of ongoing ADEM projects and the aforementioned proposed replacement projects.

Currently, PWW&SB's data and methods for monitoring asset lifecycle costs are limited, but implementation of a computerized maintenance management system (CMMS) would provide an appropriate enterprise system for tracking costs at the asset level, which is instrumental for future analysis and budgeting. A CMMS would provide a centralized repository for asset inventory information, aid work order management, and streamline field data collection.

# Appendix A: Hydraulic Assessment

## A-1. 2020 Water Model Development Summary

Hazen



# Prichard Water Works & Sewer Board
# Distribution System Model Development & Calibration

July 20, 2020

# Agenda

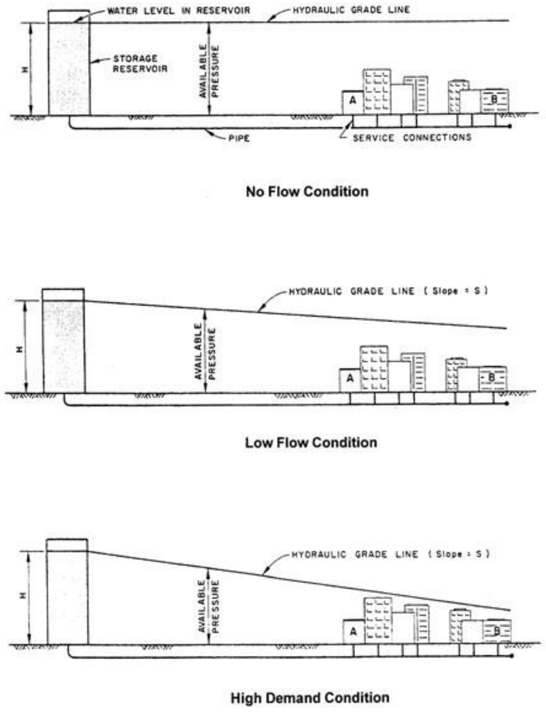
- Model Goals
- Model Development
- Model Calibration
- System Improvement Considerations and Storage Analysis
- Next Steps

# Distribution System Model Goals

- Create a hydraulic representation of actual system
- Simulate existing and future conditions
- Can be used to assists with planning, optimizing and understanding the distribution system
  - **Distribution models are not an exact match of system hydraulics**
  - **Purpose of this model is to assist with new well siting**

# Hydraulic Overview

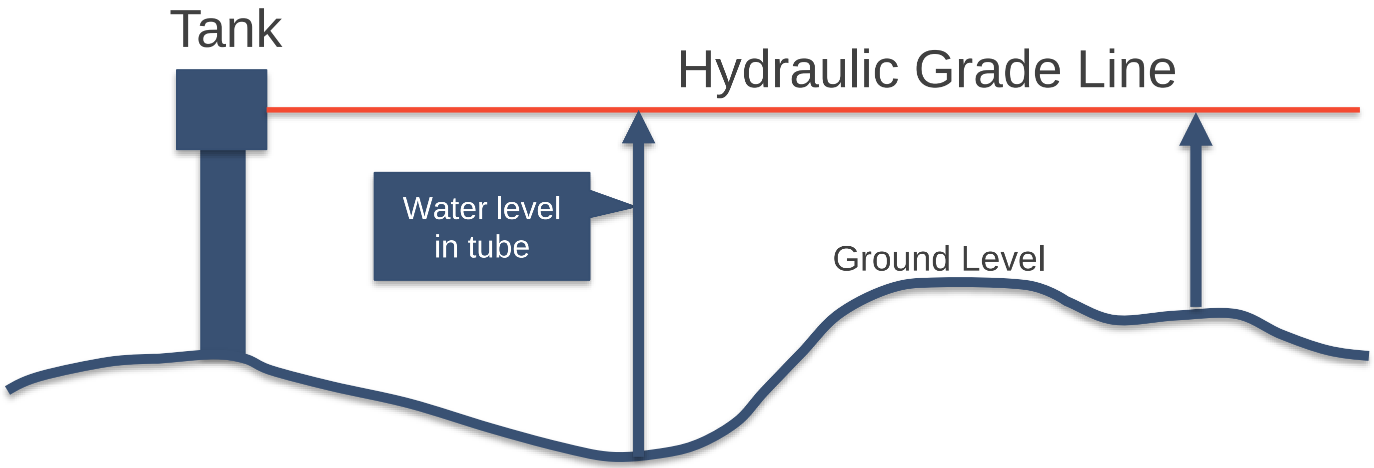
- Water follows the path of least resistance
- As water flows through the system, it loses energy due to friction (head loss)
- Pressure is the difference between a hydraulic grade line (HGL) and the observation point ground elevation
- Water flows from higher to lower head




HYDRAULIC GRADE LINE

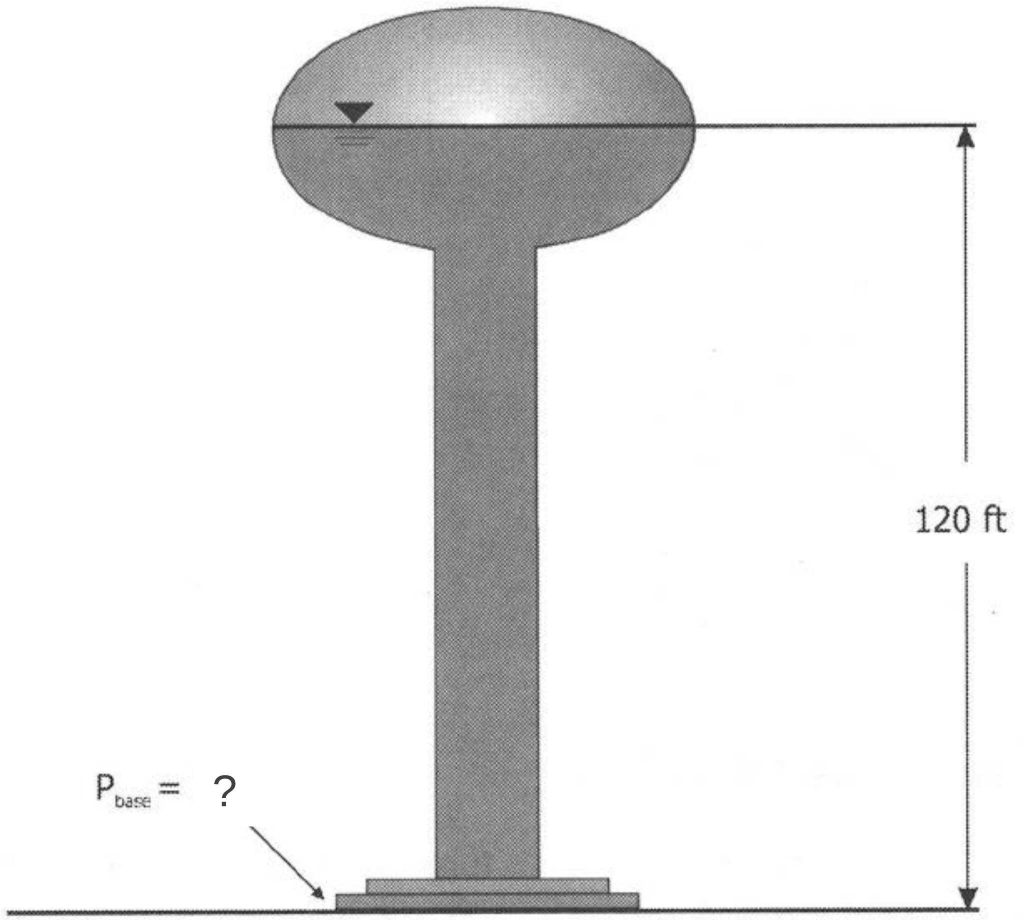
# Hydraulic Grade Line (HGL)

- HGL is the level water would rise to in a small, vertical tube connected to the pipe



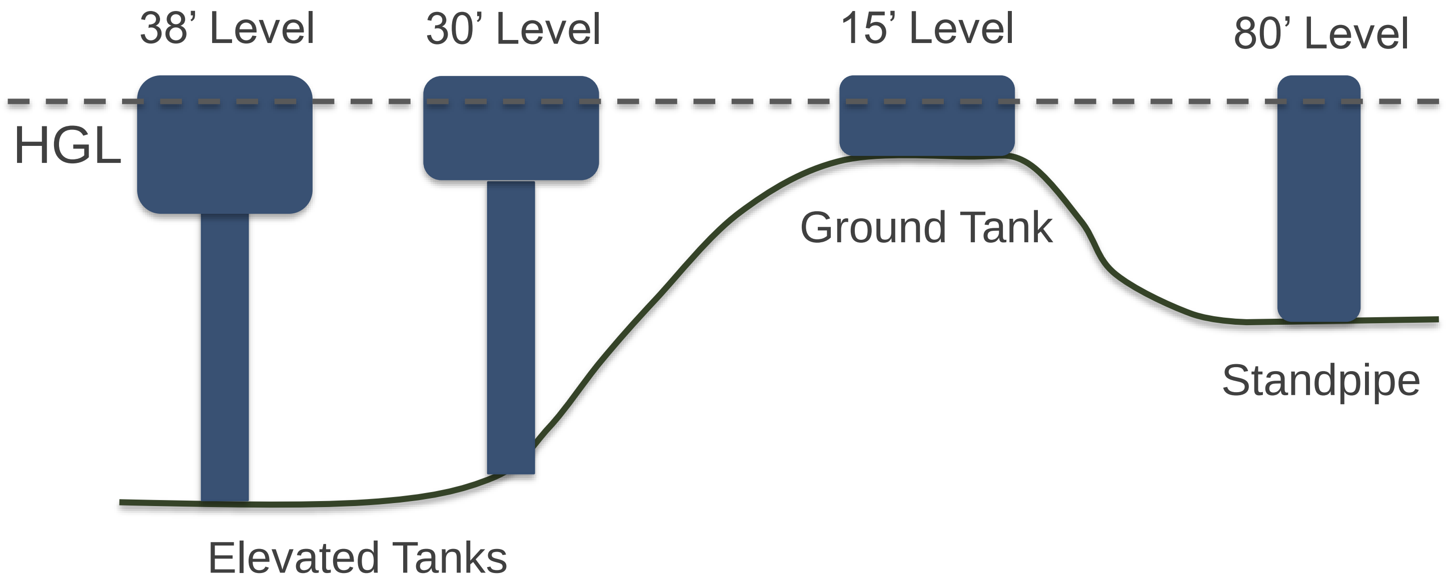
# Example – Pressure Calculation

- 120 ft ÷ 2.31 ft/psi
- $P_{base}$ = 52 psi



# Tanks Level vs Tank HGL

- SCADA tank “level” may not match for each tank in a pressure zone



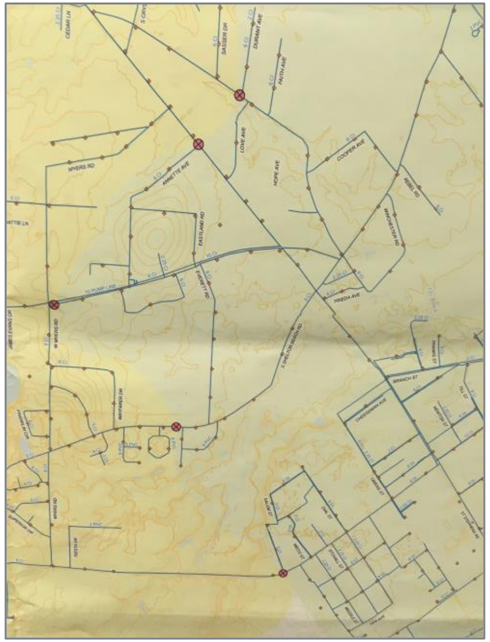
# Model Development

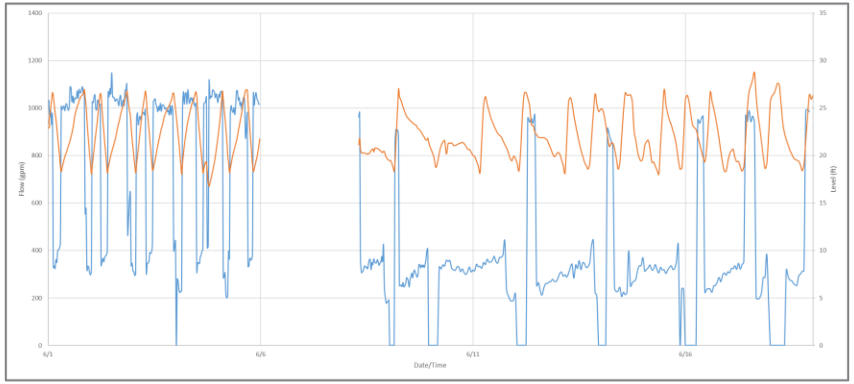
# Model Components

- Junctions – connect pipes and assigned demands
- Tanks – store water
- Reservoirs – supply water
- Pumps – add energy to system
- Valves – control water flow
- Pipes – convey water between nodes

# Model Inputs

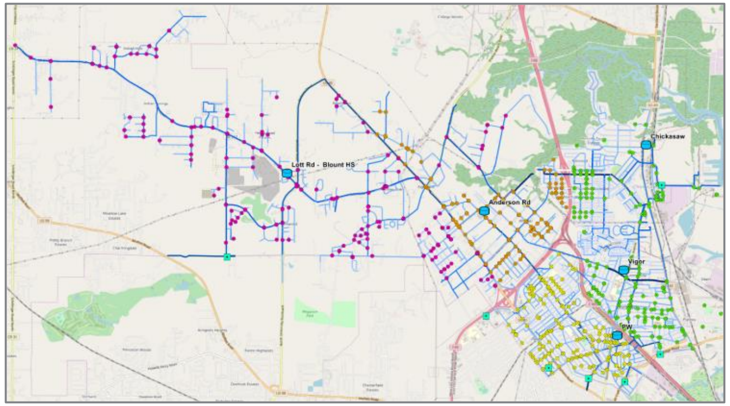
- GIS
- Storage facility design drawings
- Pipe, pump and valve data
- Supply and billing data
- Field pressure and flow data
- SCADA data






| BILLING PERIOD: 01/19/20 – 02/19/20 | | | | | | |
|---|---|---|---|---|---|---|
| SERVICE | PRESENT READING | PREVIOUS READING | GALS USED | WATER | SEWER | AMOUNT |
| Capital Improvement Fees | | | | 67.13 | | 67.13 |
| 000207366300 | 934268000 | 889316000 | 44952000 | 247,635.82 | | 247,635.82 |
| 000207368300 | 128617000 | 121313000 | 7304000 | | | |
| 000207368300 | 47270700 | 46060000 | 1210700 | | | |
| 000207369300 | 86196000 | 84563000 | 1633000 | | | |
| 000207369300 | 27528400 | 26556300 | 972100 | | | |
| 000207370300 | 174714000 | 163835000 | 10879000 | | | |
| 000207371300 | 183924000 | 153170000 | 30754000 | | | |
| 000207372300 | 3770000 | 3765000 | 5000 | | | |
| 000207372300 | 15601500 | 15594500 | 7000 | | | |
| 000207374300 | 193789000 | 185483000 | 8306000 | | | |
| 000207374300 | 26938900 | 26236000 | 702900 | | | |

```
                                                                        BAL FWD       123.00
                                                                        PENALTY         5.86
      WHISTLER, AL                SER#7468367  01 1 5/8 X 3/4  20   3445   3441    4               21.05
       36612-0000                                                                              21.05
   01 RESIDENTIAL                                                                             105.00-
      CURRENT DATE  1/16/2019                                           SALES TAX       1.47
      PRIOR DATE   12/27/2018               GROSS AMOUNT      72.68     AMOUNT DUE     67.43
03 01484 09 COLEMAN, JACQUES INEZ    00440 RV BROWN DR #A
                                                                        BAL FWD       292.74
                                                                        PENALTY        14.03
      WHISTLER, AL                SER#35695325 01 1 5/8 X 3/4  20    189    187    2               21.05
       36612-0000                                                                              21.05
   01 RESIDENTIAL                                                                             105.00-
      CURRENT DATE  1/22/2019                                           SALES TAX       1.47
      PRIOR DATE   12/28/2018               GROSS AMOUNT     250.59     AMOUNT DUE    245.34
04 03420 11 LEATHERWOOD, DARNELL J   00159 10TH AVE
                                                                        BAL FWD        22.52
      159 10TH AVE                SER#35695832 01 1 5/8 X 3/4  10    202    198    4               21.05
      CHICKASAW, AL                                                                           105.00-
       36611-0000                                                       SALES TAX       1.47
   01 RESIDENTIAL                           GROSS AMOUNT      59.96-    AMOUNT DUE     59.96-
      CURRENT DATE  2/01/2019
      PRIOR DATE    1/11/2019
04 07474 06 BURNS, THOMAS MICHAEL    00357 3RD AVE
                                  SER#79090883 01 1 5/8 X 3/4  10   8595   8585   10               21.05
      315 IROQUOIS ST                                                   SALES TAX       1.47
      CHICKASAW, AL                         GROSS AMOUNT      27.77     AMOUNT DUE     22.52
       36611-0000
   01 RESIDENTIAL
      CURRENT DATE  2/04/2019
      PRIOR DATE    1/11/2019
04 07613 05 WHITSETT, DENISE         00163 3RD AVE
                                  SER#80867272 01 1 5/8 X 3/4  10   6938   6908   30               26.31
      435 CRAFTMORE DR                                                  SALES TAX       1.84
      PRICHARD,AL                           GROSS AMOUNT      33.40     AMOUNT DUE     28.15
       36610-0000
   01 RESIDENTIAL
      CURRENT DATE  2/04/2019
      PRIOR DATE    1/11/2019
04 08924 14 ALBRECHT, STEPHEN C      00004 EDINBOROUGH AV
                                  SER#7941863  01 1 5/8 X 3/4  10   3004   3002    2               21.05
      5505 RIVER LANDING DR                                                                   105.00-
      MOBILE, AL                                                        SALES TAX       1.47
       36619-0000                           GROSS AMOUNT      82.48-    AMOUNT DUE     82.48-
   01 RESIDENTIAL
      CURRENT DATE  2/01/2019
      PRIOR DATE    1/11/2019
04 09002 07 ROAN, ANDREW SCOTT       00701 GRAND BLVD
                                                                        BAL FWD        50.29
      105 NORTH RIDGE DRIVE       SER#76489512 01 1 5/8 X 3/4  10   7101   7101    0                 .00
      MADISON, MS                                                                             105.00-
       39110-0000                           GROSS AMOUNT      54.71-    AMOUNT DUE     54.71-
```



| NO. | NAME | * TYPE | CAPACITY | DIA | TOP EL. | BOTTOM EL. | B.M. |
|---|---|---|---|---|---|---|---|
| 1 | LOTT RD. TANK | 1 | 0.25MG | 40' | 349.26 | 316.88 | 217.52- TOP HIGHEST FLANGE BOLT OF F.H. ACROSS LOTT RD. FROM WATER TANK PAINTED RED @ S.E. INT. WITH JAMETT CIR. N. |
| 2 | ANDERSON AVE. TANK | 1 | 1.0MG | 78' | 209.50 | 156.10 | 43.48- TOP FLANGE BOLT (ROAD SIDE) OF F.H. ON ANDERSON RD. @ N.W. CORNER OF FENCE AROUND WATER TANK 250'+/- N.E. ALONG ANDERSON FROM MAIN ST. |
| 3 | CHICKASAW TANK | 1 | 1.0MG | 75' | 175.12 | 129.05 | 32.42- DISK IN CONC. BASE OF EAST LEG OF OLD WATER TANK (REMOVED) |
| 4 | VIGOR TANK | 1 | 1.0MG | 71.5' | 173.29 | 130.34 | 30.42- DISK IN CONC. BASE OF EAST LEG OF OLD WATER TANK (REMOVED) |
| 5 | STANDPIPE TANK | 2 | 0.5MG | 26' | 175.76 | 31.35 | 31.31- USCG # Q406 DISK IN CONC. SLAB NORTH OF WATER STORAGE TANK AT PWW & SB MAIN OFFICE (E. CLARK AVE.) |

* 1. ELEVATED TANK
2. STANDPIPE

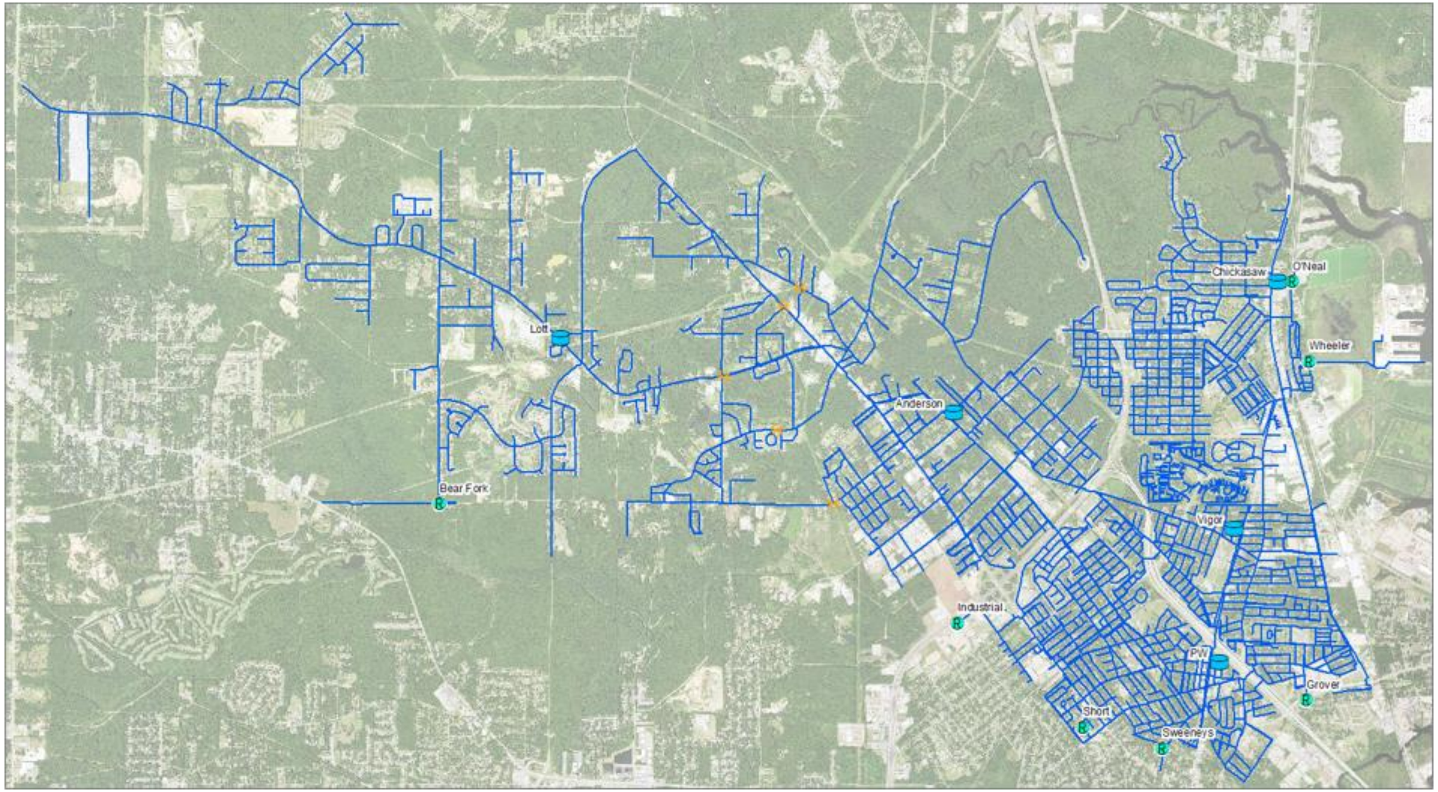
# Model Development

- Imported latest GIS to create model pipe network (diameter, length, material)
- Improved model connectivity and corrected import errors
- Added storage tanks and meter supply connections
- Assigned node elevations using DEM
- Allocated demands from billing data
- Set tank and reservoir levels according to field measurements
- Added boundary valves according to system map
- Developed diurnal demand curve and assigned curve to billing demands
- Allocated non-revenue water

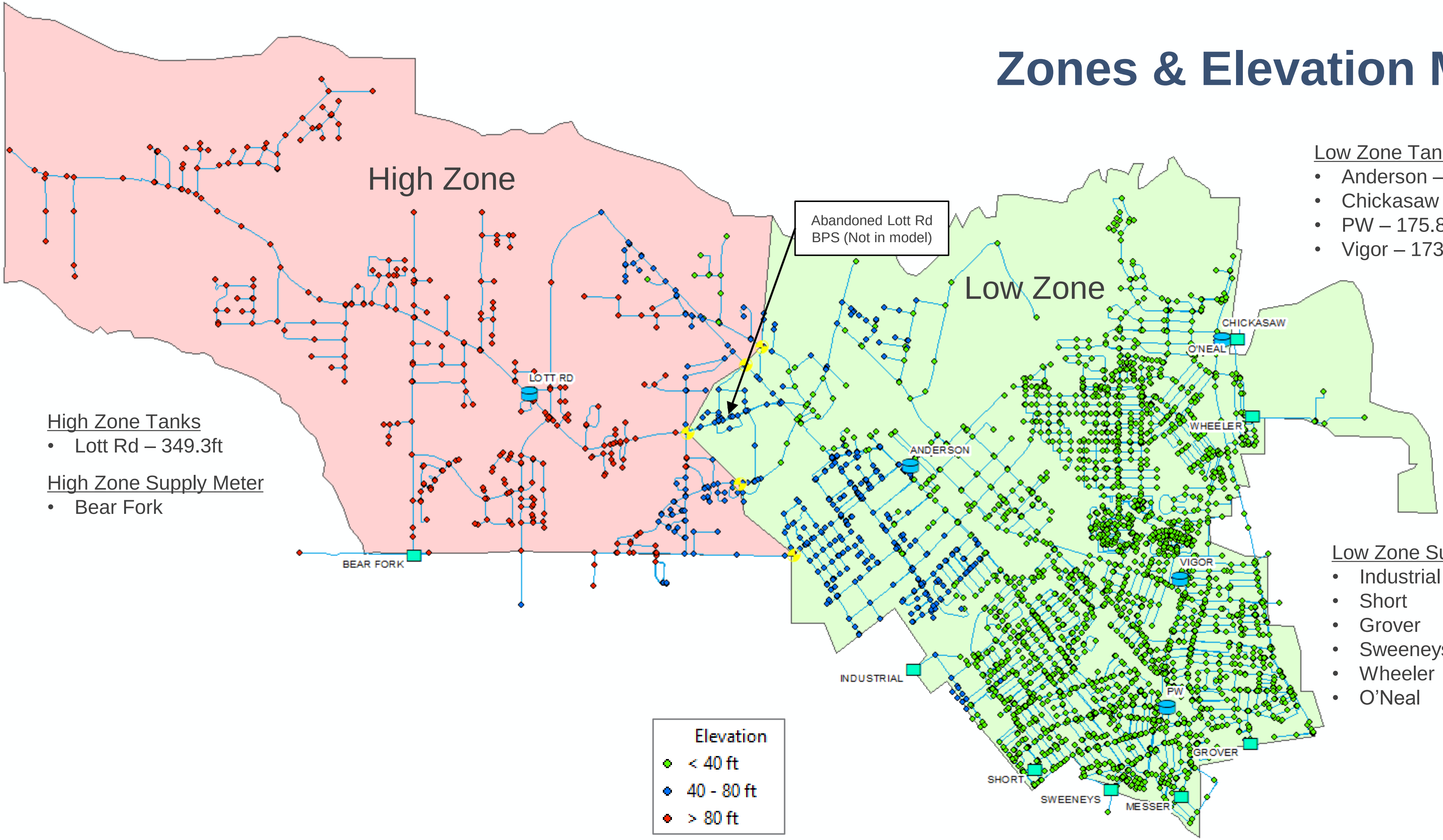
# Model Overview

Model Built from GIS:

- 4786 pipes, 266 miles
- 5 storage tanks
- 8 master meter connections



# Zones & Elevation Map




Low Zone Tanks
- Anderson – 209.5ft
- Chickasaw – 175.1ft
- PW – 175.8ft
- Vigor – 173.3ft

High Zone Tanks
- Lott Rd – 349.3ft

High Zone Supply Meter
- Bear Fork

Low Zone Supply Meters
- Industrial
- Short
- Grover
- Sweeneys
- Wheeler
- O'Neal

# Demand Allocation and Non-Revenue Water (NRW)

- Compared Prichard Monthly Meter Readings to MAWSS Billed Usage
  - **Calculated System-wide demand based on billing data = 1.64 MGD**
  - **Calculated system-wide flow based on MAWSS AMR/Billing Records=3.2 MGD**
- Average Annual Calculated Water Loss - 56%

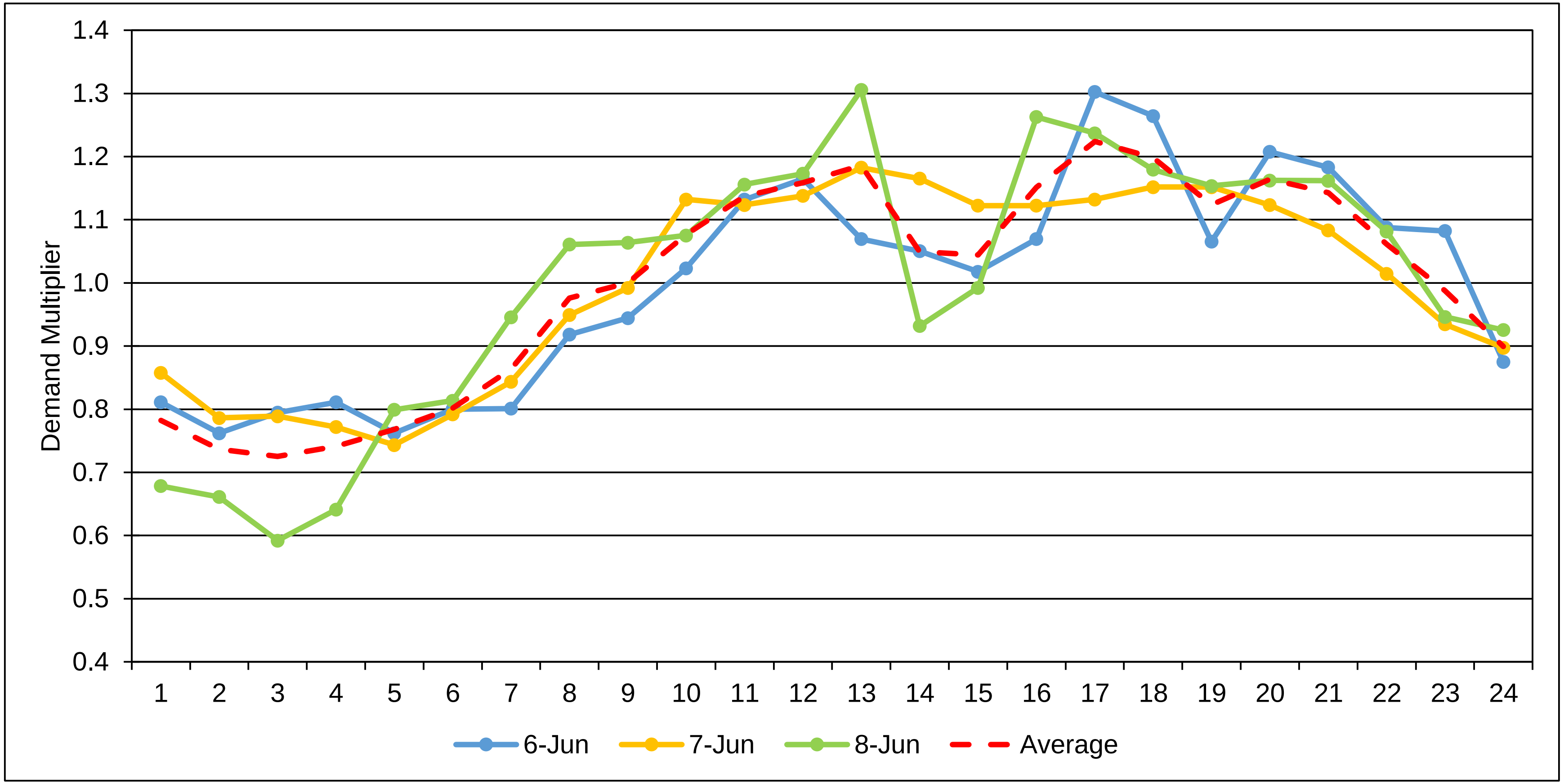
# Demand Allocation and Non-Revenue Water (NRW)

- Average Day Flow – 3.0 MGD
- Maximum Day Flow – 3.6 MGD
- Allocated Demand – 1.7 MGD
- NRW split between High HGL and Low HGL zones (based on observed data once boundary valves was closed)

| Zone | Average Billing Demand (gpd) | Calibration Period System Flow (gpd) | Calibration Period Calculated NRW (gpd) | Calibration Period Percent NRW |
|---|---|---|---|---|
| High | 336,000 | 452,500 | 116,500 | 26% |
| Low | 1,371,800 | 2,855,800 | 1,484,000 | 52% |
| **Total** | **1,707,800** | **3,308,300** | **1,600,500** | **48%** |

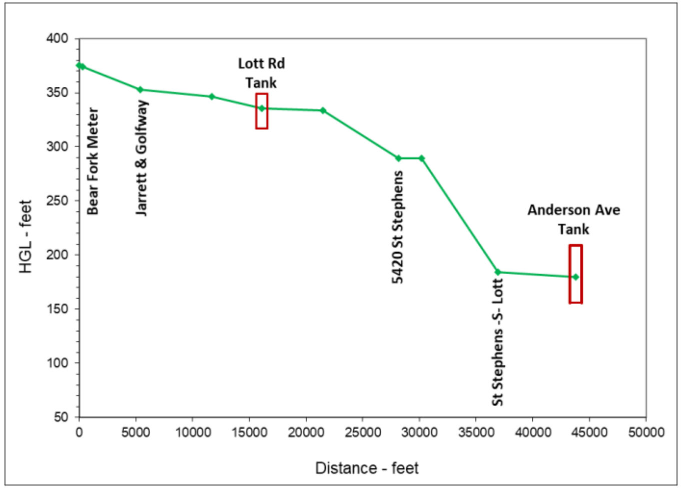
# Diurnal Curve

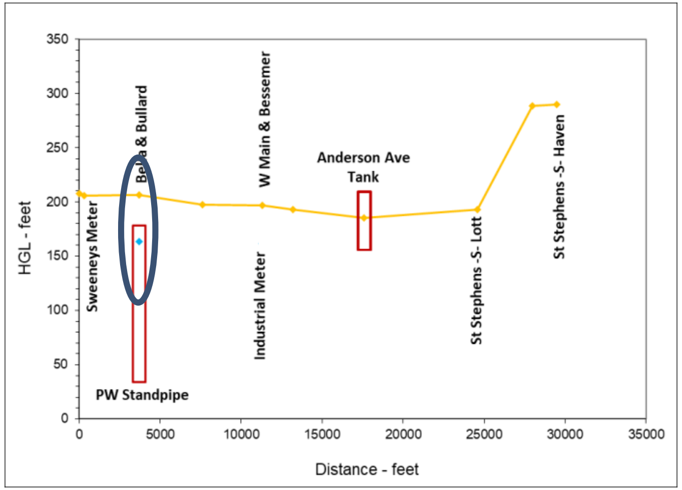
- Calculated using hourly inflows (AMI) and changes in storage (tank levels)

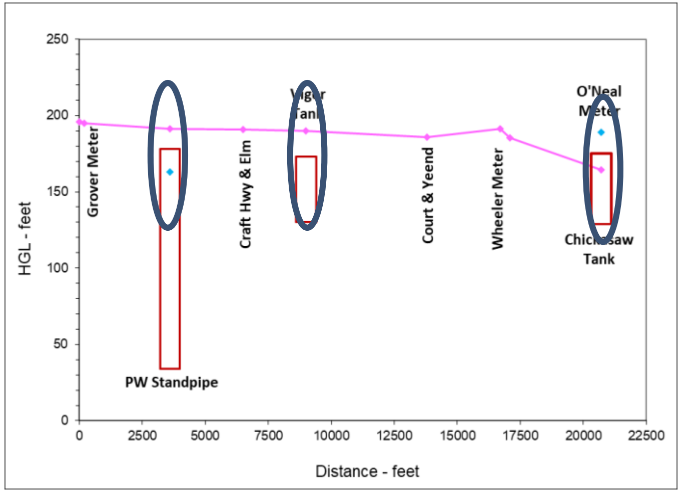


# System HGL

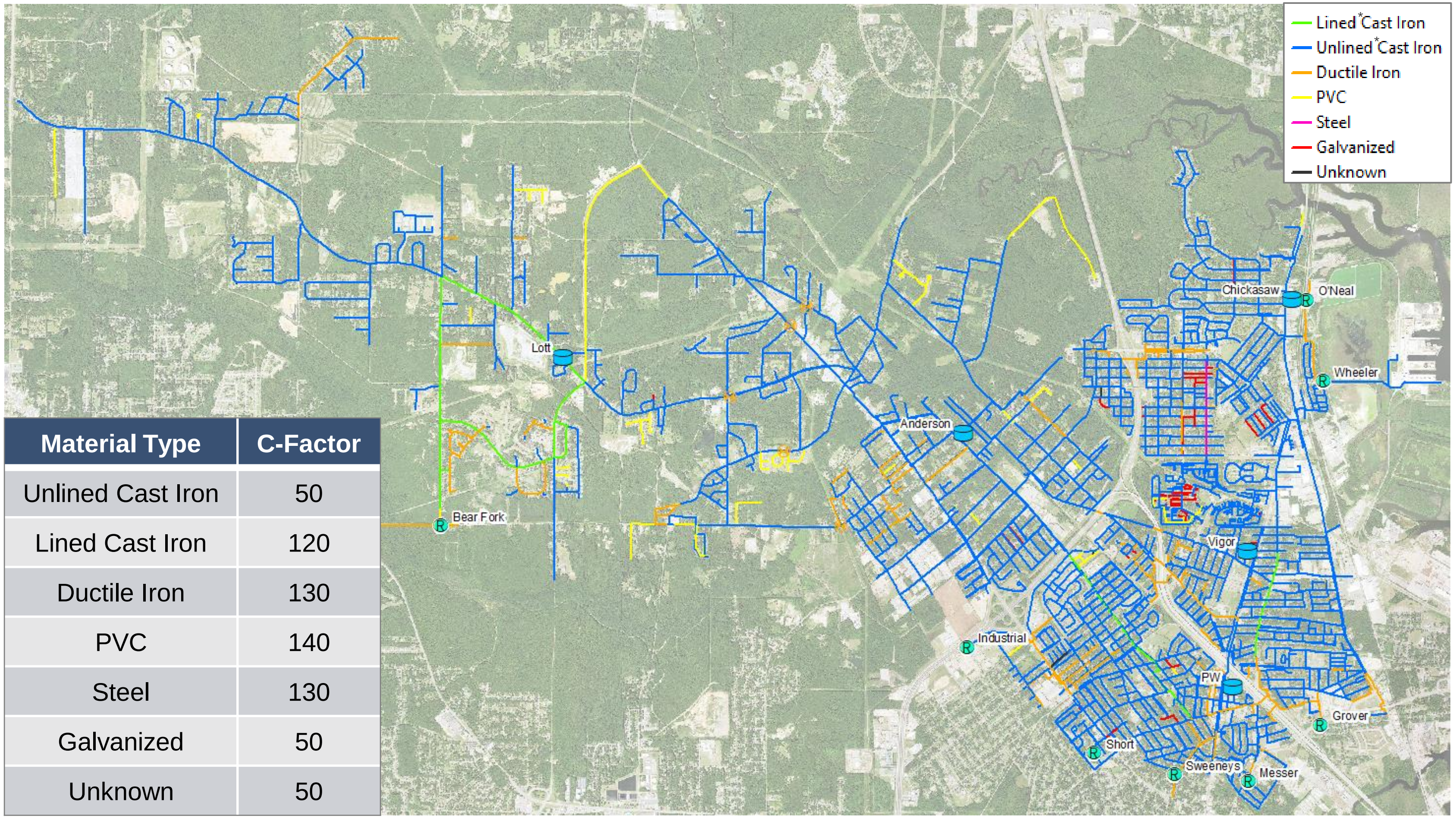
- Low zone HGL is higher than overflow elevations of PW, Chickasaw and Vigor
- Overpressurization contributes to NRW



# Roughness Coefficients




| Material Type | C-Factor |
|---|---|
| Unlined Cast Iron | 50 |
| Lined Cast Iron | 120 |
| Ductile Iron | 130 |
| PVC | 140 |
| Steel | 130 |
| Galvanized | 50 |
| Unknown | 50 |

*Whether cast iron pipes were lined was assumed from surrounding property age and HGL test results.

# Calibration

# What is Calibration?

- Compare model predictions for existing conditions to SCADA and flow and pressure measurements
- Make reasonable adjustments to obtain agreement within acceptable tolerances
- If reasonable adjustments don't produce agreement:
  - **Check model data for errors**
  - **Check the measurements**
  - **Check for unusual conditions in the distribution system**

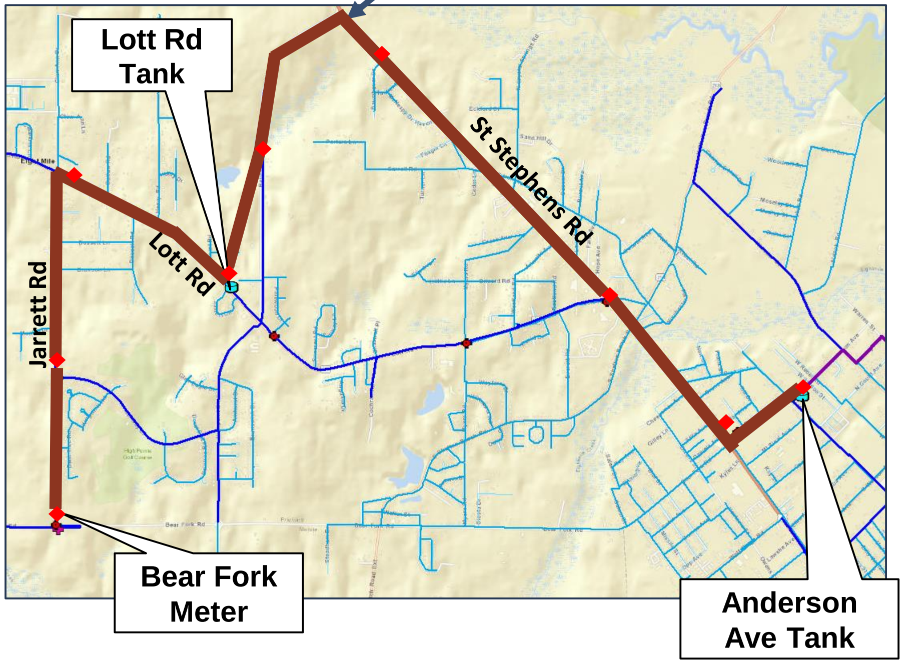
# Calibration Approach

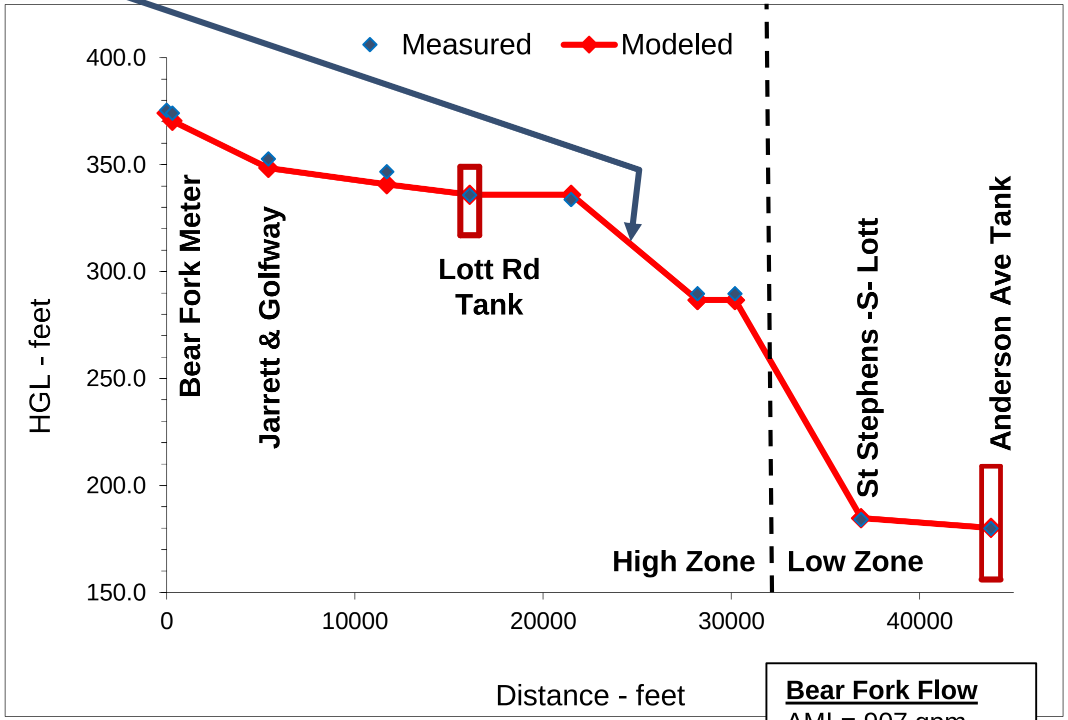
1. Steady State Simulations to calibrate HGL
2. EPS simulation to model dynamic conditions
3. Fire Flow Simulations

# HGL Calibration

# Calibration Results – HGL Test #1

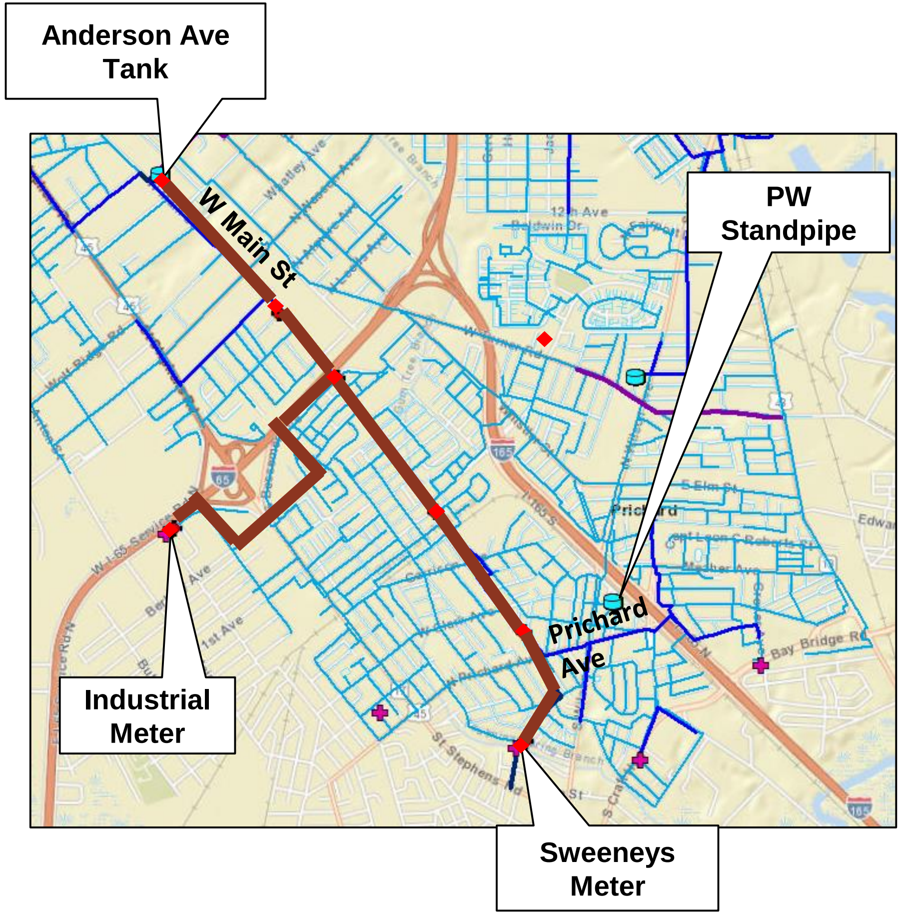
Closed pipe loop at Bellcase & US 45 in order to better match measured HGL

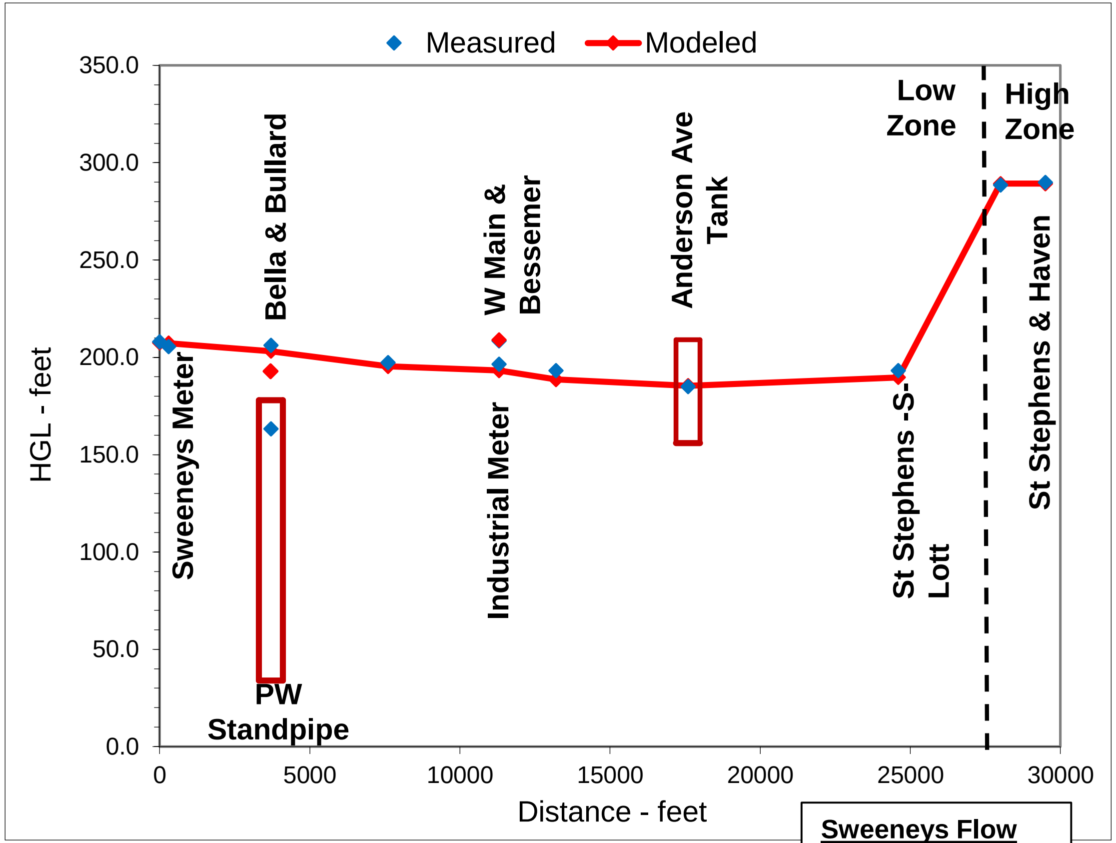



**Bear Fork Flow**
AMI = 907 gpm
Model = 1,007 gpm
Flow Diff. = 9.9%

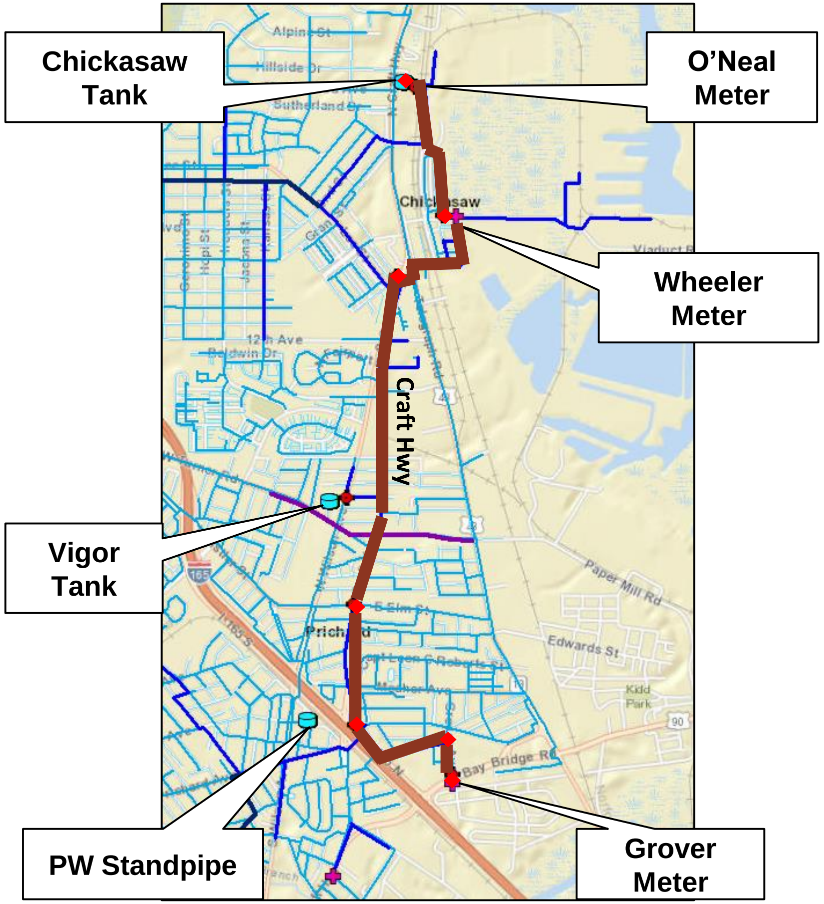
# Calibration Results – HGL Test #2

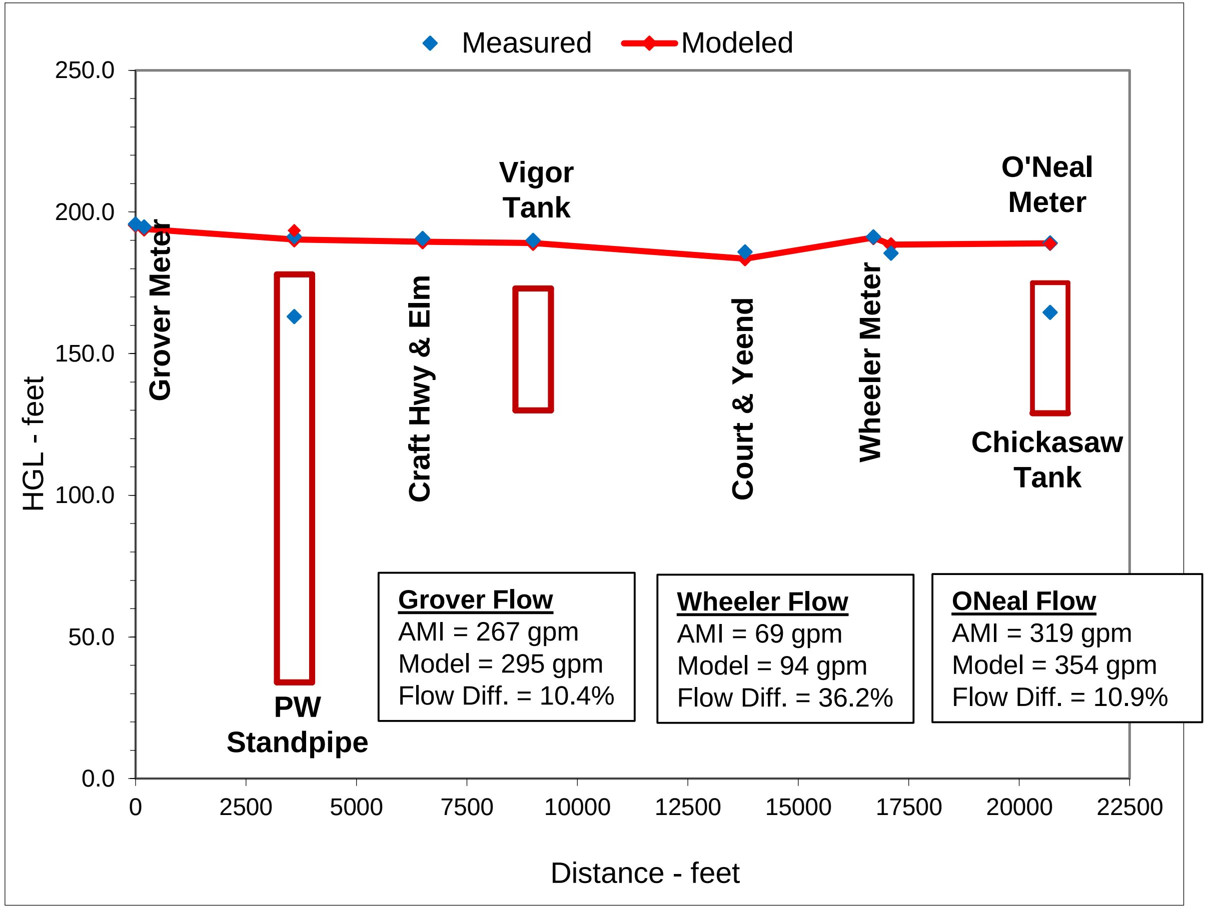



**Sweeneys Flow**
AMI = 915 gpm
Model = 958 gpm
Flow Diff. = 4.5%

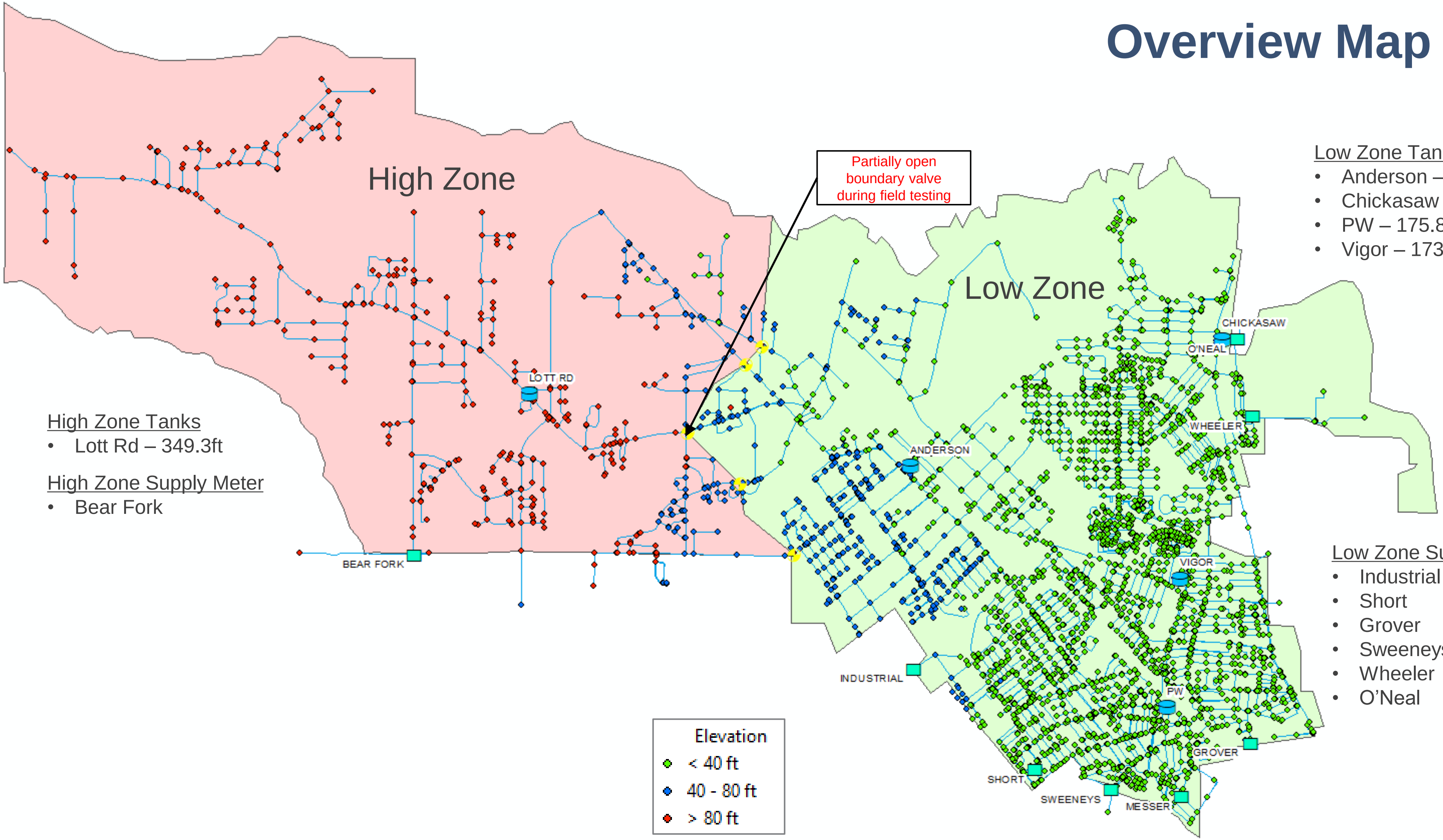
# Calibration Results – HGL Test #3



# EPS Calibration

# Overview Map




High Zone Tanks
- Lott Rd – 349.3ft

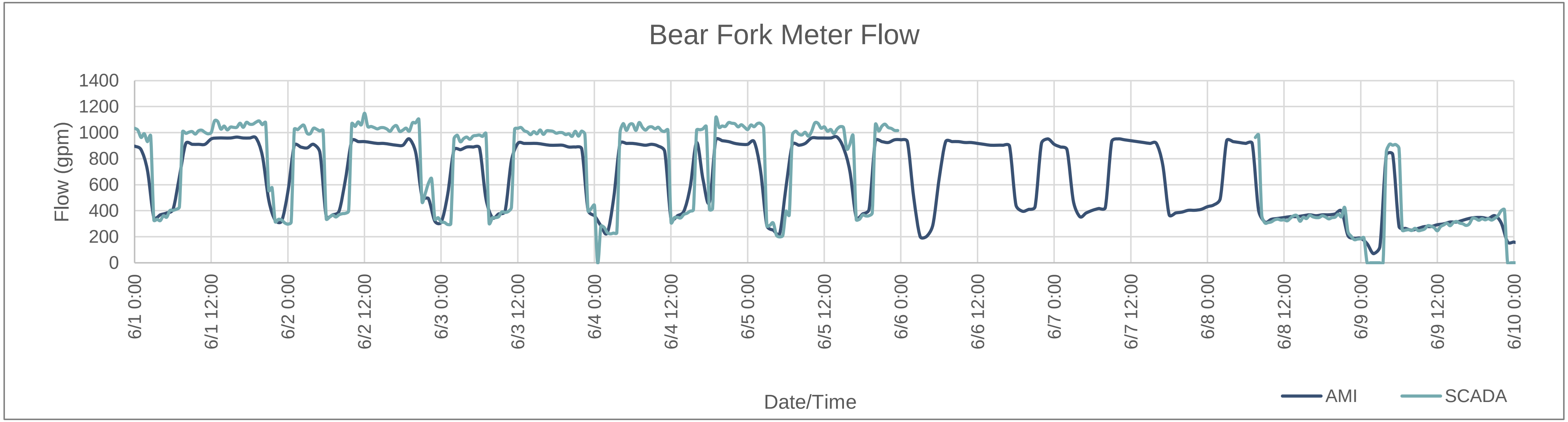
High Zone Supply Meter
- Bear Fork

Low Zone Tanks
- Anderson – 209.5ft
- Chickasaw – 175.1ft
- PW – 175.8ft
- Vigor – 173.3ft

Low Zone Supply Meters
- Industrial
- Short
- Grover
- Sweeneys
- Wheeler
- O'Neal

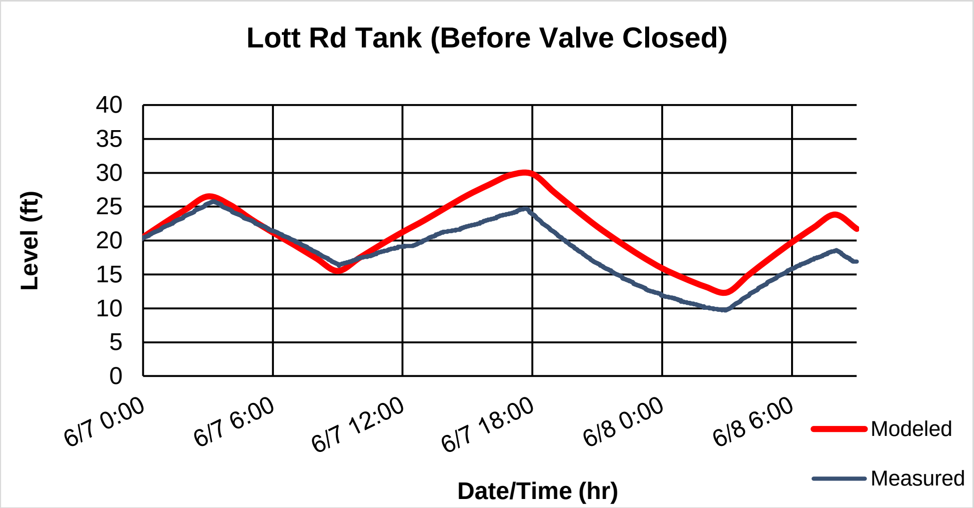
# High Zone EPS Calibration

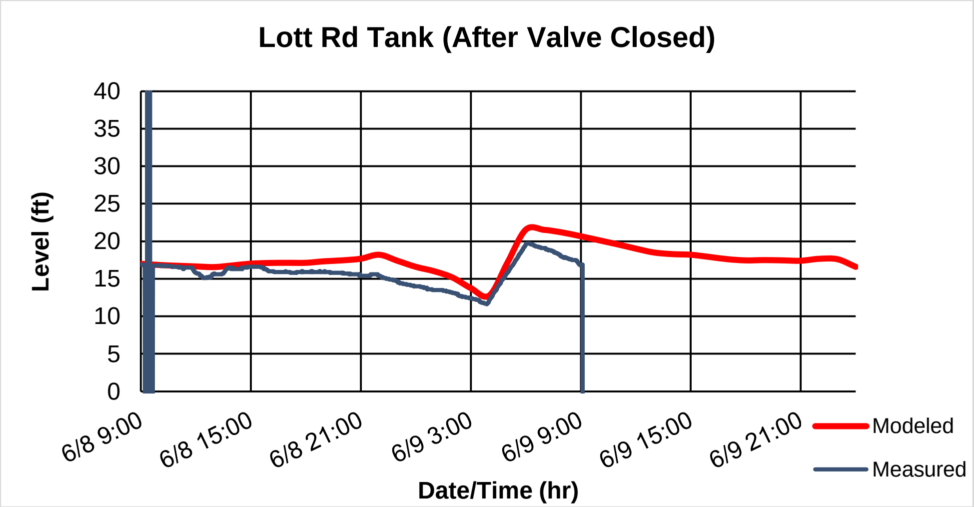
- Bear Fork pumps and reservoir were difficult to model due to limited information
- Bear Fork Pumps do not appear to follow SCADA set points provided by MAWSS
  - **Information provided by MAWSS was that two pumps (700 gpm @ 91 ft) turned on/off based on Lott Rd Tank Elevation**
  - **Flows from SCADA fluctuate between 900 gpm and 300 gpm with brief periods having 0 flow**
  - **It is possible flow is being conveyed by MAWSS while pumps are offline depending on PS configuration and local HGL**



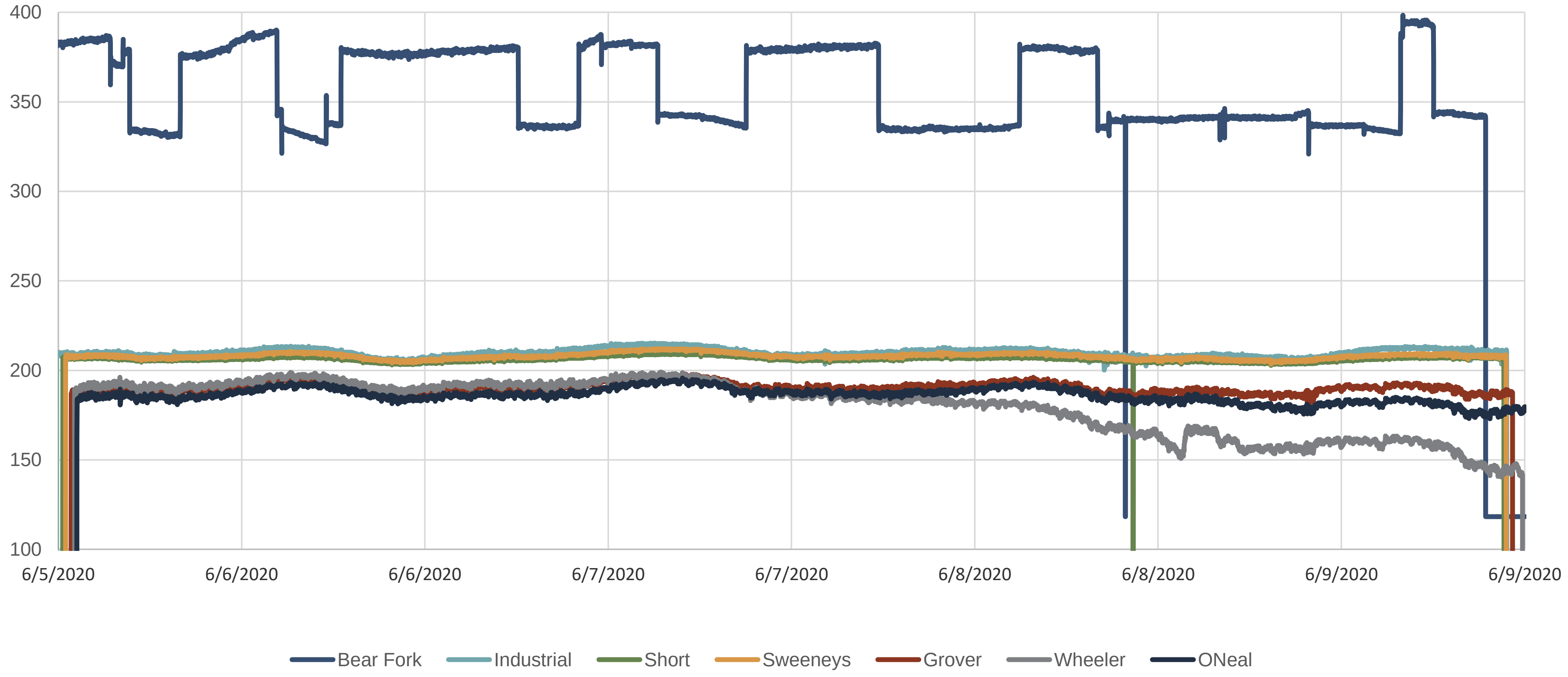
# High Zone EPS Calibration

- Negative demand was used to match calibration period flows
- Model flow and HGL match observed values
- Lott Rd Tank fills and drains similar to observed
- Flow and tank level used to determine open boundary valve setting
- Model can be used for future well simulations which do not require Bear Fork pump station
  - **Additional coordination with MAWSS recommended if Bear Fork Pump Station Usage will continue**



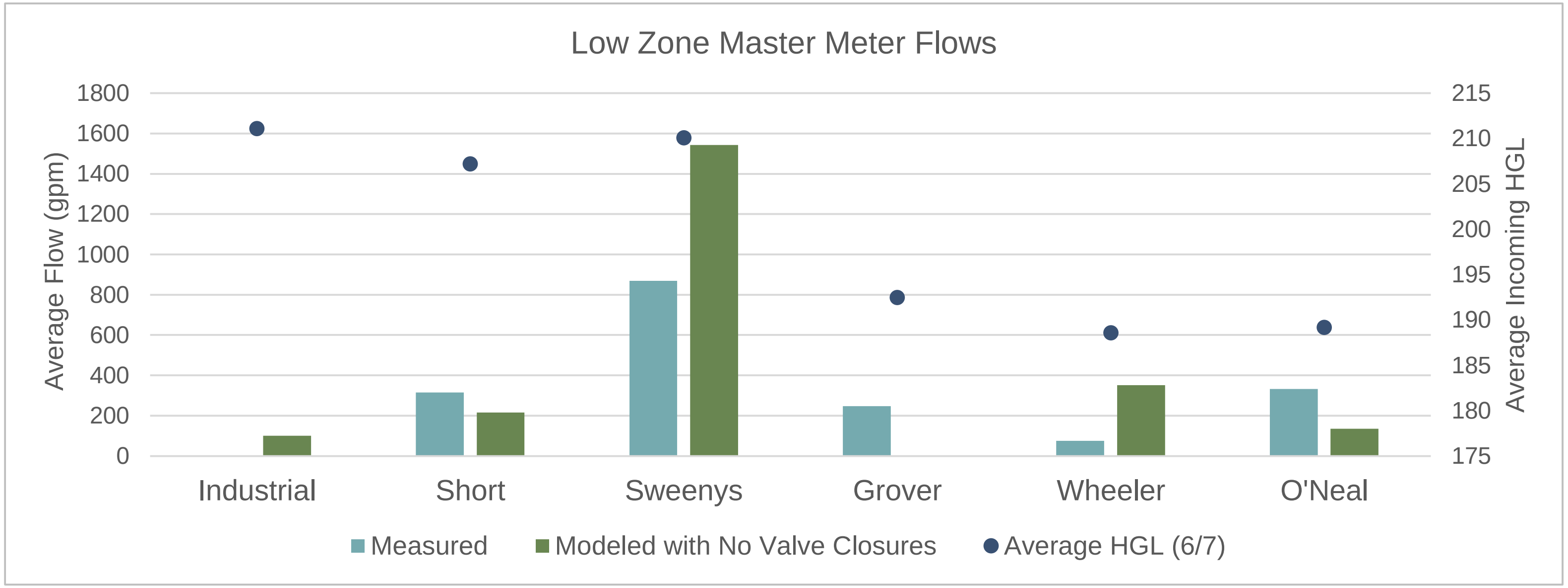
# Low Zone Calibration – Meter HGL



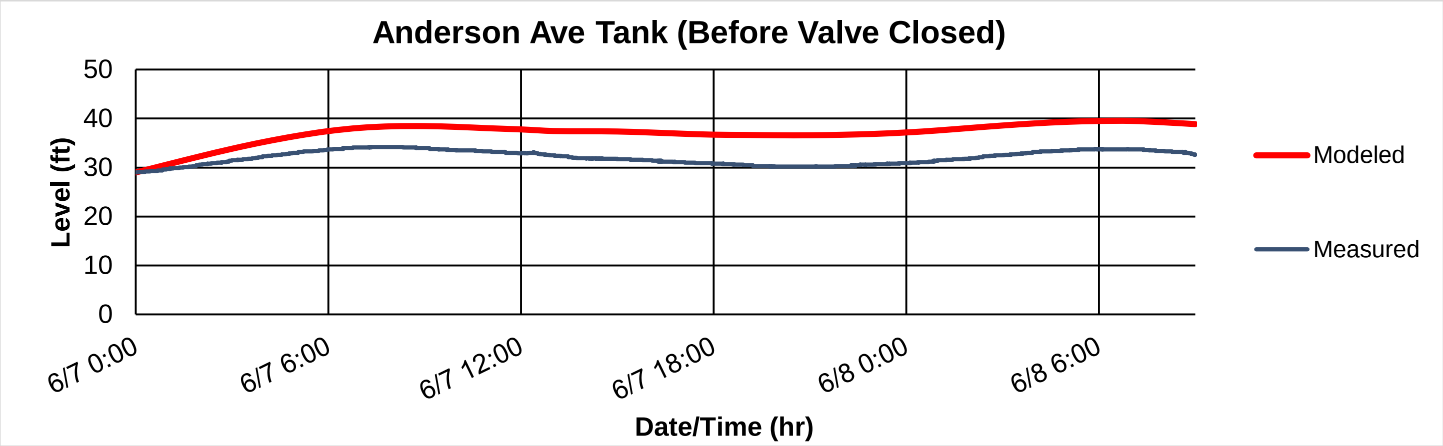
# Low Zone EPS Calibration

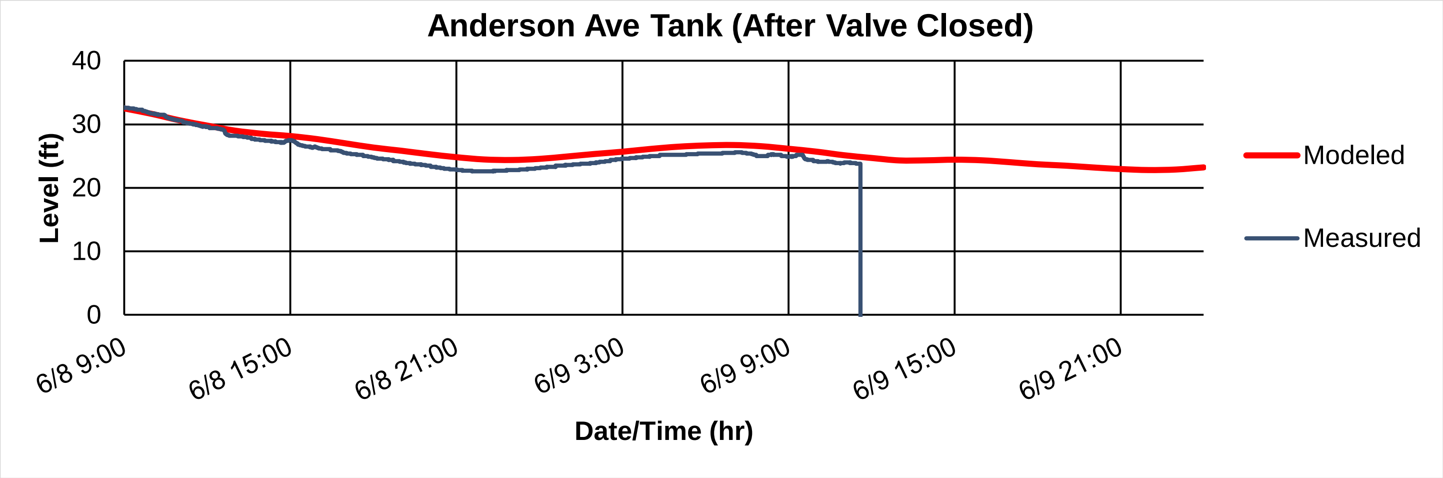
**System Operations/ Model Changes**

- It is likely that valves are closed or pipes are not connected limiting the flow from some of the master meters.
- It is possible that there may be another intermediate pressure zone

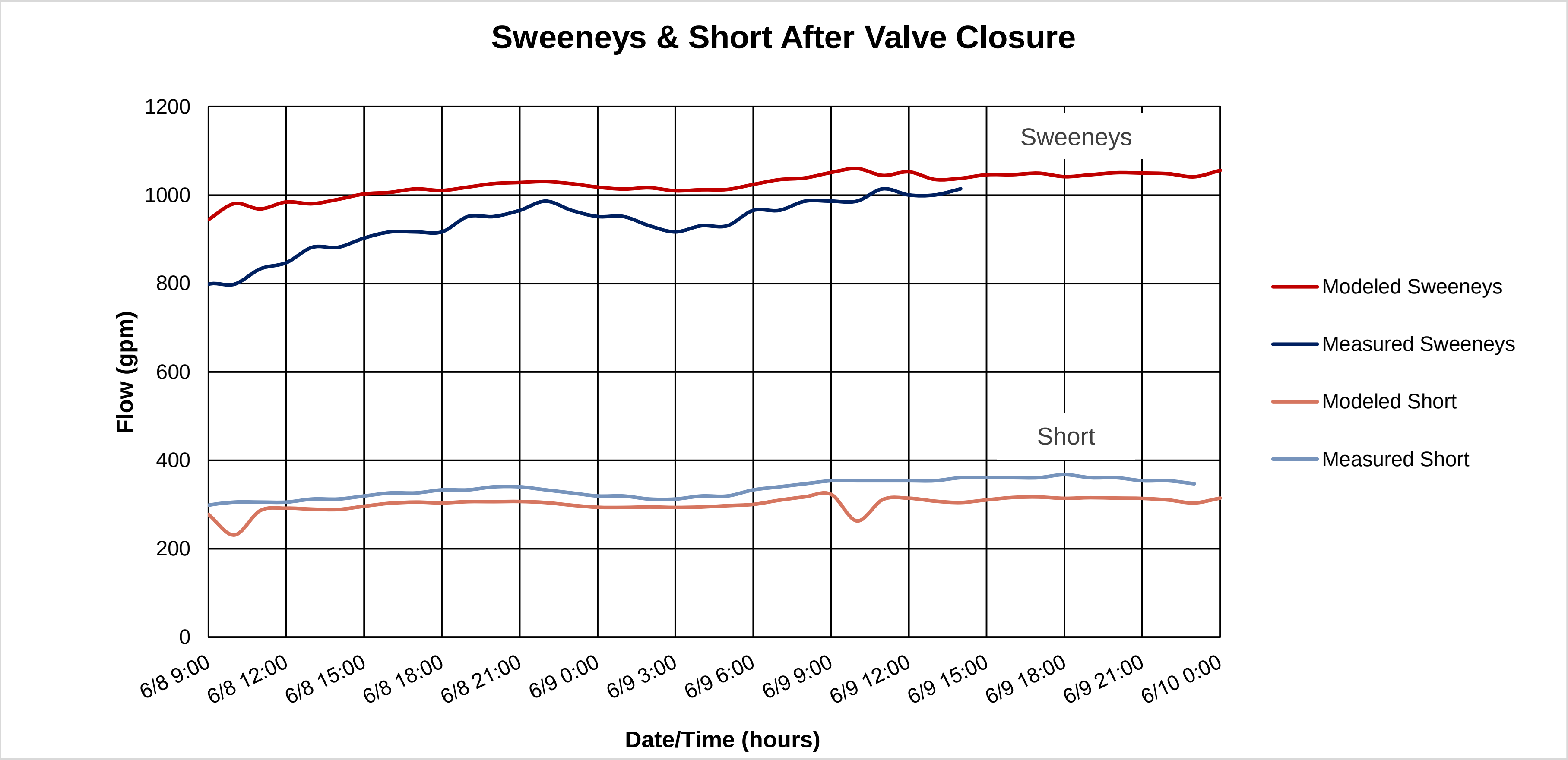


# Low Zone EPS Calibration Results – Tank Levels



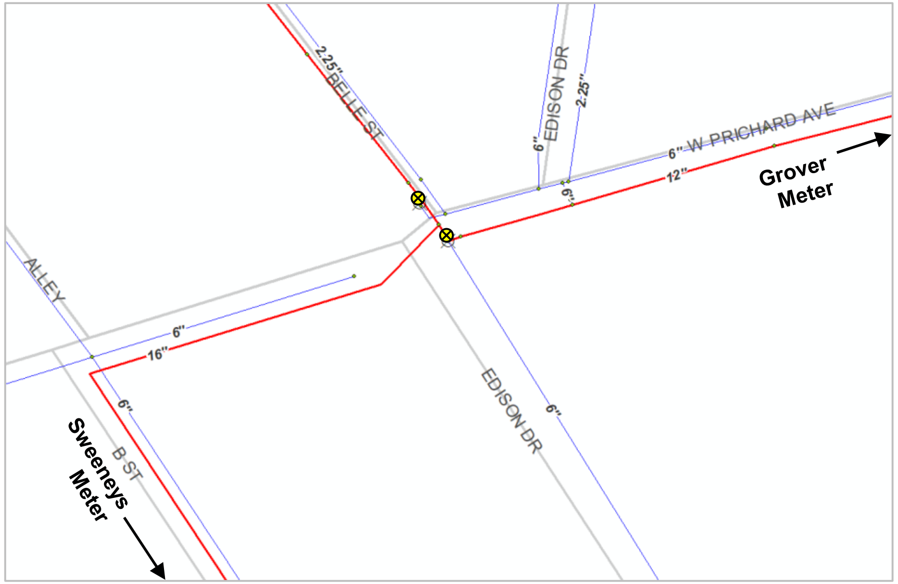



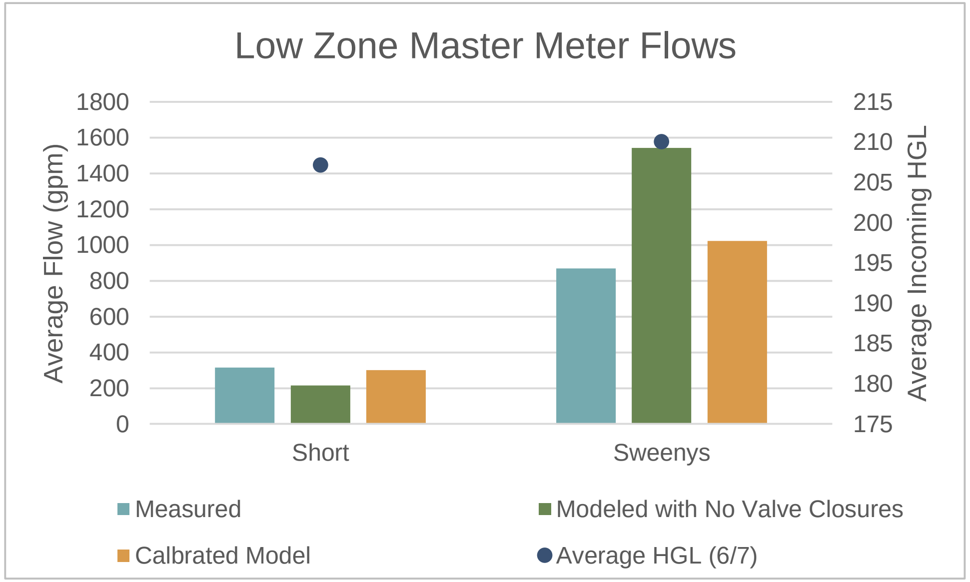
# Low Zone Calibration – Meter Flow



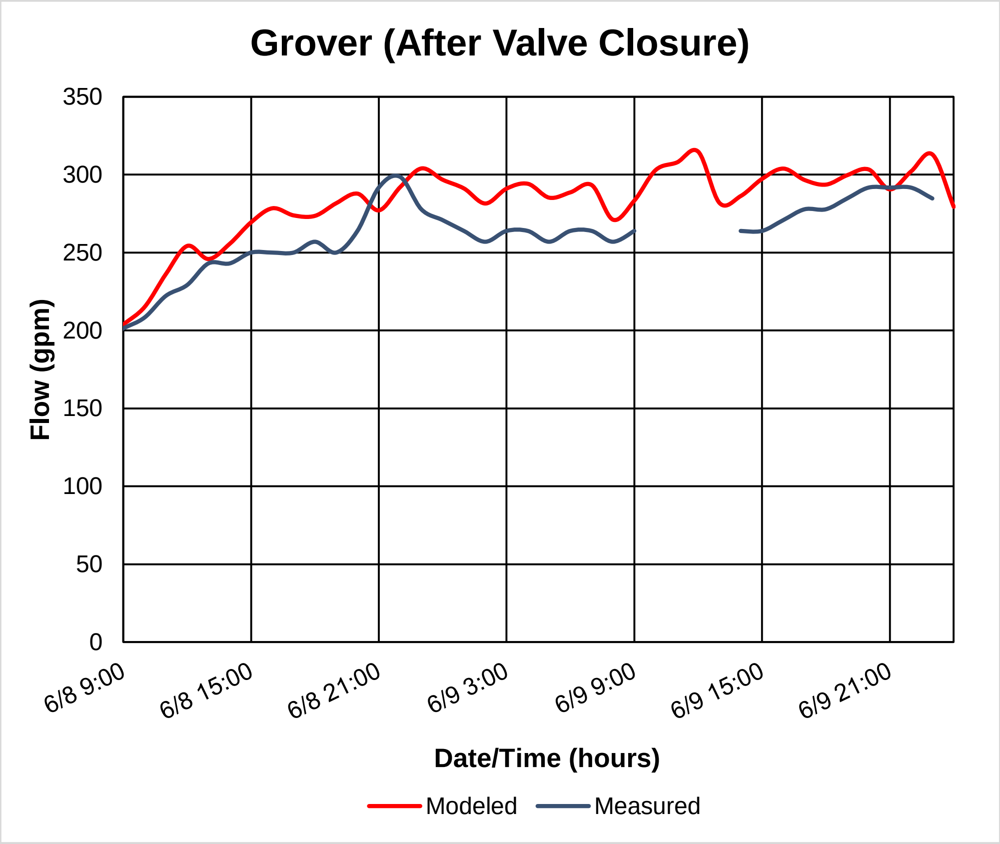
# Sweeneys/Short Calibration

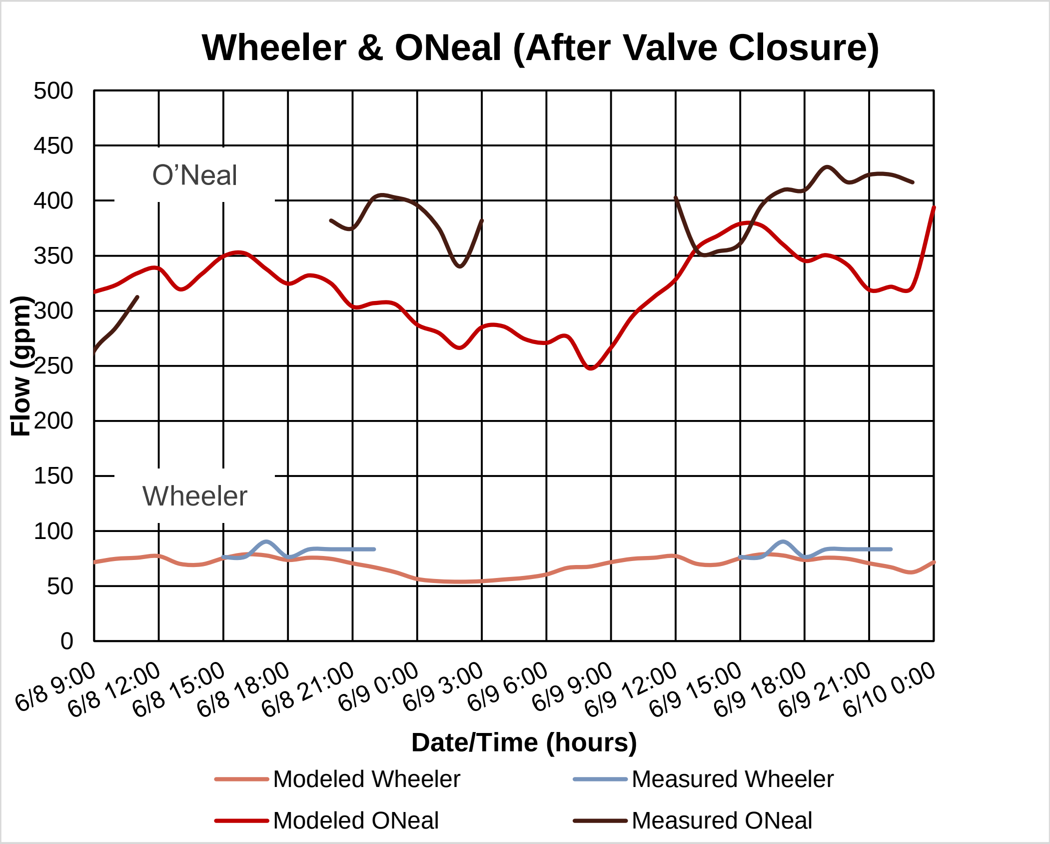
- Overall proportion of flow matches between meters
- Anderson Tank model levels is within 2 feet after boundary valve closure
- Connectivity of 12-inch transmission main from Sweeney's to Anderson should be further investigated.



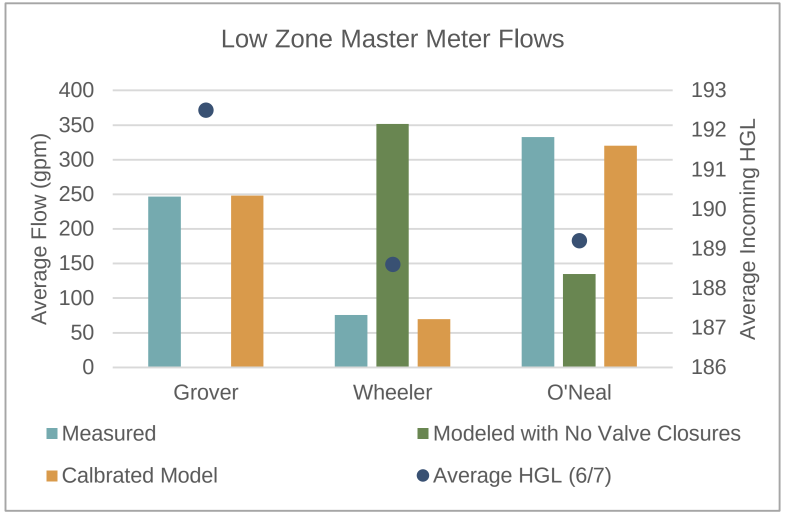
# Low Zone Calibration – Meter Flow

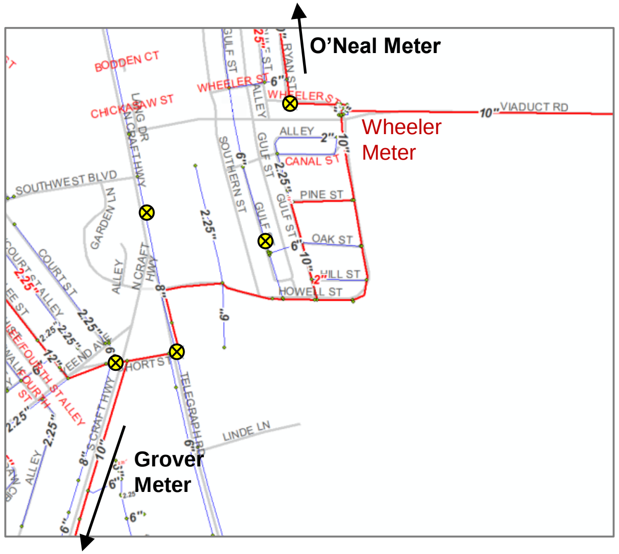


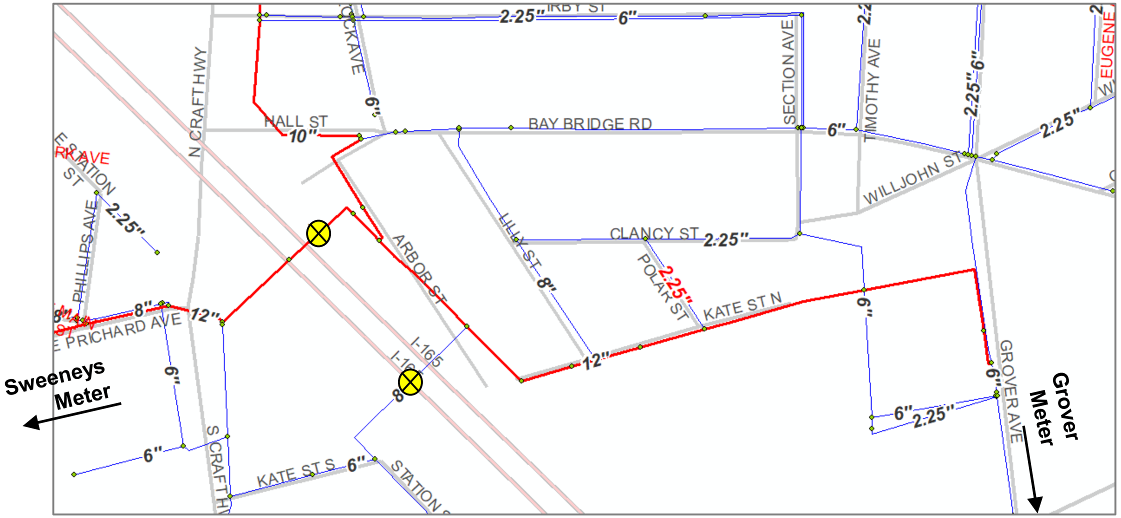



# Grover/ Wheeler/ O'Neal

- Suspect lower HGL supply points may be at least partially isolated.
- Based on Wheeler HGL flow modeled flow will not match without isolation. Connectivity in this area should be further investigated.

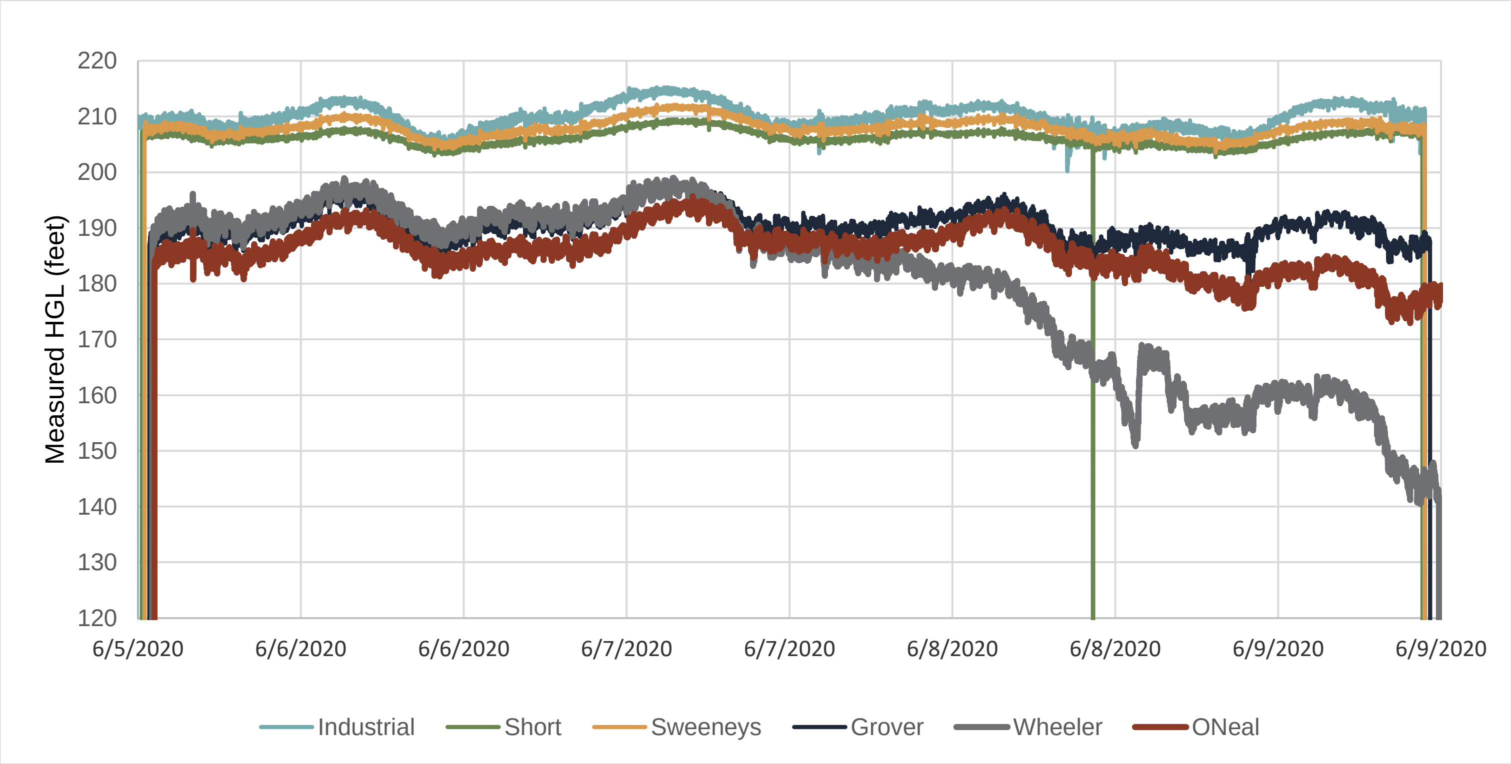


# Additional Model Changes

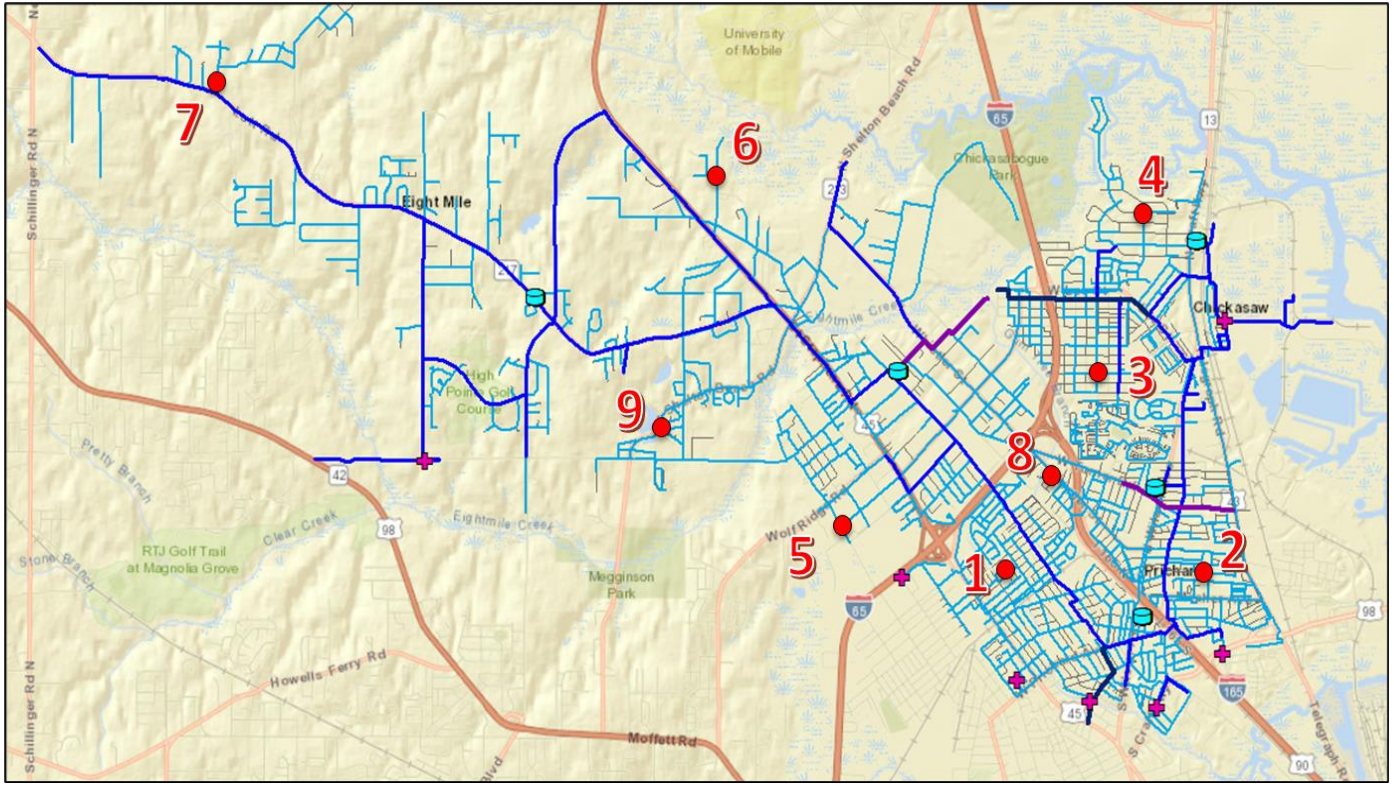
- Closed pipe downstream of Industrial Meter
  - Based on HGL Industrial should be supplying the Low zone; however, a closed valve or excessive head loss are preventing flow.



# Fire Flow Calibration

# Fire Flow Tests Overview

- Fire flow tests
  - **Used to calibrate localized areas**
  - **Geographic representation**



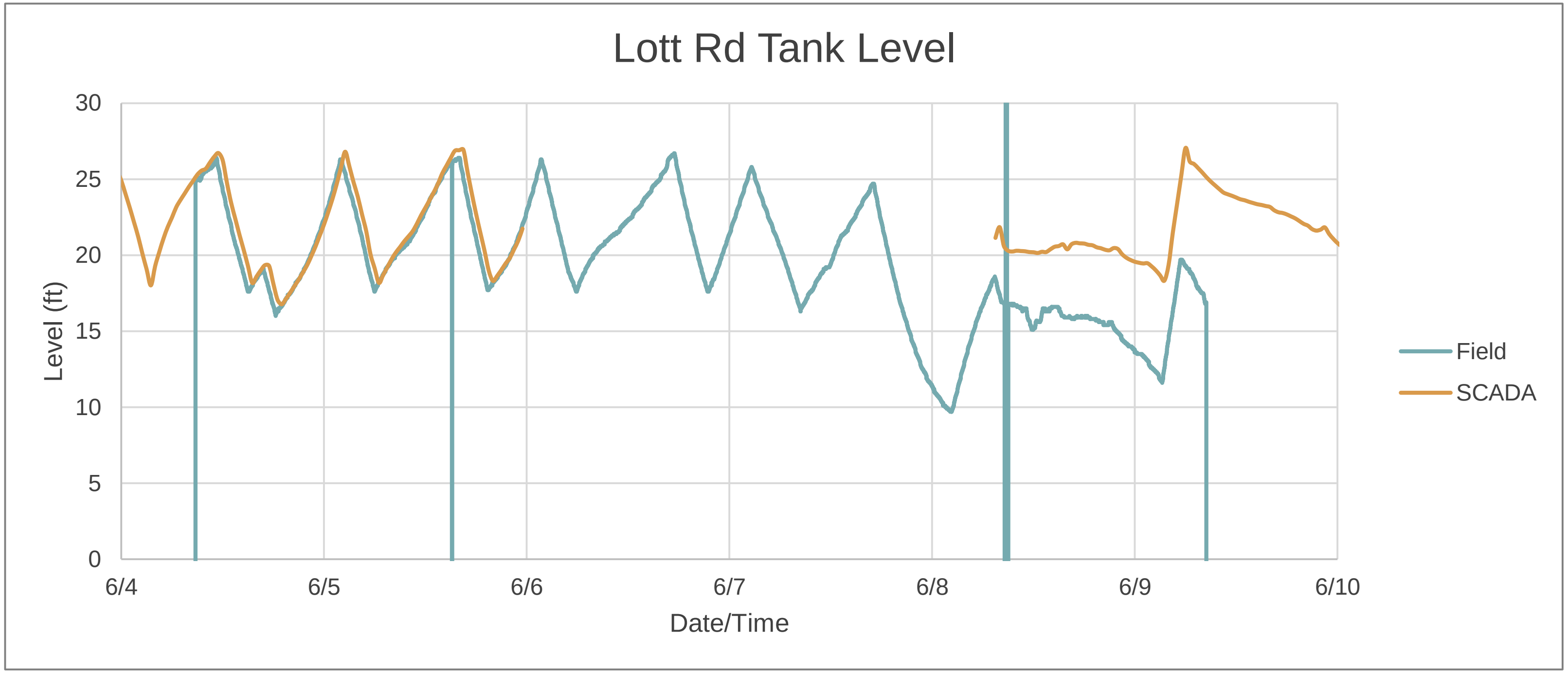
# Fire Flow Test #3: Iroquois St & 10th Ave

- Static Pressure
  - **Field = 67 psi**
  - **Model = 65psi**
- Residual Pressure
  - **Field = 47 psi**
  - **Model = 41psi**
- Test Flow @ 1,000 gpm
- Available Fire Flow ~ 1,050 gpm

# Next Steps

# Lott Rd Tank SCADA vs Field Data

- Difference in MAWSS SCADA vs field level recorded starting 6/8 (before boundary valve closed)
- Recommend confirming if tank is filling and draining



# System Improvement Considerations

- Temporarily confirm water level in Lott Rd and Anderson Tanks
  - **Field monitoring and current pressure readings 60-61 psi (after boundary valve closure) indicate that the Anderson tank is not refilling to previous level (64 psi)**
  - **Coordinate with MAWSS regarding Lott Rd Tank SCADA level**
- Consider improvements to better utilize existing storage and improve tank turnover
  - **PW Standpipe, Chickasaw and Vigor**
  - **Anderson Tank**
  - **Lott Rd Booster Station**
- Consider monitoring water loss / leak detection

# Storage Analysis

- A storage analysis identifies how much storage is required for equalization, fire flow and emergency
- Analysis Parameters:
  - Equalization storage – 20% Maximum Day Demands (Based on Max Flow including NRW)
  - Fire Flow storage – 3,500 gpm flow for 3 hours
  - Emergency storage – 12 hours Average Day Demands (Based on Average flow includes NRW)
  - Demand Ratio - 83% Low Zone and 17% High Zone

| Service Area | Storage Tank | Capacity (MG) | Available Storage (MG) | Equalization (MG) | Fire Flow (MG) | Emergency (MG) | Required Storage (MG) | Gap/Surplus (MG) |
|---|---|---|---|---|---|---|---|---|
| Low | Anderson | 1.00 | 3.5 | 0.61 | 0.63 | 1.26 | 2.50 | +1.00 |
| | Chickasaw | 1.00 | | | | | | |
| | PW | 0.50 | | | | | | |
| | Vigor | 1.00 | | | | | | |
| High | Lott Rd | 0.25 | 0.25 | 0.12 | 0.63 | 0.26 | 1.01 | -0.76 |

# Next Steps

- Fire Flow Simulations
- Simulations with proposed well sites
  - **Build Average Day and Max Day Model Scenarios**
  - **Future demand assumptions/projections**

# Appendix B: Vertical Asset Evaluation

## B-1. Asset Registry

### Table B-1-1. Vertical Asset Inventory

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | AUTOMATION CONTROL SERVICE | | 2005 | 3.5 | 4.0 | 13.8 | HIGH | 20 | 8 | 40% | REPLACE | $15,000 | WWLS-06 |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | SIEMENS | I T E | 1989 | 2.4 | 3.5 | 8.3 | MEDIUM LOW | 35 | 23 | 66% | REPLACE | $400 | WWLS-MISC |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | MOTOR SOFT STARTER 01 | MOTOR STARTERS | | | | WEG | SSW07 | | 1.0 | 4.4 | 4.4 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $4,600 | WWLS-06 |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | MOTOR SOFT STARTER 02 | MOTOR STARTERS | | | | WEG | SSW07 | | 1.0 | 4.4 | 4.4 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $9,400 | WWLS-06 |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | SITE LIGHTING PANEL | DISTRIBUTION PANEL | | | | SIEMENS | CDP-7 | | 1.7 | 2.9 | 4.8 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $2,400 | WWLS-MISC |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | LIFT STATION INDOOR LIGHTING | LIGHTING_ INDOOR | | | | | | | 1.0 | 2.0 | 2.0 | LOW | 25 | 25 | 100 % | REPLACE | $1,200 | WWLS-MISC |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 3.0 | 2.0 | 6.0 | MEDIUM LOW | 25 | 13 | 52% | REPLACE | $500 | WWLS-MISC |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | SITE FENCE | FENCE | | | | | | | 3.4 | 1.2 | 4.1 | LOW | 25 | 10 | 40% | REPLACE | $5,500 | WWLS-MISC |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | GAS DETECTION SYSTEM | DETECTOR_ GAS | | | | RKI | EAGLE | 2013 | 5.0 | 2.3 | 11.5 | MEDIUM HIGH | 5 | 0 | 0% | REPLACE | $12,100 | WWLS-04 |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 1.8 | 3.5 | 6.3 | MEDIUM LOW | 10 | 8 | 80% | REPLACE | $1,000 | WWLS-MISC |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 4.3 | 4.3 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | DAVIT HOIST | DAVIT | | | | XTIRPA | IN-2210 | 2019 | 1.0 | 2.2 | 2.2 | LOW | 30 | 30 | 100 % | REPLACE | $3,900 | WWLS-MISC |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | MONORAIL HOIST | MONORAIL | | | | CHESTER HOIST | | | 3.1 | 2.2 | 6.7 | MEDIUM LOW | 25 | 12 | 48% | REPLACE | $3,900 | WWLS-MISC |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | GENERATOR BACKUP | GENERATOR_ DIESEL | | | | KOHLER | 80 | | 2.4 | 4.7 | 11.2 | MEDIUM HIGH | 25 | 16 | 64% | REPLACE | $31,000 | WWLS-MISC |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | BUILDING EXHAUST FAN | FANS AND BLOWERS | | | | | | | 1.7 | 2.2 | 3.6 | LOW | 25 | 21 | 84% | REPLACE | $1,400 | WWLS-MISC |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | DRY WELL EXHAUST FAN | FANS AND BLOWERS | | | | | | | 1.8 | 2.2 | 3.9 | LOW | 25 | 20 | 80% | REPLACE | $1,600 | WWLS-MISC |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | PUMP 01 | PUMP_ CENTRIFUGAL | | | | KSB | KRTK200-401/406XNG-D | | 2.3 | 4.9 | 11.3 | MEDIUM HIGH | 20 | 14 | 70% | REPLACE | $22,900 | WWLS-MISC |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | PUMP 02 | PUMP_ CENTRIFUGAL | | | | | | | 5.0 | 4.9 | 24.5 | HIGH | 20 | 0 | 0% | REPLACE | $22,900 | WWLS-04 |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | BYPASS CHECK VALVE | VALVE_ CHECK | | | | EDDY IOWA | 175 W | | 1.8 | 2.0 | 3.5 | LOW | 25 | 20 | 80% | REPLACE | $2,900 | WWLS-MISC |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | | | | 3.0 | 1.5 | 4.5 | MEDIUM LOW | 25 | 13 | 52% | REPLACE | $5,400 | WWLS-MISC |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | | | | 5.0 | 1.5 | 7.5 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $5,400 | WWLS-04 |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | | | | 3.0 | 1.5 | 4.5 | MEDIUM LOW | 25 | 13 | 52% | REPLACE | $6,200 | WWLS-MISC |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | | | | 5.0 | 1.5 | 7.5 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $5,400 | WWLS-04 |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | INFLUENT GATE VALVE | VALVE_ GATE | | | | | | | 2.5 | 2.8 | 6.7 | MEDIUM LOW | 25 | 16 | 64% | REPLACE | $38,900 | WWLS-MISC |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | BUILDING STRUCTURE | STRUCTURE_ BUILDING | | | | | | | 2.7 | 1.2 | 3.2 | LOW | 75 | 44 | 59% | REHAB | $15,000 | WWLS-MISC |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | DRY WELL SUBSTRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 3.7 | 1.6 | 5.9 | MEDIUM LOW | 70 | 23 | 33% | REHAB | $116,500 | WWLS-MISC |
| 01 - WEST HIGHLAND AVENUE | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ RECTANGULAR WET WELL | | | | | | | 2.4 | 1.4 | 3.4 | LOW | 70 | 45 | 64% | REHAB | $71,600 | WWLS-STR3 |
| 02 - MCCANTS AND OWENS | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | | | | 3.5 | 3.5 | 12.1 | MEDIUM HIGH | 20 | 8 | 40% | REPLACE | $7,000 | WWLS-07 |
| 02 - MCCANTS AND OWENS | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | GE | | | 1.0 | 3.4 | 3.4 | LOW | 35 | 35 | 100 % | REPLACE | $300 | WWLS-MISC |
| 02 - MCCANTS AND OWENS | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | ABB | | | 1.0 | 2.8 | 2.8 | LOW | 15 | 15 | 100 % | REPLACE | $1,600 | WWLS-07 |
| 02 - MCCANTS AND OWENS | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | ABB | | | 1.0 | 3.4 | 3.4 | LOW | 15 | 15 | 100 % | REPLACE | $1,600 | WWLS-07 |
| 02 - MCCANTS AND OWENS | PUMP STATION | TRANSFORMER EXTERIOR | TRANSFORMER | | | | | | | 2.7 | 3.4 | 8.9 | MEDIUM LOW | 20 | 12 | 60% | REPLACE | $1,500 | WWLS-07 |
| 02 - MCCANTS AND OWENS | PUMP STATION | TRANSFORMER INTERIOR | TRANSFORMER | | | | HAMMOND | PT3000MQMJ | | 3.3 | 3.4 | 10.9 | MEDIUM LOW | 20 | 9 | 45% | REPLACE | $1,500 | WWLS-07 |
| 02 - MCCANTS AND OWENS | PUMP STATION | UPS | UPS | | | | SOLA | S2K INDUSTRIAL UPS | | 1.0 | 3.0 | 3.0 | LOW | 20 | 20 | 100 % | REPLACE | $2,400 | WWLS-07 |
| 02 - MCCANTS AND OWENS | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-04 |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 02 - MCCANTS AND OWENS | PUMP STATION | SITE FENCE | FENCE | | | | | | | 3.4 | 1.0 | 3.4 | LOW | 25 | 10 | 40% | REPLACE | $3,500 | WWLS-MISC |
| 02 - MCCANTS AND OWENS | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 3.5 | 3.1 | 10.7 | MEDIUM HIGH | 10 | 4 | 40% | REPLACE | $1,000 | WWLS-04 |
| 02 - MCCANTS AND OWENS | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 3.2 | 3.2 | LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| 02 - MCCANTS AND OWENS | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | SULZER | XFP80C-CB1.4-PE35 | 2020 | 5.0 | 3.5 | 17.5 | HIGH | 15 | 0 | 0% | REPLACE | $12,900 | WWLS-04 |
| 02 - MCCANTS AND OWENS | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | SULZER | XFP80C-CB1.5-PE28 | 2017 | 2.2 | 3.9 | 8.5 | MEDIUM LOW | 15 | 11 | 73% | REPLACE | $12,900 | WWLS-MISC |
| 02 - MCCANTS AND OWENS | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | MUELER | 175 WP | | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $1,700 | WWLS-MISC |
| 02 - MCCANTS AND OWENS | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | MUELER | 175 WP | | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $1,700 | WWLS-MISC |
| 02 - MCCANTS AND OWENS | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | | | | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $3,000 | WWLS-MISC |
| 02 - MCCANTS AND OWENS | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | | | | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $3,000 | WWLS-MISC |
| 02 - MCCANTS AND OWENS | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 2.4 | 1.2 | 2.9 | LOW | 70 | 45 | 64% | REHAB | $5,400 | WWLS-MISC |
| 02 - MCCANTS AND OWENS | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 3.9 | 1.4 | 5.4 | MEDIUM LOW | 70 | 20 | 29% | REHAB | $43,400 | WWLS-STR1 |
| 03 - FIRST AND OWENS | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | | | | 3.2 | 3.5 | 11.3 | MEDIUM HIGH | 20 | 9 | 45% | REPLACE | $7,000 | WWLS-07 |
| 03 - FIRST AND OWENS | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | GE | | | 1.0 | 3.4 | 3.4 | LOW | 35 | 35 | 100 % | REPLACE | $300 | WWLS-MISC |
| 03 - FIRST AND OWENS | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | ABB | | | 1.0 | 2.9 | 2.9 | LOW | 15 | 15 | 100 % | REPLACE | $1,600 | WWLS-07 |
| 03 - FIRST AND OWENS | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | ABB | NEMA 1 | | 1.0 | 3.4 | 3.4 | LOW | 15 | 15 | 100 % | REPLACE | $1,600 | WWLS-07 |
| 03 - FIRST AND OWENS | PUMP STATION | TRANSFORMER EXTERIOR | TRANSFORMER | | | | MICRON INDUSTIES CORPORATION | SERIES A | | 3.4 | 3.4 | 11.4 | MEDIUM LOW | 20 | 8 | 40% | REPLACE | $1,500 | WWLS-07 |
| 03 - FIRST AND OWENS | PUMP STATION | TRANSFORMER INTERIOR | TRANSFORMER | | | | HAMMOND | PT3000MQMJ | | 3.3 | 3.4 | 11.2 | MEDIUM LOW | 20 | 8 | 40% | REPLACE | $1,500 | WWLS-07 |
| 03 - FIRST AND OWENS | PUMP STATION | UPS | UPS | | | | SOLA | S2K INDUSTRIAL UPS | | 1.0 | 3.0 | 3.0 | LOW | 20 | 20 | 100 % | REPLACE | $2,400 | WWLS-07 |
| 03 - FIRST AND OWENS | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| 03 - FIRST AND OWENS | PUMP STATION | SITE FENCE | FENCE | | | | | | | 3.5 | 1.2 | 4.2 | MEDIUM LOW | 25 | 9 | 36% | REPLACE | $5,600 | WWLS-MISC |
| 03 - FIRST AND OWENS | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 1.7 | 3.1 | 5.2 | MEDIUM LOW | 10 | 8 | 80% | REPLACE | $1,000 | WWLS-MISC |
| 03 - FIRST AND OWENS | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 3.2 | 3.2 | LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| 03 - FIRST AND OWENS | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | SULZER | AFP(K)0841.2-M22 | 2006 | 5.0 | 3.4 | 16.9 | HIGH | 15 | 0 | 0% | REPLACE | $4,700 | WWLS-04 |
| 03 - FIRST AND OWENS | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS XFP-PE1-80C-CB1.1-PE20 | 2022 | 5.0 | 3.9 | 19.4 | HIGH | 15 | 0 | 0% | REPLACE | $4,700 | WWLS-04 |
| 03 - FIRST AND OWENS | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | MUELLER | 175WP | | 1.0 | 1.3 | 1.3 | LOW | 25 | 25 | 100 % | REPLACE | $1,700 | WWLS-MISC |
| 03 - FIRST AND OWENS | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | MUELLER | 175WP | | 1.0 | 1.3 | 1.3 | LOW | 25 | 25 | 100 % | REPLACE | $1,700 | WWLS-MISC |
| 03 - FIRST AND OWENS | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | MUELLER | | | 1.0 | 1.3 | 1.3 | LOW | 25 | 25 | 100 % | REPLACE | $3,000 | WWLS-MISC |
| 03 - FIRST AND OWENS | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | MUELLER | | | 1.0 | 1.3 | 1.3 | LOW | 25 | 25 | 100 % | REPLACE | $3,000 | WWLS-MISC |
| 03 - FIRST AND OWENS | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 1.0 | 1.2 | 1.2 | LOW | 70 | 70 | 100 % | REHAB | $7,800 | WWLS-MISC |
| 03 - FIRST AND OWENS | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 3.4 | 1.4 | 4.8 | LOW | 70 | 27 | 39% | REHAB | $65,400 | WWLS-STR3 |
| 04 - FIRST AND HANES | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | | | | 3.4 | 3.5 | 12.0 | MEDIUM HIGH | 20 | 8 | 40% | REPLACE | $7,000 | WWLS-07 |
| 04 - FIRST AND HANES | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | GE | | | 1.6 | 3.4 | 5.3 | MEDIUM LOW | 35 | 30 | 86% | REPLACE | $400 | WWLS-MISC |
| 04 - FIRST AND HANES | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | ABB | | | 1.6 | 3.4 | 5.3 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $1,600 | WWLS-07 |
| 04 - FIRST AND HANES | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | ABB | | | 1.0 | 3.4 | 3.4 | LOW | 15 | 15 | 100 % | REPLACE | $1,600 | WWLS-07 |
| 04 - FIRST AND HANES | PUMP STATION | TRANSFORMER INTERIOR | TRANSFORMER | | | | HAMMOND | TYPE 3AH | | 1.0 | 3.4 | 3.4 | LOW | 20 | 20 | 100 % | REPLACE | $1,500 | WWLS-07 |
| 04 - FIRST AND HANES | PUMP STATION | UPS | UPS | | | | SOL | SK2 INDUSTRIAL UPS | | 1.0 | 3.0 | 3.0 | LOW | 20 | 20 | 100 % | REPLACE | $2,400 | WWLS-07 |
| 04 - FIRST AND HANES | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| 04 - FIRST AND HANES | PUMP STATION | SITE FENCE | FENCE | | | | | | | 2.5 | 1.0 | 2.5 | LOW | 25 | 16 | 64% | REPLACE | $4,400 | WWLS-MISC |
| 04 - FIRST AND HANES | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 2.1 | 3.1 | 6.5 | MEDIUM LOW | 10 | 7 | 70% | REPLACE | $1,000 | WWLS-MISC |
| 04 - FIRST AND HANES | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 3.2 | 3.2 | LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| 04 - FIRST AND HANES | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | SULZER | XPF100C-BB1.4-PE35 | | 5.0 | 3.9 | 19.4 | HIGH | 15 | 0 | 0% | REPLACE | $15,000 | WWLS-04 |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 04 - FIRST AND HANES | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | HCP | 100AFP43.7 | | 5.0 | 3.9 | 19.4 | HIGH | 15 | 0 | 0% | REPLACE | $15,000 | WWLS-04 |
| 04 - FIRST AND HANES | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | CLOW KENNEDY | | | 1.8 | 1.3 | 2.3 | LOW | 25 | 20 | 80% | REPLACE | $2,900 | WWLS-MISC |
| 04 - FIRST AND HANES | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | CLOW KENNEDY | | | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $2,900 | WWLS-MISC |
| 04 - FIRST AND HANES | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | MUELLER | AWWA 230W | | 1.8 | 1.3 | 2.3 | LOW | 25 | 20 | 80% | REPLACE | $3,600 | WWLS-MISC |
| 04 - FIRST AND HANES | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | MUELLER | AWWA 230W | | 1.8 | 1.3 | 2.3 | LOW | 25 | 20 | 80% | REPLACE | $3,600 | WWLS-MISC |
| 04 - FIRST AND HANES | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 3.4 | 1.2 | 4.1 | LOW | 70 | 28 | 40% | REHAB | $7,800 | WWLS-MISC |
| 04 - FIRST AND HANES | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 2.2 | 1.4 | 3.1 | LOW | 70 | 49 | 70% | REHAB | $36,000 | WWLS-STR2 |
| 05 - RICH AVENUE | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | | | | 3.4 | 3.5 | 11.8 | MEDIUM HIGH | 20 | 8 | 40% | REPLACE | $7,000 | WWLS-07 |
| 05 - RICH AVENUE | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | GE | | | 1.6 | 3.4 | 5.2 | MEDIUM LOW | 35 | 30 | 86% | REPLACE | $300 | WWLS-MISC |
| 05 - RICH AVENUE | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | ABB | | | 1.0 | 3.4 | 3.4 | LOW | 15 | 15 | 100% | REPLACE | $1,600 | WWLS-07 |
| 05 - RICH AVENUE | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | ABB | | | 1.0 | 2.8 | 2.8 | LOW | 15 | 15 | 100% | REPLACE | $1,600 | WWLS-07 |
| 05 - RICH AVENUE | PUMP STATION | TRANSFORMER EXTERIOR | TRANSFORMER | | | | | | | 3.2 | 3.4 | 10.7 | MEDIUM LOW | 20 | 9 | 45% | REPLACE | $1,500 | WWLS-07 |
| 05 - RICH AVENUE | PUMP STATION | TRANSFORMER INTERIOR | TRANSFORMER | | | | HAMMOND | PT3000MQMJ | | 1.0 | 3.4 | 3.4 | LOW | 20 | 20 | 100% | REPLACE | $1,500 | WWLS-07 |
| 05 - RICH AVENUE | PUMP STATION | UPS | UPS | | | | SOLA | S2K INDUSTRIAL UPS | | 1.0 | 3.0 | 3.0 | LOW | 20 | 20 | 100% | REPLACE | $2,400 | WWLS-07 |
| 05 - RICH AVENUE | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| 05 - RICH AVENUE | PUMP STATION | SITE FENCE | FENCE | | | | | | | 2.8 | 1.2 | 3.3 | LOW | 25 | 14 | 56% | REPLACE | $5,400 | WWLS-MISC |
| 05 - RICH AVENUE | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 1.6 | 3.1 | 4.8 | MEDIUM LOW | 10 | 9 | 90% | REPLACE | $1,000 | WWLS-MISC |
| 05 - RICH AVENUE | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNI SITE | XR50 | | 1.6 | 3.2 | 5.2 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $7,000 | WW-01 |
| 05 - RICH AVENUE | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | WILO | FA10.51E | 2018 | 3.4 | 3.9 | 13.0 | MEDIUM HIGH | 15 | 6 | 40% | REPLACE | $11,200 | WWLS-MISC |
| 05 - RICH AVENUE | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | WILO | FA10.51E | 2018 | 5.0 | 3.5 | 17.5 | HIGH | 15 | 0 | 0% | REPLACE | $11,200 | WWLS-04 |
| 05 - RICH AVENUE | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | MUELLER | 175WP | | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $1,700 | WWLS-MISC |
| 05 - RICH AVENUE | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | MUELLER | 175 WP | | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $1,700 | WWLS-MISC |
| 05 - RICH AVENUE | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | | | | 1.8 | 1.3 | 2.3 | LOW | 25 | 20 | 80% | REPLACE | $3,000 | WWLS-MISC |
| 05 - RICH AVENUE | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | | | | 1.8 | 1.3 | 2.3 | LOW | 25 | 20 | 80% | REPLACE | $3,000 | WWLS-MISC |
| 05 - RICH AVENUE | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 1.6 | 1.2 | 2.0 | LOW | 70 | 59 | 84% | REHAB | $5,800 | WWLS-MISC |
| 05 - RICH AVENUE | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 4.1 | 1.4 | 5.7 | MEDIUM LOW | 70 | 16 | 23% | REHAB | $43,400 | WWLS-STR1 |
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | HSI | NEMA 4X ENCLOSURE | | 3.3 | 4.0 | 13.2 | MEDIUM HIGH | 20 | 9 | 45% | REPLACE | $7,000 | WWLS-07 |
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | GE | NP1578001D | | 1.6 | 3.9 | 6.1 | MEDIUM LOW | 35 | 30 | 86% | REPLACE | $400 | WWLS-MISC |
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | ABB | A26-30-10 | | 5.0 | 3.4 | 16.9 | HIGH | 15 | 0 | 0% | REPLACE | $1,600 | WWLS-04 |
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | ABB | A40-30-10 | | 1.0 | 3.9 | 3.9 | MEDIUM LOW | 15 | 15 | 100% | REPLACE | $1,600 | WWLS-07 |
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | TRANSFORMER EXTERIOR | TRANSFORMER | | | | MICRON INDUSTRIES CORPERATION | G003K1KF1A19 | | 1.0 | 3.9 | 3.9 | MEDIUM LOW | 20 | 20 | 100% | REPLACE | $1,500 | WWLS-07 |
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | TRANSFORMER INTERIOR | TRANSFORMER | | | | HAMMOND | PT3000MQMJ | | 1.6 | 3.9 | 6.0 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $1,500 | WWLS-07 |
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | UPS | UPS | | | | MAX OFFICE | MXO600U | | 3.2 | 3.3 | 10.6 | MEDIUM LOW | 20 | 9 | 45% | REPLACE | $2,400 | WWLS-07 |
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | SITE FENCE | FENCE | | | | | | | 2.5 | 1.0 | 2.5 | LOW | 25 | 16 | 64% | REPLACE | $1,300 | WWLS-MISC |
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 1.6 | 3.6 | 5.8 | MEDIUM LOW | 10 | 8 | 80% | REPLACE | $1,000 | WWLS-MISC |
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.6 | 3.7 | 6.1 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $7,000 | WW-01 |
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | WILO | FK17.1-4/16KEX | | 5.0 | 3.9 | 19.5 | HIGH | 15 | 0 | 0% | REPLACE | $20,200 | WWLS-04 |
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | SULZER | AFPK1547.1-M70/6 | 2006 | 5.0 | 4.4 | 22.0 | HIGH | 15 | 0 | 0% | REPLACE | $20,200 | WWLS-04 |
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | MUELLER | 175WP | | 1.6 | 1.3 | 2.0 | LOW | 25 | 21 | 84% | REPLACE | $2,900 | WWLS-MISC |
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | MUELLER | 175 WF | | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $2,900 | WWLS-MISC |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | MUELLER | 175WF | | 1.0 | 1.3 | 1.3 | LOW | 25 | 25 | 100 % | REPLACE | $3,600 | WWLS-MISC |
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | MUELLER | 250 W | | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $3,600 | WWLS-MISC |
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 1.0 | 1.2 | 1.2 | LOW | 70 | 70 | 100 % | REHAB | $12,400 | WWLS-MISC |
| 06 - CRAFT HWY AND ELM STREET | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ RECTANGULAR WET WELL | | | | | | | 3.7 | 1.4 | 5.2 | MEDIUM LOW | 70 | 23 | 33% | REHAB | $51,700 | WWLS-STR1 |
| 07 - PERSHING STREET | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | GORMAN RIP | | | 3.4 | 3.5 | 11.8 | MEDIUM HIGH | 20 | 8 | 40% | REPLACE | $7,000 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | GE | NP1578001D | | 1.6 | 3.4 | 5.2 | MEDIUM LOW | 35 | 30 | 86% | REPLACE | $400 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | ALLEN-BRADLEY | | | 1.0 | 2.8 | 2.8 | LOW | 15 | 15 | 100 % | REPLACE | $1,600 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | ALLEN-BRADLEY | | | 1.0 | 2.8 | 2.8 | LOW | 15 | 15 | 100 % | REPLACE | $1,600 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | LIFT STATION INDOOR LIGHTING | LIGHTING_ INDOOR | | | | | | | 1.0 | 2.0 | 2.0 | LOW | 25 | 25 | 100 % | REPLACE | $1,000 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $300 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | SITE FENCE | FENCE | | | | | | | 4.4 | 1.2 | 5.3 | MEDIUM LOW | 25 | 4 | 16% | REPLACE | $7,400 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 1.7 | 3.1 | 5.1 | MEDIUM LOW | 10 | 8 | 80% | REPLACE | $1,000 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.6 | 3.2 | 5.2 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $7,000 | WW-01 |
| 07 - PERSHING STREET | PUMP STATION | BUILDING EXHAUST FAN | FANS AND BLOWERS | | | | GREENCECK | | | 5.0 | 2.2 | 10.8 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $1,600 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | WET WELL EXHAUST FAN | FANS AND BLOWERS | | | | | | | 4.1 | 2.0 | 8.1 | MEDIUM LOW | 25 | 6 | 24% | REPLACE | $1,600 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | PUMP 01 MOTOR | MOTOR | | | | MARATHON ELECTRIC | SERIES 5 | | 2.1 | 2.8 | 6.0 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $1,700 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | PUMP 02 MOTOR | MOTOR | | | | GENERAL ELECTRIC | 5K215AN214 | | 2.2 | 2.8 | 6.1 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $1,700 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | PUMP 01 | PUMP_ CENTRIFUGAL | | | | PINNAXLE FLO, INZC | 4"PFSPP | | 1.7 | 3.5 | 6.1 | MEDIUM LOW | 20 | 16 | 80% | REPLACE | $20,000 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | PUMP 02 | PUMP_ CENTRIFUGAL | | | | GORMAN-RUPP | T4A3S-B/F | | 2.3 | 3.5 | 7.9 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $20,000 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | BYPASS ISOLATION VALVE | VALVE_ GATE | | | | MUELLER | | | 1.7 | 2.0 | 3.3 | LOW | 25 | 21 | 84% | REPLACE | $3,600 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | UNITED | 200WF | | 3.4 | 1.3 | 4.4 | LOW | 25 | 10 | 40% | REPLACE | $1,700 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | UNITED | 200 WF | | 3.4 | 1.3 | 4.5 | LOW | 25 | 10 | 40% | REPLACE | $1,700 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | DISCHARGE HEADER ISOLATION VALVE | VALVE_ GATE | | | | MUELLER | | 2020 | 2.3 | 2.2 | 5.0 | LOW | 25 | 17 | 68% | REPLACE | $3,600 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | DARLING VALVE | 200 WF | | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $3,000 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | DARLING VALVE | 200 WF | | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $3,000 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | PUMP STATION BUILDING STRUCTURE | STRUCTURE_ BUILDING | | | | | | | 4.3 | 1.2 | 5.2 | MEDIUM LOW | 75 | 13 | 17% | REHAB | $12,000 | WWLS-03 |
| 07 - PERSHING STREET | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ RECTANGULAR WET WELL | | | | | | | 2.5 | 1.4 | 3.5 | LOW | 70 | 44 | 63% | REHAB | $25,800 | WWLS-03 |
| 08 - ALABAMA VILLAGE | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | HSI | NIMA 4X | | 5.0 | 4.0 | 19.8 | HIGH | 20 | 0 | 0% | REPLACE | $7,000 | WWLS-01 |
| 08 - ALABAMA VILLAGE | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | GE | NP1578001D | | 1.0 | 3.8 | 3.8 | MEDIUM LOW | 35 | 35 | 100 % | REPLACE | $400 | WWLS-01 |
| 08 - ALABAMA VILLAGE | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | NEMA | | | 5.0 | 4.4 | 22.0 | HIGH | 15 | 0 | 0% | REPLACE | $1,600 | WWLS-01 |
| 08 - ALABAMA VILLAGE | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | NEMA | | | 5.0 | 4.4 | 22.0 | HIGH | 15 | 0 | 0% | REPLACE | $1,800 | WWLS-01 |
| 08 - ALABAMA VILLAGE | PUMP STATION | TRANSFORMER EXTERIOR | TRANSFORMER | | | | | SO3029MC | | 2.3 | 3.8 | 8.7 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $1,500 | WWLS-01 |
| 08 - ALABAMA VILLAGE | PUMP STATION | TRANSFORMER INTERIOR | TRANSFORMER | | | | HAMMOND | PT3000MQMJ | | 3.3 | 3.8 | 12.4 | MEDIUM HIGH | 20 | 9 | 45% | REPLACE | $1,500 | WWLS-01 |
| 08 - ALABAMA VILLAGE | PUMP STATION | UPS | UPS | | | | SOLA | S2K | | 3.5 | 3.0 | 10.4 | MEDIUM HIGH | 20 | 8 | 40% | REPLACE | $2,400 | WWLS-01 |
| 08 - ALABAMA VILLAGE | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-01 |
| 08 - ALABAMA VILLAGE | PUMP STATION | SITE FENCE | FENCE | | | | | | | 1.8 | 1.0 | 1.8 | LOW | 25 | 20 | 80% | REPLACE | $4,000 | WWLS-MISC |
| 08 - ALABAMA VILLAGE | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 2.4 | 3.5 | 8.5 | MEDIUM LOW | 10 | 6 | 60% | REPLACE | $1,000 | WWLS-01 |
| 08 - ALABAMA VILLAGE | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 3.7 | 3.7 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| 08 - ALABAMA VILLAGE | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | | | | 5.0 | 4.9 | 24.6 | HIGH | 15 | 0 | 0% | REPLACE | $22,000 | WWLS-01 |
| 08 - ALABAMA VILLAGE | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | | | | 5.0 | 4.9 | 24.6 | HIGH | 15 | 0 | 0% | REPLACE | $22,000 | WWLS-01 |
| 08 - ALABAMA VILLAGE | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | MUELLER | | | 3.6 | 1.5 | 5.4 | MEDIUM LOW | 25 | 9 | 36% | REPLACE | $5,400 | WWLS-01 |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 08 - ALABAMA VILLAGE | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | MUELLER | 175 WP | | 3.8 | 1.5 | 5.7 | MEDIUM LOW | 25 | 8 | 32% | REPLACE | $5,400 | WWLS-01 |
| 08 - ALABAMA VILLAGE | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | | | | 1.8 | 1.5 | 2.6 | LOW | 25 | 20 | 80% | REPLACE | $6,200 | WWLS-01 |
| 08 - ALABAMA VILLAGE | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | | | | 1.8 | 1.5 | 2.6 | LOW | 25 | 20 | 80% | REPLACE | $6,200 | WWLS-01 |
| 08 - ALABAMA VILLAGE | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 2.3 | 1.2 | 2.7 | LOW | 70 | 48 | 69% | REHAB | $11,200 | WWLS-01 |
| 08 - ALABAMA VILLAGE | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 3.9 | 1.4 | 5.4 | MEDIUM LOW | 70 | 20 | 29% | REHAB | $43,400 | WWLS-01 |
| 09 - WHATLEY AVENUE | PUMP STATION | ATS | ATS | | | | TAYLOR POWER SYSTEMS | | | 2.1 | 4.3 | 9.0 | MEDIUM LOW | 30 | 22 | 73% | REPLACE | $8,000 | WWLS-MISC |
| 09 - WHATLEY AVENUE | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | SCHAEFERS | | 2005 | 3.4 | 4.0 | 13.4 | MEDIUM HIGH | 20 | 8 | 40% | REPLACE | $15,000 | WWLS-02 |
| 09 - WHATLEY AVENUE | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | UNKNOWN | | | 2.1 | 3.8 | 8.0 | MEDIUM LOW | 35 | 25 | 71% | REPLACE | $1,500 | WWLS-MISC |
| 09 - WHATLEY AVENUE | PUMP STATION | MOTOR SOFT STARTER 01 | MOTOR STARTERS | | | | ABB | 1SFA894010R7000 | | 5.0 | 3.8 | 18.8 | HIGH | 15 | 0 | 0% | REPLACE | $9,400 | WWLS-02 |
| 09 - WHATLEY AVENUE | PUMP STATION | MOTOR SOFT STARTER 02 | MOTOR STARTERS | | | | WEG | SSW07 | | 1.0 | 4.6 | 4.6 | MEDIUM HIGH | 15 | 15 | 100 % | REPLACE | $9,400 | WWLS-02 |
| 09 - WHATLEY AVENUE | PUMP STATION | MOTOR SOFT STARTER 03 | MOTOR STARTERS | | | | WEG | SSW-07 | | 5.0 | 4.6 | 22.8 | HIGH | 15 | 0 | 0% | REPLACE | $9,400 | WWLS-02 |
| 09 - WHATLEY AVENUE | PUMP STATION | TRANSFORMER EXTERIOR | TRANSFORMER | | | | MICRON INDUSTRIES | G005K1KF1A19 | | 3.4 | 3.8 | 12.8 | MEDIUM HIGH | 20 | 8 | 40% | REPLACE | $1,700 | WWLS-02 |
| 09 - WHATLEY AVENUE | PUMP STATION | TRANSFORMER INTERIOR | TRANSFORMER | | | | HAMMOND | 0527K | | 1.0 | 3.8 | 3.8 | MEDIUM LOW | 20 | 20 | 100 % | REPLACE | $1,700 | WWLS-02 |
| 09 - WHATLEY AVENUE | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-02 |
| 09 - WHATLEY AVENUE | PUMP STATION | SITE FENCE | FENCE | | | | | | | 2.8 | 1.0 | 2.8 | LOW | 25 | 14 | 56% | REPLACE | $4,200 | WWLS-MISC |
| 09 - WHATLEY AVENUE | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 2.3 | 3.5 | 8.0 | MEDIUM LOW | 10 | 7 | 70% | REPLACE | $1,200 | WWLS-MISC |
| 09 - WHATLEY AVENUE | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 3.7 | 3.7 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| 09 - WHATLEY AVENUE | PUMP STATION | HOIST | DAVIT | | | | THEM INC | G31932GRA | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 30 | 0 | 0% | REPLACE | $3,900 | WWLS-02 |
| 09 - WHATLEY AVENUE | PUMP STATION | GENERATOR BACKUP | GENERATOR_ DIESEL | | | | KOHLER | KOHLER POWER SYSTEM | | 3.0 | 4.7 | 14.1 | HIGH | 25 | 13 | 52% | REPLACE | $35,300 | WWLS-MISC |
| 09 - WHATLEY AVENUE | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | | | | 5.0 | 4.4 | 22.1 | HIGH | 15 | 0 | 0% | REPLACE | $41,200 | WWLS-02 |
| 09 - WHATLEY AVENUE | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS AFP1552ME630 | 2005 | 3.1 | 4.9 | 15.4 | HIGH | 15 | 7 | 47% | REPLACE | $41,200 | WWLS-MISC |
| 09 - WHATLEY AVENUE | PUMP STATION | PUMP 03 | PUMP_ SUBMERSIBLE | | | | SULZER | | | 5.0 | 4.9 | 24.6 | HIGH | 15 | 0 | 0% | REPLACE | $41,200 | WWLS-02 |
| 09 - WHATLEY AVENUE | PUMP STATION | BYPASS CHECK VALVE | VALVE_ CHECK | | | | MUELLER | 175WP | 2001 | 4.1 | 2.2 | 8.8 | MEDIUM LOW | 25 | 6 | 24% | REPLACE | $9,200 | WWLS-MISC |
| 09 - WHATLEY AVENUE | PUMP STATION | BYPASS ISOLATION VALVE | VALVE_ GATE | | | | AMERICAN DARLING | D-7732 | 1987 | 3.7 | 2.2 | 8.0 | MEDIUM LOW | 25 | 8 | 32% | REPLACE | $6,200 | WWLS-MISC |
| 09 - WHATLEY AVENUE | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | MUELLER | | | 3.6 | 1.5 | 5.4 | MEDIUM LOW | 25 | 9 | 36% | REPLACE | $9,200 | WWLS-MISC |
| 09 - WHATLEY AVENUE | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | MUELLER | | | 3.6 | 1.5 | 5.4 | MEDIUM LOW | 25 | 9 | 36% | REPLACE | $9,200 | WWLS-MISC |
| 09 - WHATLEY AVENUE | PUMP STATION | CHECK VALVE 03 | VALVE_ CHECK | | | | MUELLER | | | 3.6 | 1.5 | 5.4 | MEDIUM LOW | 25 | 9 | 36% | REPLACE | $9,200 | WWLS-MISC |
| 09 - WHATLEY AVENUE | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | MUELLER | | | 3.6 | 1.5 | 5.3 | MEDIUM LOW | 25 | 9 | 36% | REPLACE | $10,900 | WWLS-MISC |
| 09 - WHATLEY AVENUE | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | MUELLER | | | 3.6 | 1.5 | 5.3 | MEDIUM LOW | 25 | 9 | 36% | REPLACE | $10,900 | WWLS-MISC |
| 09 - WHATLEY AVENUE | PUMP STATION | DISCHARGE VALVE 03 | VALVE_ GATE | | | | MUELLER | | | 3.6 | 1.5 | 5.3 | MEDIUM LOW | 25 | 9 | 36% | REPLACE | $10,900 | WWLS-MISC |
| 09 - WHATLEY AVENUE | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 3.6 | 1.4 | 5.1 | MEDIUM LOW | 70 | 24 | 34% | REHAB | $34,900 | WWLS-MISC |
| 09 - WHATLEY AVENUE | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ RECTANGULAR WET WELL | | | | | | | 4.2 | 1.4 | 5.8 | MEDIUM LOW | 70 | 15 | 21% | REHAB | $58,200 | WWLS-02 |
| 10 - EMILY AVENUE | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | SCHAFFER | | 2005 | 3.3 | 3.6 | 11.8 | MEDIUM HIGH | 20 | 8 | 40% | REPLACE | $7,000 | WWLS-07 |
| 10 - EMILY AVENUE | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | SQUARE D | | | 2.2 | 3.4 | 7.6 | MEDIUM LOW | 35 | 24 | 69% | REPLACE | $300 | WWLS-MISC |
| 10 - EMILY AVENUE | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | ABB | | | 5.0 | 2.9 | 14.5 | HIGH | 15 | 0 | 0% | REPLACE | $1,600 | WWLS-04 |
| 10 - EMILY AVENUE | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | ABB | | | 5.0 | 3.4 | 17.1 | HIGH | 15 | 0 | 0% | REPLACE | $1,600 | WWLS-04 |
| 10 - EMILY AVENUE | PUMP STATION | TRANSFORMER EXTERIOR | TRANSFORMER | | | | D SQUARE | 3S1F | | 3.0 | 3.4 | 10.3 | MEDIUM LOW | 20 | 10 | 50% | REPLACE | $1,500 | WWLS-07 |
| 10 - EMILY AVENUE | PUMP STATION | TRANSFORMER INTERIOR | TRANSFORMER | | | | HAMMOND | PT3000MQMJ | | 3.0 | 3.4 | 10.3 | MEDIUM LOW | 20 | 10 | 50% | REPLACE | $1,500 | WWLS-07 |
| 10 - EMILY AVENUE | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 1.0 | 2.0 | 2.0 | LOW | 25 | 25 | 100 % | REPLACE | $2,100 | WWLS-MISC |
| 10 - EMILY AVENUE | PUMP STATION | SITE FENCE | FENCE | | | | | | | 1.7 | 1.0 | 1.7 | LOW | 25 | 21 | 84% | REPLACE | $2,500 | WWLS-MISC |
| 10 - EMILY AVENUE | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 2.7 | 3.1 | 8.4 | MEDIUM LOW | 10 | 6 | 60% | REPLACE | $1,000 | WWLS-MISC |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 - EMILY AVENUE | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 3.0 | 3.3 | 9.8 | MEDIUM LOW | 15 | 8 | 53% | REPLACE | $7,000 | WW-01 |
| 10 - EMILY AVENUE | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS PIRANHA-M35 | 2007 | 5.0 | 3.6 | 18.0 | HIGH | 15 | 0 | 0% | REPLACE | $10,700 | WWLS-04 |
| 10 - EMILY AVENUE | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS PIRANHA PE35 | 2012 | 5.0 | 4.0 | 19.8 | HIGH | 15 | 0 | 0% | REPLACE | $10,700 | WWLS-04 |
| 10 - EMILY AVENUE | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | | | | 3.0 | 1.3 | 3.9 | LOW | 25 | 13 | 52% | REPLACE | $1,000 | WWLS-MISC |
| 10 - EMILY AVENUE | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | | | | 3.0 | 1.3 | 3.9 | LOW | 25 | 13 | 52% | REPLACE | $1,000 | WWLS-MISC |
| 10 - EMILY AVENUE | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | | | | 3.0 | 1.3 | 3.9 | LOW | 25 | 13 | 52% | REPLACE | $1,400 | WWLS-MISC |
| 10 - EMILY AVENUE | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | | | | 3.0 | 1.3 | 3.9 | LOW | 25 | 13 | 52% | REPLACE | $1,400 | WWLS-MISC |
| 10 - EMILY AVENUE | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 1.8 | 1.0 | 1.8 | LOW | 70 | 56 | 80% | REHAB | $2,800 | WWLS-MISC |
| 10 - EMILY AVENUE | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 1.8 | 1.2 | 2.2 | LOW | 70 | 56 | 80% | REHAB | $14,300 | WWLS-STR2 |
| 11 - ATMORE AVENUE | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | HYDRASERVICE INC | | | 3.4 | 3.3 | 11.1 | MEDIUM LOW | 20 | 8 | 40% | REPLACE | $7,000 | WWLS-07 |
| 11 - ATMORE AVENUE | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | SIEMENS | | | 1.0 | 3.1 | 3.1 | LOW | 35 | 35 | 100 % | REPLACE | $300 | WWLS-MISC |
| 11 - ATMORE AVENUE | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | ABB | | | 2.2 | 2.6 | 5.7 | MEDIUM LOW | 15 | 11 | 73% | REPLACE | $1,600 | WWLS-07 |
| 11 - ATMORE AVENUE | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | ABB | | | 2.1 | 3.1 | 6.7 | MEDIUM LOW | 15 | 11 | 73% | REPLACE | $1,600 | WWLS-07 |
| 11 - ATMORE AVENUE | PUMP STATION | TRANSFORMER EXTERIOR | TRANSFORMER | | | | SQUARED | TYPE3R | | 3.2 | 3.1 | 9.9 | MEDIUM LOW | 20 | 9 | 45% | REPLACE | $1,700 | WWLS-07 |
| 11 - ATMORE AVENUE | PUMP STATION | UPS | UPS | | | | SOLA | S2K INDUSTRIAL UPS | | 3.4 | 3.0 | 10.0 | MEDIUM LOW | 20 | 8 | 40% | REPLACE | $2,400 | WWLS-07 |
| 11 - ATMORE AVENUE | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| 11 - ATMORE AVENUE | PUMP STATION | SITE FENCE | FENCE | | | | | | | 1.0 | 1.2 | 1.2 | LOW | 25 | 25 | 100 % | REPLACE | $5,300 | WWLS-MISC |
| 11 - ATMORE AVENUE | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 1.8 | 2.8 | 5.1 | MEDIUM LOW | 10 | 8 | 80% | REPLACE | $1,000 | WWLS-MISC |
| 11 - ATMORE AVENUE | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 3.0 | 3.0 | LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| 11 - ATMORE AVENUE | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | | | | 5.0 | 3.2 | 15.8 | HIGH | 15 | 0 | 0% | REPLACE | $11,200 | WWLS-04 |
| 11 - ATMORE AVENUE | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS XFP-PE1-80C-CB1.5-PE28 | 2022 | 2.0 | 3.7 | 7.3 | MEDIUM LOW | 15 | 11 | 73% | REPLACE | $11,200 | WWLS-MISC |
| 11 - ATMORE AVENUE | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | MUELLER | 175WP | | 1.6 | 1.3 | 2.0 | LOW | 25 | 21 | 84% | REPLACE | $1,700 | WWLS-MISC |
| 11 - ATMORE AVENUE | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | MUELLER | | | 1.6 | 1.3 | 2.0 | LOW | 25 | 21 | 84% | REPLACE | $1,700 | WWLS-MISC |
| 11 - ATMORE AVENUE | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | MUELLER | | | 1.6 | 1.3 | 2.0 | LOW | 25 | 22 | 88% | REPLACE | $3,000 | WWLS-MISC |
| 11 - ATMORE AVENUE | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | MUELLER | | | 1.6 | 1.3 | 2.0 | LOW | 25 | 22 | 88% | REPLACE | $3,000 | WWLS-MISC |
| 11 - ATMORE AVENUE | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 1.0 | 1.2 | 1.2 | LOW | 70 | 70 | 100 % | REHAB | $11,500 | WWLS-MISC |
| 11 - ATMORE AVENUE | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 2.2 | 1.4 | 3.1 | LOW | 70 | 49 | 70% | REHAB | $38,900 | WWLS-STR2 |
| 12 - HAND AVENUE | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | CONTROL SYSTEMS INC | | | 3.3 | 3.5 | 11.7 | MEDIUM HIGH | 20 | 8 | 40% | REPLACE | $7,000 | WWLS-07 |
| 12 - HAND AVENUE | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | SQUARE D | FA-100-RB | | 3.4 | 3.4 | 11.5 | MEDIUM LOW | 35 | 14 | 40% | REPLACE | $700 | WWLS-MISC |
| 12 - HAND AVENUE | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | ALLEN BRADLEY | 100-S | | 2.8 | 2.8 | 7.9 | MEDIUM LOW | 15 | 8 | 53% | REPLACE | $1,600 | WWLS-07 |
| 12 - HAND AVENUE | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | SIEMENS | | | 2.3 | 3.4 | 7.5 | MEDIUM LOW | 15 | 10 | 67% | REPLACE | $1,600 | WWLS-07 |
| 12 - HAND AVENUE | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| 12 - HAND AVENUE | PUMP STATION | SITE FENCE | FENCE | | | | | | | 2.4 | 1.0 | 2.4 | LOW | 25 | 16 | 64% | REPLACE | $2,200 | WWLS-MISC |
| 12 - HAND AVENUE | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 1.8 | 3.1 | 5.3 | MEDIUM LOW | 10 | 8 | 80% | REPLACE | $1,000 | WWLS-MISC |
| 12 - HAND AVENUE | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 3.5 | 3.2 | 11.2 | MEDIUM HIGH | 15 | 6 | 40% | REPLACE | $7,000 | WW-01 |
| 12 - HAND AVENUE | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS XFP-PE2-100E-CB1.4-PE35 | 2019 | 5.0 | 3.5 | 17.5 | HIGH | 15 | 0 | 0% | REPLACE | $11,500 | WWLS-04 |
| 12 - HAND AVENUE | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | FLYGT | 3085.183-9531 | | 1.7 | 3.9 | 6.5 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $11,500 | WWLS-MISC |
| 12 - HAND AVENUE | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | GLOW | 175W | | 2.3 | 1.3 | 3.0 | LOW | 25 | 17 | 68% | REPLACE | $1,700 | WWLS-MISC |
| 12 - HAND AVENUE | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | CLOW | 175W | | 2.3 | 1.3 | 2.9 | LOW | 25 | 17 | 68% | REPLACE | $1,700 | WWLS-MISC |
| 12 - HAND AVENUE | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | | | | 3.1 | 1.3 | 4.0 | LOW | 25 | 12 | 48% | REPLACE | $3,000 | WWLS-MISC |
| 12 - HAND AVENUE | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | | | | 2.3 | 1.3 | 3.0 | LOW | 25 | 17 | 68% | REPLACE | $3,000 | WWLS-MISC |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 - HAND AVENUE | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 3.7 | 1.2 | 4.5 | MEDIUM LOW | 70 | 23 | 33% | REHAB | $7,800 | WWLS-MISC |
| 12 - HAND AVENUE | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 3.4 | 1.4 | 4.7 | LOW | 70 | 28 | 40% | REHAB | $43,400 | WWLS-STR3 |
| 14 - HIGHWAY 45 | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | HSI | | 2005 | 3.3 | 3.5 | 11.7 | MEDIUM HIGH | 20 | 8 | 40% | REPLACE | $7,000 | WWLS-07 |
| 14 - HIGHWAY 45 | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | GE | | | 1.0 | 3.4 | 3.4 | LOW | 35 | 35 | 100 % | REPLACE | $400 | WWLS-MISC |
| 14 - HIGHWAY 45 | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | | | | 1.6 | 2.8 | 4.4 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $1,600 | WWLS-07 |
| 14 - HIGHWAY 45 | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | | | | 1.6 | 2.8 | 4.4 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $1,600 | WWLS-07 |
| 14 - HIGHWAY 45 | PUMP STATION | TRANSFORMER EXTERIOR | TRANSFORMER | | | | MICRON INDUSTRIES CORPERATION | S03075MG | | 3.4 | 3.4 | 11.3 | MEDIUM LOW | 20 | 8 | 40% | REPLACE | $1,500 | WWLS-07 |
| 14 - HIGHWAY 45 | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| 14 - HIGHWAY 45 | PUMP STATION | SITE FENCE | FENCE | | | | | | | 1.8 | 1.0 | 1.8 | LOW | 25 | 20 | 80% | REPLACE | $2,800 | WWLS-MISC |
| 14 - HIGHWAY 45 | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 2.4 | 3.1 | 7.4 | MEDIUM LOW | 10 | 6 | 60% | REPLACE | $1,000 | WWLS-MISC |
| 14 - HIGHWAY 45 | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 3.2 | 3.2 | LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| 14 - HIGHWAY 45 | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS AFP(K)0841.1-M35 | 2006 | 3.0 | 3.5 | 10.5 | MEDIUM HIGH | 15 | 8 | 53% | REPLACE | $12,300 | WWLS-MISC |
| 14 - HIGHWAY 45 | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS XFP-PE1-800-CB1.4-PE35 | 2020 | 3.0 | 3.5 | 10.5 | MEDIUM HIGH | 15 | 8 | 53% | REPLACE | $12,300 | WWLS-MISC |
| 14 - HIGHWAY 45 | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | | | | 1.0 | 2.2 | 2.2 | LOW | 25 | 25 | 100 % | REPLACE | $1,700 | WWLS-MISC |
| 14 - HIGHWAY 45 | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | | | | 3.5 | 2.2 | 7.8 | MEDIUM LOW | 25 | 9 | 36% | REPLACE | $1,700 | WWLS-MISC |
| 14 - HIGHWAY 45 | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | | | | 1.0 | 1.3 | 1.3 | LOW | 25 | 25 | 100 % | REPLACE | $3,000 | WWLS-MISC |
| 14 - HIGHWAY 45 | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | | | | 1.0 | 1.3 | 1.3 | LOW | 25 | 25 | 100 % | REPLACE | $3,000 | WWLS-MISC |
| 14 - HIGHWAY 45 | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 2.3 | 1.2 | 2.8 | LOW | 70 | 47 | 67% | REHAB | $8,800 | WWLS-MISC |
| 14 - HIGHWAY 45 | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 2.4 | 1.2 | 2.9 | LOW | 70 | 45 | 64% | REHAB | $13,100 | WWLS-STR3 |
| 15 - WINCHESTER ROAD | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | UNKNOWN | | 2005 | 3.5 | 3.0 | 10.4 | MEDIUM LOW | 20 | 8 | 40% | REPLACE | $15,000 | WWLS-09 |
| 15 - WINCHESTER ROAD | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | SIEMENS | | | 1.6 | 3.4 | 5.4 | MEDIUM LOW | 35 | 30 | 86% | REPLACE | $1,500 | WWLS-09 |
| 15 - WINCHESTER ROAD | PUMP STATION | MOTOR SOFT STARTER 01 | MOTOR STARTERS | | | | WEG | SSW07 | | 3.0 | 3.4 | 10.1 | MEDIUM LOW | 15 | 8 | 53% | REPLACE | $4,600 | WWLS-09 |
| 15 - WINCHESTER ROAD | PUMP STATION | MOTOR SOFT STARTER 02 | MOTOR STARTERS | | | | WEG | SSW07 | | 3.0 | 2.9 | 8.6 | MEDIUM LOW | 15 | 8 | 53% | REPLACE | $4,600 | WWLS-09 |
| 15 - WINCHESTER ROAD | PUMP STATION | MOTOR SOFT STARTER 03 | MOTOR STARTERS | | | | WEG | SSW07 | | 3.0 | 3.4 | 10.1 | MEDIUM LOW | 15 | 8 | 53% | REPLACE | $4,600 | WWLS-09 |
| 15 - WINCHESTER ROAD | PUMP STATION | TRANSFORMER EXTERIOR | TRANSFORMER | | | | MICRON INDUSTRIES CORPORATION | S05104MC | | 3.0 | 3.4 | 10.1 | MEDIUM LOW | 20 | 10 | 50% | REPLACE | $1,700 | WWLS-09 |
| 15 - WINCHESTER ROAD | PUMP STATION | TRANSFORMER INTERIOR | TRANSFORMER | | | | HAMMOND | PT5000MQMJ | | 3.0 | 3.4 | 10.1 | MEDIUM LOW | 20 | 10 | 50% | REPLACE | $1,700 | WWLS-09 |
| 15 - WINCHESTER ROAD | PUMP STATION | LIFT STATION INDOOR LIGHTING | LIGHTING_ INDOOR | | | | | | | 3.0 | 2.0 | 6.0 | MEDIUM LOW | 25 | 13 | 52% | REPLACE | $1,200 | WWLS-09 |
| 15 - WINCHESTER ROAD | PUMP STATION | LIFT STATION OUTDOOR LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $500 | WWLS-09 |
| 15 - WINCHESTER ROAD | PUMP STATION | DRIVEWAY FENCE | FENCE | | | | | | | 2.5 | 1.2 | 3.0 | LOW | 25 | 16 | 64% | REPLACE | $8,400 | WWLS-09 |
| 15 - WINCHESTER ROAD | PUMP STATION | SITE FENCE | FENCE | | | | | | | 2.5 | 1.0 | 2.5 | LOW | 25 | 16 | 64% | REPLACE | $4,200 | WWLS-09 |
| 15 - WINCHESTER ROAD | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 1.8 | 3.1 | 5.3 | MEDIUM LOW | 10 | 8 | 80% | REPLACE | $1,200 | WWLS-09 |
| 15 - WINCHESTER ROAD | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 3.5 | 3.2 | 11.2 | MEDIUM HIGH | 15 | 6 | 40% | REPLACE | $7,000 | WW-01 |
| 15 - WINCHESTER ROAD | PUMP STATION | BUILDING EXHAUST FAN | FANS AND BLOWERS | | | | DAYTON | 2C710A | | 5.0 | 2.2 | 10.8 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $1,400 | WWLS-09 |
| 15 - WINCHESTER ROAD | PUMP STATION | PUMP 01 MOTOR | MOTOR | | | | WORLDWIDE ELECTRIC CORP | ODP50-18-326T | 2022 | 3.4 | 3.0 | 10.3 | MEDIUM LOW | 20 | 8 | 40% | REPLACE | $5,700 | WWLS-09 |
| 15 - WINCHESTER ROAD | PUMP STATION | PUMP 02 MOTOR | MOTOR | | | | MARATHON ELECTRIC | 6VB326TTDC4026AAS | | 5.0 | 3.0 | 15.0 | HIGH | 20 | 0 | 0% | REPLACE | $5,200 | WWLS-04 |
| 15 - WINCHESTER ROAD | PUMP STATION | PUMP 03 MOTOR | MOTOR | | | | MARATHON | 6VB 326TTDC4026AA | | 3.0 | 3.0 | 9.0 | MEDIUM LOW | 20 | 10 | 50% | REPLACE | $7,100 | WWLS-09 |
| 15 - WINCHESTER ROAD | PUMP STATION | LIFT STATION OVERHEAD DOOR | OVERHEAD DOOR_ MANUAL | | | | ATLAS | | | 3.8 | 2.0 | 7.5 | MEDIUM LOW | 35 | 11 | 31% | REPLACE | $1,100 | WWLS-09 |
| 15 - WINCHESTER ROAD | PUMP STATION | PUMP 01 | PUMP_ CENTRIFUGAL | | | | PHANTOM | PL-6 | 2022 | 3.3 | 3.9 | 12.8 | MEDIUM HIGH | 20 | 9 | 45% | REPLACE | $25,000 | WWLS-09 |
| 15 - WINCHESTER ROAD | PUMP STATION | PUMP 02 | PUMP_ CENTRIFUGAL | | | | GORMAN RUPP | 16A3-B/F | | 5.0 | 3.4 | 16.9 | HIGH | 20 | 0 | 0% | REPLACE | $25,000 | WWLS-04 |
| 15 - WINCHESTER ROAD | PUMP STATION | PUMP 03 | PUMP_ CENTRIFUGAL | | | | GORMAN-RUPP PUMPS | T6A3S-B /F | 2020 | 3.0 | 3.9 | 11.6 | MEDIUM HIGH | 20 | 10 | 50% | REPLACE | $25,000 | WWLS-09 |
| 15 - WINCHESTER ROAD | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | PRATT | 0600 | | 1.6 | 1.7 | 2.7 | LOW | 25 | 21 | 84% | REPLACE | $2,900 | WWLS-09 |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **15 - WINCHESTER ROAD** | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | MUELLER-PRATT | | | 2.2 | 1.7 | 3.8 | LOW | 25 | 17 | 68% | REPLACE | $2,900 | WWLS-09 |
| **15 - WINCHESTER ROAD** | PUMP STATION | CHECK VALVE 03 | VALVE_ CHECK | | | | MUELLER | 600-8001AB1LW | | 3.4 | 1.7 | 5.9 | MEDIUM LOW | 25 | 10 | 40% | REPLACE | $2,900 | WWLS-09 |
| **15 - WINCHESTER ROAD** | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | MUELLER | 0292 | | 1.5 | 1.7 | 2.7 | LOW | 25 | 22 | 88% | REPLACE | $3,600 | WWLS-09 |
| **15 - WINCHESTER ROAD** | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | MUELLER | 0732 | | 1.0 | 1.7 | 1.7 | LOW | 25 | 25 | 100 % | REPLACE | $3,600 | WWLS-09 |
| **15 - WINCHESTER ROAD** | PUMP STATION | DISCHARGE VALVE 03 | VALVE_ GATE | | | | MUELLER | | | 3.0 | 1.7 | 5.2 | MEDIUM LOW | 25 | 13 | 52% | REPLACE | $3,600 | WWLS-09 |
| **15 - WINCHESTER ROAD** | PUMP STATION | LIFT STATION STRUCTURE | STRUCTURE_ BUILDING | | | | | | | 2.5 | 1.2 | 3.0 | LOW | 75 | 47 | 63% | REHAB | $15,000 | WWLS-09 |
| **15 - WINCHESTER ROAD** | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ RECTANGULAR WET WELL | | | | | | | 2.5 | 1.2 | 3.0 | LOW | 70 | 44 | 63% | REHAB | $21,600 | WWLS-09 |
| **16 - GARRISON AVENUE** | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | | | | 3.6 | 3.5 | 12.7 | HIGH | 20 | 7 | 35% | REPLACE | $3,000 | WWLS-04 |
| **16 - GARRISON AVENUE** | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | SQUARE D | | | 2.9 | 3.5 | 10.3 | MEDIUM HIGH | 35 | 18 | 51% | REPLACE | $100 | WWLS-MISC |
| **16 - GARRISON AVENUE** | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | ALLEN BRADLEY | 400-DP30ND3 | | 1.0 | 3.0 | 3.0 | LOW | 15 | 15 | 100 % | REPLACE | $1,600 | WWLS-04 |
| **16 - GARRISON AVENUE** | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | DSQUARE | 8910 DPA 23 | | 1.6 | 3.0 | 4.7 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $1,600 | WWLS-04 |
| **16 - GARRISON AVENUE** | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| **16 - GARRISON AVENUE** | PUMP STATION | SITE FENCE | FENCE | | | | | | | 1.0 | 1.0 | 1.0 | LOW | 25 | 25 | 100 % | REPLACE | $700 | WWLS-MISC |
| **16 - GARRISON AVENUE** | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 1.6 | 3.2 | 5.1 | MEDIUM LOW | 10 | 9 | 90% | REPLACE | $1,000 | WWLS-MISC |
| **16 - GARRISON AVENUE** | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 3.4 | 3.4 | LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| **16 - GARRISON AVENUE** | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | PENTAIR MYERS | WGL20-21 | 2019 | 2.2 | 3.7 | 8.0 | MEDIUM LOW | 15 | 11 | 73% | REPLACE | $7,800 | WWLS-MISC |
| **16 - GARRISON AVENUE** | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | PENTAIR MYERS | WGL20-21 | 2020 | 2.2 | 3.7 | 8.0 | MEDIUM LOW | 15 | 11 | 73% | REPLACE | $7,800 | WWLS-MISC |
| **16 - GARRISON AVENUE** | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | | | | 3.3 | 1.3 | 4.2 | LOW | 25 | 11 | 44% | REPLACE | $600 | WWLS-MISC |
| **16 - GARRISON AVENUE** | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | | | | 2.9 | 1.3 | 3.8 | LOW | 25 | 13 | 52% | REPLACE | $600 | WWLS-MISC |
| **16 - GARRISON AVENUE** | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ BALL | | | | NIBCO | | | 1.0 | 1.3 | 1.3 | LOW | 25 | 25 | 100 % | REPLACE | $200 | WWLS-MISC |
| **16 - GARRISON AVENUE** | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ BALL | | | | NIBCO | | | 3.2 | 1.3 | 4.1 | LOW | 25 | 11 | 44% | REPLACE | $200 | WWLS-MISC |
| **16 - GARRISON AVENUE** | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 2.4 | 1.0 | 2.4 | LOW | 70 | 46 | 66% | REHAB | $3,000 | WWLS-STR2 |
| **17 - WHISTLER STREET** | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | HYDRA SERVICE INC | | | 3.3 | 3.9 | 12.8 | MEDIUM HIGH | 20 | 8 | 40% | REPLACE | $7,000 | WWLS-06 |
| **17 - WHISTLER STREET** | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | GE | | | 1.0 | 3.7 | 3.7 | MEDIUM LOW | 35 | 35 | 100 % | REPLACE | $300 | WWLS-MISC |
| **17 - WHISTLER STREET** | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | ABB | A26 30 10 | | 1.0 | 3.3 | 3.3 | LOW | 15 | 15 | 100 % | REPLACE | $1,600 | WWLS-06 |
| **17 - WHISTLER STREET** | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | ABB | A26-30-10 | | 1.0 | 3.7 | 3.7 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $1,600 | WWLS-06 |
| **17 - WHISTLER STREET** | PUMP STATION | TRANSFORMER EXTERIOR | TRANSFORMER | | | | | | | 3.4 | 3.7 | 12.7 | MEDIUM HIGH | 20 | 8 | 40% | REPLACE | $1,500 | WWLS-06 |
| **17 - WHISTLER STREET** | PUMP STATION | TRANSFORMER INTERIOR | TRANSFORMER | | | | HAMMOND | PT3000MQMJ | | 1.6 | 3.7 | 5.8 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $1,500 | WWLS-06 |
| **17 - WHISTLER STREET** | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| **17 - WHISTLER STREET** | PUMP STATION | SITE FENCE | FENCE | | | | | | | 1.8 | 1.0 | 1.8 | LOW | 25 | 20 | 80% | REPLACE | $1,000 | WWLS-MISC |
| **17 - WHISTLER STREET** | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 2.4 | 3.4 | 8.3 | MEDIUM LOW | 10 | 6 | 60% | REPLACE | $1,000 | WWLS-MISC |
| **17 - WHISTLER STREET** | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 3.6 | 3.6 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| **17 - WHISTLER STREET** | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | MAD DOG | 4"PFSPP | | 5.0 | 4.0 | 20.0 | HIGH | 15 | 0 | 0% | REPLACE | $6,600 | WWLS-MISC |
| **17 - WHISTLER STREET** | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | GORMAN RUPP | T4A35-B/F | | 2.2 | 4.3 | 9.4 | MEDIUM LOW | 15 | 11 | 73% | REPLACE | $6,600 | WWLS-MISC |
| **17 - WHISTLER STREET** | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | MUELLER | | | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $1,700 | WWLS-MISC |
| **17 - WHISTLER STREET** | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | MUELLER | | | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $1,700 | WWLS-MISC |
| **17 - WHISTLER STREET** | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | | | | 1.8 | 1.3 | 2.3 | LOW | 25 | 20 | 80% | REPLACE | $3,000 | WWLS-MISC |
| **17 - WHISTLER STREET** | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | | | | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $1,700 | WWLS-MISC |
| **17 - WHISTLER STREET** | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 1.7 | 1.2 | 2.0 | LOW | 70 | 58 | 83% | REHAB | $5,800 | WWLS-MISC |
| **17 - WHISTLER STREET** | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 3.6 | 1.4 | 5.0 | MEDIUM LOW | 70 | 25 | 36% | REHAB | $26,600 | WWLS-STR1 |
| **18 - TURNER ROAD** | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | GULF COAST PUMP AND EQUIPMENT CO | MCPS21 | 1995 | 1.0 | 2.9 | 2.9 | LOW | 20 | 20 | 100 % | REPLACE | $3,000 | WWLS-MISC |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 - TURNER ROAD | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | UL LISTED | | | 2.9 | 2.9 | 8.3 | MEDIUM LOW | 35 | 19 | 54% | REPLACE | $500 | WWLS-MISC |
| 18 - TURNER ROAD | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | ABB | A30-30-10 | | 1.0 | 2.9 | 2.9 | LOW | 15 | 15 | 100 % | REPLACE | $1,600 | WWLS-MISC |
| 18 - TURNER ROAD | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 1.0 | 2.0 | 2.0 | LOW | 25 | 25 | 100 % | REPLACE | $2,100 | WWLS-MISC |
| 18 - TURNER ROAD | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 1.8 | 2.6 | 4.6 | MEDIUM LOW | 10 | 8 | 80% | REPLACE | $1,000 | WWLS-MISC |
| 18 - TURNER ROAD | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 5.0 | 2.8 | 13.8 | HIGH | 15 | 0 | 0% | REPLACE | $7,000 | WW-01 |
| 18 - TURNER ROAD | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | PIRINAH | S20/2 | 2012 | 2.2 | 3.4 | 7.4 | MEDIUM LOW | 15 | 11 | 73% | REPLACE | $7,400 | WWLS-MISC |
| 18 - TURNER ROAD | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | | | | 3.2 | 1.3 | 4.1 | LOW | 25 | 11 | 44% | REPLACE | $600 | WWLS-MISC |
| 18 - TURNER ROAD | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | | | | 3.6 | 1.3 | 4.7 | MEDIUM LOW | 25 | 9 | 36% | REPLACE | $1,400 | WWLS-MISC |
| 18 - TURNER ROAD | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 1.7 | 1.0 | 1.7 | LOW | 70 | 58 | 83% | REHAB | $3,000 | WWLS-STR2 |
| 19 - PONDEROSA PINES | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | GULF COAST PUMP & EQUIPMENT | SP50-23D-SS | | 1.5 | 3.3 | 5.1 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $7,000 | WWLS-07 |
| 19 - PONDEROSA PINES | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | SQUARE D | QDL32125RP | | 1.0 | 3.1 | 3.1 | LOW | 35 | 35 | 100 % | REPLACE | $1,900 | WWLS-MISC |
| 19 - PONDEROSA PINES | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | | | | 1.6 | 3.1 | 4.9 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $1,600 | WWLS-07 |
| 19 - PONDEROSA PINES | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | | | | 3.0 | 2.5 | 7.5 | MEDIUM LOW | 15 | 8 | 53% | REPLACE | $1,600 | WWLS-07 |
| 19 - PONDEROSA PINES | PUMP STATION | TRANSFORMER INTERIOR | TRANSFORMER | | | | HAMMOND | 130-3 | | 3.0 | 3.1 | 9.4 | MEDIUM LOW | 20 | 10 | 50% | REPLACE | $800 | WWLS-07 |
| 19 - PONDEROSA PINES | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| 19 - PONDEROSA PINES | PUMP STATION | SITE FENCE | FENCE | | | | MOBILE FENCE | | | 1.7 | 1.0 | 1.7 | LOW | 25 | 21 | 84% | REPLACE | $3,400 | WWLS-MISC |
| 19 - PONDEROSA PINES | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 1.6 | 2.8 | 4.5 | MEDIUM LOW | 10 | 9 | 90% | REPLACE | $1,000 | WWLS-MISC |
| 19 - PONDEROSA PINES | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 3.0 | 3.0 | LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| 19 - PONDEROSA PINES | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS PIR-PE45 | 2020 | 1.0 | 3.7 | 3.7 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $12,900 | WWLS-MISC |
| 19 - PONDEROSA PINES | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS PIR-PE35 | 2023 | 5.0 | 3.2 | 16.0 | HIGH | 15 | 0 | 0% | REPLACE | $12,900 | WWLS-MISC |
| 19 - PONDEROSA PINES | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 2.5 | 1.2 | 3.0 | LOW | 70 | 44 | 63% | REHAB | $18,400 | WWLS-STR3 |
| 20 - HIGHPOINT AND LOTT ROAD | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | GULF COAST PUMP & EQUIPMENT | PD2G23 | | 3.3 | 3.5 | 11.4 | MEDIUM HIGH | 20 | 9 | 45% | REPLACE | $7,000 | WWLS-07 |
| 20 - HIGHPOINT AND LOTT ROAD | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | SIEMENS | 1-T-R | | 2.2 | 3.4 | 7.3 | MEDIUM LOW | 35 | 25 | 71% | REPLACE | $300 | WWLS-MISC |
| 20 - HIGHPOINT AND LOTT ROAD | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | | | | 1.0 | 2.8 | 2.8 | LOW | 15 | 15 | 100 % | REPLACE | $1,600 | WWLS-07 |
| 20 - HIGHPOINT AND LOTT ROAD | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | SQUARE D | 8536SCG3 | | 1.6 | 2.8 | 4.6 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $1,600 | WWLS-07 |
| 20 - HIGHPOINT AND LOTT ROAD | PUMP STATION | SECONDARY DISCONNECT SWITCH | BREAKER | | | | SIEMENS | FT-E | | 2.1 | 3.4 | 7.1 | MEDIUM LOW | 35 | 25 | 71% | REPLACE | $300 | WWLS-MISC |
| 20 - HIGHPOINT AND LOTT ROAD | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| 20 - HIGHPOINT AND LOTT ROAD | PUMP STATION | SITE FENCE | FENCE | | | | | | | 1.0 | 1.0 | 1.0 | LOW | 25 | 25 | 100 % | REPLACE | $2,500 | WWLS-MISC |
| 20 - HIGHPOINT AND LOTT ROAD | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 1.0 | 3.1 | 3.1 | LOW | 10 | 10 | 100 % | REPLACE | $1,000 | WWLS-MISC |
| 20 - HIGHPOINT AND LOTT ROAD | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 3.2 | 3.2 | LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| 20 - HIGHPOINT AND LOTT ROAD | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS XFP100C-CB1.4-PE35 | 2014 | 1.6 | 3.5 | 5.4 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $14,700 | WWLS-MISC |
| 20 - HIGHPOINT AND LOTT ROAD | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | SULZER | AFP1041.3-M35 | 2004 | 1.6 | 3.5 | 5.4 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $14,700 | WWLS-MISC |
| 20 - HIGHPOINT AND LOTT ROAD | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | MUELLER | | | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $2,900 | WWLS-MISC |
| 20 - HIGHPOINT AND LOTT ROAD | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | MUELLER | | | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $2,900 | WWLS-MISC |
| 20 - HIGHPOINT AND LOTT ROAD | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | MUELLER | | | 3.5 | 1.3 | 4.6 | MEDIUM LOW | 25 | 9 | 36% | REPLACE | $3,600 | WWLS-MISC |
| 20 - HIGHPOINT AND LOTT ROAD | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | MUELLER | | | 3.5 | 1.3 | 4.6 | MEDIUM LOW | 25 | 9 | 36% | REPLACE | $3,600 | WWLS-MISC |
| 20 - HIGHPOINT AND LOTT ROAD | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 4.4 | 1.2 | 5.3 | MEDIUM LOW | 70 | 11 | 16% | REHAB | $11,200 | WWLS-MISC |
| 20 - HIGHPOINT AND LOTT ROAD | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 3.7 | 1.4 | 5.2 | MEDIUM LOW | 70 | 23 | 33% | REHAB | $36,000 | WWLS-STR1 |
| 21 - LOTT ROAD AND SUNCREST | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | SCHAEFER | | | 3.5 | 3.5 | 12.4 | HIGH | 20 | 7 | 35% | REPLACE | $7,000 | WWLS-06 |
| 21 - LOTT ROAD AND SUNCREST | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | GE | | | 3.6 | 3.4 | 11.9 | MEDIUM HIGH | 35 | 13 | 37% | REPLACE | $700 | WWLS-06 |
| 21 - LOTT ROAD AND SUNCREST | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | FURNAS | 14DP32A | | 1.0 | 2.8 | 2.8 | LOW | 15 | 15 | 100 % | REPLACE | $1,600 | WWLS-06 |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 - LOTT ROAD AND SUNCREST | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | FURNAS | 14DP32A | | 1.6 | 2.8 | 4.4 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $1,600 | WWLS-06 |
| 21 - LOTT ROAD AND SUNCREST | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| 21 - LOTT ROAD AND SUNCREST | PUMP STATION | SITE FENCE | FENCE | | | | | | | 2.3 | 1.0 | 2.3 | LOW | 25 | 17 | 68% | REPLACE | $2,500 | WWLS-MISC |
| 21 - LOTT ROAD AND SUNCREST | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 2.3 | 3.1 | 7.0 | MEDIUM LOW | 10 | 7 | 70% | REPLACE | $1,000 | WWLS-MISC |
| 21 - LOTT ROAD AND SUNCREST | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 3.2 | 3.2 | LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| 21 - LOTT ROAD AND SUNCREST | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS AFP1041.3-M35 | 2004 | 2.2 | 3.5 | 7.7 | MEDIUM LOW | 15 | 11 | 73% | REPLACE | $14,700 | WWLS-MISC |
| 21 - LOTT ROAD AND SUNCREST | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS AFP1041.3-M35 | 2004 | 2.2 | 3.5 | 7.8 | MEDIUM LOW | 15 | 10 | 67% | REPLACE | $14,700 | WWLS-MISC |
| 21 - LOTT ROAD AND SUNCREST | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | MUELLER | | | 2.9 | 1.3 | 3.7 | LOW | 25 | 13 | 52% | REPLACE | $2,900 | WWLS-MISC |
| 21 - LOTT ROAD AND SUNCREST | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | MUELLER | | | 2.9 | 1.3 | 3.7 | LOW | 25 | 13 | 52% | REPLACE | $2,900 | WWLS-MISC |
| 21 - LOTT ROAD AND SUNCREST | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | MUELLER | | | 3.2 | 1.3 | 4.2 | LOW | 25 | 11 | 44% | REPLACE | $3,600 | WWLS-MISC |
| 21 - LOTT ROAD AND SUNCREST | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | MUELLER | | | 1.6 | 1.3 | 2.0 | LOW | 25 | 22 | 88% | REPLACE | $3,600 | WWLS-MISC |
| 21 - LOTT ROAD AND SUNCREST | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | UNIVERSAL PRECAST | | | 3.4 | 1.2 | 4.1 | LOW | 70 | 28 | 40% | REHAB | $20,000 | WWLS-MISC |
| 21 - LOTT ROAD AND SUNCREST | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 1.8 | 1.2 | 2.2 | LOW | 70 | 56 | 80% | REHAB | $22,600 | WWLS-STR2 |
| 22 - NORWOOD POINTE | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | UNKNOWN | | | 3.3 | 3.3 | 10.9 | MEDIUM LOW | 20 | 8 | 40% | REPLACE | $7,000 | WWLS-07 |
| 22 - NORWOOD POINTE | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | | | | 2.7 | 3.1 | 8.3 | MEDIUM LOW | 35 | 20 | 57% | REPLACE | $400 | WWLS-MISC |
| 22 - NORWOOD POINTE | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| 22 - NORWOOD POINTE | PUMP STATION | VFD 01 | VFD | | | | ABB | ACS550-U1-031A-2 | 2011 | 3.2 | 2.5 | 8.0 | MEDIUM LOW | 15 | 7 | 47% | REPLACE | $3,100 | WWLS-MISC |
| 22 - NORWOOD POINTE | PUMP STATION | VFD 02 | VFD | | | | ABB | ACS550-U1-031A-2 | 2011 | 3.2 | 2.5 | 8.0 | MEDIUM LOW | 15 | 7 | 47% | REPLACE | $3,100 | WWLS-MISC |
| 22 - NORWOOD POINTE | PUMP STATION | SITE FENCE | FENCE | | | | | | | 1.0 | 1.0 | 1.0 | LOW | 25 | 25 | 100 % | REPLACE | $2,100 | WWLS-MISC |
| 22 - NORWOOD POINTE | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 2.2 | 2.8 | 6.1 | MEDIUM LOW | 10 | 7 | 70% | REPLACE | $1,000 | WWLS-MISC |
| 22 - NORWOOD POINTE | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 3.0 | 3.0 | LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| 22 - NORWOOD POINTE | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | HCP | 100AFP43.7 | 2011 | 1.6 | 3.2 | 5.2 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $13,600 | WWLS-MISC |
| 22 - NORWOOD POINTE | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | HCP | 100AFP43.7 | 2011 | 1.6 | 3.2 | 5.2 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $13,600 | WWLS-MISC |
| 22 - NORWOOD POINTE | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | | | | 2.4 | 1.3 | 3.1 | LOW | 25 | 17 | 68% | REPLACE | $1,700 | WWLS-MISC |
| 22 - NORWOOD POINTE | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | | | | 2.5 | 1.3 | 3.3 | LOW | 25 | 16 | 64% | REPLACE | $1,700 | WWLS-MISC |
| 22 - NORWOOD POINTE | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | | | | 3.8 | 1.3 | 4.9 | MEDIUM LOW | 25 | 8 | 32% | REPLACE | $3,000 | WWLS-MISC |
| 22 - NORWOOD POINTE | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | | | | 4.1 | 1.3 | 5.4 | MEDIUM LOW | 25 | 5 | 20% | REPLACE | $3,000 | WWLS-MISC |
| 22 - NORWOOD POINTE | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | U.S FOUNDRY & MFG CORP | | | 1.0 | 1.2 | 1.2 | LOW | 70 | 70 | 100 % | REHAB | $6,800 | WWLS-MISC |
| 22 - NORWOOD POINTE | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 2.4 | 1.2 | 2.9 | LOW | 70 | 45 | 64% | REHAB | $14,300 | WWLS-STR3 |
| 23 - OUTLAW ROAD | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | SYMCOMINC | 777 | | 3.5 | 3.5 | 12.3 | HIGH | 20 | 8 | 40% | REPLACE | $7,000 | WWLS-06 |
| 23 - OUTLAW ROAD | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | | | | 3.3 | 3.4 | 10.9 | MEDIUM LOW | 35 | 15 | 43% | REPLACE | $400 | WWLS-MISC |
| 23 - OUTLAW ROAD | PUMP STATION | TRANSFORMER EXTERIOR | TRANSFORMER | | | | | | | 2.7 | 3.4 | 9.0 | MEDIUM LOW | 20 | 12 | 60% | REPLACE | $1,500 | WWLS-06 |
| 23 - OUTLAW ROAD | PUMP STATION | TRANSFORMER INTERIOR | TRANSFORMER | | | | HAMMOND | PT3000MQMJ | | 2.1 | 3.4 | 7.2 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $1,500 | WWLS-06 |
| 23 - OUTLAW ROAD | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 3.0 | 2.0 | 6.0 | MEDIUM LOW | 25 | 13 | 52% | REPLACE | $2,100 | WWLS-MISC |
| 23 - OUTLAW ROAD | PUMP STATION | SITE FENCE | FENCE | | | | | | | 1.0 | 1.0 | 1.0 | LOW | 25 | 25 | 100 % | REPLACE | $2,700 | WWLS-MISC |
| 23 - OUTLAW ROAD | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 5.0 | 3.1 | 15.3 | HIGH | 10 | 0 | 0% | REPLACE | $1,000 | WWLS-04 |
| 23 - OUTLAW ROAD | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 5.0 | 3.2 | 16.0 | HIGH | 15 | 0 | 0% | REPLACE | $7,000 | WW-01 |
| 23 - OUTLAW ROAD | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS AFP(K)1049.4-M75 | 2007 | 3.4 | 3.9 | 13.3 | MEDIUM HIGH | 15 | 6 | 40% | REPLACE | $15,900 | WWLS-MISC |
| 23 - OUTLAW ROAD | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS AFP1049.5M75 | | 5.0 | 3.5 | 17.5 | HIGH | 15 | 0 | 0% | REPLACE | $15,900 | WWLS-04 |
| 23 - OUTLAW ROAD | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | MUELLER | | | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $1,700 | WWLS-MISC |
| 23 - OUTLAW ROAD | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | MUELLER | | | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $1,700 | WWLS-MISC |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 - OUTLAW ROAD | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | | | | 1.8 | 1.3 | 2.3 | LOW | 25 | 20 | 80% | REPLACE | $3,000 | WWLS-MISC |
| 23 - OUTLAW ROAD | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | | | | 1.8 | 1.3 | 2.3 | LOW | 25 | 20 | 80% | REPLACE | $3,000 | WWLS-MISC |
| 23 - OUTLAW ROAD | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 3.8 | 1.2 | 4.5 | MEDIUM LOW | 70 | 22 | 31% | REHAB | $10,000 | WWLS-MISC |
| 23 - OUTLAW ROAD | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 2.5 | 1.4 | 3.5 | LOW | 70 | 44 | 63% | REHAB | $43,400 | WWLS-STR3 |
| 24 - ONTARIO DRIVE | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | | | | 3.3 | 3.5 | 11.4 | MEDIUM HIGH | 20 | 9 | 45% | REPLACE | $7,000 | WWLS-07 |
| 24 - ONTARIO DRIVE | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | SIEMENS | | | 1.0 | 3.4 | 3.4 | LOW | 35 | 35 | 100 % | REPLACE | $400 | WWLS-MISC |
| 24 - ONTARIO DRIVE | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | SQUARED | NEMA SIZE 0 | | 1.0 | 2.8 | 2.8 | LOW | 15 | 15 | 100 % | REPLACE | $1,600 | WWLS-07 |
| 24 - ONTARIO DRIVE | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | SQUARE D | NEMO 0 | 2017 | 1.0 | 2.8 | 2.8 | LOW | 15 | 15 | 100 % | REPLACE | $1,600 | WWLS-07 |
| 24 - ONTARIO DRIVE | PUMP STATION | SECONDARY DISCONNECT SWITCH | BREAKER | | | | SIEMENS | | | 1.6 | 3.4 | 5.4 | MEDIUM LOW | 35 | 30 | 86% | REPLACE | $400 | WWLS-MISC |
| 24 - ONTARIO DRIVE | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| 24 - ONTARIO DRIVE | PUMP STATION | SITE FENCE | FENCE | | | | | | | 1.0 | 1.0 | 1.0 | LOW | 25 | 25 | 100 % | REPLACE | $3,400 | WWLS-MISC |
| 24 - ONTARIO DRIVE | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 1.8 | 3.1 | 5.3 | MEDIUM LOW | 10 | 8 | 80% | REPLACE | $1,000 | WWLS-MISC |
| 24 - ONTARIO DRIVE | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 5.0 | 3.2 | 16.0 | HIGH | 15 | 0 | 0% | REPLACE | $7,000 | WW-01 |
| 24 - ONTARIO DRIVE | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | SHINMAYWA | 3CNWX43.7T2E | 2008 | 1.6 | 3.5 | 5.4 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $13,500 | WWLS-MISC |
| 24 - ONTARIO DRIVE | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS XFP-PE1-80C-CB1.4-PE35 | 2022 | 1.6 | 3.5 | 5.4 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $13,500 | WWLS-MISC |
| 24 - ONTARIO DRIVE | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | MUELLER | 175 WP | 2001 | 1.7 | 1.3 | 2.2 | LOW | 25 | 21 | 84% | REPLACE | $1,700 | WWLS-MISC |
| 24 - ONTARIO DRIVE | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | MUELLER | 175 WP | 2001 | 2.3 | 1.3 | 2.9 | LOW | 25 | 17 | 68% | REPLACE | $1,700 | WWLS-MISC |
| 24 - ONTARIO DRIVE | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | MUELLER | | | 3.3 | 1.3 | 4.3 | LOW | 25 | 11 | 44% | REPLACE | $3,000 | WWLS-MISC |
| 24 - ONTARIO DRIVE | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | MUELLER | | | 2.2 | 1.3 | 2.9 | LOW | 25 | 17 | 68% | REPLACE | $3,000 | WWLS-MISC |
| 24 - ONTARIO DRIVE | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 1.6 | 1.2 | 1.9 | LOW | 70 | 60 | 86% | REHAB | $5,800 | WWLS-MISC |
| 24 - ONTARIO DRIVE | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 2.3 | 1.4 | 3.2 | LOW | 70 | 47 | 67% | REHAB | $32,300 | WWLS-STR2 |
| 25 - PINERIDGE DRIVE | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | | | 2001 | 3.3 | 3.6 | 12.0 | MEDIUM HIGH | 20 | 8 | 40% | REPLACE | $3,000 | WWLS-07 |
| 25 - PINERIDGE DRIVE | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | SQUARE D | | | 2.2 | 3.6 | 7.8 | MEDIUM LOW | 35 | 25 | 71% | REPLACE | $700 | WWLS-MISC |
| 25 - PINERIDGE DRIVE | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | SQUARE D | 8536SE01S | | 2.3 | 3.1 | 7.2 | MEDIUM LOW | 15 | 10 | 67% | REPLACE | $3,500 | WWLS-07 |
| 25 - PINERIDGE DRIVE | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | | | | 2.3 | 3.6 | 8.0 | MEDIUM LOW | 15 | 10 | 67% | REPLACE | $3,500 | WWLS-07 |
| 25 - PINERIDGE DRIVE | PUMP STATION | SECONDARY DISCONNECT SWITCH | BREAKER | | | | SQUARE D | E2 | 2001 | 3.9 | 3.6 | 13.8 | HIGH | 35 | 10 | 29% | REPLACE | $700 | WWLS-MISC |
| 25 - PINERIDGE DRIVE | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| 25 - PINERIDGE DRIVE | PUMP STATION | SITE FENCE | FENCE | | | | | | | 1.0 | 1.0 | 1.0 | LOW | 25 | 25 | 100 % | REPLACE | $2,800 | WWLS-MISC |
| 25 - PINERIDGE DRIVE | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 3.8 | 3.6 | 13.6 | HIGH | 10 | 3 | 30% | REPLACE | $1,000 | WWLS-04 |
| 25 - PINERIDGE DRIVE | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 3.4 | 3.4 | LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| 25 - PINERIDGE DRIVE | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | MYERS | 4VE250M4-23 | 2013 | 5.0 | 4.2 | 21.0 | HIGH | 15 | 0 | 0% | REPLACE | $28,400 | WWLS-04 |
| 25 - PINERIDGE DRIVE | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | MYERS | 4VE250M4-23 | | 2.7 | 4.4 | 12.0 | MEDIUM HIGH | 15 | 9 | 60% | REPLACE | $28,400 | WWLS-MISC |
| 25 - PINERIDGE DRIVE | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | | | | 3.7 | 1.3 | 4.8 | MEDIUM LOW | 25 | 8 | 32% | REPLACE | $2,900 | WWLS-MISC |
| 25 - PINERIDGE DRIVE | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | | | | 3.6 | 1.3 | 4.7 | MEDIUM LOW | 25 | 8 | 32% | REPLACE | $2,900 | WWLS-MISC |
| 25 - PINERIDGE DRIVE | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | | | | 2.5 | 1.3 | 3.3 | LOW | 25 | 16 | 64% | REPLACE | $3,600 | WWLS-MISC |
| 25 - PINERIDGE DRIVE | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | | | | 2.5 | 1.3 | 3.3 | LOW | 25 | 16 | 64% | REPLACE | $3,600 | WWLS-MISC |
| 25 - PINERIDGE DRIVE | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 1.6 | 1.2 | 1.9 | LOW | 70 | 60 | 86% | REHAB | $16,200 | WWLS-MISC |
| 25 - PINERIDGE DRIVE | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 3.1 | 1.2 | 3.8 | LOW | 70 | 33 | 47% | REHAB | $22,600 | WWLS-STR3 |
| 26 - BLOUNT HIGH SCHOOL/GLOANN | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | PROFESSIONAL CONTROL PANEL | | 2004 | 5.0 | 3.3 | 16.4 | HIGH | 20 | 0 | 0% | REPLACE | $7,000 | WWLS-04 |
| 26 - BLOUNT HIGH SCHOOL/GLOANN | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | EATON/CUTLER HAMMER | | | 1.6 | 3.1 | 4.8 | MEDIUM LOW | 35 | 30 | 86% | REPLACE | $300 | WWLS-MISC |
| 26 - BLOUNT HIGH SCHOOL/GLOANN | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | ABB | | | 1.0 | 2.5 | 2.5 | LOW | 15 | 15 | 100 % | REPLACE | $1,600 | WWLS-04 |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 - BLOUNT HIGH SCHOOL/GLOANN | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | SQUARE D | NEMA 0 | | 1.0 | 2.5 | 2.5 | LOW | 15 | 15 | 100 % | REPLACE | $1,600 | WWLS-04 |
| 26 - BLOUNT HIGH SCHOOL/GLOANN | PUMP STATION | SECONDARY DISCONNECT SWITCH | BREAKER | | | | EATON | | | 1.0 | 2.5 | 2.5 | LOW | 35 | 35 | 100 % | REPLACE | $300 | WWLS-MISC |
| 26 - BLOUNT HIGH SCHOOL/GLOANN | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| 26 - BLOUNT HIGH SCHOOL/GLOANN | PUMP STATION | SITE FENCE | FENCE | | | | | | | 1.6 | 1.0 | 1.6 | LOW | 25 | 21 | 84% | REPLACE | $3,400 | WWLS-MISC |
| 26 - BLOUNT HIGH SCHOOL/GLOANN | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 5.0 | 2.8 | 14.1 | HIGH | 10 | 0 | 0% | REPLACE | $1,000 | WWLS-04 |
| 26 - BLOUNT HIGH SCHOOL/GLOANN | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 3.0 | 3.0 | LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| 26 - BLOUNT HIGH SCHOOL/GLOANN | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS AFP0841.2 M22 | | 2.7 | 3.2 | 8.7 | MEDIUM LOW | 15 | 9 | 60% | REPLACE | $8,900 | WWLS-MISC |
| 26 - BLOUNT HIGH SCHOOL/GLOANN | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS AFP0841.2 M22 | | 3.3 | 3.2 | 10.5 | MEDIUM LOW | 15 | 6 | 40% | REPLACE | $8,900 | WWLS-MISC |
| 26 - BLOUNT HIGH SCHOOL/GLOANN | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | MUELLER | | | 2.4 | 1.3 | 3.1 | LOW | 25 | 17 | 68% | REPLACE | $1,700 | WWLS-MISC |
| 26 - BLOUNT HIGH SCHOOL/GLOANN | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | MUELLER | | | 2.4 | 1.3 | 3.1 | LOW | 25 | 17 | 68% | REPLACE | $1,700 | WWLS-MISC |
| 26 - BLOUNT HIGH SCHOOL/GLOANN | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | | | | 1.8 | 1.3 | 2.3 | LOW | 25 | 20 | 80% | REPLACE | $3,000 | WWLS-MISC |
| 26 - BLOUNT HIGH SCHOOL/GLOANN | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | | | | 1.8 | 1.3 | 2.3 | LOW | 25 | 20 | 80% | REPLACE | $3,000 | WWLS-MISC |
| 26 - BLOUNT HIGH SCHOOL/GLOANN | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 1.8 | 1.2 | 2.2 | LOW | 70 | 56 | 80% | REHAB | $12,500 | WWLS-MISC |
| 26 - BLOUNT HIGH SCHOOL/GLOANN | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 2.4 | 1.4 | 3.3 | LOW | 70 | 46 | 66% | REHAB | $57,200 | WWLS-STR2 |
| 27 - BEAR CREEK | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | UL LISTED | 777 | | 3.3 | 4.0 | 13.1 | MEDIUM HIGH | 20 | 9 | 45% | REPLACE | $7,000 | WWLS-07 |
| 27 - BEAR CREEK | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | SQUARE D | | | 2.3 | 3.6 | 8.3 | MEDIUM LOW | 35 | 24 | 69% | REPLACE | $700 | WWLS-MISC |
| 27 - BEAR CREEK | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | ABB | | | 1.0 | 3.5 | 3.5 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $1,600 | WWLS-07 |
| 27 - BEAR CREEK | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | ABB | TMAX | | 3.0 | 3.5 | 10.5 | MEDIUM HIGH | 15 | 8 | 53% | REPLACE | $1,600 | WWLS-07 |
| 27 - BEAR CREEK | PUMP STATION | SECONDARY DISCONNECT SWITCH | BREAKER | | | | SIEMENS | | | 1.0 | 3.1 | 3.1 | LOW | 35 | 35 | 100 % | REPLACE | $700 | WWLS-MISC |
| 27 - BEAR CREEK | PUMP STATION | TRANSFORMER EXTERIOR | TRANSFORMER | | | | | | | 3.6 | 3.9 | 14.0 | HIGH | 20 | 7 | 35% | REPLACE | $1,500 | WWLS-07 |
| 27 - BEAR CREEK | PUMP STATION | TRANSFORMER INTERIOR | TRANSFORMER | | | | HAMMOND | CT3000MQMJ | | 2.3 | 3.9 | 8.8 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $1,500 | WWLS-07 |
| 27 - BEAR CREEK | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| 27 - BEAR CREEK | PUMP STATION | SITE FENCE | FENCE | | | | | | | 1.6 | 1.0 | 1.6 | LOW | 25 | 21 | 84% | REPLACE | $2,700 | WWLS-MISC |
| 27 - BEAR CREEK | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 1.8 | 3.6 | 6.3 | MEDIUM LOW | 10 | 8 | 80% | REPLACE | $1,000 | WWLS-MISC |
| 27 - BEAR CREEK | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 3.7 | 3.7 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| 27 - BEAR CREEK | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS XFP-PE2-150E-CB1.7-PE45_4E-FM | 2021 | 1.6 | 4.2 | 6.8 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $15,800 | WWLS-MISC |
| 27 - BEAR CREEK | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS AFP(K)1541.6-M46 | 2006 | 1.6 | 4.2 | 6.8 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $15,800 | WWLS-MISC |
| 27 - BEAR CREEK | PUMP STATION | ARV | VALVE_ VACUUM/AIR RELIEF | | | | | | | 1.8 | 3.6 | 6.3 | MEDIUM LOW | 20 | 16 | 80% | REPLACE | $800 | WWLS-MISC |
| 27 - BEAR CREEK | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | MUELLER | 175 WF | 2000 | 3.8 | 1.5 | 5.8 | MEDIUM LOW | 25 | 7 | 28% | REPLACE | $5,400 | WWLS-MISC |
| 27 - BEAR CREEK | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | MUELLER | 175WF | | 5.0 | 1.5 | 7.5 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $5,400 | WWLS-04 |
| 27 - BEAR CREEK | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ GATE | | | | | | | 4.2 | 1.5 | 6.3 | MEDIUM LOW | 25 | 5 | 20% | REPLACE | $6,200 | WWLS-MISC |
| 27 - BEAR CREEK | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ GATE | | | | | | | 4.1 | 1.5 | 6.2 | MEDIUM LOW | 25 | 5 | 20% | REPLACE | $6,200 | WWLS-MISC |
| 27 - BEAR CREEK | PUMP STATION | BYPASS VAULT STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 1.0 | 1.0 | 1.0 | LOW | 70 | 70 | 100 % | REHAB | $5,000 | WWLS-MISC |
| 27 - BEAR CREEK | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 2.2 | 1.2 | 2.7 | LOW | 70 | 49 | 70% | REHAB | $16,200 | WWLS-MISC |
| 27 - BEAR CREEK | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 3.8 | 1.4 | 5.3 | MEDIUM LOW | 70 | 21 | 30% | REHAB | $49,000 | WWLS-STR1 |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | | | | 3.3 | 4.0 | 13.1 | MEDIUM HIGH | 20 | 9 | 45% | REPLACE | $7,000 | WWLS-06 |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | SQUARE D | | | 2.3 | 3.9 | 9.0 | MEDIUM LOW | 35 | 23 | 66% | REPLACE | $700 | WWLS-MISC |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | ABB | | | 1.0 | 3.5 | 3.5 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $1,800 | WWLS-06 |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | ABB | | | 1.0 | 3.9 | 3.9 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $1,800 | WWLS-06 |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | SECONDARY DISCONNECT SWITCH | BREAKER | | | | | | | 1.6 | 3.5 | 5.7 | MEDIUM LOW | 35 | 30 | 86% | REPLACE | $700 | WWLS-MISC |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | TRANSFORMER EXTERIOR | TRANSFORMER | | | | | G003K1KF1A19 | | 3.2 | 3.9 | 12.5 | MEDIUM HIGH | 20 | 9 | 45% | REPLACE | $1,500 | WWLS-06 |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | TRANSFORMER INTERIOR | TRANSFORMER | | | | HAMMOND | | | 1.0 | 3.9 | 3.9 | MEDIUM LOW | 20 | 20 | 100 % | REPLACE | $1,500 | WWLS-06 |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | UPS | UPS | | | | SOLA | S2K | | 1.0 | 3.3 | 3.3 | LOW | 20 | 20 | 100 % | REPLACE | $2,400 | WWLS-06 |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | SITE FENCE | FENCE | | | | | | | 1.0 | 1.0 | 1.0 | LOW | 25 | 25 | 100 % | REPLACE | $2,700 | WWLS-MISC |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 2.5 | 3.6 | 8.9 | MEDIUM HIGH | 10 | 6 | 60% | REPLACE | $1,000 | WWLS-MISC |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 3.7 | 3.7 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | SULZER | AFP(K)1547.2-ME185 | 2006 | 5.0 | 4.2 | 21.0 | HIGH | 15 | 0 | 0% | REPLACE | $25,200 | WWLS-04 |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | SULZER | AFP(K)1547.2-ME185 | 2006 | 3.3 | 4.4 | 14.3 | MEDIUM HIGH | 15 | 7 | 47% | REPLACE | $25,200 | WWLS-MISC |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | BYPASS ARV | VALVE_ VACUUM/AIR RELIEF | | | | | | | 1.6 | 3.3 | 5.3 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $800 | WWLS-MISC |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | BYPASS DISCHARGE VALVE | VALVE_ PLUG | | | | | 1.5 KF | | 3.1 | 2.0 | 6.3 | MEDIUM LOW | 20 | 9 | 45% | REPLACE | $400 | WWLS-MISC |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | MUELLER | 175WF | 2006 | 4.0 | 1.5 | 6.0 | MEDIUM LOW | 25 | 6 | 24% | REPLACE | $5,400 | WWLS-MISC |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | CHECK VALVE 02 | VALVE_ CHECK | | | | MUELLER | | | 3.0 | 1.5 | 4.5 | MEDIUM LOW | 25 | 13 | 52% | REPLACE | $5,400 | WWLS-MISC |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ PLUG | | | | | | | 4.1 | 1.5 | 6.2 | MEDIUM LOW | 20 | 4 | 20% | REPLACE | $6,200 | WWLS-04 |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ PLUG | | | | | | | 3.1 | 1.3 | 4.0 | LOW | 20 | 10 | 50% | REPLACE | $2,800 | WWLS-MISC |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | BYPASS VAULT STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 1.7 | 1.2 | 2.0 | LOW | 70 | 58 | 83% | REHAB | $11,200 | WWLS-MISC |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 1.7 | 1.2 | 2.1 | LOW | 70 | 58 | 83% | REHAB | $19,600 | WWLS-MISC |
| 28 - BEARFORK AND HIGHPOINT | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 2.4 | 1.4 | 3.3 | LOW | 70 | 46 | 66% | REHAB | $40,800 | WWLS-STR2 |
| 29 - BEARFORK AND JARRETT ROAD | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | SCHAEFER | A-1647 | | 3.3 | 4.3 | 14.2 | MEDIUM HIGH | 20 | 9 | 45% | REPLACE | $7,000 | WWLS-05 |
| 29 - BEARFORK AND JARRETT ROAD | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | EATON | 30-43075-5 | | 1.0 | 4.2 | 4.2 | MEDIUM LOW | 35 | 35 | 100 % | REPLACE | $700 | WWLS-MISC |
| 29 - BEARFORK AND JARRETT ROAD | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | ABB | | | 1.0 | 3.9 | 3.9 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $1,800 | WWLS-05 |
| 29 - BEARFORK AND JARRETT ROAD | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | ABB | NEMA SIZE 2 | | 1.0 | 3.9 | 3.9 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $1,800 | WWLS-05 |
| 29 - BEARFORK AND JARRETT ROAD | PUMP STATION | TRANSFORMER EXTERIOR | TRANSFORMER | | | | MICRON INDUSTRIES TRANFORMER | G003K1KF1A19 | | 1.0 | 4.2 | 4.2 | MEDIUM LOW | 20 | 20 | 100 % | REPLACE | $1,500 | WWLS-05 |
| 29 - BEARFORK AND JARRETT ROAD | PUMP STATION | SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $2,100 | WWLS-08 |
| 29 - BEARFORK AND JARRETT ROAD | PUMP STATION | SITE FENCE | FENCE | | | | | | | 1.8 | 1.0 | 1.8 | LOW | 25 | 20 | 80% | REPLACE | $3,400 | WWLS-MISC |
| 29 - BEARFORK AND JARRETT ROAD | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 1.8 | 3.9 | 6.8 | MEDIUM LOW | 10 | 8 | 80% | REPLACE | $1,000 | WWLS-MISC |
| 29 - BEARFORK AND JARRETT ROAD | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 4.0 | 4.0 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |
| 29 - BEARFORK AND JARRETT ROAD | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS AFP1049.4-M75 | 2002 | 3.5 | 4.6 | 15.9 | HIGH | 15 | 6 | 40% | REPLACE | $15,800 | WWLS-05 |
| 29 - BEARFORK AND JARRETT ROAD | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS AFP(K)1049.4-M7S | 2006 | 3.5 | 4.6 | 15.9 | HIGH | 15 | 6 | 40% | REPLACE | $15,800 | WWLS-05 |
| 29 - BEARFORK AND JARRETT ROAD | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | | | | 2.6 | 1.3 | 3.3 | LOW | 25 | 15 | 60% | REPLACE | $2,900 | WWLS-MISC |
| 29 - BEARFORK AND JARRETT ROAD | PUMP STATION | CHECK VALVE 01 | VALVE_ CHECK | | | | MUELLER | | | 3.0 | 1.3 | 3.9 | LOW | 25 | 13 | 52% | REPLACE | $2,900 | WWLS-MISC |
| 29 - BEARFORK AND JARRETT ROAD | PUMP STATION | DISCHARGE VALVE 01 | VALVE_ PLUG | | | | | | | 3.7 | 1.3 | 4.8 | MEDIUM LOW | 20 | 6 | 30% | REPLACE | $1,600 | WWLS-MISC |
| 29 - BEARFORK AND JARRETT ROAD | PUMP STATION | DISCHARGE VALVE 02 | VALVE_ PLUG | | | | | | | 5.0 | 1.3 | 6.5 | MEDIUM LOW | 20 | 0 | 0% | REPLACE | $1,600 | WWLS-04 |
| 29 - BEARFORK AND JARRETT ROAD | PUMP STATION | VALVE BOX STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 3.6 | 1.4 | 5.1 | MEDIUM LOW | 70 | 24 | 34% | REHAB | $27,000 | WWLS-MISC |
| 29 - BEARFORK AND JARRETT ROAD | PUMP STATION | WET WELL STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 3.8 | 1.4 | 5.3 | MEDIUM LOW | 70 | 22 | 31% | REHAB | $32,600 | WWLS-STR1 |
| 30 - SALEM AVENUE | PUMP STATION | CONTROL PANEL | CONTROL PANEL | | | | HYDRASERVE | | | 3.4 | 3.3 | 11.0 | MEDIUM LOW | 20 | 8 | 40% | REPLACE | $7,000 | WWLS-07 |
| 30 - SALEM AVENUE | PUMP STATION | MAIN DISCONNECT SWITCH | BREAKER | | | | SIEMENS | | | 1.0 | 3.1 | 3.1 | LOW | 35 | 35 | 100 % | REPLACE | $400 | WWLS-MISC |
| 30 - SALEM AVENUE | PUMP STATION | MOTOR STARTER 01 | MOTOR STARTERS | | | | ABB | | | 3.0 | 2.5 | 7.5 | MEDIUM LOW | 15 | 8 | 53% | REPLACE | $1,600 | WWLS-07 |
| 30 - SALEM AVENUE | PUMP STATION | MOTOR STARTER 02 | MOTOR STARTERS | | | | ABB | | | 3.0 | 3.1 | 9.4 | MEDIUM LOW | 15 | 8 | 53% | REPLACE | $1,600 | WWLS-07 |
| 30 - SALEM AVENUE | PUMP STATION | SITE FENCE | FENCE | | | | | | | 1.0 | 1.0 | 1.0 | LOW | 25 | 25 | 100 % | REPLACE | $1,300 | WWLS-MISC |
| 30 - SALEM AVENUE | PUMP STATION | LEVEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | | | | | | | 5.0 | 2.8 | 14.1 | HIGH | 10 | 0 | 0% | REPLACE | $1,000 | WWLS-04 |
| 30 - SALEM AVENUE | PUMP STATION | SCADA OMNISITE | SCADA_ RTU | | | | OMNISITE | XR50 | | 1.0 | 3.0 | 3.0 | LOW | 15 | 15 | 100 % | REPLACE | $7,000 | WW-01 |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 - SALEM AVENUE | PUMP STATION | PUMP 01 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS PIRANHA-PE35 | 2012 | 5.0 | 3.2 | 16.0 | HIGH | 15 | 0 | 0% | REPLACE | $12,900 | WWLS-MISC |
| 30 - SALEM AVENUE | PUMP STATION | PUMP 02 | PUMP_ SUBMERSIBLE | | | | SULZER | ABS PIR-PI235 | 2021 | 3.0 | 3.7 | 11.0 | MEDIUM HIGH | 15 | 8 | 53% | REPLACE | $12,900 | WWLS-MISC |
| 30 - SALEM AVENUE | PUMP STATION | FOUNDATION | STRUCTURE_ CIRCULAR WET WELL | | | | | | | 3.9 | 1.2 | 4.7 | MEDIUM LOW | 70 | 19 | 27% | REHAB | $11,100 | WWLS-STR1 |
| ANDERSON TANK | WATER STORAGE | SITE FENCE | FENCE | | | | | | | 2.9 | 1.2 | 3.5 | LOW | 25 | 13 | 52% | REPLACE | $8,300 | WST-MISC |
| ANDERSON TANK | WATER STORAGE | SCADA | SCADA_ RTU | | | | OMNISITE | CRYSTAL BALL | | 5.0 | 3.8 | 19.0 | HIGH | 15 | 0 | 0% | REPLACE | $7,000 | W-06 |
| ANDERSON TANK | WATER STORAGE | TANK STRUCTURE | TANK_ WATER ELEVATED | | | | | | | 2.4 | 5.0 | 12.1 | MEDIUM HIGH | 50 | 32 | 64% | REPLACE | $3,580,000 | W-03 |
| CHICKASAW TANK | WATER STORAGE | SITE FENCE | FENCE | | | | | | | 2.5 | 1.2 | 3.0 | LOW | 25 | 16 | 64% | REPLACE | $11,800 | WST-MISC |
| CHICKASAW TANK | WATER STORAGE | CHICKASAW - SCADA | SCADA_ RTU | | | | OMNISITE | | | 5.0 | 3.8 | 19.0 | HIGH | 15 | 0 | 0% | REPLACE | $7,000 | W-06 |
| CHICKASAW TANK | WATER STORAGE | TANK STRUCTURE | TANK_ WATER ELEVATED | | | | HYDRO STORAGE | | | 3.8 | 5.0 | 19.2 | HIGH | 50 | 15 | 30% | REPLACE | $2,895,000 | W-02 |
| CHICKASAW TANK | WATER STORAGE | ALTITUDE VALVE | VALVE_ ALTITUDE | | | | ROSS VALVE | | 2022 | 2.3 | 3.2 | 7.4 | MEDIUM LOW | 35 | 24 | 69% | REPLACE | $30,000 | W-02 |
| CHICKASAW TANK | WATER STORAGE | CHECK VALVE | VALVE_ CHECK | | | | | | | 5.0 | 2.6 | 13.0 | HIGH | 25 | 0 | 0% | REPLACE | $12,500 | W-02 |
| CHICKASAW TANK | WATER STORAGE | VALVE VAULT | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 2.4 | 1.8 | 4.2 | LOW | 70 | 46 | 66% | REHAB | $15,400 | W-02 |
| LOTT ROAD TANK | WATER STORAGE | SITE FENCE | FENCE | | | | | | | 1.8 | 1.2 | 2.1 | LOW | 25 | 20 | 80% | REPLACE | $8,800 | WST-MISC |
| LOTT ROAD TANK | WATER STORAGE | LOTT ROAD SCADA | SCADA_ RTU | | | | OMNISITE | | | 1.0 | 3.8 | 3.8 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $7,000 | W-06 |
| LOTT ROAD TANK | WATER STORAGE | TANK STRUCTURE | TANK_ WATER ELEVATED | | | | | | | 5.0 | 5.0 | 25.0 | HIGH | 50 | 0 | 0% | REPLACE | $3,750,000 | W-07 |
| VIGOR TANK | WATER STORAGE | VIGOR SITE LIGHTING | LIGHTING_ OUTDOOR | | | | | | | 2.0 | 1.0 | 2.0 | LOW | 25 | 19 | 76% | REPLACE | $2,100 | WST-MISC |
| VIGOR TANK | WATER STORAGE | SITE FENCE | FENCE | | | | | | | 4.0 | 1.2 | 4.8 | MEDIUM LOW | 25 | 6 | 24% | REPLACE | $10,500 | WST-MISC |
| VIGOR TANK | WATER STORAGE | SCADA | SCADA_ RTU | | | | OMNISITE | CRYSTAL BALL | | 5.0 | 3.8 | 19.0 | HIGH | 15 | 0 | 0% | REPLACE | $7,000 | W-06 |
| VIGOR TANK | WATER STORAGE | TANK STRUCTURE | TANK_ WATER ELEVATED | | | | | | | 3.0 | 5.0 | 15.0 | HIGH | 50 | 25 | 50% | REPLACE | $2,855,000 | W-01 |
| VIGOR TANK | WATER STORAGE | ALTITUDE VALVE | VALVE_ ALTITUDE | | | | ROSS VALVE | | 2022 | 3.8 | 3.2 | 12.2 | MEDIUM HIGH | 35 | 11 | 31% | REPLACE | $30,000 | W-01 |
| VIGOR TANK | WATER STORAGE | VIGOR GATE VALVE | VALVE_ GATE | | | | | | | 3.5 | 2.2 | 7.4 | MEDIUM LOW | 25 | 10 | 40% | REPLACE | $15,000 | W-01 |
| VIGOR TANK | WATER STORAGE | VALVE VAULT | STRUCTURE_ RECTANGULAR VAULT | | | | | | | 3.9 | 1.8 | 7.1 | MEDIUM LOW | 70 | 19 | 27% | REHAB | $19,400 | W-01 |
| CARLOS MORRIS | AERATION BASIN | ORP PROBE | INST_ ANALYZER_ MULTI | Secondary Treatment | Aeration | Aeration Basin | HACH | SC1500 | | 5.0 | 2.5 | 12.3 | MEDIUM HIGH | 15 | 0 | 0% | REPLACE | $3,000 | WW-02 |
| CARLOS MORRIS | AERATION BASIN | MIXER 01 | MIXER_ STATIONARY | Secondary Treatment | Aeration | Aeration Basin | | | | 1.7 | 4.4 | 7.5 | MEDIUM LOW | 15 | 12 | 80% | REPLACE | $18,700 | WWCM-09 |
| CARLOS MORRIS | AERATION BASIN | MIXER 02 | MIXER_ STATIONARY | Secondary Treatment | Aeration | Aeration Basin | | | | 2.4 | 4.4 | 10.5 | MEDIUM LOW | 15 | 10 | 67% | REPLACE | $18,700 | WWCM-09 |
| CARLOS MORRIS | AERATION BASIN | MIXER 03 | MIXER_ STATIONARY | Secondary Treatment | Aeration | Aeration Basin | | | | 2.4 | 4.4 | 10.5 | MEDIUM LOW | 15 | 10 | 67% | REPLACE | $18,700 | WWCM-09 |
| CARLOS MORRIS | AERATION BASIN | MIXER 04 | MIXER_ STATIONARY | Secondary Treatment | Aeration | Aeration Basin | | | | 1.8 | 4.4 | 7.7 | MEDIUM LOW | 15 | 12 | 80% | REPLACE | $18,700 | WWCM-09 |
| CARLOS MORRIS | AERATION BASIN | MIXER 05 | MIXER_ STATIONARY | Secondary Treatment | Aeration | Aeration Basin | | | | 1.8 | 4.4 | 7.7 | MEDIUM LOW | 15 | 12 | 80% | REPLACE | $18,700 | WWCM-09 |
| CARLOS MORRIS | AERATION BASIN | MIXER 06 | MIXER_ STATIONARY | Secondary Treatment | Aeration | Aeration Basin | | | | 5.0 | 4.4 | 22.0 | HIGH | 15 | 0 | 0% | REPLACE | $18,700 | WWCM-08 |
| CARLOS MORRIS | AERATION BASIN | MIXER 07 | MIXER_ STATIONARY | Secondary Treatment | Aeration | Aeration Basin | | | | 5.0 | 4.4 | 22.0 | HIGH | 15 | 0 | 0% | REPLACE | $18,700 | WWCM-08 |
| CARLOS MORRIS | AERATION BASIN | MIXER 08 | MIXER_ STATIONARY | Secondary Treatment | Aeration | Aeration Basin | | | | 2.2 | 4.4 | 9.7 | MEDIUM LOW | 15 | 11 | 73% | REPLACE | $18,700 | WWCM-09 |
| CARLOS MORRIS | AERATION BASIN | MIXER 09 | MIXER_ STATIONARY | Secondary Treatment | Aeration | Aeration Basin | | | | 2.3 | 4.4 | 10.0 | MEDIUM LOW | 15 | 10 | 67% | REPLACE | $18,700 | WWCM-09 |
| CARLOS MORRIS | AERATION BASIN | MIXER 10 | MIXER_ STATIONARY | Secondary Treatment | Aeration | Aeration Basin | | | | 2.2 | 4.4 | 9.8 | MEDIUM LOW | 15 | 10 | 67% | REPLACE | $18,700 | WWCM-09 |
| CARLOS MORRIS | AERATION BASIN | AERATION BASIN CATWALK | SAFETY_ RAILINGS AND WALKWAYS | Secondary Treatment | Aeration | Aeration Basin | | | | 2.5 | 2.9 | 7.3 | MEDIUM LOW | 30 | 19 | 63% | REPLACE | $91,000 | WWCM-09 |
| CARLOS MORRIS | AERATION BASIN | AERATION BASIN STRUCTURE | STRUCTURE_ CIRCULAR ABOVE GRADE | Secondary Treatment | Aeration | Aeration Basin | | | | 1.6 | 4.2 | 6.8 | MEDIUM LOW | 70 | 59 | 84% | REHAB | $70,200 | WWCM-STR3 |
| CARLOS MORRIS | CHLORINE CONTACT CHAMBERS | EFFLUENT SAMPLER | SAMPLER | Non-Process | Building | Sampling | HACH | 9503800 | | 2.2 | 2.8 | 6.1 | MEDIUM LOW | 15 | 10 | 67% | REPLACE | $9,000 | WWCM-MISC |
| CARLOS MORRIS | CHLORINE CONTACT CHAMBERS | 30-INCH CHLORINE CONTACT CHAMBER PIPE | PIPING_ BURIED | Tertiary Treatment | Disinfection | Chlorine Contact Chamber | | | 1966 | 4.4 | 4.1 | 17.9 | HIGH | 70 | 11 | 16% | REPLACE | $27,000 | WWCM-17 |
| CARLOS MORRIS | CHLORINE CONTACT CHAMBERS | 54-INCH CHLORINE CONTACT CHAMBER PIPE | PIPING_ BURIED | Tertiary Treatment | Disinfection | Chlorine Contact Chamber | | | 1966 | 4.4 | 4.3 | 18.6 | HIGH | 70 | 11 | 16% | REPLACE | $84,800 | WWCM-17 |
| CARLOS MORRIS | DEGRITTER 01 | DEGRITTER 01 | DEGRITTER_ VORTEX | Preliminary Treatment | Grit Removal | Degritter 01 | WESTECH | | | 5.0 | 3.2 | 16.0 | HIGH | 25 | 0 | 0% | REPLACE | $250,000 | WW-02 |
| CARLOS MORRIS | DEGRITTER 01 | GRIT CLASSIFIER 01 | DEGRITTER_ CLASSIFIER | Preliminary Treatment | Grit Removal | Degritter 01 | UNKNOWN | | | 5.0 | 2.4 | 12.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $150,000 | WW-02 |
| CARLOS MORRIS | DEGRITTER 01 | EFFLUENT SLUICE GATE 01 | GATE_ SLUICE | Preliminary Treatment | Grit Removal | Degritter 01 | | | | 5.0 | 1.4 | 7.0 | MEDIUM LOW | 25 | 0 | 0% | REPLACE | $25,000 | WW-02 |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CARLOS MORRIS** | DEGRITTER 01 | DEGRITTER 01 STRUCTURE | STRUCTURE_ RECTANGULAR ABOVE GRADE | Preliminary Treatment | Grit Removal | Degritter 01 | | | | 3.7 | 2.4 | 8.9 | MEDIUM LOW | 70 | 23 | 33% | REHAB | $100,000 | WW-02 |
| **CARLOS MORRIS** | DEGRITTER 02 (NEW) | DEGRITTER 02 | DEGRITTER_ VORTEX | Preliminary Treatment | Grit Removal | Degritter 02 | SAVI | DSP / 2017 | 2017 | 2.2 | 3.2 | 7.1 | MEDIUM LOW | 25 | 17 | 68% | REPLACE | $250,000 | WWCM-01 |
| **CARLOS MORRIS** | DEGRITTER 02 (NEW) | GRIT CLASSIFIER 02 | DEGRITTER_ CLASSIFIER | Preliminary Treatment | Grit Removal | Degritter 02 | GOODMAN CONVEYORS | | | 3.5 | 2.4 | 8.3 | MEDIUM LOW | 25 | 10 | 40% | REPLACE | $150,000 | WWCM-01 |
| **CARLOS MORRIS** | DEGRITTER 02 (NEW) | EFFLUENT SLIDE GATE 02 | GATE_ SLUICE | Preliminary Treatment | Grit Removal | Degritter 02 | | | | 1.8 | 1.4 | 2.5 | LOW | 25 | 20 | 80% | REPLACE | $35,000 | WWCM-01 |
| **CARLOS MORRIS** | DEGRITTER 02 (NEW) | DEGRITTER 02 SLURRY PUMP MOTOR | MOTOR | Preliminary Treatment | Grit Removal | Degritter 02 | TECO | MAX-PE | | 1.6 | 2.6 | 4.3 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $900 | WWCM-01 |
| **CARLOS MORRIS** | DEGRITTER 02 (NEW) | DEGRITTER 02 SLURRY PUMP | PUMP_ CENTRIFUGAL | Preliminary Treatment | Grit Removal | Degritter 02 | MAD DOG | 4"PFPP | | 1.6 | 2.8 | 4.4 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $20,000 | WWCM-01 |
| **CARLOS MORRIS** | DEGRITTER 02 (NEW) | DEFRITTER 02 STRUCTURE | STRUCTURE_ CIRCULAR ABOVE GRADE | Preliminary Treatment | Grit Removal | Degritter 02 | | | | 3.2 | 2.4 | 7.6 | MEDIUM LOW | 70 | 32 | 46% | REHAB | $100,000 | WWCM-01 |
| **CARLOS MORRIS** | DRYING BEDS | SLUDGE DRYING BED 01 | SLUDGE DRYING BED | Solids Handling | Sludge Drying | Drying Bed 01 | | | | 4.5 | 1.0 | 4.5 | MEDIUM LOW | 50 | 6 | 12% | REHAB | $2,500 | WWCM-20 |
| **CARLOS MORRIS** | DRYING BEDS | SLUDGE DRYING BED 02 | SLUDGE DRYING BED | Solids Handling | Sludge Drying | Drying Bed 02 | | | | 5.0 | 1.0 | 5.0 | MEDIUM LOW | 50 | 0 | 0% | REHAB | $2,500 | WWCM-20 |
| **CARLOS MORRIS** | EQ BASIN DRAIN VAULT | EQ DRAIN VALVE 01 | VALVE_ GATE | Secondary Treatment | EQ Storage | EQ Basin | | 2508-1 | | 5.0 | 3.4 | 17.0 | HIGH | 25 | 0 | 0% | REPLACE | $6,200 | WWCM-21 |
| **CARLOS MORRIS** | EQ BASIN DRAIN VAULT | EQ DRAIN VALVE 02 | VALVE_ GATE | Secondary Treatment | EQ Storage | EQ Basin | | | | 1.7 | 3.4 | 5.8 | MEDIUM LOW | 25 | 21 | 84% | REPLACE | $10,900 | WWCM-MISC |
| **CARLOS MORRIS** | EQ BASIN DRAIN VAULT | EQ DRAIN VALVE 03 | VALVE_ GATE | Secondary Treatment | EQ Storage | EQ Basin | | | | 1.6 | 3.4 | 5.4 | MEDIUM LOW | 25 | 21 | 84% | REPLACE | $15,000 | WWCM-MISC |
| **CARLOS MORRIS** | EQ BASIN DRAIN VAULT | DRAIN VAULT STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | Secondary Treatment | EQ Storage | EQ Basin | | | | 4.1 | 2.4 | 9.8 | MEDIUM LOW | 70 | 16 | 23% | REHAB | $14,600 | WWCM-21 |
| **CARLOS MORRIS** | EQUALIZATION BASIN | EQ OVERFLOW VALVE | VALVE_ GATE | Secondary Treatment | EQ Storage | EQ Basin | MUELLER | 2361 | | 2.5 | 2.6 | 6.5 | MEDIUM LOW | 25 | 16 | 64% | REPLACE | $15,000 | WWCM-21 |
| **CARLOS MORRIS** | EQUALIZATION BASIN | WASHDOWN CANNON 04 | VALVE_ PRESSURE NOZZLE | Secondary Treatment | EQ Storage | EQ Basin | TASK FORCE TIPS | XFT-NJ | | 1.6 | 2.6 | 4.1 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $2,800 | WWCM-21 |
| **CARLOS MORRIS** | EQUALIZATION BASIN | EQ BASIN STRUCTURE | STRUCTURE_ CIRCULAR ABOVE GRADE | Secondary Treatment | EQ Storage | EQ Basin | | | | 2.2 | 4.2 | 9.3 | MEDIUM LOW | 70 | 49 | 70% | REHAB | $70,900 | WWCM-STR3 |
| **CARLOS MORRIS** | FINAL CLARIFIER 01 | FC01 COLLECTOR RAKE ARM AND SKIMMER | COLLECTOR | Secondary Treatment | Final Clarification | Final Clarifier 01 | | | | 3.7 | 4.6 | 16.9 | HIGH | 20 | 7 | 35% | REPLACE | $157,200 | WWCM-10 |
| **CARLOS MORRIS** | FINAL CLARIFIER 01 | FC01 DRIVE | GEARBOX | Secondary Treatment | Final Clarification | Final Clarifier 01 | | | | 2.8 | 4.6 | 12.8 | HIGH | 30 | 17 | 57% | REPLACE | $260,400 | WWCM-10 |
| **CARLOS MORRIS** | FINAL CLARIFIER 01 | FC01 MOTOR | MOTOR | Secondary Treatment | Final Clarification | Final Clarifier 01 | NORTH AMERICAN ELECTRIC | PR56C1.5M4A | 2022 | 3.2 | 4.0 | 12.8 | MEDIUM HIGH | 20 | 9 | 45% | REPLACE | $300 | WWCM-10 |
| **CARLOS MORRIS** | FINAL CLARIFIER 01 | FC01 CATWALK | SAFETY_ RAILINGS AND WALKWAYS | Secondary Treatment | Final Clarification | Final Clarifier 01 | WESTECH | | | 2.4 | 3.0 | 7.3 | MEDIUM LOW | 30 | 19 | 63% | REPLACE | $82,400 | WWCM-10 |
| **CARLOS MORRIS** | FINAL CLARIFIER 01 | FC01 WAS CHECK VALVE | VALVE_ CHECK | Secondary Treatment | Final Clarification | Final Clarifier 01 | | | | 3.0 | 2.4 | 7.2 | MEDIUM LOW | 25 | 13 | 52% | REPLACE | $2,900 | WWCM-10 |
| **CARLOS MORRIS** | FINAL CLARIFIER 01 | FC01 WAS ISOLATION VALVE | VALVE_ PLUG | Secondary Treatment | Final Clarification | Final Clarifier 01 | | | | 5.0 | 2.4 | 12.0 | MEDIUM HIGH | 20 | 0 | 0% | REPLACE | $1,600 | WW-02 |
| **CARLOS MORRIS** | FINAL CLARIFIER 01 | FC01 STRUCTURE | STRUCTURE_ CLARIFIER | Secondary Treatment | Final Clarification | Final Clarifier 01 | WESTECH | | | 4.1 | 4.2 | 17.2 | HIGH | 70 | 16 | 23% | REHAB | $62,100 | WWCM-10 |
| **CARLOS MORRIS** | FINAL CLARIFIER 02 | FC02 COLLECTOR RAKE ARM AND SKIMMER | COLLECTOR | Secondary Treatment | Final Clarification | Final Clarifier 02 | WESTECH | | | 1.6 | 4.6 | 7.6 | MEDIUM HIGH | 20 | 17 | 85% | REPLACE | $237,400 | WWCM-11 |
| **CARLOS MORRIS** | FINAL CLARIFIER 02 | FC02 DRIVE | GEARBOX | Secondary Treatment | Final Clarification | Final Clarifier 02 | WESTECH | | 2006 | 1.6 | 4.8 | 7.8 | MEDIUM HIGH | 30 | 25 | 83% | REPLACE | $393,200 | WWCM-11 |
| **CARLOS MORRIS** | FINAL CLARIFIER 02 | FC02 MOTOR | MOTOR | Secondary Treatment | Final Clarification | Final Clarifier 02 | WESTINGHOUSE | MAX PE | 2023 | 1.6 | 4.0 | 6.5 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $300 | WWCM-11 |
| **CARLOS MORRIS** | FINAL CLARIFIER 02 | FC02 CATWALK | SAFETY_ RAILINGS AND WALKWAYS | Secondary Treatment | Final Clarification | Final Clarifier 02 | | | | 1.8 | 3.0 | 5.3 | MEDIUM LOW | 30 | 24 | 80% | REPLACE | $124,400 | WWCM-11 |
| **CARLOS MORRIS** | FINAL CLARIFIER 02 | FC02 SCUM ISOLATION VALVE | VALVE_ PLUG | Secondary Treatment | Final Clarification | Final Clarifier 02 | | | | 1.6 | 2.4 | 3.9 | LOW | 20 | 17 | 85% | REPLACE | $1,600 | WWCM-11 |
| **CARLOS MORRIS** | FINAL CLARIFIER 02 | FC02 WAS CHECK VALVE | VALVE_ CHECK | Secondary Treatment | Final Clarification | Final Clarifier 02 | | | | 3.0 | 2.6 | 7.8 | MEDIUM LOW | 25 | 13 | 52% | REPLACE | $5,400 | WWCM-11 |
| **CARLOS MORRIS** | FINAL CLARIFIER 02 | FC02 WAS ISOLATION VALVE | VALVE_ PLUG | Secondary Treatment | Final Clarification | Final Clarifier 02 | | | | 1.8 | 2.4 | 4.4 | LOW | 20 | 16 | 80% | REPLACE | $1,600 | WWCM-11 |
| **CARLOS MORRIS** | FINAL CLARIFIER 02 | FC02 STRUCTURE | STRUCTURE_ CLARIFIER | Secondary Treatment | Final Clarification | Final Clarifier 02 | WESTECH | | | 2.3 | 4.4 | 10.0 | MEDIUM LOW | 70 | 48 | 69% | REHAB | $89,600 | WWCM-11 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | TRANSFORMER 10KVA | TRANSFORMER | Non-Process | Building | Electrical Systems | SQUARE D | 12548-12425-010 | | 1.6 | 4.4 | 7.1 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $3,000 | WWCM-MISC |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | ROLLUP OVERHEAD DOOR | OVERHEAD DOOR_ MANUAL | Non-Process | Building | Envelope | | | | 1.8 | 2.0 | 3.5 | LOW | 35 | 28 | 80% | REPLACE | $1,100 | WWCM-MISC |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INFLUENT PUMP STATION STRUCTURE | STRUCTURE_ BUILDING | Non-Process | Building | Envelope | | | | 2.4 | 1.6 | 3.8 | LOW | 75 | 49 | 65% | REHAB | $90,000 | WWCM-STR4 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | HEATER (NORTH) | HEATERS | Non-Process | Building | HVAC | MARKEL | | | 5.0 | 1.2 | 6.0 | MEDIUM LOW | 15 | 0 | 0% | REPLACE | $1,300 | WWCM-22 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | HEATER (SOUTH) | HEATERS | Non-Process | Building | HVAC | MARKEL | | | 5.0 | 1.2 | 6.0 | MEDIUM LOW | 15 | 0 | 0% | REPLACE | $1,300 | WWCM-22 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | HOIST MONORAIL | MONORAIL | Non-Process | Building | Lifting | COFFING | | | 2.5 | 2.2 | 5.4 | MEDIUM LOW | 25 | 16 | 64% | REPLACE | $3,500 | WWCM-MISC |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INF PS INDOOR LIGHTING | LIGHTING_ INDOOR | Non-Process | Building | Lighting | | | | 1.0 | 2.5 | 2.5 | LOW | 25 | 25 | 100 % | REPLACE | $7,500 | WWCM-MISC |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | SCADA CABINET | SCADA_ PLC | Non-Process | Building | SCADA | GREENNET | | | 1.7 | 3.4 | 5.6 | MEDIUM LOW | 10 | 8 | 80% | REPLACE | $52,000 | WW-01 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INFLUENT SAMPLER | SAMPLER | Non-Process | Building | Sampling | HACH | 9503800 | | 1.6 | 2.2 | 3.5 | LOW | 15 | 13 | 87% | REPLACE | $9,000 | WWCM-MISC |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INFLUENT FLOW METER | INST_ TRANSMITTER_ FLOW | Preliminary Treatment | Influent Pumping | Common Instrumentation | KROHNE | IFC 090/D/HART/18 LAS-2/S | 2005 | 1.6 | 3.0 | 4.7 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $2,000 | WWCM-05 |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INFLUENT WELL LEVEL SENSOR | INST_ TRANSMITTER_ LEVEL | Preliminary Treatment | Influent Pumping | Common Instrumentation | SIEMENS | HYDRORANGER 200 | | 3.4 | 4.1 | 13.8 | MEDIUM HIGH | 10 | 4 | 40% | REPLACE | $2,200 | WWCM-05 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | DISCHARGE HEADER | PIPING_ EXTERIOR PROCESS | Preliminary Treatment | Influent Pumping | Common Pipework and Valves | | | | 3.2 | 2.6 | 8.2 | MEDIUM LOW | 50 | 23 | 46% | REPLACE | $21,800 | WWCM-MISC |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INFLUENT PUMP 01 MOTOR STARTER | MOTOR STARTERS | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 01 | SQUARE D | SPO 3 | | 3.0 | 4.2 | 12.6 | MEDIUM HIGH | 15 | 8 | 53% | REPLACE | $4,600 | WWCM-04 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INFLUENT PUMP 01 MOTOR | MOTOR | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 01 | US ELECTRIC | | 2012 | 2.2 | 4.2 | 9.2 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $5,200 | WWCM-04 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INFLUENT PUMP 01 | PUMP_ CENTRIFUGAL | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 01 | GORMAN RUPP | T-10 | 2018 | 3.6 | 4.4 | 15.7 | HIGH | 20 | 7 | 35% | REPLACE | $38,000 | WWCM-04 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INP 01 CHECK VALVE | VALVE_ CHECK | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 01 | THAILAND | AWWAC 508 | | 1.7 | 1.8 | 3.0 | LOW | 25 | 21 | 84% | REPLACE | $9,200 | WWCM-04 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INP 01 DISCHARGE VALVE | VALVE_ GATE | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 01 | UNITED | | | 2.1 | 1.8 | 3.8 | LOW | 25 | 18 | 72% | REPLACE | $10,900 | WWCM-04 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INP 01 SUCTION VALVE | VALVE_ GATE | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 01 | UNITED | | | 1.6 | 1.8 | 2.9 | LOW | 25 | 21 | 84% | REPLACE | $10,900 | WWCM-04 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INFLUENT PUMP 02 MOTOR STARTER | MOTOR STARTERS | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 02 | SQUARE D | SPO 3 | | 1.6 | 4.2 | 6.7 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $4,600 | WWCM-02 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INFLUENT PUMP MOTOR 02 | MOTOR | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 02 | SHEPPARD ELECTRIC MOTORS | | 2012 | 1.8 | 4.2 | 7.6 | MEDIUM LOW | 20 | 16 | 80% | REPLACE | $5,200 | WWCM-02 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INFLUENT PUMP 02 | PUMP_ CENTRIFUGAL | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 02 | MAD DOG | 10"PFSPP | 2020 | 5.0 | 4.4 | 22.0 | HIGH | 20 | 0 | 0% | REPLACE | $38,000 | WWCM-02 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INP 02 CHECK VALVE | VALVE_ CHECK | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 02 | | AWWAC-508 | | 2.4 | 1.8 | 4.4 | LOW | 25 | 16 | 64% | REPLACE | $9,200 | WWCM-02 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INP 02 DISCHARGE VALVE | VALVE_ GATE | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 02 | MUELLER | 2362 | 2018 | 1.0 | 1.8 | 1.8 | LOW | 25 | 25 | 100 % | REPLACE | $10,900 | WWCM-02 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INP 02 SUCTION VALVE | VALVE_ GATE | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 02 | UNITED | C515 | | 1.0 | 1.8 | 1.8 | LOW | 25 | 25 | 100 % | REPLACE | $10,900 | WWCM-02 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INFLUENT PUMP 03 MOTOR STARTER | MOTOR STARTERS | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 03 | SQUARE D | SFO 3 | | 1.6 | 4.2 | 6.6 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $4,600 | WWCM-02 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INFLUENT PUMP 03 MOTOR | MOTOR | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 03 | US ELECTRIC | | 2012 | 5.0 | 4.2 | 21.0 | HIGH | 20 | 0 | 0% | REPLACE | $5,200 | WWCM-02 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INFLUENT PUMP 03 | PUMP_ CENTRIFUGAL | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 03 | MAD DOG | 10"PFSPP | 2020 | 2.3 | 4.4 | 10.0 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $38,000 | WWCM-02 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INP 03 CHECK VALVE | VALVE_ CHECK | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 03 | UNITED | AWWA 0508 | | 3.8 | 1.8 | 6.9 | MEDIUM LOW | 25 | 7 | 28% | REPLACE | $9,200 | WWCM-02 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INP 03 DISCHARGE VALVE | VALVE_ GATE | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 03 | UNITED | | | 1.7 | 1.8 | 3.1 | LOW | 25 | 21 | 84% | REPLACE | $10,900 | WWCM-02 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INP 03 SUCTION VALVE | VALVE_ GATE | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 03 | UNITED | C515 | | 1.7 | 1.8 | 3.1 | LOW | 25 | 21 | 84% | REPLACE | $10,900 | WWCM-02 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INFLUENT PUMP 04 MOTOR STARTER | MOTOR STARTERS | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 04 | SQUARE D | SFO 3 | | 1.6 | 4.2 | 6.8 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $4,600 | WWCM-03 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INFLUENT PUMP MOTOR 04 | MOTOR | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 04 | ARMSTRONG ELECTRIC | G12510 | | 1.6 | 4.2 | 6.9 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $5,200 | WWCM-03 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INFLUENT PUMP 04 | PUMP_ CENTRIFUGAL | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 04 | MAD DOG | 10" PFSPP | 2020 | 3.3 | 4.4 | 14.7 | MEDIUM HIGH | 20 | 8 | 40% | REPLACE | $38,000 | WWCM-03 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INP 04 CHECK VALVE | VALVE_ CHECK | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 04 | | AWWAC C-508 | | 3.6 | 1.8 | 6.5 | MEDIUM LOW | 25 | 9 | 36% | REPLACE | $9,200 | WWCM-03 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INP 04 DISCHARGE VALVE | VALVE_ GATE | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 04 | UNITED | C515 | | 1.7 | 1.8 | 3.1 | LOW | 25 | 21 | 84% | REPLACE | $10,900 | WWCM-03 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INP 04 SUCTION VALVE | VALVE_ GATE | Preliminary Treatment | Influent Pumping | Influent Pump Assembly 04 | UNITED | C515 | | 1.7 | 1.8 | 3.0 | LOW | 25 | 21 | 84% | REPLACE | $10,900 | WWCM-03 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | BAR SCREEN CONTROL PANEL | CONTROL PANEL | Preliminary Treatment | Screening | Screens and Compactors | JWC ENVIRONMENTAL | | 2013 | 1.0 | 3.6 | 3.6 | MEDIUM LOW | 20 | 20 | 100 % | REPLACE | $7,000 | WW-02 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | INFLUENT BAR SCREEN | SCREEN_ FINE | Preliminary Treatment | Screening | Screens and Compactors | JWC ENVIRONMENTAL | MFS | 2013 | 5.0 | 3.6 | 18.0 | HIGH | 20 | 0 | 0% | REPLACE | $275,200 | WW-02 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | WASHER COMPACTOR | COMPACTOR | Preliminary Treatment | Screening | Screens and Compactors | JWC ENVIRONMENTAL | | 2013 | 5.0 | 3.6 | 18.0 | HIGH | 25 | 0 | 0% | REPLACE | $58,300 | WW-02 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | BAR SCREEN BYPASS SLUICE GATE | GATE_ SLUICE | Preliminary Treatment | Screening | Screens and Compactors | | | | 4.0 | 2.8 | 11.2 | MEDIUM HIGH | 25 | 6 | 24% | REPLACE | $45,000 | WW-02 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | BAR SCREEN INFLUENT SLUICE GATE | GATE_ SLUICE | Preliminary Treatment | Screening | Screens and Compactors | | | | 3.9 | 3.4 | 13.2 | MEDIUM HIGH | 25 | 7 | 28% | REPLACE | $45,000 | WW-02 |
| **CARLOS MORRIS** | INFLUENT PUMP STATION | BAR SCREEN OUTLET SLUICE GATE | GATE_ SLUICE | Preliminary Treatment | Screening | Screens and Compactors | | | | 4.1 | 3.4 | 13.9 | MEDIUM HIGH | 25 | 6 | 24% | REPLACE | $45,000 | WW-02 |
| **CARLOS MORRIS** | INTERMEDIATE PUMP STATION | HOIST | MONORAIL | Non-Process | Building | Lifting | TROLLEY | | | 5.0 | 1.2 | 6.0 | MEDIUM LOW | 25 | 0 | 0% | REPLACE | $3,500 | WWCM-22 |
| **CARLOS MORRIS** | INTERMEDIATE PUMP STATION | PUMP DISCONNECT SWITCH | BREAKER | Secondary Treatment | Intermediate Pumping | Common Instrumentation | SIEMENS | | | 3.0 | 4.4 | 13.2 | MEDIUM HIGH | 35 | 18 | 51% | REPLACE | $400 | WWCM-15 |
| **CARLOS MORRIS** | INTERMEDIATE PUMP STATION | IPS LEVEL TRANSDUCER 01 | INST_ TRANSMITTER_ LEVEL | Secondary Treatment | Intermediate Pumping | Common Instrumentation | ECHO PROCESS INSTRUMENTATION | LEVEL HUNTER III 11A31 | 2024 | 3.3 | 3.8 | 12.4 | MEDIUM HIGH | 10 | 4 | 40% | REPLACE | $2,200 | WWCM-15 |
| **CARLOS MORRIS** | INTERMEDIATE PUMP STATION | IPS LEVEL TRANSDUCER 02 | INST_ TRANSMITTER_ LEVEL | Secondary Treatment | Intermediate Pumping | Common Instrumentation | SIEMENS | HYDRORANGE 200 | 2019 | 3.9 | 3.8 | 14.7 | HIGH | 10 | 3 | 30% | REPLACE | $2,200 | WWCM-15 |
| **CARLOS MORRIS** | INTERMEDIATE PUMP STATION | IP 01 PUMP | PUMP_ SUBMERSIBLE | Secondary Treatment | Intermediate Pumping | Intermediate Pump Assembly 01 | KSB | KRTK 300-400/406XG-S | 2024 | 1.6 | 4.4 | 7.0 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $41,300 | WWCM-12 |
| **CARLOS MORRIS** | INTERMEDIATE PUMP STATION | IP 01 AIR RELEASE VALVE | VALVE_ VACUUM/AIR RELIEF | Secondary Treatment | Intermediate Pumping | Intermediate Pump Assembly 01 | VAL-MATIC | 48A | 2005 | 1.7 | 2.4 | 4.0 | LOW | 20 | 17 | 85% | REPLACE | $800 | WWCM-12 |
| **CARLOS MORRIS** | INTERMEDIATE PUMP STATION | IP 01 CHECK VALVE | VALVE_ CHECK | Secondary Treatment | Intermediate Pumping | Intermediate Pump Assembly 01 | CLOW/ M&H | | 2005 | 3.6 | 2.8 | 10.0 | MEDIUM HIGH | 25 | 9 | 36% | REPLACE | $47,300 | WWCM-12 |
| **CARLOS MORRIS** | INTERMEDIATE PUMP STATION | IP 01 DISCHARGE ISOLATION VALVE | VALVE_ PLUG | Secondary Treatment | Intermediate Pumping | Intermediate Pump Assembly 01 | VAL-MATIC | 5818R | 2005 | 3.5 | 2.6 | 9.2 | MEDIUM HIGH | 20 | 7 | 35% | REPLACE | $11,500 | WWCM-12 |
| **CARLOS MORRIS** | INTERMEDIATE PUMP STATION | IP 02 PUMP | PUMP_ SUBMERSIBLE | Secondary Treatment | Intermediate Pumping | Intermediate Pump Assembly 02 | KSB | KRTK 300-400/406XG-S | | 3.4 | 4.4 | 14.7 | MEDIUM HIGH | 15 | 6 | 40% | REPLACE | $41,300 | WWCM-13 |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CARLOS MORRIS** | INTERMEDIATE PUMP STATION | IP 02 AIR RELEASE VALVE | VALVE_ VACUUM/AIR RELIEF | Secondary Treatment | Intermediate Pumping | Intermediate Pump Assembly 02 | VAL-MATIC | 48A | 2005 | 1.7 | 2.4 | 4.0 | LOW | 20 | 17 | 85% | REPLACE | $800 | WWCM-13 |
| **CARLOS MORRIS** | INTERMEDIATE PUMP STATION | IP 02 CHECK VALVE | VALVE_ CHECK | Secondary Treatment | Intermediate Pumping | Intermediate Pump Assembly 02 | CLOW / M&H | | 2001 | 2.3 | 2.8 | 6.5 | MEDIUM LOW | 25 | 17 | 68% | REPLACE | $47,300 | WWCM-13 |
| **CARLOS MORRIS** | INTERMEDIATE PUMP STATION | IP 02 DISCHARGE CROSSOVER ISOLATION VALVE | VALVE_ PLUG | Secondary Treatment | Intermediate Pumping | Intermediate Pump Assembly 02 | VALMATIC | | 2005 | 5.0 | 2.6 | 13.0 | HIGH | 20 | 0 | 0% | REPLACE | $11,500 | WWCM-13 |
| **CARLOS MORRIS** | INTERMEDIATE PUMP STATION | IP 02 DISCHARGE CROSSOVER ISOLATION VALVE | VALVE_ PLUG | Secondary Treatment | Intermediate Pumping | Intermediate Pump Assembly 02 | VAL-MATIC | 5818R | 2005 | 3.5 | 2.6 | 9.2 | MEDIUM HIGH | 20 | 7 | 35% | REPLACE | $11,500 | WWCM-13 |
| **CARLOS MORRIS** | INTERMEDIATE PUMP STATION | IP 03 PUMP | PUMP_ SUBMERSIBLE | Secondary Treatment | Intermediate Pumping | Intermediate Pump Assembly 03 | KSB | | | 3.0 | 4.4 | 13.2 | MEDIUM HIGH | 15 | 8 | 53% | REPLACE | $32,600 | WWCM-14 |
| **CARLOS MORRIS** | INTERMEDIATE PUMP STATION | IP 03 AIR RELEASE VALVE | VALVE_ VACUUM/AIR RELIEF | Secondary Treatment | Intermediate Pumping | Intermediate Pump Assembly 03 | VAL-MATIC | 48A | 2005 | 1.7 | 2.4 | 4.0 | LOW | 20 | 17 | 85% | REPLACE | $800 | WWCM-14 |
| **CARLOS MORRIS** | INTERMEDIATE PUMP STATION | IP 03 CHECK VALVE | VALVE_ CHECK | Secondary Treatment | Intermediate Pumping | Intermediate Pump Assembly 03 | CLOW/ M&H | | 2005 | 2.3 | 2.8 | 6.5 | MEDIUM LOW | 25 | 17 | 68% | REPLACE | $47,300 | WWCM-14 |
| **CARLOS MORRIS** | INTERMEDIATE PUMP STATION | IP 03 DISCHARGE ISOLATION VALVE | VALVE_ PLUG | Secondary Treatment | Intermediate Pumping | Intermediate Pump Assembly 03 | VALMATIC | | 2005 | 3.5 | 2.6 | 9.2 | MEDIUM HIGH | 20 | 7 | 35% | REPLACE | $11,500 | WWCM-14 |
| **CARLOS MORRIS** | INTERMEDIATE PUMP STATION | INTERMEDIATE PS WET WELL | STRUCTURE_ CIRCULAR WET WELL | Secondary Treatment | Intermediate Pumping | Wet Well | | | | 1.7 | 1.4 | 2.3 | LOW | 70 | 58 | 83% | REHAB | $71,900 | WWCM-STR4 |
| **CARLOS MORRIS** | MAINTENANCE BUILDING | OVERHEAD DOOR | OVERHEAD DOOR_ MANUAL | Non-Process | Building | Envelope | OVERHEAD DOOR | | | 3.0 | 2.0 | 6.0 | MEDIUM LOW | 35 | 18 | 51% | REPLACE | $2,600 | WWCM-MISC |
| **CARLOS MORRIS** | MAINTENANCE BUILDING | MAINTENANCE BUILDING STRUCTURE | STRUCTURE_ BUILDING | Non-Process | Building | Envelope | | | | 3.6 | 1.4 | 5.1 | MEDIUM LOW | 75 | 25 | 33% | REPLACE | $54,000 | WWCM-STR2 |
| **CARLOS MORRIS** | MAINTENANCE BUILDING | HEATER NORTH SIDE | HEATERS | Non-Process | Building | HVAC | MODINE | | | 2.5 | 1.4 | 3.5 | LOW | 15 | 9 | 60% | REPLACE | $1,300 | WWCM-23 |
| **CARLOS MORRIS** | MAINTENANCE BUILDING | HEATER SOUTH SIDE | HEATERS | Non-Process | Building | HVAC | MODINE | | | 2.5 | 1.4 | 3.5 | LOW | 15 | 9 | 60% | REPLACE | $1,300 | WWCM-23 |
| **CARLOS MORRIS** | MAINTENANCE BUILDING | SITE FENCE | FENCE | Non-Process | Site-Wide | Fences and Gates | | | | 2.5 | 1.4 | 3.5 | LOW | 25 | 16 | 64% | REPLACE | $49,800 | WWCM-MISC |
| **CARLOS MORRIS** | MAINTENANCE BUILDING | VEHICLE ENTRY GATE | VEHICLE GATE_ AUTOMATIC | Non-Process | Site-Wide | Fences and Gates | CHAMBERLAIN LIFT MASTER | | | 5.0 | 1.2 | 6.0 | MEDIUM LOW | 25 | 0 | 0% | REPLACE | $5,400 | WWCM-22 |
| **CARLOS MORRIS** | MAINTENANCE BUILDING | SITE LIGHTING CENTER MAST | LIGHTING_ OUTDOOR | Non-Process | Site-Wide | Site Lighting | | | | 2.0 | 2.2 | 4.3 | LOW | 25 | 19 | 76% | REPLACE | $9,800 | WWCM-MISC |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | ATS | ATS | Non-Process | Building | Electrical Systems | KHOHLER | MPAC 1500 | | 1.0 | 3.4 | 3.4 | LOW | 30 | 30 | 100 % | REPLACE | $8,000 | WWCM-MISC |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | ELECTRICAL PANEL A | DISTRIBUTION PANEL | Non-Process | Building | Electrical Systems | SQUARE D | | | 1.0 | 3.2 | 3.2 | LOW | 20 | 20 | 100 % | REPLACE | $4,500 | WWCM-MISC |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | ELECTRICAL PANEL B | DISTRIBUTION PANEL | Non-Process | Building | Electrical Systems | SQUARE D | NQOB | | 1.6 | 3.4 | 5.3 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $6,200 | WWCM-MISC |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | ELECTRICAL PANEL OFFICE | DISTRIBUTION PANEL | Non-Process | Building | Electrical Systems | SQUARE D | NQOD42L225CU | | 1.0 | 3.2 | 3.2 | LOW | 20 | 20 | 100 % | REPLACE | $2,800 | WWCM-MISC |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | MAIN CIRCUIT BREAKER | BREAKER | Non-Process | Building | Electrical Systems | SQUARE D | | | 1.0 | 3.4 | 3.4 | LOW | 35 | 35 | 100 % | REPLACE | $6,700 | WWCM-MISC |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | TRANSFORMER | TRANSFORMER | Non-Process | Building | Electrical Systems | SQUARE D | | | 1.7 | 3.4 | 5.5 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $8,600 | WWCM-MISC |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | MCC-A | MCC | Non-Process | Building | Electrical Systems | SIEMENS | 89DF56095016 | | 1.5 | 3.5 | 5.4 | MEDIUM LOW | 40 | 35 | 88% | REPLACE | $31,700 | WWCM-MISC |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | PLANT GENERATOR | GENERATOR_ DIESEL | Non-Process | Building | Electrical Systems | CATERPILLAR | 3412 | | 1.8 | 3.7 | 6.4 | MEDIUM LOW | 25 | 20 | 80% | REPLACE | $86,800 | WWCM-MISC |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | OFFICE/CHEM BUILDING STRUCTURE | STRUCTURE_ BUILDING | Non-Process | Building | Envelope | | | | 3.5 | 1.6 | 5.5 | MEDIUM LOW | 75 | 29 | 39% | REHAB | $100,000 | WWCM-STR3 |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | CONDENSING UNIT ON ROOF | CONDENSING UNITS | Non-Process | Building | HVAC | GOODMEN | GSXN404810AA | | 1.0 | 2.2 | 2.2 | LOW | 20 | 20 | 100 % | REPLACE | $2,100 | WWCM-23 |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | CONDENSING UNIT SOUTH | CONDENSING UNITS | Non-Process | Building | HVAC | CARRIER | CH14NB030-A | 2018 | 1.6 | 2.0 | 3.1 | LOW | 20 | 17 | 85% | REPLACE | $1,500 | WWCM-23 |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | EXHAUST FAN CHEMICAL ROOM | FANS AND BLOWERS | Non-Process | Building | HVAC | | | | 5.0 | 1.5 | 7.5 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $1,400 | WWCM-22 |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | HEAT PUMP INDOOR UNIT | HEAT PUMP | Non-Process | Building | HVAC | CARRIER | FBCNP030 | 2018 | 1.8 | 2.2 | 3.9 | LOW | 20 | 16 | 80% | REPLACE | $900 | WWCM-23 |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | OUTDOOR BUILDING LIGHTING | LIGHTING_ OUTDOOR | Non-Process | Building | Lighting | | | | 1.8 | 2.3 | 4.2 | LOW | 25 | 20 | 80% | REPLACE | $2,100 | WWCM-MISC |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | GAS DETECTION SYSTEM | DETECTOR_ GAS | Non-Process | Building | SCADA | HYDRO INSTRUMENTS | SERIES GA-180 | | 1.0 | 3.2 | 3.2 | LOW | 5 | 5 | 100 % | REPLACE | $12,100 | WWCM-MISC |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | PLC/SCC-A | SCADA_ PLC | Non-Process | Building | SCADA | ACS | 2007-1719 | 2007 | 1.6 | 3.4 | 5.4 | MEDIUM LOW | 10 | 8 | 80% | REPLACE | $52,000 | WW-01 |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | PSPS SCADA CABINET | SCADA_ PLC | Non-Process | Building | SCADA | ALLEN BRADLEY | PANELVIEW PLUS 1000 | | 1.0 | 3.4 | 3.4 | LOW | 10 | 10 | 100 % | REPLACE | $52,000 | WW-01 |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | PLANT ALARM SYSTEM | SAFETY_ ALARM | Non-Process | Building | SCADA | DETCON | MODEL 440 | | 5.0 | 3.4 | 16.8 | HIGH | 15 | 0 | 0% | REPLACE | $5,300 | WWCM-22 |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | IP 01 VFD | VFD | Secondary Treatment | Intermediate Pumping | Intermediate Pump Assembly 01 | BENSHAW | H2 | | 1.6 | 4.4 | 7.2 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $8,200 | WWCM-12 |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | IP 02 VFD | VFD | Secondary Treatment | Intermediate Pumping | Intermediate Pump Assembly 02 | BENSHAW | H2 | | 1.5 | 4.4 | 6.8 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $8,200 | WWCM-13 |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | CHLORINE GAS SYSTEM | FEEDER | Tertiary Treatment | Disinfection | Chlorination | SCALETRON | | | 1.0 | 4.1 | 4.1 | MEDIUM LOW | 10 | 10 | 100 % | REPLACE | $20,000 | WWCM-17 |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | SODIUM HYPOCHLORITE FEED PUMP 01 | PUMP_ METERING_ DIAPHRAGM | Tertiary Treatment | Disinfection | Chlorination | PROMINENT SIGMA | S1CBH12035PVTS070UD 81G01EN | | 1.6 | 3.4 | 5.3 | MEDIUM LOW | 10 | 9 | 90% | REPLACE | $4,600 | WWCM-17 |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | SODIUM HYPOCHLORITE FEED PUMP 02 | PUMP_ METERING_ DIAPHRAGM | Tertiary Treatment | Disinfection | Chlorination | PROMENENT SIGMA | S1CBH12035PVTS070UD 81G01EN | | 1.8 | 3.4 | 6.2 | MEDIUM LOW | 10 | 8 | 80% | REPLACE | $4,600 | WWCM-17 |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | SODIUM HYPOCHLORITE FEED TANK | TANK_ CHEMICAL | Tertiary Treatment | Disinfection | Chlorination | AUGUSTA FIBERGLASS | | 2005 | 3.0 | 4.0 | 11.7 | MEDIUM HIGH | 25 | 13 | 52% | REPLACE | $68,000 | WWCM-17 |
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | SODIUM BISULFATE FEED PUMP 01 | PUMP_ METERING_ DIAPHRAGM | Tertiary Treatment | Disinfection | Dechlorination | PROMINENT | S1CBH12035PVTS070UD 81001EN | | 5.0 | 3.4 | 17.0 | HIGH | 10 | 0 | 0% | REPLACE | $4,600 | WWCM-17 |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CARLOS MORRIS** | OFFICE/CHEMICAL FEED BUILDING | SODIUM BISULFATE FEED TANK | TANK_ CHEMICAL | Tertiary Treatment | Disinfection | Dechlorination | | | 2006 | 3.0 | 4.0 | 11.7 | MEDIUM HIGH | 25 | 13 | 52% | REPLACE | $68,000 | WWCM-17 |
| **CARLOS MORRIS** | OUTFALL BOX | OB LEVEL TRANSDUCER | INST_ TRANSMITTER_ LEVEL | Tertiary Treatment | Disinfection | Outfall Box | ECHO PROCESS INSTRUMENTATION | FLOW HUNTER III | | 3.3 | 3.2 | 10.5 | MEDIUM LOW | 10 | 4 | 40% | REPLACE | $2,200 | WWCM-18 |
| **CARLOS MORRIS** | OUTFALL BOX | OUTFALL BOX PH ANALYZER | ANALYZER_ PH | Tertiary Treatment | Disinfection | Outfall Box | IQ SENSOR NET | DIQ/S 282 | | 3.5 | 3.1 | 10.7 | MEDIUM HIGH | 15 | 6 | 40% | REPLACE | $3,000 | WWCM-18 |
| **CARLOS MORRIS** | OUTFALL BOX | OUTFALL BOX STRUCTURE | STRUCTURE_ RECTANGULAR WET WELL | Tertiary Treatment | Disinfection | Outfall Box | | | | 1.7 | 2.2 | 3.7 | LOW | 70 | 58 | 83% | REHAB | $66,600 | WWCM-STR4 |
| **CARLOS MORRIS** | POST AERATION BASIN | CHLORINE RESIDUAL ANALYZER PROBE | INST_ ANALYZER_ CHLORINE | Tertiary Treatment | Disinfection | Post Aeration Basin | PROMINENT | | | 1.7 | 3.2 | 5.3 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $4,000 | WWCM-19 |
| **CARLOS MORRIS** | POST AERATION BASIN | POST AREATION MIXER | MIXER_ STATIONARY | Tertiary Treatment | Disinfection | Post Aeration Basin | ENDURA | | | 2.3 | 4.0 | 9.0 | MEDIUM LOW | 15 | 10 | 67% | REPLACE | $18,700 | WWCM-19 |
| **CARLOS MORRIS** | POST AERATION BASIN | NON-POTABLE WATER PUMP | PUMP_ SUBMERSIBLE | Tertiary Treatment | Disinfection | Post Aeration Basin | | | | 5.0 | 3.2 | 16.0 | HIGH | 15 | 0 | 0% | REPLACE | $12,100 | WWCM-18 |
| **CARLOS MORRIS** | POST AERATION BASIN | POST AERATION BASIN | STRUCTURE_ RECTANGULAR WET WELL | Tertiary Treatment | Disinfection | Post Aeration Basin | | | | 1.7 | 4.1 | 7.0 | MEDIUM LOW | 70 | 58 | 83% | REHAB | $186,400 | WWCM-STR3 |
| **CARLOS MORRIS** | PRIMARY CLARIFIER 01 | PC01 COLLECTOR RAKE ARM AND SKIMMER | COLLECTOR | Primary Treatment | Primary Clarification | Primary Clarifier 01 | | | | 3.1 | 4.4 | 13.4 | MEDIUM HIGH | 20 | 10 | 50% | REPLACE | $72,300 | WWCM-06 |
| **CARLOS MORRIS** | PRIMARY CLARIFIER 01 | PC01 DRIVE | GEARBOX | Primary Treatment | Primary Clarification | Primary Clarifier 01 | WESTECH | | 2006 | 2.8 | 4.6 | 12.8 | HIGH | 30 | 17 | 57% | REPLACE | $119,800 | WWCM-06 |
| **CARLOS MORRIS** | PRIMARY CLARIFIER 01 | PC01 MOTOR | MOTOR | Primary Treatment | Primary Clarification | Primary Clarifier 01 | WESTINGHOUSE | GHO/74C | | 2.7 | 4.0 | 10.9 | MEDIUM HIGH | 20 | 11 | 55% | REPLACE | $300 | WWCM-06 |
| **CARLOS MORRIS** | PRIMARY CLARIFIER 01 | PC01 CATWALK | SAFETY_ RAILINGS AND WALKWAYS | Primary Treatment | Primary Clarification | Primary Clarifier 01 | WESTECH | | 2006 | 2.7 | 2.2 | 5.9 | MEDIUM LOW | 30 | 17 | 57% | REPLACE | $37,900 | WWCM-06 |
| **CARLOS MORRIS** | PRIMARY CLARIFIER 01 | PC01 INFLUENT VALVE | VALVE_ PLUG | Primary Treatment | Primary Clarification | Primary Clarifier 01 | | | | 3.0 | 1.8 | 5.4 | MEDIUM LOW | 20 | 10 | 50% | REPLACE | $19,200 | WWCM-06 |
| **CARLOS MORRIS** | PRIMARY CLARIFIER 01 | PC01 SCUM EFFLUENT VALVE | VALVE_ PLUG | Primary Treatment | Primary Clarification | Primary Clarifier 01 | | | | 3.0 | 1.6 | 4.8 | MEDIUM LOW | 20 | 10 | 50% | REPLACE | $1,600 | WW-02 |
| **CARLOS MORRIS** | PRIMARY CLARIFIER 01 | PC01 SLUDGE EFFLUENT VALVE | VALVE_ PLUG | Primary Treatment | Primary Clarification | Primary Clarifier 01 | | | | 3.0 | 1.6 | 4.8 | MEDIUM LOW | 20 | 10 | 50% | REPLACE | $2,800 | WW-02 |
| **CARLOS MORRIS** | PRIMARY CLARIFIER 01 | PC01 STRUCTURE | STRUCTURE_ CLARIFIER | Primary Treatment | Primary Clarification | Primary Clarifier 01 | | | | 3.9 | 4.2 | 16.4 | HIGH | 70 | 19 | 27% | REHAB | $30,100 | WWCM-06 |
| **CARLOS MORRIS** | PRIMARY CLARIFIER 02 | PC02 COLLECTOR RAKE ARM AND SKIMMER | COLLECTOR | Primary Treatment | Primary Clarification | Primary Clarifier 02 | | | | 3.6 | 4.4 | 15.8 | HIGH | 20 | 7 | 35% | REPLACE | $72,300 | WWCM-07 |
| **CARLOS MORRIS** | PRIMARY CLARIFIER 02 | PC02 DRIVE | GEARBOX | Primary Treatment | Primary Clarification | Primary Clarifier 02 | WESTECH | 105717A-2 | 2006 | 2.2 | 4.6 | 10.0 | MEDIUM HIGH | 30 | 21 | 70% | REPLACE | $119,800 | WWCM-07 |
| **CARLOS MORRIS** | PRIMARY CLARIFIER 02 | PC02 MOTOR | MOTOR | Primary Treatment | Primary Clarification | Primary Clarifier 02 | TECO WESTINGHOUSE | | 2006 | 2.8 | 4.0 | 11.1 | MEDIUM HIGH | 20 | 11 | 55% | REPLACE | $300 | WWCM-07 |
| **CARLOS MORRIS** | PRIMARY CLARIFIER 02 | PC02 CATWALK | SAFETY_ RAILINGS AND WALKWAYS | Primary Treatment | Primary Clarification | Primary Clarifier 02 | WESTECH | | 2006 | 3.6 | 2.2 | 7.9 | MEDIUM LOW | 30 | 11 | 37% | REPLACE | $37,900 | WWCM-07 |
| **CARLOS MORRIS** | PRIMARY CLARIFIER 02 | PC02 INFLUENT VALVE | VALVE_ PLUG | Primary Treatment | Primary Clarification | Primary Clarifier 02 | | | | 5.0 | 1.8 | 9.0 | MEDIUM HIGH | 20 | 0 | 0% | REPLACE | $19,200 | WW-02 |
| **CARLOS MORRIS** | PRIMARY CLARIFIER 02 | PC02 SCUM EFFLUENT VALVE | VALVE_ PLUG | Primary Treatment | Primary Clarification | Primary Clarifier 02 | | | | 3.0 | 1.6 | 4.8 | MEDIUM LOW | 20 | 10 | 50% | REPLACE | $1,600 | WW-02 |
| **CARLOS MORRIS** | PRIMARY CLARIFIER 02 | PC02 SLUDGE EFFLUENT VALVE | VALVE_ PLUG | Primary Treatment | Primary Clarification | Primary Clarifier 02 | | | | 3.0 | 1.6 | 4.8 | MEDIUM LOW | 20 | 10 | 50% | REPLACE | $2,800 | WW-02 |
| **CARLOS MORRIS** | PRIMARY CLARIFIER 02 | PC02 STRUCTURE | STRUCTURE_ CLARIFIER | Primary Treatment | Primary Clarification | Primary Clarifier 02 | | | | 3.8 | 4.2 | 16.0 | HIGH | 70 | 21 | 30% | REHAB | $30,100 | WWCM-07 |
| **CARLOS MORRIS** | PRIMARY DIGESTER | PRIMARY DIGESTER STRUCTURE | STRUCTURE_ DIGESTER | Solids Handling | Sludge Storage | Primary Digester | | | 1963 | 1.8 | 3.0 | 5.4 | MEDIUM LOW | 70 | 56 | 80% | REHAB | $83,300 | WWCM-STR3 |
| **CARLOS MORRIS** | PRIMARY SLUDGE PUMP STATION | PSPS STRUCTURE | STRUCTURE_ BUILDING | Non-Process | Building | Envelope | | | | 3.7 | 1.6 | 5.9 | MEDIUM LOW | 75 | 25 | 33% | REHAB | $86,900 | WWCM-STR2 |
| **CARLOS MORRIS** | RAS METER VAULT 01 | RAS METER VAULT 01 | STRUCTURE_ CIRCULAR VAULT | Non-Process | Building | Envelope | | | | 4.1 | 1.2 | 5.0 | MEDIUM LOW | 70 | 15 | 21% | REHAB | $11,900 | WWCM-STR1 |
| **CARLOS MORRIS** | RAS METER VAULT 01 | RAS FLOW METER 01 | INST_ METER_ MAGNETIC | Secondary Treatment | RAS Pumping | Common Instrumentation | | | | 3.6 | 2.4 | 8.7 | MEDIUM LOW | 15 | 5 | 33% | REPLACE | $13,300 | WWCM-16 |
| **CARLOS MORRIS** | RAS METER VAULT 02 | RAS METER VAULT 02 | STRUCTURE_ CIRCULAR VAULT | Non-Process | Building | Envelope | | | | 3.7 | 1.2 | 4.4 | MEDIUM LOW | 70 | 23 | 33% | REHAB | $11,900 | WWCM-STR1 |
| **CARLOS MORRIS** | RAS METER VAULT 02 | RAS FLOW METER 02 | INST_ METER_ FLOW | Secondary Treatment | RAS Pumping | Common Instrumentation | KROHNE | | | 3.6 | 2.4 | 8.7 | MEDIUM LOW | 15 | 5 | 33% | REPLACE | $21,400 | WWCM-16 |
| **CARLOS MORRIS** | SECONDARY DIGESTER | SECONDARY DIGESTER STRUCTURE | STRUCTURE_ DIGESTER | Solids Handling | Sludge Storage | Secondary Digester | | | | 3.9 | 3.0 | 11.6 | MEDIUM HIGH | 70 | 20 | 29% | REHAB | $83,300 | WWCM-STR1 |
| **CARLOS MORRIS** | SLUDGE PIT | SLUDGE PIT | STRUCTURE_ PAD | Solids Handling | Sludge Storage | Sludge Pit | | | | 1.7 | 2.4 | 4.0 | LOW | 70 | 58 | 83% | REHAB | $2,500 | WWCM-STR4 |
| **CARLOS MORRIS** | SLUDGE PUMP BUILDING | AIR COMPRESSOR | COMPRESSOR_ ROTARY | Non-Process | Building | Air System | WESTINGHOUSE | ABDP | | 5.0 | 1.5 | 7.5 | MEDIUM HIGH | 20 | 0 | 0% | REPLACE | $3,300 | WWCM-22 |
| **CARLOS MORRIS** | SLUDGE PUMP BUILDING | ELECTRICAL PANEL C | DISTRIBUTION PANEL | Non-Process | Building | Electrical Systems | SIEMENS | P1 | 2006 | 3.5 | 3.2 | 11.2 | MEDIUM HIGH | 20 | 8 | 40% | REPLACE | $2,800 | WWCM-MISC |
| **CARLOS MORRIS** | SLUDGE PUMP BUILDING | TRANSFORMER | TRANSFORMER | Non-Process | Building | Electrical Systems | SIEMENS | 1D1Y037 | | 2.4 | 3.4 | 7.9 | MEDIUM LOW | 20 | 13 | 65% | REPLACE | $5,400 | WWCM-MISC |
| **CARLOS MORRIS** | SLUDGE PUMP BUILDING | WAS/DSL PUMP STATION STRUCTURE | STRUCTURE_ BUILDING | Non-Process | Building | Envelope | | | | 3.7 | 1.4 | 5.1 | MEDIUM LOW | 75 | 25 | 33% | REHAB | $30,000 | WWCM-STR2 |
| **CARLOS MORRIS** | SLUDGE PUMP BUILDING | WAS/DSL DISCHARGE VALVE CROSSOVER | VALVE_ PLUG | Solids Handling | WAS Pumping | Common Pipework and Valves | VAL-MATIC | | | 2.3 | 2.4 | 5.5 | LOW | 20 | 14 | 70% | REPLACE | $1,600 | WWCM-MISC |
| **CARLOS MORRIS** | SLUDGE PUMP BUILDING | WAS/DSL DISCHARGE VALVE TO DIGESTERS | VALVE_ PLUG | Solids Handling | WAS Pumping | Common Pipework and Valves | | | | 1.8 | 2.4 | 4.2 | LOW | 20 | 16 | 80% | REPLACE | $1,600 | WWCM-MISC |
| **CARLOS MORRIS** | SLUDGE PUMP BUILDING | WAS/DSL DISCHARGE VALVE TO SLUDGE DRYING BEDS | VALVE_ PLUG | Solids Handling | WAS Pumping | Common Pipework and Valves | VALMATIC | | | 1.8 | 2.4 | 4.2 | LOW | 20 | 16 | 80% | REPLACE | $1,600 | WWCM-MISC |
| **CARLOS MORRIS** | SLUDGE PUMP BUILDING | WAS/DSL SUCTION VALVE FROM DIGESTER | VALVE_ PLUG | Solids Handling | WAS Pumping | Common Pipework and Valves | VALMATIC | 5806RN | | 1.8 | 2.4 | 4.2 | LOW | 20 | 16 | 80% | REPLACE | $1,600 | WWCM-MISC |
| **CARLOS MORRIS** | SLUDGE PUMP BUILDING | WAS/DSL SUCTION VALVE FROM FC 01 | VALVE_ PLUG | Solids Handling | WAS Pumping | Common Pipework and Valves | VALMATIC | 5806RN | | 1.7 | 2.4 | 4.1 | LOW | 20 | 16 | 80% | REPLACE | $1,600 | WWCM-MISC |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CARLOS MORRIS | SLUDGE PUMP BUILDING | WAS/DSL SUCTION VALVE FROM FC 02 | VALVE_ PLUG | Solids Handling | WAS Pumping | Common Pipework and Valves | VALMATIC | | | 1.8 | 2.4 | 4.2 | LOW | 20 | 16 | 80% | REPLACE | $1,600 | WWCM-MISC |
| CARLOS MORRIS | SLUDGE PUMP BUILDING | WAS/DSL PUMP 01 MOTOR | MOTOR | Solids Handling | WAS Pumping | WAS Pump Assembly 01 | BALDOR RELIANCE | 120584495-00010 | 2019 | 1.0 | 4.0 | 4.0 | MEDIUM LOW | 20 | 20 | 100 % | REPLACE | $3,000 | WWCM-MISC |
| CARLOS MORRIS | SLUDGE PUMP BUILDING | WAS/DSL PUMP 01 | PUMP_ PERISTALTIC | Solids Handling | WAS Pumping | WAS Pump Assembly 01 | WATSON MARLOW | BREDEL 100 | 2019 | 1.0 | 4.6 | 4.6 | MEDIUM HIGH | 20 | 20 | 100 % | REPLACE | $75,000 | WWCM-MISC |
| CARLOS MORRIS | SLUDGE PUMP BUILDING | WAS/DSL PUMP 01 CHECK VALVE | VALVE_ CHECK | Solids Handling | WAS Pumping | WAS Pump Assembly 01 | CCNE | 4 SERIES 8001 | | 3.3 | 2.4 | 7.9 | MEDIUM LOW | 25 | 11 | 44% | REPLACE | $1,700 | WWCM-MISC |
| CARLOS MORRIS | SLUDGE PUMP BUILDING | WAS/DSL PUMP 01 DISCHARGE VALVE | VALVE_ PLUG | Solids Handling | WAS Pumping | WAS Pump Assembly 01 | VALMATIC | | | 1.8 | 2.4 | 4.2 | LOW | 20 | 16 | 80% | REPLACE | $1,600 | WWCM-MISC |
| CARLOS MORRIS | SLUDGE PUMP BUILDING | WAS/DSL PUMP 01 SUCTION VALVE | VALVE_ PLUG | Solids Handling | WAS Pumping | WAS Pump Assembly 01 | VALMATIC | 5806R/EMA30S | | 1.7 | 2.4 | 4.0 | LOW | 20 | 17 | 85% | REPLACE | $1,600 | WWCM-MISC |
| CARLOS MORRIS | SLUDGE PUMP BUILDING | WAS/DSL PUMP 02 MOTOR | MOTOR | Solids Handling | WAS Pumping | WAS Pump Assembly 02 | BALDOR RELIANCE | 1206237522-000010 | 2019 | 1.6 | 4.0 | 6.3 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $3,000 | WWCM-MISC |
| CARLOS MORRIS | SLUDGE PUMP BUILDING | WAS/DSL PUMP 02 | PUMP_ PERISTALTIC | Solids Handling | WAS Pumping | WAS Pump Assembly 02 | WATSON MARLOW | BREDEL 100 | 2019 | 1.0 | 4.6 | 4.6 | MEDIUM HIGH | 20 | 20 | 100 % | REPLACE | $75,000 | WWCM-MISC |
| CARLOS MORRIS | SLUDGE PUMP BUILDING | WAS/DSL PUMP 02 CHECK VALVE | VALVE_ CHECK | Solids Handling | WAS Pumping | WAS Pump Assembly 02 | CCNE | 4 SERIES 8001 | | 3.3 | 2.4 | 7.9 | MEDIUM LOW | 25 | 11 | 44% | REPLACE | $1,700 | WWCM-MISC |
| CARLOS MORRIS | SLUDGE PUMP BUILDING | WAS/DSL PUMP 02 DISCHARGE VALVE | VALVE_ PLUG | Solids Handling | WAS Pumping | WAS Pump Assembly 02 | VALMATIC | 5806RN | | 1.8 | 2.4 | 4.2 | LOW | 20 | 16 | 80% | REPLACE | $1,600 | WWCM-MISC |
| CARLOS MORRIS | SLUDGE PUMP BUILDING | WAS/DSL PUMP 02 SUCTION VALVE | VALVE_ PLUG | Solids Handling | WAS Pumping | WAS Pump Assembly 02 | VALMATIC | 5806R/EMA309 | | 1.7 | 2.4 | 4.1 | LOW | 20 | 16 | 80% | REPLACE | $1,600 | WWCM-MISC |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | OVERHEAD ROLLUP DOOR | OVERHEAD DOOR_ MANUAL | Non-Process | Building | Envelope | | | | 3.8 | 2.0 | 7.6 | MEDIUM LOW | 35 | 11 | 31% | REPLACE | $1,100 | WWCM-MISC |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | RAS PUMP STATION STRUCTURE | STRUCTURE_ BUILDING | Non-Process | Building | Envelope | | | | 3.6 | 1.2 | 4.4 | MEDIUM LOW | 75 | 26 | 35% | REHAB | $15,000 | WWCM-STR2 |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | ELECTRIC HEATER | HEATERS | Non-Process | Building | HVAC | MARKEL | | | 1.8 | 2.3 | 4.0 | LOW | 15 | 12 | 80% | REPLACE | $1,300 | WWCM-23 |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | EXHAUST VENT FAN | FANS AND BLOWERS | Non-Process | Building | HVAC | DAYTON | 30401A | | 5.0 | 1.5 | 7.5 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $1,600 | WWCM-22 |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | INTERIOR LIGHTING | LIGHTING_ INDOOR | Non-Process | Building | Lighting | | | | 4.0 | 2.3 | 9.2 | MEDIUM LOW | 25 | 6 | 24% | REPLACE | $1,200 | WWCM-MISC |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | NON-POTABLE WATER HYDROPNEUMATIC TANK | TANK_ PRESSURIZED | Non-Process | Building | Plumbing | AMTROL | | | 5.0 | 2.1 | 10.5 | MEDIUM HIGH | 45 | 0 | 0% | REPLACE | $12,500 | WWCM-22 |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | 3 WAY PLUG VALVE | VALVE_ PLUG | Secondary Treatment | RAS Pumping | Common Pipework and Valves | | | | 2.4 | 3.7 | 8.6 | MEDIUM LOW | 20 | 13 | 65% | REPLACE | $7,700 | WWCM-16 |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | DISCHARGE HEADER ISOLATION VALVE | VALVE_ KNIFE GATE | Secondary Treatment | RAS Pumping | Common Pipework and Valves | RED VALVE | | | 1.7 | 3.2 | 5.5 | MEDIUM LOW | 25 | 21 | 84% | REPLACE | $4,500 | WWCM-16 |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | RAS PUMP 01 VFD | VFD | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 01 | EATON | B05L08T09U10A11SPL | | 3.2 | 4.4 | 14.2 | MEDIUM HIGH | 15 | 7 | 47% | REPLACE | $10,900 | WWCM-16 |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | RAS 01 MOTOR | MOTOR | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 01 | MARATHON ELECTRIC | | | 2.2 | 4.2 | 9.2 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $5,700 | WWCM-16 |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | RAS PUMP 01 | PUMP_ CENTRIFUGAL | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 01 | PINNACLE-FLO, INC | "MAD DOG" | | 3.0 | 4.4 | 13.2 | MEDIUM HIGH | 20 | 10 | 50% | REPLACE | $52,000 | WWCM-16 |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | RAS 01 CHECK VALVE | VALVE_ CHECK | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 01 | MATCO | | | 1.7 | 2.6 | 4.4 | MEDIUM LOW | 25 | 21 | 84% | REPLACE | $5,400 | WWCM-16 |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | RAS 01 DISCHARGE ISOLATION VALVE | VALVE_ KNIFE GATE | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 01 | RED VALVE | | | 1.7 | 2.4 | 4.1 | LOW | 25 | 21 | 84% | REPLACE | $1,500 | WWCM-16 |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | RAS 01 SUCTION ISOLATION VALVE | VALVE_ PLUG | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 01 | | | | 3.0 | 2.6 | 7.8 | MEDIUM LOW | 20 | 10 | 50% | REPLACE | $7,700 | WWCM-16 |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | RAS PUMP 02 VFD | VFD | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 02 | ABB | 805L08S10A11 SPL | | 3.2 | 4.4 | 14.2 | MEDIUM HIGH | 15 | 7 | 47% | REPLACE | $10,900 | WWCM-16 |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | RAS 02 MOTOR | MOTOR | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 02 | TECO WESTINGHOUSE | | | 3.4 | 4.2 | 14.1 | MEDIUM HIGH | 20 | 8 | 40% | REPLACE | $5,700 | WWCM-16 |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | RAS PUMP 02 | PUMP_ CENTRIFUGAL | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 02 | PINNACLE FLO INC | "MAD DOG" | | 3.0 | 4.4 | 13.2 | MEDIUM HIGH | 20 | 10 | 50% | REPLACE | $52,000 | WWCM-16 |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | RAS 02 CHECK VALVE | VALVE_ CHECK | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 02 | MATCO | | | 1.7 | 2.6 | 4.4 | MEDIUM LOW | 25 | 21 | 84% | REPLACE | $5,400 | WWCM-16 |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | RAS 02 DISCHARGE ISOLATION VALVE | VALVE_ KNIFE GATE | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 02 | RED VALVE | | | 3.4 | 2.4 | 8.1 | MEDIUM LOW | 25 | 10 | 40% | REPLACE | $1,500 | WWCM-16 |
| CARLOS MORRIS | SLUDGE RETURN PUMP STATION | RAS 02 SUCTION ISOLATION VALVE | VALVE_ PLUG | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 02 | | | | 3.0 | 2.6 | 7.8 | MEDIUM LOW | 20 | 10 | 50% | REPLACE | $7,700 | WWCM-16 |
| CARLOS MORRIS | SPLITTER MANHOLE | SPLITTER MANHOLE | MANHOLE | Primary Treatment | Flow Control | Manhole | | | | 1.8 | 1.2 | 2.1 | LOW | 40 | 33 | 83% | REPLACE | $20,000 | WWCM-MISC |
| CARLOS MORRIS | WAS METER VAULT | WAS METER VAULT | STRUCTURE_ CIRCULAR VAULT | Non-Process | Building | Envelope | | | | 3.8 | 1.2 | 4.5 | MEDIUM LOW | 70 | 22 | 31% | REHAB | $7,900 | WWCM-STR1 |
| CARLOS MORRIS | WAS METER VAULT | WAS FLOW METER TO PRIMARY | INST_ METER_ FLOW | Secondary Treatment | RAS Pumping | Common Instrumentation | | | | 1.9 | 4.3 | 8.0 | MEDIUM LOW | 15 | 12 | 80% | REPLACE | $5,000 | WWCM-16 |
| CARLOS MORRIS | WASHDOWN PS | WASHDOWN PUMP MANHOLE | MANHOLE | Secondary Treatment | EQ Storage | EQ Basin | | | | 2.5 | 2.6 | 6.5 | MEDIUM LOW | 40 | 25 | 63% | REPLACE | $20,000 | WWCM-MISC |
| CARLOS MORRIS | WASHDOWN PS | NON-POTABLE WASHDOWN PUMP MOTOR | MOTOR | Secondary Treatment | EQ Storage | EQ Basin | EMERSON | BF38 | | 1.6 | 3.1 | 4.8 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $3,600 | WWCM-21 |
| CARLOS MORRIS | WASHDOWN PS | NON-POTABLE WASHDOWN PUMP | PUMP_ VERTICAL TURBINE | Secondary Treatment | EQ Storage | EQ Basin | SIMFLO | | | 1.8 | 3.4 | 5.9 | MEDIUM LOW | 30 | 24 | 80% | REPLACE | $30,000 | WWCM-MISC |
| STANLEY BROOKS | CHLORINE CONTACT TANK | DRAIN SLUICE GATE | GATE_ SLIDE | Tertiary Treatment | Disinfection | Chlorine Contact Chamber | HOLIDAY PRODUCTS | | 2023 | 2.2 | 2.2 | 4.8 | LOW | 25 | 17 | 68% | REPLACE | $22,300 | WWSB-16 |
| STANLEY BROOKS | CHLORINE CONTACT TANK | DISINFECTION EFFLUENT WATER PUMP | PUMP_ SUBMERSIBLE | Tertiary Treatment | Disinfection | Chlorine Contact Chamber | | | | 5.0 | 4.0 | 19.8 | HIGH | 15 | 0 | 0% | REPLACE | $12,100 | WWSB-16 |
| STANLEY BROOKS | CHLORINE CONTACT TANK | CCT DRAIN VALVE | VALVE_ GATE | Tertiary Treatment | Disinfection | Chlorine Contact Chamber | | | 2006 | 5.0 | 1.7 | 8.3 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $6,200 | WWSB-16 |
| STANLEY BROOKS | CHLORINE CONTACT TANK | DEWP VALVE ISOLATION | VALVE_ GATE | Tertiary Treatment | Disinfection | Chlorine Contact Chamber | | | | 5.0 | 1.5 | 7.5 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $1,400 | WWSB-16 |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STANLEY BROOKS | CHLORINE CONTACT TANK | CCT DRAIN VALVE MANHOLE | STRUCTURE_ CIRCULAR VAULT | Tertiary Treatment | Disinfection | Chlorine Contact Chamber | | | | 4.1 | 2.8 | 11.2 | MEDIUM HIGH | 70 | 16 | 23% | REHAB | $7,900 | WWSB-STR1 |
| STANLEY BROOKS | CHLORINE CONTACT TANK | CHLORINE CONTACT TANK STRUCTURE | STRUCTURE_ RECTANGULAR VAULT | Tertiary Treatment | Disinfection | Chlorine Contact Chamber | | | | 1.7 | 3.8 | 6.3 | MEDIUM LOW | 70 | 59 | 84% | REHAB | $212,200 | WWSB-STR4 |
| STANLEY BROOKS | DEGRITTER 01 | DEGRITTER 01 STRUCTURE | STRUCTURE_ RECTANGULAR ABOVE GRADE | Preliminary Treatment | Grit Removal | Degritter 01 | | | | 3.2 | 2.4 | 7.6 | MEDIUM LOW | 70 | 32 | 46% | REHAB | $100,000 | WWSB-STR2 |
| STANLEY BROOKS | DEGRITTER 02 | INFLUENT SAMPLER | SAMPLER | Non-Process | Building | Sampling | HACH | AS950 | | 1.6 | 2.8 | 4.5 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $9,000 | WWSB-01 |
| STANLEY BROOKS | DEGRITTER 02 | DEGRITTER 02 CONTROL PANEL | CONTROL PANEL | Preliminary Treatment | Grit Removal | Degritter 02 | SMITH AND LOVELESS | | | 3.5 | 3.5 | 12.3 | HIGH | 20 | 8 | 40% | REPLACE | $7,000 | WWSB-02 |
| STANLEY BROOKS | DEGRITTER 02 | INFLUENT CHANNEL FLOAT SWITCH | INST_ SWITCH_ FLOAT | Preliminary Treatment | Grit Removal | Degritter 02 | | | | 2.5 | 3.1 | 7.6 | MEDIUM LOW | 10 | 6 | 60% | REPLACE | $200 | WWSB-01 |
| STANLEY BROOKS | DEGRITTER 02 | INFLUENT CHANNEL LEVEL SENSOR | INST_ TRANSMITTER_ LEVEL | Preliminary Treatment | Grit Removal | Degritter 02 | | | | 2.5 | 3.1 | 7.6 | MEDIUM LOW | 10 | 6 | 60% | REPLACE | $2,200 | WWSB-01 |
| STANLEY BROOKS | DEGRITTER 02 | DEGRITTER 02 GRIT CLASSIFIER | DEGRITTER_ CLASSIFIER | Preliminary Treatment | Grit Removal | Degritter 02 | GOODMAN CONVEYOR | C886885 | | 3.8 | 2.6 | 9.8 | MEDIUM HIGH | 25 | 8 | 32% | REPLACE | $150,000 | WWSB-02 |
| STANLEY BROOKS | DEGRITTER 02 | DEGRITTER 02 VORTEX | DEGRITTER_ VORTEX | Preliminary Treatment | Grit Removal | Degritter 02 | PISTANGRIT CHAMBER | 6 | | 5.0 | 3.1 | 15.3 | HIGH | 25 | 0 | 0% | REPLACE | $250,000 | WWSB-02 |
| STANLEY BROOKS | DEGRITTER 02 | DEGRITTER 02 GRIT PUMP | PUMP_ CENTRIFUGAL | Preliminary Treatment | Grit Removal | Degritter 02 | SMITH & LOVELESS | M3411 | | 5.0 | 3.4 | 16.8 | HIGH | 20 | 0 | 0% | REPLACE | $20,000 | WWSB-02 |
| STANLEY BROOKS | DEGRITTER 02 | SLURRY PUMP DISCHARGE VALVE | VALVE_ PLUG | Preliminary Treatment | Grit Removal | Degritter 02 | DEZURIK | | | 3.6 | 2.0 | 7.2 | MEDIUM LOW | 20 | 7 | 35% | REPLACE | $2,000 | WWSB-02 |
| STANLEY BROOKS | DEGRITTER 02 | SLURRY PUMP INFLUENT VALVE | VALVE_ PLUG | Preliminary Treatment | Grit Removal | Degritter 02 | DEZURIK | | | 3.4 | 2.0 | 6.7 | MEDIUM LOW | 20 | 8 | 40% | REPLACE | $2,000 | WWSB-02 |
| STANLEY BROOKS | DEGRITTER 02 | DEGRITTER 02 STRUCTURE | STRUCTURE_ RECTANGULAR ABOVE GRADE | Preliminary Treatment | Grit Removal | Degritter 02 | | | | 3.7 | 2.4 | 8.8 | MEDIUM LOW | 70 | 23 | 33% | REHAB | $100,000 | WWSB-STR2 |
| STANLEY BROOKS | DEGRITTER 02 | BAR SCREEN AND COMPACTOR CONTROL PANEL | CONTROL PANEL | Preliminary Treatment | Screening | Screens and Compactors | VULCAN | | 2021 | 3.3 | 3.5 | 11.7 | MEDIUM HIGH | 20 | 8 | 40% | REPLACE | $7,000 | WWSB-01 |
| STANLEY BROOKS | DEGRITTER 02 | DEGRITTER 02 BAR STEP SCREEN | SCREEN_ COARSE | Preliminary Treatment | Screening | Screens and Compactors | VULCAN | ESR-17 | 2021 | 3.4 | 2.6 | 8.8 | MEDIUM LOW | 20 | 8 | 40% | REPLACE | $275,000 | WWSB-02 |
| STANLEY BROOKS | DEGRITTER 02 | WASHER COMPACTOR | COMPACTOR | Preliminary Treatment | Screening | Screens and Compactors | VULCAN | | | 2.8 | 2.5 | 6.9 | MEDIUM LOW | 25 | 14 | 56% | REPLACE | $58,300 | WWSB-01 |
| STANLEY BROOKS | DRYING BEDS | SLUDGE DRYING BED 01 | SLUDGE DRYING BED | Solids Handling | Sludge Drying | Drying Bed 01 | | | | 5.0 | 1.0 | 5.0 | MEDIUM LOW | 50 | 0 | 0% | REHAB | $2,500 | WWSB-17 |
| STANLEY BROOKS | DRYING BEDS | SLUDGE DRYING BED 01 FILL VALVE | VALVE_ PLUG | Solids Handling | Sludge Drying | Drying Bed 01 | | | | 5.0 | 1.0 | 5.0 | MEDIUM LOW | 20 | 0 | 0% | REPLACE | $1,600 | WWSB-17 |
| STANLEY BROOKS | DRYING BEDS | SLUDGE DRYING BED 02 | SLUDGE DRYING BED | Solids Handling | Sludge Drying | Drying Bed 02 | | | | 4.5 | 1.0 | 4.5 | MEDIUM LOW | 50 | 6 | 12% | REHAB | $2,500 | WWSB-17 |
| STANLEY BROOKS | DRYING BEDS | SLUDGE DRYING BED 03 | SLUDGE DRYING BED | Solids Handling | Sludge Drying | Drying Bed 03 | | | | 4.5 | 1.0 | 4.5 | MEDIUM LOW | 50 | 6 | 12% | REHAB | $2,500 | WWSB-17 |
| STANLEY BROOKS | DRYING BEDS | SLUDGE DRYING BED 03 FILL VALVE | VALVE_ PLUG | Solids Handling | Sludge Drying | Drying Bed 03 | | | | 5.0 | 1.0 | 5.0 | MEDIUM LOW | 20 | 0 | 0% | REPLACE | $1,600 | WWSB-17 |
| STANLEY BROOKS | DRYING BEDS | SLUDGE DRYING BED 04 | SLUDGE DRYING BED | Solids Handling | Sludge Drying | Drying Bed 04 | | | | 4.5 | 1.0 | 4.5 | MEDIUM LOW | 50 | 6 | 12% | REHAB | $2,500 | WWSB-17 |
| STANLEY BROOKS | DRYING BEDS | SLUDGE DRYING BED 05 | SLUDGE DRYING BED | Solids Handling | Sludge Drying | Drying Bed 05 | | | | 4.5 | 1.0 | 4.5 | MEDIUM LOW | 50 | 6 | 12% | REHAB | $2,500 | WWSB-17 |
| STANLEY BROOKS | DRYING BEDS | SLUDGE DRYING BED 05 FILL VALVE | VALVE_ PLUG | Solids Handling | Sludge Drying | Drying Bed 05 | | | | 3.8 | 1.0 | 3.8 | MEDIUM LOW | 20 | 6 | 30% | REPLACE | $1,600 | WWSB-17 |
| STANLEY BROOKS | DRYING BEDS | SLUDGE DRYING BED 06 | SLUDGE DRYING BED | Solids Handling | Sludge Drying | Drying Bed 06 | | | | 4.5 | 1.0 | 4.5 | MEDIUM LOW | 50 | 6 | 12% | REHAB | $2,500 | WWSB-17 |
| STANLEY BROOKS | DRYING BEDS | SLUDGE DRYING BED 07 | SLUDGE DRYING BED | Solids Handling | Sludge Drying | Drying Bed 07 | | | | 3.0 | 1.0 | 3.0 | LOW | 50 | 25 | 50% | REHAB | $2,500 | WWSB-17 |
| STANLEY BROOKS | DRYING BEDS | SLUDGE DRYING BED 07 FILL VALVE | VALVE_ PLUG | Solids Handling | Sludge Drying | Drying Bed 07 | | | | 3.6 | 1.0 | 3.6 | MEDIUM LOW | 20 | 7 | 35% | REPLACE | $1,600 | WWSB-17 |
| STANLEY BROOKS | DRYING BEDS | SLUDGE DRYING BED 08 | SLUDGE DRYING BED | Solids Handling | Sludge Drying | Drying Bed 08 | | | | 5.0 | 1.0 | 5.0 | MEDIUM LOW | 50 | 0 | 0% | REHAB | $2,500 | WWSB-17 |
| STANLEY BROOKS | DRYING BEDS | SLUDGE DRYING BED 09 | SLUDGE DRYING BED | Solids Handling | Sludge Drying | Drying Bed 09 | | | | 5.0 | 1.0 | 5.0 | MEDIUM LOW | 50 | 0 | 0% | REHAB | $2,500 | WWSB-17 |
| STANLEY BROOKS | DRYING BEDS | SLUDGE DRYING BED 09 FILL VALVE | VALVE_ PLUG | Solids Handling | Sludge Drying | Drying Bed 09 | | | | 5.0 | 1.0 | 5.0 | MEDIUM LOW | 20 | 0 | 0% | REPLACE | $1,600 | WWSB-17 |
| STANLEY BROOKS | EFFLUENT OUTFALL BOX | ULTRASONIC FLOW METER | INST_ METER_ ULTRASONIC | Tertiary Treatment | Disinfection | Outfall Box | PULSAR | ULTRA 3 | | 2.2 | 4.1 | 9.1 | MEDIUM LOW | 15 | 10 | 67% | REPLACE | $2,500 | WWSB-22 |
| STANLEY BROOKS | EFFLUENT OUTFALL BOX | EFFLUENT OUTFALL BOX STRUCTURE | STRUCTURE_ RECTANGULAR WET WELL | Tertiary Treatment | Disinfection | Outfall Box | | | | 1.8 | 2.0 | 3.6 | LOW | 70 | 56 | 80% | REHAB | $16,700 | WWSB-STR4 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | 15KVA TRANSFORMER | TRANSFORMER | Non-Process | Building | Electrical Systems | SIEMENS | | | 1.6 | 4.4 | 6.9 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $3,500 | WWSB-23 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | MCC-EPS | MCC | Non-Process | Building | Electrical Systems | SIEMENS | 9-001-54377-02 | | 1.7 | 3.5 | 6.0 | MEDIUM LOW | 40 | 33 | 83% | REPLACE | $15,800 | WWSB-23 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT PUMP STATION STRUCTURE | STRUCTURE_ BUILDING | Non-Process | Building | Envelope | | | | 2.9 | 3.6 | 10.5 | MEDIUM HIGH | 75 | 39 | 52% | REHAB | $38,600 | WWSB-STR3 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | ELECTRIC HEATER | HEATERS | Non-Process | Building | HVAC | MARKEL | | | 1.7 | 2.3 | 3.9 | LOW | 15 | 12 | 80% | REPLACE | $1,300 | WWSB-23 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | INTERIOR ACTUATOR LOUVER AND DAMPER | LOUVERS AND DAMPERS | Non-Process | Building | HVAC | BARBER COLMAN COMPANY | | | 2.5 | 2.0 | 5.0 | MEDIUM LOW | 20 | 13 | 65% | REPLACE | $600 | WWSB-23 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | ROOF VENT FAN | FANS AND BLOWERS | Non-Process | Building | HVAC | | | | 1.0 | 2.0 | 2.0 | LOW | 25 | 25 | 100% | REPLACE | $2,200 | WWSB-23 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | HOIST | MONORAIL | Non-Process | Building | Lifting | | | | 1.6 | 2.2 | 3.3 | LOW | 25 | 22 | 88% | REPLACE | $3,500 | WWSB-22 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | INTERIOR LIGHTING | LIGHTING_ INDOOR | Non-Process | Building | Lighting | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $3,200 | WWSB-23 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT SAMPLER | SAMPLER | Non-Process | Building | Sampling | HACH | AS950 | | 1.0 | 2.2 | 2.2 | LOW | 15 | 15 | 100% | REPLACE | $9,000 | WWSB-20 |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT PH METER | ANALYZER_ PH | Tertiary Treatment | Effluent Pumping | Common Instrumentation | IQ SENSOR NET | CR3 | | 3.5 | 3.2 | 11.2 | MEDIUM HIGH | 15 | 6 | 40% | REPLACE | $3,000 | WWSB-23 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT EXTERIOR DISCHARGE VALVE | VALVE_ GATE | Tertiary Treatment | Effluent Pumping | Common Pipework and Valves | M&H KENNEDY | | 2006 | 1.7 | 3.4 | 5.7 | MEDIUM LOW | 25 | 21 | 84% | REPLACE | $38,900 | WWSB-21 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT PUMP STATION EXTERIOR DISCHARGE BYPASS VALVE | VALVE_ GATE | Tertiary Treatment | Effluent Pumping | Common Pipework and Valves | M&H KENNEDY | | 2006 | 1.7 | 3.2 | 5.4 | MEDIUM LOW | 25 | 21 | 84% | REPLACE | $10,900 | WWSB-22 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT PUMP 01 MOTOR STARTER | MOTOR STARTERS | Tertiary Treatment | Effluent Pumping | Effluent Pump Assembly 01 | SIEMENS | 3RW4038-1BB14 | | 1.6 | 4.4 | 6.9 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $3,500 | WWSB-20 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT PUMP 01 MOTOR | MOTOR | Tertiary Treatment | Effluent Pumping | Effluent Pump Assembly 01 | | | | 1.6 | 4.2 | 6.9 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $5,200 | WWSB-20 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT PUMP 01 | PUMP_ CENTRIFUGAL | Tertiary Treatment | Effluent Pumping | Effluent Pump Assembly 01 | GORMAN RUPP | T10A-B | | 2.2 | 4.4 | 9.6 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $38,000 | WWSB-20 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT PUMP 01 CHECK VALVE | VALVE_ CHECK | Tertiary Treatment | Effluent Pumping | Effluent Pump Assembly 01 | | | | 1.7 | 3.2 | 5.4 | MEDIUM LOW | 25 | 21 | 84% | REPLACE | $9,200 | WWSB-20 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT PUMP 01 DISCHARGE VALVE | VALVE_ GATE | Tertiary Treatment | Effluent Pumping | Effluent Pump Assembly 01 | CLOW | | | 1.5 | 3.2 | 4.9 | MEDIUM LOW | 25 | 22 | 88% | REPLACE | $10,900 | WWSB-20 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT PUMP 02 MOTOR STARTER | MOTOR STARTERS | Tertiary Treatment | Effluent Pumping | Effluent Pump Assembly 02 | SCHNEIDER | ALTISTART 48 | | 1.6 | 4.4 | 6.9 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $4,600 | WWSB-21 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT PUMP 02 MOTOR | MOTOR | Tertiary Treatment | Effluent Pumping | Effluent Pump Assembly 02 | U.S. ELECTRICAL MOTORS | | | 2.2 | 4.2 | 9.2 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $5,200 | WWSB-21 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT PUMP 02 | PUMP_ CENTRIFUGAL | Tertiary Treatment | Effluent Pumping | Effluent Pump Assembly 02 | GORMAN RUPP | T10A-B | | 2.2 | 4.4 | 9.8 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $38,000 | WWSB-21 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT PUMP 02 CHECK VALVE | VALVE_ CHECK | Tertiary Treatment | Effluent Pumping | Effluent Pump Assembly 02 | | | | 1.7 | 3.2 | 5.4 | MEDIUM LOW | 25 | 21 | 84% | REPLACE | $9,200 | WWSB-21 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT PUMP 02 DISCHARGE VALVE | VALVE_ GATE | Tertiary Treatment | Effluent Pumping | Effluent Pump Assembly 02 | AMERICAN | | | 1.7 | 3.2 | 5.5 | MEDIUM LOW | 25 | 21 | 84% | REPLACE | $10,900 | WWSB-21 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT PUMP 03 MOTOR STARTER | MOTOR STARTERS | Tertiary Treatment | Effluent Pumping | Effluent Pump Assembly 03 | SIEMENS | | | 1.6 | 4.4 | 7.2 | MEDIUM LOW | 15 | 13 | 87% | REPLACE | $3,500 | WWSB-22 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT PUMP 03 MOTOR | MOTOR | Tertiary Treatment | Effluent Pumping | Effluent Pump Assembly 03 | NEMA | BJ41 | | 3.4 | 4.2 | 14.1 | MEDIUM HIGH | 20 | 8 | 40% | REPLACE | $5,200 | WWSB-22 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT PUMP 03 | PUMP_ CENTRIFUGAL | Tertiary Treatment | Effluent Pumping | Effluent Pump Assembly 03 | GORMAN RUPP | T10A-B | | 2.2 | 4.4 | 9.8 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $38,000 | WWSB-22 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT PUMP 03 CHECK VALVE | VALVE_ CHECK | Tertiary Treatment | Effluent Pumping | Effluent Pump Assembly 03 | | | | 1.7 | 3.2 | 5.4 | MEDIUM LOW | 25 | 21 | 84% | REPLACE | $9,200 | WWSB-22 |
| STANLEY BROOKS | EFFLUENT PUMP STATION | EFFLUENT PUMP 03 DISCHARGE VALVE | VALVE_ GATE | Tertiary Treatment | Effluent Pumping | Effluent Pump Assembly 03 | CLOW | | | 1.5 | 3.2 | 4.9 | MEDIUM LOW | 25 | 22 | 88% | REPLACE | $10,900 | WWSB-22 |
| STANLEY BROOKS | FINAL CLARIFIER 01 | FC01 COLLECTOR RAKE ARM AND SKIMMER | COLLECTOR | Secondary Treatment | Final Clarification | Final Clarifier 01 | WESTECH | | | 1.8 | 4.4 | 7.7 | MEDIUM LOW | 20 | 16 | 80% | REPLACE | $72,300 | WWSB-18 |
| STANLEY BROOKS | FINAL CLARIFIER 01 | FC01 DRIVE | GEARBOX | Secondary Treatment | Final Clarification | Final Clarifier 01 | WESTECH | | | 2.2 | 4.6 | 10.0 | MEDIUM HIGH | 30 | 21 | 70% | REPLACE | $119,800 | WWSB-18 |
| STANLEY BROOKS | FINAL CLARIFIER 01 | FC01 MOTOR | MOTOR | Secondary Treatment | Final Clarification | Final Clarifier 01 | NEMA | IAM15-13-1137C | 2023 | 1.5 | 4.0 | 6.2 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $300 | WWSB-18 |
| STANLEY BROOKS | FINAL CLARIFIER 01 | FC01 CATWALK | SAFETY_ RAILINGS AND WALKWAYS | Secondary Treatment | Final Clarification | Final Clarifier 01 | WESTECH | | | 3.9 | 2.8 | 10.9 | MEDIUM HIGH | 30 | 8 | 27% | REPLACE | $37,900 | WWSB-18 |
| STANLEY BROOKS | FINAL CLARIFIER 01 | FC01 STRUCTURE | STRUCTURE_ CLARIFIER | Secondary Treatment | Final Clarification | Final Clarifier 01 | | | | 1.7 | 4.2 | 7.1 | MEDIUM LOW | 70 | 58 | 83% | REHAB | $30,100 | WWSB-STR4 |
| STANLEY BROOKS | FINAL CLARIFIER 02 | FC02 COLLECTOR RAKE ARM AND SKIMMER | COLLECTOR | Secondary Treatment | Final Clarification | Final Clarifier 02 | WESTECH | | | 1.7 | 4.4 | 7.3 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $72,300 | WWSB-19 |
| STANLEY BROOKS | FINAL CLARIFIER 02 | FC02 DRIVE | GEARBOX | Secondary Treatment | Final Clarification | Final Clarifier 02 | WESTECH | | 2006 | 1.6 | 4.6 | 7.4 | MEDIUM HIGH | 30 | 25 | 83% | REPLACE | $119,800 | WWSB-19 |
| STANLEY BROOKS | FINAL CLARIFIER 02 | FC02 MOTOR | MOTOR | Secondary Treatment | Final Clarification | Final Clarifier 02 | MARATHON ELECTRIC | FVB 143TTFR4032BD P | | 2.3 | 4.0 | 9.1 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $400 | WWSB-19 |
| STANLEY BROOKS | FINAL CLARIFIER 02 | FC02 CATWALK | SAFETY_ RAILINGS AND WALKWAYS | Secondary Treatment | Final Clarification | Final Clarifier 02 | WESTECH | | | 2.4 | 2.8 | 6.8 | MEDIUM LOW | 30 | 19 | 63% | REPLACE | $37,900 | WWSB-19 |
| STANLEY BROOKS | FINAL CLARIFIER 02 | FC02 STRUCTURE | STRUCTURE_ CLARIFIER | Secondary Treatment | Final Clarification | Final Clarifier 02 | | | | 3.4 | 4.2 | 14.4 | MEDIUM HIGH | 70 | 27 | 39% | REHAB | $30,100 | WWSB-STR2 |
| STANLEY BROOKS | FINAL CLARIFIER DISTRIBUTION BOX | FC DIST BOX GATE 01 | GATE_ SLIDE | Secondary Treatment | Flow Control | Final Clarifier Distribution Box | WHIPPS | | | 1.7 | 2.0 | 3.4 | LOW | 25 | 21 | 84% | REPLACE | $25,300 | WWSB-18 |
| STANLEY BROOKS | FINAL CLARIFIER DISTRIBUTION BOX | FC DIST BOX GATE 02 | GATE_ SLIDE | Secondary Treatment | Flow Control | Final Clarifier Distribution Box | WHIPPS | | | 4.0 | 2.8 | 11.0 | MEDIUM HIGH | 25 | 6 | 24% | REPLACE | $25,300 | WWSB-18 |
| STANLEY BROOKS | FINAL CLARIFIER DISTRIBUTION BOX | FC DIST BOX GATE 03 | GATE_ SLIDE | Secondary Treatment | Flow Control | Final Clarifier Distribution Box | WHIPPS | | | 3.9 | 2.6 | 10.0 | MEDIUM HIGH | 25 | 7 | 28% | REPLACE | $21,600 | WWSB-19 |
| STANLEY BROOKS | FINAL CLARIFIER DISTRIBUTION BOX | FC DISTRIBUTION BOX STRUCTURE | STRUCTURE_ RECTANGULAR WET WELL | Secondary Treatment | Flow Control | Final Clarifier Distribution Box | | | | 1.7 | 2.0 | 3.4 | LOW | 70 | 58 | 83% | REHAB | $43,700 | WWSB-STR4 |
| STANLEY BROOKS | MAINTENANCE BUILDING | ATS MCC ROOM | ATS | Non-Process | Building | Electrical Systems | ASCO | 962 | | 1.6 | 3.4 | 5.4 | MEDIUM LOW | 30 | 25 | 83% | REPLACE | $8,000 | WWSB-26 |
| STANLEY BROOKS | MAINTENANCE BUILDING | DISTRIBUTION PANEL MAINT BLDG | DISTRIBUTION PANEL | Non-Process | Building | Electrical Systems | SIEMENS | COP-7 | | 1.7 | 3.2 | 5.5 | MEDIUM LOW | 20 | 16 | 80% | REPLACE | $2,800 | WWSB-26 |
| STANLEY BROOKS | MAINTENANCE BUILDING | MAIN BREAKER | BREAKER | Non-Process | Building | Electrical Systems | | | | 2.8 | 3.2 | 8.9 | MEDIUM LOW | 35 | 19 | 54% | REPLACE | $300 | WWSB-26 |
| STANLEY BROOKS | MAINTENANCE BUILDING | TRANSFORMER 50KVA | TRANSFORMER | Non-Process | Building | Electrical Systems | SIEMENS | 101Y050 | | 1.7 | 3.4 | 5.6 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $6,900 | WWSB-26 |
| STANLEY BROOKS | MAINTENANCE BUILDING | MCC-MAINT | MCC | Non-Process | Building | Electrical Systems | SIEMENS | 9-001-54377-01 | | 3.7 | 3.4 | 12.4 | MEDIUM HIGH | 40 | 13 | 33% | REPLACE | $21,700 | WWSB-26 |
| STANLEY BROOKS | MAINTENANCE BUILDING | STANDBY GENERATOR | GENERATOR_ DIESEL | Non-Process | Building | Electrical Systems | ONAN | 300DFCB 34866A | | 1.6 | 3.5 | 5.6 | MEDIUM LOW | 25 | 21 | 84% | REPLACE | $65,100 | WWSB-25 |
| STANLEY BROOKS | MAINTENANCE BUILDING | UNDERGROUND FUEL TANK | TANK_ FUEL | Non-Process | Building | Electrical Systems | | | | 3.4 | 3.8 | 13.0 | MEDIUM HIGH | 45 | 18 | 40% | REPLACE | $12,200 | WWSB-25 |
| STANLEY BROOKS | MAINTENANCE BUILDING | OVER HEAD DOOR NORTH | OVERHEAD DOOR_ MANUAL | Non-Process | Building | Envelope | | | | 2.3 | 1.0 | 2.3 | LOW | 35 | 24 | 69% | REPLACE | $2,600 | WWSB-MISC |
| STANLEY BROOKS | MAINTENANCE BUILDING | OVER HEAD DOOR SOUTH | OVERHEAD DOOR_ MANUAL | Non-Process | Building | Envelope | | | | 2.4 | 1.0 | 2.4 | LOW | 35 | 23 | 66% | REPLACE | $4,100 | WWSB-MISC |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STANLEY BROOKS | MAINTENANCE BUILDING | OVERHEAD DOOR MCC ROOM | OVERHEAD DOOR_ MANUAL | Non-Process | Building | Envelope | | | | 2.3 | 2.0 | 4.7 | LOW | 35 | 23 | 66% | REPLACE | $2,600 | WWSB-MISC |
| STANLEY BROOKS | MAINTENANCE BUILDING | MAINTENANCE BUILDING STRUCTURE | STRUCTURE_ BUILDING | Non-Process | Building | Envelope | | | | 3.7 | 1.4 | 5.2 | MEDIUM LOW | 75 | 24 | 32% | REPLACE | $69,800 | WWSB-STR2 |
| STANLEY BROOKS | MAINTENANCE BUILDING | ELECTRIC HEATER ELECTRICAL ROOM | HEATERS | Non-Process | Building | HVAC | MARKEL | | | 2.3 | 2.3 | 5.2 | LOW | 15 | 10 | 67% | REPLACE | $1,300 | WWSB-26 |
| STANLEY BROOKS | MAINTENANCE BUILDING | ELECTRIC HEATER GARAGE NORTH | HEATERS | Non-Process | Building | HVAC | MARKEL | | | 5.0 | 1.4 | 7.0 | MEDIUM LOW | 15 | 0 | 0% | REPLACE | $1,300 | WWSB-26 |
| STANLEY BROOKS | MAINTENANCE BUILDING | ELECTRIC HEATER GARAGE SOUTH | HEATERS | Non-Process | Building | HVAC | MARKEL | | | 2.3 | 1.4 | 3.2 | LOW | 15 | 10 | 67% | REPLACE | $1,300 | WWSB-26 |
| STANLEY BROOKS | MAINTENANCE BUILDING | EXHAUST FAN ROOF | FANS AND BLOWERS | Non-Process | Building | HVAC | | | | 1.8 | 2.0 | 3.6 | LOW | 25 | 20 | 80% | REPLACE | $2,200 | WWSB-26 |
| STANLEY BROOKS | MAINTENANCE BUILDING | HEAT PUMP | HEAT PUMP | Non-Process | Building | HVAC | | | | 2.3 | 2.2 | 4.8 | LOW | 20 | 14 | 70% | REPLACE | $900 | WWSB-26 |
| STANLEY BROOKS | MAINTENANCE BUILDING | LOUVER DAMPER 01 ELECTRICAL ROOM | LOUVERS AND DAMPERS | Non-Process | Building | HVAC | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 20 | 0 | 0% | REPLACE | $1,100 | WWSB-26 |
| STANLEY BROOKS | MAINTENANCE BUILDING | LOUVER DAMPER 02 ELECTRICAL ROOM | LOUVERS AND DAMPERS | Non-Process | Building | HVAC | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 20 | 0 | 0% | REPLACE | $1,100 | WWSB-26 |
| STANLEY BROOKS | MAINTENANCE BUILDING | LOUVER DAMPER GARAGE | LOUVERS AND DAMPERS | Non-Process | Building | HVAC | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 20 | 0 | 0% | REPLACE | $600 | WWSB-26 |
| STANLEY BROOKS | MAINTENANCE BUILDING | OUTSIDE CONDENSOR UNIT | CONDENSING UNITS | Non-Process | Building | HVAC | CARRIER | CH14NB030-A | 2016 | 2.7 | 2.2 | 5.9 | MEDIUM LOW | 20 | 11 | 55% | REPLACE | $1,500 | WWSB-26 |
| STANLEY BROOKS | MAINTENANCE BUILDING | MAINTENANCE BUILDING INTERIOR LIGHTING | LIGHTING_ INDOOR | Non-Process | Building | Lighting | | | | 2.0 | 2.2 | 4.3 | LOW | 25 | 19 | 76% | REPLACE | $13,400 | WWSB-26 |
| STANLEY BROOKS | MAINTENANCE BUILDING | ELECTRIC WATER HEATER TANK | TANK_ PRESSURIZED | Non-Process | Building | Plumbing | RHEEM | 81V40D | 1990 | 5.0 | 4.0 | 19.8 | HIGH | 45 | 0 | 0% | REPLACE | $700 | WWSB-24 |
| STANLEY BROOKS | MAINTENANCE BUILDING | HYDROPNEUMATIC TANK | TANK_ PRESSURIZED | Non-Process | Building | Plumbing | WELL-X-TROL | WX-350 | 2006 | 3.9 | 2.0 | 7.5 | MEDIUM LOW | 45 | 13 | 29% | REPLACE | $1,400 | WWSB-MISC |
| STANLEY BROOKS | MAINTENANCE BUILDING | SITE FENCING | FENCE | Non-Process | Site-Wide | Fences and Gates | | | | 2.5 | 1.4 | 3.5 | LOW | 25 | 16 | 64% | REPLACE | $54,000 | WWSB-MISC |
| STANLEY BROOKS | MAINTENANCE BUILDING | SITE FRONT GATE | VEHICLE GATE_ AUTOMATIC | Non-Process | Site-Wide | Fences and Gates | LIFTMASTER | SL585101UL | 2019 | 5.0 | 1.2 | 6.0 | MEDIUM LOW | 25 | 0 | 0% | REPLACE | $5,400 | WWSB-MISC |
| STANLEY BROOKS | MAINTENANCE BUILDING | PLANT MAST LIGHTING NORTH | LIGHTING_ OUTDOOR | Non-Process | Site-Wide | Site Lighting | | | | 5.0 | 1.6 | 8.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $9,800 | WWSB-26 |
| STANLEY BROOKS | MAINTENANCE BUILDING | PLANT MAST LIGHTING SOUTH | LIGHTING_ OUTDOOR | Non-Process | Site-Wide | Site Lighting | | | | 5.0 | 1.6 | 8.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $9,800 | WWSB-26 |
| STANLEY BROOKS | MAINTENANCE BUILDING | TRICKLING FILER RECIRCULATION PUMP-01 VFD | VFD | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 01 | HYUNDAI | N700E-22HFC/300HFPC | | 3.0 | 3.0 | 9.0 | MEDIUM LOW | 15 | 8 | 53% | REPLACE | $8,200 | WWSB-09 |
| STANLEY BROOKS | MAINTENANCE BUILDING | TRICKLING FILTER RECIRCULATION PUMP-02 VFD | VFD | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 02 | MITSUBISHI | FR-F840-00470-E3-96 | 2021 | 2.7 | 3.0 | 8.0 | MEDIUM LOW | 15 | 9 | 60% | REPLACE | $8,200 | WWSB-11 |
| STANLEY BROOKS | MAINTENANCE BUILDING | TRICKLING FILTER RECIRCULATION PUMP-03 VFD | VFD | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 03 | HYUNDAI | N700E-22HFC/300HFPC | | 3.0 | 3.0 | 9.0 | MEDIUM LOW | 15 | 8 | 53% | REPLACE | $8,200 | WWSB-10 |
| STANLEY BROOKS | MAINTENANCE BUILDING | SODIUM HYPOCHLORITE FEED PUMP 01 | PUMP_ METERING_ DIAPHRAGM | Tertiary Treatment | Disinfection | Chlorination | PROMINENT SIGMA | | | 1.7 | 3.4 | 5.7 | MEDIUM LOW | 10 | 8 | 80% | REPLACE | $4,600 | WWSB-24 |
| STANLEY BROOKS | MAINTENANCE BUILDING | SODIUM HYPOCHLORITE FEED PUMP 02 | PUMP_ METERING_ DIAPHRAGM | Tertiary Treatment | Disinfection | Chlorination | PROMINENT | | | 1.8 | 3.4 | 6.0 | MEDIUM LOW | 10 | 8 | 80% | REPLACE | $4,600 | WWSB-24 |
| STANLEY BROOKS | MAINTENANCE BUILDING | SODIUM HYPOCHLORITE FEED TANK | TANK_ CHEMICAL | Tertiary Treatment | Disinfection | Chlorination | AUGUSTA FIBERGLASS | | 2005 | 3.7 | 4.0 | 14.4 | HIGH | 25 | 8 | 32% | REPLACE | $68,000 | WWSB-24 |
| STANLEY BROOKS | MAINTENANCE BUILDING | SODIUM BISULFATE FEED PUMP 01 | PUMP_ METERING_ DIAPHRAGM | Tertiary Treatment | Disinfection | Dichlorination | PROMINENT | | | 1.6 | 3.8 | 6.0 | MEDIUM LOW | 10 | 9 | 90% | REPLACE | $4,600 | WWSB-24 |
| STANLEY BROOKS | MAINTENANCE BUILDING | SODIUM BISULFATE FEED TANK | TANK_ CHEMICAL | Tertiary Treatment | Disinfection | Dichlorination | AUGUSTA FIBERGLASS | | 2005 | 3.7 | 4.0 | 14.7 | HIGH | 25 | 8 | 32% | REPLACE | $68,000 | WWSB-24 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | 25KVA TRANSFORMER | TRANSFORMER | Non-Process | Building | Electrical Systems | SIEMENS | 1D1Y025 | | 2.2 | 2.3 | 5.0 | LOW | 20 | 14 | 70% | REPLACE | $4,000 | WWSB-15 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | ELECTRICAL PANEL L | DISTRIBUTION PANEL | Non-Process | Building | Electrical Systems | SIEMENS | CDP-7 | 1989 | 3.7 | 2.3 | 8.5 | MEDIUM LOW | 20 | 6 | 30% | REPLACE | $2,400 | WWSB-15 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | OFFICE/SLUDGE PUMP STATION STRUCTURE | STRUCTURE_ BUILDING | Non-Process | Building | Envelope | | | 1961 | 3.8 | 1.4 | 5.3 | MEDIUM LOW | 75 | 22 | 29% | REHAB | $64,100 | WWSB-STR2 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | CONDENSING UNIT | CONDENSING UNITS | Non-Process | Building | HVAC | CARRIER | 24ACC424A300 | 2017 | 1.7 | 2.0 | 3.4 | LOW | 20 | 16 | 80% | REPLACE | $1,400 | WWSB-15 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | DAMPNER PUMP ROOM | LOUVERS AND DAMPERS | Non-Process | Building | HVAC | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 20 | 0 | 0% | REPLACE | $500 | WWSB-13 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | EXHAUST FAN PUMP ROOM | FANS AND BLOWERS | Non-Process | Building | HVAC | DYNAMASTER | FQ1210/115/1 | | 3.9 | 2.0 | 7.8 | MEDIUM LOW | 25 | 7 | 28% | REPLACE | $1,400 | WWSB-13 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | HEAT PUMP | HEAT PUMP | Non-Process | Building | HVAC | CARRIER | FB4CNF024 | 2017 | 3.0 | 2.2 | 6.5 | MEDIUM LOW | 20 | 10 | 50% | REPLACE | $700 | WWSB-15 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | PUMP ROOM HEATER | HEATERS | Non-Process | Building | HVAC | MARKEL | P3P5105CR1L | | 5.0 | 2.2 | 10.8 | MEDIUM HIGH | 15 | 0 | 0% | REPLACE | $600 | WWSB-15 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | MONORAIL CRAIN LOADING AREA | MONORAIL | Non-Process | Building | Lifting | TIGER | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 25 | 0 | 0% | REPLACE | $3,500 | WWSB-13 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | INDOOR LIGHTING | LIGHTING_ INDOOR | Non-Process | Building | Lighting | | | | 1.0 | 2.2 | 2.2 | LOW | 25 | 25 | 100 % | REPLACE | $8,200 | WWSB-15 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | OUTDOOR BUILDING LIGHTING | LIGHTING_ OUTDOOR | Non-Process | Building | Lighting | | | | 5.0 | 1.0 | 5.0 | MEDIUM LOW | 25 | 0 | 0% | REPLACE | $1,100 | WWSB-15 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | DISCHARGE CROSSOVER VALVE | VALVE_ GATE | Solids Handling | WAS Pumping | Common Pipework and Valves | KENNEDY | 200W | | 4.3 | 2.2 | 9.1 | MEDIUM LOW | 25 | 5 | 20% | REPLACE | $3,600 | WWSB-13 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | PRIMARY SLUDGE PUMP 01 MOTOR | MOTOR | Solids Handling | WAS Pumping | WAS Pump Assembly 01 | WORLDWIDE | ODP3-18-182T | 2022 | 3.5 | 4.0 | 14.0 | HIGH | 20 | 8 | 40% | REPLACE | $800 | WWSB-13 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | PRIMARY SLUDGE PUMP 01 | PUMP_ DOUBLE DISC | Solids Handling | WAS Pumping | WAS Pump Assembly 01 | DORR OLIVER | | | 5.0 | 4.2 | 21.0 | HIGH | 20 | 0 | 0% | REPLACE | $19,100 | WWSB-13 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | PSP 01 CHECK VALVE | VALVE_ CHECK | Solids Handling | WAS Pumping | WAS Pump Assembly 01 | UNITED | 200W | | 3.9 | 2.4 | 9.4 | MEDIUM LOW | 25 | 7 | 28% | REPLACE | $2,900 | WWSB-13 |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | PSP 01 DISCHARGE VALVE | VALVE_ PLUG | Solids Handling | WAS Pumping | WAS Pump Assembly 01 | DEZURIK | | | 4.4 | 2.4 | 10.7 | MEDIUM LOW | 20 | 3 | 15% | REPLACE | $2,000 | WWSB-13 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | PSP 01 SUCTION VALVE | VALVE_ PLUG | Solids Handling | WAS Pumping | WAS Pump Assembly 01 | DEZURIK | | | 4.3 | 2.4 | 10.2 | MEDIUM LOW | 20 | 4 | 20% | REPLACE | $2,000 | WWSB-13 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | PRIMARY SLUDGE PUMP 02 MOTOR | MOTOR | Solids Handling | WAS Pumping | WAS Pump Assembly 02 | US ELECTRICAL MOTORS | AD85A | | 5.0 | 4.0 | 20.0 | HIGH | 20 | 0 | 0% | REPLACE | $800 | WWSB-14 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | PRIMARY SLUDGE PUMP 02 | PUMP_ DOUBLE DISC | Solids Handling | WAS Pumping | WAS Pump Assembly 02 | DORR OLIVER | | | 5.0 | 4.2 | 21.0 | HIGH | 20 | 0 | 0% | REPLACE | $19,100 | WWSB-14 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | PSP 02 CHECK VALVE | VALVE_ CHECK | Solids Handling | WAS Pumping | WAS Pump Assembly 02 | UNITED | 200W | | 3.8 | 2.4 | 9.2 | MEDIUM LOW | 25 | 7 | 28% | REPLACE | $2,900 | WWSB-14 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | PSP 02 DISCHARGE VALVE | VALVE_ PLUG | Solids Handling | WAS Pumping | WAS Pump Assembly 02 | DEZURIK | | | 4.5 | 2.4 | 10.8 | MEDIUM HIGH | 20 | 3 | 15% | REPLACE | $2,000 | WWSB-14 |
| STANLEY BROOKS | OFFICE/SLUDGE PUMP STATION | PSP 02 SUCTION VALVE | VALVE_ PLUG | Solids Handling | WAS Pumping | WAS Pump Assembly 02 | DEZURIK | | | 4.3 | 2.4 | 10.2 | MEDIUM LOW | 20 | 4 | 20% | REPLACE | $2,000 | WWSB-14 |
| STANLEY BROOKS | PRIMARY CLARIFIER 01 | PC01 COLLECTOR RAKE ARM AND SKIMMER | COLLECTOR | Primary Treatment | Primary Clarification | Primary Clarifier 01 | WESTECH | | | 1.7 | 4.2 | 7.2 | MEDIUM LOW | 20 | 16 | 80% | REPLACE | $72,300 | WWSB-03 |
| STANLEY BROOKS | PRIMARY CLARIFIER 01 | PC01 DRIVE | GEARBOX | Primary Treatment | Primary Clarification | Primary Clarifier 01 | WESTECH | | 2006 | 1.6 | 4.6 | 7.4 | MEDIUM HIGH | 30 | 25 | 83% | REPLACE | $119,800 | WWSB-03 |
| STANLEY BROOKS | PRIMARY CLARIFIER 01 | PC01 MOTOR | MOTOR | Primary Treatment | Primary Clarification | Primary Clarifier 01 | NORTH AMERICAN ELECTRIC | | 2022 | 3.0 | 4.0 | 12.0 | MEDIUM HIGH | 20 | 10 | 50% | REPLACE | $300 | WWSB-03 |
| STANLEY BROOKS | PRIMARY CLARIFIER 01 | PC01 CATWALK | SAFETY_ RAILINGS AND WALKWAYS | Primary Treatment | Primary Clarification | Primary Clarifier 01 | WESTECH | | | 2.4 | 2.0 | 4.8 | LOW | 30 | 20 | 67% | REPLACE | $37,900 | WWSB-03 |
| STANLEY BROOKS | PRIMARY CLARIFIER 01 | PC01 SCUM VALVE | VALVE_ PLUG | Primary Treatment | Primary Clarification | Primary Clarifier 01 | | | | 2.2 | 1.6 | 3.6 | LOW | 20 | 14 | 70% | REPLACE | $1,600 | WWSB-03 |
| STANLEY BROOKS | PRIMARY CLARIFIER 01 | PC01 SLUDGE VALVE | VALVE_ PLUG | Primary Treatment | Primary Clarification | Primary Clarifier 01 | | | | 2.2 | 1.6 | 3.6 | LOW | 20 | 14 | 70% | REPLACE | $2,800 | WWSB-03 |
| STANLEY BROOKS | PRIMARY CLARIFIER 01 | PC01 STRUCTURE | STRUCTURE_ CLARIFIER | Primary Treatment | Primary Clarification | Primary Clarifier 01 | WESTECH | | | 2.6 | 4.2 | 10.7 | MEDIUM HIGH | 70 | 43 | 61% | REHAB | $30,100 | WWSB-STR3 |
| STANLEY BROOKS | PRIMARY CLARIFIER 02 | PC02 COLLECTOR RAKE ARM AND SKIMMER | COLLECTOR | Primary Treatment | Primary Clarification | Primary Clarifier 02 | WESTECH | | | 2.3 | 4.4 | 10.0 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $72,300 | WWSB-04 |
| STANLEY BROOKS | PRIMARY CLARIFIER 02 | PC02 DRIVE | GEARBOX | Primary Treatment | Primary Clarification | Primary Clarifier 02 | WESTECH | | 2006 | 2.2 | 4.6 | 10.0 | MEDIUM HIGH | 30 | 21 | 70% | REPLACE | $119,800 | WWSB-04 |
| STANLEY BROOKS | PRIMARY CLARIFIER 02 | PC02 MOTOR | MOTOR | Primary Treatment | Primary Clarification | Primary Clarifier 02 | NORTH AMERICAN ELECTRIC INC | | | 2.8 | 4.0 | 11.3 | MEDIUM HIGH | 20 | 11 | 55% | REPLACE | $500 | WWSB-04 |
| STANLEY BROOKS | PRIMARY CLARIFIER 02 | PC02 CATWALK | SAFETY_ RAILINGS AND WALKWAYS | Primary Treatment | Primary Clarification | Primary Clarifier 02 | WESTECH | | | 3.7 | 2.0 | 7.4 | MEDIUM LOW | 30 | 10 | 33% | REPLACE | $37,900 | WWSB-04 |
| STANLEY BROOKS | PRIMARY CLARIFIER 02 | PC02 SCUM VALVE | VALVE_ PLUG | Primary Treatment | Primary Clarification | Primary Clarifier 02 | | | | 2.2 | 1.6 | 3.5 | LOW | 20 | 14 | 70% | REPLACE | $1,600 | WWSB-04 |
| STANLEY BROOKS | PRIMARY CLARIFIER 02 | PC02 SLUDGE VALVE | VALVE_ PLUG | Primary Treatment | Primary Clarification | Primary Clarifier 02 | | | | 2.2 | 1.6 | 3.5 | LOW | 20 | 14 | 70% | REPLACE | $2,800 | WWSB-04 |
| STANLEY BROOKS | PRIMARY CLARIFIER 02 | PC02 STRUCTURE | STRUCTURE_ CLARIFIER | Primary Treatment | Primary Clarification | Primary Clarifier 02 | | | | 1.6 | 4.2 | 6.8 | MEDIUM LOW | 70 | 59 | 84% | REHAB | $30,100 | WWSB-STR4 |
| STANLEY BROOKS | PRIMARY DIGESTER | PRIMARY DIGESTER STRUCTURE | STRUCTURE_ CIRCULAR ABOVE GRADE | Solids Handling | Sludge Storage | Primary Digester | | | | 1.8 | 3.0 | 5.3 | MEDIUM LOW | 70 | 57 | 81% | REHAB | $83,300 | WWSB-STR4 |
| STANLEY BROOKS | RECIRCULATION DISTRIBUTION BOX | RECIRCULATION DIST BOX GATE 01 | GATE_ SLIDE | Secondary Treatment | Flow Control | Sludge Recirculation Box | | WHIPPS | | 3.7 | 2.2 | 7.9 | MEDIUM LOW | 25 | 8 | 32% | REPLACE | $21,600 | WWSB-09 |
| STANLEY BROOKS | RECIRCULATION DISTRIBUTION BOX | RECIRCULATION DISTRIBUTION BOX STRUCTURE | STRUCTURE_ RECTANGULAR WET WELL | Secondary Treatment | Flow Control | Sludge Recirculation Box | | | | 1.6 | 1.4 | 2.3 | LOW | 70 | 59 | 84% | REHAB | $46,200 | WWSB-STR4 |
| STANLEY BROOKS | RECIRCULATION DISTRIBUTION BOX | RECIRCULATION PUMP 1 FLOWMETER MH | STRUCTURE_ CIRCULAR VAULT | Secondary Treatment | Flow Control | Sludge Recirculation Box | | | | 2.3 | 2.8 | 6.3 | MEDIUM LOW | 70 | 48 | 69% | REHAB | $5,900 | WWSB-STR3 |
| STANLEY BROOKS | RECIRCULATION DISTRIBUTION BOX | RECIRCULATION PUMP 2 FLOWMETER MH | STRUCTURE_ CIRCULAR VAULT | Secondary Treatment | Flow Control | Sludge Recirculation Box | | | | 4.3 | 2.8 | 11.8 | MEDIUM HIGH | 70 | 13 | 19% | REHAB | $5,900 | WWSB-STR1 |
| STANLEY BROOKS | RECIRCULATION DISTRIBUTION BOX | RECIRCULATION FLOW METER 01 | INST_ METER_ MAGNETIC | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 01 | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 15 | 0 | 0% | REPLACE | $5,000 | WWSB-11 |
| STANLEY BROOKS | RECIRCULATION DISTRIBUTION BOX | RECIRCULATION FLOW METER 02 | INST_ METER_ MAGNETIC | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 02 | | | | 5.0 | 2.0 | 10.0 | MEDIUM HIGH | 15 | 0 | 0% | REPLACE | $5,000 | WWSB-10 |
| STANLEY BROOKS | RECYCLE PUMP STATION | 15KVA TRANSFORMER | TRANSFORMER | Non-Process | Building | Electrical Systems | MICRON INDUSTRIES CORPORATION | G005K1KF1A19 | | 3.3 | 3.2 | 10.4 | MEDIUM LOW | 20 | 9 | 45% | REPLACE | $1,700 | WWSB-12 |
| STANLEY BROOKS | RECYCLE PUMP STATION | CONTROL PANEL TRANSFORMER | TRANSFORMER | Non-Process | Building | Electrical Systems | HAMMOND | PT3000MQMJ | | 2.2 | 3.2 | 7.1 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $1,500 | WWSB-12 |
| STANLEY BROOKS | RECYCLE PUMP STATION | CONTROL PANEL UPS | UPS | Non-Process | Building | Electrical Systems | ORION POWER SYSTEMS | MXO600U | | 2.3 | 3.2 | 7.2 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $2,400 | WWSB-12 |
| STANLEY BROOKS | RECYCLE PUMP STATION | SCADA OMNISITE | SCADA_ RTU | Non-Process | Building | SCADA | OMNISITE | XR50 | | 3.0 | 3.2 | 9.6 | MEDIUM LOW | 15 | 8 | 53% | REPLACE | $7,000 | WWSB-12 |
| STANLEY BROOKS | RECYCLE PUMP STATION | CONTROL PANEL | CONTROL PANEL | Tertiary Treatment | Plant Recycle Pumping | Common Instrumentation | HYDRA SERVICE INC | | | 3.2 | 3.4 | 10.8 | MEDIUM LOW | 20 | 9 | 45% | REPLACE | $7,000 | WWSB-12 |
| STANLEY BROOKS | RECYCLE PUMP STATION | FLOAT SWITCH | INST_ SWITCH_ FLOAT | Tertiary Treatment | Plant Recycle Pumping | Common Instrumentation | | | | 1.6 | 2.6 | 4.2 | MEDIUM LOW | 10 | 9 | 90% | REPLACE | $200 | WWSB-12 |
| STANLEY BROOKS | RECYCLE PUMP STATION | RECYCLE PUMP STATION BYPASS CHECK VALVE | VALVE_ CHECK | Tertiary Treatment | Plant Recycle Pumping | Common Pipework and Valves | MUELLER | | | 1.7 | 2.0 | 3.4 | LOW | 25 | 21 | 84% | REPLACE | $1,700 | WWSB-12 |
| STANLEY BROOKS | RECYCLE PUMP STATION | RECYCLE PUMP STATION BYPASS ISOLATION VALVE | VALVE_ PLUG | Tertiary Treatment | Plant Recycle Pumping | Common Pipework and Valves | DEZURIK | | | 2.4 | 2.0 | 4.8 | LOW | 20 | 13 | 65% | REPLACE | $2,000 | WWSB-12 |
| STANLEY BROOKS | RECYCLE PUMP STATION | RECYCLE PUMP 01 MOTOR STARTER | MOTOR STARTERS | Tertiary Treatment | Plant Recycle Pumping | Recycle Pump Assembly 01 | ABB | A50-30 | | 1.6 | 2.2 | 3.5 | LOW | 15 | 13 | 87% | REPLACE | $1,800 | WWSB-12 |
| STANLEY BROOKS | RECYCLE PUMP STATION | PLANT RECYCLE PUMP 01 | PUMP_ SUBMERSIBLE | Tertiary Treatment | Plant Recycle Pumping | Recycle Pump Assembly 01 | | | | 1.5 | 2.2 | 3.4 | LOW | 15 | 13 | 87% | REPLACE | $18,900 | WWSB-12 |
| STANLEY BROOKS | RECYCLE PUMP STATION | RECYCLE PUMP 01 CHECK VALVE | VALVE_ CHECK | Tertiary Treatment | Plant Recycle Pumping | Recycle Pump Assembly 01 | CLOW KENNEDY | | | 2.4 | 2.0 | 4.8 | LOW | 25 | 16 | 64% | REPLACE | $2,900 | WWSB-12 |
| STANLEY BROOKS | RECYCLE PUMP STATION | RECYCLE PUMP 01 DISCHARGE ISOLATION VALVE | VALVE_ PLUG | Tertiary Treatment | Plant Recycle Pumping | Recycle Pump Assembly 01 | DEZURIK | 1044305 | | 3.7 | 1.0 | 3.7 | MEDIUM LOW | 20 | 6 | 30% | REPLACE | $1,600 | WWSB-12 |
| STANLEY BROOKS | RECYCLE PUMP STATION | RECYCLE PUMP 02 MOTOR STARTER | MOTOR STARTERS | Tertiary Treatment | Plant Recycle Pumping | Recycle Pump Assembly 02 | ABB | A50-30 | | 1.6 | 2.2 | 3.5 | LOW | 15 | 13 | 87% | REPLACE | $1,800 | WWSB-12 |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STANLEY BROOKS | RECYCLE PUMP STATION | PLANT RECYCLE PUMP 02 | PUMP_ SUBMERSIBLE | Tertiary Treatment | Plant Recycle Pumping | Recycle Pump Assembly 02 | | | | 2.2 | 2.2 | 4.9 | LOW | 15 | 10 | 67% | REPLACE | $18,900 | WWSB-12 |
| STANLEY BROOKS | RECYCLE PUMP STATION | RECYCLE PUMP 02 CHECK VALVE | VALVE_ CHECK | Tertiary Treatment | Plant Recycle Pumping | Recycle Pump Assembly 02 | CLOW KENNEDY | | | 2.4 | 2.0 | 4.8 | LOW | 25 | 16 | 64% | REPLACE | $2,900 | WWSB-12 |
| STANLEY BROOKS | RECYCLE PUMP STATION | RECYCLE PUMP 02 DISCHARGE ISOLATION VALVE | VALVE_ PLUG | Tertiary Treatment | Plant Recycle Pumping | Recycle Pump Assembly 02 | DEZURIK | | | 2.4 | 1.0 | 2.4 | LOW | 20 | 13 | 65% | REPLACE | $1,600 | WWSB-12 |
| STANLEY BROOKS | RECYCLE PUMP STATION | INFLUENT PUMP STATION STRUCTURE | STRUCTURE_ CIRCULAR WET WELL | Tertiary Treatment | Plant Recycle Pumping | Wet Well | | | | 2.3 | 1.6 | 3.7 | LOW | 70 | 47 | 67% | REHAB | $185,800 | WWSB-STR3 |
| STANLEY BROOKS | SECONDARY DIGESTER | SECONDARY DIGESTER STRUCTURE | STRUCTURE_ CIRCULAR ABOVE GRADE | Solids Handling | Sludge Storage | Secondary Digester | | | | 1.7 | 3.0 | 5.1 | MEDIUM LOW | 70 | 58 | 83% | REHAB | $83,300 | WWSB-STR4 |
| STANLEY BROOKS | SLUDGE PIT | SLUDGE PIT STRUCTURE | STRUCTURE_ PAD | Solids Handling | Sludge Storage | Sludge Pit | | | | 1.8 | 2.4 | 4.2 | LOW | 70 | 57 | 81% | REHAB | $2,500 | WWSB-STR4 |
| STANLEY BROOKS | SLUDGE RECIRCULATION PUMP STATION | SLUDGE RECICULATION PUMP STATION STRUCTURE | STRUCTURE_ CANOPY | Non-Process | Building | Envelope | | | | 3.8 | 1.2 | 4.5 | MEDIUM LOW | 50 | 15 | 30% | REPLACE | $12,600 | WWSB-STR2 |
| STANLEY BROOKS | SLUDGE RECIRCULATION PUMP STATION | DISCHARGE CROSSOVER VALVE | VALVE_ GATE | Secondary Treatment | RAS Pumping | Common Pipework and Valves | | | | 3.5 | 2.2 | 7.4 | MEDIUM LOW | 25 | 10 | 40% | REPLACE | $3,600 | WWSB-05 |
| STANLEY BROOKS | SLUDGE RECIRCULATION PUMP STATION | SUCTION CROSSOVER VALVE | VALVE_ GATE | Secondary Treatment | RAS Pumping | Common Pipework and Valves | AMERICAN | 2506-1 | | 1.7 | 2.0 | 3.3 | LOW | 25 | 21 | 84% | REPLACE | $3,600 | WWSB-06 |
| STANLEY BROOKS | SLUDGE RECIRCULATION PUMP STATION | SLUDGE/RECIRCULATION PUMP 01 MOTOR | MOTOR | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 01 | | | | 1.6 | 4.3 | 7.0 | MEDIUM LOW | 20 | 17 | 85% | REPLACE | $3,600 | WWSB-05 |
| STANLEY BROOKS | SLUDGE RECIRCULATION PUMP STATION | SLUDGE/RECIRCULATION PUMP 01 | PUMP_ CENTRIFUGAL | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 01 | GORMAN RUPP | T6A-B | | 3.0 | 4.6 | 13.7 | HIGH | 20 | 10 | 50% | REPLACE | $25,000 | WWSB-05 |
| STANLEY BROOKS | SLUDGE RECIRCULATION PUMP STATION | PUMP 01 CHECK VALVE | VALVE_ CHECK | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 01 | AMERICAN | F-1250 | | 3.7 | 2.0 | 7.4 | MEDIUM LOW | 25 | 8 | 32% | REPLACE | $2,900 | WWSB-05 |
| STANLEY BROOKS | SLUDGE RECIRCULATION PUMP STATION | PUMP 01 DISCHARGE VALVE | VALVE_ GATE | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 01 | | | | 2.1 | 1.0 | 2.1 | LOW | 25 | 18 | 72% | REPLACE | $3,600 | WWSB-05 |
| STANLEY BROOKS | SLUDGE RECIRCULATION PUMP STATION | PUMP 01 SUCTION VALVE | VALVE_ GATE | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 01 | AMERICAN FLOW CONTROL | | | 1.7 | 2.0 | 3.4 | LOW | 25 | 21 | 84% | REPLACE | $3,600 | WWSB-05 |
| STANLEY BROOKS | SLUDGE RECIRCULATION PUMP STATION | SLUDGE/RECIRCULATION PUMP 02 MOTOR | MOTOR | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 02 | | | | 3.6 | 4.3 | 15.3 | HIGH | 20 | 7 | 35% | REPLACE | $3,600 | WWSB-06 |
| STANLEY BROOKS | SLUDGE RECIRCULATION PUMP STATION | SLUDGE/RECIRCULATION PUMP 02 | PUMP_ CENTRIFUGAL | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 02 | GORMAN-RUPP | T6A-B | | 3.0 | 4.6 | 13.7 | HIGH | 20 | 10 | 50% | REPLACE | $25,000 | WWSB-06 |
| STANLEY BROOKS | SLUDGE RECIRCULATION PUMP STATION | PUMP 02 CHECK VALVE | VALVE_ CHECK | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 02 | AMERICAN DARLING | | | 3.7 | 2.0 | 7.4 | MEDIUM LOW | 25 | 8 | 32% | REPLACE | $2,900 | WWSB-06 |
| STANLEY BROOKS | SLUDGE RECIRCULATION PUMP STATION | PUMP 02 DISCHARGE VALVE | VALVE_ GATE | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 02 | | | | 2.1 | 1.0 | 2.1 | LOW | 25 | 18 | 72% | REPLACE | $3,600 | WWSB-06 |
| STANLEY BROOKS | SLUDGE RECIRCULATION PUMP STATION | PUMP 02 SUCTION VALVE | VALVE_ GATE | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 02 | AMERICAN | | | 3.7 | 2.0 | 7.3 | MEDIUM LOW | 25 | 8 | 32% | REPLACE | $3,600 | WWSB-06 |
| STANLEY BROOKS | TRICKLING FILTER 01 | TF01 DISTRIBUTION ARMS | DISTRIBUTOR ARM | Secondary Treatment | Trickling Filtration | Trickling Filter 01 | | | | 5.0 | 4.9 | 24.3 | HIGH | 25 | 0 | 0% | REPLACE | $510,000 | WWSB-08 |
| STANLEY BROOKS | TRICKLING FILTER 01 | TF01 UNDERDRAINS | FILTER_ UNDERDRAIN | Secondary Treatment | Trickling Filtration | Trickling Filter 01 | | | | 1.0 | 4.4 | 4.4 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $50,000 | WWSB-08 |
| STANLEY BROOKS | TRICKLING FILTER 01 | TF01 MEDIA | MEDIA_ BIOLOGICAL | Secondary Treatment | Trickling Filtration | Trickling Filter 01 | | | | 3.3 | 4.6 | 14.8 | HIGH | 20 | 9 | 45% | REPLACE | $282,700 | WWSB-08 |
| STANLEY BROOKS | TRICKLING FILTER 01 | TF01 STRUCTURE | STRUCTURE_ CIRCULAR ABOVE GRADE | Secondary Treatment | Trickling Filtration | Trickling Filter 01 | | | | 1.8 | 4.4 | 7.7 | MEDIUM LOW | 70 | 57 | 81% | REHAB | $77,900 | WWSB-STR4 |
| STANLEY BROOKS | TRICKLING FILTER 02 | TF02 DISTRIBUTION ARMS | DISTRIBUTOR ARM | Secondary Treatment | Trickling Filtration | Trickling Filter 02 | | | | 2.2 | 4.9 | 10.7 | MEDIUM HIGH | 25 | 17 | 68% | REPLACE | $510,000 | WWSB-07 |
| STANLEY BROOKS | TRICKLING FILTER 02 | TF02 UNDERDRAINS | FILTER_ UNDERDRAIN | Secondary Treatment | Trickling Filtration | Trickling Filter 02 | | | | 1.0 | 4.4 | 4.4 | MEDIUM LOW | 15 | 15 | 100 % | REPLACE | $50,000 | WWSB-07 |
| STANLEY BROOKS | TRICKLING FILTER 02 | TF02 MEDIA | MEDIA_ BIOLOGICAL | Secondary Treatment | Trickling Filtration | Trickling Filter 02 | | | | 1.0 | 4.6 | 4.6 | MEDIUM HIGH | 20 | 20 | 100 % | REPLACE | $282,700 | WWSB-07 |
| STANLEY BROOKS | TRICKLING FILTER 02 | TF02 STRUCTURE | STRUCTURE_ CIRCULAR ABOVE GRADE | Secondary Treatment | Trickling Filtration | Trickling Filter 02 | | | | 1.8 | 4.4 | 7.7 | MEDIUM LOW | 70 | 57 | 81% | REHAB | $77,900 | WWSB-STR4 |
| STANLEY BROOKS | TRICKLING FILTER DISTRIBUTION BOX | TF DIST BOX GATE 01 | GATE_ SLIDE | Secondary Treatment | Flow Control | Trickling Filter Distribution Box | WHIPS | | | 4.0 | 3.4 | 13.4 | MEDIUM HIGH | 25 | 6 | 24% | REPLACE | $25,300 | WWSB-07 |
| STANLEY BROOKS | TRICKLING FILTER DISTRIBUTION BOX | TF DIST BOX GATE 02 | GATE_ SLIDE | Secondary Treatment | Flow Control | Trickling Filter Distribution Box | WHIPPS | | | 3.3 | 3.4 | 11.1 | MEDIUM LOW | 25 | 11 | 44% | REPLACE | $25,300 | WWSB-08 |
| STANLEY BROOKS | TRICKLING FILTER DISTRIBUTION BOX | TF DISTRIBUTION BOX STRUCTURE | STRUCTURE_ RECTANGULAR ABOVE GRADE | Secondary Treatment | Flow Control | Trickling Filter Distribution Box | | | | 1.6 | 2.4 | 3.8 | LOW | 70 | 60 | 86% | REHAB | $1,900 | WWSB-STR4 |
| STANLEY BROOKS | TRICKLING FILTER DISTRIBUTION BOX | EAST SLUDGE RECIRCULATION LINE ISOLATION VALVE TO TF01 | VALVE_ GATE | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 01 | AMERICAN DARLING | | | 3.7 | 3.1 | 11.1 | MEDIUM HIGH | 25 | 8 | 32% | REPLACE | $3,600 | WWSB-07 |
| STANLEY BROOKS | TRICKLING FILTER DISTRIBUTION BOX | EAST SLUDGE RECIRCULATION LINE ISOLATION VALVE TO TF02 | VALVE_ GATE | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 01 | AMERICAN DARLING | | | 3.5 | 3.1 | 10.8 | MEDIUM HIGH | 25 | 9 | 36% | REPLACE | $3,600 | WWSB-08 |
| STANLEY BROOKS | TRICKLING FILTER DISTRIBUTION BOX | WEST SLUDGE RECIRCULATION LINE ISOLATION VALVE TO TF01 | VALVE_ GATE | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 02 | AMERICAN DARLING | | | 3.5 | 3.1 | 10.8 | MEDIUM HIGH | 25 | 9 | 36% | REPLACE | $3,600 | WWSB-07 |
| STANLEY BROOKS | TRICKLING FILTER DISTRIBUTION BOX | WEST SLUDGE RECIRCULATION LINE ISOLATION VALVE TO TF02 | VALVE_ GATE | Secondary Treatment | RAS Pumping | Return Sludge Pump Assembly 02 | AMERICAN DARLING | | | 3.9 | 3.1 | 11.8 | MEDIUM HIGH | 25 | 7 | 28% | REPLACE | $3,600 | WWSB-08 |
| STANLEY BROOKS | TRICKLING FILTER RECIRCULATION PUMP STATION | TF RECIRC PUMP STATION STRUCTURE | STRUCTURE_ CANOPY | Non-Process | Building | Envelope | | | | 3.7 | 1.2 | 4.5 | MEDIUM LOW | 50 | 16 | 32% | REPLACE | $12,600 | WWSB-STR2 |
| STANLEY BROOKS | TRICKLING FILTER RECIRCULATION PUMP STATION | FLOAT SWITCH IN NW CORNER | INST_ SWITCH_ FLOAT | Secondary Treatment | Recirculation Pumping | Common Instrumentation | | | | 1.8 | 2.5 | 4.3 | LOW | 10 | 8 | 80% | REPLACE | $200 | WWSB-09 |
| STANLEY BROOKS | TRICKLING FILTER RECIRCULATION PUMP STATION | FLOAT SWITCH MOUNTED IN NE CORNER | INST_ SWITCH_ FLOAT | Secondary Treatment | Recirculation Pumping | Common Instrumentation | | | | 2.4 | 2.5 | 5.9 | LOW | 10 | 6 | 60% | REPLACE | $200 | WWSB-07 |
| STANLEY BROOKS | TRICKLING FILTER RECIRCULATION PUMP STATION | TF RECIRCULATION PUMP 01 MOTOR | MOTOR | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 01 | NORTH AMERICAN ELECTRIC | | | 2.2 | 2.7 | 6.0 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $3,600 | WWSB-09 |
| STANLEY BROOKS | TRICKLING FILTER RECIRCULATION PUMP STATION | TF RECIRCULATION PUMP 01 | PUMP_ CENTRIFUGAL | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 01 | GORMAN RUPP | T6A-B | | 3.6 | 3.0 | 10.8 | MEDIUM HIGH | 20 | 7 | 35% | REPLACE | $25,000 | WWSB-09 |
| STANLEY BROOKS | TRICKLING FILTER RECIRCULATION PUMP STATION | TFRP 01 CHECK VALVE | VALVE_ CHECK | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 01 | AFC | F-1250 | | 1.6 | 1.5 | 2.3 | LOW | 25 | 21 | 84% | REPLACE | $2,900 | WWSB-09 |
| STANLEY BROOKS | TRICKLING FILTER RECIRCULATION PUMP STATION | TFRP 01 DISCHARGE VALVE | VALVE_ GATE | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 01 | AMERICAN | NO 52 | | 3.4 | 1.5 | 5.1 | MEDIUM LOW | 25 | 10 | 40% | REPLACE | $3,600 | WWSB-09 |

| FACILITY | STRUCTURE | ASSETDESCRIPTION | ASSETCLASS_SUBCLASS | PROCESS | SUBPROCESS | ASSETASSEMBLY | MANUFACTURER | MODEL | IN. YEAR | POF | COF | RISK | RISK LEVEL | EUL | RUL | % RUL | TYPE | ASSET COST | PROJECTID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **STANLEY BROOKS** | TRICKLING FILTER RECIRCULATION PUMP STATION | TFRP 01 SUCTION VALVE | VALVE_ GATE | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 01 | AMERICAN | N0 52 | | 1.7 | 1.5 | 2.5 | LOW | 25 | 21 | 84% | REPLACE | $3,600 | WWSB-09 |
| **STANLEY BROOKS** | TRICKLING FILTER RECIRCULATION PUMP STATION | TF RECIRCULATION PUMP 02 MOTOR | MOTOR | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 02 | | | | 2.2 | 2.7 | 6.0 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $3,600 | WWSB-10 |
| **STANLEY BROOKS** | TRICKLING FILTER RECIRCULATION PUMP STATION | TF RECIRCULATION PUMP 02 | PUMP_ CENTRIFUGAL | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 02 | GORMAN RUPP | T6A-B | | 3.5 | 3.0 | 10.4 | MEDIUM LOW | 20 | 8 | 40% | REPLACE | $25,000 | WWSB-10 |
| **STANLEY BROOKS** | TRICKLING FILTER RECIRCULATION PUMP STATION | TFRP 02 CHECK VALVE | VALVE_ CHECK | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 02 | ADV | 200W | | 3.9 | 1.5 | 5.9 | MEDIUM LOW | 25 | 7 | 28% | REPLACE | $2,900 | WWSB-10 |
| **STANLEY BROOKS** | TRICKLING FILTER RECIRCULATION PUMP STATION | TFRP 02 DISCHARGE VALVE-EAST | VALVE_ GATE | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 02 | AMERICAN DARLING | | | 1.7 | 1.7 | 2.8 | LOW | 25 | 21 | 84% | REPLACE | $6,200 | WWSB-10 |
| **STANLEY BROOKS** | TRICKLING FILTER RECIRCULATION PUMP STATION | TFRP 02 DISCHARGE VALVE-WEST | VALVE_ GATE | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 02 | AMERICAN DARLING | D1508 | | 3.5 | 1.7 | 5.8 | MEDIUM LOW | 25 | 9 | 36% | REPLACE | $6,200 | WWSB-10 |
| **STANLEY BROOKS** | TRICKLING FILTER RECIRCULATION PUMP STATION | TFRP 02 SUCTION VALVE-EAST | VALVE_ GATE | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 02 | AMERICAN DARLING | D1508 | | 1.7 | 1.5 | 2.6 | LOW | 25 | 21 | 84% | REPLACE | $3,600 | WWSB-10 |
| **STANLEY BROOKS** | TRICKLING FILTER RECIRCULATION PUMP STATION | TFRP 02 SUCTION VALVE-WEST | VALVE_ GATE | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 02 | AMERICAN DARLING | D1508 | | 1.7 | 1.5 | 2.6 | LOW | 25 | 21 | 84% | REPLACE | $3,600 | WWSB-10 |
| **STANLEY BROOKS** | TRICKLING FILTER RECIRCULATION PUMP STATION | TF RECIRCULATION PUMP 03 MOTOR | MOTOR | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 03 | NORTH AMERICAN ELECTRIC | | | 2.2 | 2.7 | 5.9 | MEDIUM LOW | 20 | 14 | 70% | REPLACE | $3,600 | WWSB-11 |
| **STANLEY BROOKS** | TRICKLING FILTER RECIRCULATION PUMP STATION | TF RECIRCULATION PUMP 03 | PUMP_ CENTRIFUGAL | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 03 | GORMAN RUPP | T6A-B | | 3.4 | 3.0 | 10.3 | MEDIUM LOW | 20 | 8 | 40% | REPLACE | $25,000 | WWSB-11 |
| **STANLEY BROOKS** | TRICKLING FILTER RECIRCULATION PUMP STATION | TFRP 03 CHECK VALVE | VALVE_ CHECK | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 03 | AMERICAN | F-1250 | | 3.7 | 1.5 | 5.5 | MEDIUM LOW | 25 | 8 | 32% | REPLACE | $2,900 | WWSB-11 |
| **STANLEY BROOKS** | TRICKLING FILTER RECIRCULATION PUMP STATION | TFRP 03 DISCHARGE VALVE | VALVE_ GATE | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 03 | AMERICAN | | | 3.5 | 1.5 | 5.3 | MEDIUM LOW | 25 | 9 | 36% | REPLACE | $3,600 | WWSB-11 |
| **STANLEY BROOKS** | TRICKLING FILTER RECIRCULATION PUMP STATION | TFRP 03 SUCTION VALVE | VALVE_ GATE | Secondary Treatment | Recirculation Pumping | Recirculation Pump Assembly 03 | AMERICAN DARLING | D1508 | | 1.7 | 1.5 | 2.6 | LOW | 25 | 21 | 84% | REPLACE | $3,600 | WWSB-11 |

## B-2. Project Cost Breakdown

**Table B-2-1. Existing ADEM Project Breakdown**

| Existing ADEM Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **W-01** | Vigor Tank Improvements with Control Valves for Low Zone Supply | 2024 | Estimated Total Cost FV | $1,154,000 |
| **W-02** | Chickasaw Tank Improvements | 2024 | Estimated Total Cost FV | $980,000 |
| **W-03** | Anderson Tanks Improvements | 2024 | Estimated Total Cost FV | $1,154,000 |
| **W-04** | Office Tank Improvements | 2024 | Estimated Total Cost FV | $150,000 |
| **W-05** | Control Valves for Low Supply Zone and Boundary Valves at Anderson Tank | 2024 | Estimated Total Cost FV | $438,000 |
| **W-06** | Distribution System SCADA | 2024 | Estimated Total Cost FV | $688,000 |
| **W-07** | Lott Road Tank Improvements | 2024 | Estimated Total Cost FV | $47,000 |
| **W-08*** | Lott Road New 1MG Elevated Storage Tank | 2029 | Estimated Total Cost FV | $6,360,000 |
| **WW-01** | SCADA System Upgrades - Morris WWTP and Lift Stations | 2024 | Estimated Total Cost FV | $1,300,000 |
| **WW-02** | Morris WWTP Upgrades (Screens, Grit Removal, Aeration DO probe, Clarifier valves) | 2024 | Estimated Total Cost FV | $3,235,000 |
| | | | **TOTAL** | **$15,506,000** |

*****Project was recommended, but ADEM has not approved funding for this project as of May 2024

### Table B-2-2. Proposed Carlos Morris WWTP Project Breakdown

| Proposed Carlos Morris Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **WWCM-01** | Preliminary Treatment Degritter 02 Rehabilitation | 2034 | Assets PV | $556,000 |
| | | | Project Components | $139,000 |
| | | | Construction | $208,000 |
| | | | Contingency | $208,000 |
| | | | Engineering | $167,000 |
| | | | Estimated Total Cost PV | $1,279,000 |
| | | | Estimated Total Cost FV | $1,718,000 |
| | | | Class V Low Range | $859,000 |
| | | | Class V High Range | $3,437,000 |
| **WWCM-02** | Influent Pump 02 and 03 Rehabilitation | 2026 | Assets PV | $158,000 |
| | | | Project Components | $39,000 |
| | | | Construction | $59,000 |
| | | | Contingency | $59,000 |
| | | | Engineering | $47,000 |
| | | | Estimated Total Cost PV | $363,000 |
| | | | Estimated Total Cost FV | $385,000 |
| | | | Class V Low Range | $192,000 |
| | | | Class V High Range | $769,000 |
| **WWCM-03** | Influent Pump 04 Rehabilitation | 2033 | Assets PV | $79,000 |
| | | | Project Components | $20,000 |
| | | | Construction | $30,000 |
| | | | Contingency | $30,000 |
| | | | Engineering | $24,000 |
| | | | Estimated Total Cost PV | $181,000 |
| | | | Estimated Total Cost FV | $237,000 |
| | | | Class V Low Range | $118,000 |
| | | | Class V High Range | $473,000 |
| **WWCM-04** | Influent Pump 01 Rehabilitation | 2030 | Assets PV | $79,000 |
| | | | Project Components | $20,000 |
| | | | Construction | $30,000 |
| | | | Contingency | $30,000 |
| | | | Engineering | $24,000 |
| | | | Estimated Total Cost PV | $181,000 |
| | | | Estimated Total Cost FV | $217,000 |
| | | | Class V Low Range | $108,000 |
| | | | Class V High Range | $433,000 |

| Proposed Carlos Morris Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **WWCM-05** | Influent Instrumentation Replacement | 2027 | Assets PV | $4,000 |
| | | | Project Components | $1,000 |
| | | | Construction | $2,000 |
| | | | Contingency | $2,000 |
| | | | Engineering | $1,000 |
| | | | Estimated Total Cost PV | $10,000 |
| | | | Estimated Total Cost FV | $11,000 |
| | | | Class V Low Range | $5,000 |
| | | | Class V High Range | $21,000 |
| **WWCM-06** | Primary Clarifier 01 Rehab | 2035 | Assets PV | $280,000 |
| | | | Project Components | $70,000 |
| | | | Construction | $105,000 |
| | | | Contingency | $105,000 |
| | | | Engineering | $84,000 |
| | | | Estimated Total Cost PV | $643,000 |
| | | | Estimated Total Cost FV | $890,000 |
| | | | Class V Low Range | $445,000 |
| | | | Class V High Range | $1,781,000 |
| **WWCM-07** | Primary Clarifier 02 Rehab | 2032 | Assets PV | $260,000 |
| | | | Project Components | $65,000 |
| | | | Construction | $98,000 |
| | | | Contingency | $98,000 |
| | | | Engineering | $78,000 |
| | | | Estimated Total Cost PV | $599,000 |
| | | | Estimated Total Cost FV | $759,000 |
| | | | Class V Low Range | $379,000 |
| | | | Class V High Range | $1,518,000 |
| **WWCM-08** | Aeration Basin Aerator Replacement Phase I | 2025 | Assets PV | $37,000 |
| | | | Project Components | $9,000 |
| | | | Construction | $14,000 |
| | | | Contingency | $14,000 |
| | | | Engineering | $11,000 |
| | | | Estimated Total Cost PV | $86,000 |
| | | | Estimated Total Cost FV | $89,000 |
| | | | Class V Low Range | $44,000 |
| | | | Class V High Range | $177,000 |

| Proposed Carlos Morris Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **WWCM-09** | Aeration Basin Aerator Replacement Phase II | 2035 | Assets PV | $241,000 |
| | | | Project Components | $60,000 |
| | | | Construction | $90,000 |
| | | | Contingency | $90,000 |
| | | | Engineering | $72,000 |
| | | | Estimated Total Cost PV | $553,000 |
| | | | Estimated Total Cost FV | $766,000 |
| | | | Class V Low Range | $383,000 |
| | | | Class V High Range | $1,532,000 |
| **WWCM-10** | Final Clarifier 01 Rehab | 2028 | Assets PV | $565,000 |
| | | | Project Components | $141,000 |
| | | | Construction | $212,000 |
| | | | Contingency | $212,000 |
| | | | Engineering | $170,000 |
| | | | Estimated Total Cost PV | $1,300,000 |
| | | | Estimated Total Cost FV | $1,463,000 |
| | | | Class V Low Range | $732,000 |
| | | | Class V High Range | $2,926,000 |
| **WWCM-11** | Final Clarifier 02 Rehab | 2042 | Assets PV | $853,000 |
| | | | Project Components | $213,000 |
| | | | Construction | $320,000 |
| | | | Contingency | $320,000 |
| | | | Engineering | $256,000 |
| | | | Estimated Total Cost PV | $1,963,000 |
| | | | Estimated Total Cost FV | $3,342,000 |
| | | | Class V Low Range | $1,671,000 |
| | | | Class V High Range | $6,684,000 |
| **WWCM-12** | Intermediate Pump 01 Replacement | 2038 | Assets PV | $109,000 |
| | | | Project Components | $27,000 |
| | | | Construction | $41,000 |
| | | | Contingency | $41,000 |
| | | | Engineering | $33,000 |
| | | | Estimated Total Cost PV | $251,000 |
| | | | Estimated Total Cost FV | $379,000 |
| | | | Class V Low Range | $190,000 |
| | | | Class V High Range | $759,000 |

| Proposed Carlos Morris Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **WWCM-13** | Intermediate Pump 02 Replacement | 2031 | Assets PV | $121,000 |
| | | | Project Components | $30,000 |
| | | | Construction | $45,000 |
| | | | Contingency | $45,000 |
| | | | Engineering | $36,000 |
| | | | Estimated Total Cost PV | $277,000 |
| | | | Estimated Total Cost FV | $341,000 |
| | | | Class V Low Range | $171,000 |
| | | | Class V High Range | $682,000 |
| **WWCM-14** | Intermediate Pump 03 Replacement | 2033 | Assets PV | $92,000 |
| | | | Project Components | $23,000 |
| | | | Construction | $35,000 |
| | | | Contingency | $35,000 |
| | | | Engineering | $28,000 |
| | | | Estimated Total Cost PV | $212,000 |
| | | | Estimated Total Cost FV | $277,000 |
| | | | Class V Low Range | $138,000 |
| | | | Class V High Range | $553,000 |
| **WWCM-15** | Intermediate PS Instrumentation Replacement | 2029 | Assets PV | $5,000 |
| | | | Project Components | $1,000 |
| | | | Construction | $2,000 |
| | | | Contingency | $2,000 |
| | | | Engineering | $1,000 |
| | | | Estimated Total Cost PV | $11,000 |
| | | | Estimated Total Cost FV | $13,000 |
| | | | Class V Low Range | $7,000 |
| | | | Class V High Range | $26,000 |
| **WWCM-16** | Recirculating Sludge Pump Replacement | 2032 | Assets PV | $218,000 |
| | | | Project Components | $55,000 |
| | | | Construction | $82,000 |
| | | | Contingency | $82,000 |
| | | | Engineering | $66,000 |
| | | | Estimated Total Cost PV | $502,000 |
| | | | Estimated Total Cost FV | $636,000 |
| | | | Class V Low Range | $318,000 |
| | | | Class V High Range | $1,272,000 |

| Proposed Carlos Morris Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **WWCM-17** | Disinfection System and Chlorine Contact Chamber Replacement | 2028 | Assets PV | $282,000 |
| | | | Project Components | $70,000 |
| | | | Construction | $106,000 |
| | | | Contingency | $106,000 |
| | | | Engineering | $84,000 |
| | | | Estimated Total Cost PV | $648,000 |
| | | | Estimated Total Cost FV | $729,000 |
| | | | Class V Low Range | $365,000 |
| | | | Class V High Range | $1,458,000 |
| **WWCM-18** | Outfall Box Instrumentation and NPWP Replacement | 2029 | Assets PV | $17,000 |
| | | | Project Components | $4,000 |
| | | | Construction | $7,000 |
| | | | Contingency | $7,000 |
| | | | Engineering | $5,000 |
| | | | Estimated Total Cost PV | $40,000 |
| | | | Estimated Total Cost FV | $46,000 |
| | | | Class V Low Range | $23,000 |
| | | | Class V High Range | $93,000 |
| **WWCM-19** | Post Aeration Basin Instrumentation Replacement | 2034 | Assets PV | $23,000 |
| | | | Project Components | $6,000 |
| | | | Construction | $9,000 |
| | | | Contingency | $9,000 |
| | | | Engineering | $7,000 |
| | | | Estimated Total Cost PV | $52,000 |
| | | | Estimated Total Cost FV | $70,000 |
| | | | Class V Low Range | $35,000 |
| | | | Class V High Range | $140,000 |
| **WWCM-20** | Sludge Drying Bed Replacement | 2026 | Assets PV | $5,000 |
| | | | Project Components | $1,000 |
| | | | Construction | $2,000 |
| | | | Contingency | $2,000 |
| | | | Engineering | $2,000 |
| | | | Estimated Total Cost PV | $12,000 |
| | | | Estimated Total Cost FV | $12,000 |
| | | | Class V Low Range | $6,000 |
| | | | Class V High Range | $24,000 |

| Proposed Carlos Morris Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **WWCM-21** | EQ Basin Improvement | 2034 | Assets PV | $42,000 |
| | | | Project Components | $11,000 |
| | | | Construction | $16,000 |
| | | | Contingency | $16,000 |
| | | | Engineering | $13,000 |
| | | | Estimated Total Cost PV | $97,000 |
| | | | Estimated Total Cost FV | $131,000 |
| | | | Class V Low Range | $65,000 |
| | | | Class V High Range | $261,000 |
| **WWCM-22** | Priority Building Assets Rehabilitation | 2025 | Assets PV | $36,000 |
| | | | Project Components | $9,000 |
| | | | Construction | $13,000 |
| | | | Contingency | $13,000 |
| | | | Engineering | $11,000 |
| | | | Estimated Total Cost PV | $82,000 |
| | | | Estimated Total Cost FV | $84,000 |
| | | | Class V Low Range | $42,000 |
| | | | Class V High Range | $168,000 |
| **WWCM-23** | Building HVAC Replacement | 2041 | Assets PV | $8,000 |
| | | | Project Components | $2,000 |
| | | | Construction | $3,000 |
| | | | Contingency | $3,000 |
| | | | Engineering | $2,000 |
| | | | Estimated Total Cost PV | $19,000 |
| | | | Estimated Total Cost FV | $31,000 |
| | | | Class V Low Range | $16,000 |
| | | | Class V High Range | $62,000 |
| **WWCM-MISC** | Carlos Morris Misc Replacements | Misc. | Assets PV | $146,000 |
| | | | Project Components | $37,000 |
| | | | Construction | $55,000 |
| | | | Contingency | $55,000 |
| | | | Engineering | $44,000 |
| | | | Estimated Total Cost PV | $336,000 |
| | | | Estimated Total Cost FV | $536,000 |
| | | | Class V Low Range | $268,000 |
| | | | Class V High Range | $1,071,000 |

| Proposed Carlos Morris Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **WWCM-STR1** | Treatment Process Structure Rehabilitation Phase I | 2028 | Assets PV | $115,000 |
| | | | Project Components | $29,000 |
| | | | Construction | $43,000 |
| | | | Contingency | $43,000 |
| | | | Engineering | $34,000 |
| | | | Estimated Total Cost PV | $264,000 |
| | | | Estimated Total Cost FV | $297,000 |
| | | | Class V Low Range | $149,000 |
| | | | Class V High Range | $595,000 |
| **WWCM-STR2** | Treatment Process Structure Rehabilitation Phase II | 2033 | Assets PV | $186,000 |
| | | | Project Components | $46,000 |
| | | | Construction | $70,000 |
| | | | Contingency | $70,000 |
| | | | Engineering | $56,000 |
| | | | Estimated Total Cost PV | $427,000 |
| | | | Estimated Total Cost FV | $558,000 |
| | | | Class V Low Range | $279,000 |
| | | | Class V High Range | $1,115,000 |
| **WWCM-STR3** | Treatment Process Structure Rehabilitation Phase III | 2037 | Assets PV | $511,000 |
| | | | Project Components | $128,000 |
| | | | Construction | $192,000 |
| | | | Contingency | $192,000 |
| | | | Engineering | $153,000 |
| | | | Estimated Total Cost PV | $1,175,000 |
| | | | Estimated Total Cost FV | $1,725,000 |
| | | | Class V Low Range | $862,000 |
| | | | Class V High Range | $3,450,000 |
| **WWCM-STR4** | Treatment Process Structure Rehabilitation Phase IV | 2043 | Assets PV | $231,000 |
| | | | Project Components | $58,000 |
| | | | Construction | $87,000 |
| | | | Contingency | $87,000 |
| | | | Engineering | $69,000 |
| | | | Estimated Total Cost PV | $531,000 |
| | | | Estimated Total Cost FV | $931,000 |
| | | | Class V Low Range | $466,000 |
| | | | Class V High Range | $1,863,000 |

**Table B-2-3. Proposed Stanley Brooks WWTP Project Breakdown**

| Proposed Stanley Brooks Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **WWSB-01** | Preliminary Treatment Screening Rehabilitation | 2033 | Assets PV | $77,000 |
| | | | Project Components | $19,000 |
| | | | Construction | $29,000 |
| | | | Contingency | $29,000 |
| | | | Engineering | $23,000 |
| | | | Estimated Total Cost PV | $177,000 |
| | | | Estimated Total Cost FV | $230,000 |
| | | | Class V Low Range | $115,000 |
| | | | Class V High Range | $461,000 |
| **WWSB-02** | Preliminary Treatment Degritters Rehabilitation | 2026 | Assets PV | $1,706,000 |
| | | | Project Components | $426,000 |
| | | | Construction | $640,000 |
| | | | Contingency | $640,000 |
| | | | Engineering | $512,000 |
| | | | Estimated Total Cost PV | $3,924,000 |
| | | | Estimated Total Cost FV | $4,163,000 |
| | | | Class V Low Range | $2,081,000 |
| | | | Class V High Range | $8,325,000 |
| **WWSB-03** | Primary Clarifier 01 Rehabilitation | 2041 | Assets PV | $235,000 |
| | | | Project Components | $59,000 |
| | | | Construction | $88,000 |
| | | | Contingency | $88,000 |
| | | | Engineering | $70,000 |
| | | | Estimated Total Cost PV | $540,000 |
| | | | Estimated Total Cost FV | $892,000 |
| | | | Class V Low Range | $446,000 |
| | | | Class V High Range | $1,784,000 |
| **WWSB-04** | Primary Clarifier 02 Rehabilitation | 2033 | Assets PV | $235,000 |
| | | | Project Components | $59,000 |
| | | | Construction | $88,000 |
| | | | Contingency | $88,000 |
| | | | Engineering | $70,000 |
| | | | Estimated Total Cost PV | $540,000 |
| | | | Estimated Total Cost FV | $705,000 |
| | | | Class V Low Range | $352,000 |
| | | | Class V High Range | $1,410,000 |

| Proposed Stanley Brooks Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **WWSB-05** | Sludge Recirculation Pump 01 Replacement | 2035 | Assets PV | $42,000 |
| | | | Project Components | $11,000 |
| | | | Construction | $16,000 |
| | | | Contingency | $16,000 |
| | | | Engineering | $13,000 |
| | | | Estimated Total Cost PV | $97,000 |
| | | | Estimated Total Cost FV | $135,000 |
| | | | Class V Low Range | $67,000 |
| | | | Class V High Range | $270,000 |
| **WWSB-06** | Sludge Recirculation Pump 02 Replacement | 2035 | Assets PV | $42,000 |
| | | | Project Components | $11,000 |
| | | | Construction | $16,000 |
| | | | Contingency | $16,000 |
| | | | Engineering | $13,000 |
| | | | Estimated Total Cost PV | $97,000 |
| | | | Estimated Total Cost FV | $135,000 |
| | | | Class V Low Range | $67,000 |
| | | | Class V High Range | $270,000 |
| **WWSB-07** | Trickling Filter 02 Rehabilitation | 2040 | Assets PV | $875,000 |
| | | | Project Components | $219,000 |
| | | | Construction | $328,000 |
| | | | Contingency | $328,000 |
| | | | Engineering | $263,000 |
| | | | Estimated Total Cost PV | $2,014,000 |
| | | | Estimated Total Cost FV | $3,231,000 |
| | | | Class V Low Range | $1,616,000 |
| | | | Class V High Range | $6,463,000 |
| **WWSB-08** | Trickling Filter 01 Rehabilitation | 2025 | Assets PV | $875,000 |
| | | | Project Components | $219,000 |
| | | | Construction | $328,000 |
| | | | Contingency | $328,000 |
| | | | Engineering | $263,000 |
| | | | Estimated Total Cost PV | $2,013,000 |
| | | | Estimated Total Cost FV | $2,074,000 |
| | | | Class V Low Range | $1,037,000 |
| | | | Class V High Range | $4,147,000 |

| Proposed Stanley Brooks Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **WWSB-09** | Trickling Filter Recirculation Pump 01 Replacement | 2039 | Assets PV | $69,000 |
| | | | Project Components | $17,000 |
| | | | Construction | $26,000 |
| | | | Contingency | $26,000 |
| | | | Engineering | $21,000 |
| | | | Estimated Total Cost PV | $158,000 |
| | | | Estimated Total Cost FV | $246,000 |
| | | | Class V Low Range | $123,000 |
| | | | Class V High Range | $493,000 |
| **WWSB-10** | Trickling Filter Recirculation Pump 02 Replacement | 2039 | Assets PV | $64,000 |
| | | | Project Components | $16,000 |
| | | | Construction | $24,000 |
| | | | Contingency | $24,000 |
| | | | Engineering | $19,000 |
| | | | Estimated Total Cost PV | $148,000 |
| | | | Estimated Total Cost FV | $231,000 |
| | | | Class V Low Range | $115,000 |
| | | | Class V High Range | $462,000 |
| **WWSB-11** | Trickling Filter Recirculation Pump 03 Replacement | 2039 | Assets PV | $52,000 |
| | | | Project Components | $13,000 |
| | | | Construction | $19,000 |
| | | | Contingency | $19,000 |
| | | | Engineering | $16,000 |
| | | | Estimated Total Cost PV | $120,000 |
| | | | Estimated Total Cost FV | $186,000 |
| | | | Class V Low Range | $93,000 |
| | | | Class V High Range | $373,000 |
| **WWSB-12** | Plant Recycle Pump Station Rehabilitation | 2035 | Assets PV | $74,000 |
| | | | Project Components | $18,000 |
| | | | Construction | $28,000 |
| | | | Contingency | $28,000 |
| | | | Engineering | $22,000 |
| | | | Estimated Total Cost PV | $170,000 |
| | | | Estimated Total Cost FV | $235,000 |
| | | | Class V Low Range | $117,000 |
| | | | Class V High Range | $470,000 |
| **WWSB-13** | Office/Sludge Pump System 01 Rehabilitation | 2025 | Assets PV | $36,000 |

| Proposed Stanley Brooks Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| | | | Project Components | $9,000 |
| | | | Construction | $13,000 |
| | | | Contingency | $13,000 |
| | | | Engineering | $11,000 |
| | | | Estimated Total Cost PV | $82,000 |
| | | | Estimated Total Cost FV | $84,000 |
| | | | Class V Low Range | $42,000 |
| | | | Class V High Range | $169,000 |
| **WWSB-14** | Office/Sludge Pump System 02 Rehabilitation | 2025 | Assets PV | $27,000 |
| | | | Project Components | $7,000 |
| | | | Construction | $10,000 |
| | | | Contingency | $10,000 |
| | | | Engineering | $8,000 |
| | | | Estimated Total Cost PV | $61,000 |
| | | | Estimated Total Cost FV | $63,000 |
| | | | Class V Low Range | $32,000 |
| | | | Class V High Range | $126,000 |
| **WWSB-15** | Office/Sludge Pump Station Building Improvements | 2026 | Assets PV | $18,000 |
| | | | Project Components | $5,000 |
| | | | Construction | $7,000 |
| | | | Contingency | $7,000 |
| | | | Engineering | $6,000 |
| | | | Estimated Total Cost PV | $42,000 |
| | | | Estimated Total Cost FV | $45,000 |
| | | | Class V Low Range | $22,000 |
| | | | Class V High Range | $90,000 |
| **WWSB-16** | Chlorine Contact Chamber Rehabilitation | 2025 | Assets PV | $42,000 |
| | | | Project Components | $11,000 |
| | | | Construction | $16,000 |
| | | | Contingency | $16,000 |
| | | | Engineering | $13,000 |
| | | | Estimated Total Cost PV | $97,000 |
| | | | Estimated Total Cost FV | $99,000 |
| | | | Class V Low Range | $50,000 |
| | | | Class V High Range | $199,000 |

| Proposed Stanley Brooks Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **WWSB-17** | Sludge Drying Bed Rehabilitation | 2030 | Assets PV | $30,000 |
| | | | Project Components | $8,000 |
| | | | Construction | $11,000 |
| | | | Contingency | $11,000 |
| | | | Engineering | $9,000 |
| | | | Estimated Total Cost PV | $70,000 |
| | | | Estimated Total Cost FV | $83,000 |
| | | | Class V Low Range | $42,000 |
| | | | Class V High Range | $167,000 |
| **WWSB-18** | Final Clarifier 01 Rehab | 2030 | Assets PV | $281,000 |
| | | | Project Components | $70,000 |
| | | | Construction | $105,000 |
| | | | Contingency | $105,000 |
| | | | Engineering | $84,000 |
| | | | Estimated Total Cost PV | $646,000 |
| | | | Estimated Total Cost FV | $771,000 |
| | | | Class V Low Range | $386,000 |
| | | | Class V High Range | $1,543,000 |
| **WWSB-19** | Final Clarifier 02 Rehab | 2030 | Assets PV | $252,000 |
| | | | Project Components | $63,000 |
| | | | Construction | $94,000 |
| | | | Contingency | $94,000 |
| | | | Engineering | $76,000 |
| | | | Estimated Total Cost PV | $579,000 |
| | | | Estimated Total Cost FV | $692,000 |
| | | | Class V Low Range | $346,000 |
| | | | Class V High Range | $1,384,000 |
| **WWSB-20** | Effluent Pump 01 Replacement | 2036 | Assets PV | $76,000 |
| | | | Project Components | $19,000 |
| | | | Construction | $28,000 |
| | | | Contingency | $28,000 |
| | | | Engineering | $23,000 |
| | | | Estimated Total Cost PV | $175,000 |
| | | | Estimated Total Cost FV | $249,000 |
| | | | Class V Low Range | $124,000 |
| | | | Class V High Range | $498,000 |

| Proposed Stanley Brooks Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **WWSB-21** | Effluent Pump 02 Replacement | 2036 | Assets PV | $107,000 |
| | | | Project Components | $27,000 |
| | | | Construction | $40,000 |
| | | | Contingency | $40,000 |
| | | | Engineering | $32,000 |
| | | | Estimated Total Cost PV | $246,000 |
| | | | Estimated Total Cost FV | $350,000 |
| | | | Class V Low Range | $175,000 |
| | | | Class V High Range | $701,000 |
| **WWSB-22** | Effluent Pump 03 Replacement | 2036 | Assets PV | $84,000 |
| | | | Project Components | $21,000 |
| | | | Construction | $31,000 |
| | | | Contingency | $31,000 |
| | | | Engineering | $25,000 |
| | | | Estimated Total Cost PV | $193,000 |
| | | | Estimated Total Cost FV | $275,000 |
| | | | Class V Low Range | $137,000 |
| | | | Class V High Range | $549,000 |
| **WWSB-23** | Effluent Pump Station Building Electrical and HVAC Rehabilitation | 2040 | Assets PV | $29,000 |
| | | | Project Components | $7,000 |
| | | | Construction | $11,000 |
| | | | Contingency | $11,000 |
| | | | Engineering | $9,000 |
| | | | Estimated Total Cost PV | $68,000 |
| | | | Estimated Total Cost FV | $109,000 |
| | | | Class V Low Range | $54,000 |
| | | | Class V High Range | $217,000 |
| **WWSB-24** | Chemical Feed System Replacement | 2029 | Assets PV | $151,000 |
| | | | Project Components | $38,000 |
| | | | Construction | $56,000 |
| | | | Contingency | $56,000 |
| | | | Engineering | $45,000 |
| | | | Estimated Total Cost PV | $346,000 |
| | | | Estimated Total Cost FV | $402,000 |
| | | | Class V Low Range | $201,000 |
| | | | Class V High Range | $803,000 |

| Proposed Stanley Brooks Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **WWSB-25** | Generator and Fuel Tank Replacement | 2043 | Assets PV | $77,000 |
| | | | Project Components | $19,000 |
| | | | Construction | $29,000 |
| | | | Contingency | $29,000 |
| | | | Engineering | $23,000 |
| | | | Estimated Total Cost PV | $178,000 |
| | | | Estimated Total Cost FV | $312,000 |
| | | | Class V Low Range | $156,000 |
| | | | Class V High Range | $623,000 |
| **WWSB-26** | Maintenance Building Electrical and HVAC Rehabilitation | 2035 | Assets PV | $84,000 |
| | | | Project Components | $21,000 |
| | | | Construction | $31,000 |
| | | | Contingency | $31,000 |
| | | | Engineering | $25,000 |
| | | | Estimated Total Cost PV | $193,000 |
| | | | Estimated Total Cost FV | $267,000 |
| | | | Class V Low Range | $133,000 |
| | | | Class V High Range | $534,000 |
| **WWSB-MISC** | Stanley Brooks Misc Replacements | Misc. | Assets PV | $61,000 |
| | | | Project Components | $15,000 |
| | | | Construction | $23,000 |
| | | | Contingency | $23,000 |
| | | | Engineering | $18,000 |
| | | | Estimated Total Cost PV | $140,000 |
| | | | Estimated Total Cost FV | $2,923,000 |
| | | | Class V Low Range | $1,461,000 |
| | | | Class V High Range | $5,846,000 |
| **WWSB-STR1** | Treatment Process Structures Rehabilitation Phase I | 2028 | Assets PV | $14,000 |
| | | | Project Components | $3,000 |
| | | | Construction | $5,000 |
| | | | Contingency | $5,000 |
| | | | Engineering | $4,000 |
| | | | Estimated Total Cost PV | $32,000 |
| | | | Estimated Total Cost FV | $36,000 |
| | | | Class V Low Range | $18,000 |
| | | | Class V High Range | $71,000 |
| **WWSB-STR2** | Treatment Process Structures Rehabilitation Phase II | 2032 | Assets PV | $389,000 |

| Proposed Stanley Brooks Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| | | | Project Components | $97,000 |
| | | | Construction | $146,000 |
| | | | Contingency | $146,000 |
| | | | Engineering | $117,000 |
| | | | Estimated Total Cost PV | $895,000 |
| | | | Estimated Total Cost FV | $1,134,000 |
| | | | Class V Low Range | $567,000 |
| | | | Class V High Range | $2,268,000 |
| **WWSB-STR3** | Treatment Process Structures Rehabilitation Phase III | 2036 | Assets PV | $260,000 |
| | | | Project Components | $65,000 |
| | | | Construction | $98,000 |
| | | | Contingency | $98,000 |
| | | | Engineering | $78,000 |
| | | | Estimated Total Cost PV | $599,000 |
| | | | Estimated Total Cost FV | $854,000 |
| | | | Class V Low Range | $427,000 |
| | | | Class V High Range | $1,708,000 |
| **WWSB-STR4** | Treatment Process Structures Rehabilitation Phase IV | 2044 | Assets PV | $706,000 |
| | | | Project Components | $176,000 |
| | | | Construction | $265,000 |
| | | | Contingency | $265,000 |
| | | | Engineering | $212,000 |
| | | | Estimated Total Cost PV | $1,624,000 |
| | | | Estimated Total Cost FV | $2,932,000 |
| | | | Class V Low Range | $1,466,000 |
| | | | Class V High Range | $5,864,000 |

**Table B-2-4. Proposed Lift Station Project Breakdown**

| Proposed Lift Station Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **WWLS-01** | Alabama Village Rehabilitation | 2026 | Assets PV | $141,000 |
| | | | Project Components | $35,000 |
| | | | Construction | $53,000 |
| | | | Contingency | $53,000 |
| | | | Engineering | $42,000 |
| | | | Estimated Total Cost PV | $325,000 |
| | | | Estimated Total Cost FV | $345,000 |
| | | | Class V Low Range | $173,000 |
| | | | Class V High Range | $690,000 |
| **WWLS-02** | Whatley Ave LS Improvements | 2027 | Assets PV | $193,000 |
| | | | Project Components | $48,000 |
| | | | Construction | $73,000 |
| | | | Contingency | $73,000 |
| | | | Engineering | $58,000 |
| | | | Estimated Total Cost PV | $445,000 |
| | | | Estimated Total Cost FV | $486,000 |
| | | | Class V Low Range | $243,000 |
| | | | Class V High Range | $972,000 |
| **WWLS-03** | Pershing Street Station Conversion | 2038 | Assets PV | $121,000 |
| | | | Project Components | $30,000 |
| | | | Construction | $45,000 |
| | | | Contingency | $45,000 |
| | | | Engineering | $36,000 |
| | | | Estimated Total Cost PV | $279,000 |
| | | | Estimated Total Cost FV | $422,000 |
| | | | Class V Low Range | $211,000 |
| | | | Class V High Range | $844,000 |
| **WWLS-04** | Lift Station Pump Replacement | 2025 | Assets PV | $335,000 |
| | | | Project Components | $84,000 |
| | | | Construction | $126,000 |
| | | | Contingency | $126,000 |
| | | | Engineering | $101,000 |
| | | | Estimated Total Cost PV | $772,000 |
| | | | Estimated Total Cost FV | $795,000 |
| | | | Class V Low Range | $397,000 |
| | | | Class V High Range | $1,589,000 |

| Proposed Lift Station Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **WWLS-05** | Bearfork and Jerratt Road LS Mechanical Improvements | 2031 | Assets PV | $44,000 |
| | | | Project Components | $11,000 |
| | | | Construction | $16,000 |
| | | | Contingency | $16,000 |
| | | | Engineering | $13,000 |
| | | | Estimated Total Cost PV | $101,000 |
| | | | Estimated Total Cost FV | $124,000 |
| | | | Class V Low Range | $62,000 |
| | | | Class V High Range | $248,000 |
| **WWLS-06** | Lift Station Control Panel Replacement Phase I | 2032 | Assets PV | $79,000 |
| | | | Project Components | $20,000 |
| | | | Construction | $30,000 |
| | | | Contingency | $30,000 |
| | | | Engineering | $24,000 |
| | | | Estimated Total Cost PV | $183,000 |
| | | | Estimated Total Cost FV | $231,000 |
| | | | Class V Low Range | $116,000 |
| | | | Class V High Range | $463,000 |
| **WWLS-07** | Lift Station Control Panel Replacement Phase II | 2034 | Assets PV | $194,000 |
| | | | Project Components | $49,000 |
| | | | Construction | $73,000 |
| | | | Contingency | $73,000 |
| | | | Engineering | $58,000 |
| | | | Estimated Total Cost PV | $447,000 |
| | | | Estimated Total Cost FV | $600,000 |
| | | | Class V Low Range | $300,000 |
| | | | Class V High Range | $1,200,000 |
| **WWLS-08** | Lift Station Lighting Replacement | 2026 | Assets PV | $41,000 |
| | | | Project Components | $10,000 |
| | | | Construction | $15,000 |
| | | | Contingency | $15,000 |
| | | | Engineering | $12,000 |
| | | | Estimated Total Cost PV | $93,000 |
| | | | Estimated Total Cost FV | $99,000 |
| | | | Class V Low Range | $49,000 |
| | | | Class V High Range | $198,000 |

| Proposed Lift Station Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **WWLS-09** | Winchester Road LS Conversion | 2034 | Assets PV | $171,000 |
| | | | Project Components | $43,000 |
| | | | Construction | $64,000 |
| | | | Contingency | $64,000 |
| | | | Engineering | $51,000 |
| | | | Estimated Total Cost PV | $393,000 |
| | | | Estimated Total Cost FV | $528,000 |
| | | | Class V Low Range | $264,000 |
| | | | Class V High Range | $1,055,000 |
| **WWLS-MISC** | Lift Station Misc Replacements | Misc. | Assets PV | $845,000 |
| | | | Project Components | $211,000 |
| | | | Construction | $317,000 |
| | | | Contingency | $317,000 |
| | | | Engineering | $253,000 |
| | | | Estimated Total Cost PV | $1,943,000 |
| | | | Estimated Total Cost FV | $2,774,000 |
| | | | Class V Low Range | $1,387,000 |
| | | | Class V High Range | $5,549,000 |
| **WWLS-STR1** | LS Wet Well Rehab Phase I | 2027 | Assets PV | $294,000 |
| | | | Project Components | $73,000 |
| | | | Construction | $110,000 |
| | | | Contingency | $110,000 |
| | | | Engineering | $88,000 |
| | | | Estimated Total Cost PV | $676,000 |
| | | | Estimated Total Cost FV | $738,000 |
| | | | Class V Low Range | $369,000 |
| | | | Class V High Range | $1,477,000 |
| **WWLS-STR2** | LS Wet Well Rehab Phase II | 2029 | Assets PV | $248,000 |
| | | | Project Components | $62,000 |
| | | | Construction | $93,000 |
| | | | Contingency | $93,000 |
| | | | Engineering | $74,000 |
| | | | Estimated Total Cost PV | $571,000 |
| | | | Estimated Total Cost FV | $662,000 |
| | | | Class V Low Range | $331,000 |
| | | | Class V High Range | $1,323,000 |

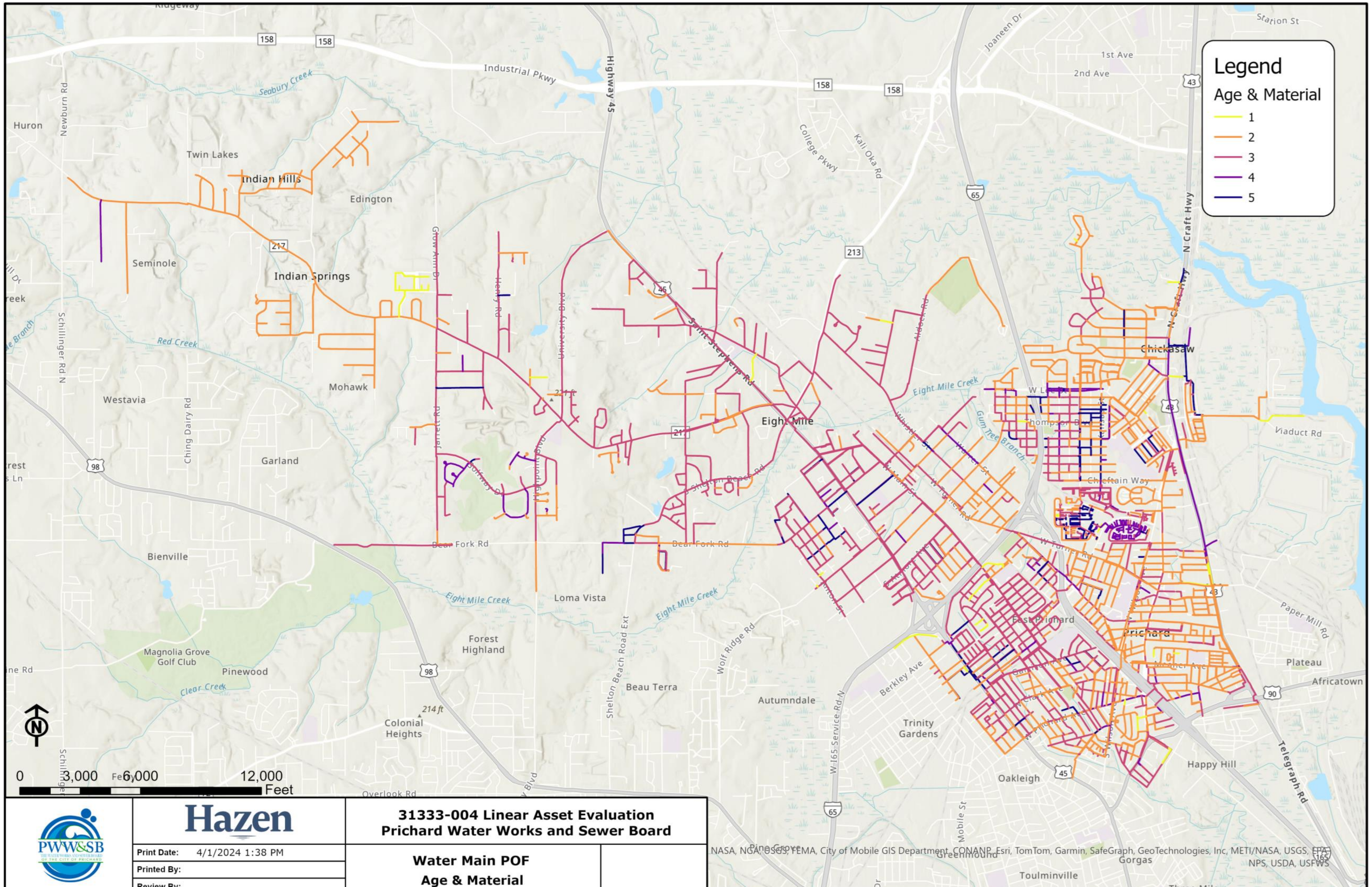
| Proposed Lift Station Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **WWLS-STR3** | LS Wet Well Rehab Phase III | 2031 | Assets PV | $292,000 |
| | | | Project Components | $73,000 |
| | | | Construction | $109,000 |
| | | | Contingency | $109,000 |
| | | | Engineering | $88,000 |
| | | | Estimated Total Cost PV | $672,000 |
| | | | Estimated Total Cost FV | $826,000 |
| | | | Class V Low Range | $413,000 |
| | | | Class V High Range | $1,652,000 |

**Table B-2-5. Proposed Water Storage Tank Project Breakdown**

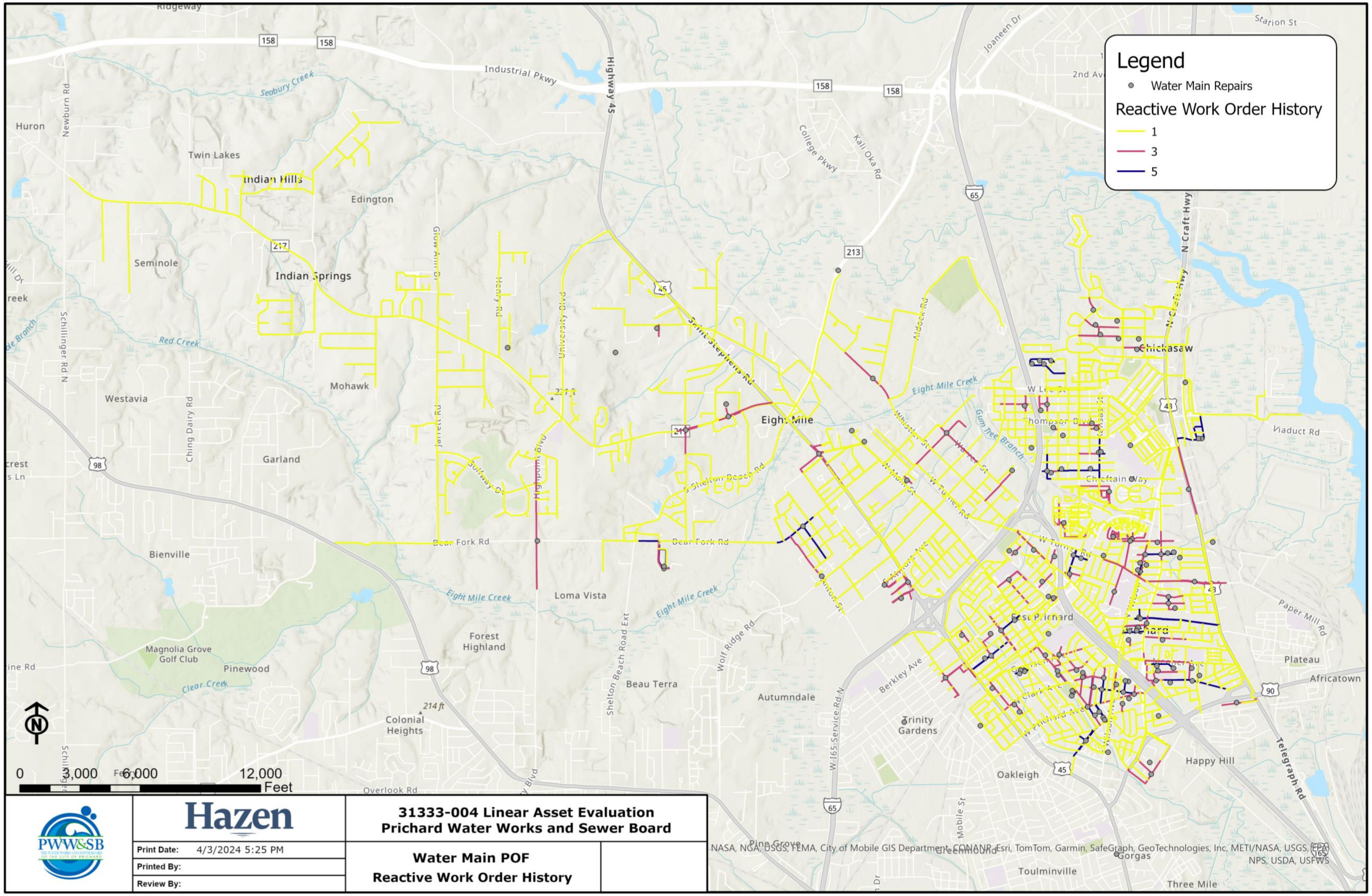
| Proposed WST Project ID | Project Name | Project Start Year | Cost Type | Value |
|---|---|---|---|---|
| **WST-MISC** | Water Storage Misc Replacements | Misc. | Assets PV | $33,000 |
| | | | Project Components | $8,000 |
| | | | Construction | $12,000 |
| | | | Contingency | $12,000 |
| | | | Engineering | $10,000 |
| | | | Estimated Total Cost PV | $75,000 |
| | | | Estimated Total Cost FV | $112,000 |
| | | | Class V Low Range | $56,000 |
| | | | Class V High Range | $224,000 |

# Appendix C: Linear Asset Evaluation

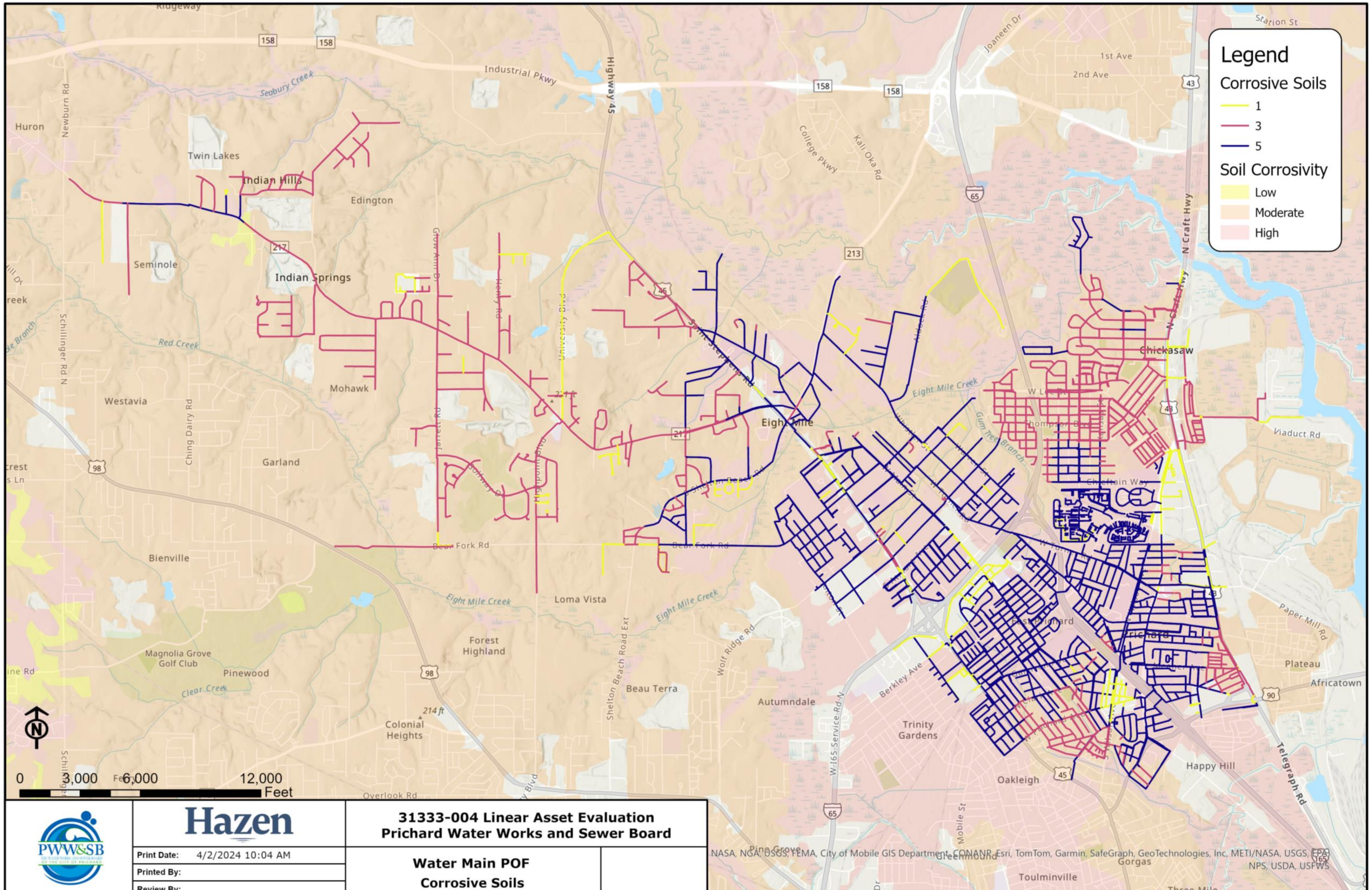
## C-1. Water Distribution Risk Results



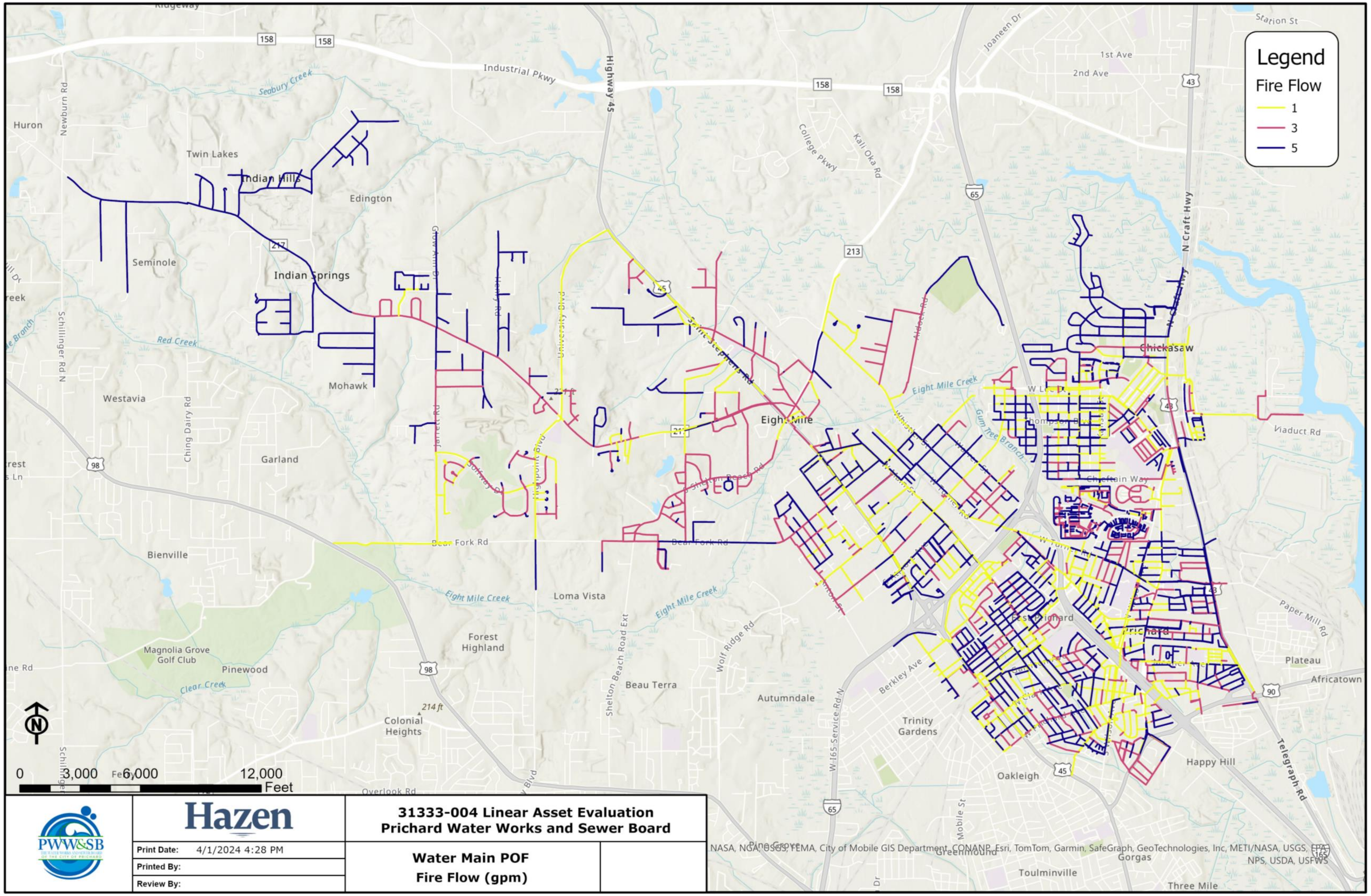

C-1-1. Water Distribution POF Scoring – Age & Material



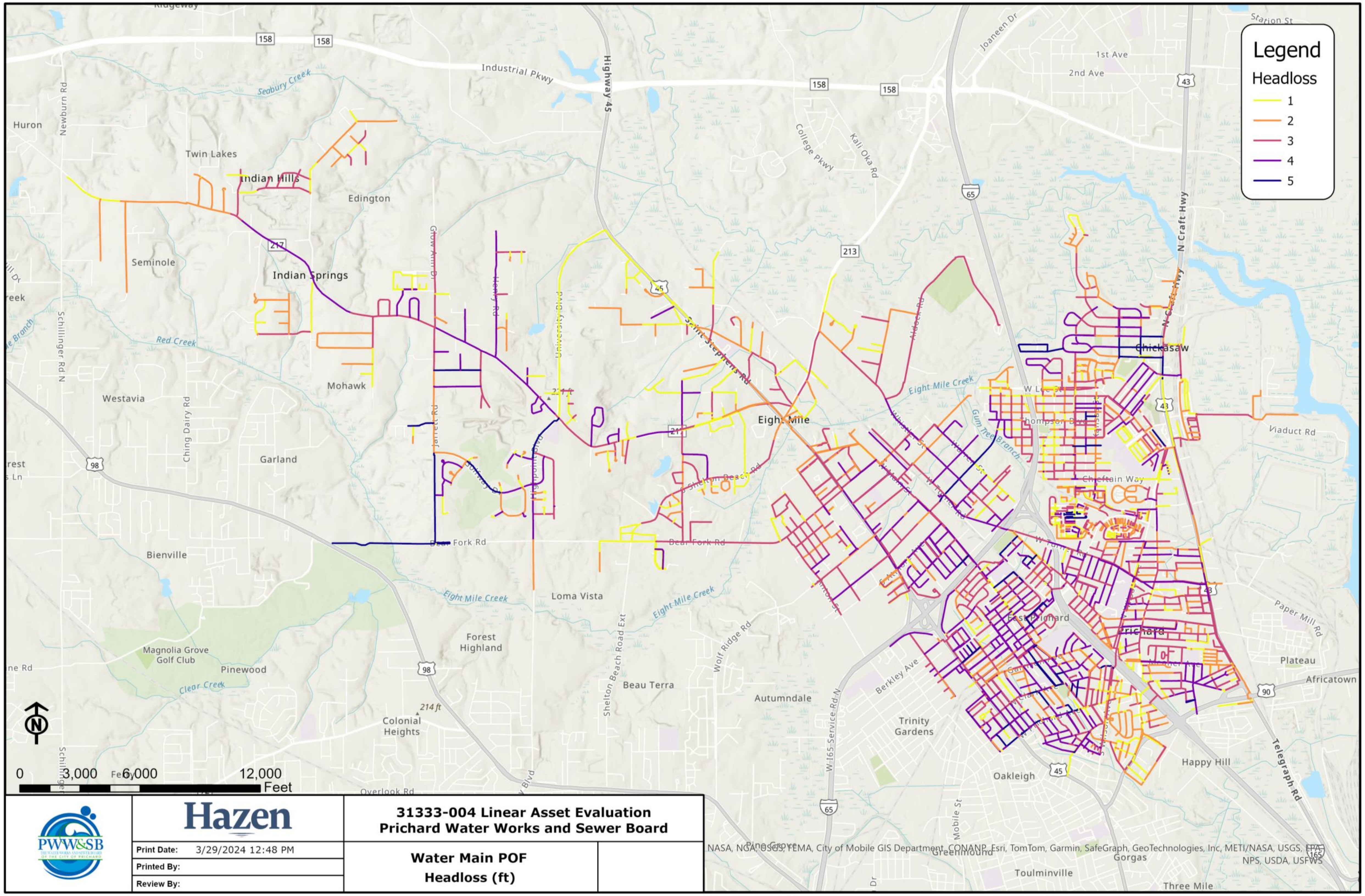

C-1-2. Water Distribution POF Scoring – Reactive Work Order History



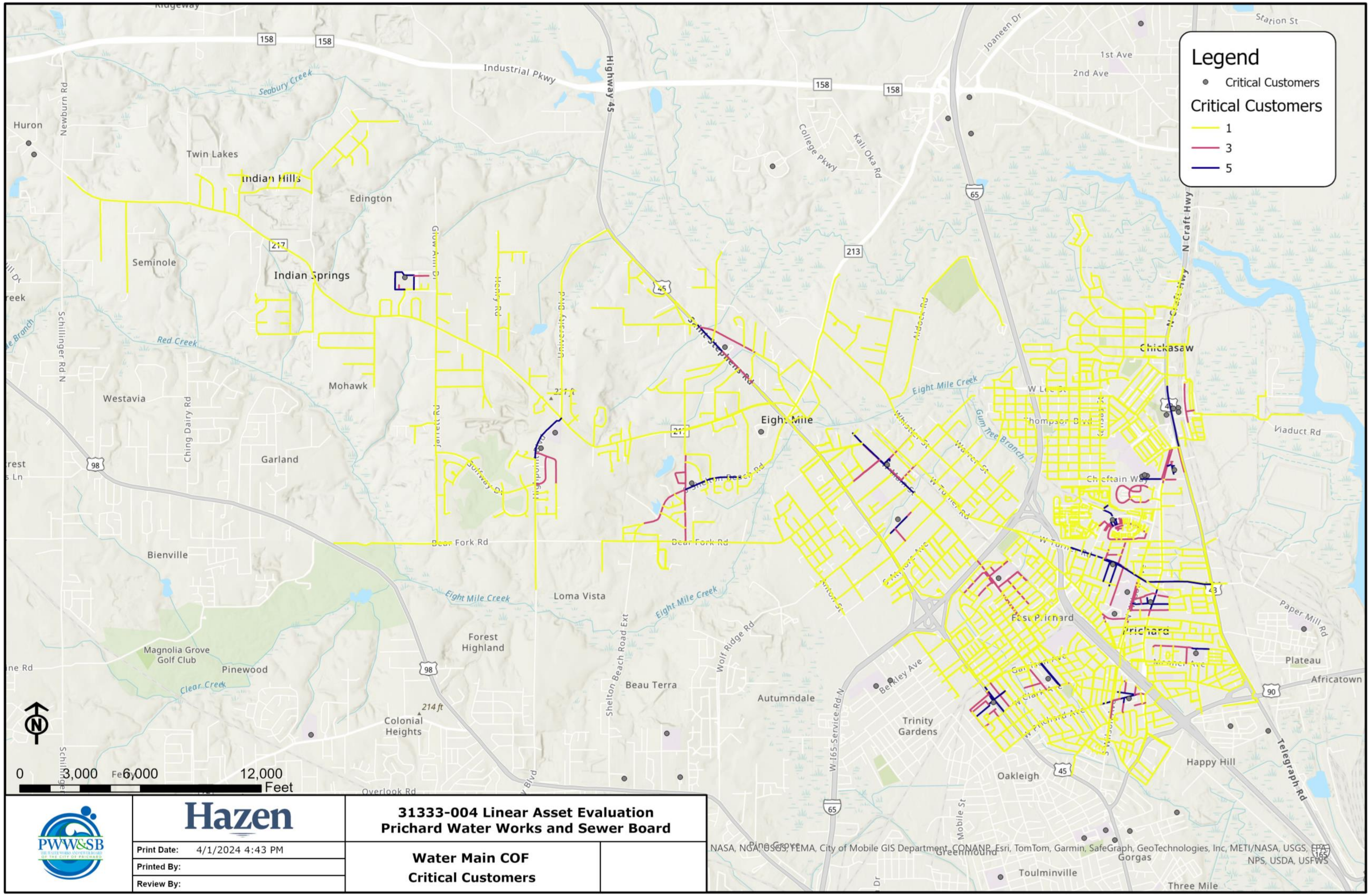

C-1-3. Water Distribution POF Scoring – Corrosive Soils



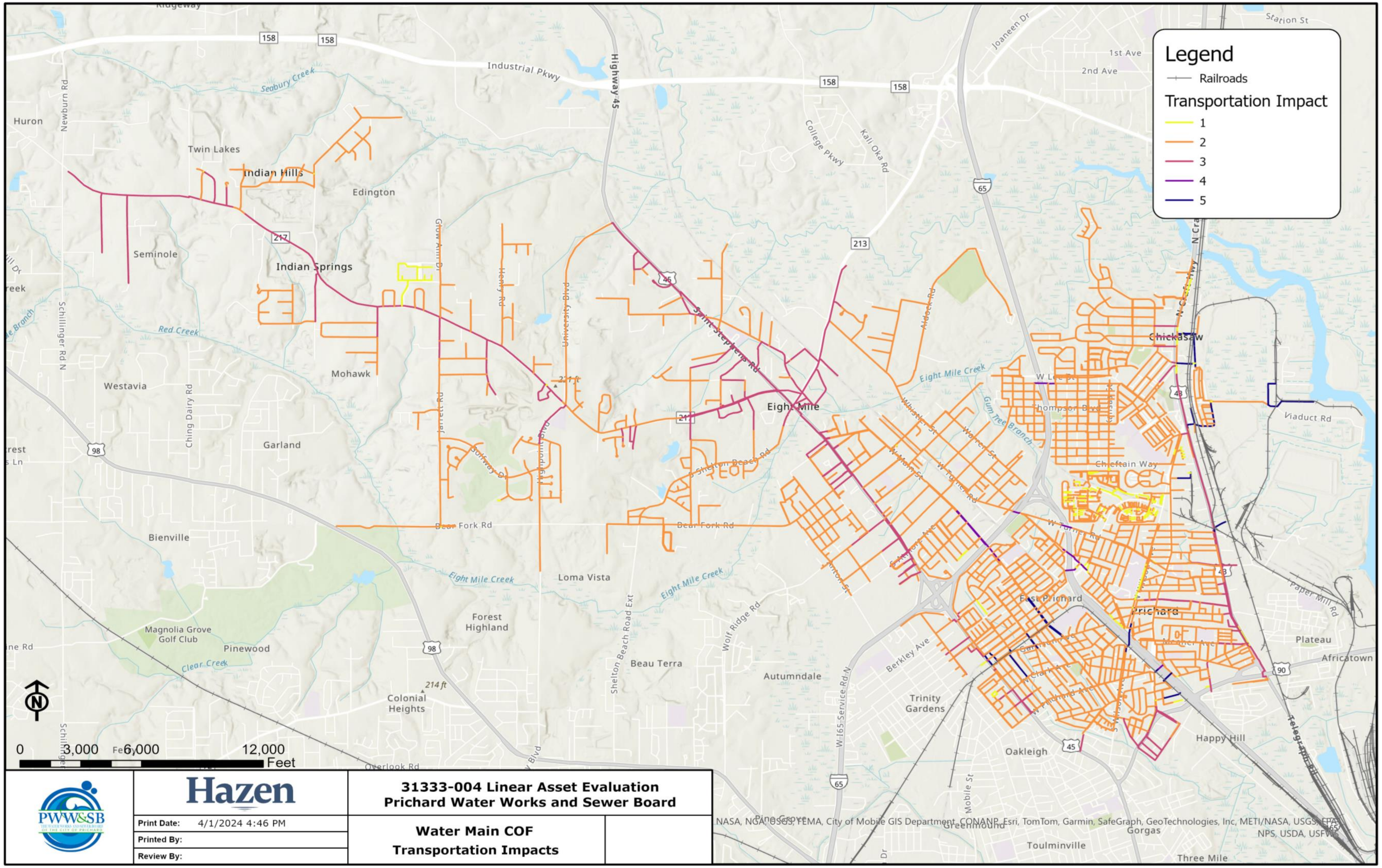

C-1-4. Water Distribution POF Scoring – Fire Flow (gpm)



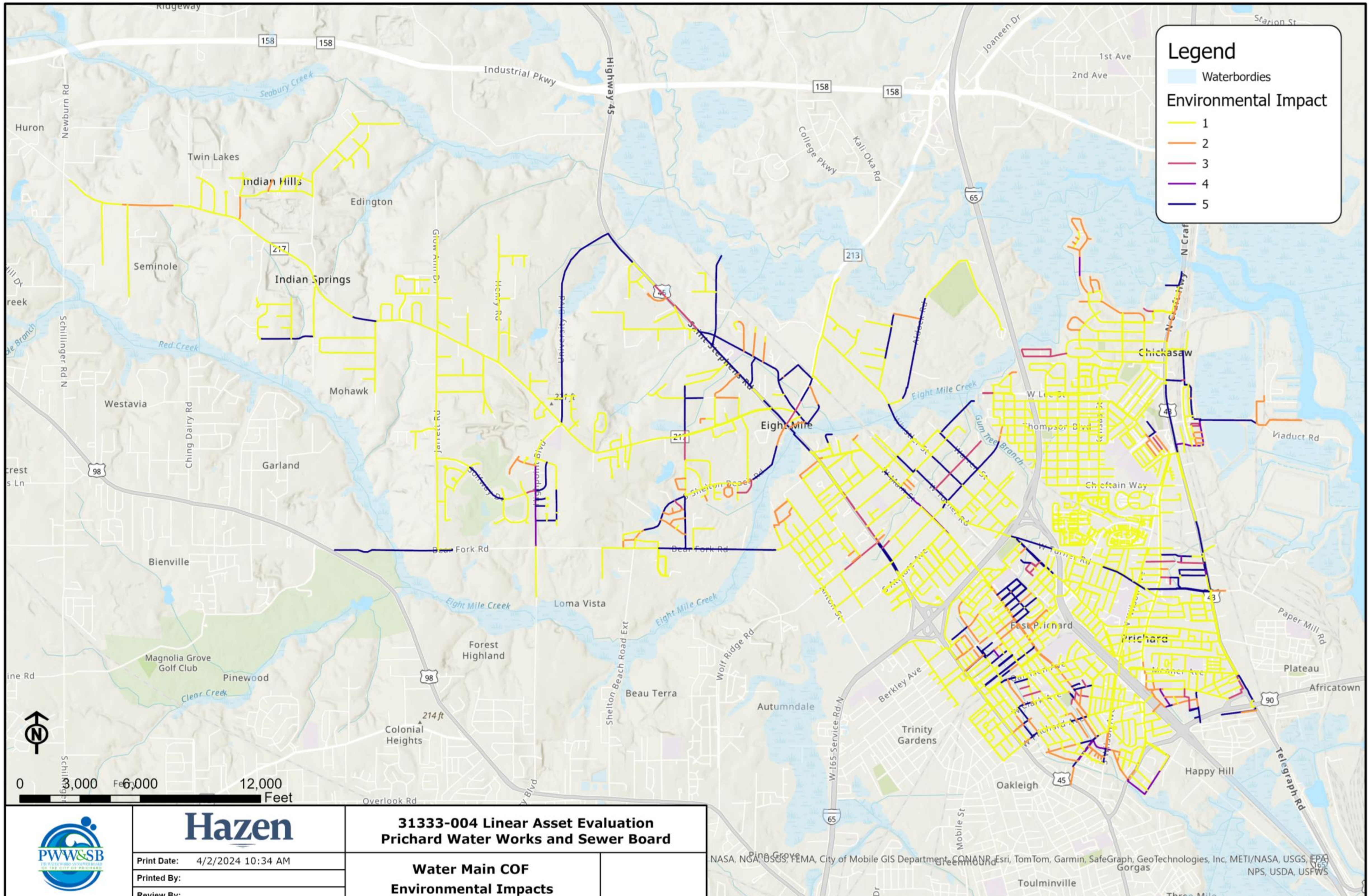

**C-1-5. Water Distribution POF Scoring – Headloss (ft)**



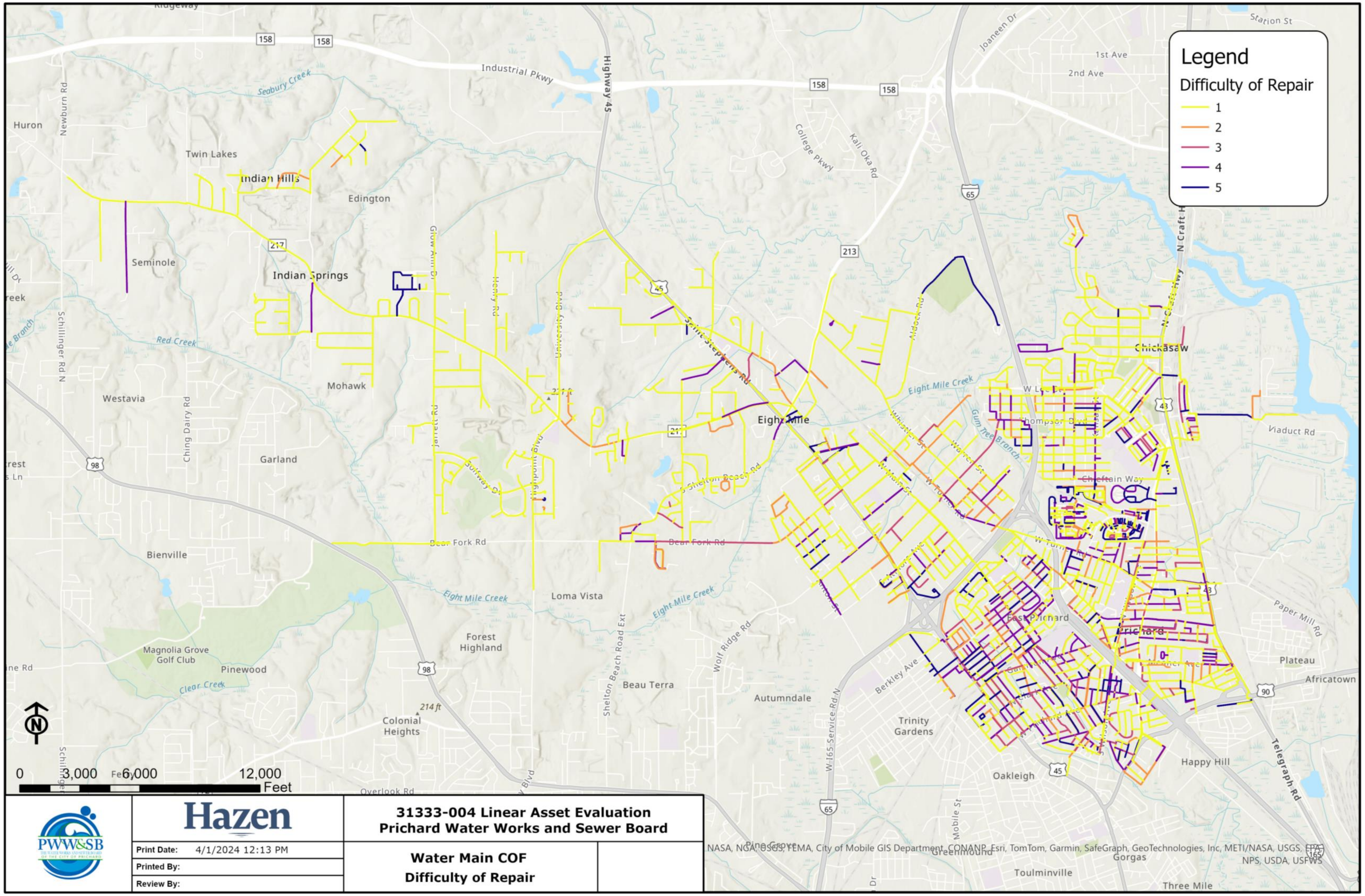

C-1-6. Water Distribution COF Scoring – Critical Customers



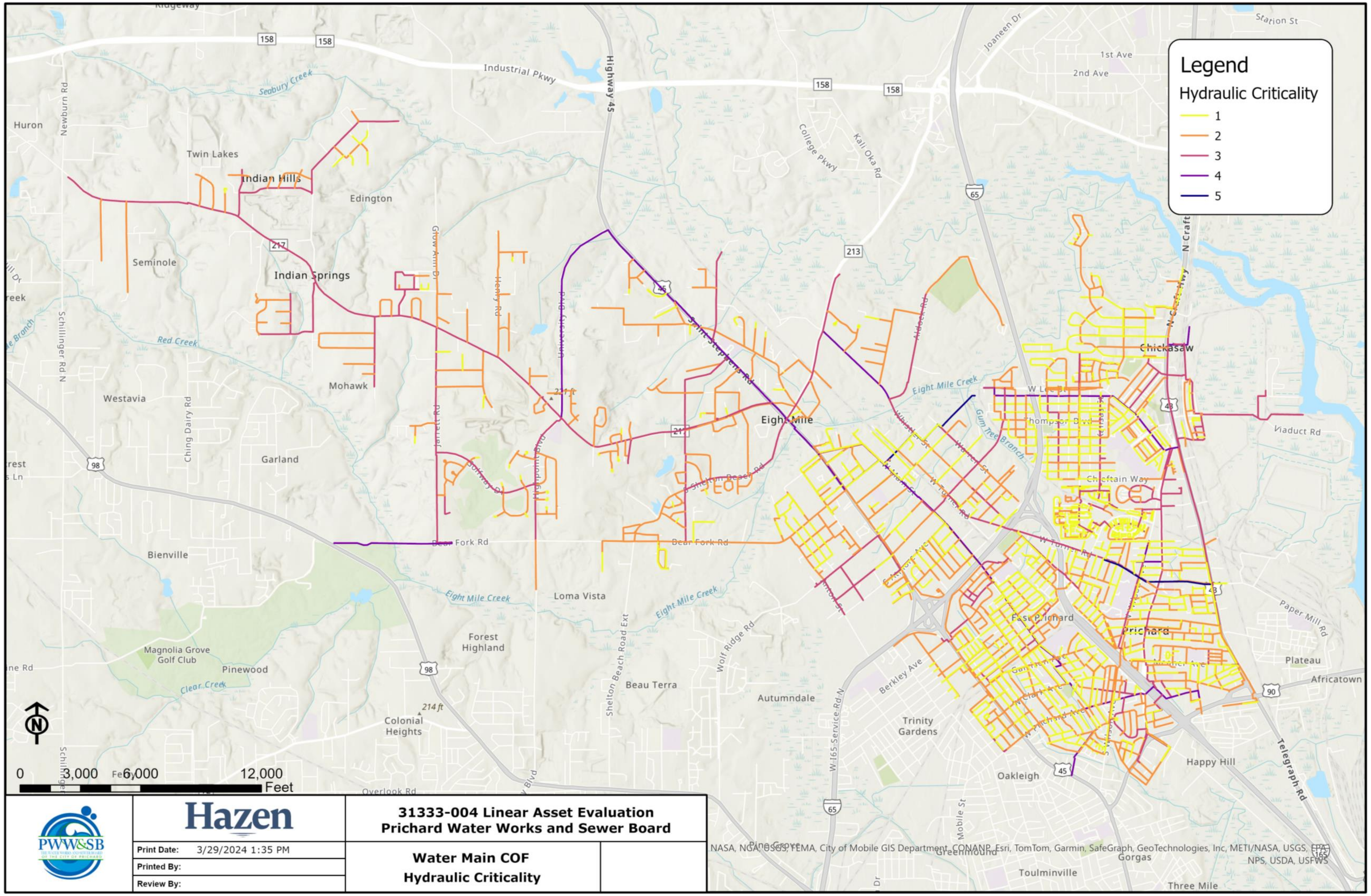

C-1-7. Water Distribution COF Scoring – Transportation Impacts




C-1-8. Water Distribution COF Scoring – Environmental Impacts

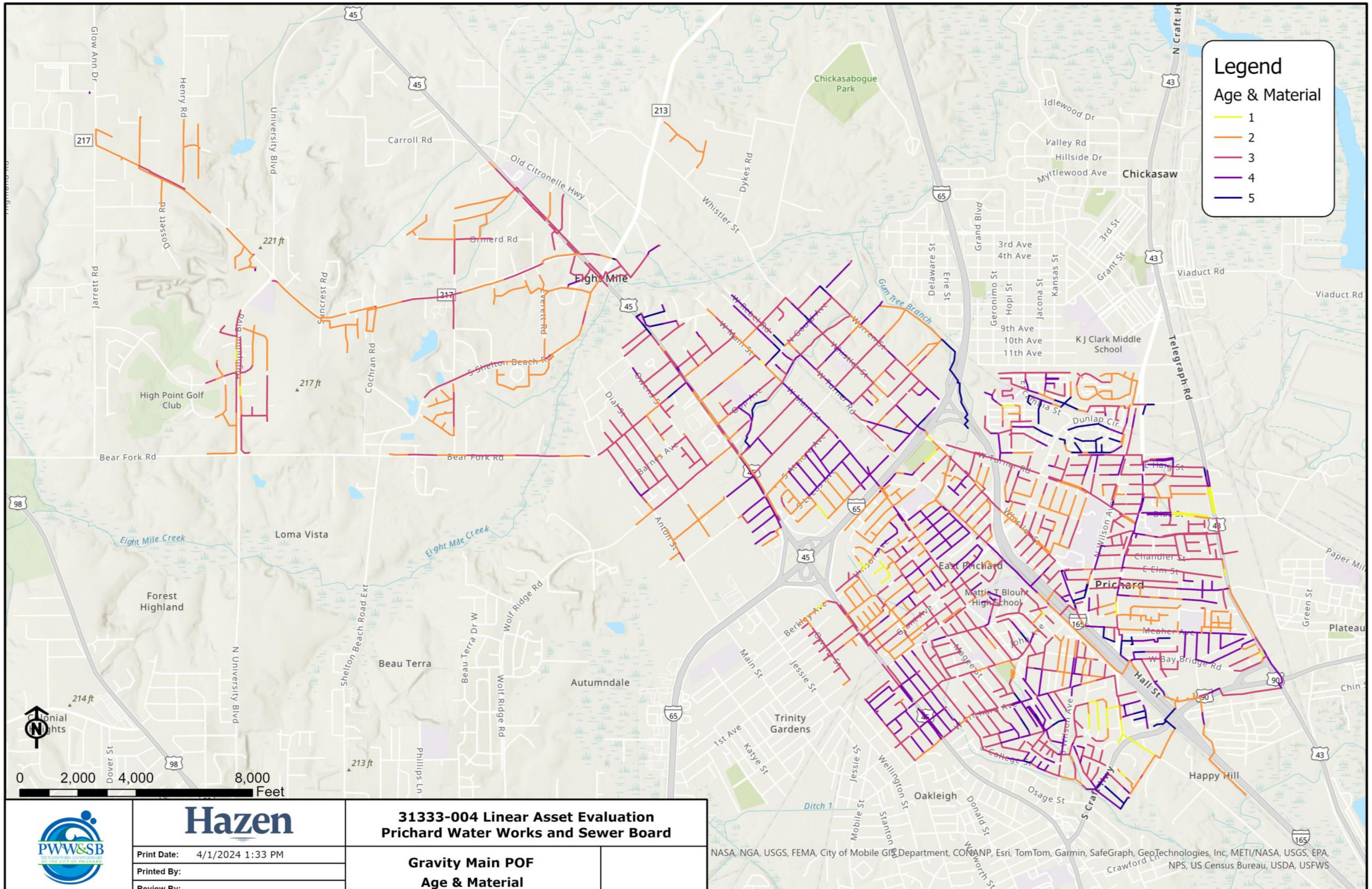



**C-1-9. Water Distribution COF Scoring – Difficulty of Repair**

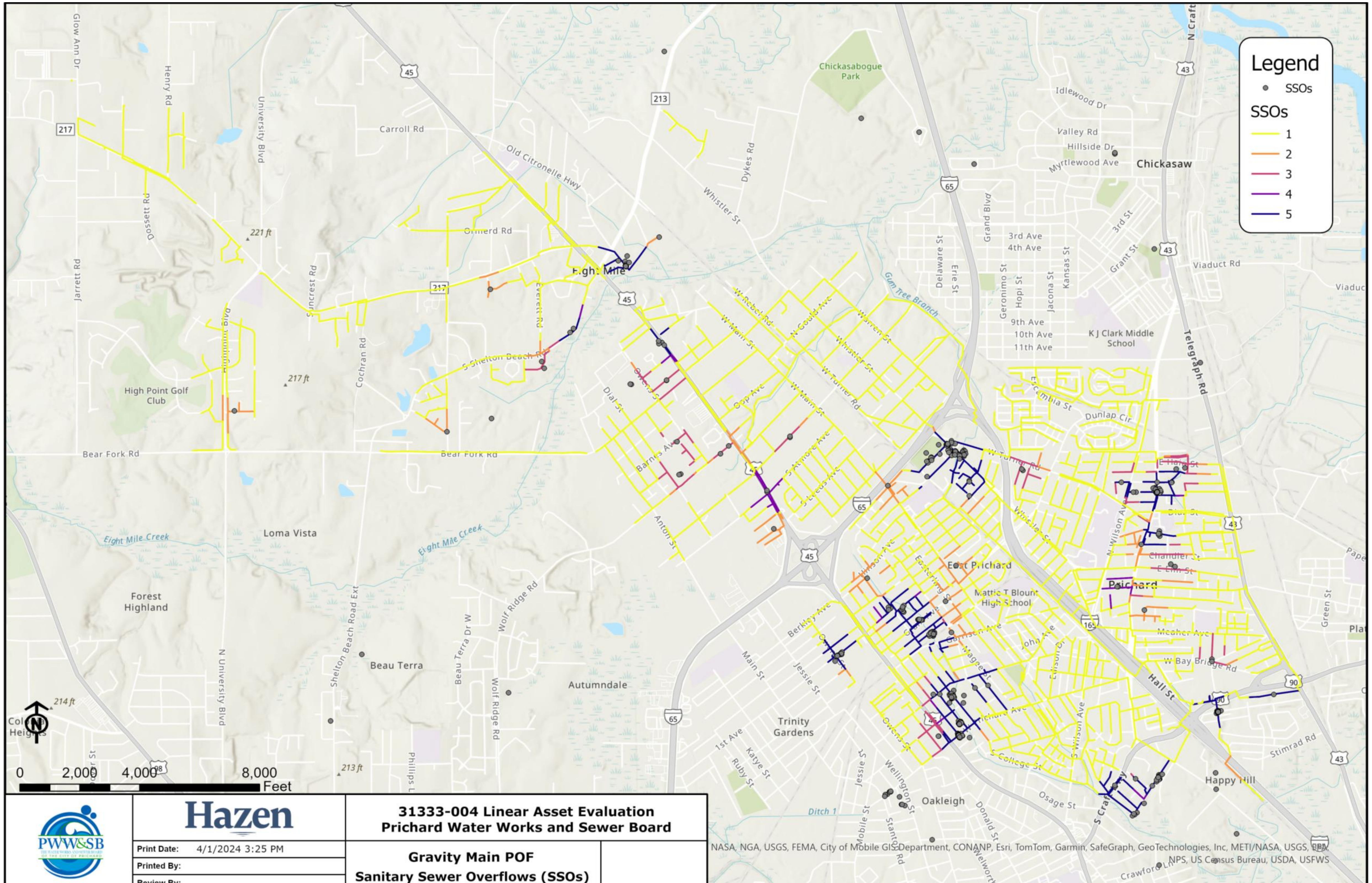



**C-1-10. Water Distribution COF Scoring – Hydraulic Criticality**

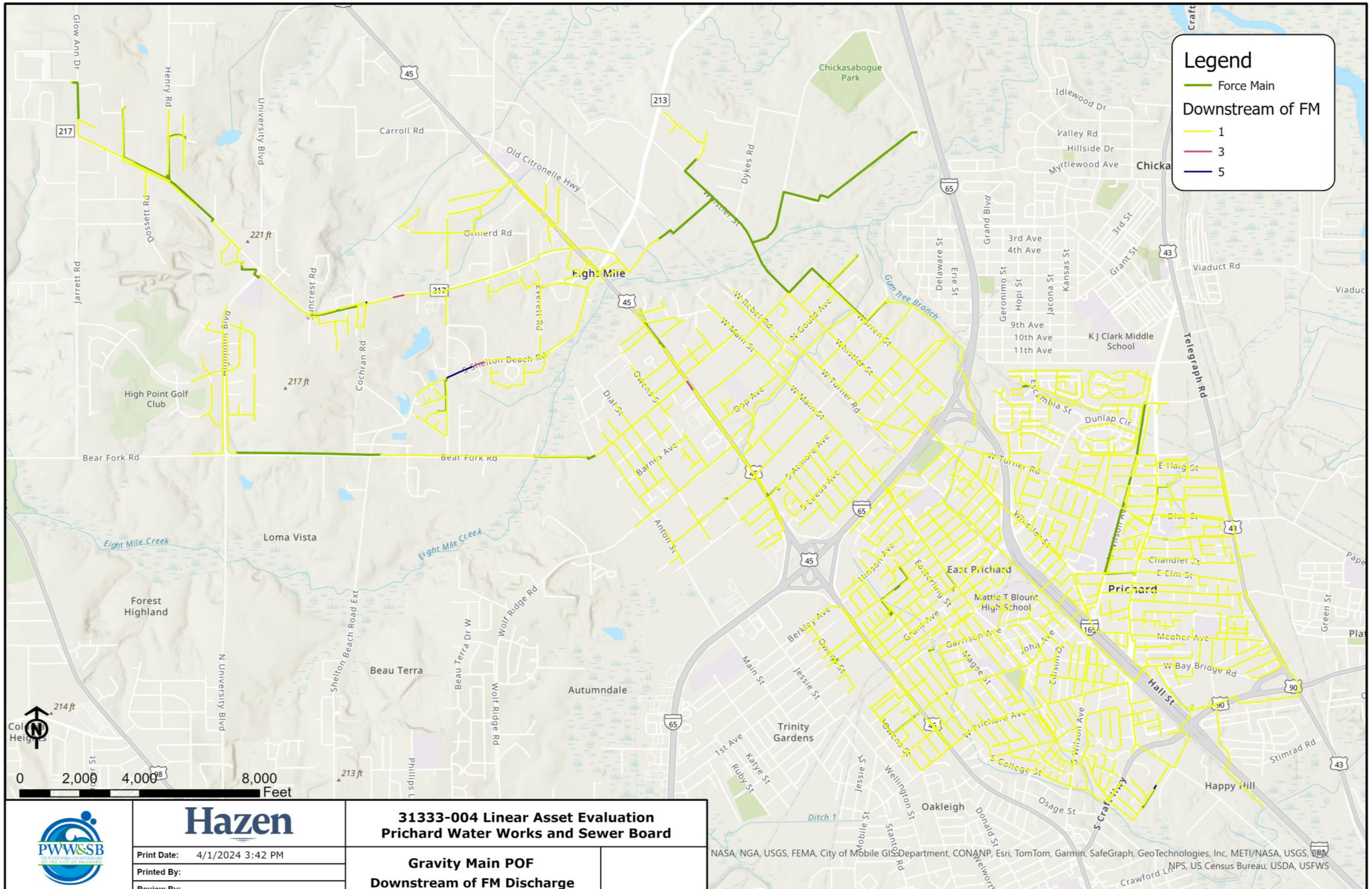
## C-2. Sanitary Sewer Gravity Main Risk Results



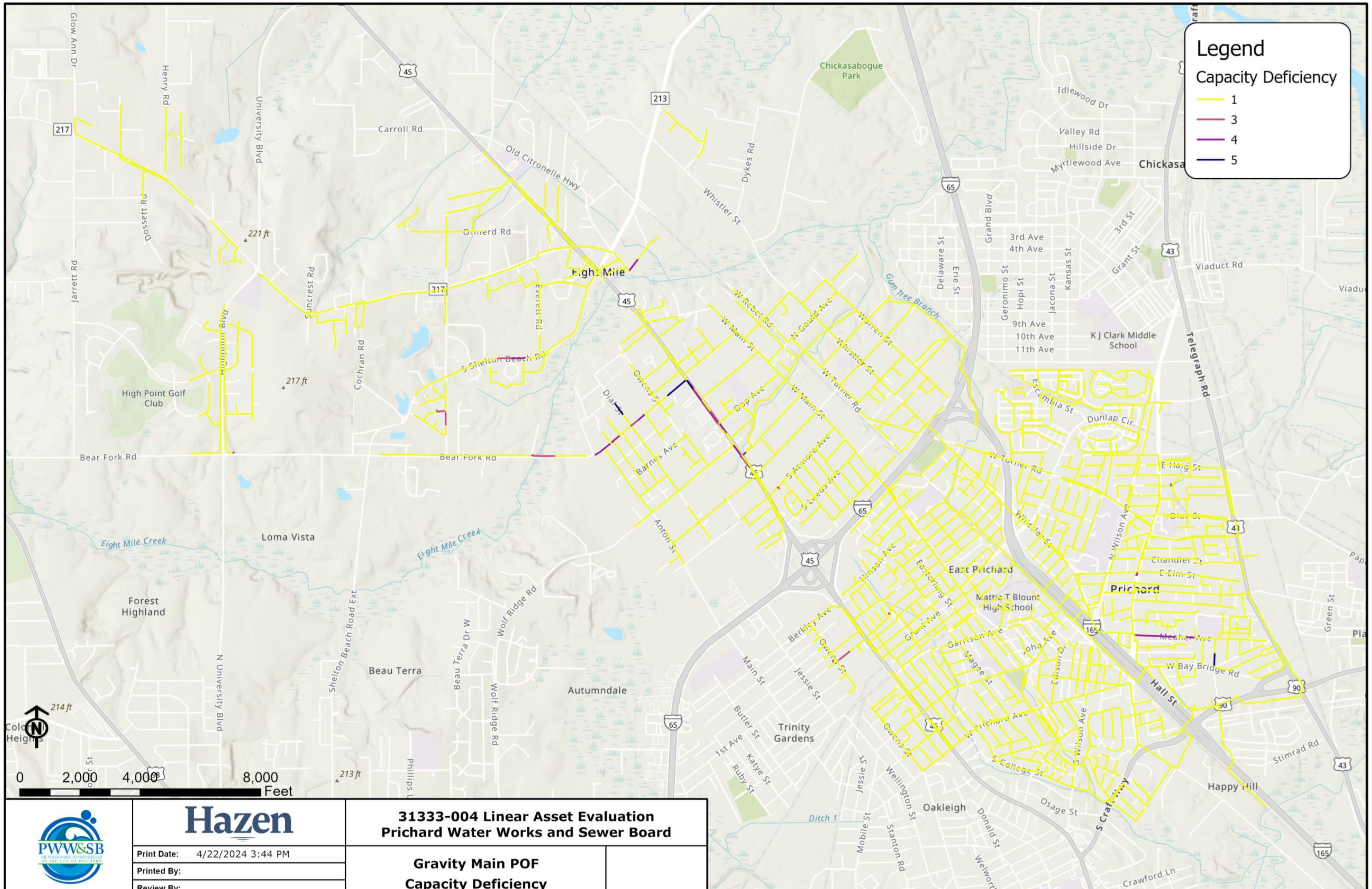

**C-2-1. Sanitary Sewer Gravity Main POF Scoring – Age & Material**



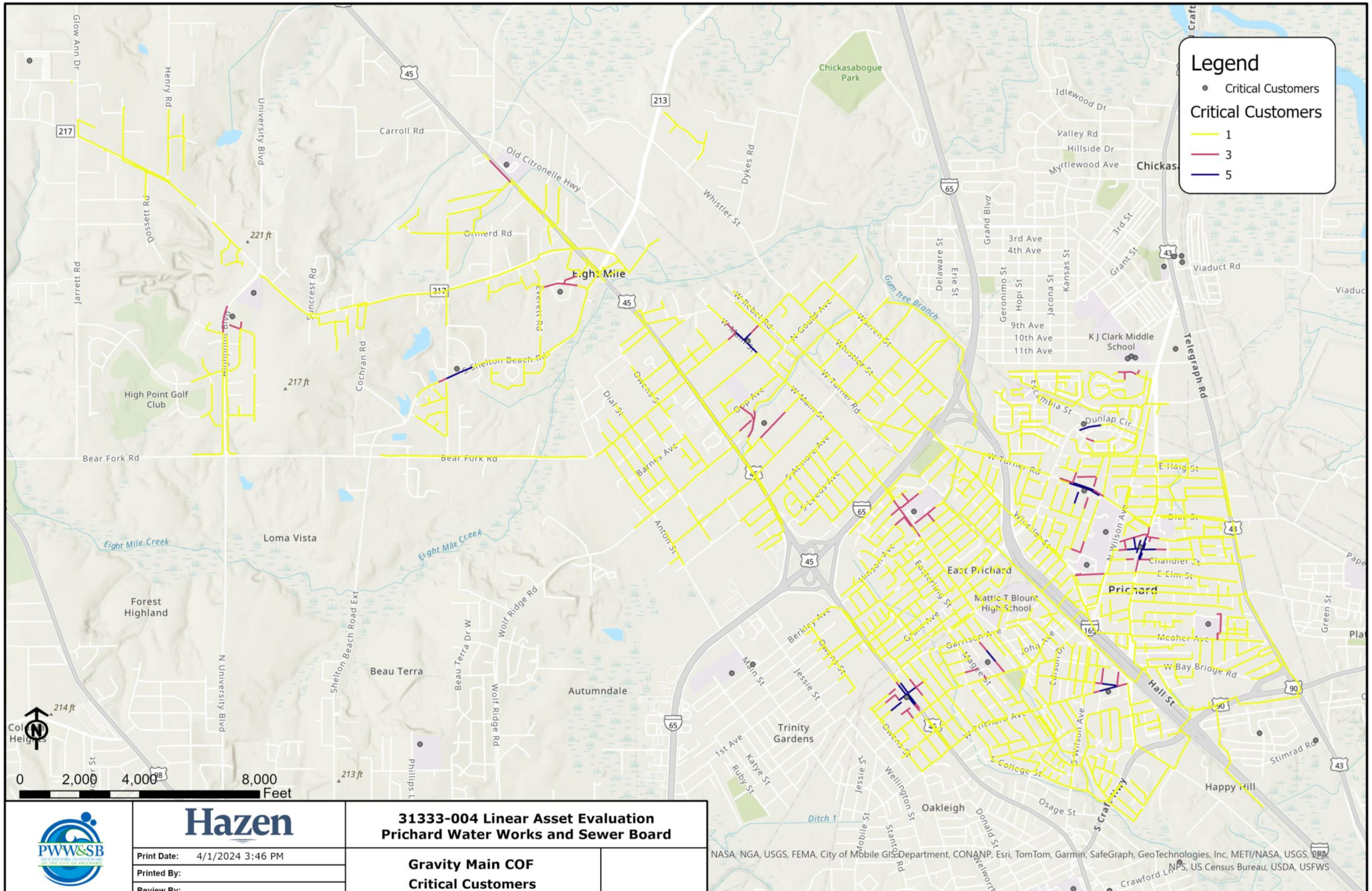

**C-2-2. Sanitary Sewer Gravity Main POF Scoring – Sanitary Sewer Overflows (SSOs)**



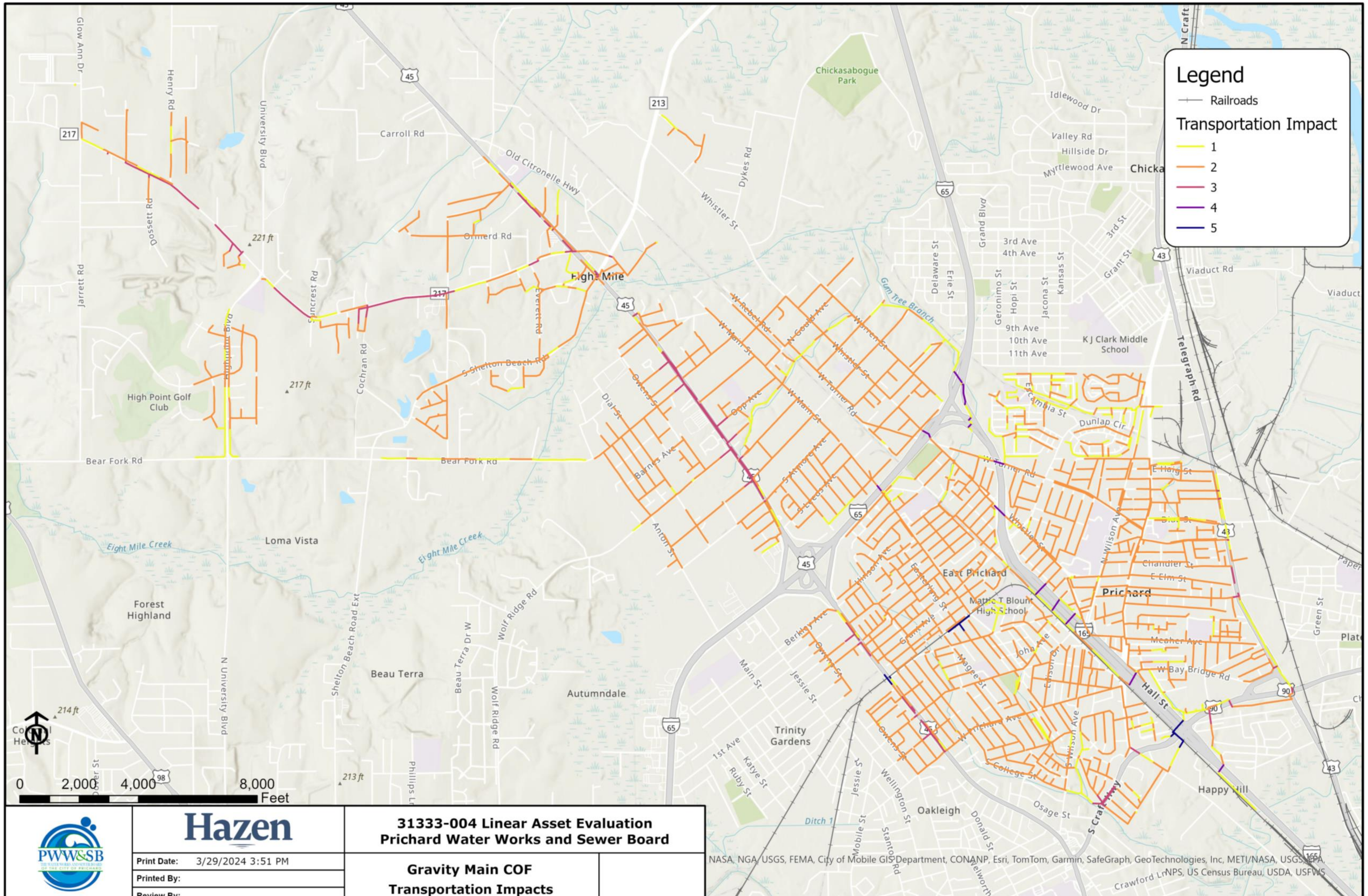

C-2-3. Sanitary Sewer Gravity Main POF Scoring – Downstream of FM Discharge



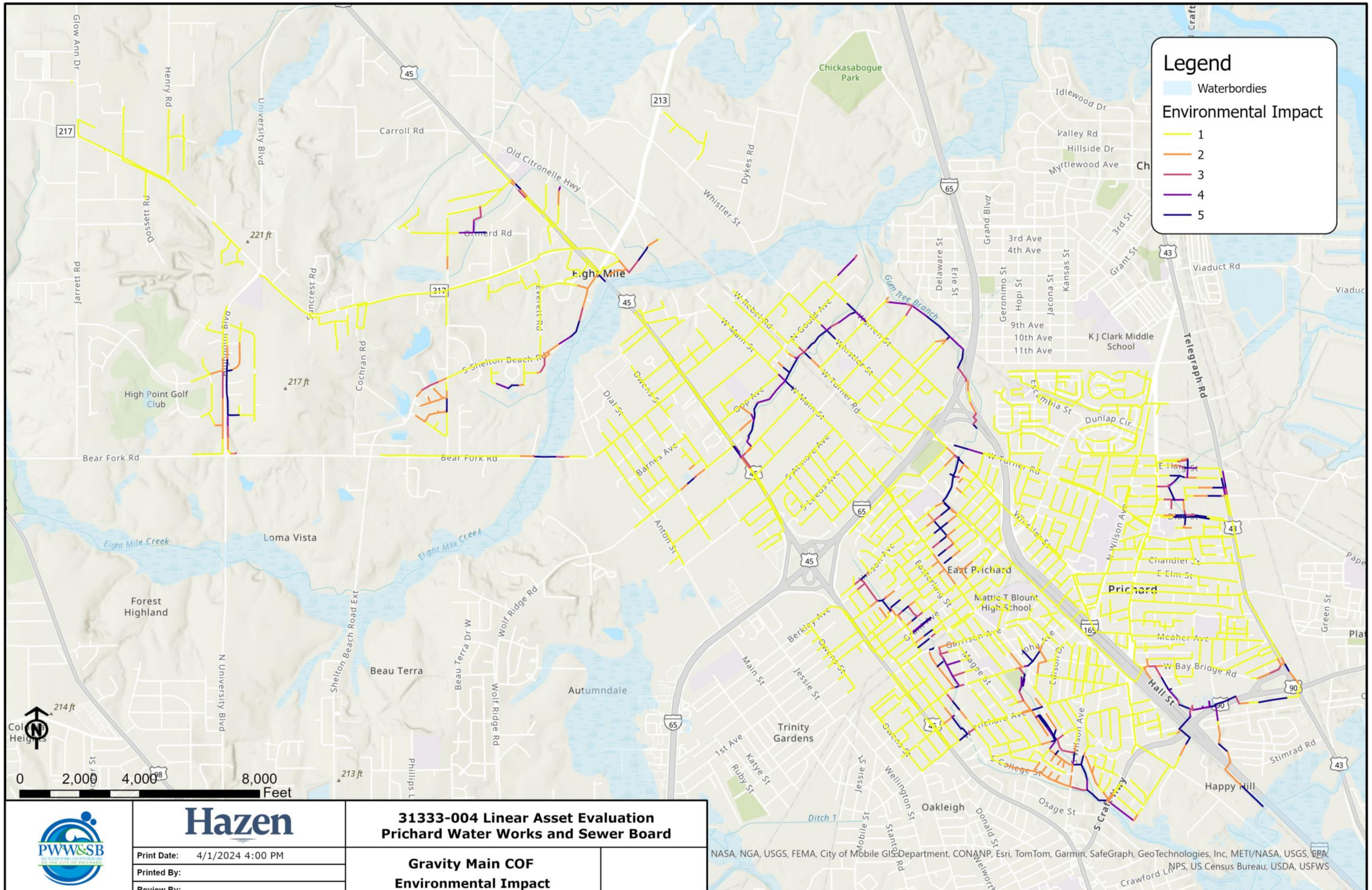

C-2-4. Sanitary Sewer Gravity Main POF Scoring – Capacity Deficiency



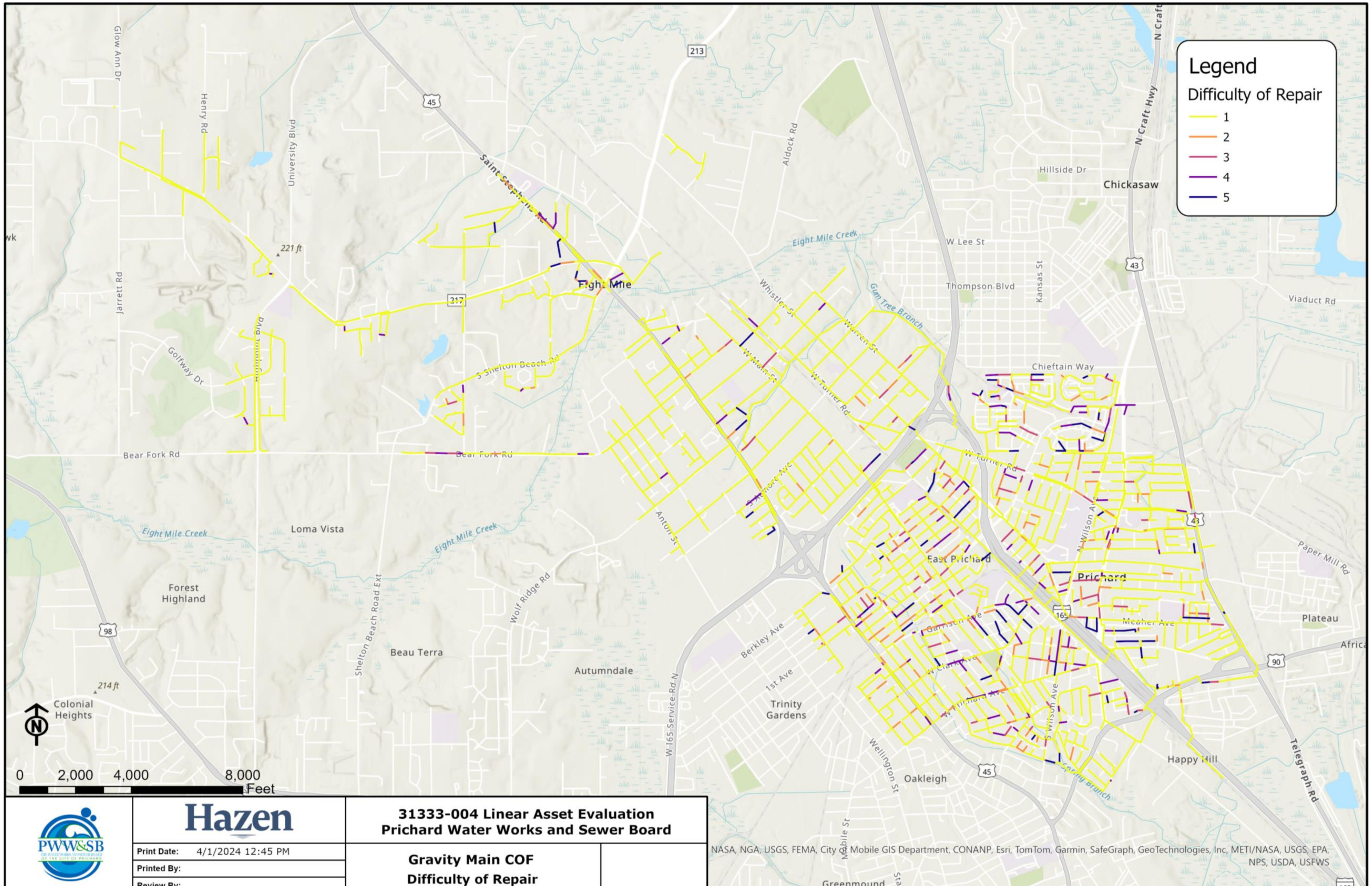

C-2-5. Sanitary Sewer Gravity Main COF Scoring – Critical Customers



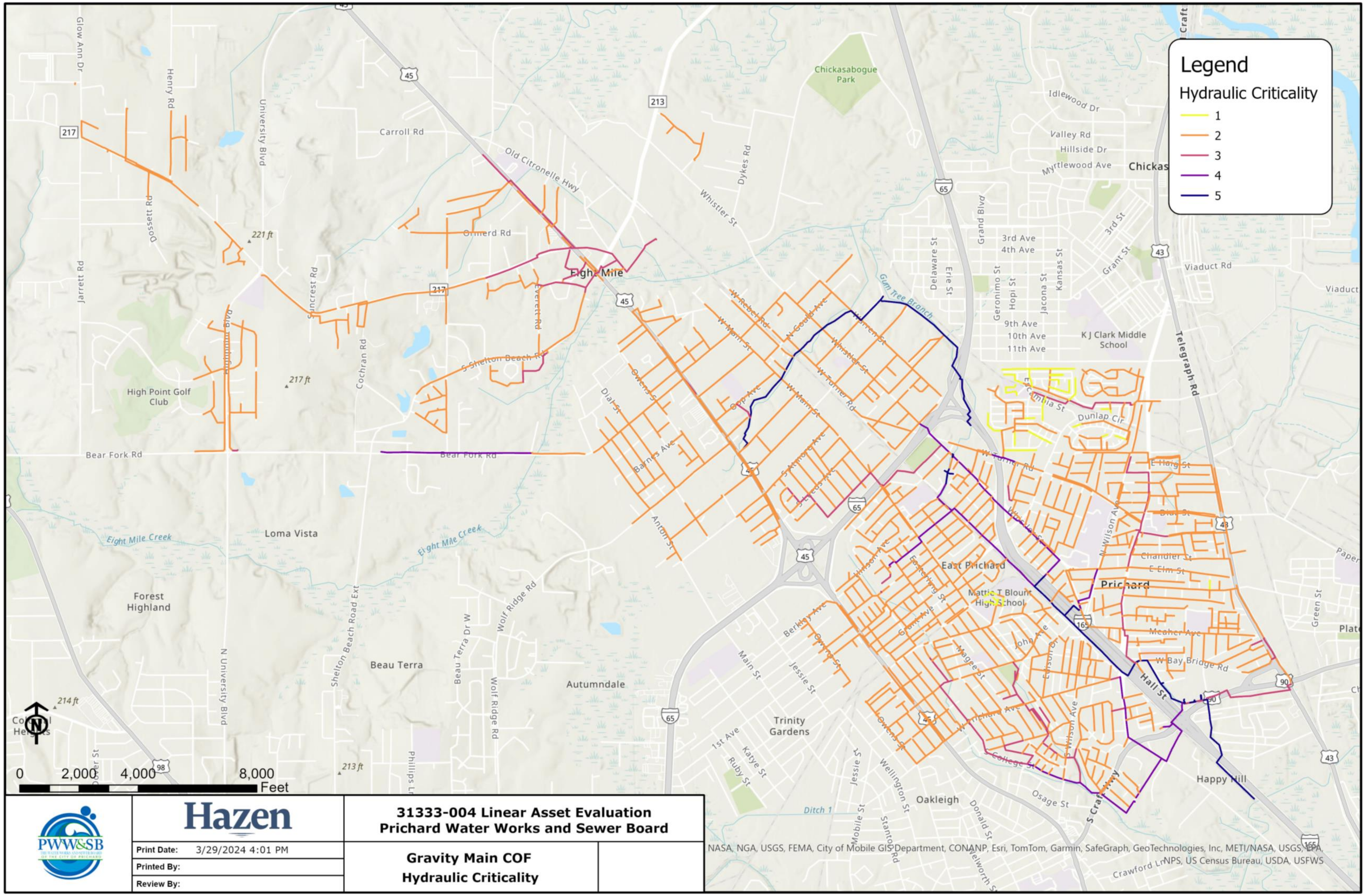

**C-2-6. Sanitary Sewer Gravity Main COF Scoring – Transportation Impacts**




**C-2-7. Sanitary Sewer Gravity Main COF Scoring – Environmental Impacts**

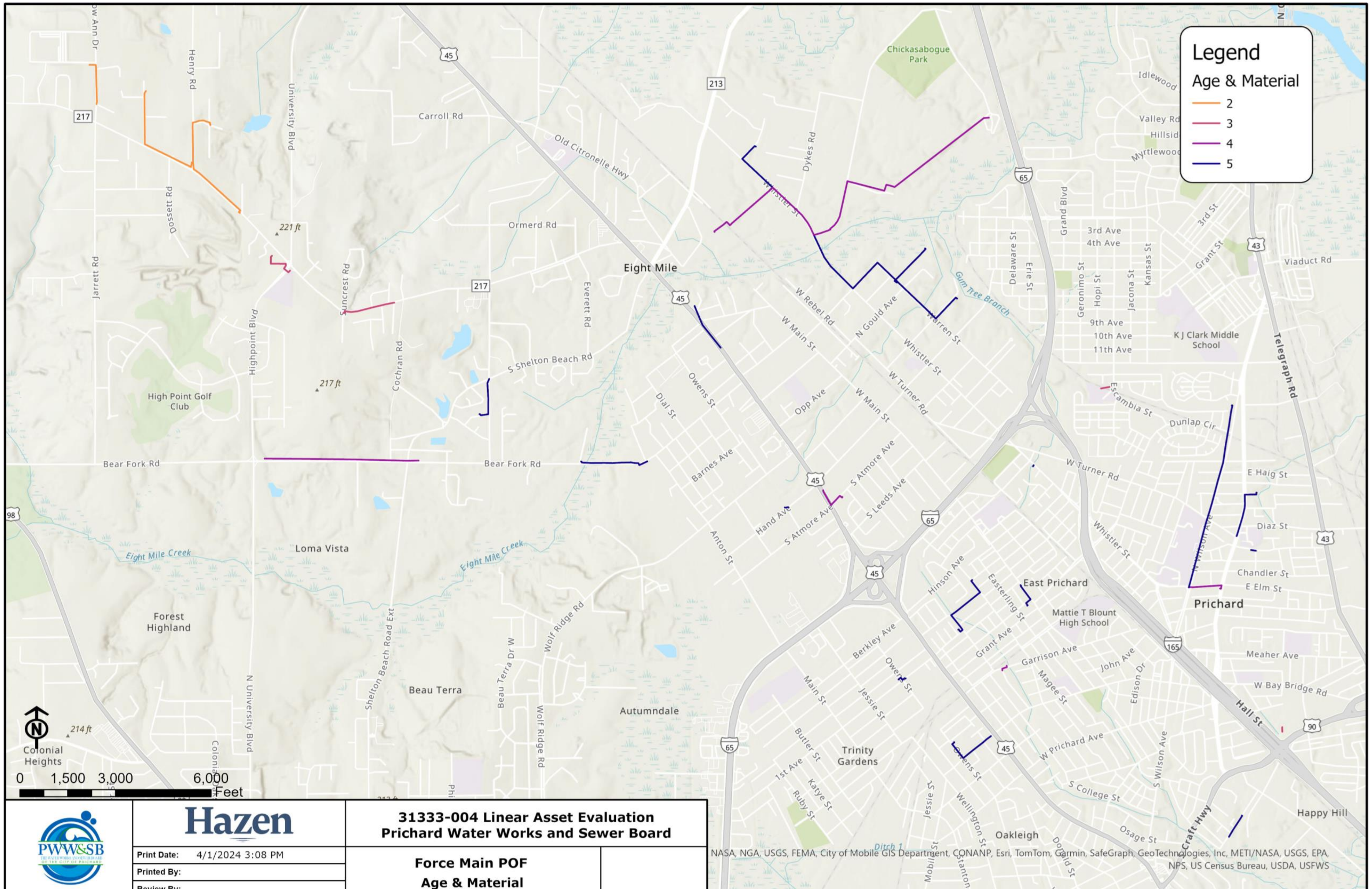



C-2-8. Sanitary Sewer Gravity Main COF Scoring – Difficulty of Repair

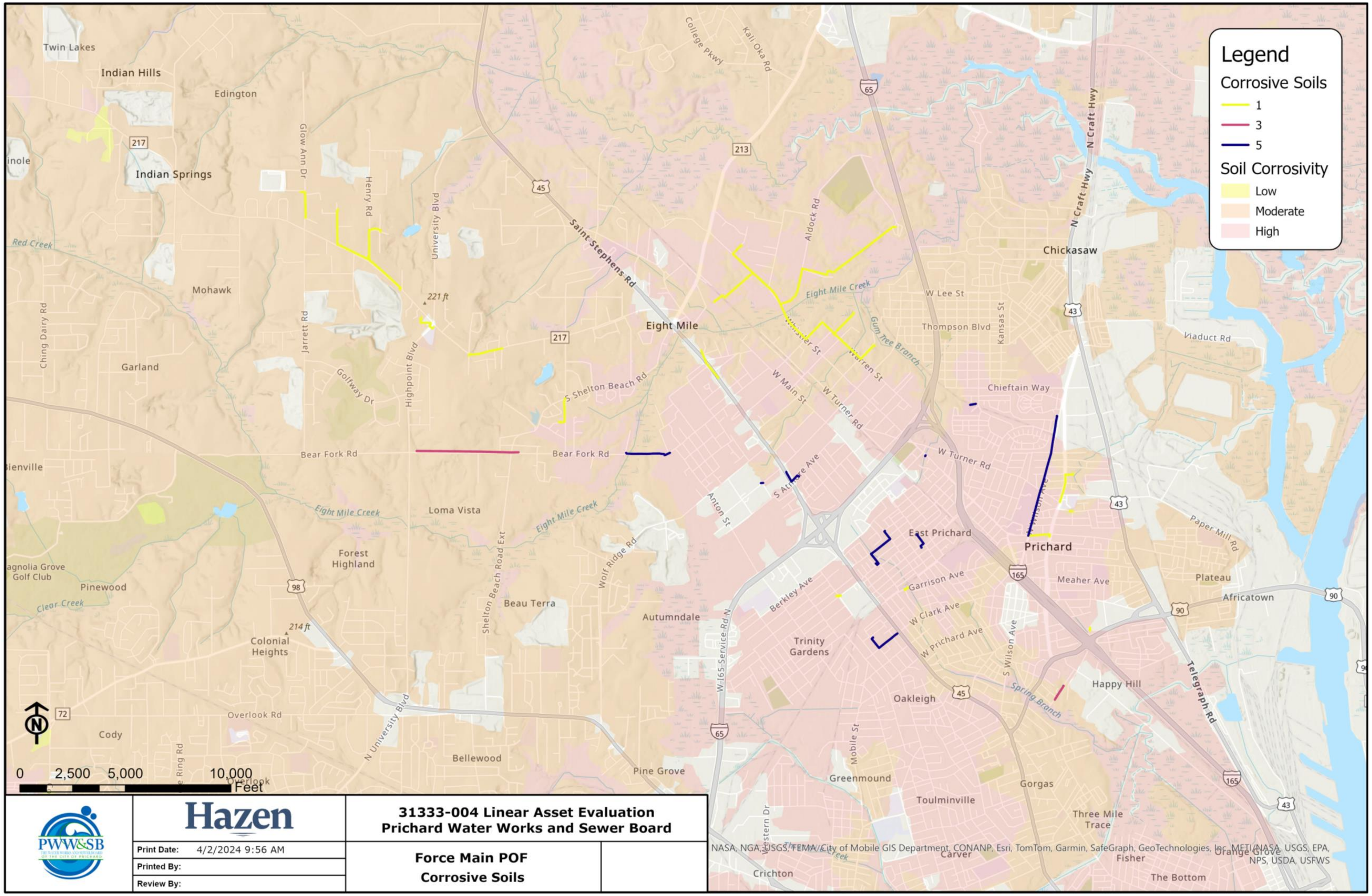



**C-2-9. Sanitary Sewer Gravity Main COF Scoring – Hydraulic Repair**

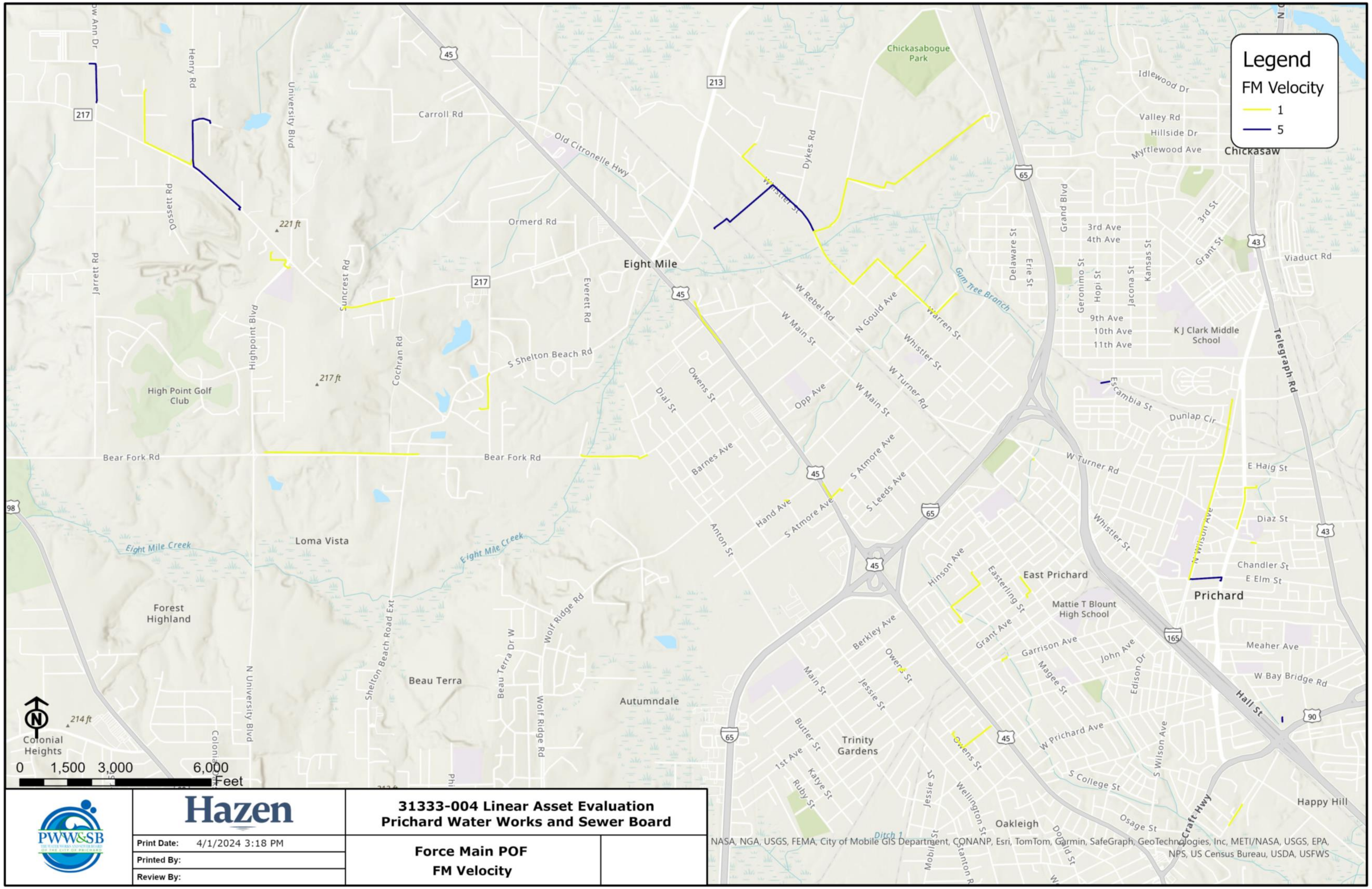
## C-3. Sanitary Sewer Force Main Risk Results



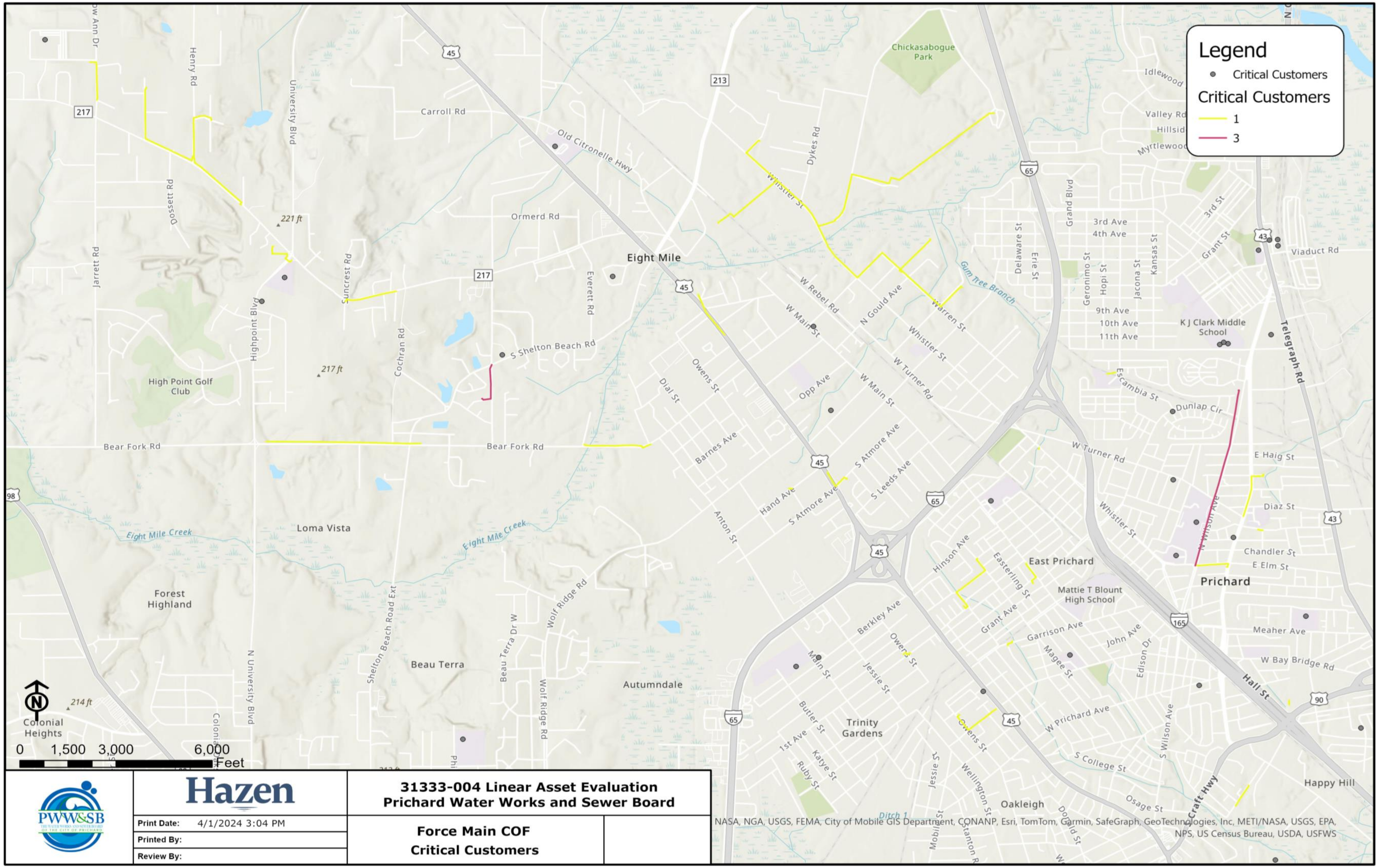

C-3-1. Sanitary Sewer Force Main POF Scoring – Age & Material



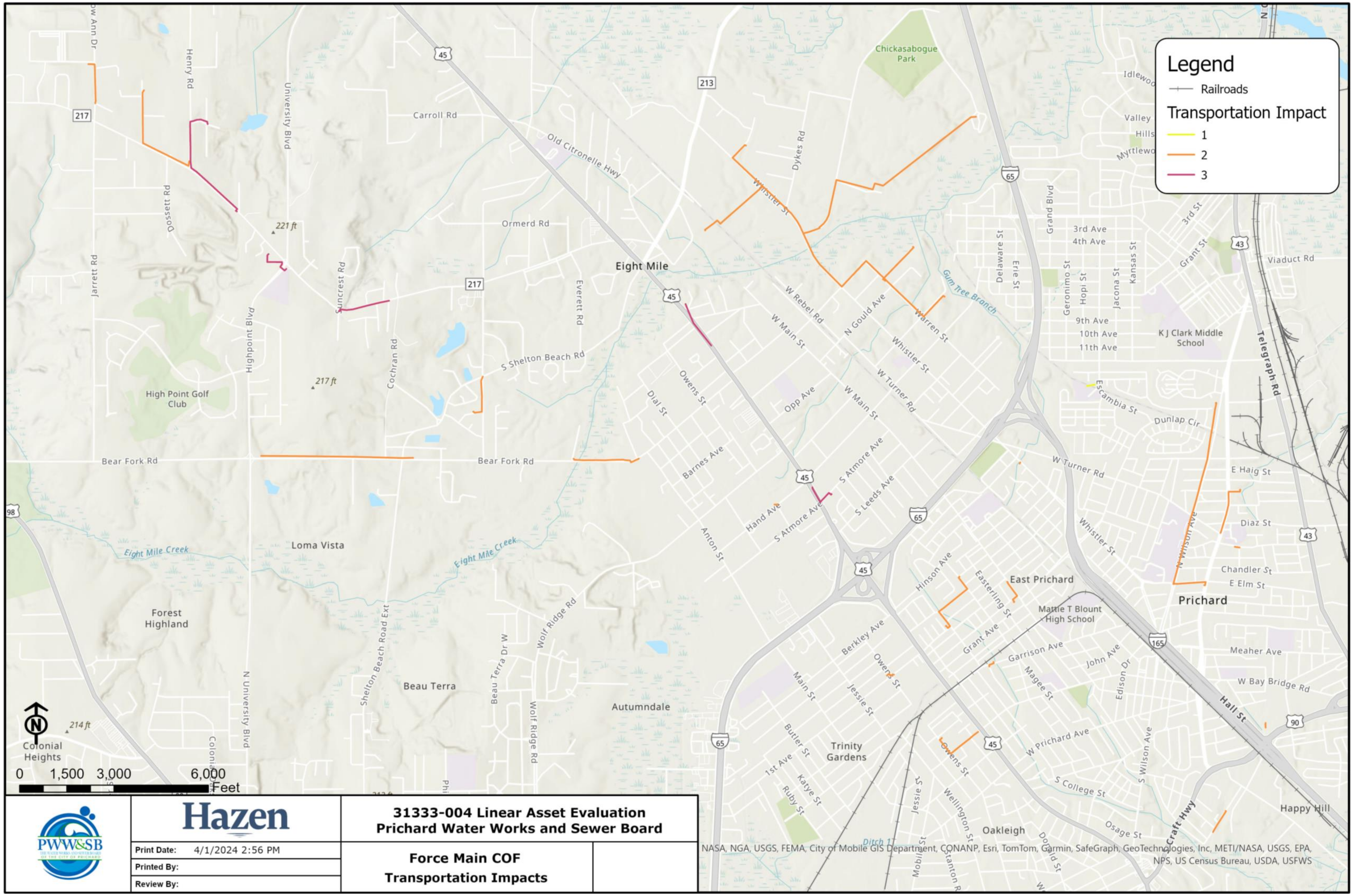

**C-3-2. Sanitary Sewer Force Main POF Scoring – Corrosive Soils**



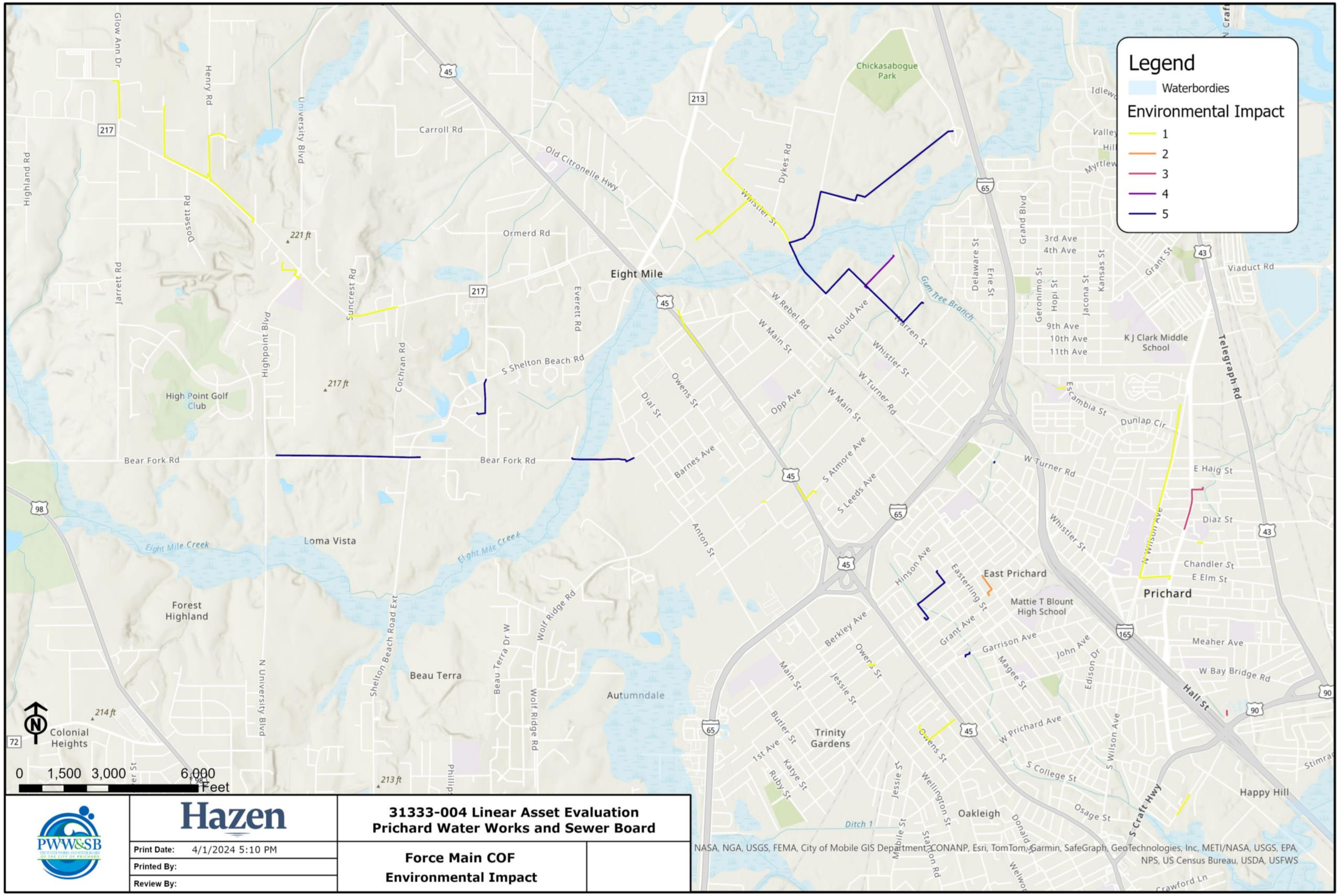

C-3-3. Sanitary Sewer Force Main POF Scoring – Force Main Velocity



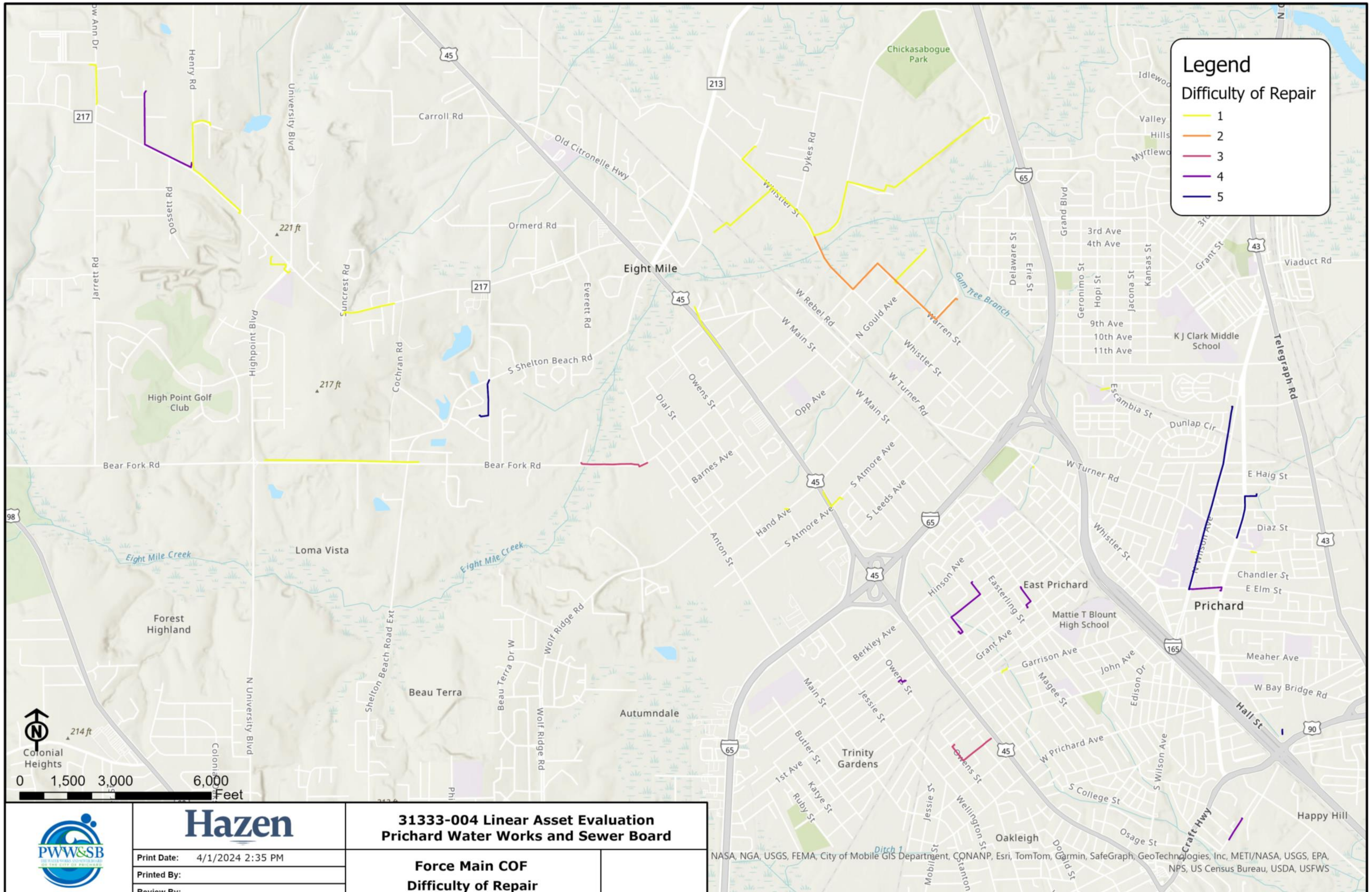

C-3-4. Sanitary Sewer Force Main COF Scoring – Critical Customers



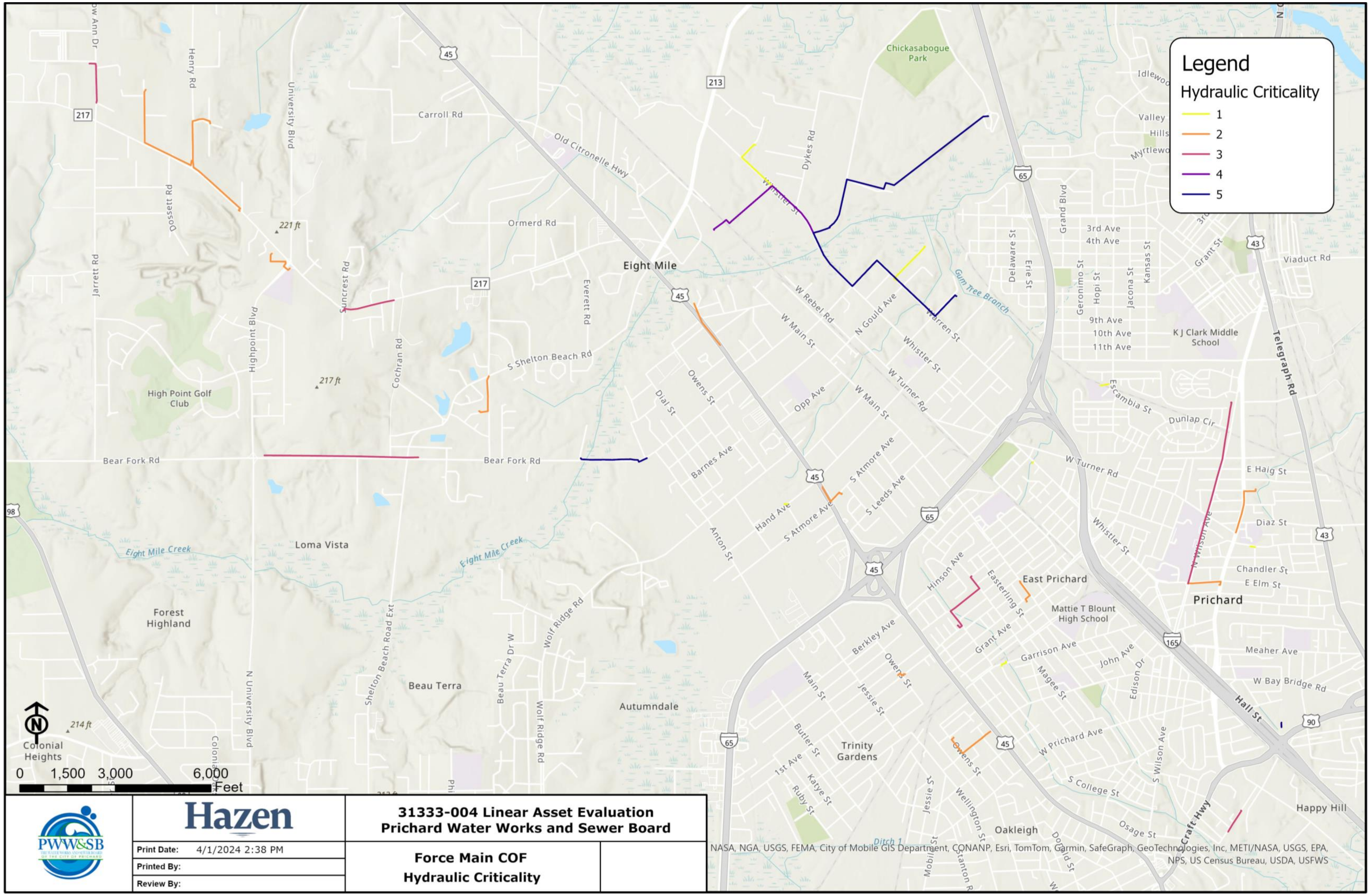

**C-3-5. Sanitary Sewer Force Main COF Scoring – Transportation Impacts**




C-3-6. Sanitary Sewer Force Main COF Scoring – Environmental Impacts




**C-3-7. Sanitary Sewer Force Main COF Scoring – Difficulty of Repair**




**C-3-8. Sanitary Sewer Force Main COF Scoring – Hydraulic Criticality**

## C-4. Water Main Proposed CIP Project Maps

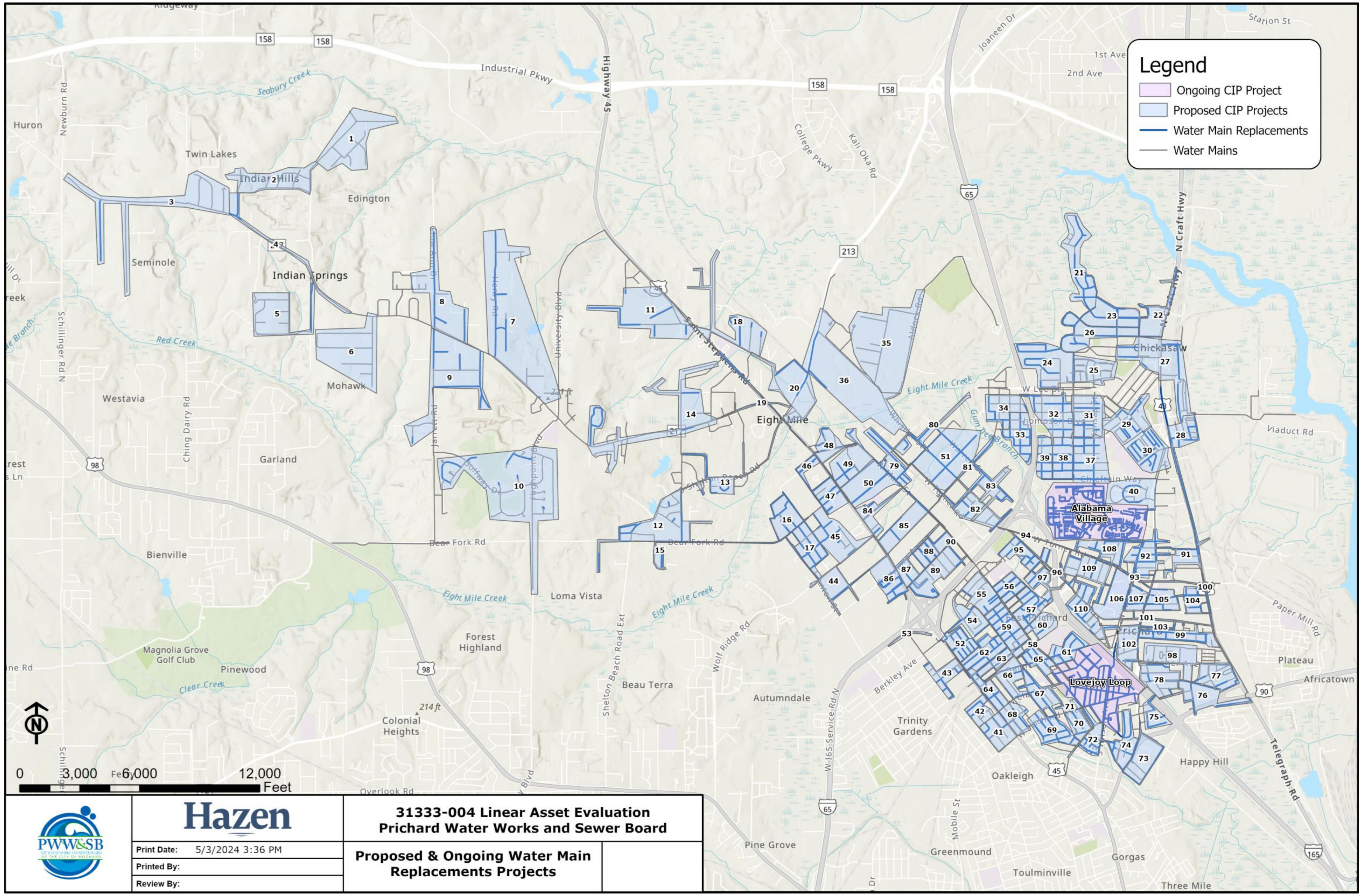
**Table C-4-1. Summary of 20-year Water Main Recommended CIP Projects**

| Project Name | Average Risk Score | Project Start Year | Total Replacement Length (mi) | Replacement Cost Estimate | Replacement Cost Estimate, Inflated |
|---|---|---|---|---|---|
| **PRJ-WM-093** | 17.87 | 2025 | 1.85 | $2,790,000 | $3,980,000 |
| **PRJ-WM-019** | 13.51 | 2025 | 1.84 | $1,200,000 | $1,980,000 |
| **PRJ-WM-081** | 12.84 | 2025 | 1.38 | $3,030,000 | $3,410,000 |
| **PRJ-WM-058** | 12.34 | 2026 | 1.7 | $1,370,000 | $1,900,000 |
| **PRJ-WM-028** | 11.98 | 2026 | 2.03 | $2,100,000 | $3,470,000 |
| **PRJ-WM-080** | 11.96 | 2026 | 1.14 | $1,630,000 | $2,770,000 |
| **PRJ-WM-004** | 11.69 | 2027 | 1.49 | $3,610,000 | $3,940,000 |
| **PRJ-WM-094** | 11.61 | 2027 | 0.5 | $1,710,000 | $2,740,000 |
| **PRJ-WM-036** | 11.27 | 2027 | 2.04 | $2,430,000 | $3,360,000 |
| **PRJ-WM-020** | 11.14 | 2027 | 1.8 | $1,640,000 | $2,630,000 |
| **PRJ-WM-076** | 11.04 | 2027 | 1.87 | $1,600,000 | $2,030,000 |
| **PRJ-WM-050** | 10.82 | 2028 | 1.84 | $910,000 | $1,640,000 |
| **PRJ-WM-070** | 10.79 | 2028 | 1.82 | $1,310,000 | $1,980,000 |
| **PRJ-WM-040** | 10.71 | 2028 | 1.53 | $1,670,000 | $3,020,000 |
| **PRJ-WM-015** | 10.69 | 2028 | 1.81 | $2,120,000 | $3,720,000 |
| **PRJ-WM-056** | 10.68 | 2028 | 1.99 | $2,050,000 | $2,840,000 |
| **PRJ-WM-018** | 10.47 | 2029 | 2.81 | $820,000 | $1,100,000 |
| **PRJ-WM-062** | 10.47 | 2029 | 1.97 | $2,140,000 | $2,560,000 |
| **PRJ-WM-063** | 10.44 | 2029 | 1.98 | $1,470,000 | $1,980,000 |
| **PRJ-WM-003** | 10.41 | 2029 | 3.46 | $6,700,000 | $7,770,000 |
| **PRJ-WM-051** | 10.39 | 2030 | 1.66 | $2,130,000 | $2,400,000 |
| **PRJ-WM-027** | 10.33 | 2030 | 2.43 | $1,880,000 | $3,300,000 |
| **PRJ-WM-073** | 10.26 | 2030 | 1.82 | $1,910,000 | $2,210,000 |
| **PRJ-WM-091** | 10.23 | 2031 | 1.6 | $3,260,000 | $3,460,000 |
| **PRJ-WM-0101** | 10.21 | 2031 | 1.76 | $960,000 | $1,680,000 |
| **PRJ-WM-064** | 10.05 | 2031 | 2.07 | $610,000 | $1,100,000 |
| **PRJ-WM-085** | 10.01 | 2031 | 1.61 | $2,150,000 | $3,160,000 |
| **PRJ-WM-013** | 9.93 | 2031 | 2.43 | $2,000,000 | $3,120,000 |
| **PRJ-WM-075** | 9.83 | 2032 | 0.89 | $2,350,000 | $2,890,000 |
| **PRJ-WM-005** | 9.78 | 2032 | 2.15 | $3,980,000 | $5,040,000 |

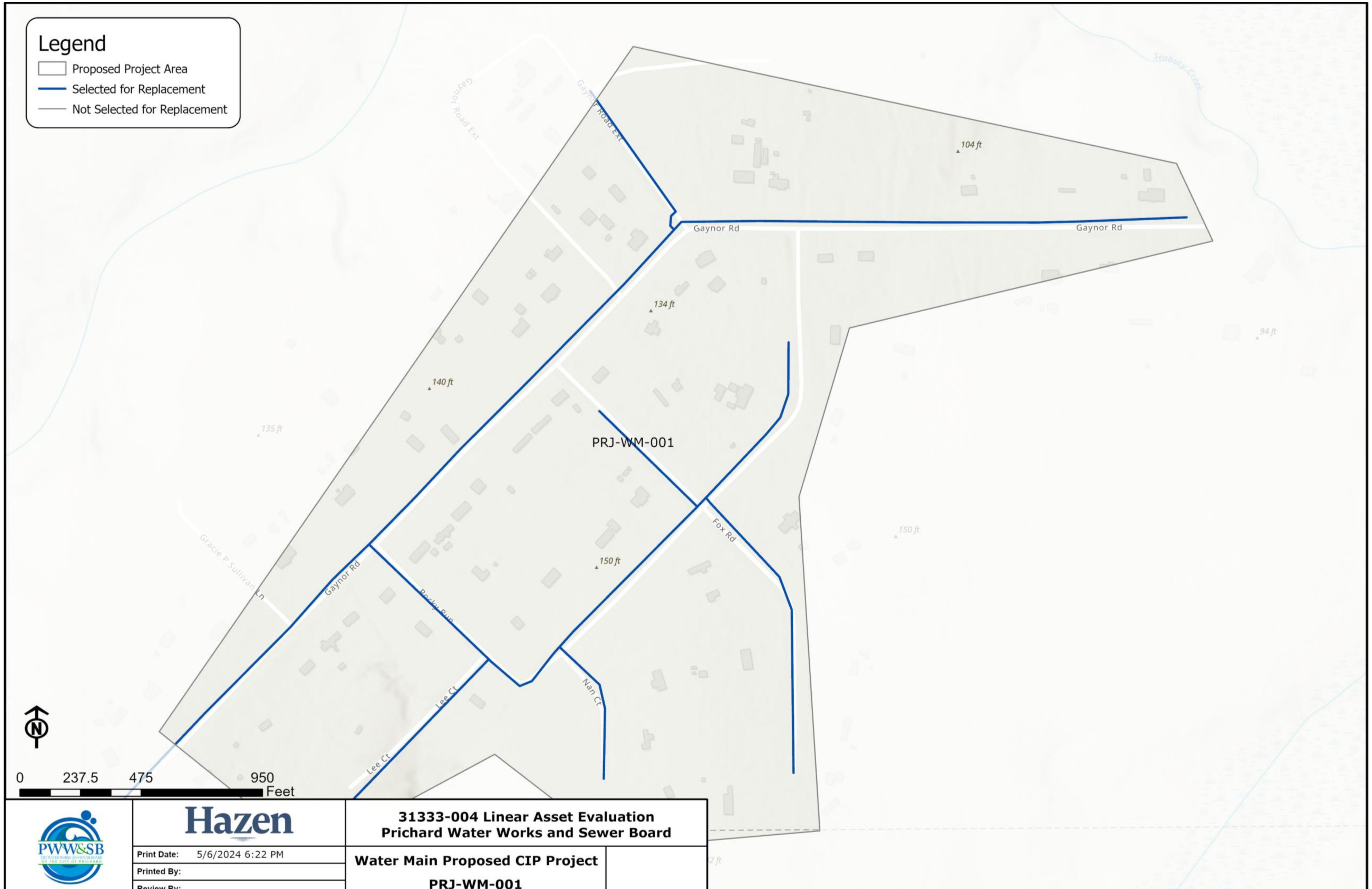
| Project Name | Average Risk Score | Project Start Year | Total Replacement Length (mi) | Replacement Cost Estimate | Replacement Cost Estimate, Inflated |
|---|---|---|---|---|---|
| **PRJ-WM-092** | 9.77 | 2032 | 1.93 | $2,220,000 | $2,290,000 |
| **PRJ-WM-066** | 9.7 | 2032 | 1.79 | $1,980,000 | $2,580,000 |
| **PRJ-WM-065** | 9.68 | 2032 | 1.65 | $1,620,000 | $2,520,000 |
| **PRJ-WM-044** | 9.67 | 2032 | 1.85 | $1,770,000 | $3,100,000 |
| **PRJ-WM-096** | 9.53 | 2033 | 1.26 | $2,400,000 | $2,950,000 |
| **PRJ-WM-043** | 9.52 | 2033 | 1.27 | $2,390,000 | $4,070,000 |
| **PRJ-WM-042** | 9.5 | 2033 | 1.45 | $1,570,000 | $2,840,000 |
| **PRJ-WM-0105** | 9.43 | 2033 | 1.69 | $800,000 | $870,000 |
| **PRJ-WM-035** | 9.39 | 2033 | 2.42 | $2,030,000 | $2,890,000 |
| **PRJ-WM-055** | 9.39 | 2033 | 1.7 | $2,780,000 | $3,520,000 |
| **PRJ-WM-086** | 9.38 | 2034 | 1.89 | $1,290,000 | $1,630,000 |
| **PRJ-WM-0107** | 9.29 | 2034 | 0.83 | $1,560,000 | $2,040,000 |
| **PRJ-WM-012** | 9.24 | 2034 | 2.65 | $1,810,000 | $2,230,000 |
| **PRJ-WM-002** | 9.21 | 2034 | 1.87 | $3,470,000 | $4,660,000 |
| **PRJ-WM-057** | 9.21 | 2034 | 2.18 | $1,180,000 | $2,010,000 |
| **PRJ-WM-052** | 9.16 | 2034 | 1.64 | $1,780,000 | $2,860,000 |
| **PRJ-WM-0103** | 9.11 | 2035 | 0.69 | $2,830,000 | $3,580,000 |
| **PRJ-WM-047** | 9.1 | 2035 | 1.37 | $4,270,000 | $4,670,000 |
| **PRJ-WM-0106** | 9.09 | 2035 | 1.24 | $1,630,000 | $2,320,000 |
| **PRJ-WM-0100** | 9.02 | 2035 | 0.83 | $2,470,000 | $3,520,000 |
| **PRJ-WM-045** | 9.01 | 2035 | 1.61 | $1,590,000 | $2,710,000 |
| **PRJ-WM-084** | 8.98 | 2035 | 1.66 | $2,720,000 | $3,250,000 |
| **PRJ-WM-071** | 8.91 | 2035 | 0.36 | $1,080,000 | $1,680,000 |
| **PRJ-WM-025** | 8.89 | 2035 | 1.84 | $3,650,000 | $5,360,000 |
| **PRJ-WM-024** | 8.83 | 2036 | 1.83 | $3,440,000 | $4,230,000 |
| **PRJ-WM-067** | 8.82 | 2036 | 1.99 | $1,470,000 | $1,650,000 |
| **PRJ-WM-089** | 8.75 | 2036 | 1.9 | $2,540,000 | $3,960,000 |
| **PRJ-WM-082** | 8.74 | 2036 | 2.33 | $420,000 | $580,000 |
| **PRJ-WM-095** | 8.74 | 2036 | 1.93 | $1,760,000 | $2,440,000 |
| **PRJ-WM-068** | 8.7 | 2036 | 0.92 | $1,930,000 | $2,590,000 |
| **PRJ-WM-074** | 8.68 | 2037 | 2.02 | $2,300,000 | $2,670,000 |
| **PRJ-WM-099** | 8.66 | 2037 | 1.9 | $1,260,000 | $2,080,000 |
| **PRJ-WM-014** | 8.65 | 2037 | 2.49 | $830,000 | $1,150,000 |
| **PRJ-WM-048** | 8.64 | 2037 | 1.89 | $1,970,000 | $3,260,000 |

| Project Name | Average Risk Score | Project Start Year | Total Replacement Length (mi) | Replacement Cost Estimate | Replacement Cost Estimate, Inflated |
|---|---|---|---|---|---|
| **PRJ-WM-061** | 8.64 | 2037 | 1.37 | $2,940,000 | $3,310,000 |
| **PRJ-WM-009** | 8.62 | 2038 | 2.28 | $3,300,000 | $4,990,000 |
| **PRJ-WM-059** | 8.6 | 2038 | 1.77 | $2,080,000 | $3,050,000 |
| **PRJ-WM-006** | 8.59 | 2038 | 1.91 | $3,320,000 | $5,020,000 |
| **PRJ-WM-021** | 8.57 | 2038 | 1.99 | $1,970,000 | $3,350,000 |
| **PRJ-WM-078** | 8.54 | 2039 | 1.94 | $1,950,000 | $2,780,000 |
| **PRJ-WM-060** | 8.52 | 2039 | 0.86 | $1,430,000 | $2,360,000 |
| **PRJ-WM-010** | 8.49 | 2039 | 1.72 | $2,390,000 | $3,720,000 |
| **PRJ-WM-0102** | 8.44 | 2039 | 1.69 | $1,840,000 | $2,260,000 |
| **PRJ-WM-030** | 8.4 | 2039 | 1.88 | $3,820,000 | $3,930,000 |
| **PRJ-WM-054** | 8.38 | 2039 | 1.32 | $1,340,000 | $1,750,000 |
| **PRJ-WM-072** | 8.35 | 2040 | 1.48 | $1,230,000 | $1,810,000 |
| **PRJ-WM-041** | 8.32 | 2040 | 1.62 | $2,160,000 | $3,370,000 |
| **PRJ-WM-079** | 8.32 | 2040 | 1.77 | $740,000 | $1,060,000 |
| **PRJ-WM-083** | 8.27 | 2040 | 1.36 | $1,490,000 | $2,390,000 |
| **PRJ-WM-007** | 8.24 | 2040 | 2.04 | $3,190,000 | $5,120,000 |
| **PRJ-WM-0109** | 8.22 | 2040 | 1.75 | $2,040,000 | $3,580,000 |
| **PRJ-WM-001** | 8.17 | 2041 | 1.81 | $2,690,000 | $4,450,000 |
| **PRJ-WM-049** | 8.14 | 2041 | 1.57 | $1,940,000 | $3,400,000 |
| **PRJ-WM-097** | 8.11 | 2041 | 1.36 | $2,220,000 | $2,980,000 |
| **PRJ-WM-0108** | 8.11 | 2041 | 1.35 | $1,330,000 | $2,200,000 |
| **PRJ-WM-088** | 8.06 | 2041 | 1.36 | $1,580,000 | $2,850,000 |
| **PRJ-WM-037** | 8.05 | 2041 | 2 | $2,270,000 | $4,100,000 |
| **PRJ-WM-017** | 8.01 | 2041 | 2.19 | $1,510,000 | $2,090,000 |
| **PRJ-WM-069** | 7.9 | 2042 | 1.72 | $2,670,000 | $2,830,000 |
| **PRJ-WM-087** | 7.9 | 2042 | 1.56 | $2,560,000 | $2,800,000 |
| **PRJ-WM-046** | 7.88 | 2042 | 1.21 | $3,220,000 | $4,200,000 |
| **PRJ-WM-011** | 7.87 | 2042 | 1.5 | $860,000 | $1,190,000 |
| **PRJ-WM-008** | 7.85 | 2042 | 1.54 | $2,370,000 | $4,030,000 |
| **PRJ-WM-034** | 7.85 | 2042 | 1.34 | $1,630,000 | $2,940,000 |
| **PRJ-WM-032** | 7.82 | 2042 | 1.9 | $2,820,000 | $4,270,000 |
| **PRJ-WM-033** | 7.8 | 2043 | 1.52 | $1,970,000 | $3,560,000 |
| **PRJ-WM-098** | 7.79 | 2043 | 1.98 | $1,930,000 | $3,290,000 |
| **PRJ-WM-0104** | 7.79 | 2043 | 1.9 | $6,560,000 | $6,760,000 |

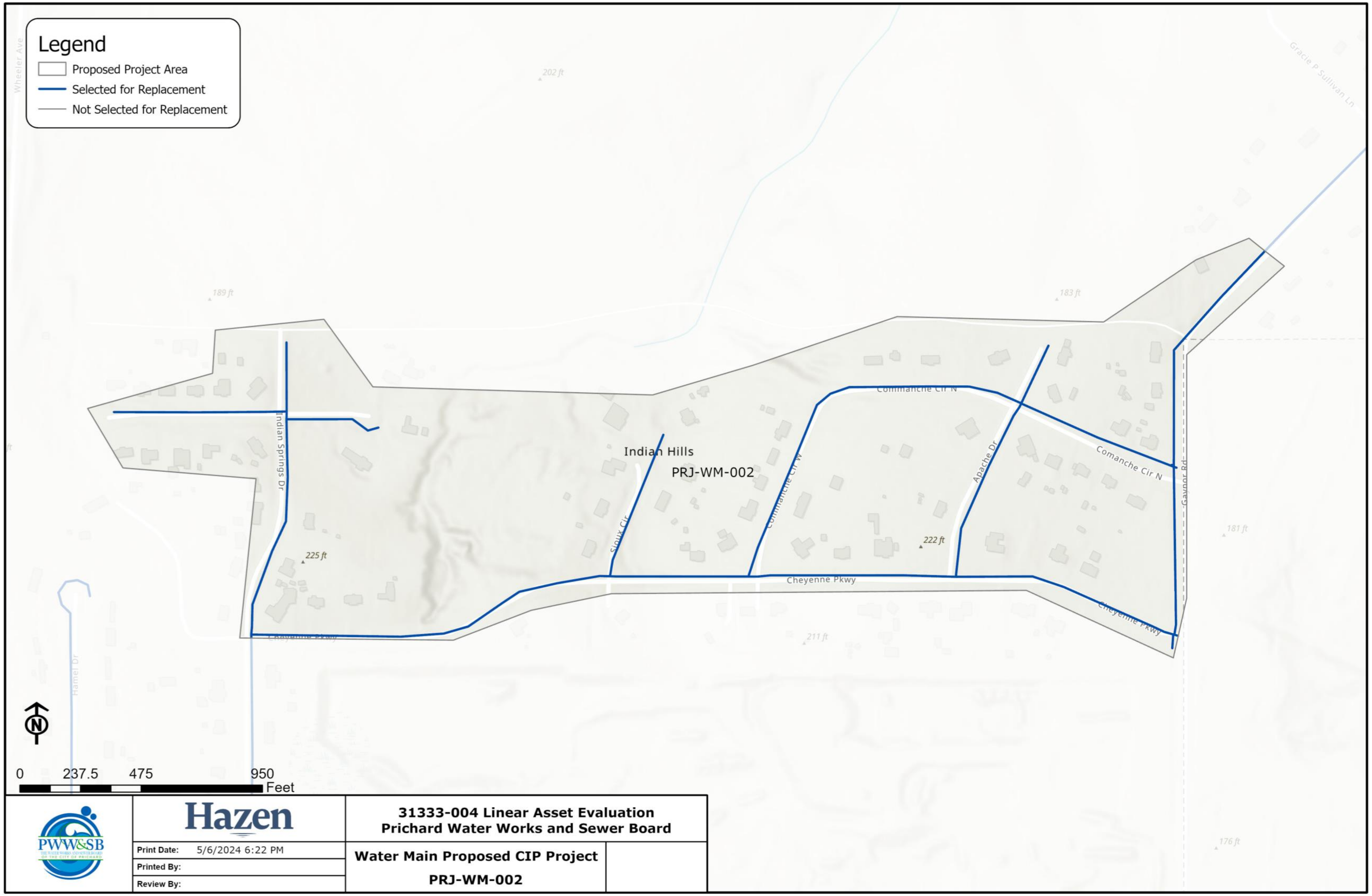
| Project Name | Average Risk Score | Project Start Year | Total Replacement Length (mi) | Replacement Cost Estimate | Replacement Cost Estimate, Inflated |
|---|---|---|---|---|---|
| **PRJ-WM-016** | 7.72 | 2043 | 2.08 | $2,050,000 | $2,670,000 |
| **PRJ-WM-038** | 7.72 | 2043 | 1.88 | $3,770,000 | $4,500,000 |
| **PRJ-WM-090** | 7.69 | 2043 | 1.09 | $2,330,000 | $3,740,000 |
| **PRJ-WM-0110** | 7.64 | 2043 | 1.94 | $2,090,000 | $3,070,000 |
| **PRJ-WM-022** | 7.62 | 2044 | 1.67 | $1,920,000 | $3,370,000 |
| **PRJ-WM-029** | 7.55 | 2044 | 1.73 | $4,060,000 | $4,710,000 |
| **PRJ-WM-031** | 7.48 | 2044 | 1.99 | $2,110,000 | $2,310,000 |
| **PRJ-WM-053** | 7.45 | 2044 | 0.38 | $1,430,000 | $1,870,000 |
| **PRJ-WM-023** | 7.27 | 2044 | 1.56 | $3,000,000 | $4,030,000 |
| **PRJ-WM-077** | 6.96 | 2044 | 1.69 | $1,720,000 | $2,180,000 |
| **PRJ-WM-026** | 6.76 | 2044 | 2.38 | $2,480,000 | $2,790,000 |
| **PRJ-WM-039** | 6.57 | 2044 | 1.04 | $3,620,000 | $3,840,000 |
| **TOTALS** | | | **188.15** | **$240,280,000** | **$332,810,000** |
| **TOTALS, LOW RANGE (-50%)** | | | | | **$166,405,000** |
| **TOTALS, HIGH RANGE (+100%)** | | | | | **$665,620,000** |



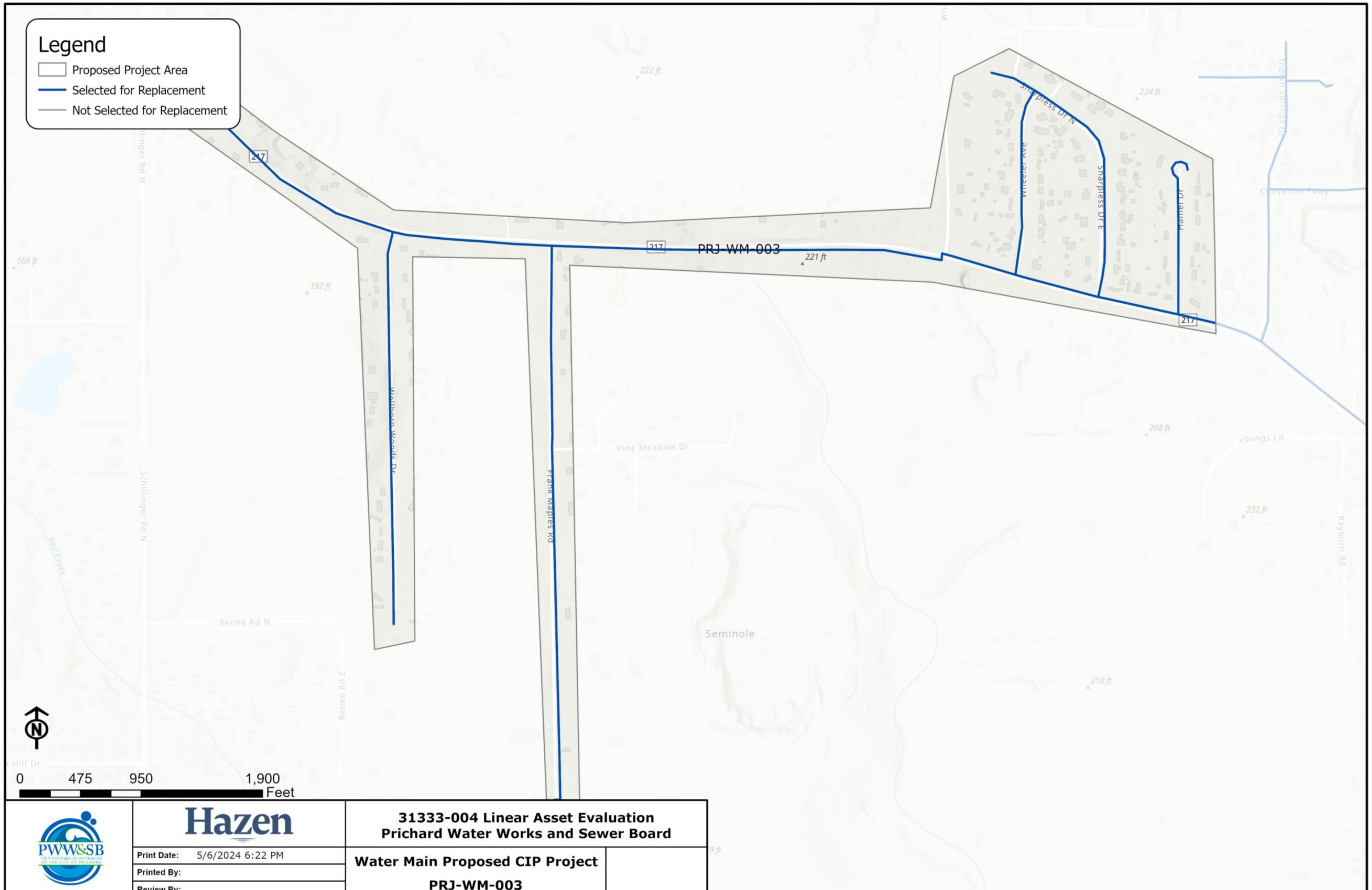

**C-4-1. Proposed and Ongoing Water Main Replacement Projects**



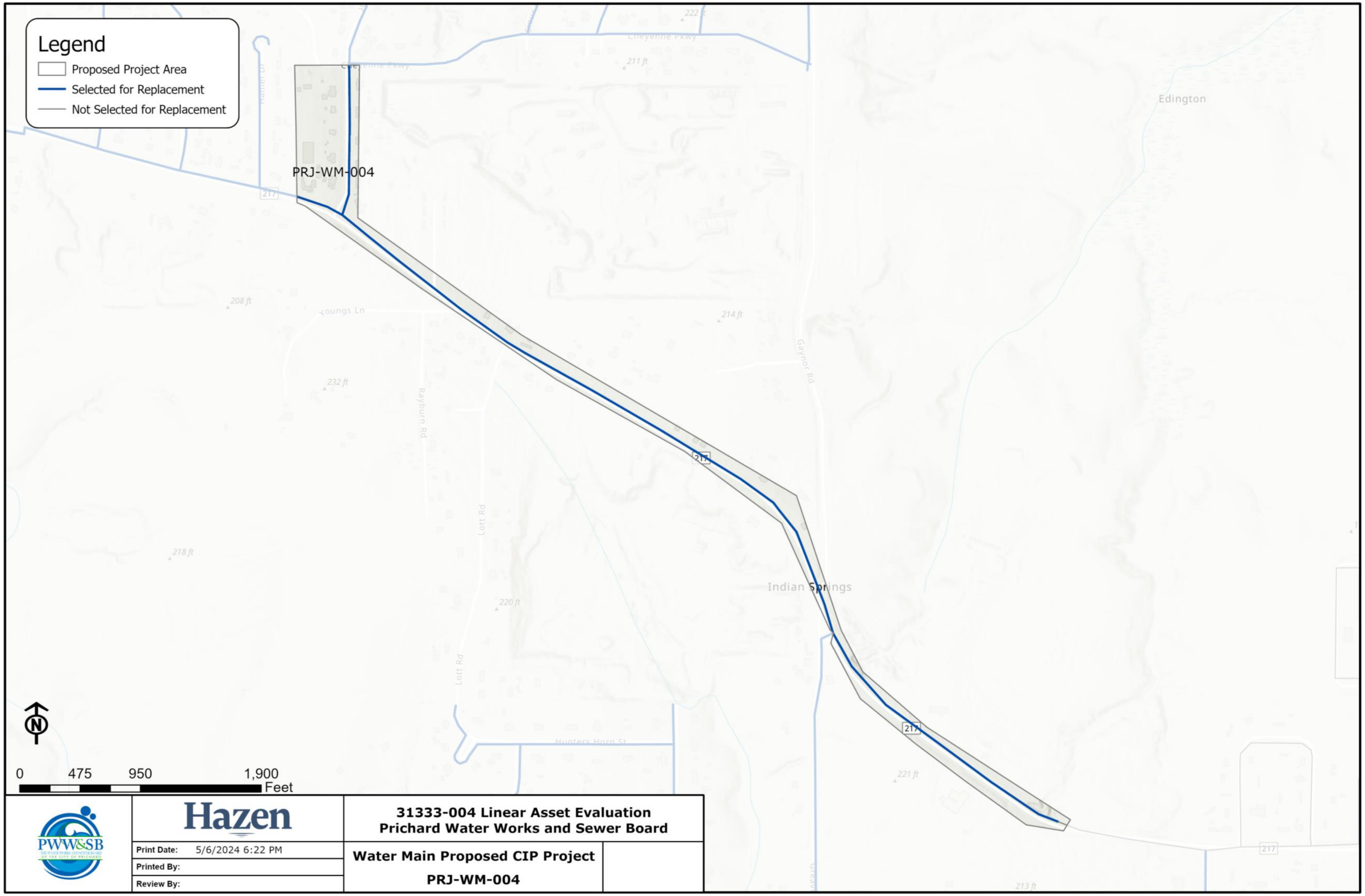

**C-4-2. Water Main Proposed CIP Project – PRJ-WM-001**



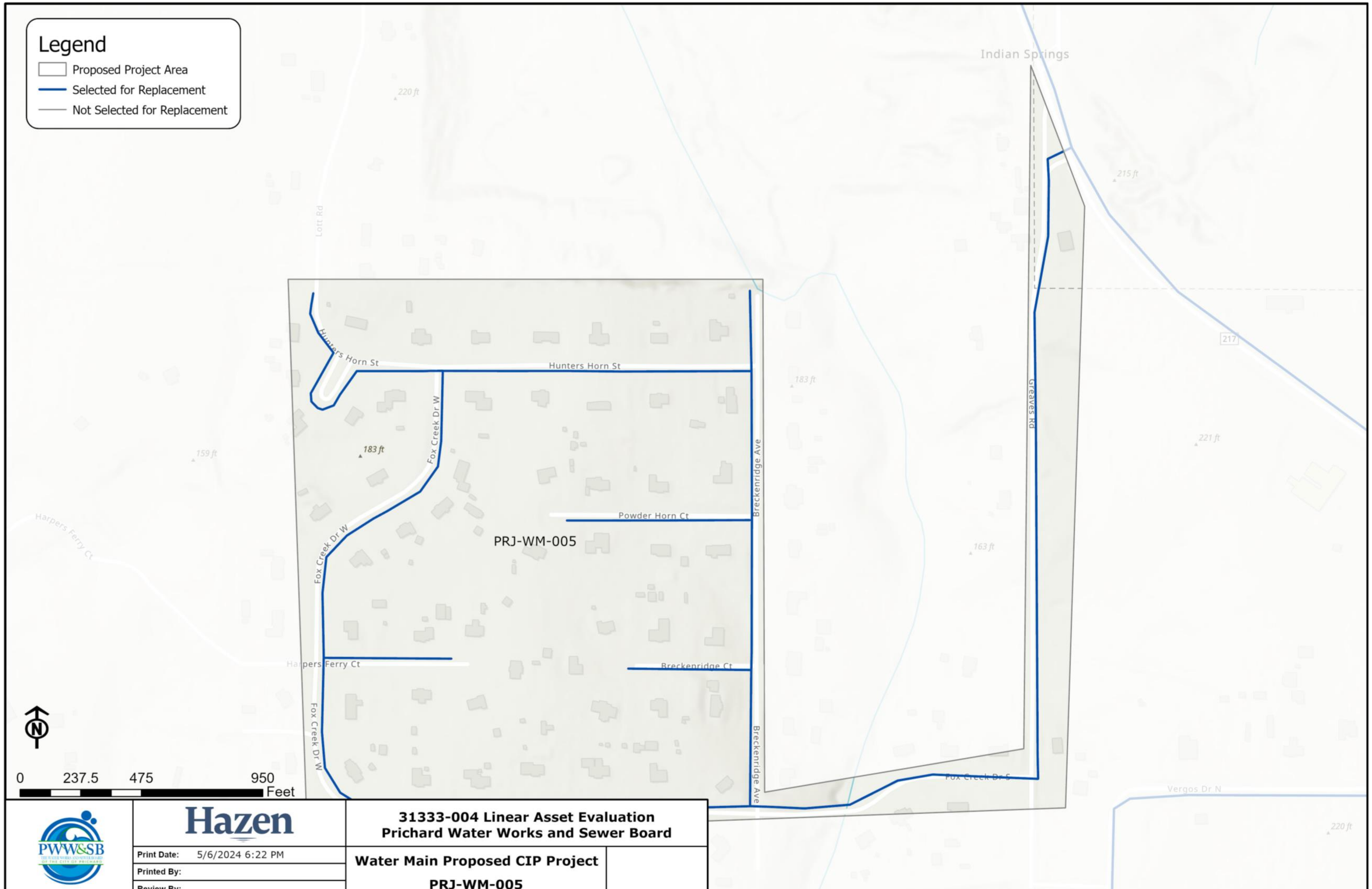

C-4-3. Water Main Proposed CIP Project – PRJ-WM-002



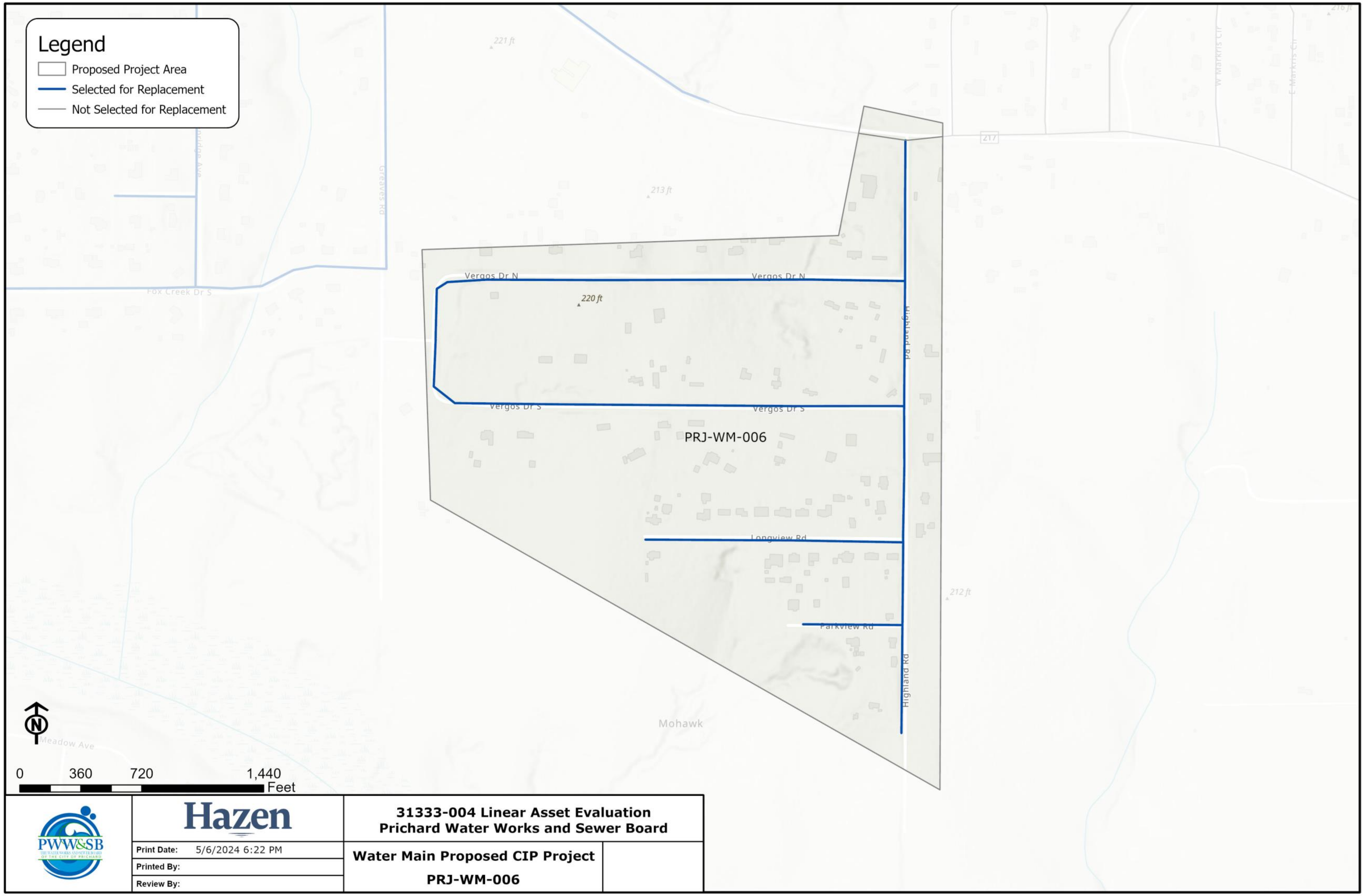

C-4-4. Water Main Proposed CIP Project – PRJ-WM-003



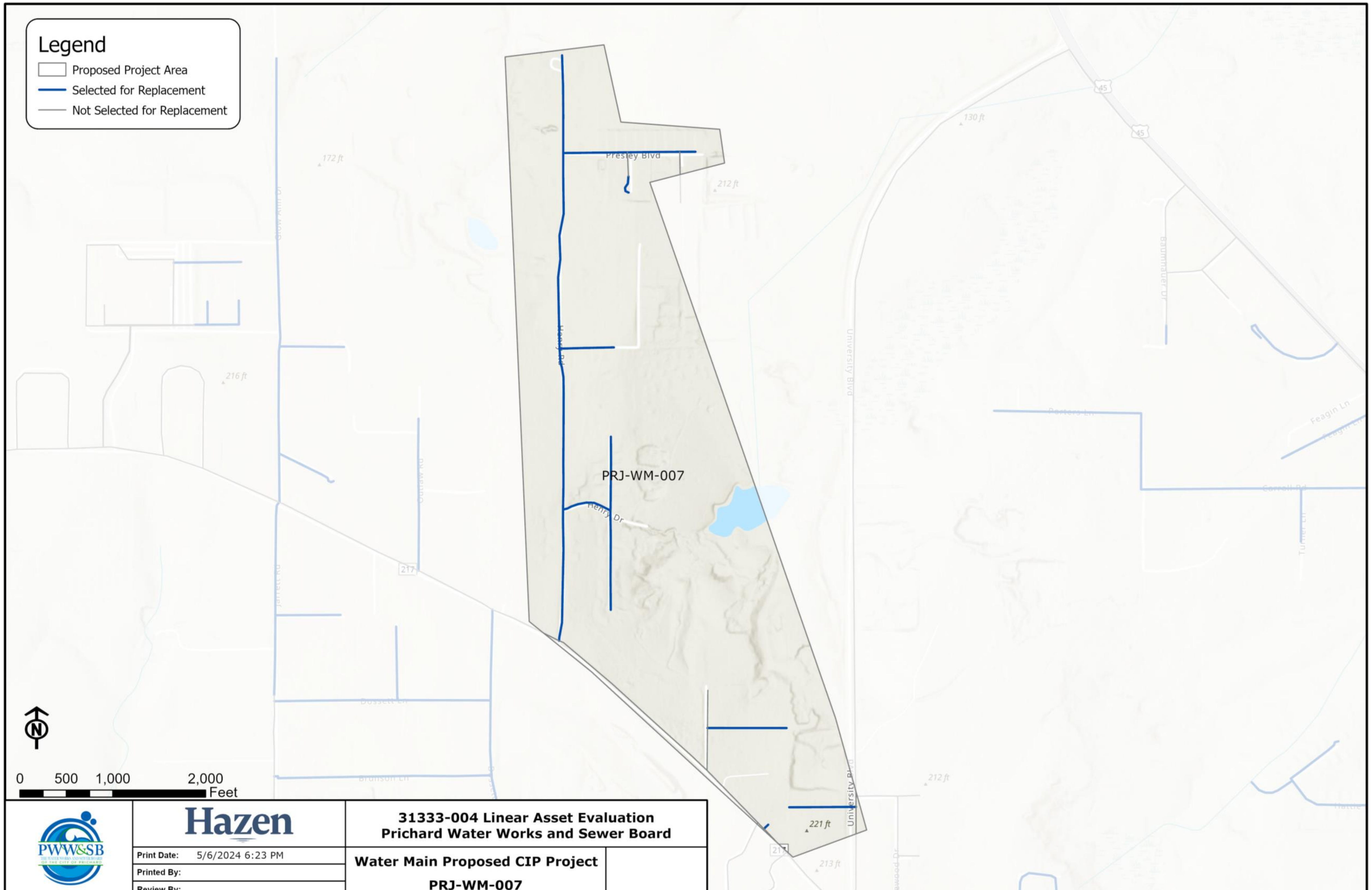

**C-4-5. Water Main Proposed CIP Project – PRJ-WM-004**



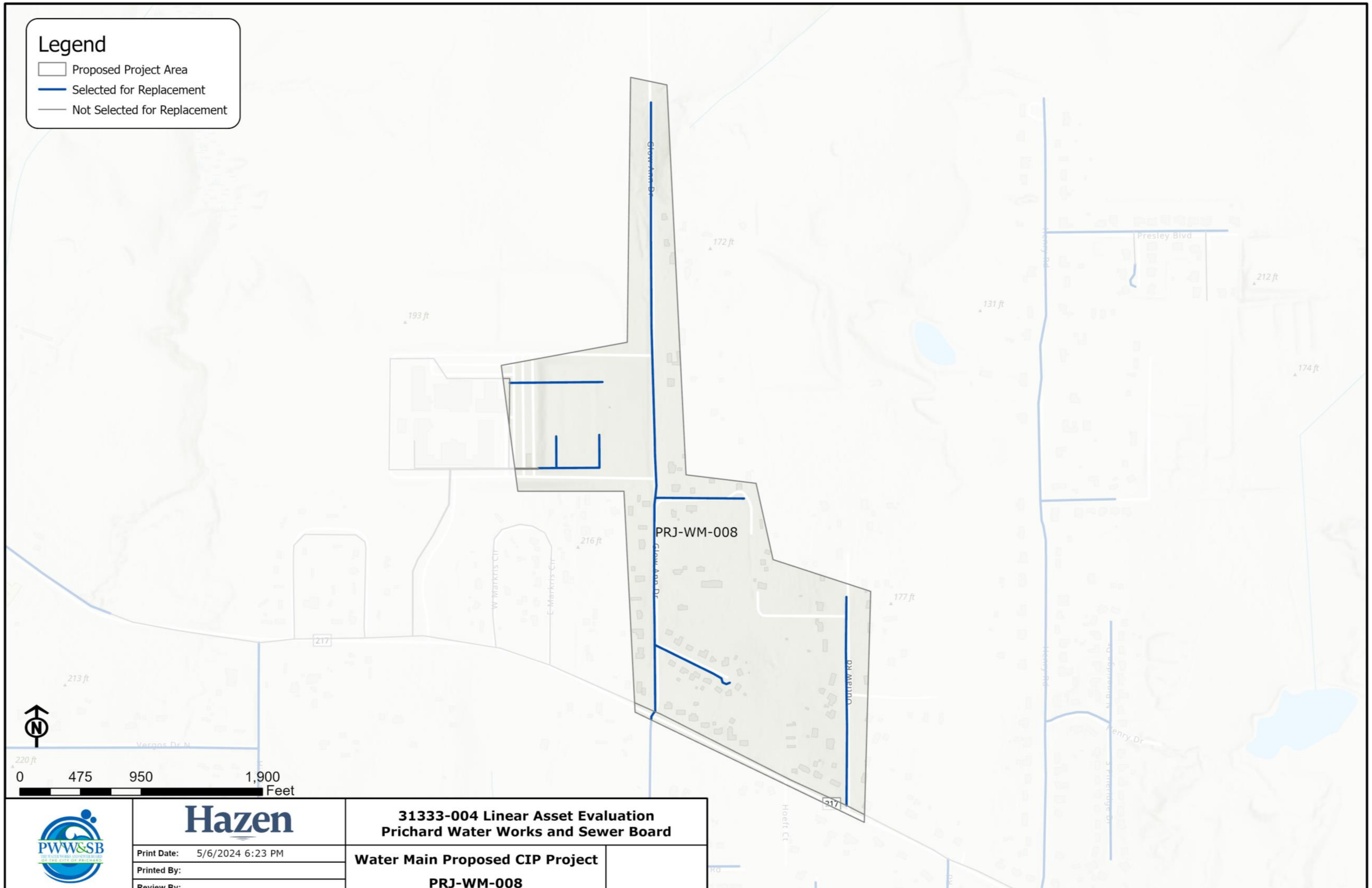

**C-4-6. Water Main Proposed CIP Project – PRJ-WM-005**



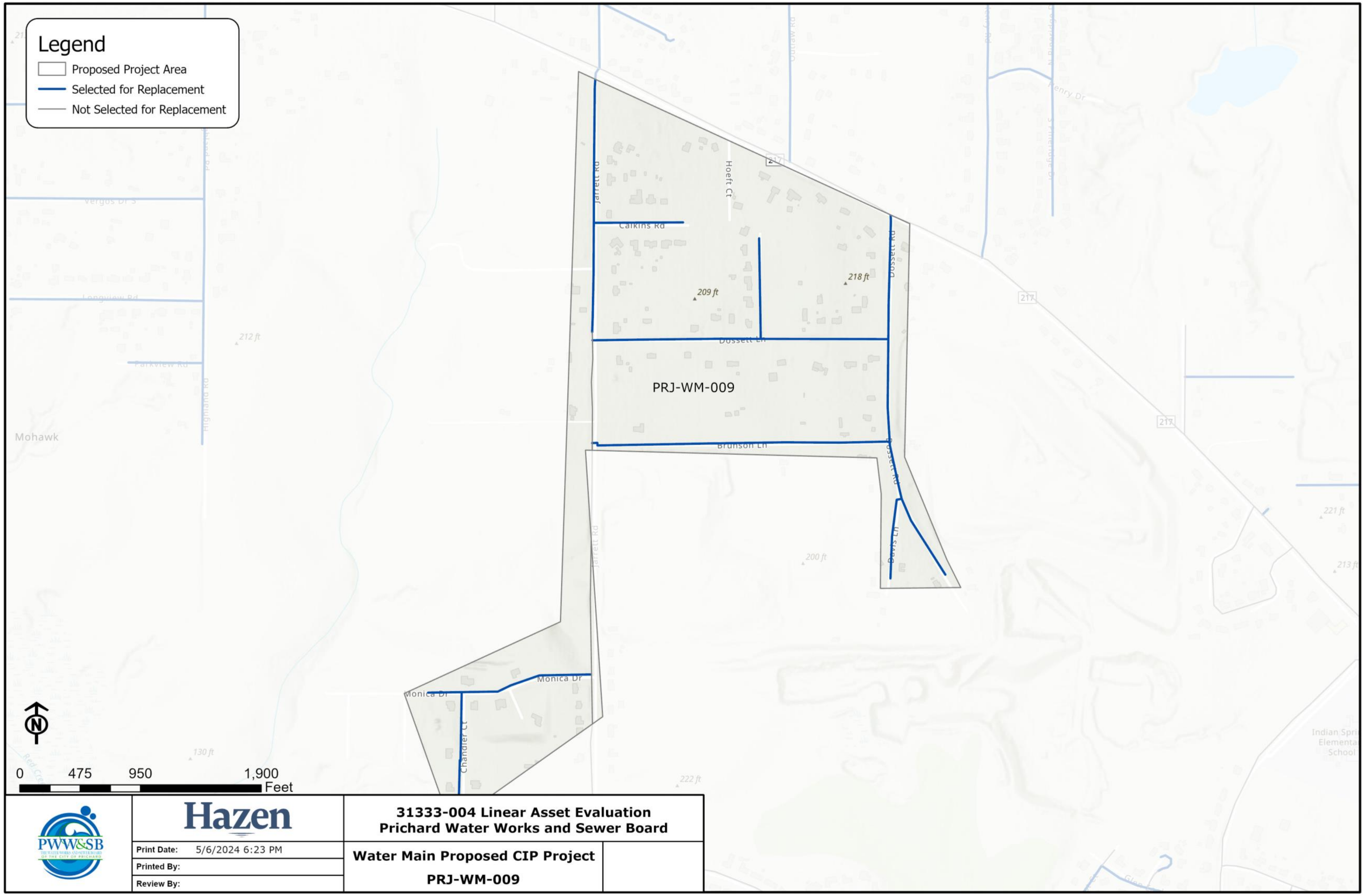

**C-4-7. Water Main Proposed CIP Project – PRJ-WM-006**




C-4-8. Water Main Proposed CIP Project – PRJ-WM-007

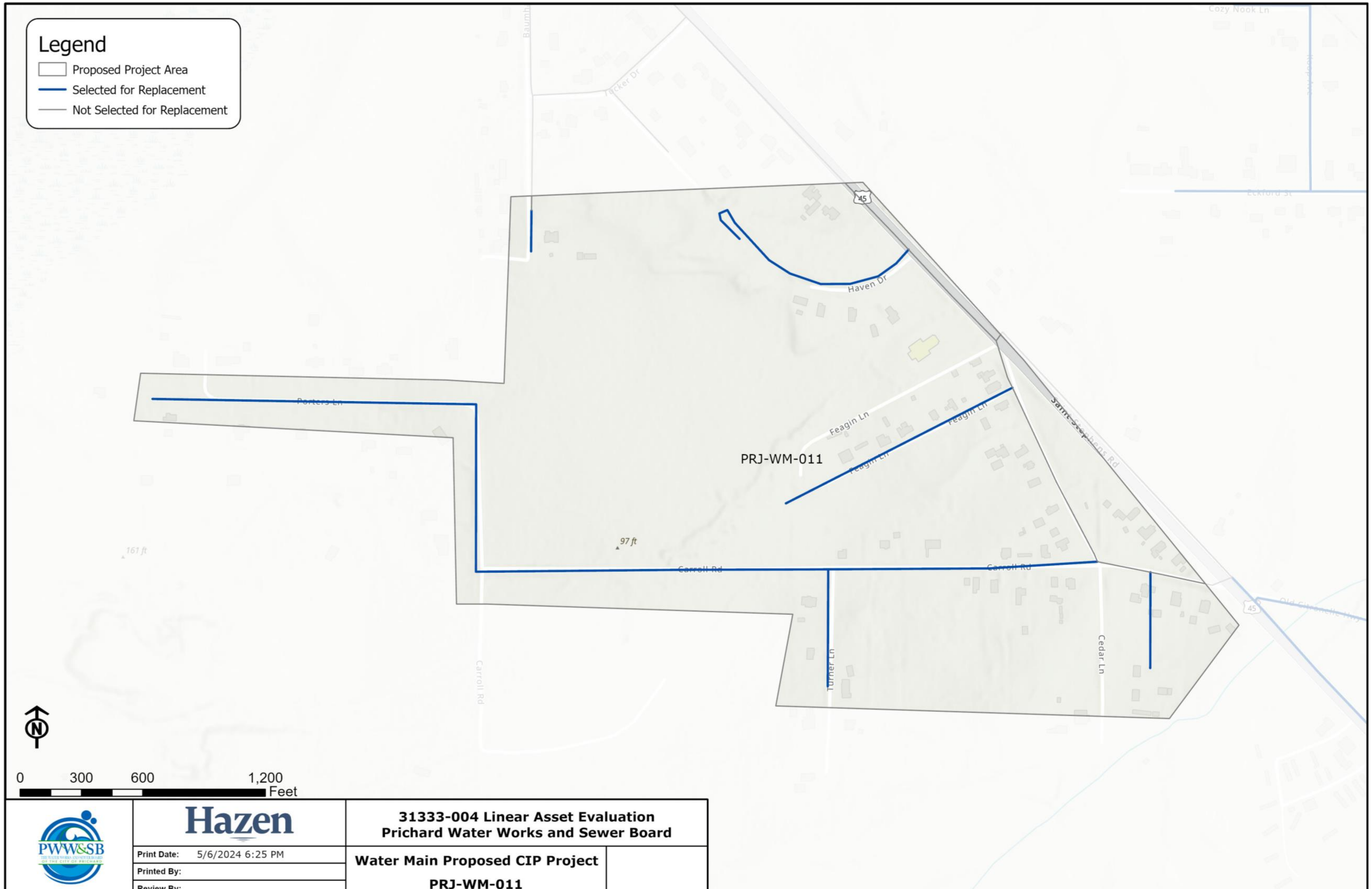



**C-4-9. Water Main Proposed CIP Project – PRJ-WM-008**

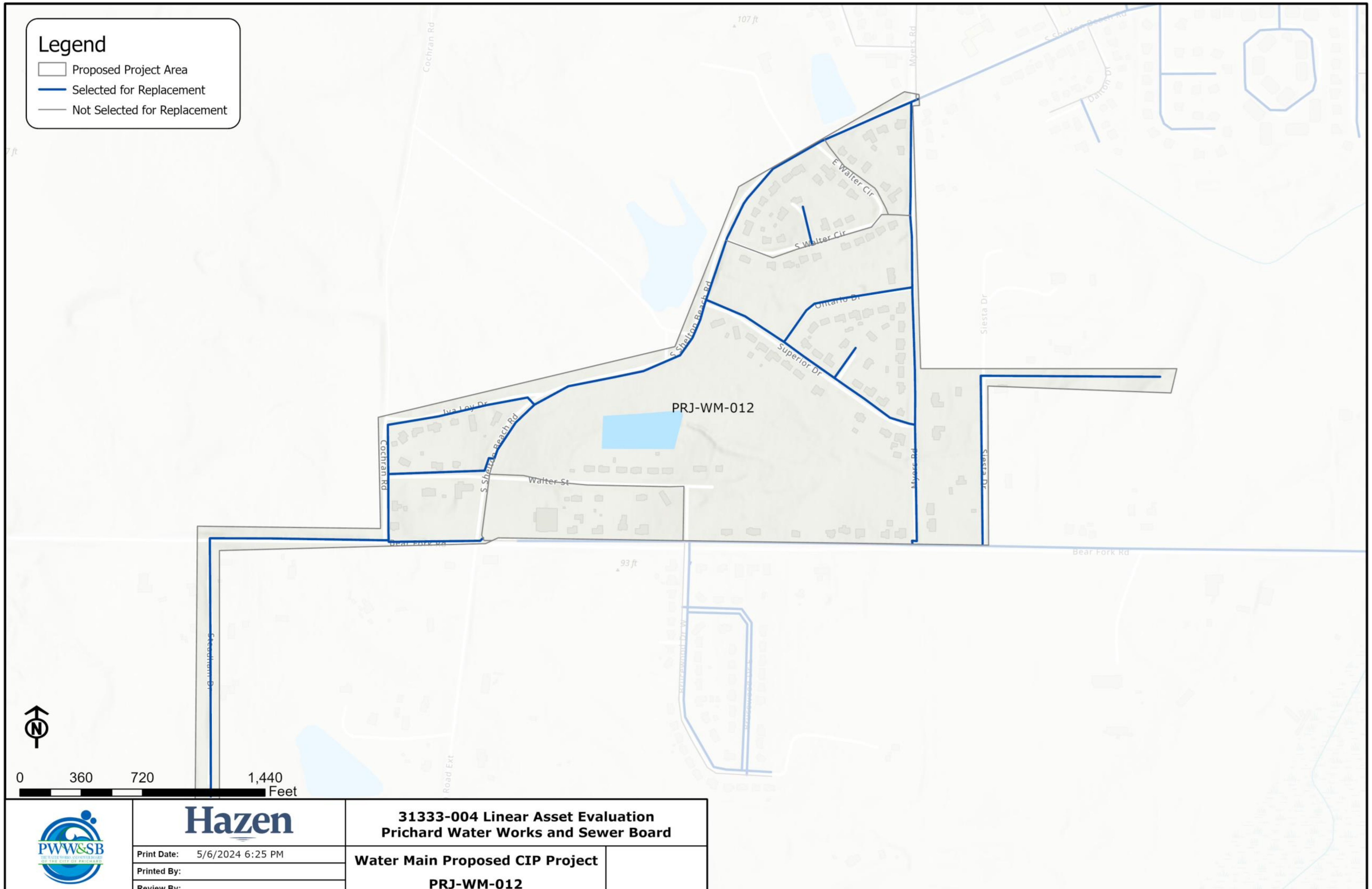



C-4-10. Water Main Proposed CIP Project – PRJ-WM-009

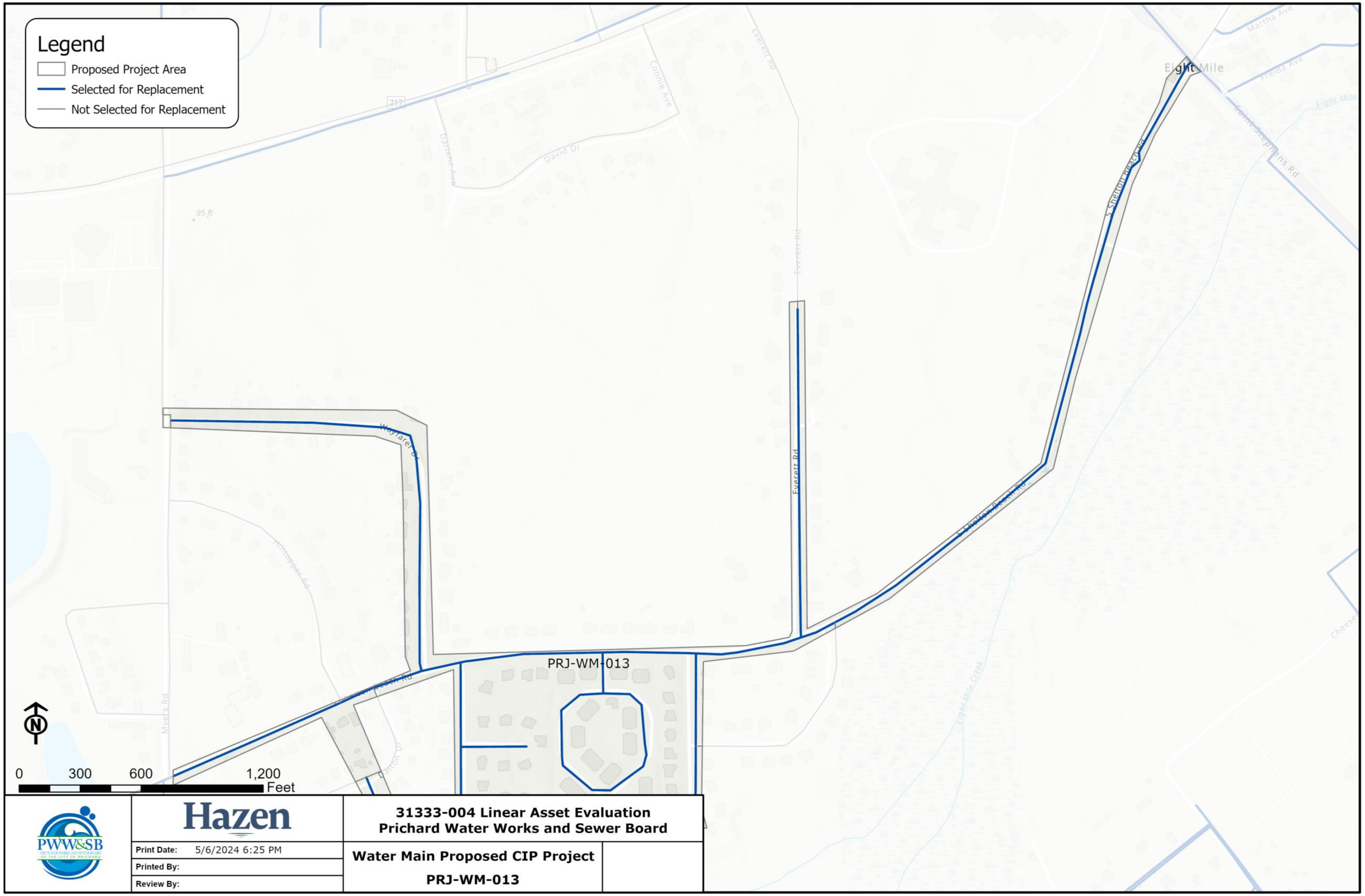

C-4-11. Water Main Proposed CIP Project – PRJ-WM-010



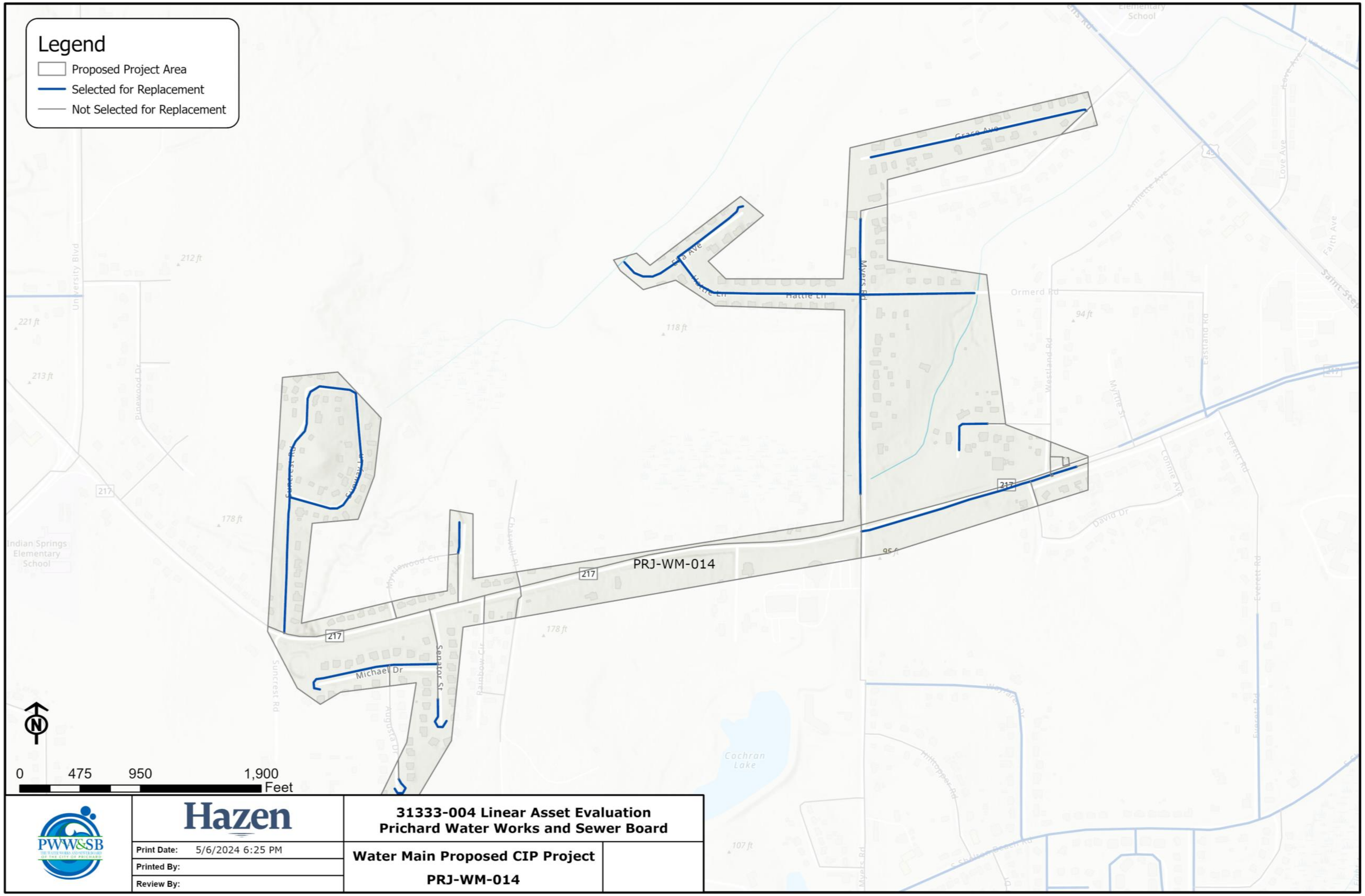

**C-4-12. Water Main Proposed CIP Project – PRJ-WM-011**



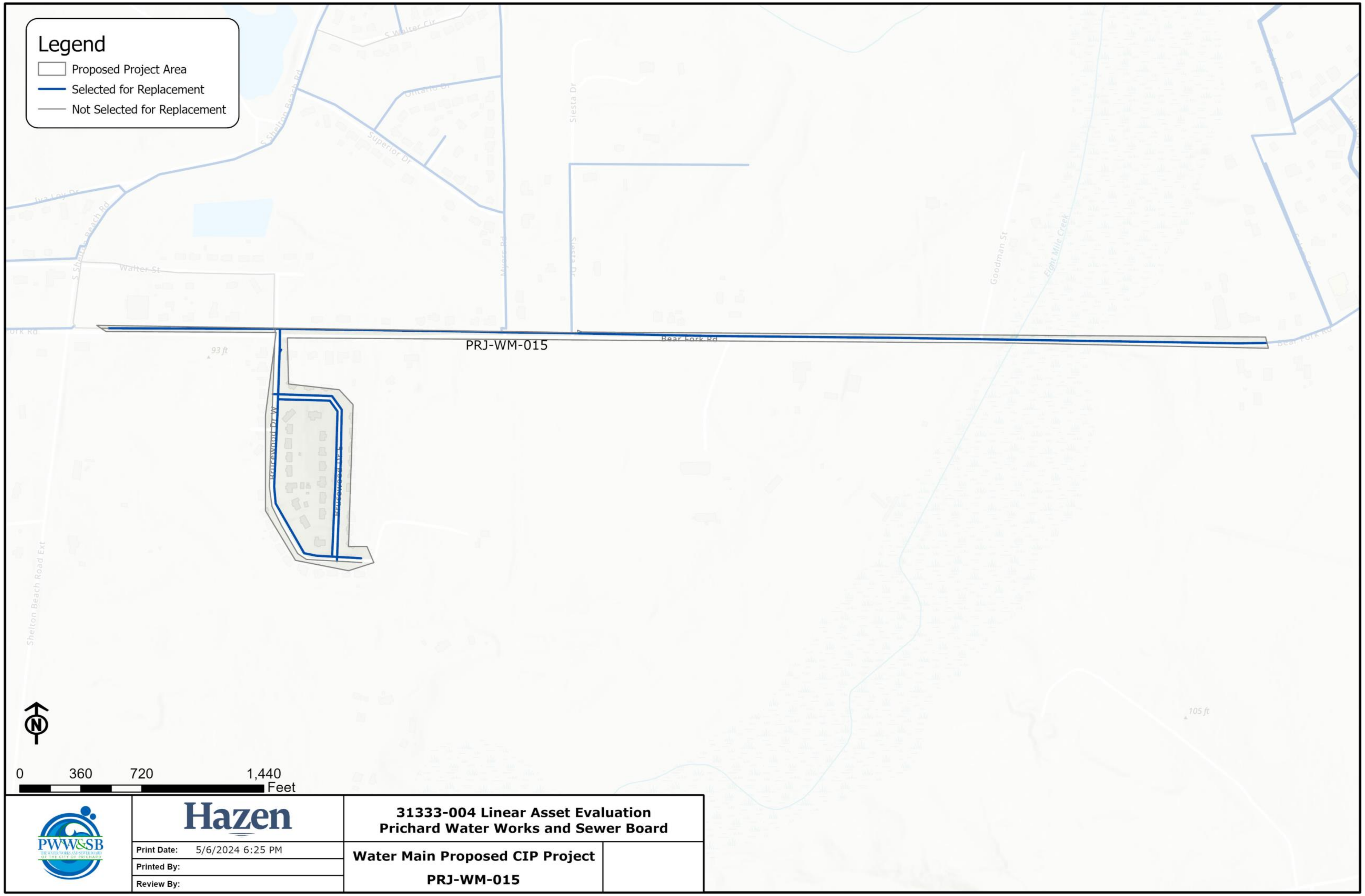

C-4-13. Water Main Proposed CIP Project – PRJ-WM-012



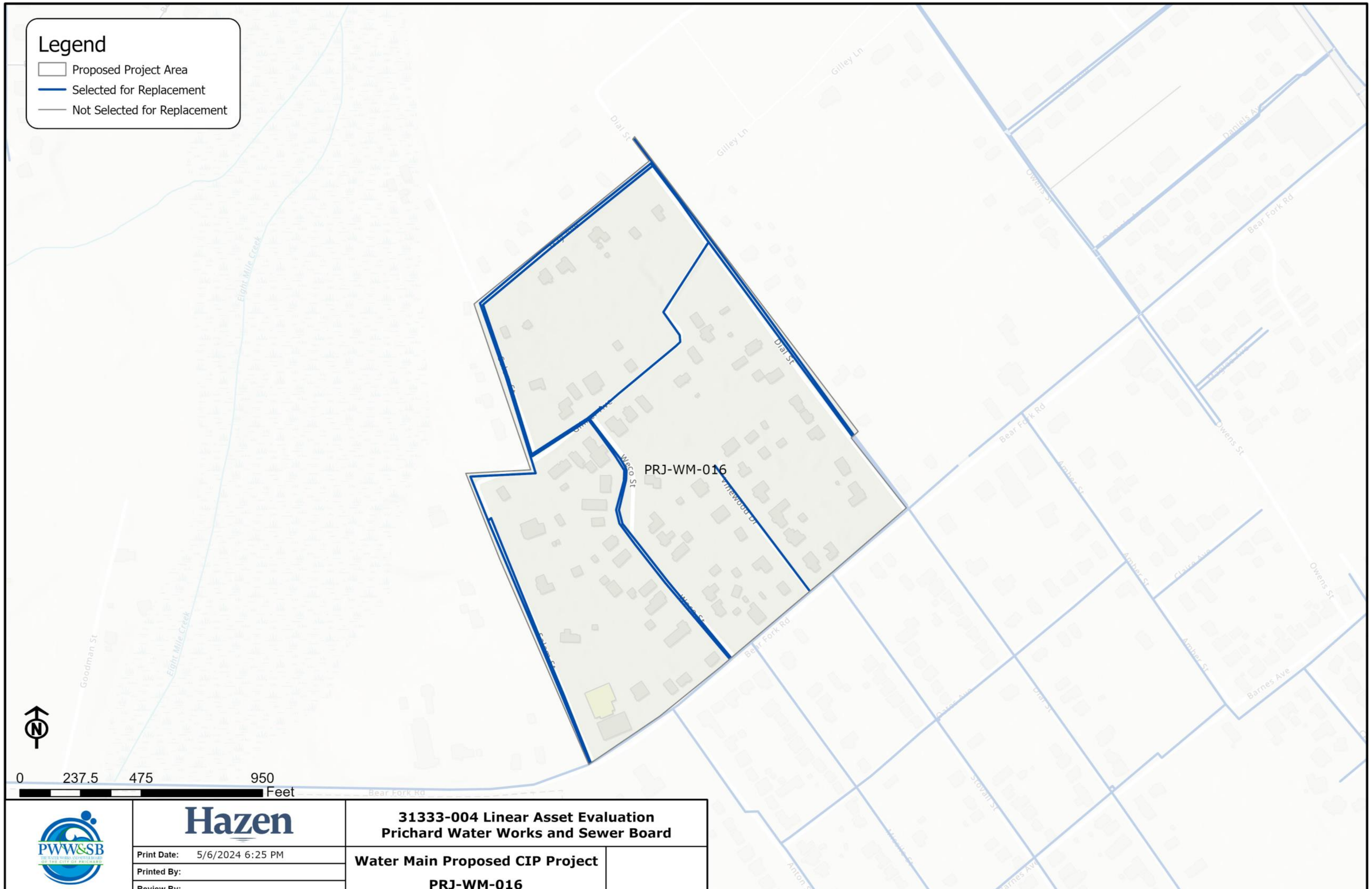

C-4-14. Water Main Proposed CIP Project – PRJ-WM-013



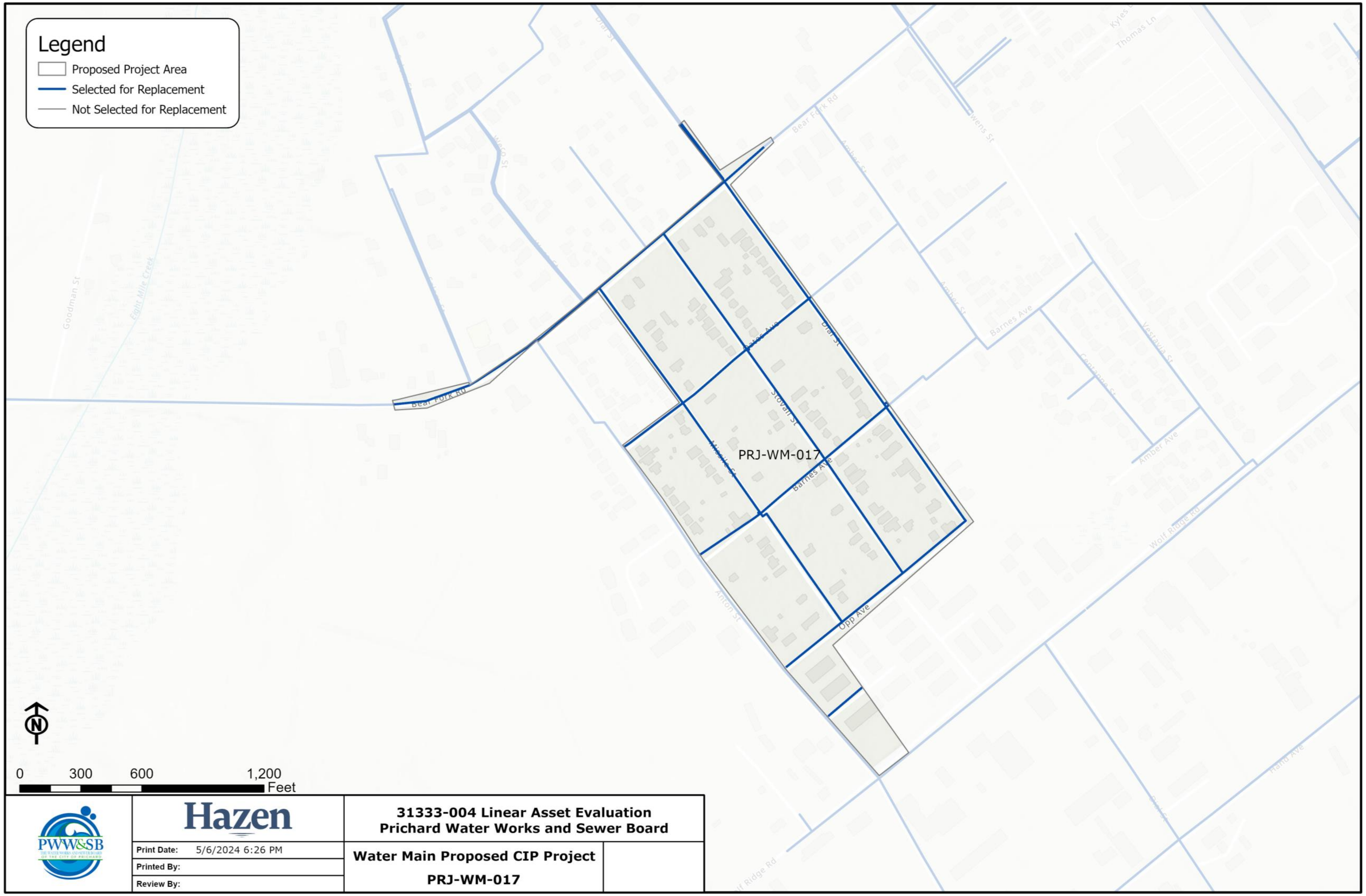

**C-4-15. Water Main Proposed CIP Project – PRJ-WM-014**



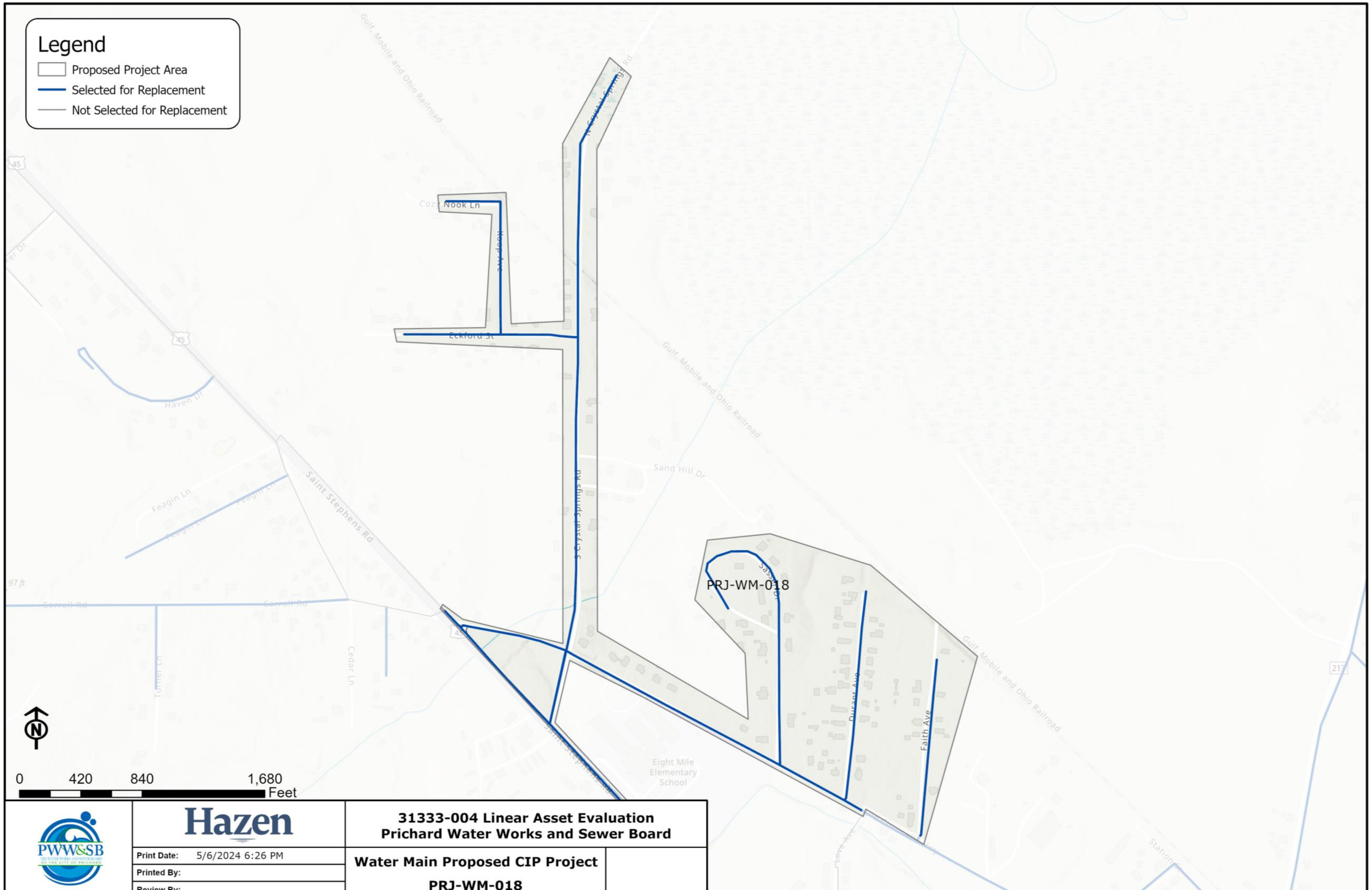

C-4-16. Water Main Proposed CIP Project – PRJ-WM-015



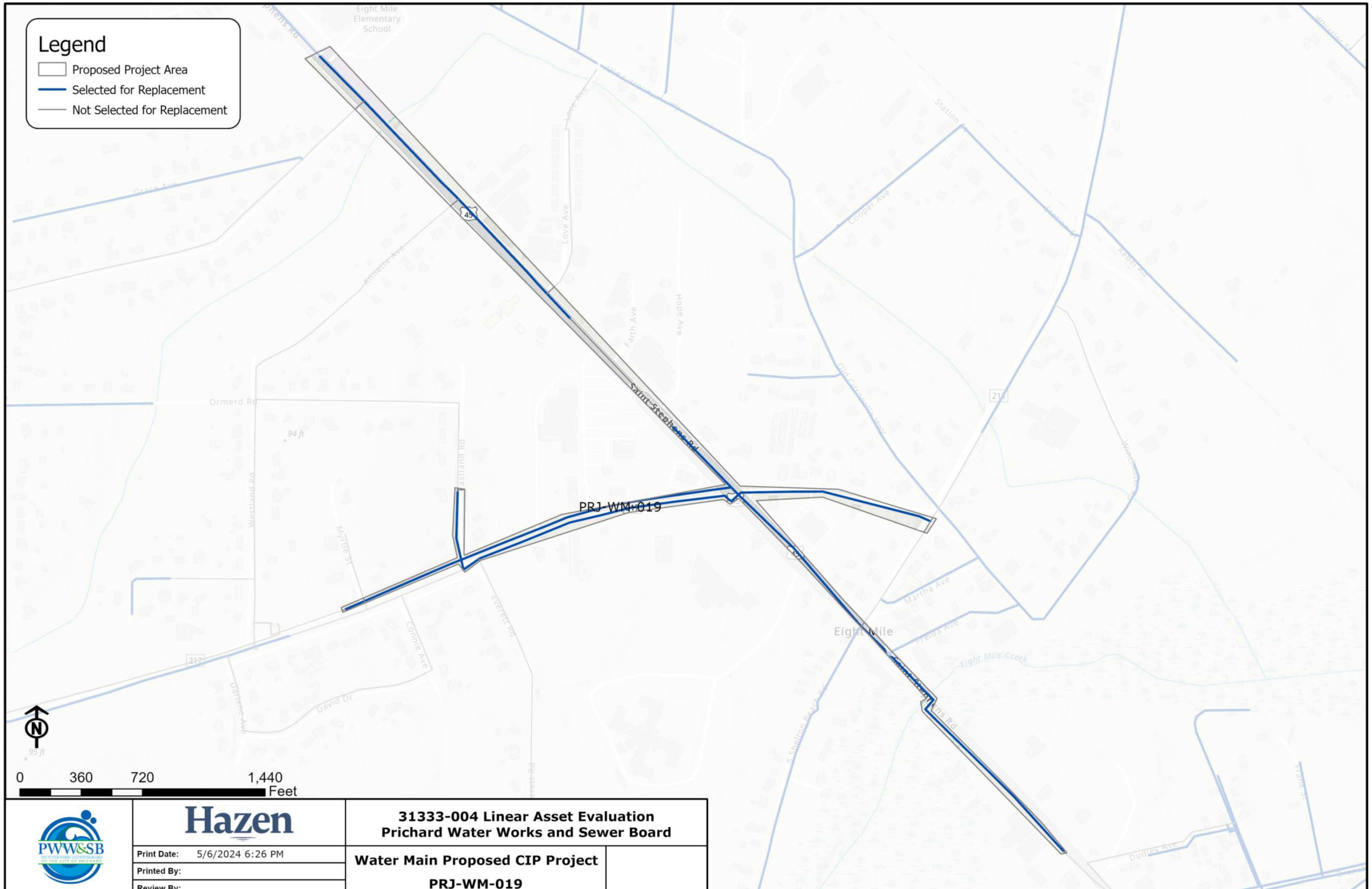

C-4-17. Water Main Proposed CIP Project – PRJ-WM-016



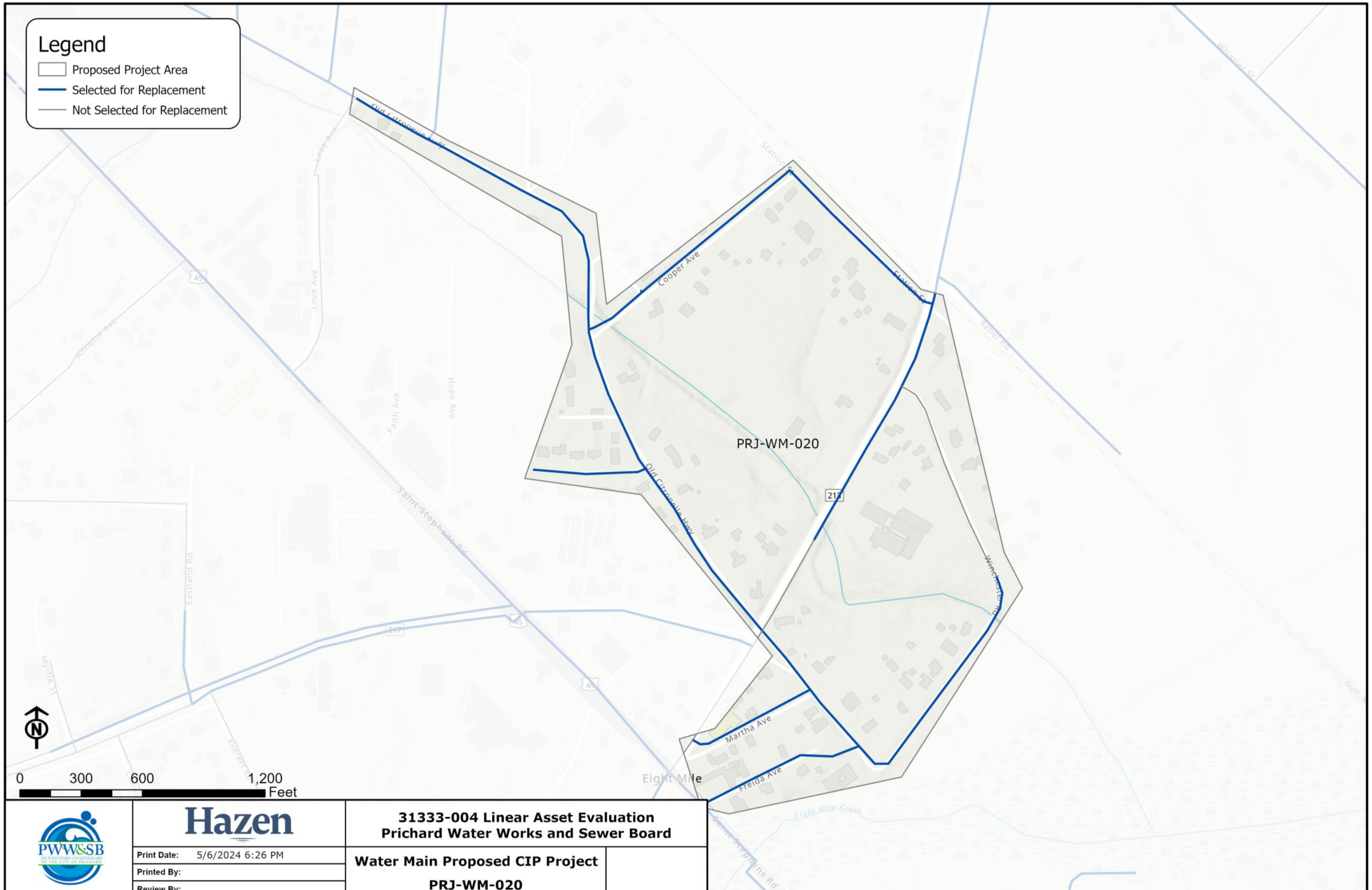

C-4-18. Water Main Proposed CIP Project – PRJ-WM-017



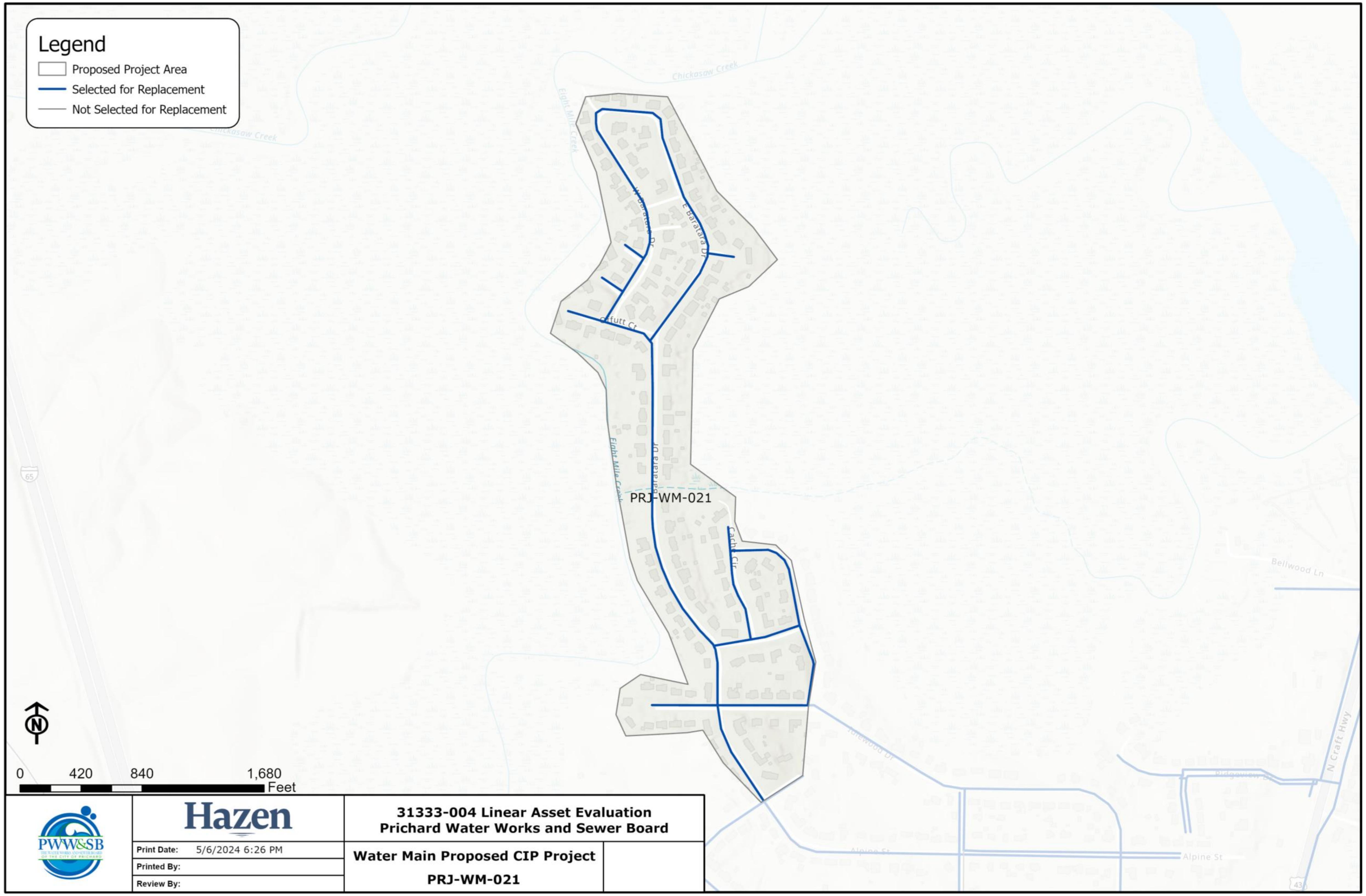

**C-4-19. Water Main Proposed CIP Project – PRJ-WM-018**



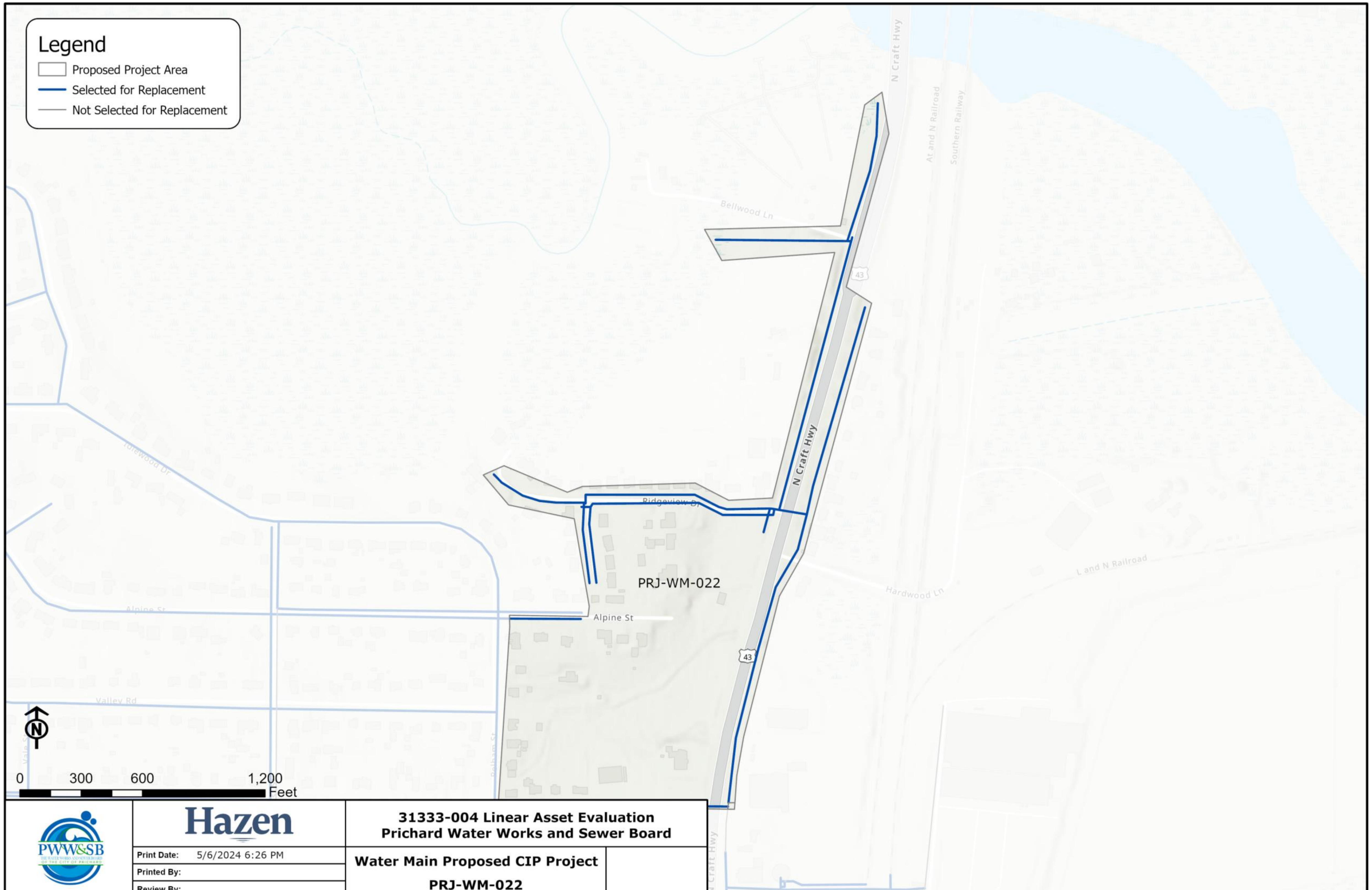

**C-4-20. Water Main Proposed CIP Project – PRJ-WM-019**



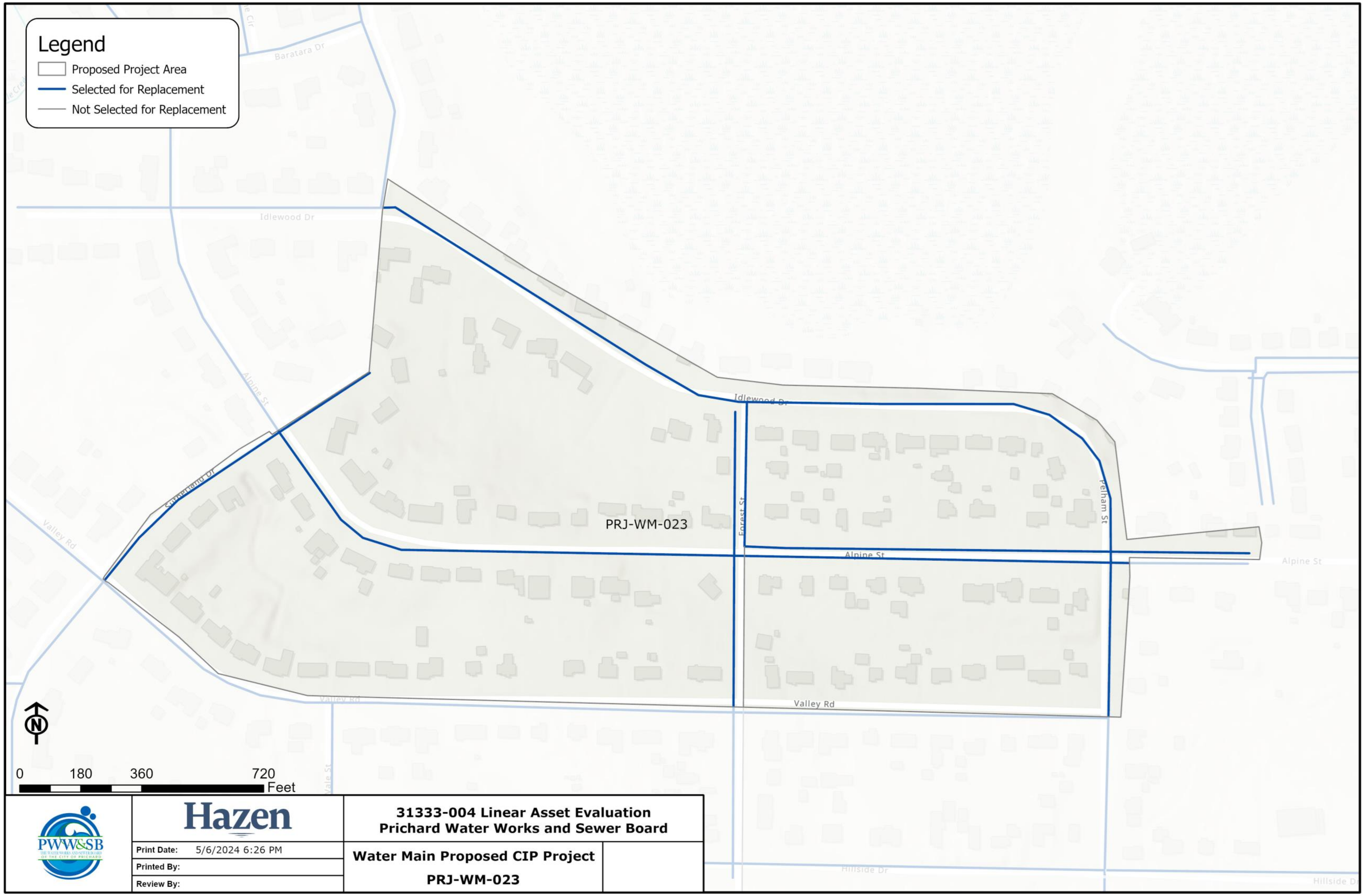

C-4-21. Water Main Proposed CIP Project – PRJ-WM-020



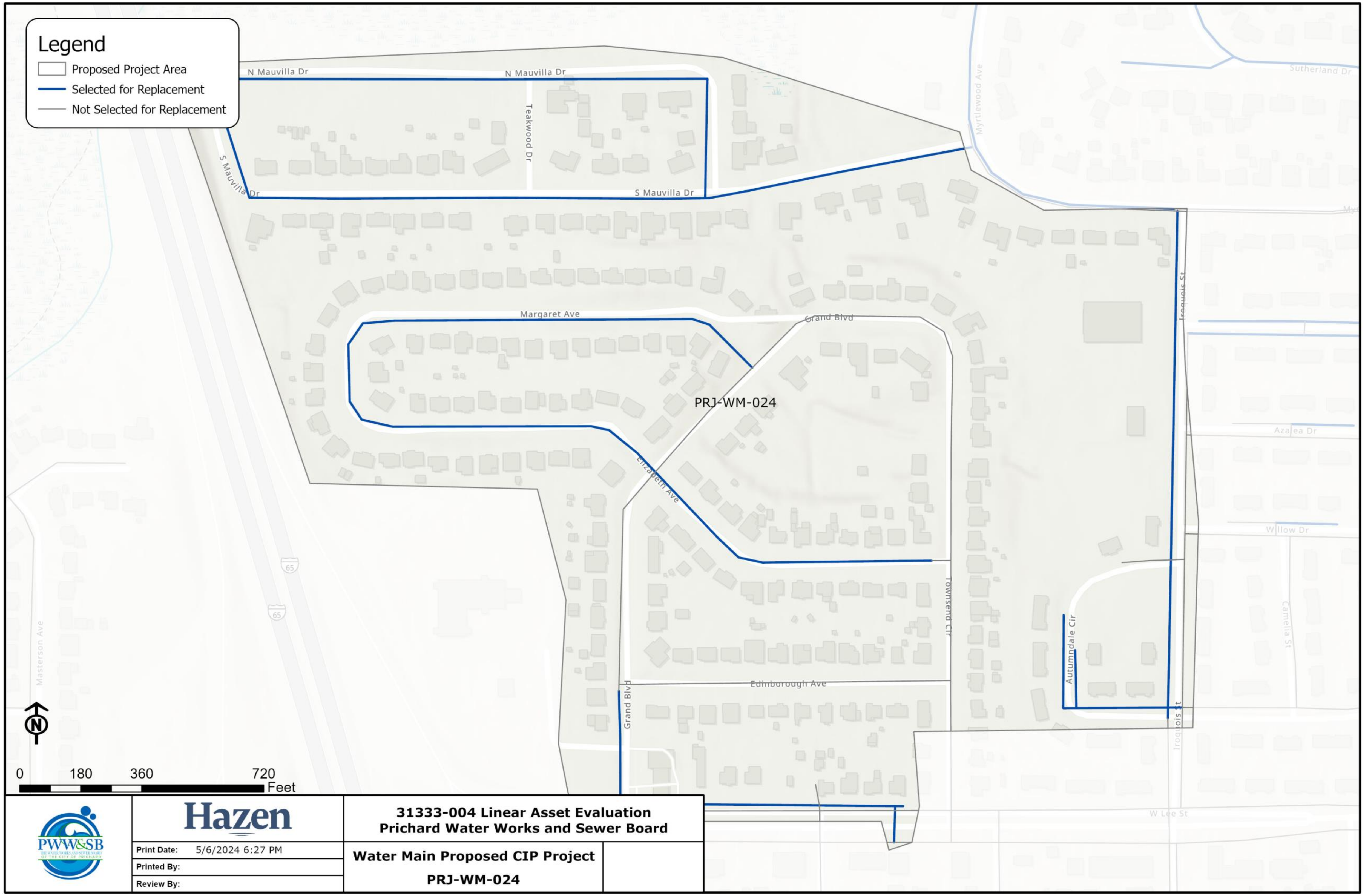

**C-4-22. Water Main Proposed CIP Project – PRJ-WM-021**



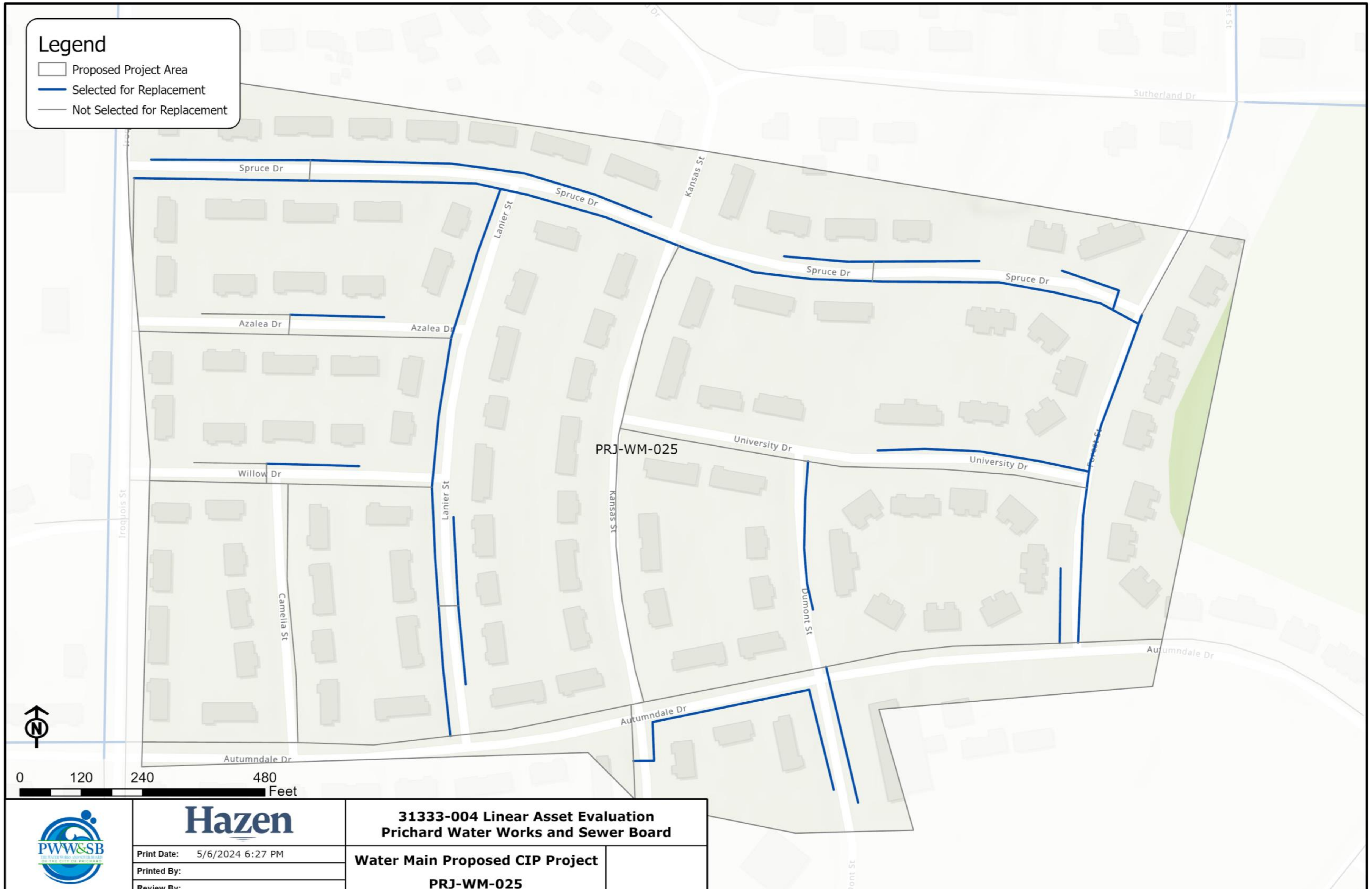

**C-4-23. Water Main Proposed CIP Project – PRJ-WM-022**



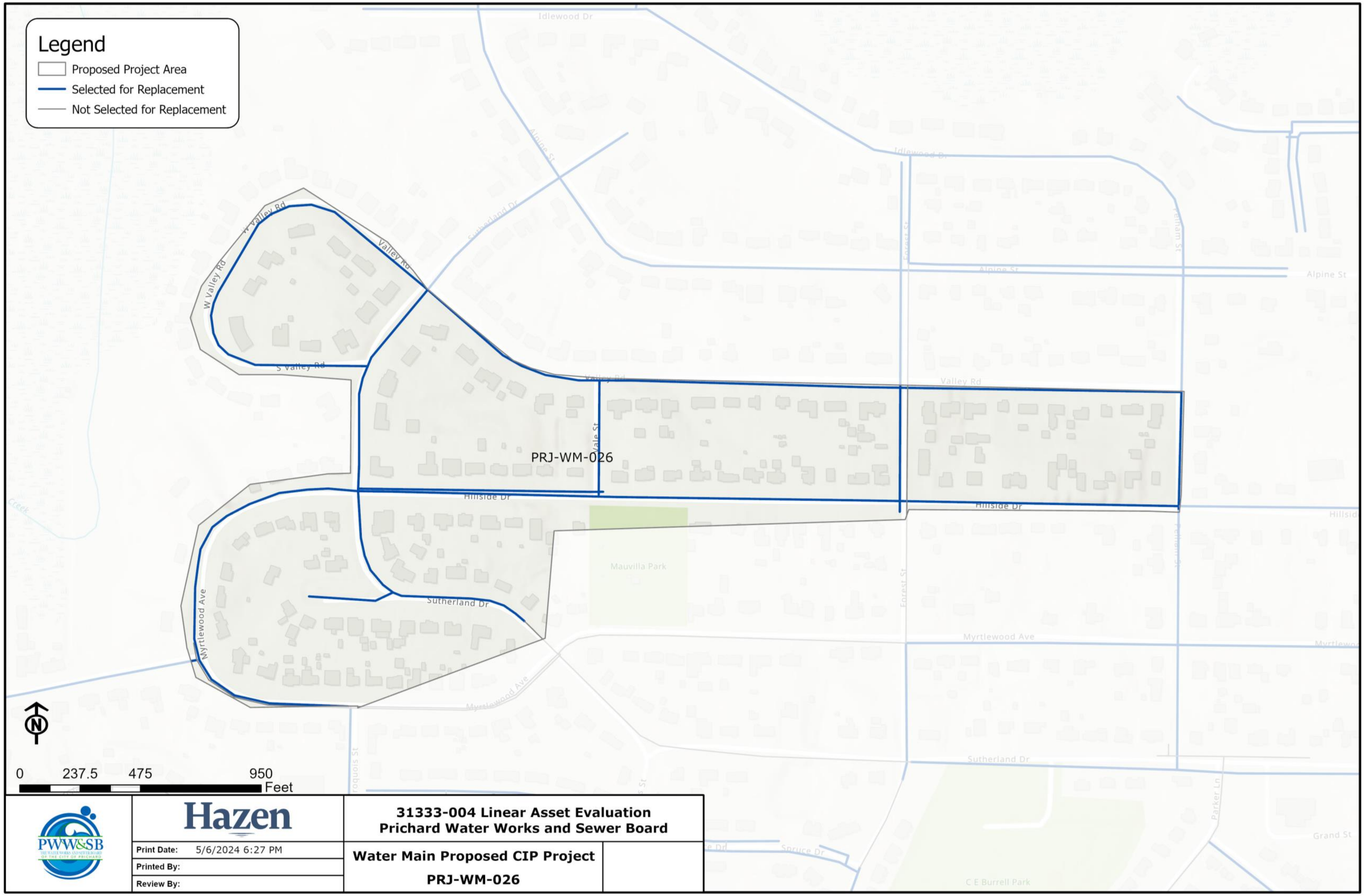

**C-4-24. Water Main Proposed CIP Project – PRJ-WM-023**



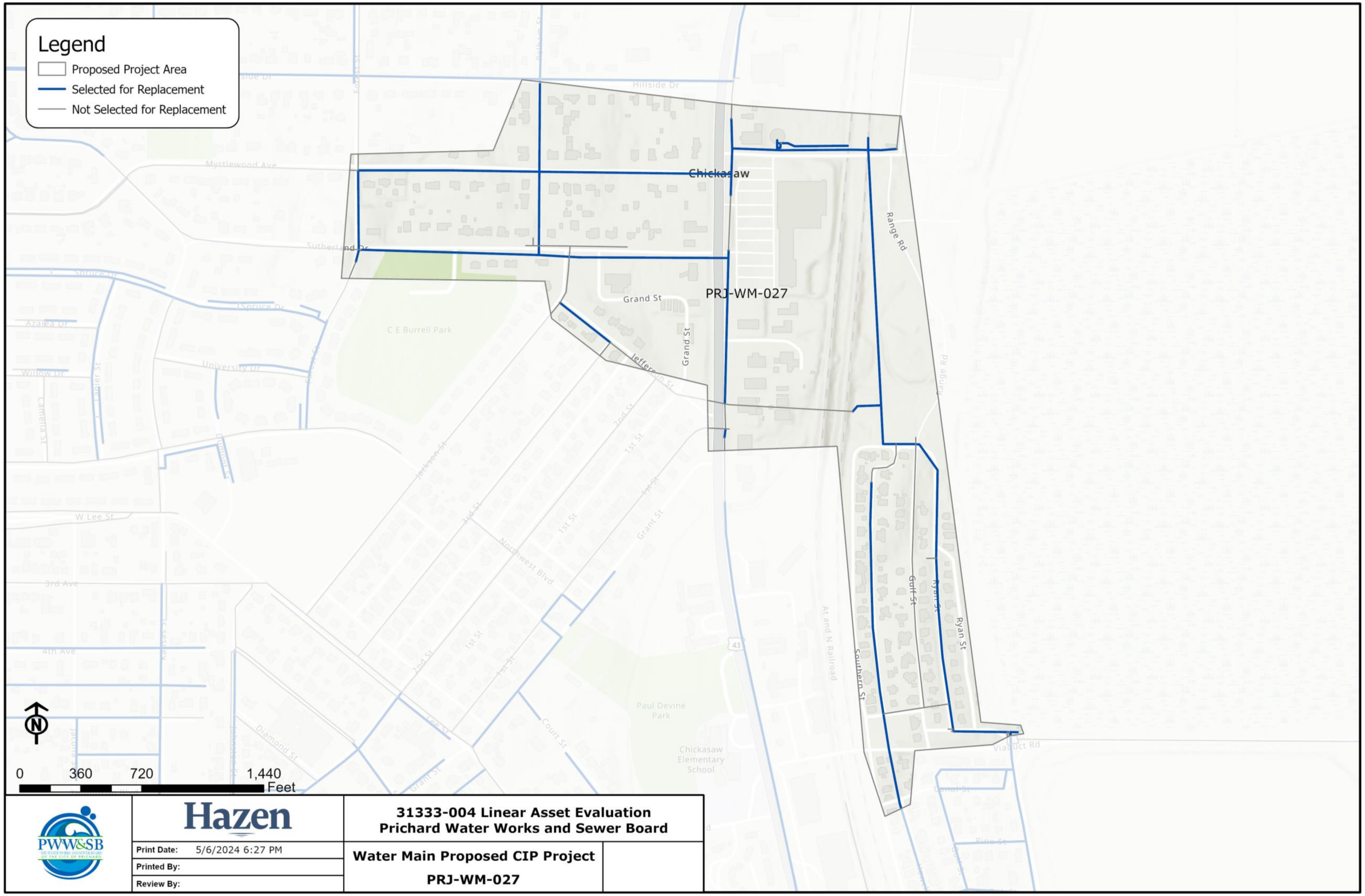

**C-4-25. Water Main Proposed CIP Project – PRJ-WM-024**



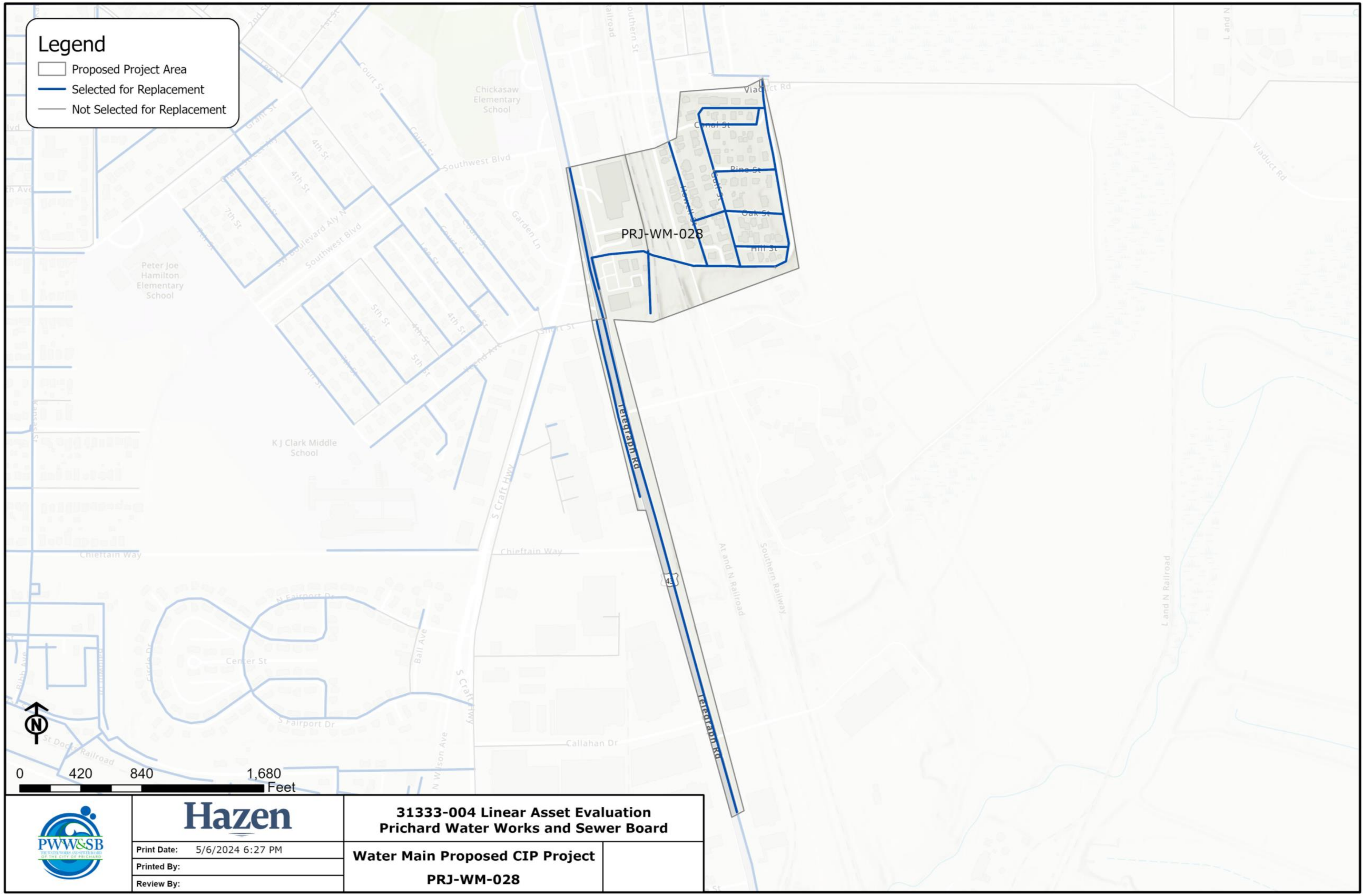

**C-4-26. Water Main Proposed CIP Project – PRJ-WM-025**



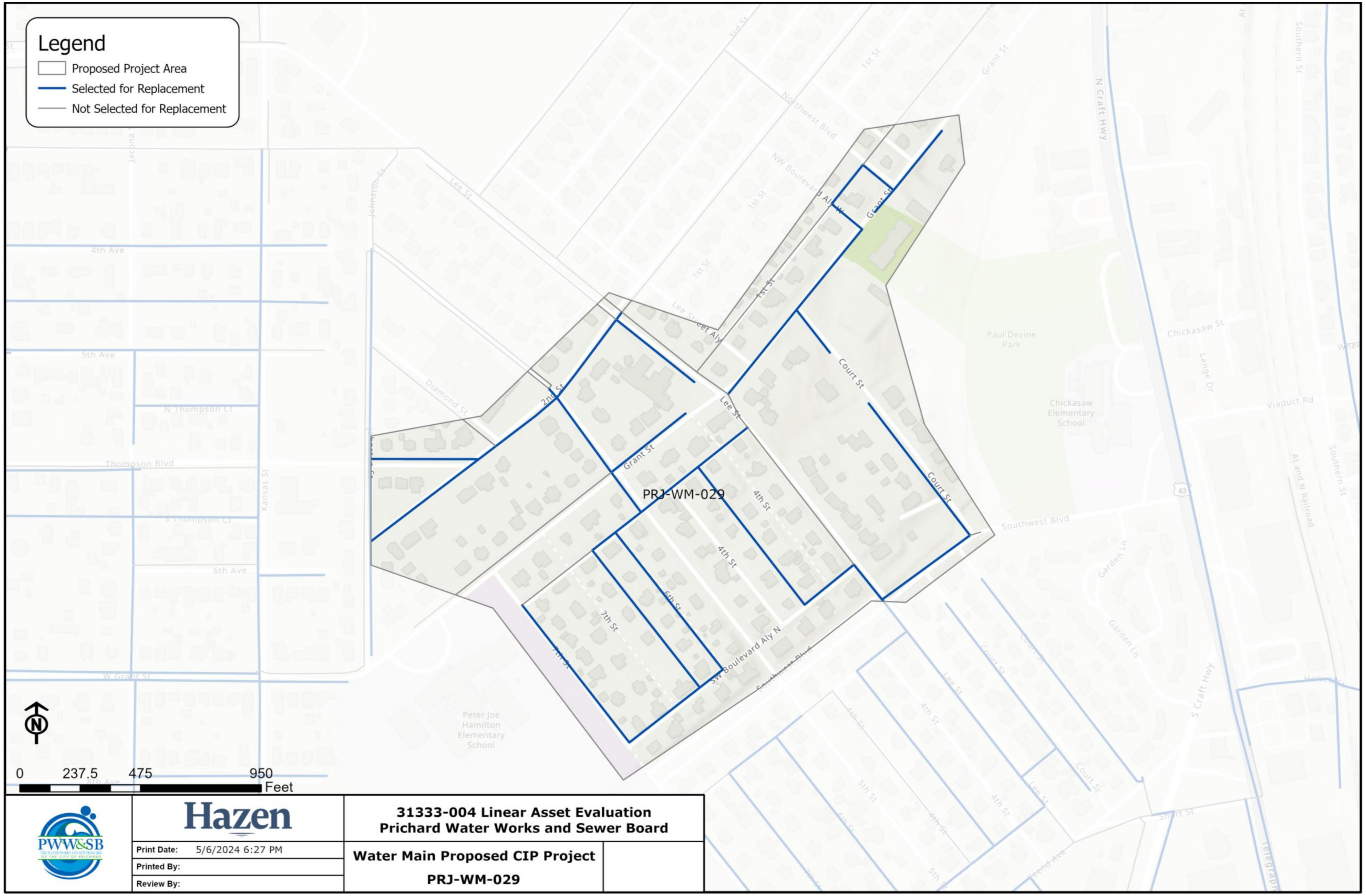

**C-4-27. Water Main Proposed CIP Project – PRJ-WM-026**



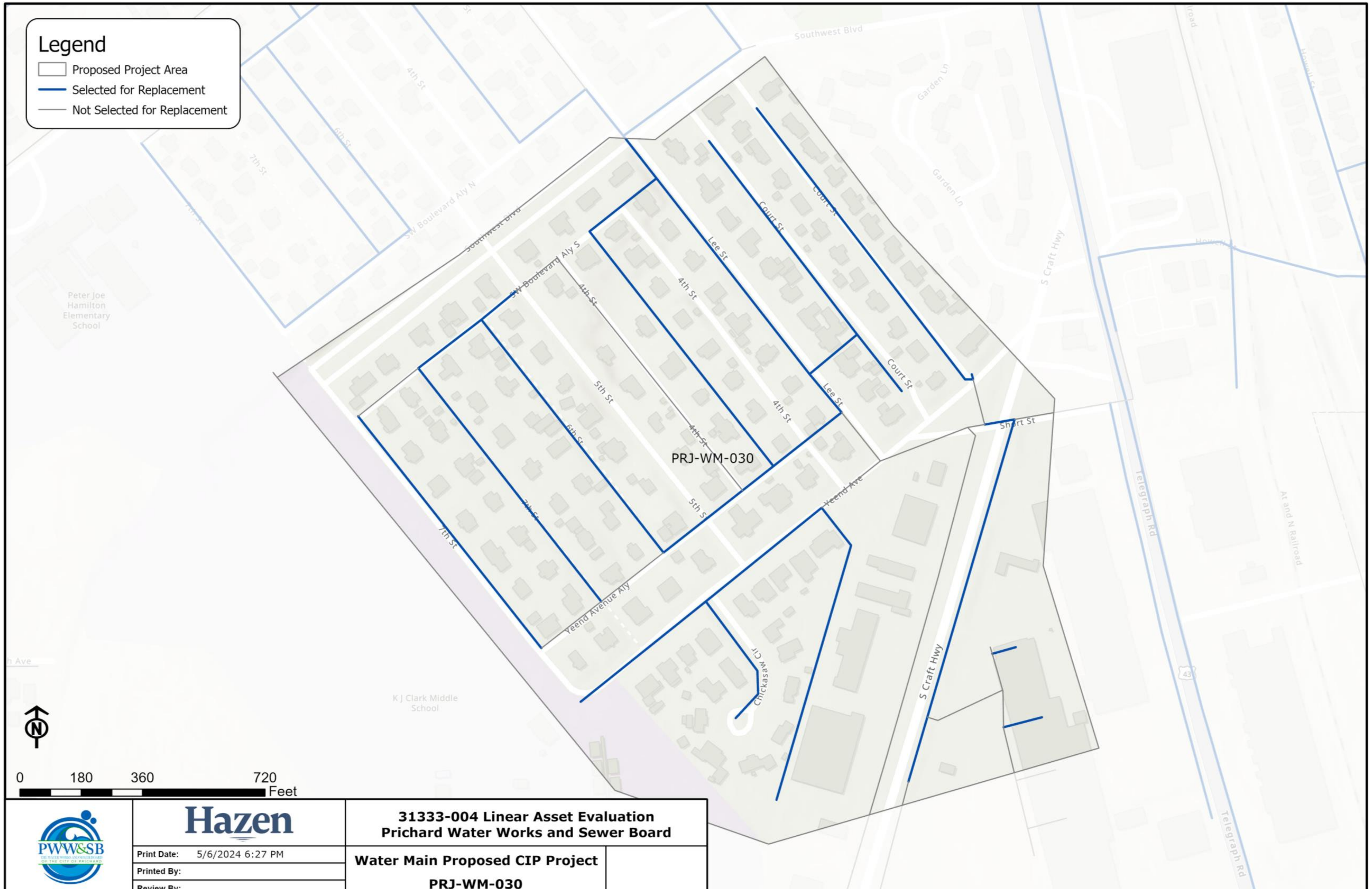

C-4-28. Water Main Proposed CIP Project – PRJ-WM-027




C-4-29. Water Main Proposed CIP Project – PRJ-WM-028




**C-4-30. Water Main Proposed CIP Project – PRJ-WM-029**

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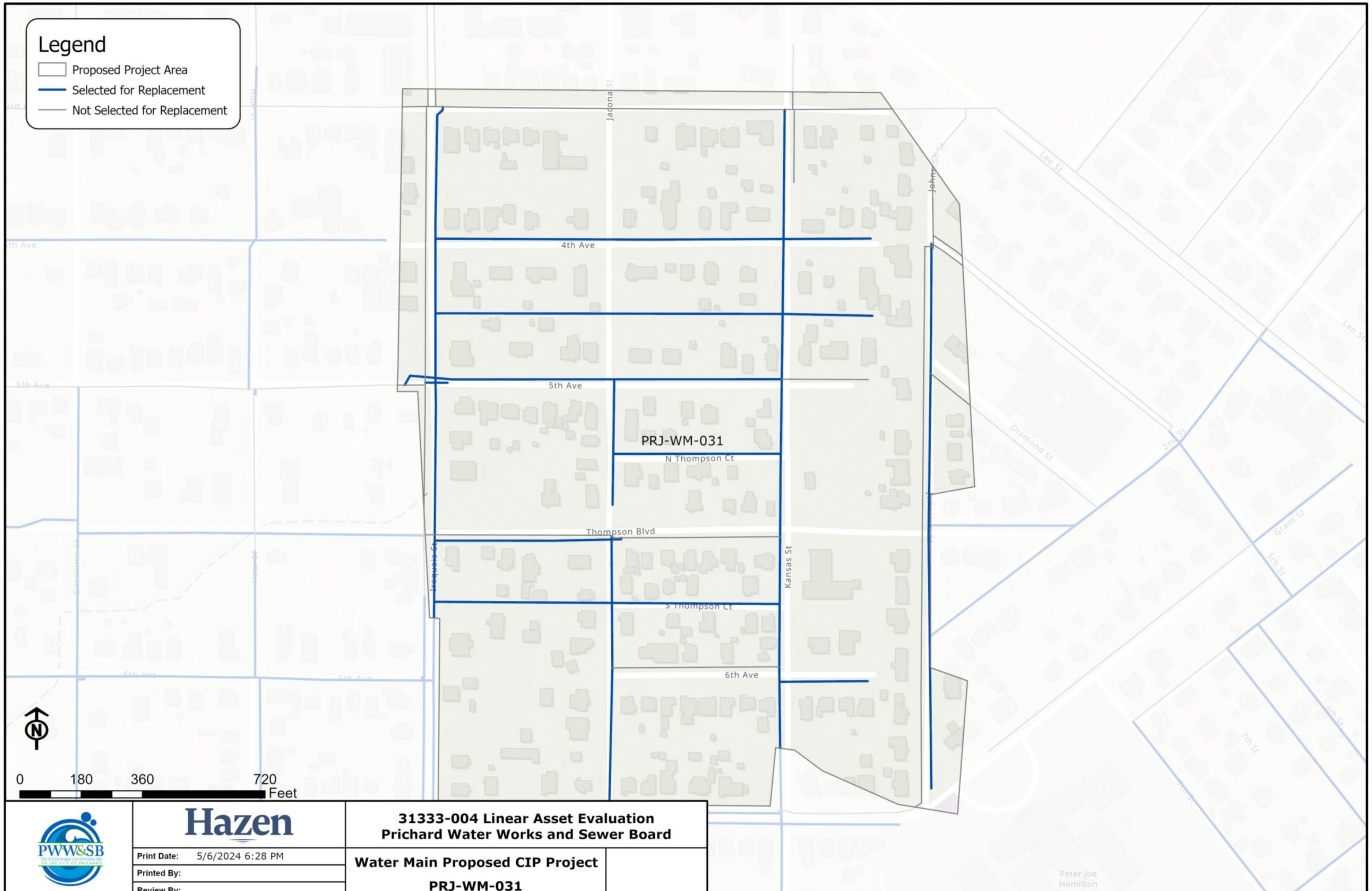


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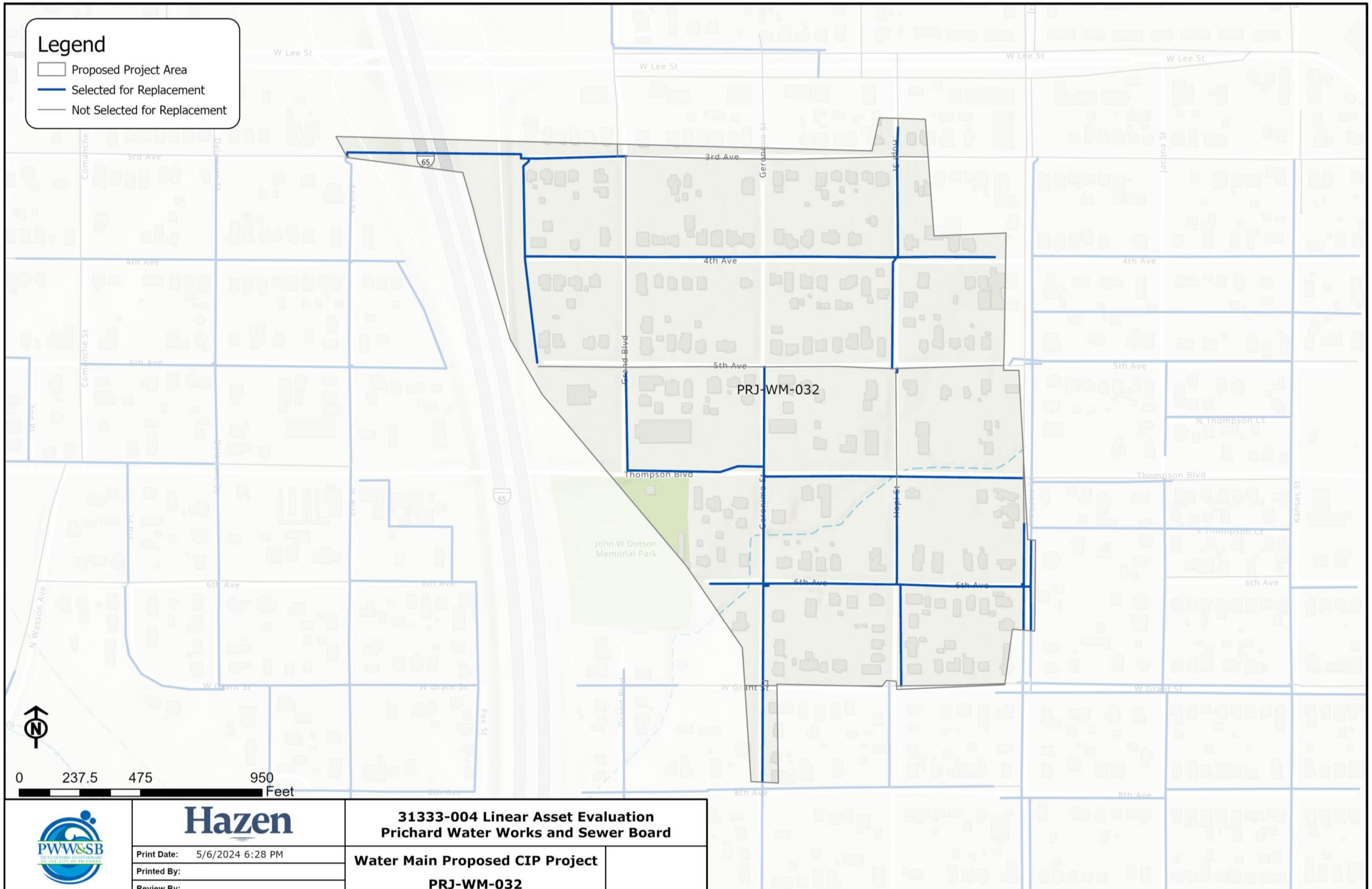


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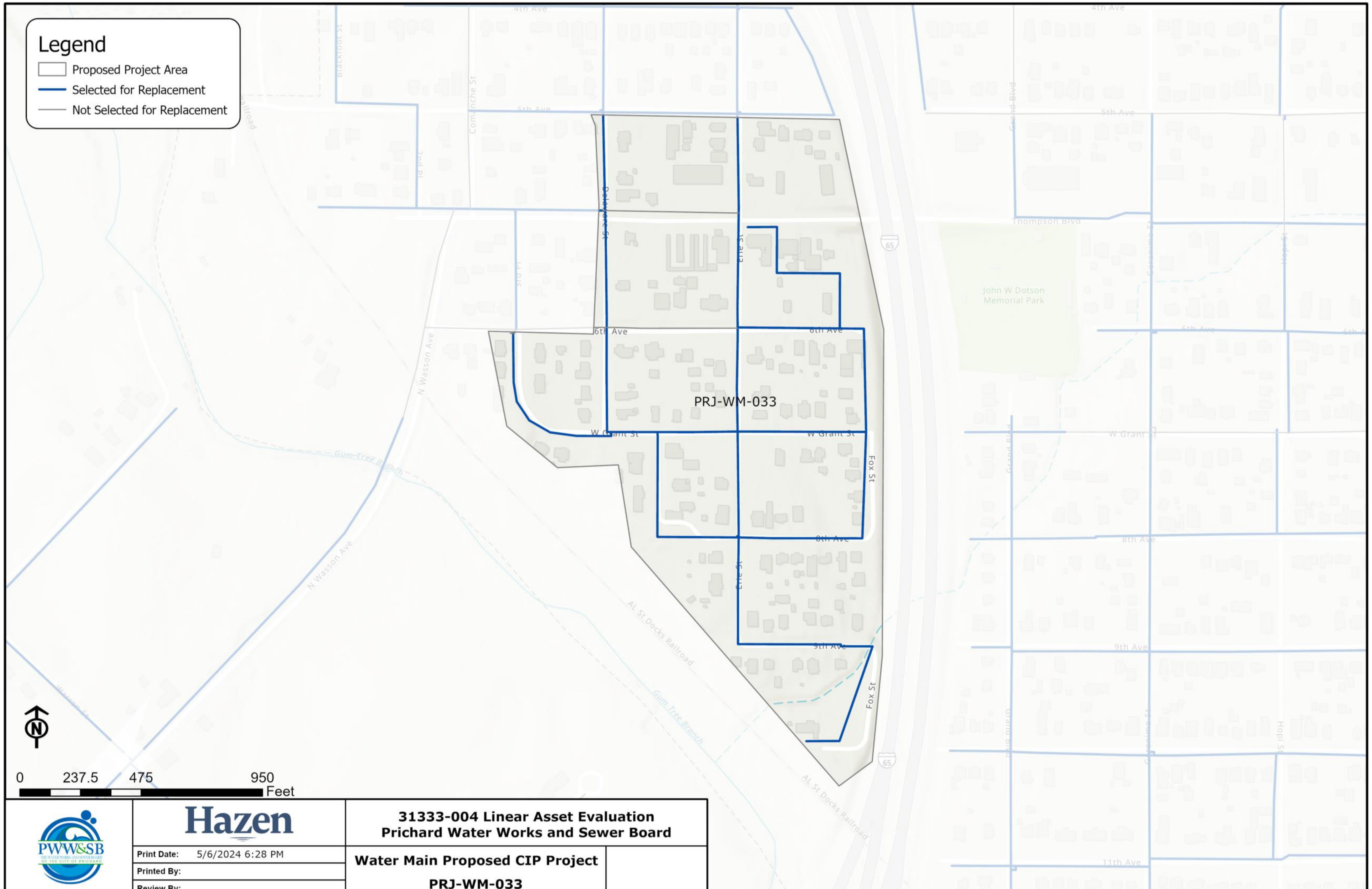


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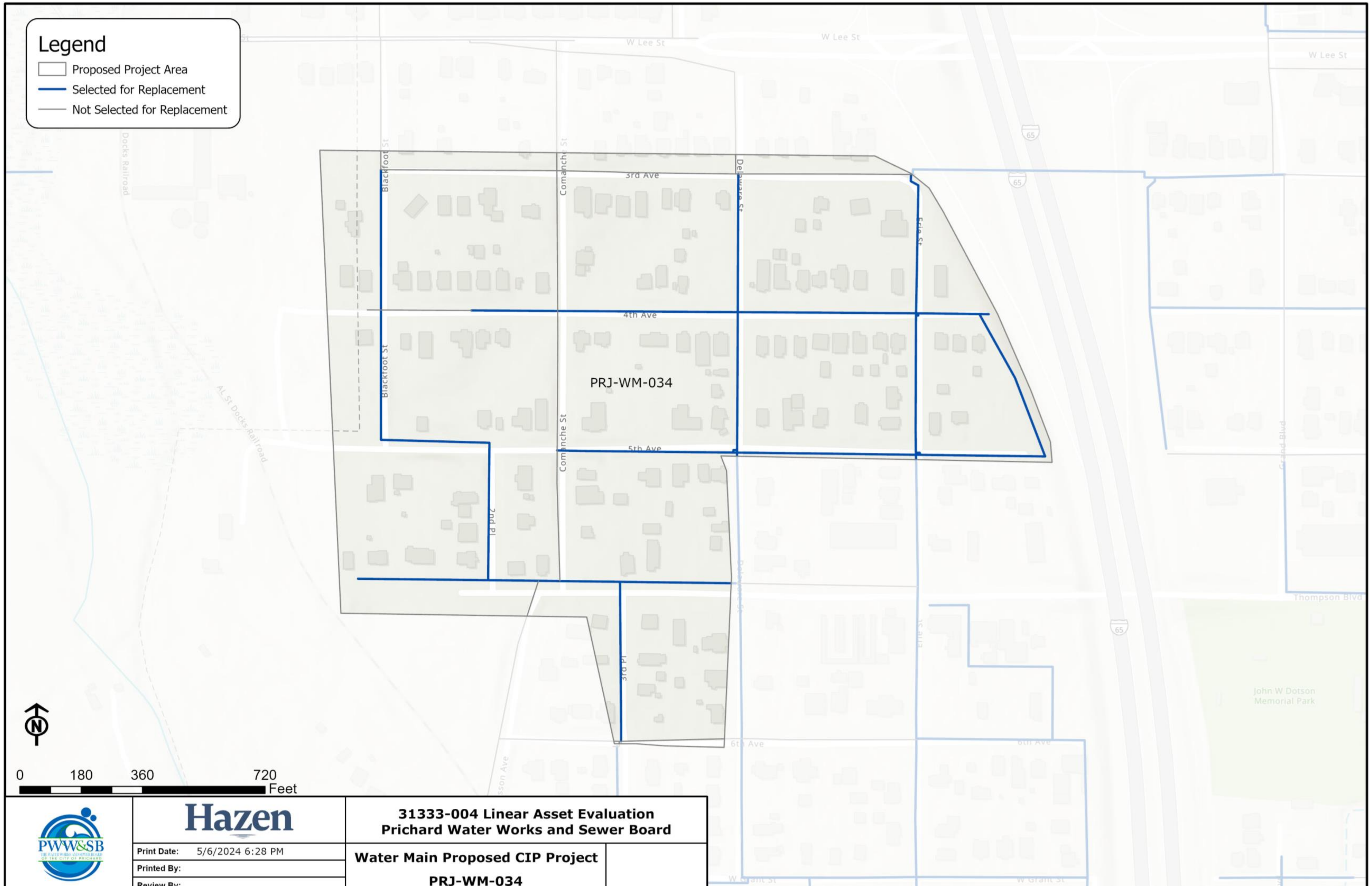


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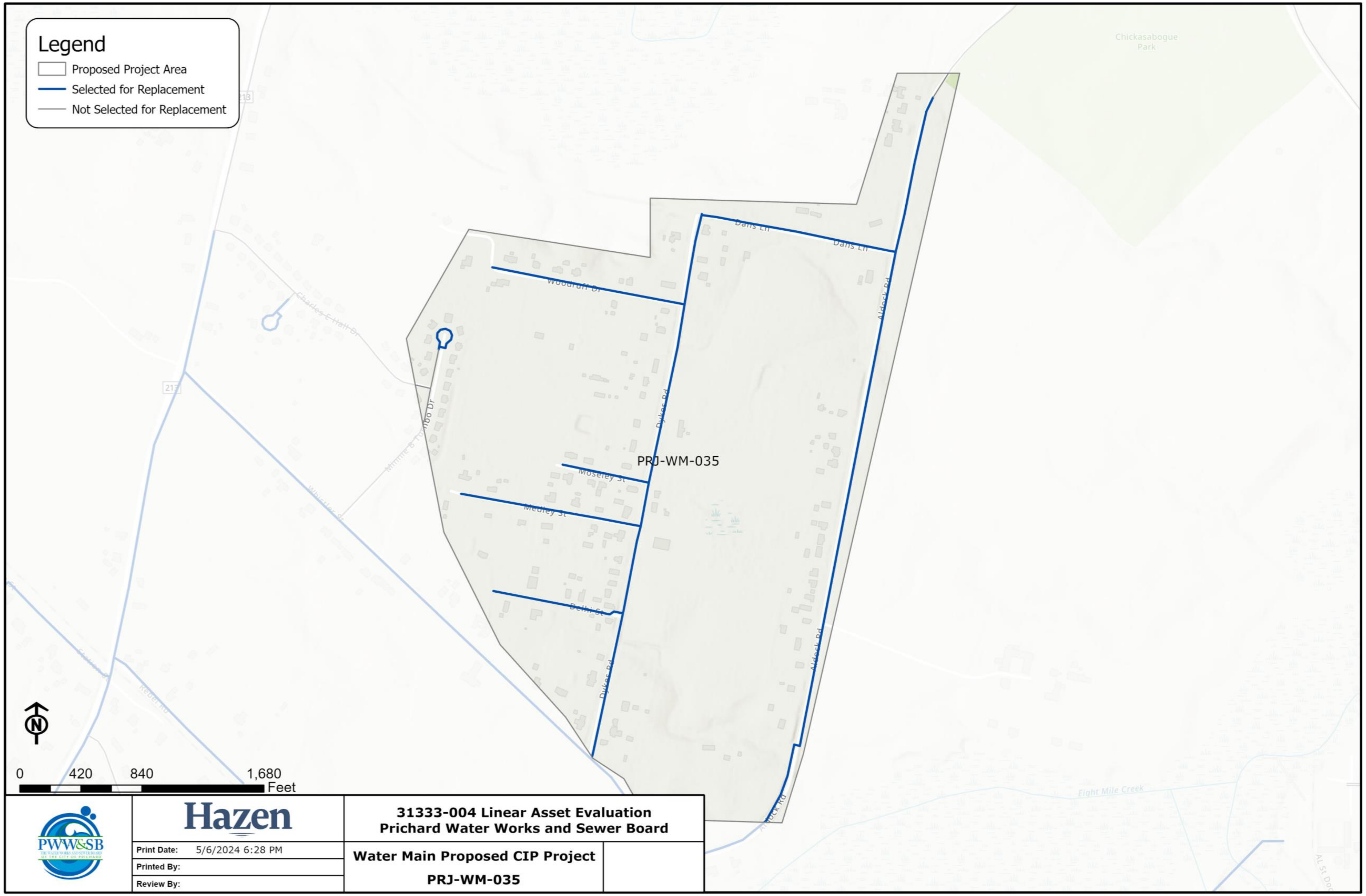


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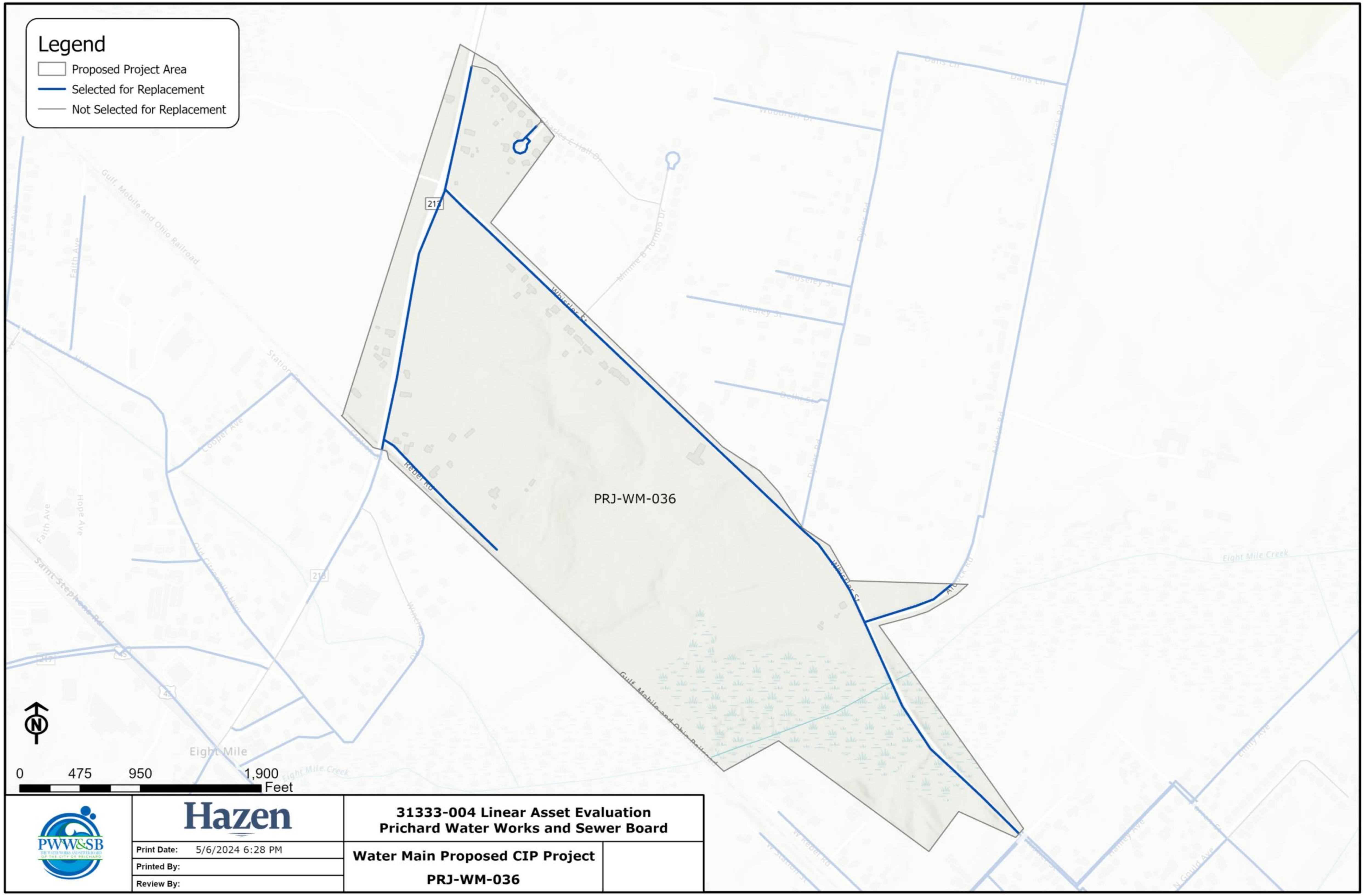


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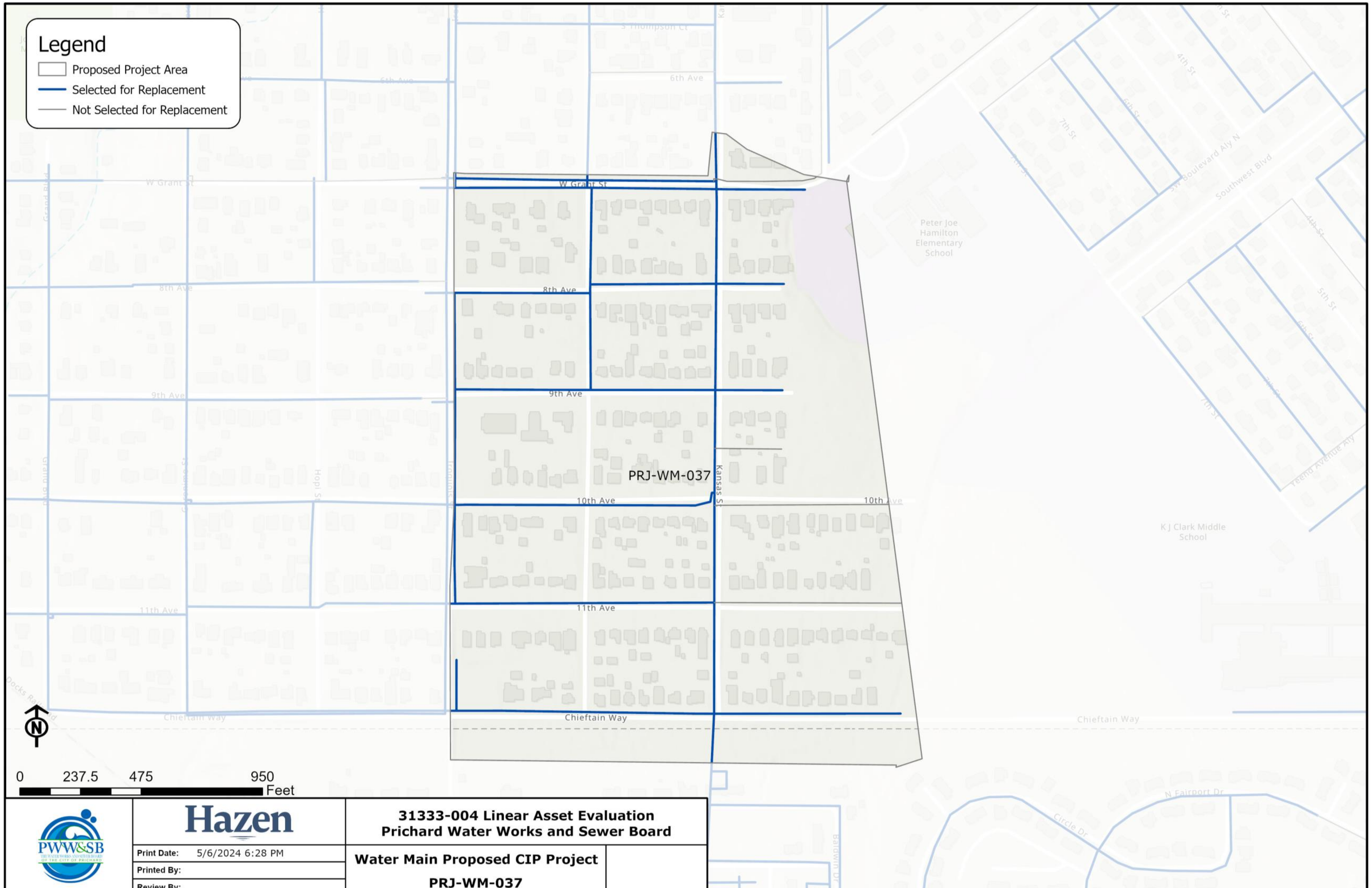


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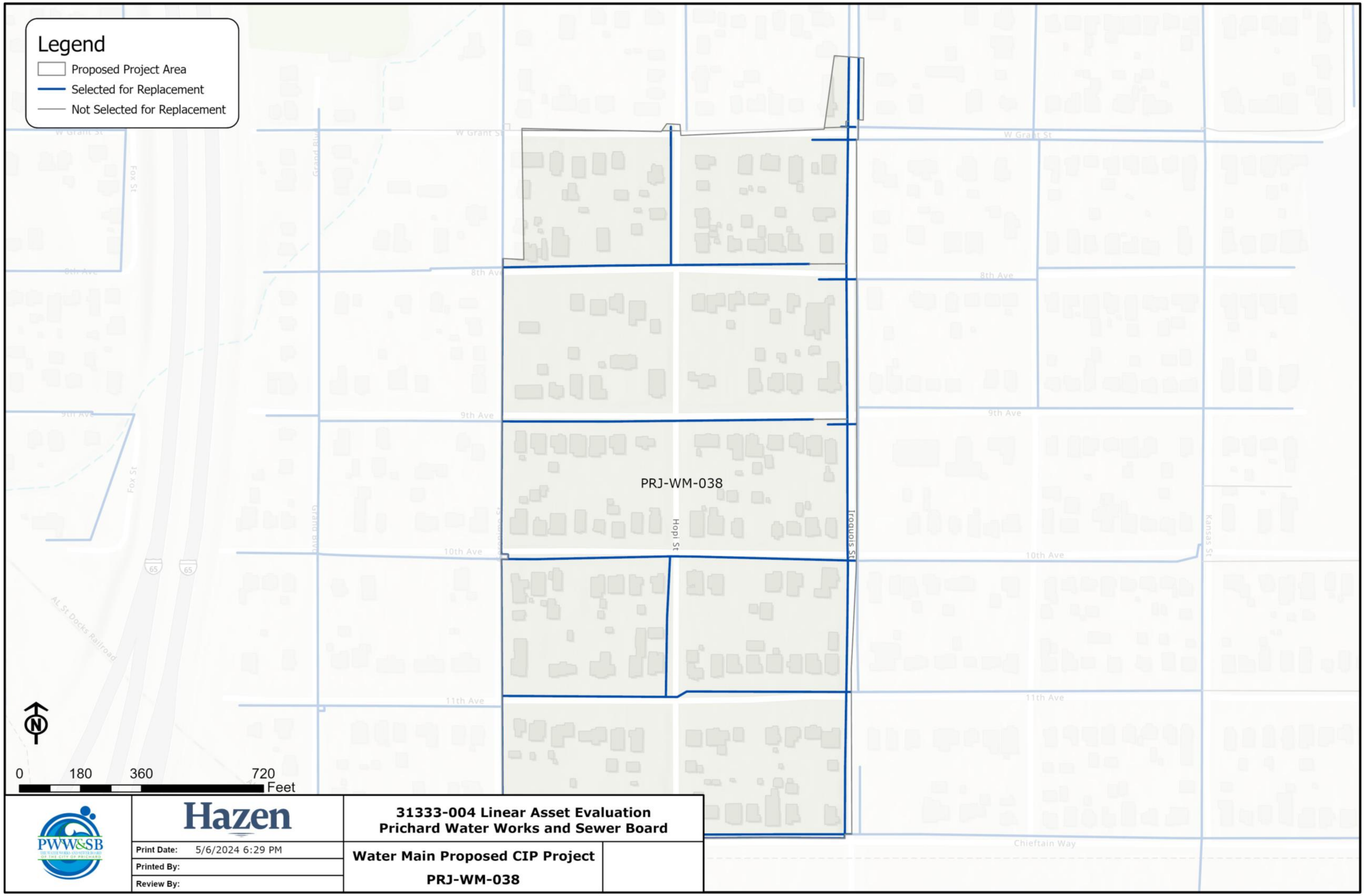


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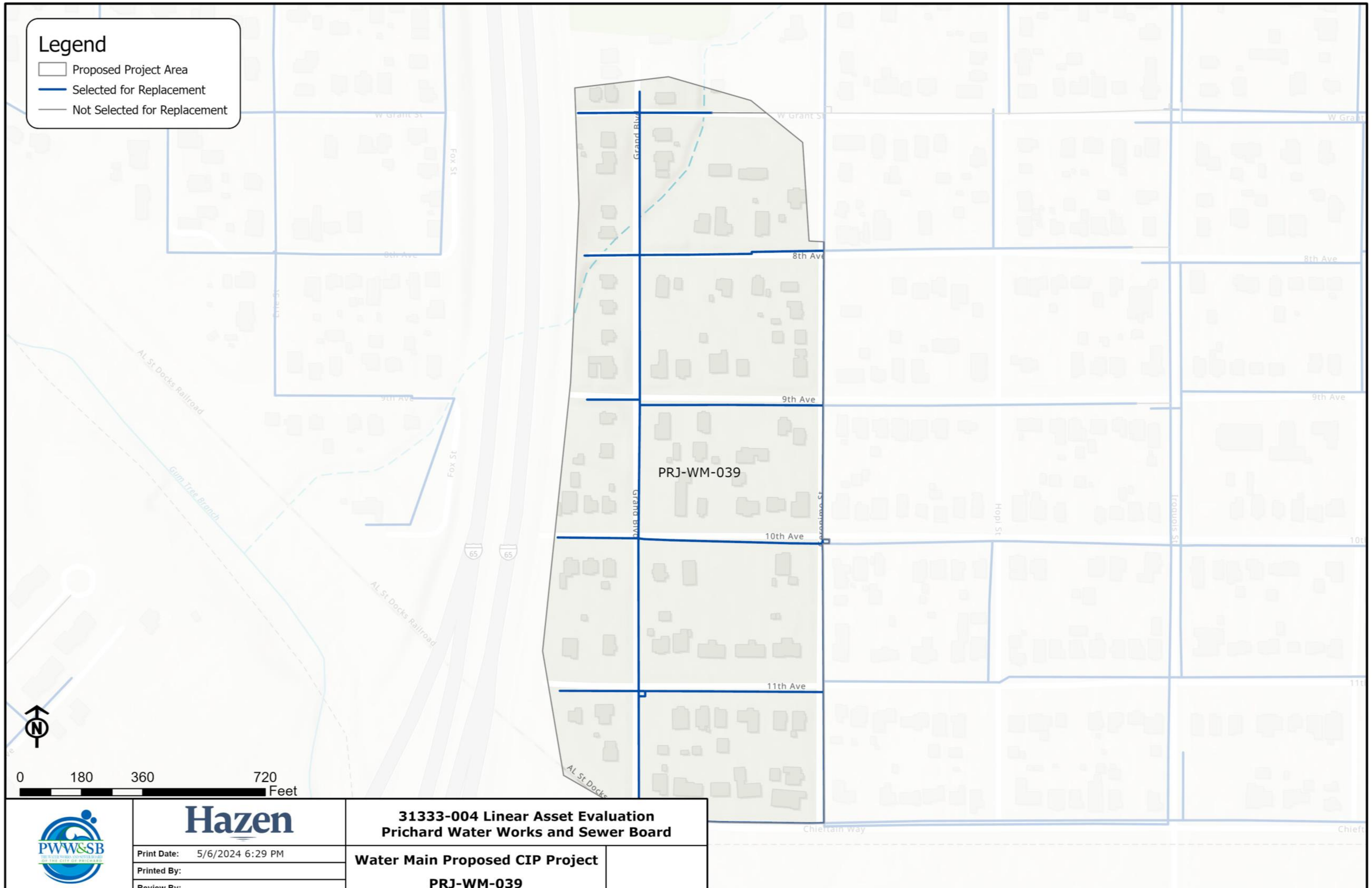


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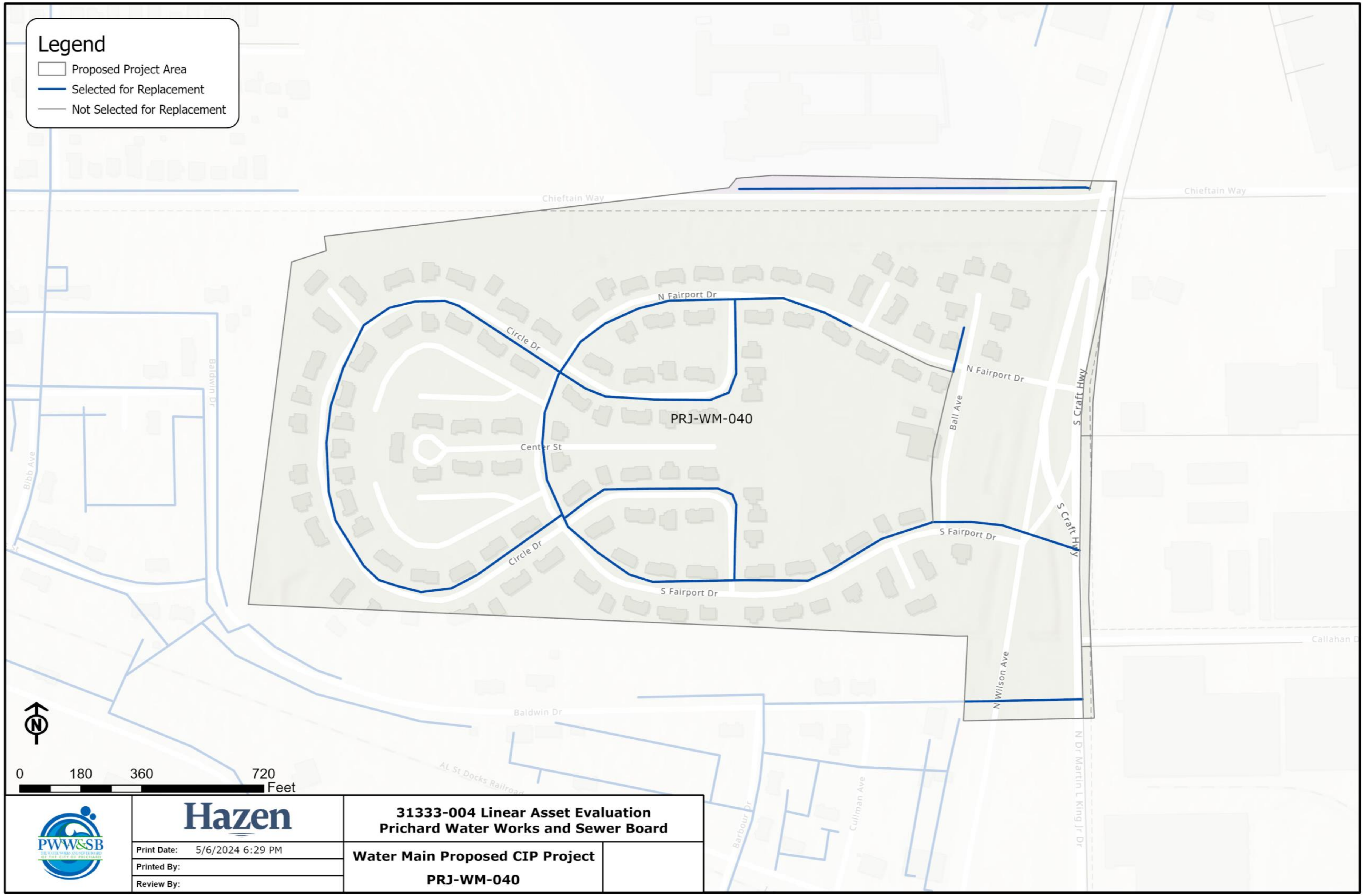


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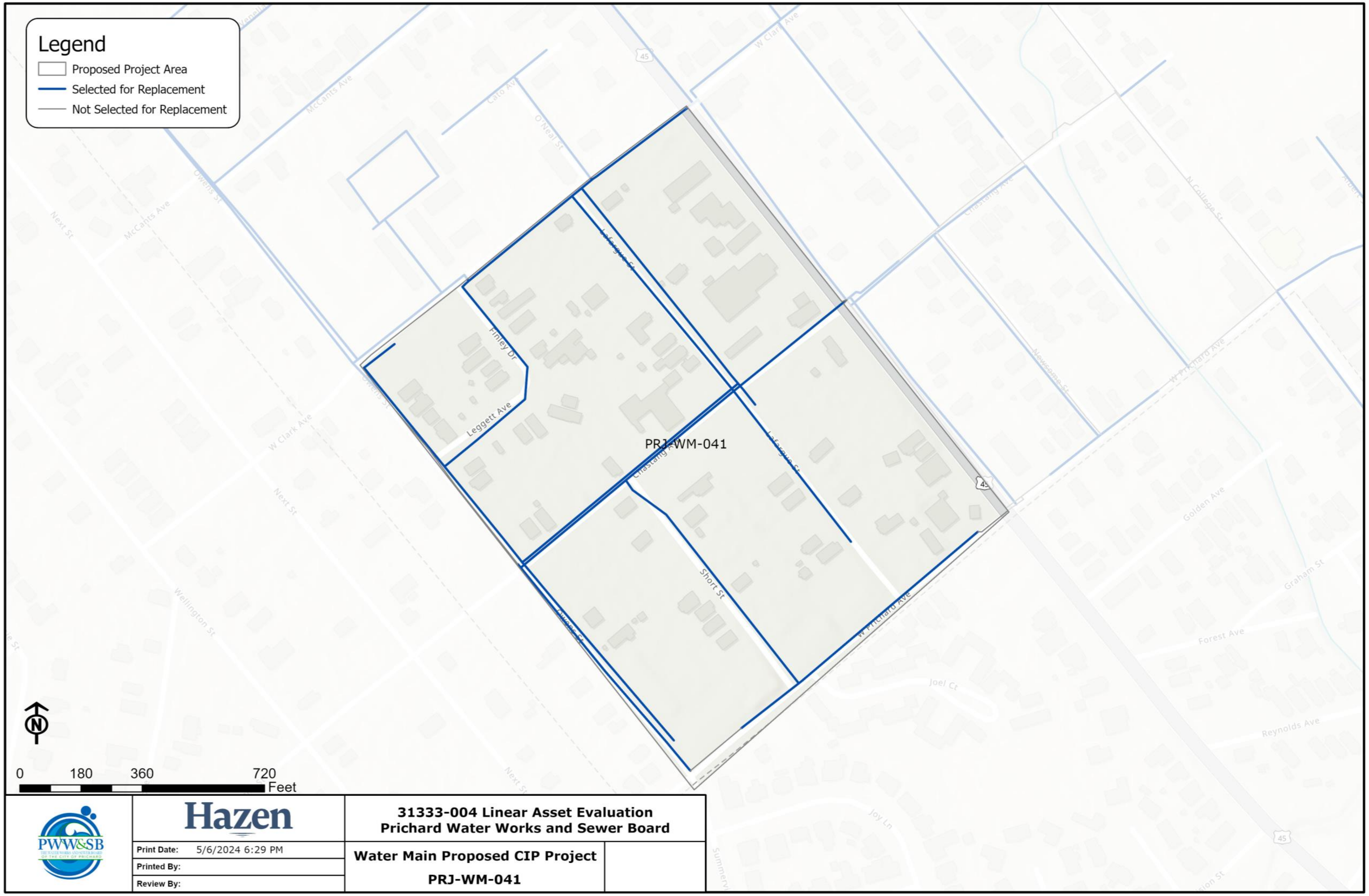


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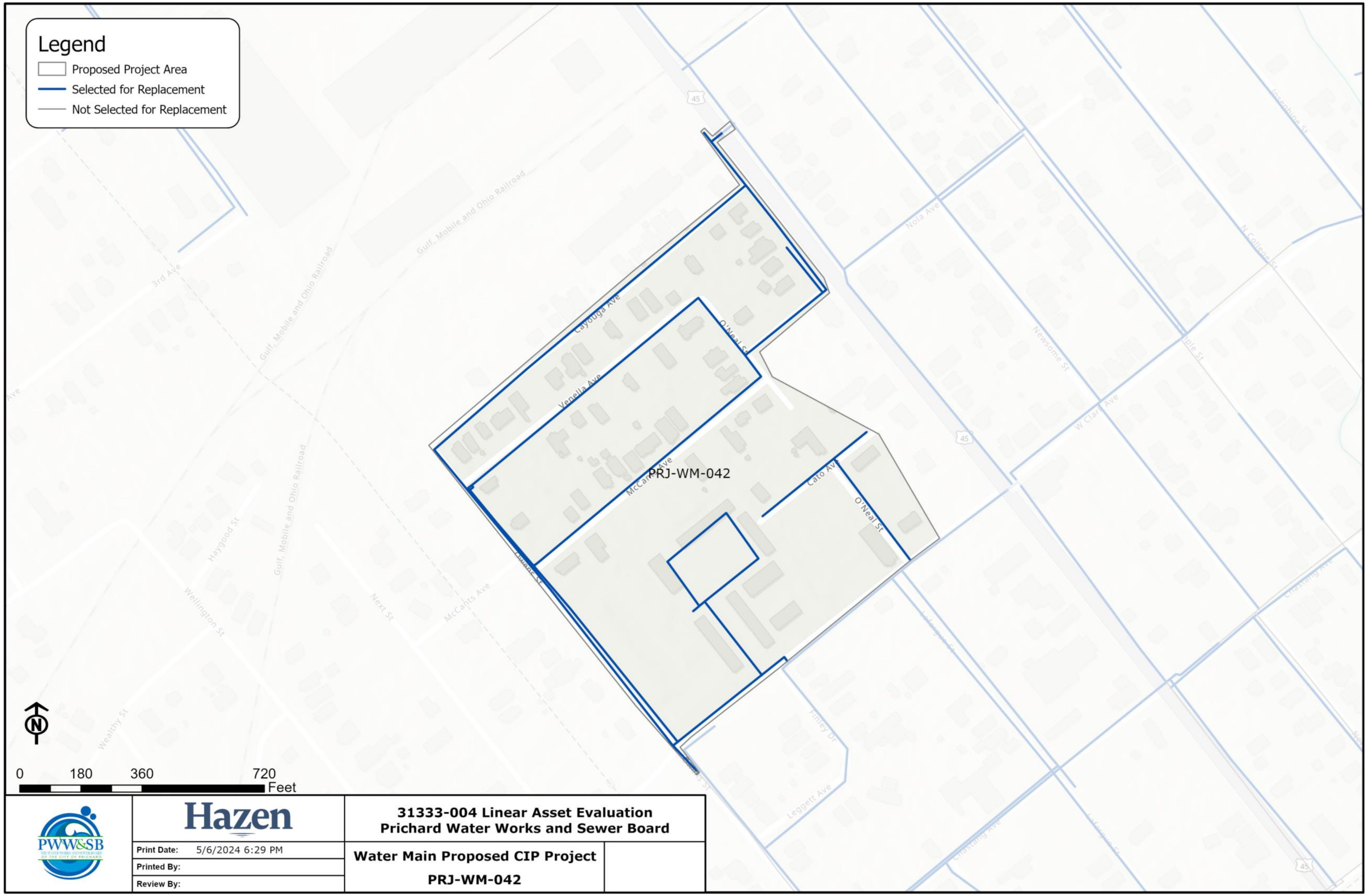


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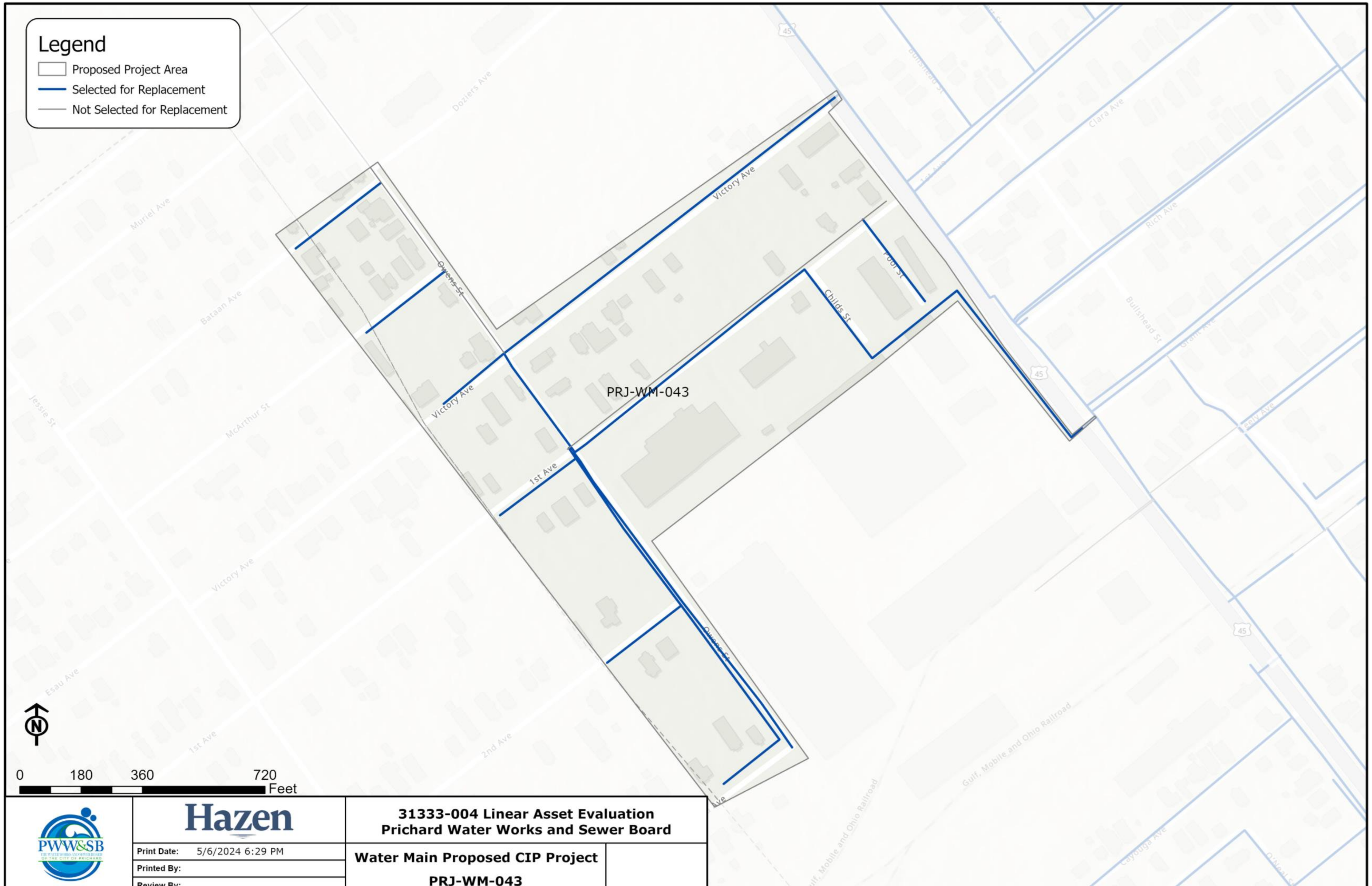


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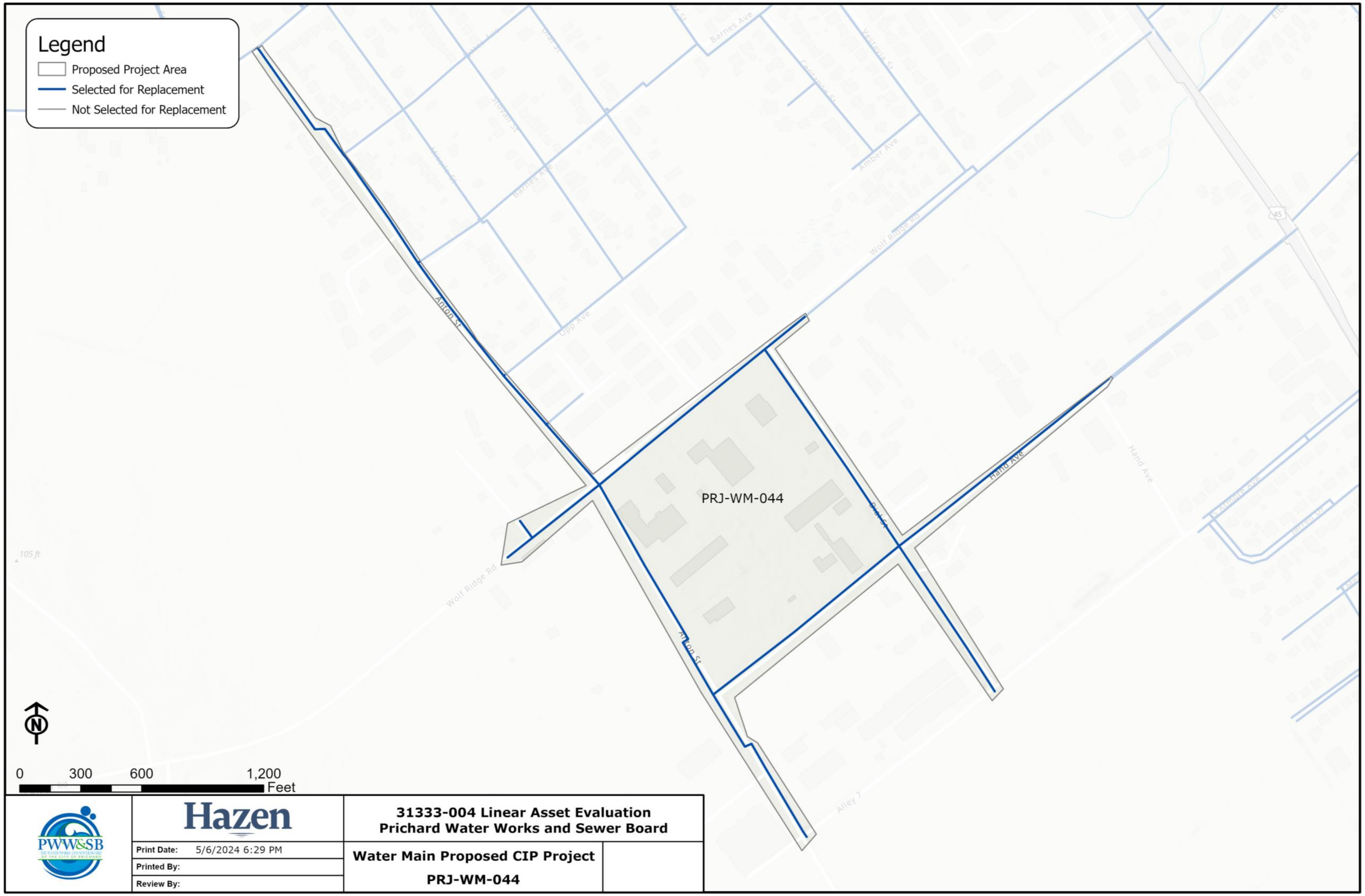


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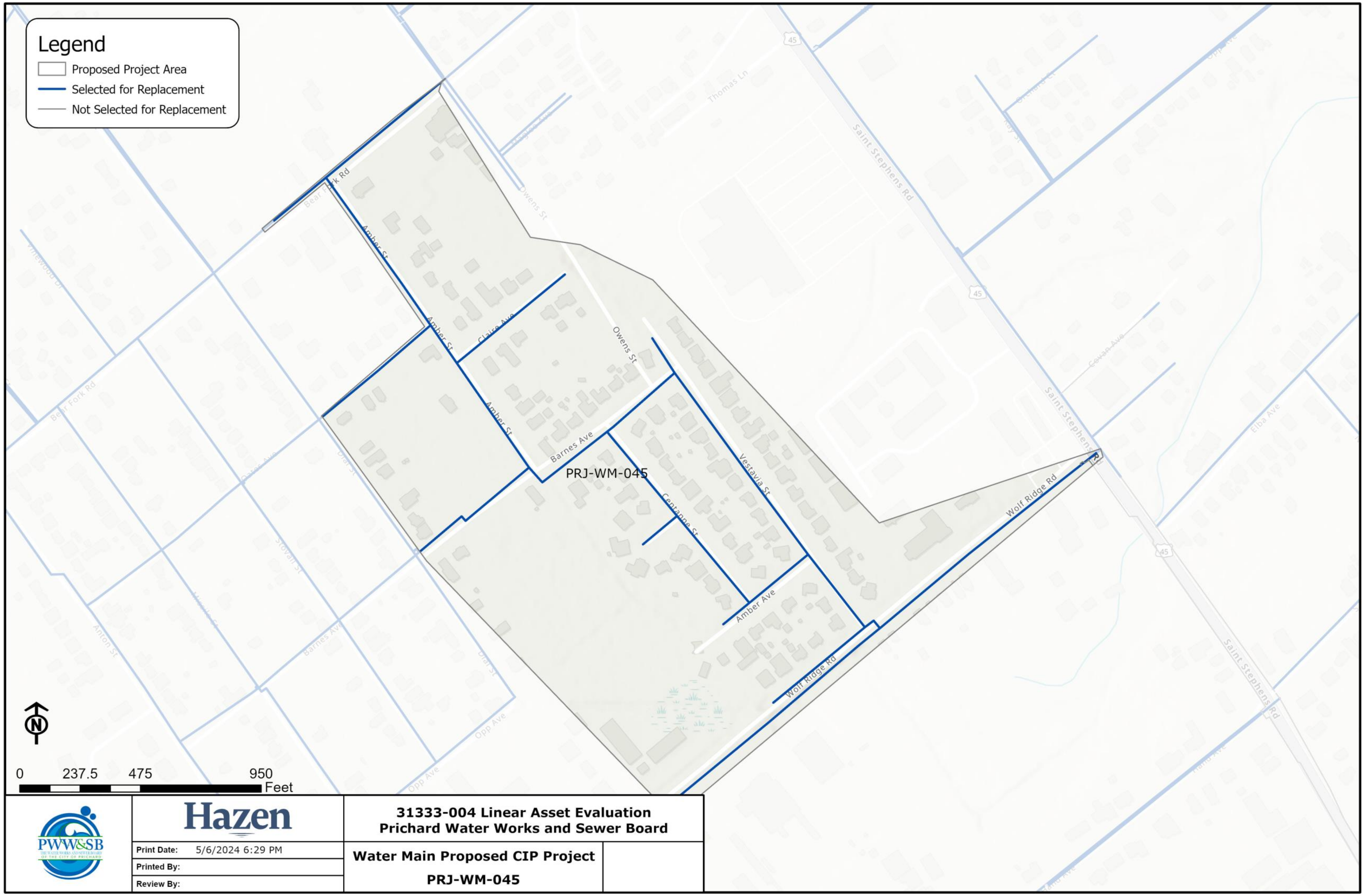


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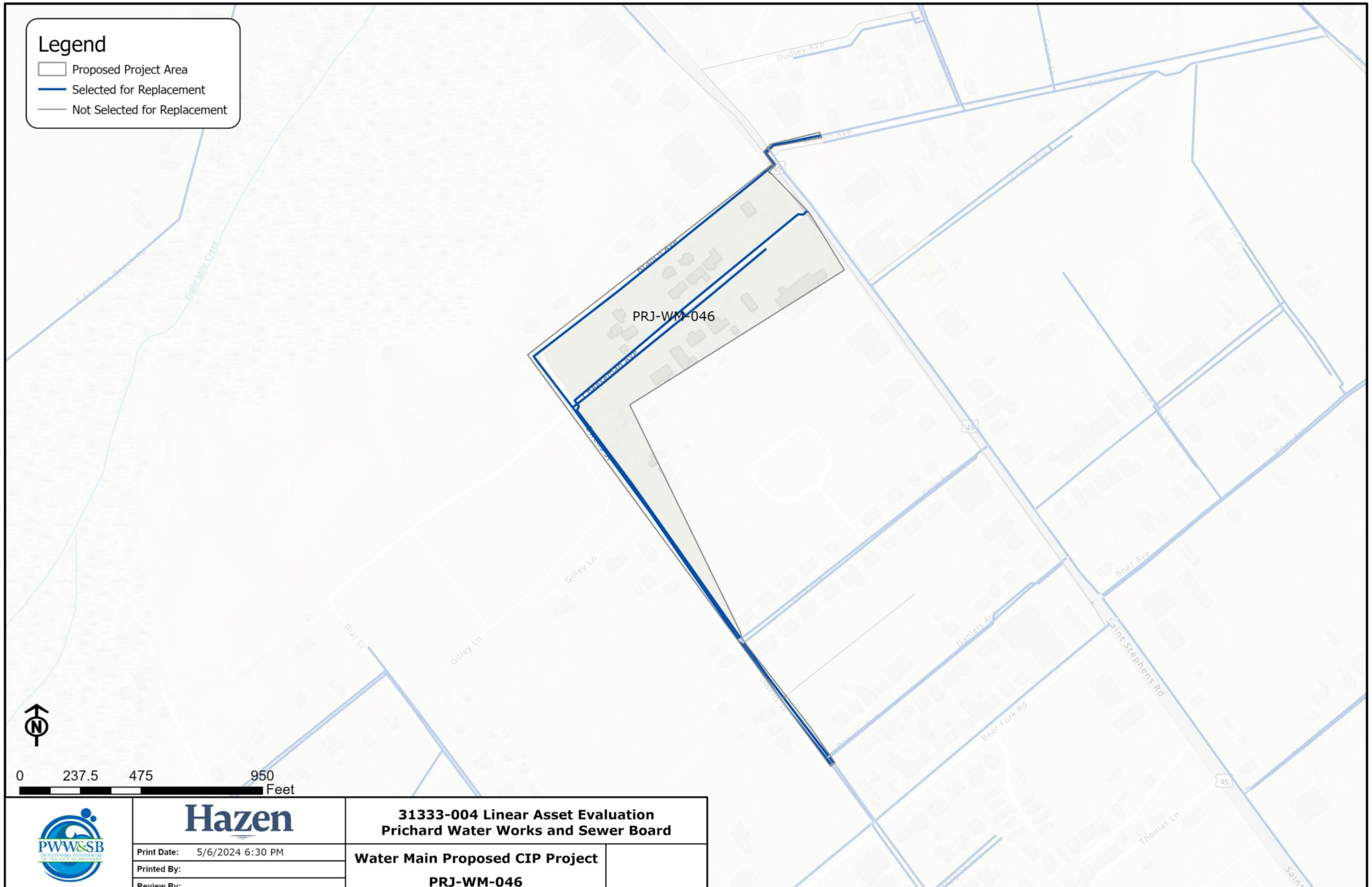


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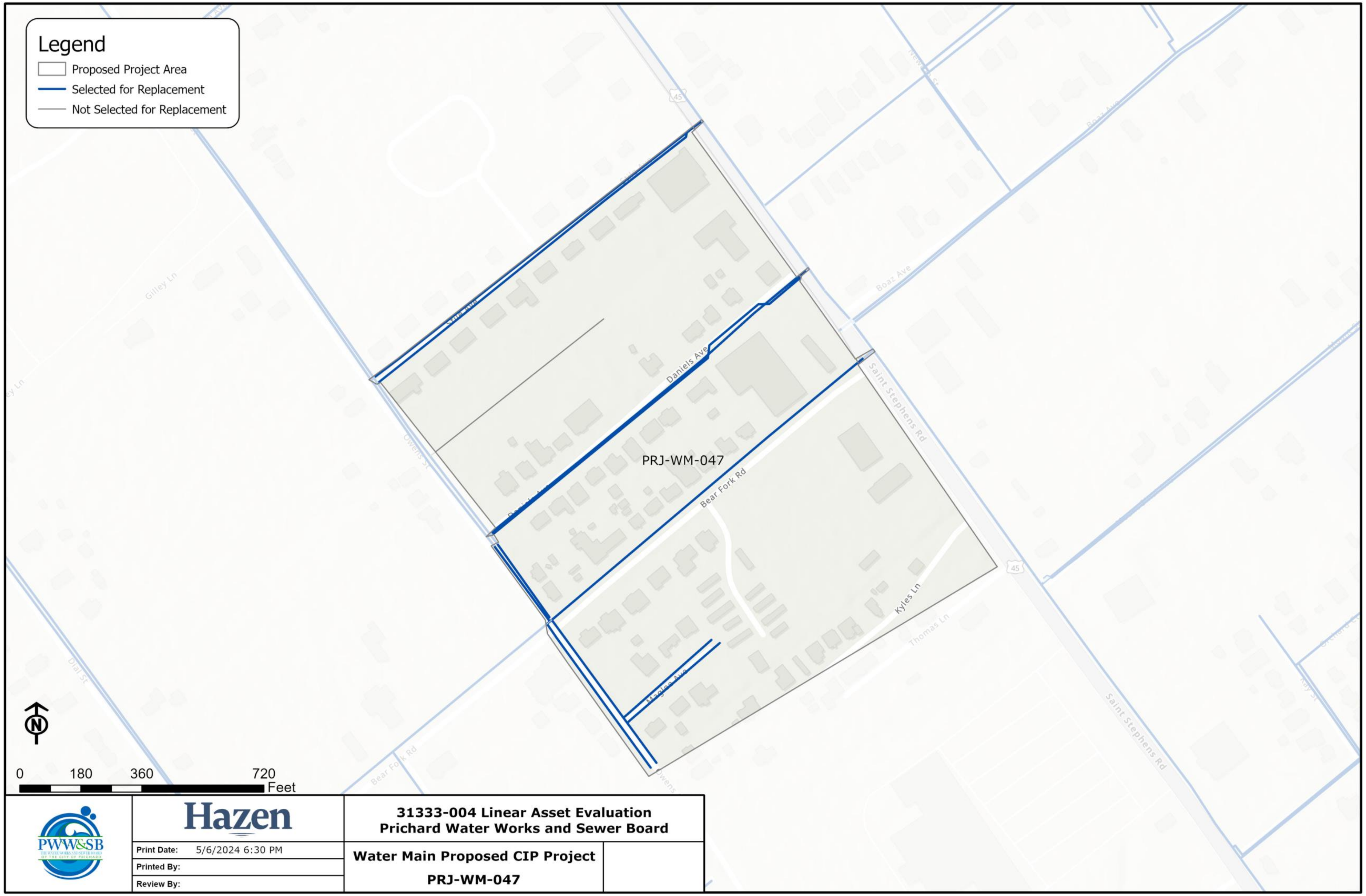


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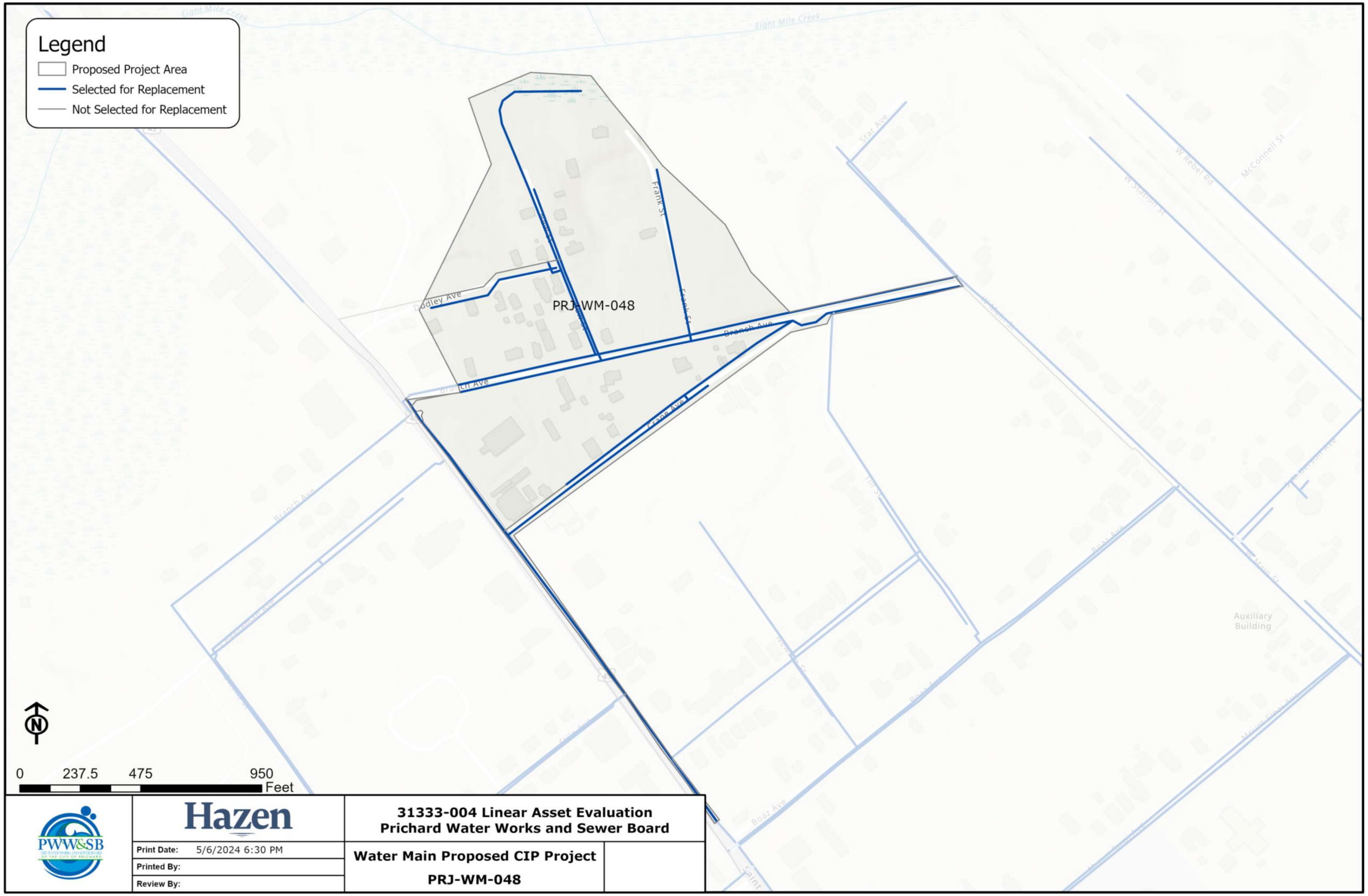


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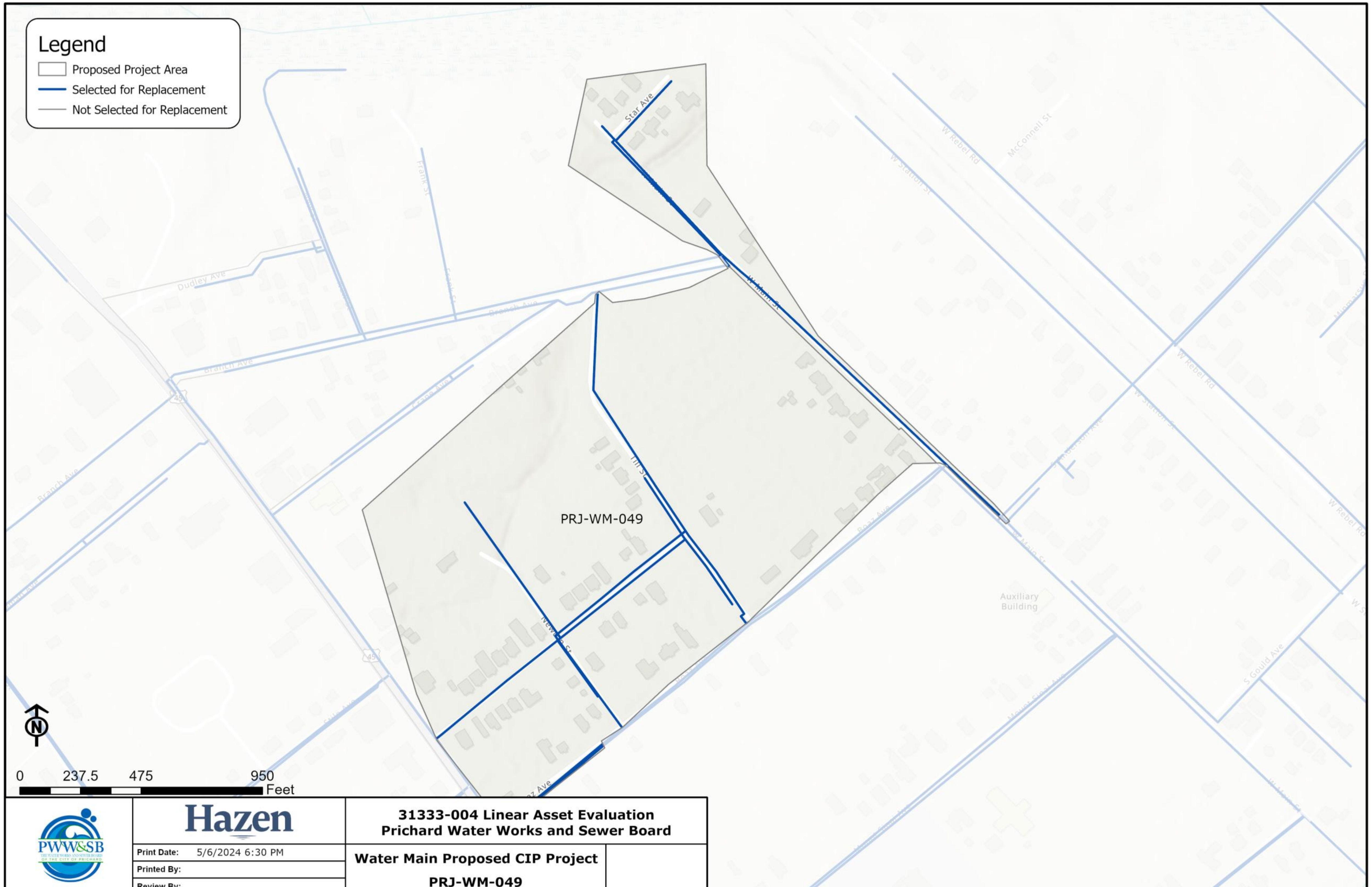


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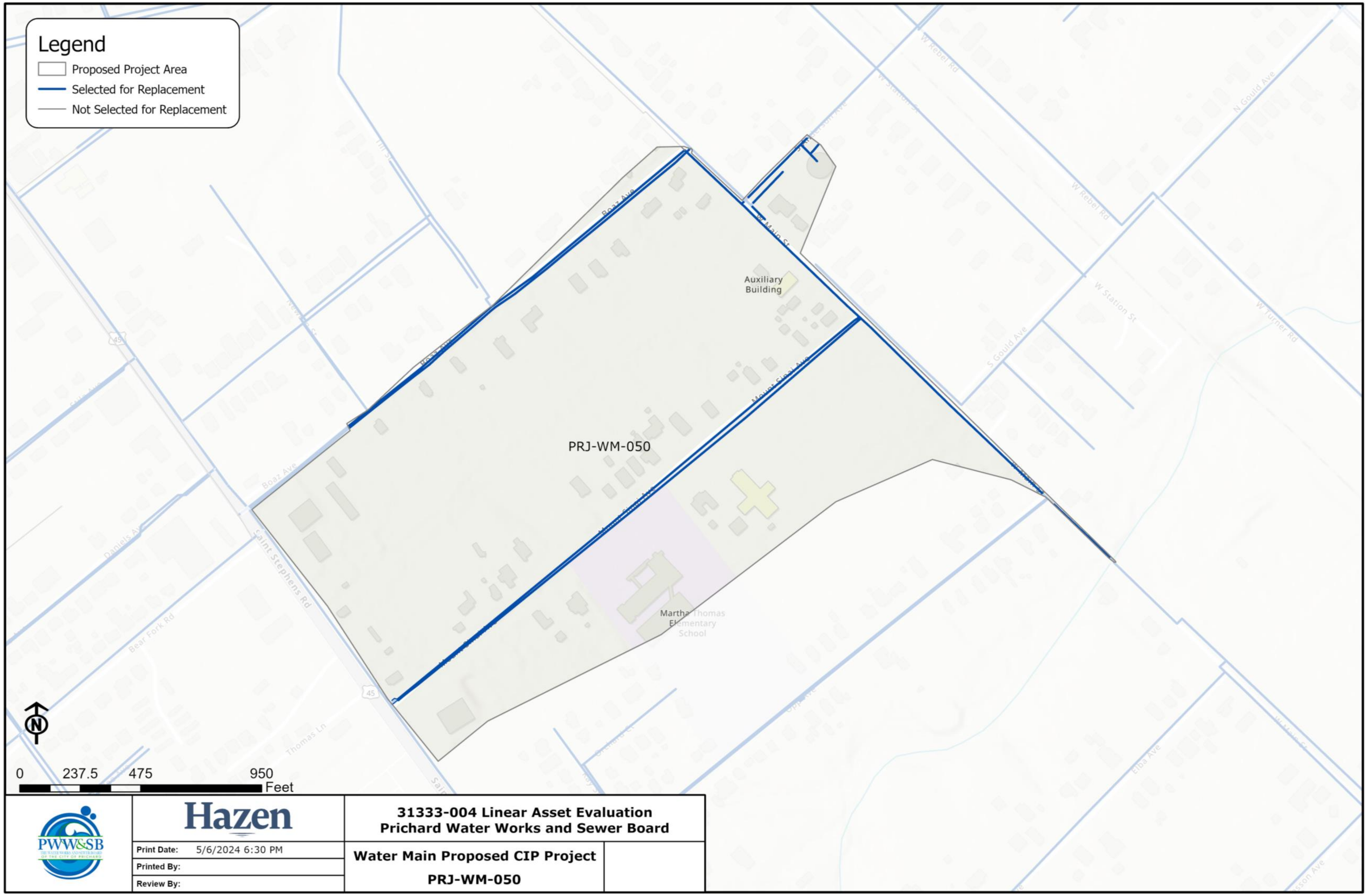


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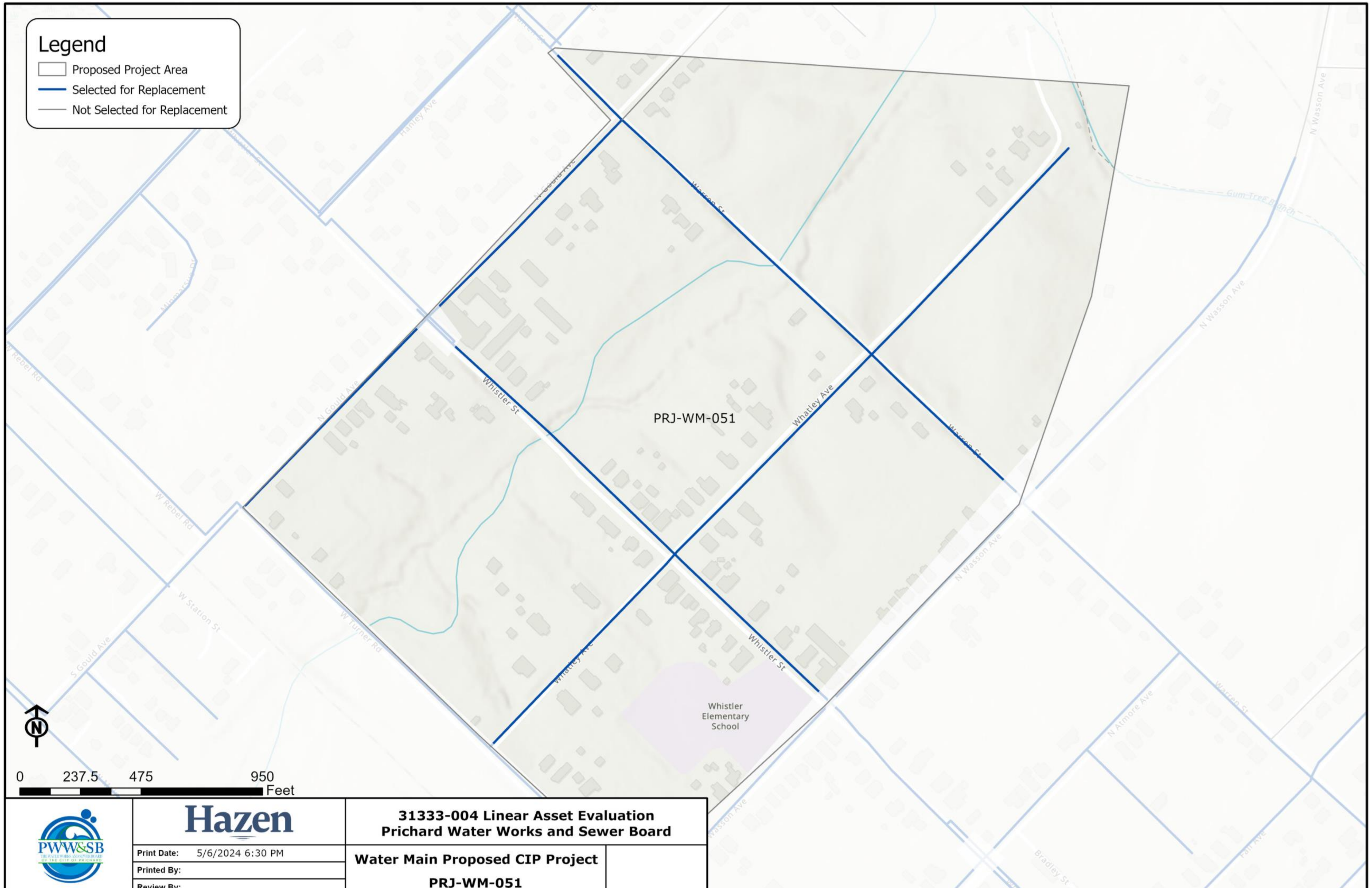


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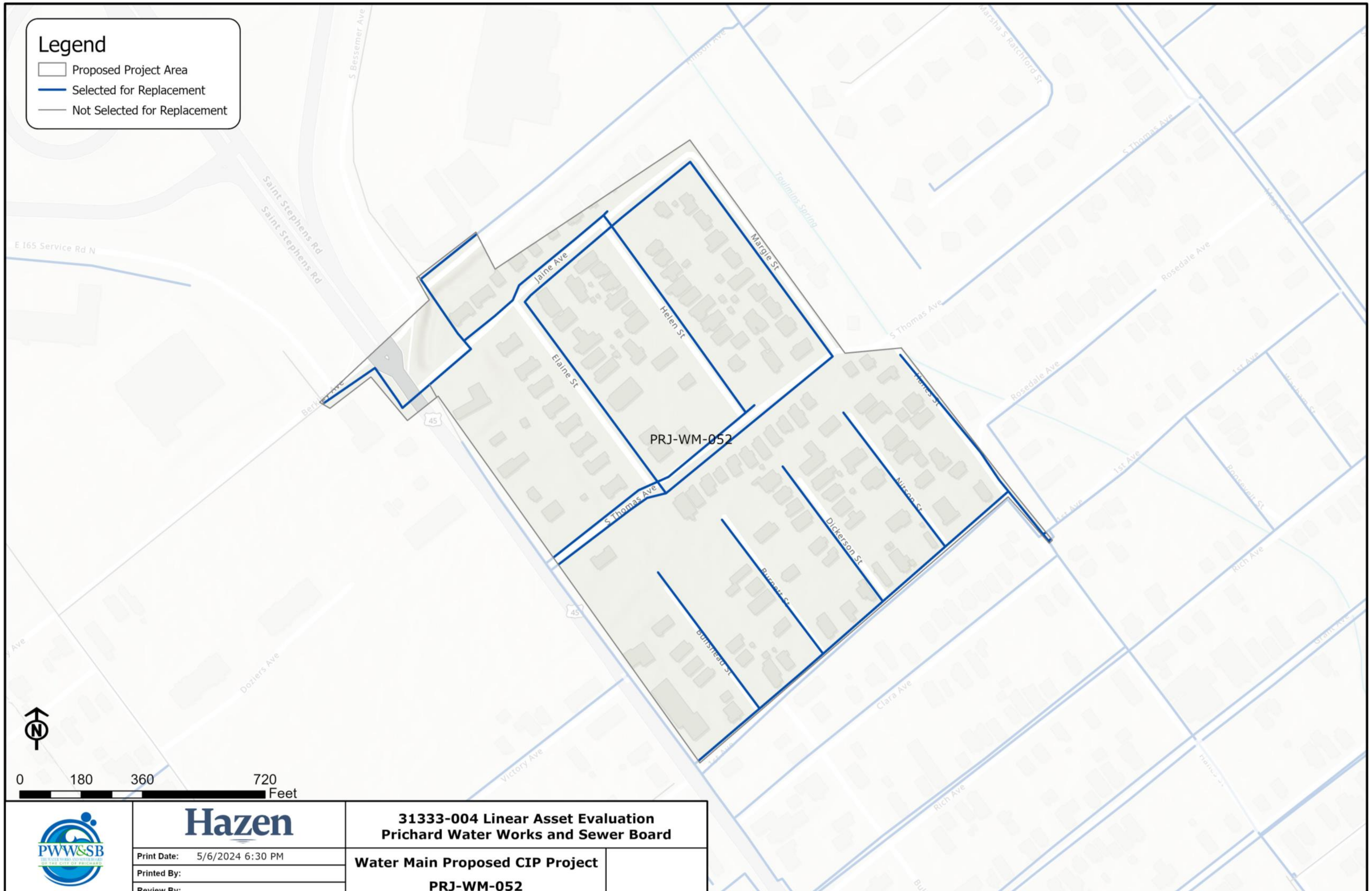


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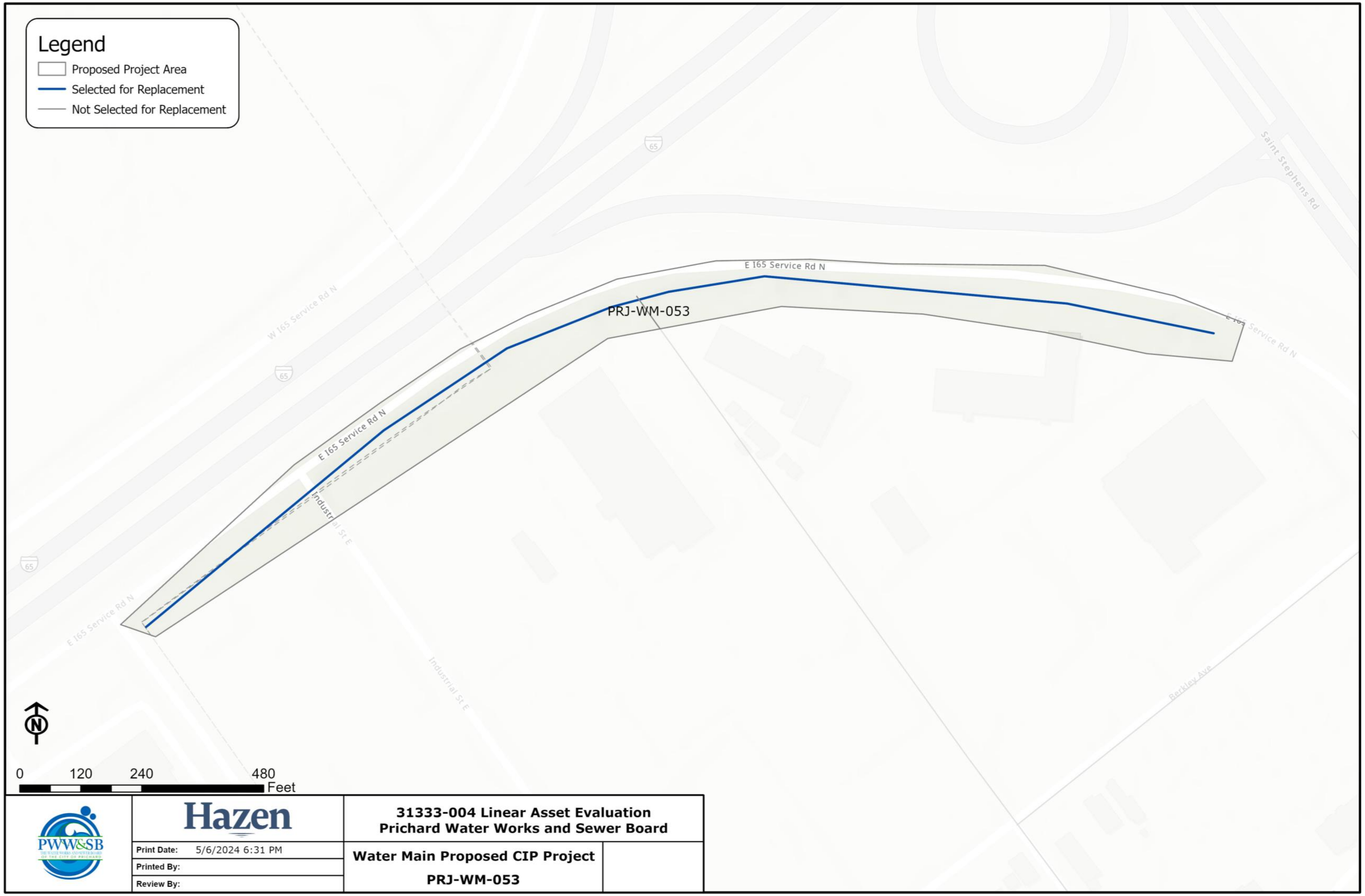


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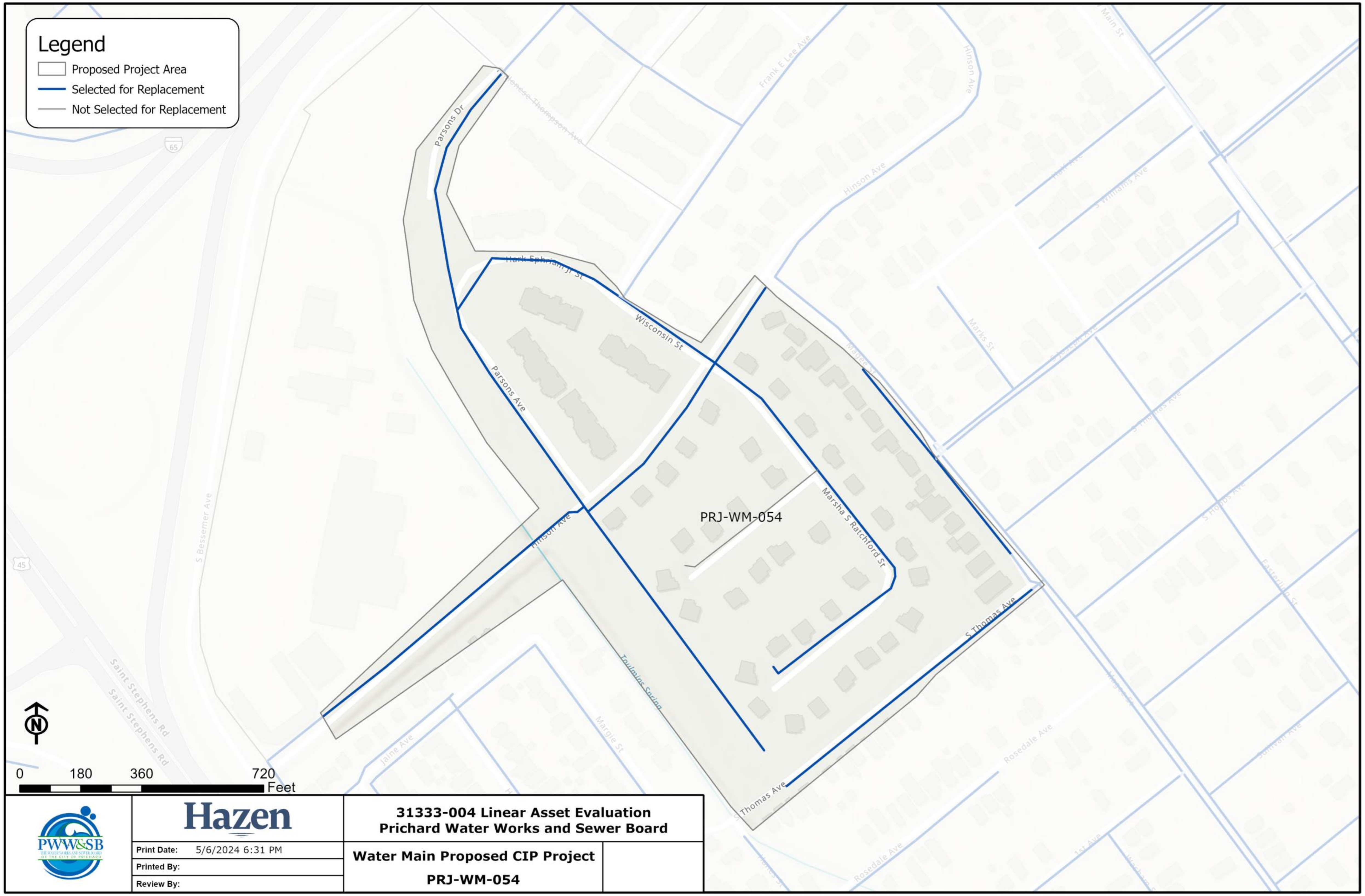


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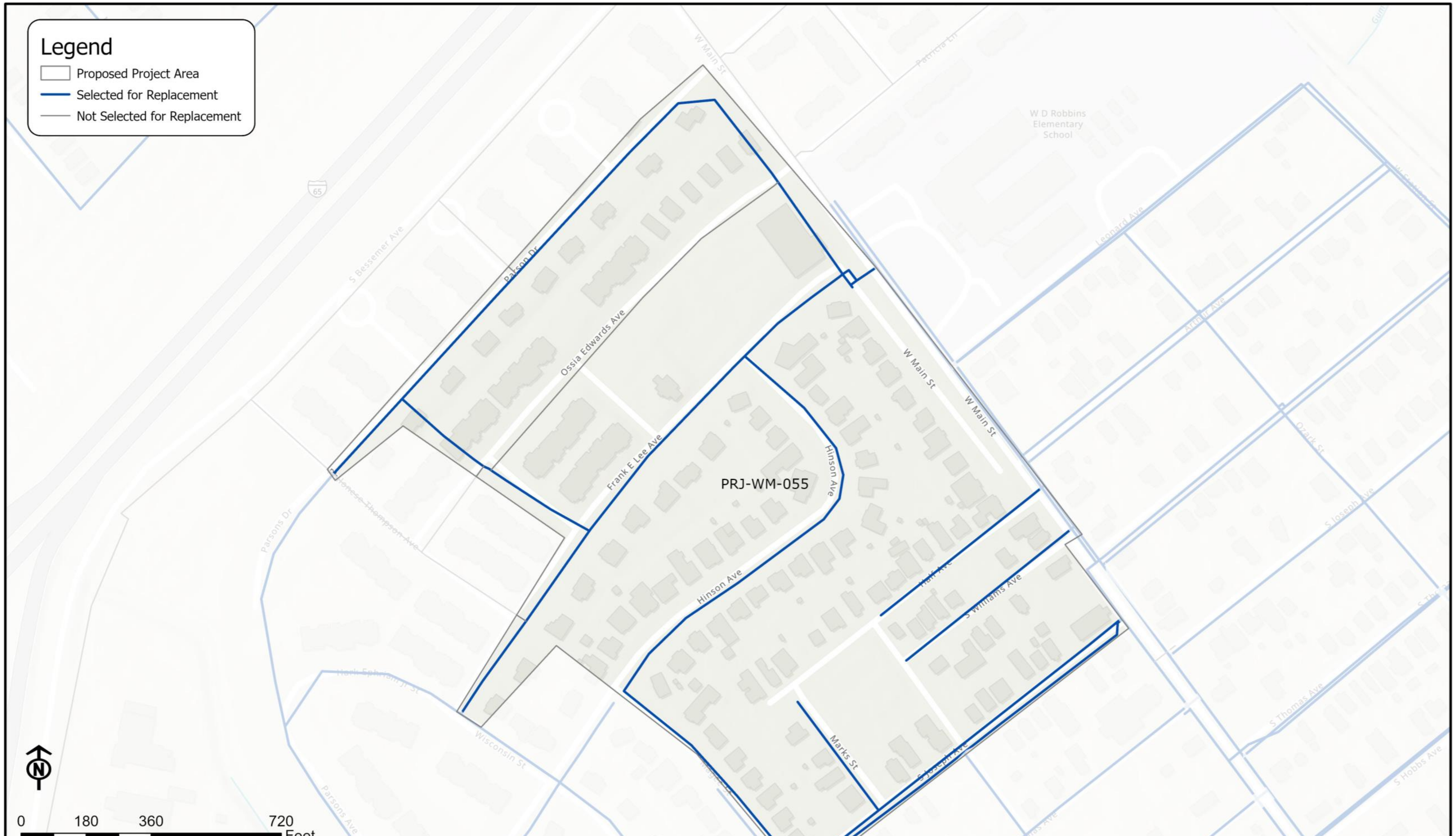


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| PWW&SB | Hazen | 31333-004 Linear Asset Evaluation<br>Prichard Water Works and Sewer Board |
| | Print Date: 5/6/2024 6:31 PM | Water Main Proposed CIP Project<br>PRJ-WM-055 |
| | Printed By: | |
| | Review By: | |

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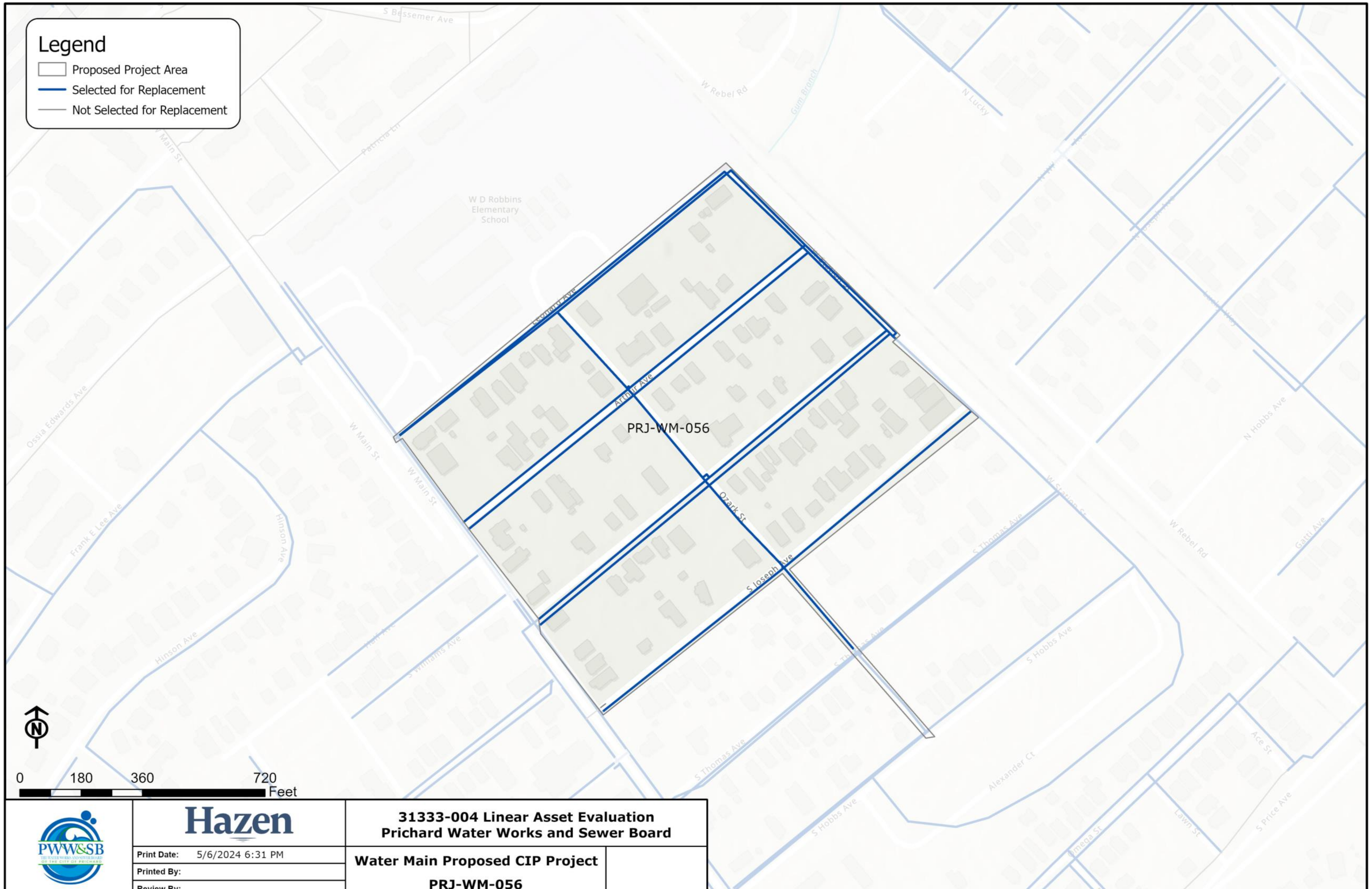


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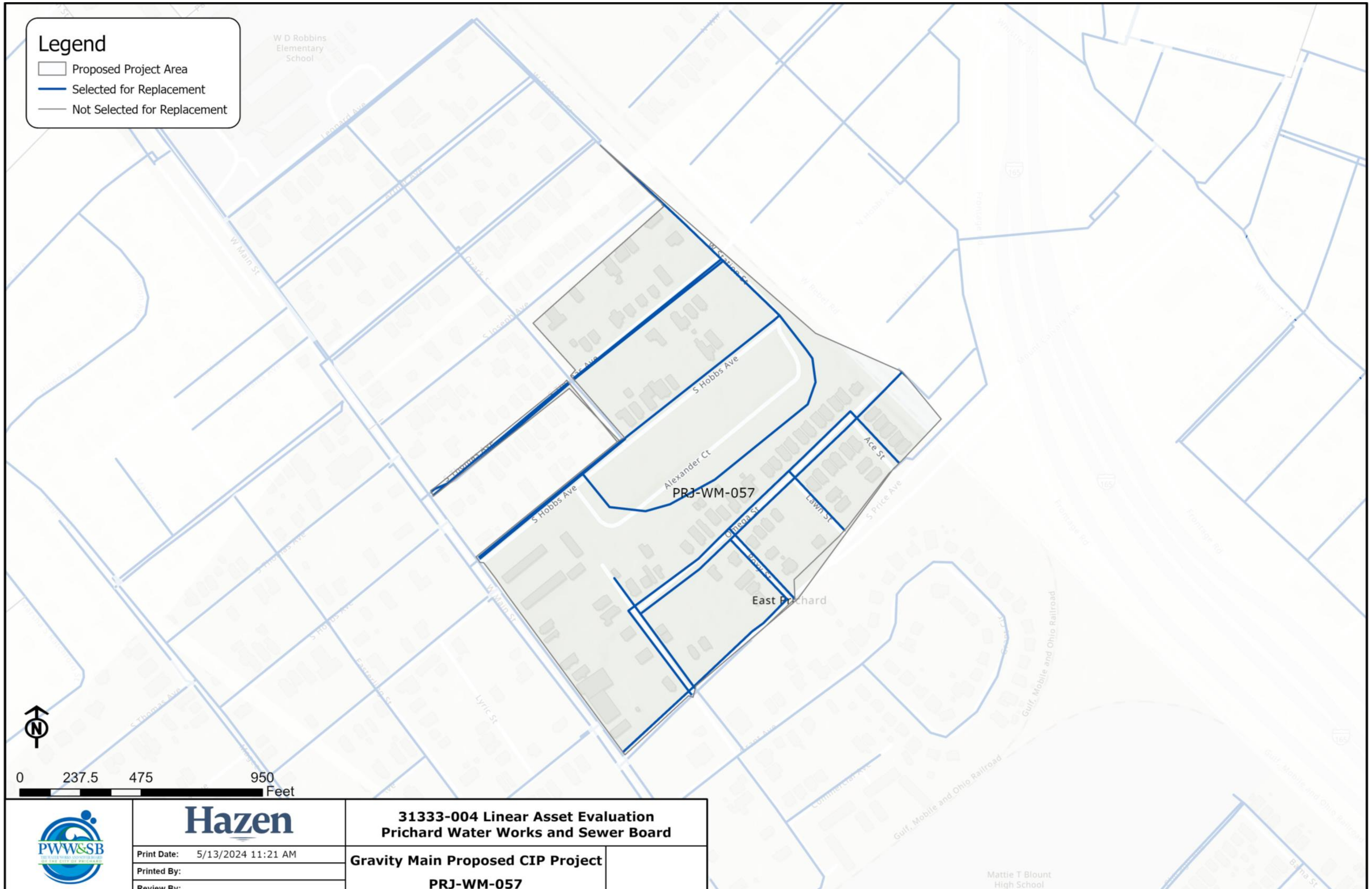


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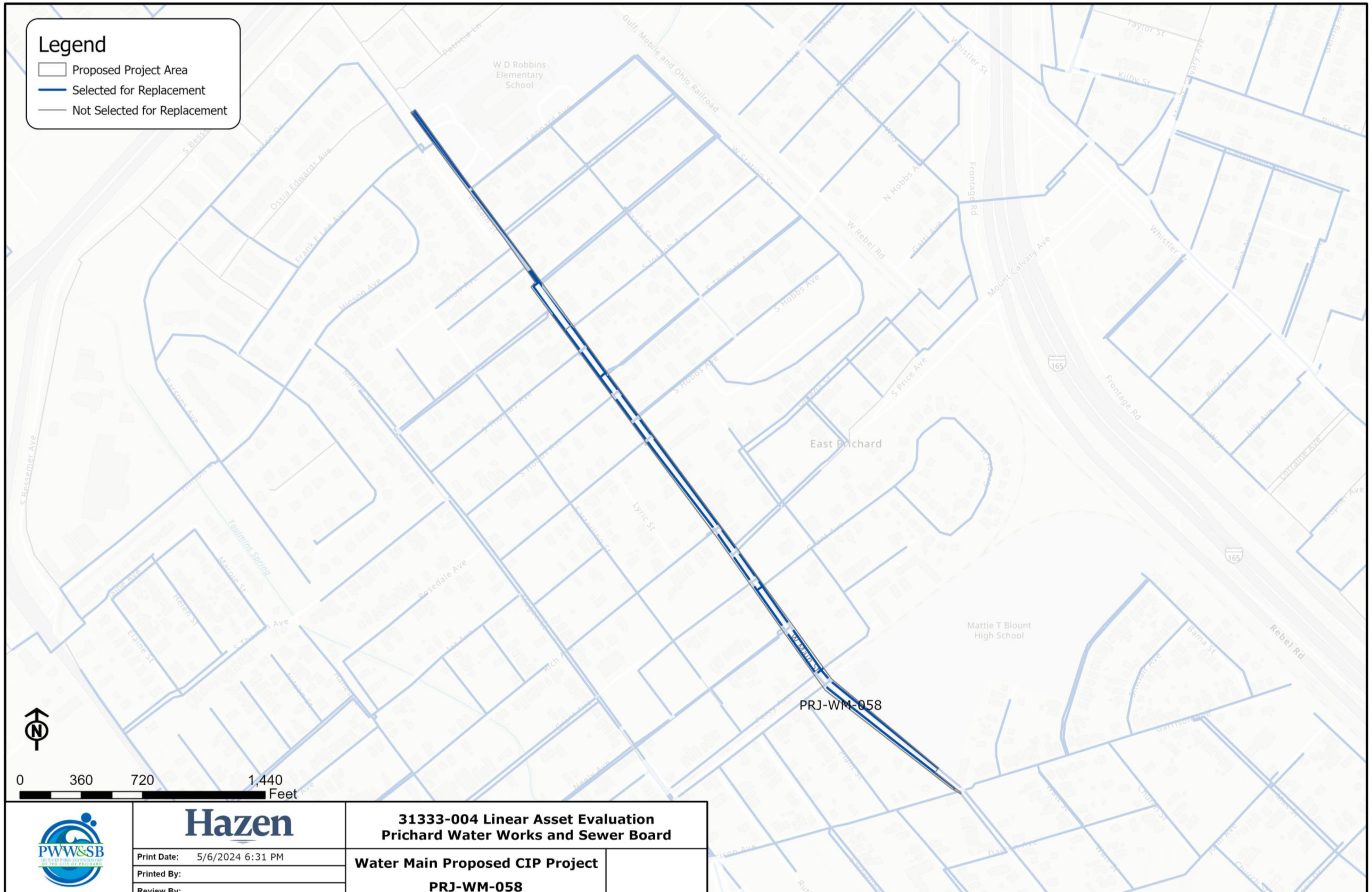


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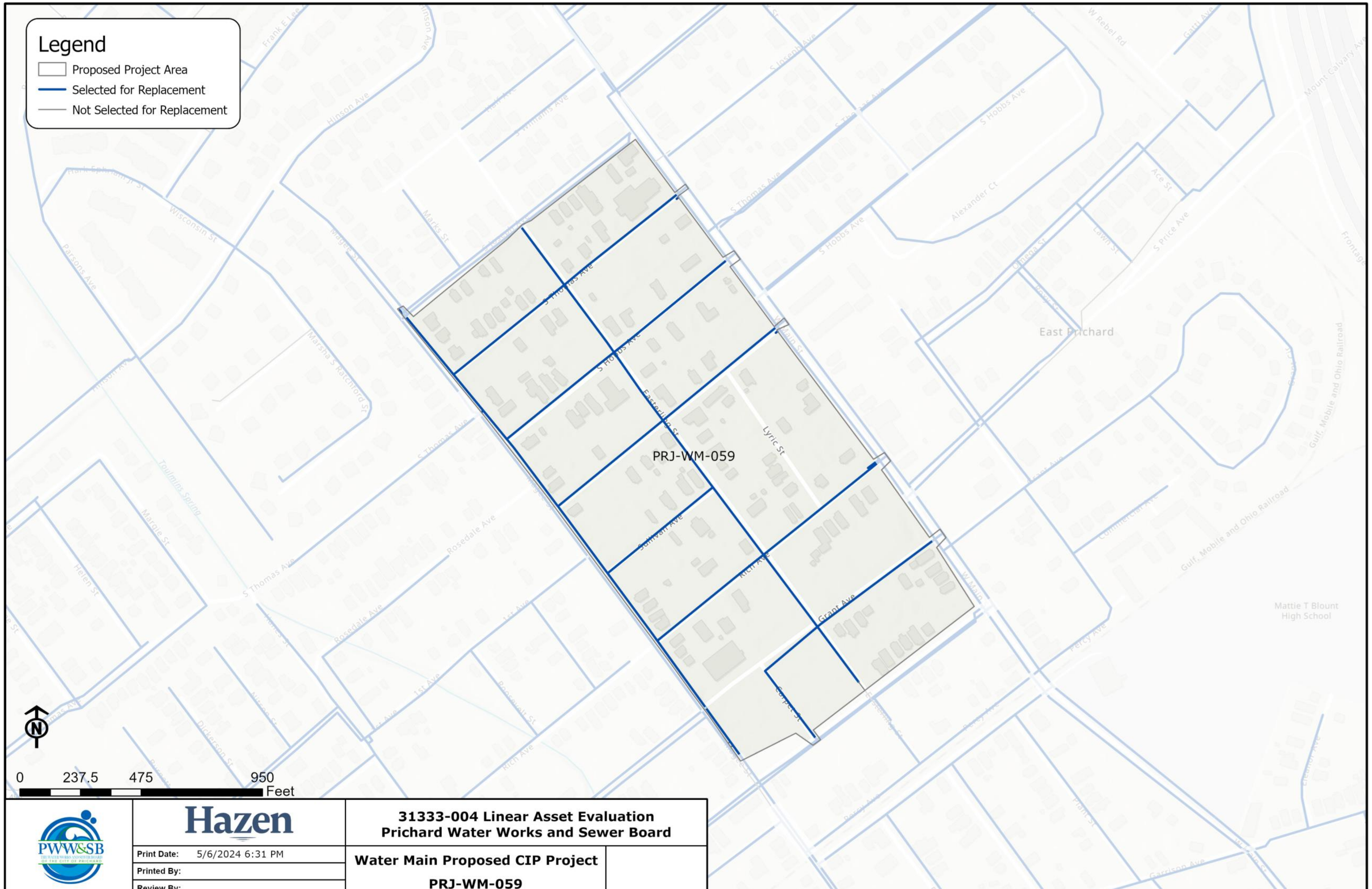


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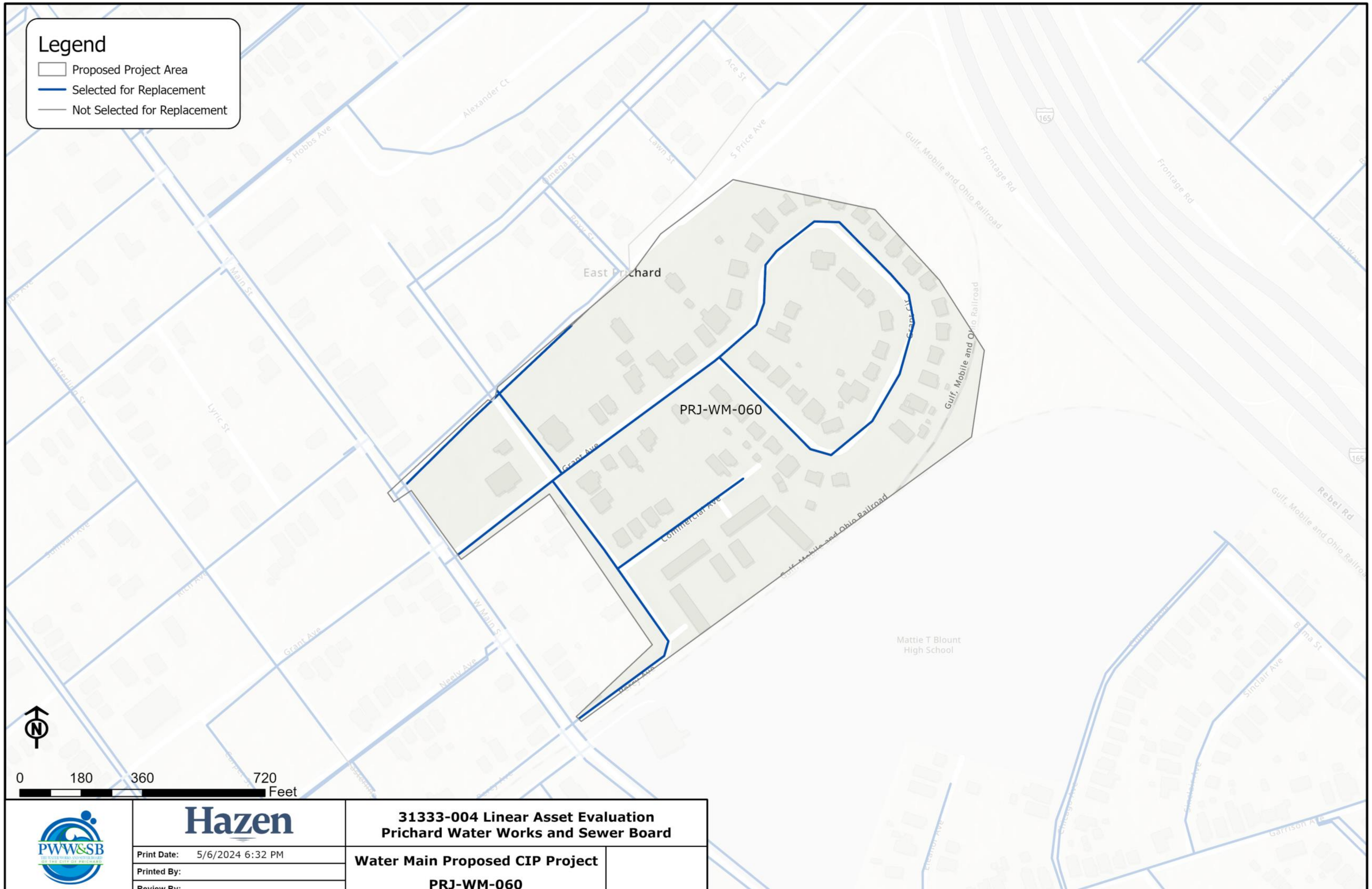


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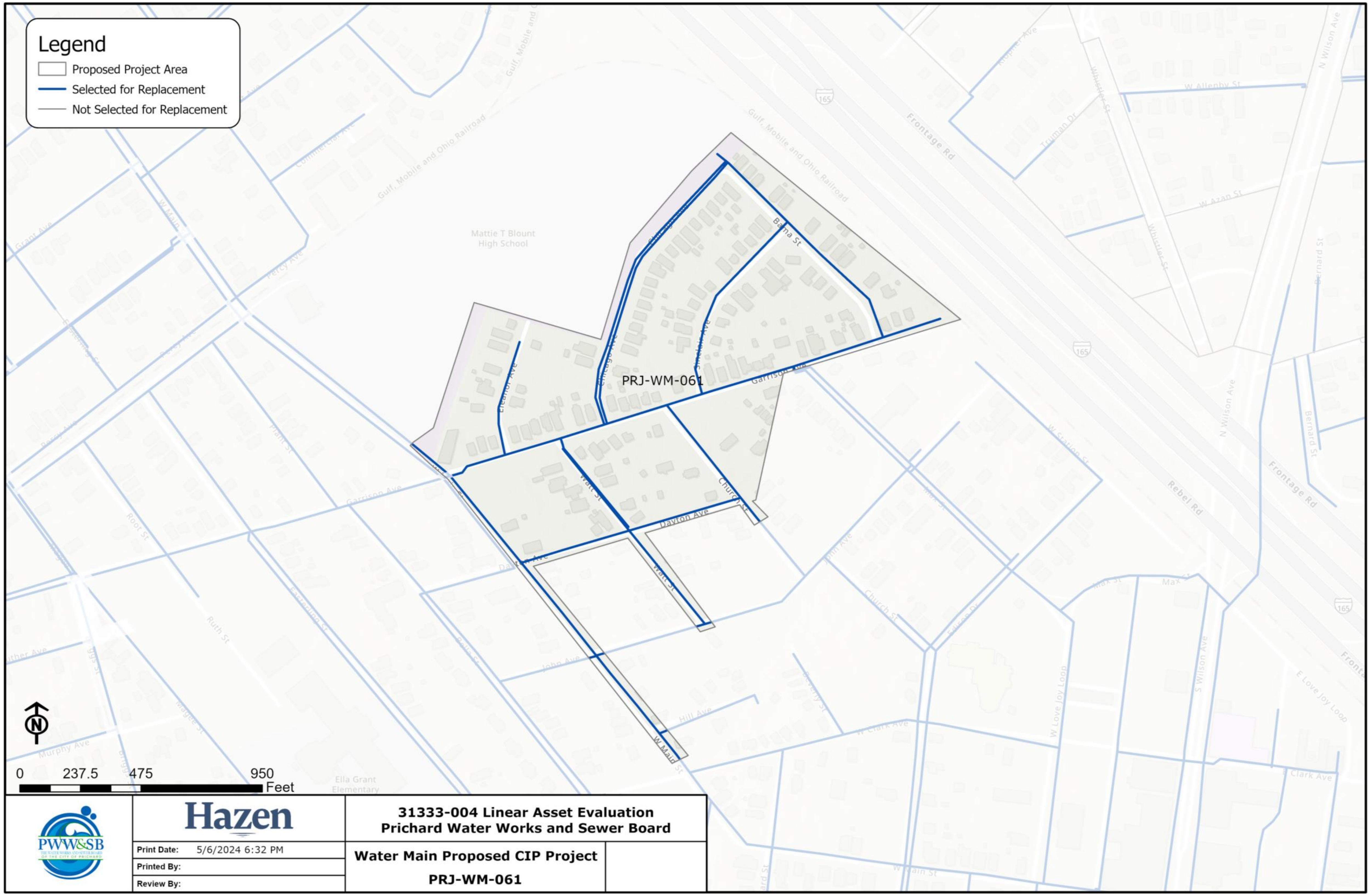


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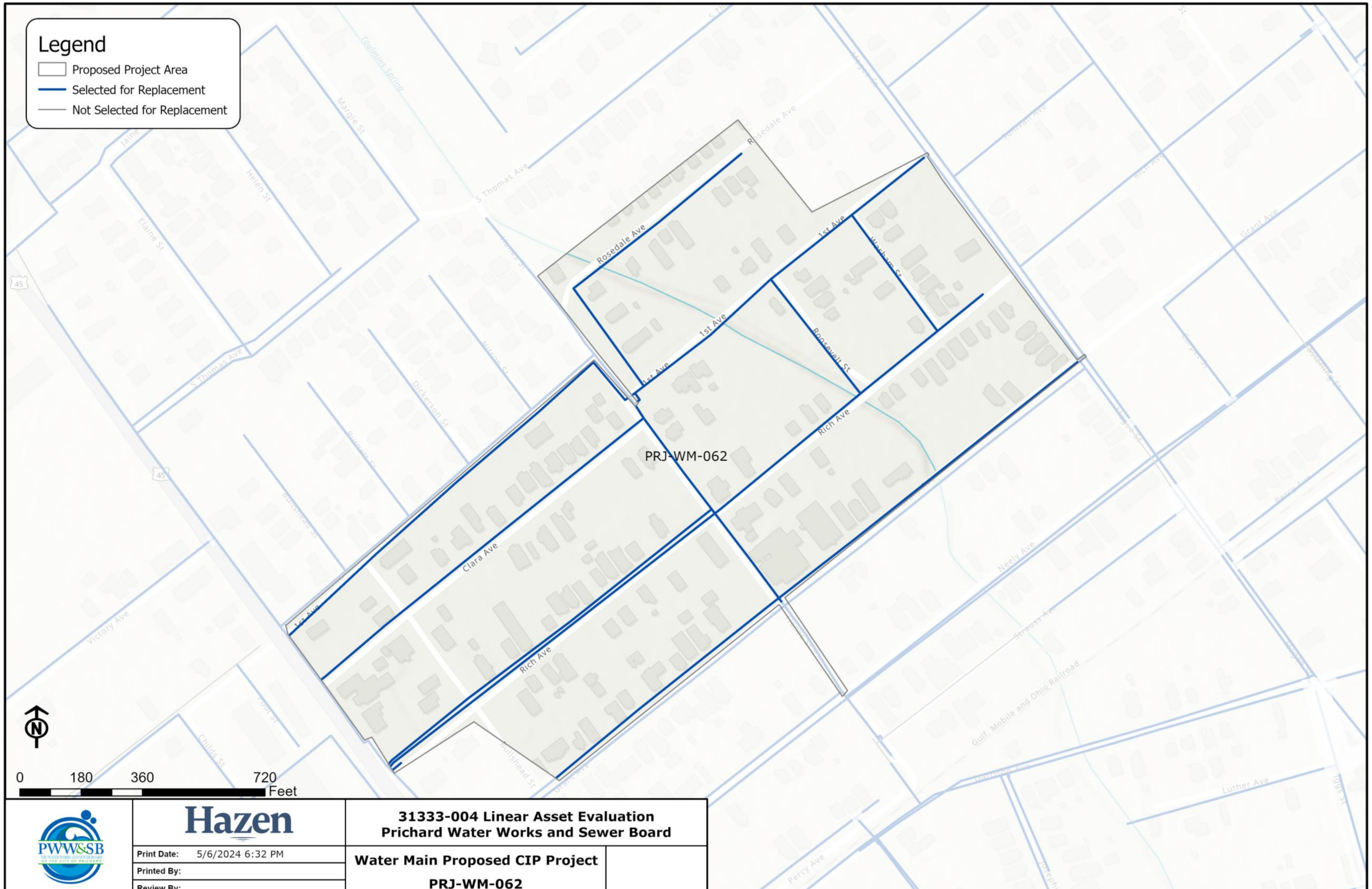


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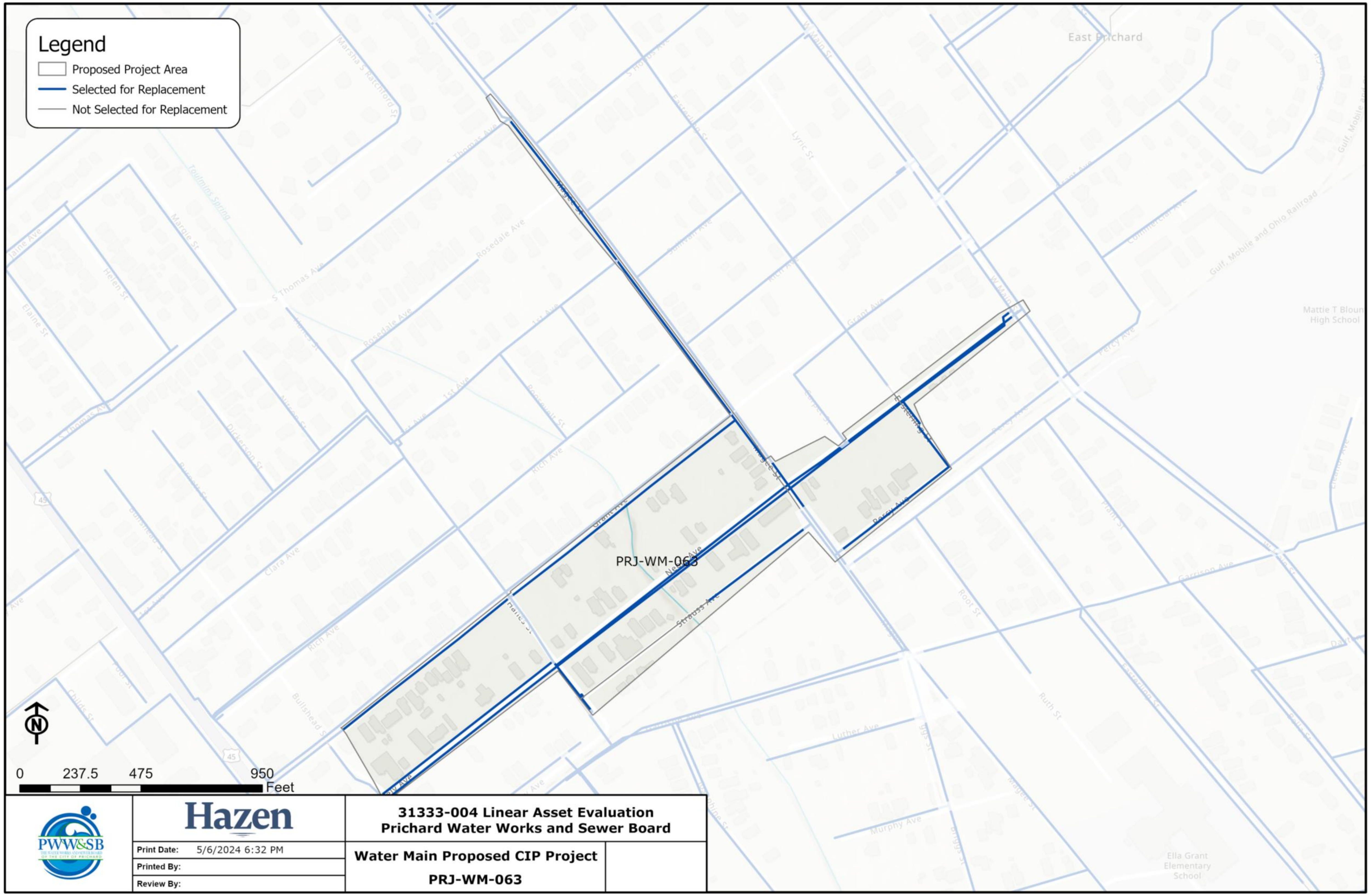


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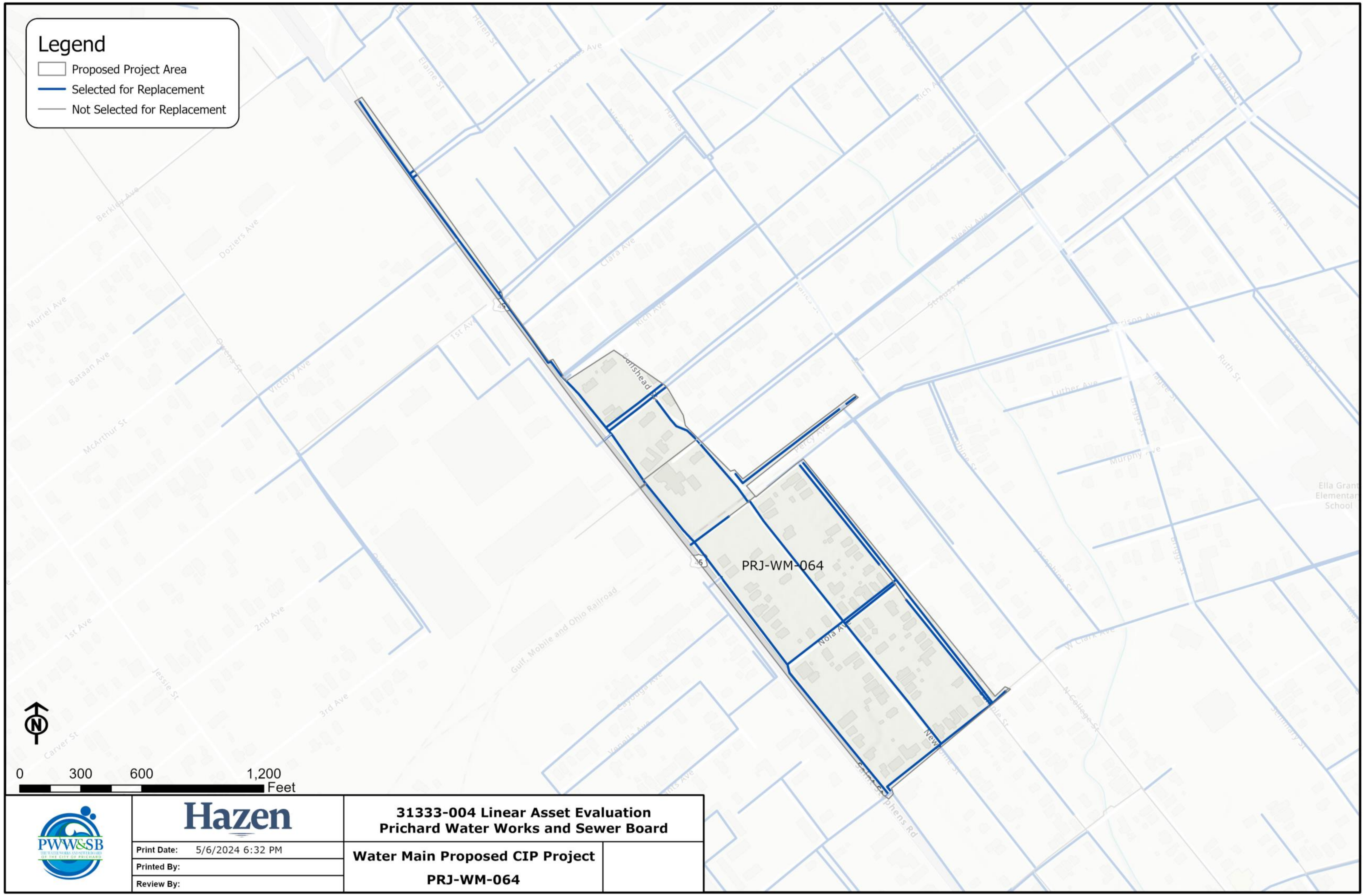


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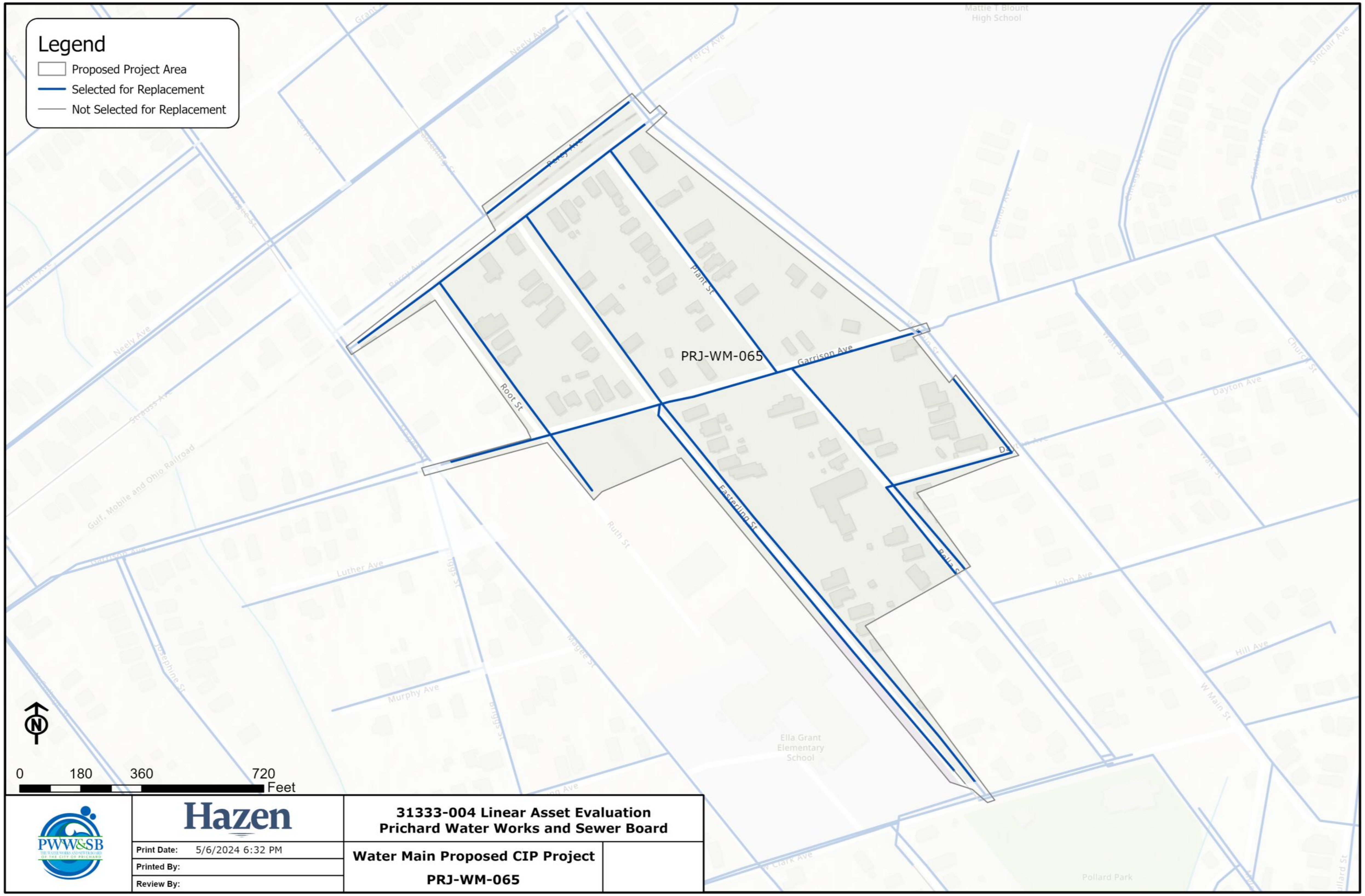


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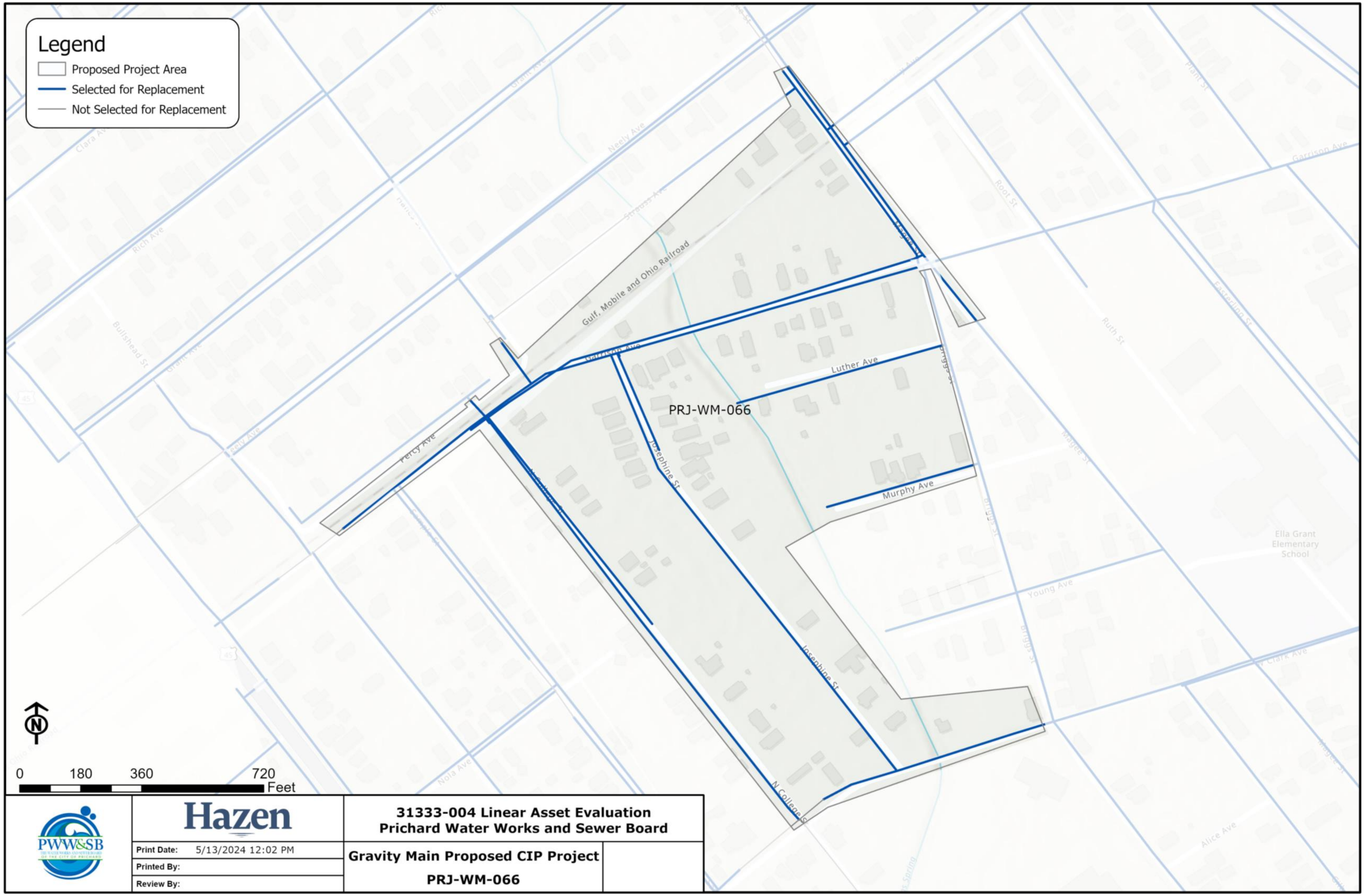


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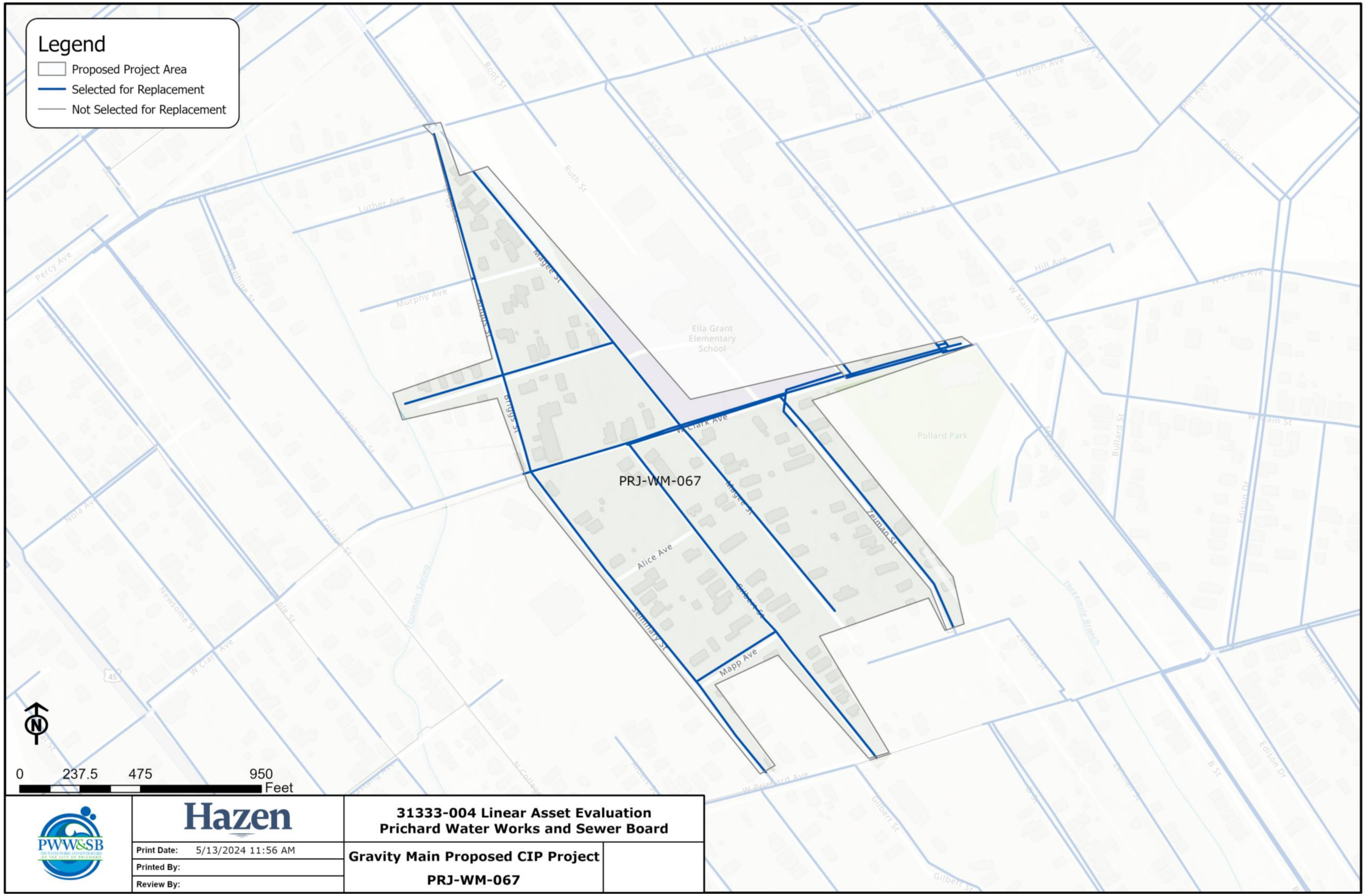


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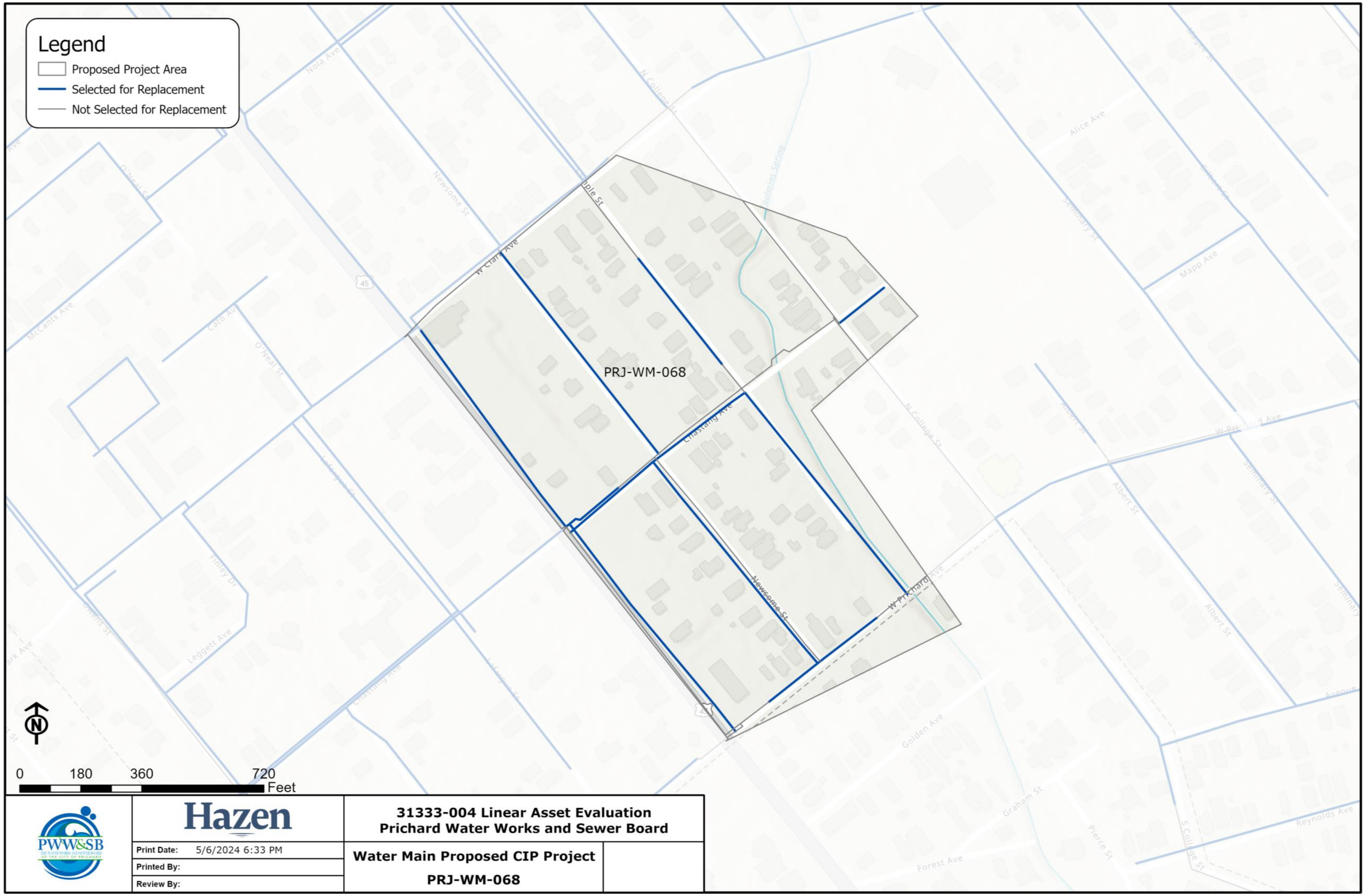


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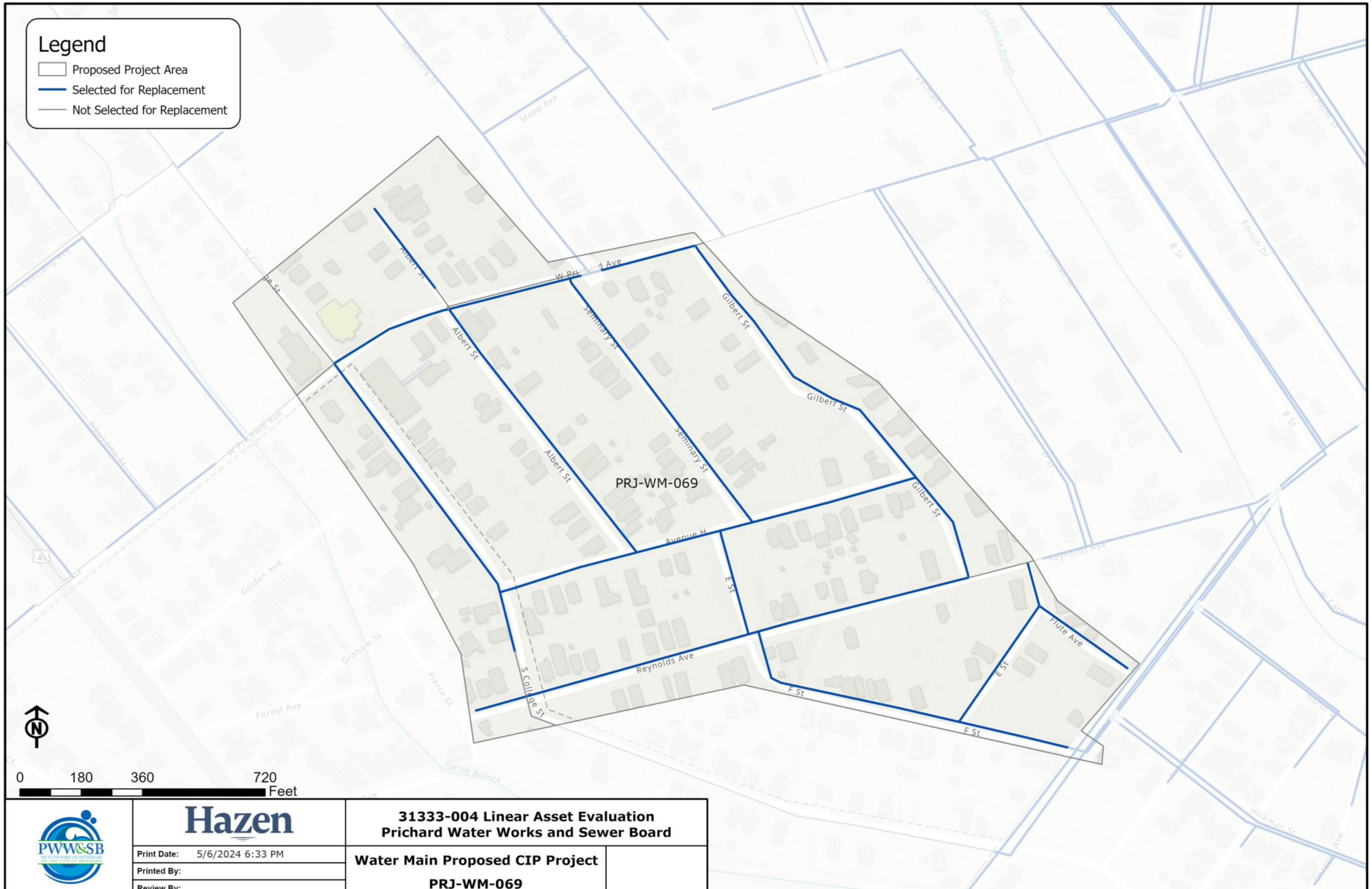


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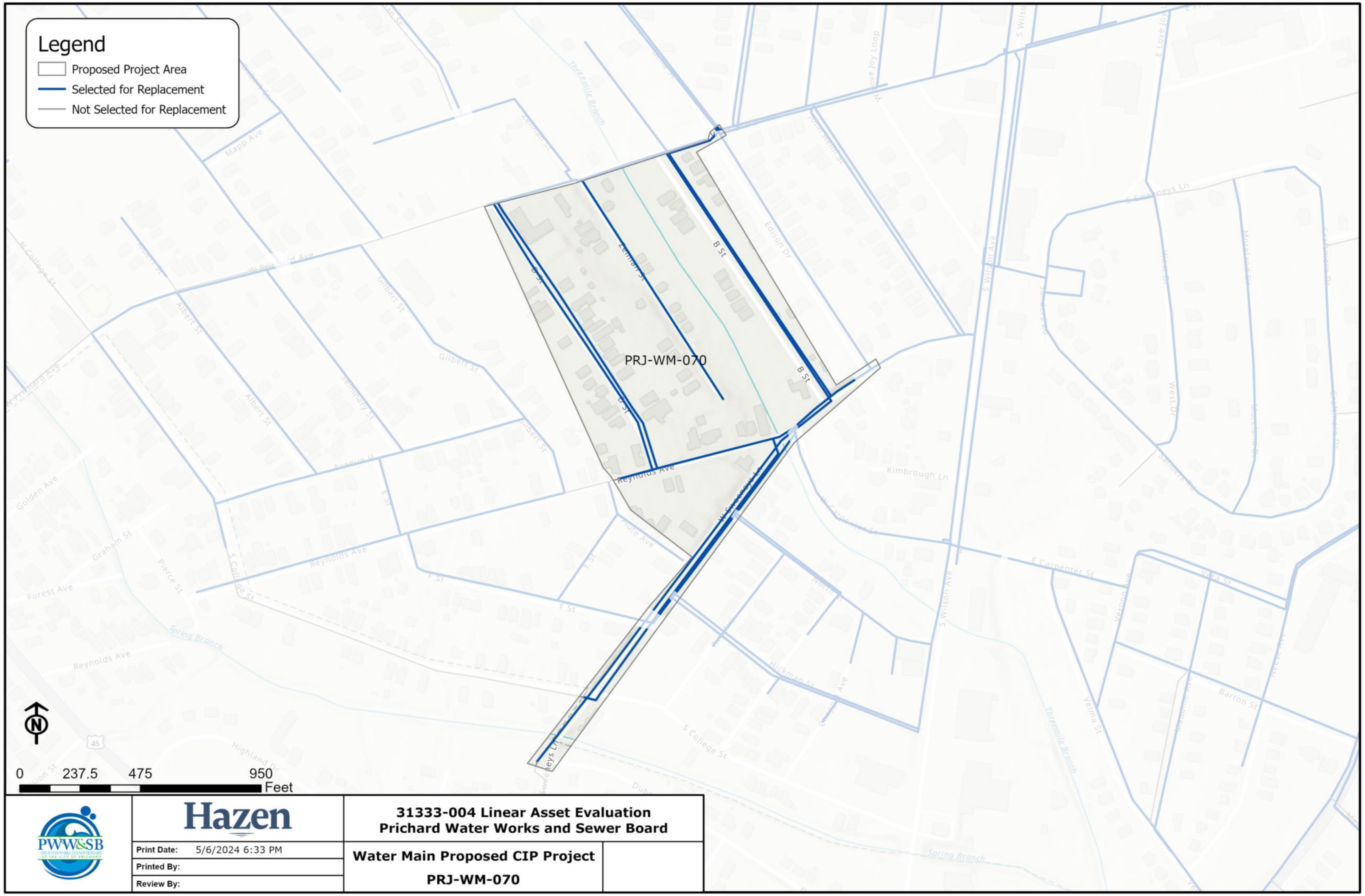


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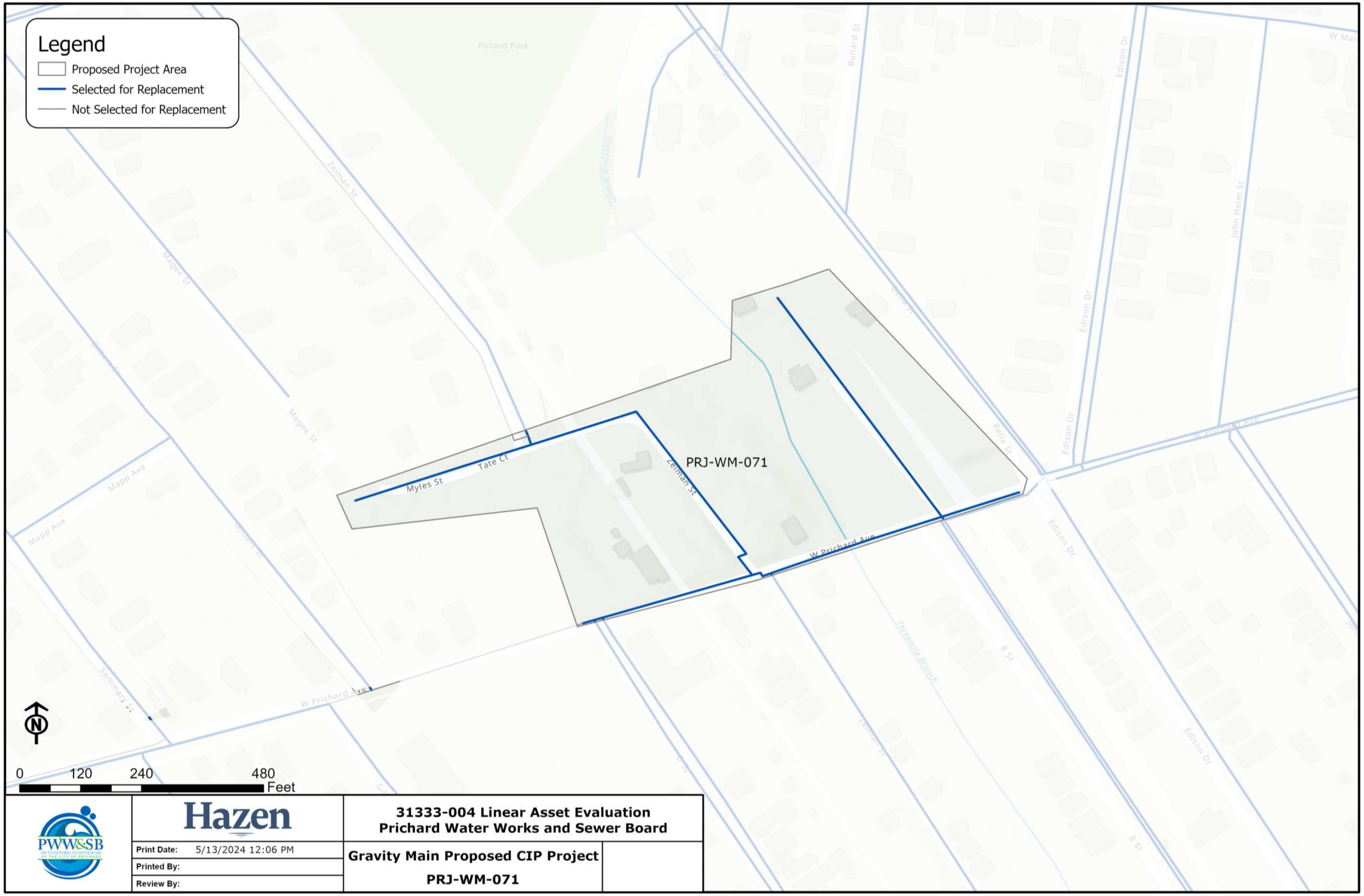


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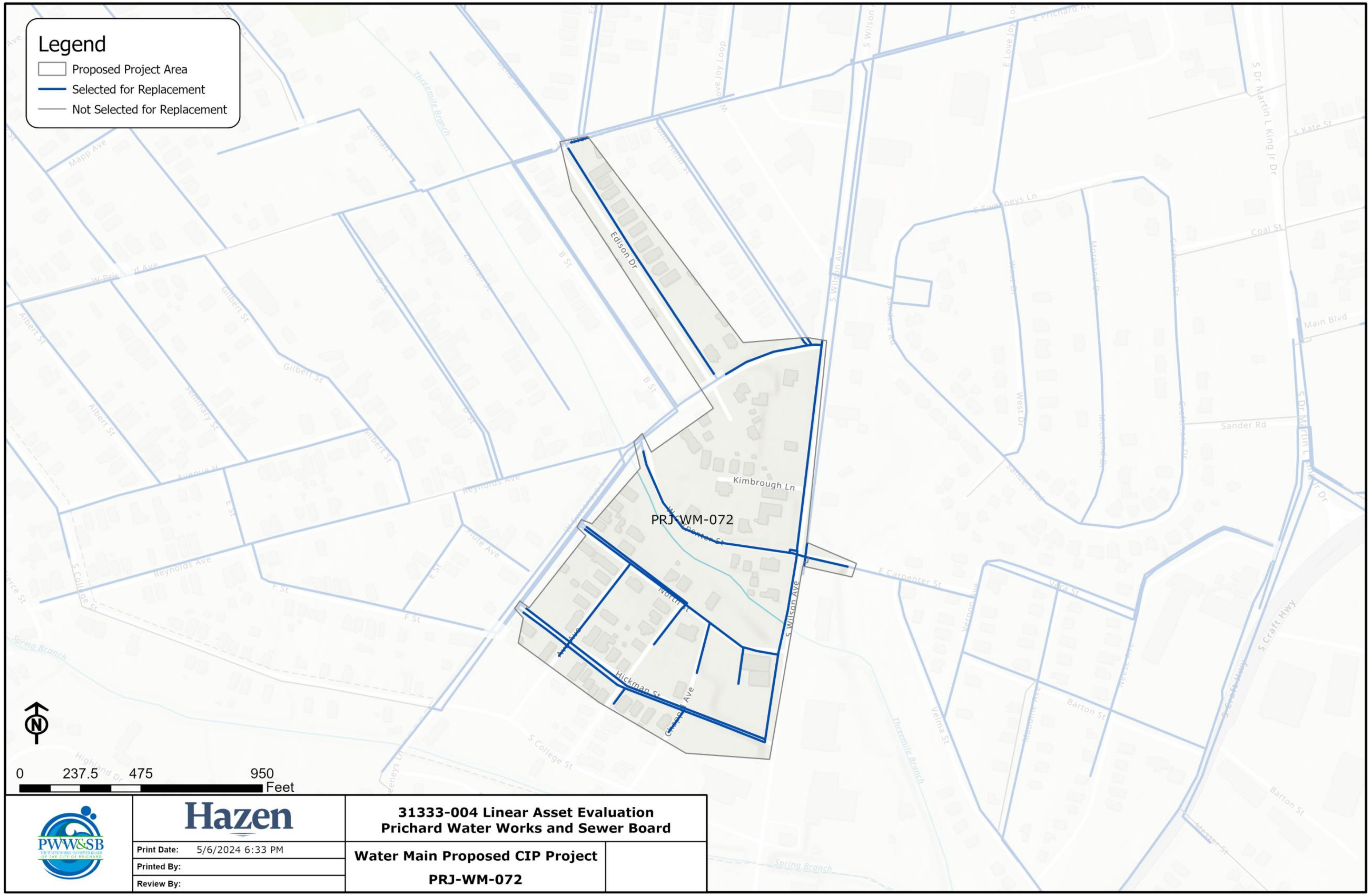


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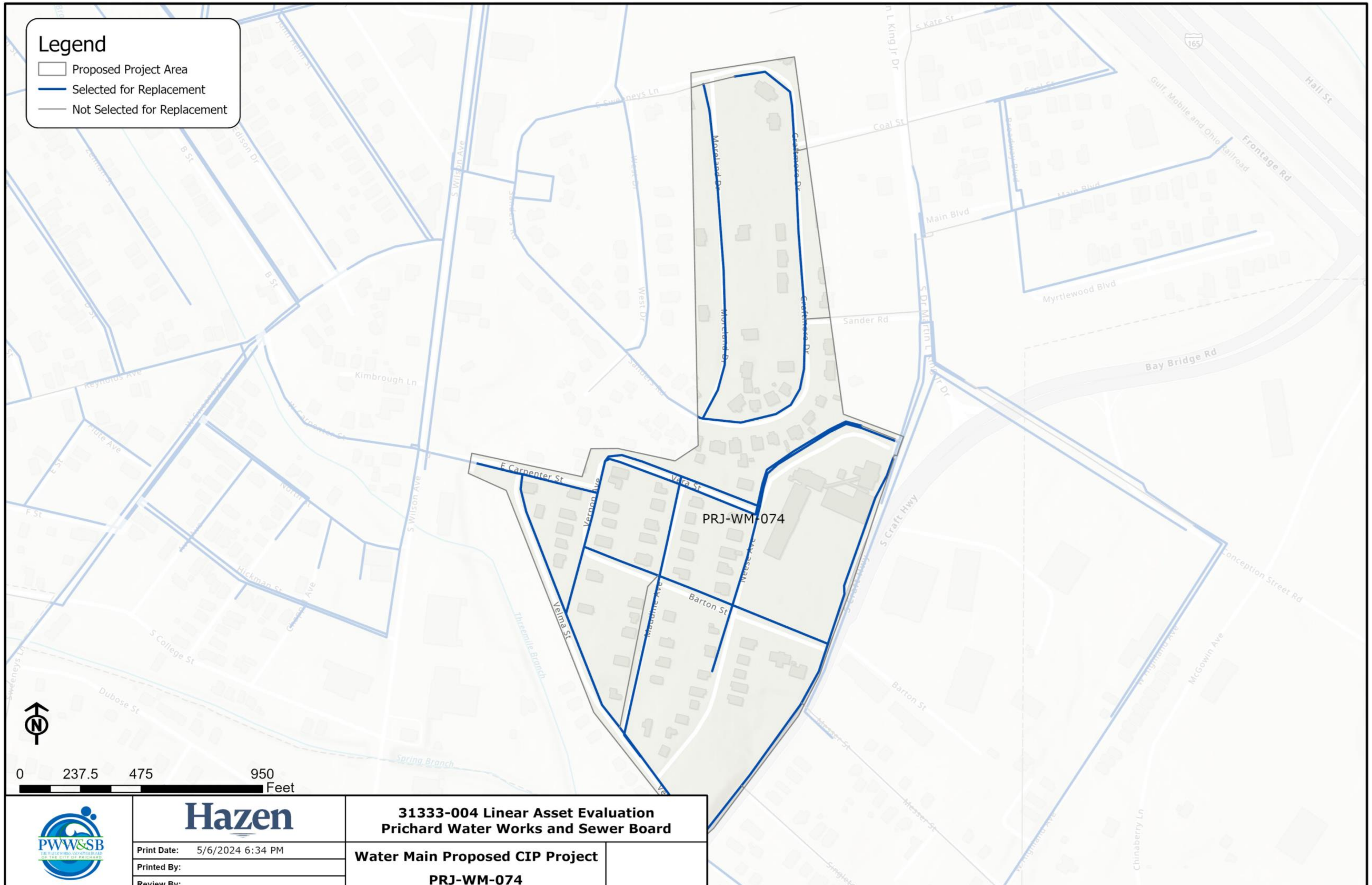
**C-4-74. Water Main Proposed CIP Project – PRJ-WM-073**

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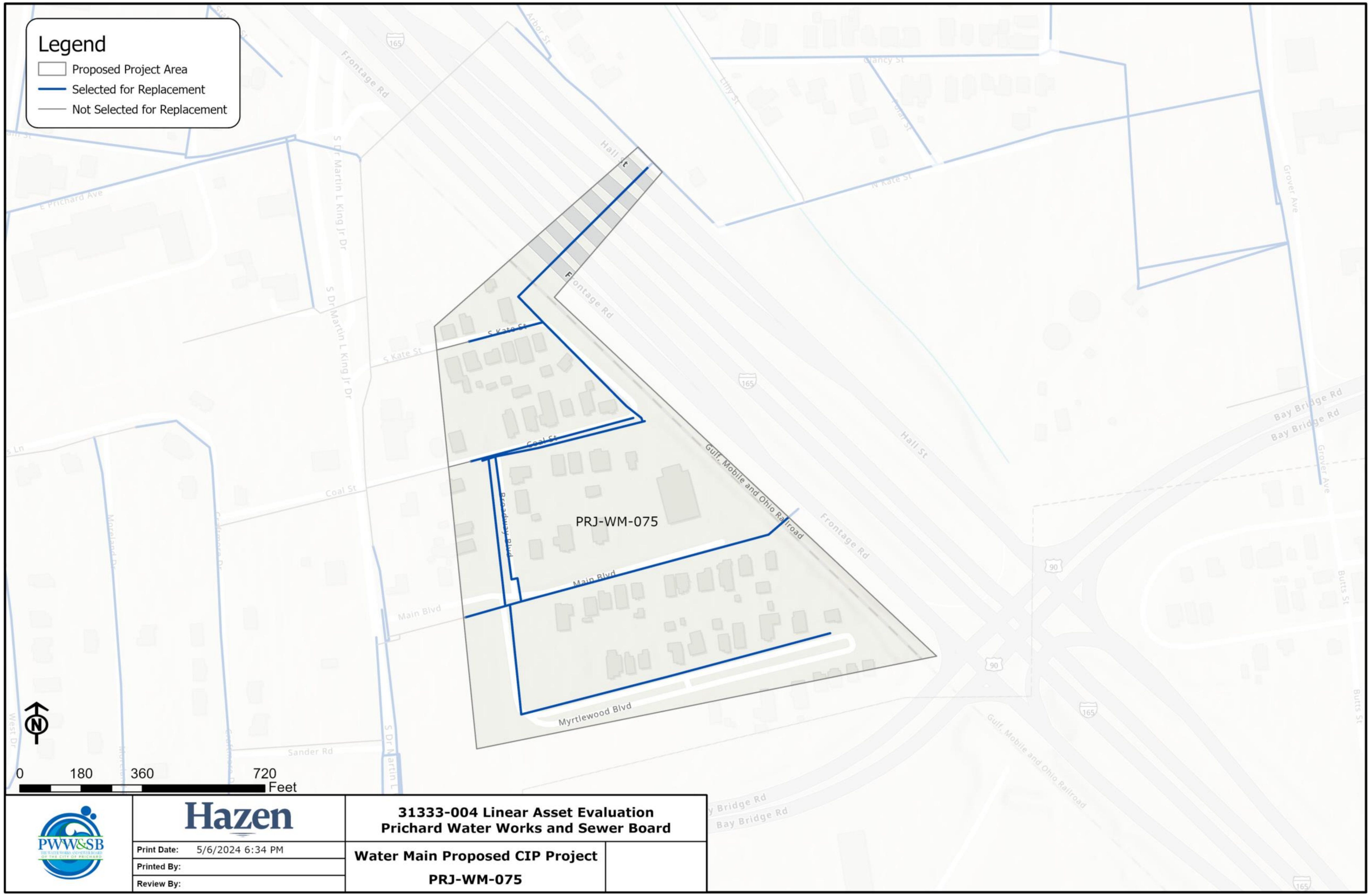


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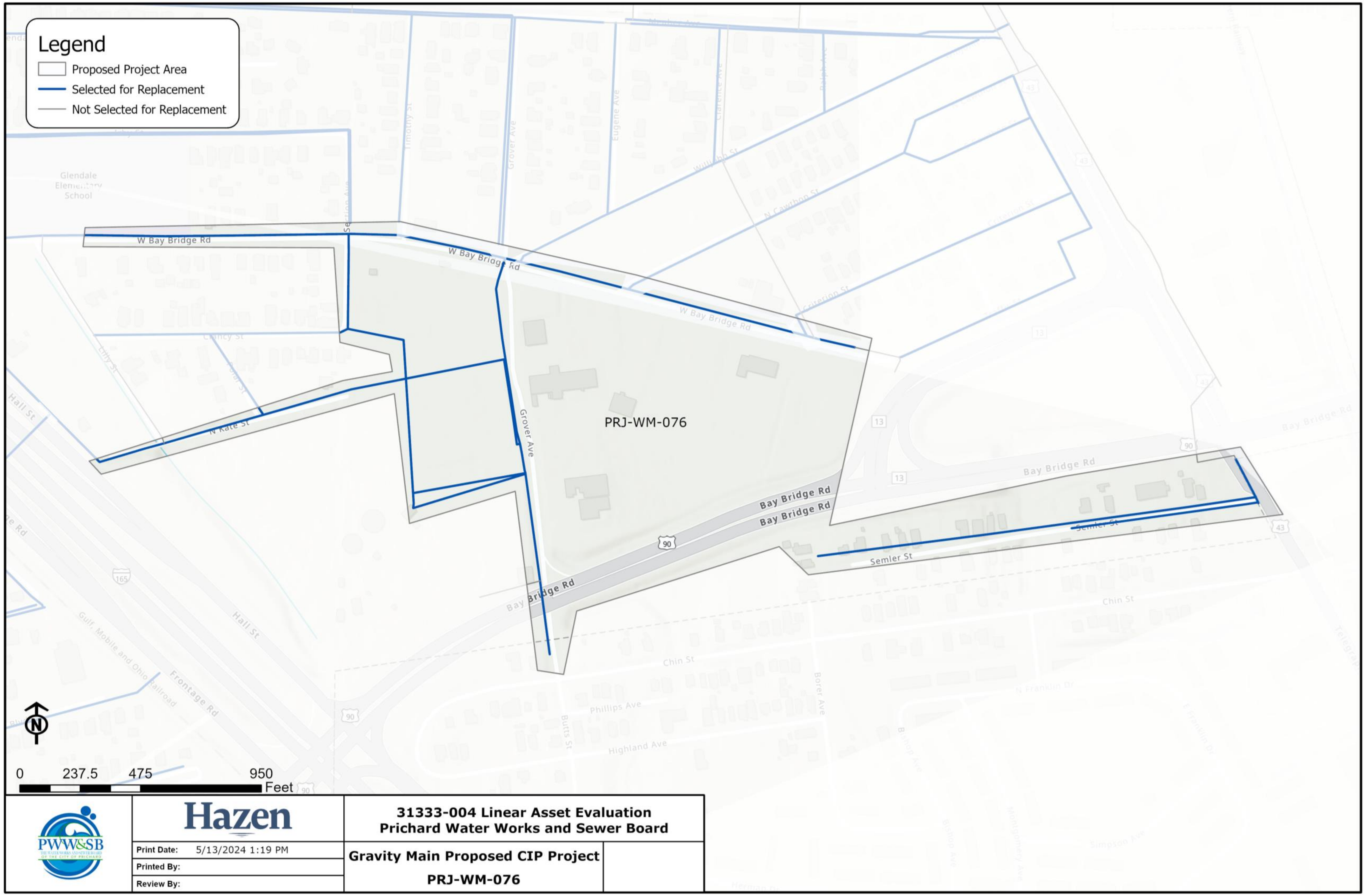


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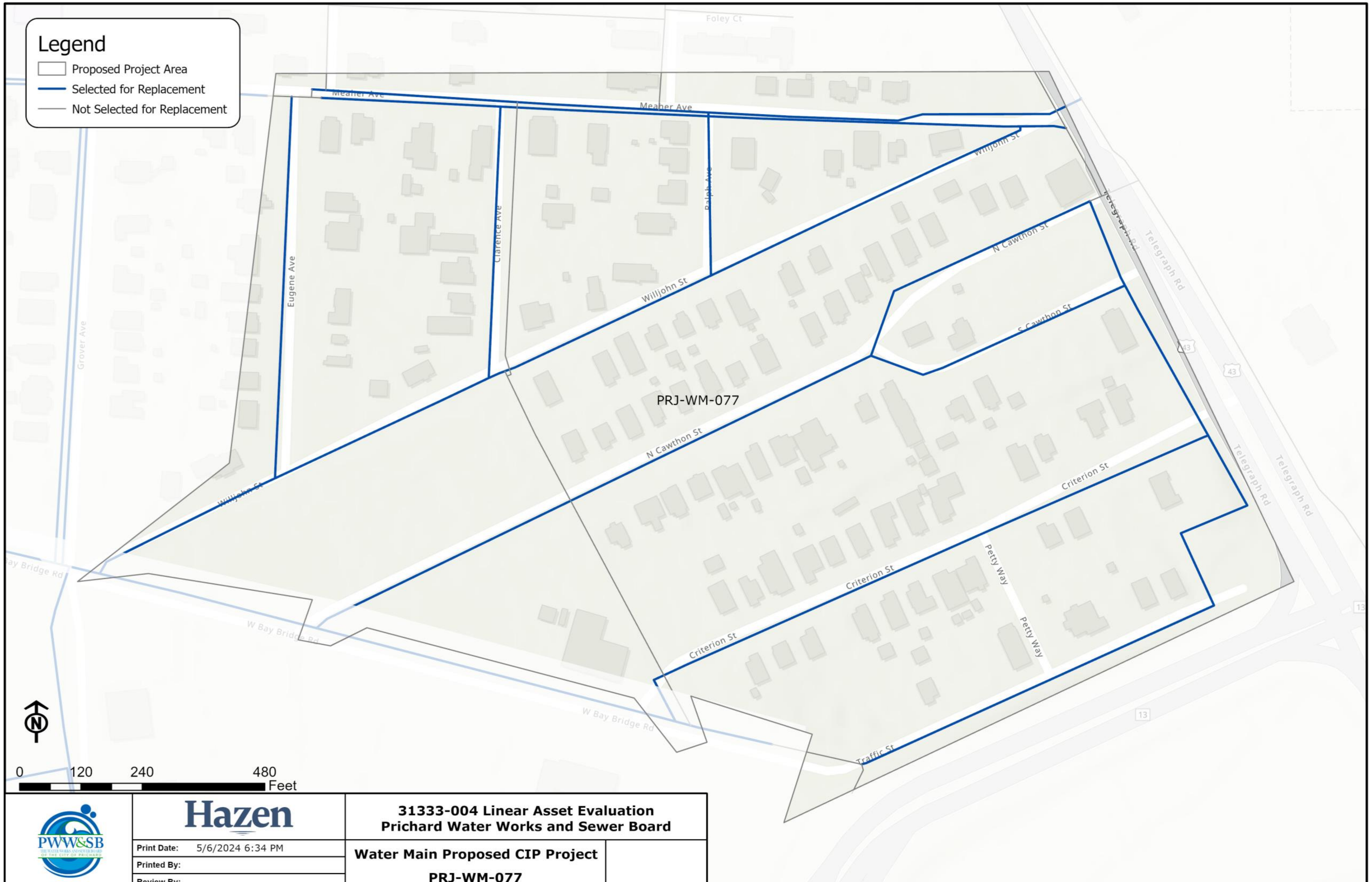


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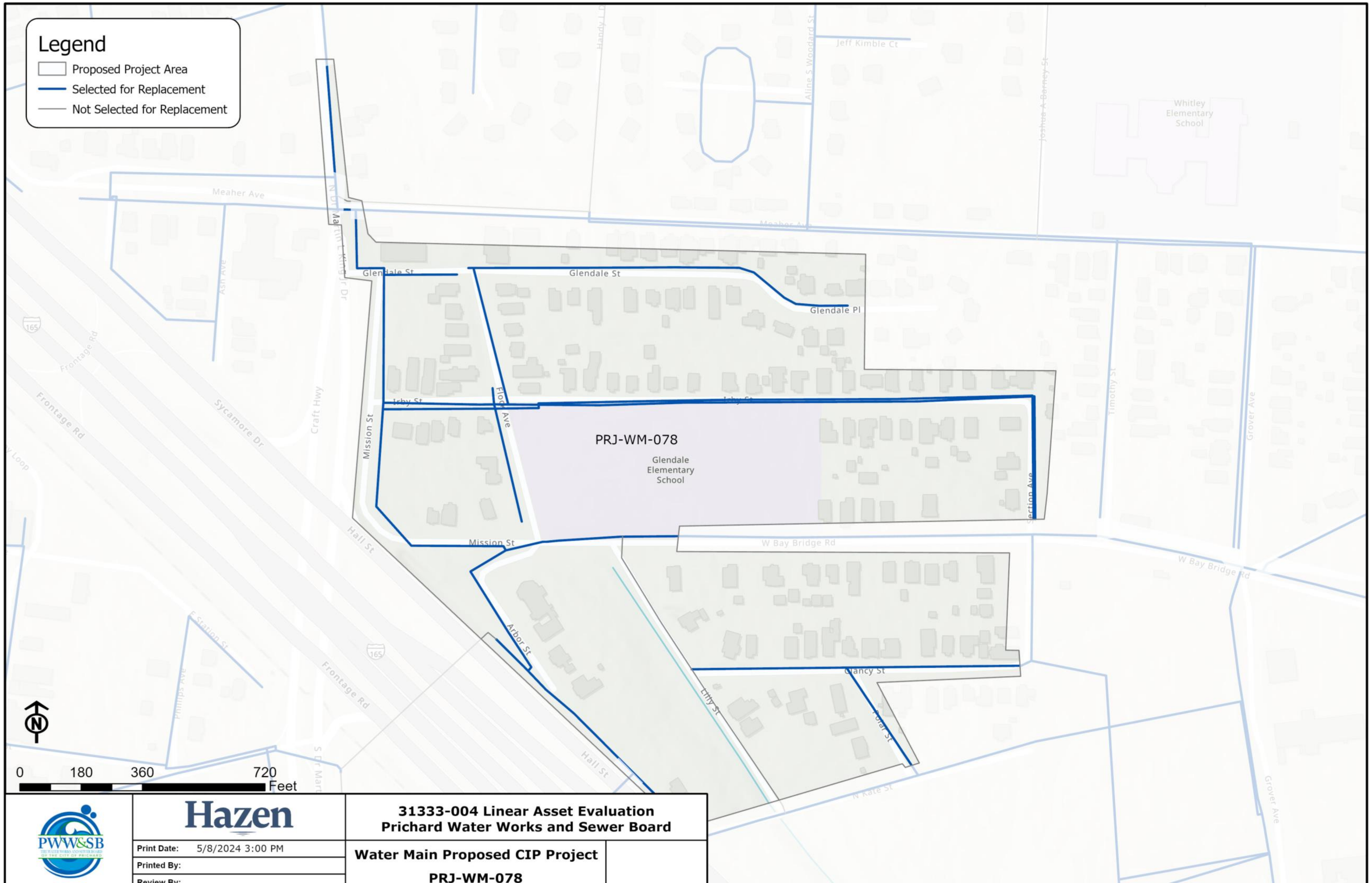


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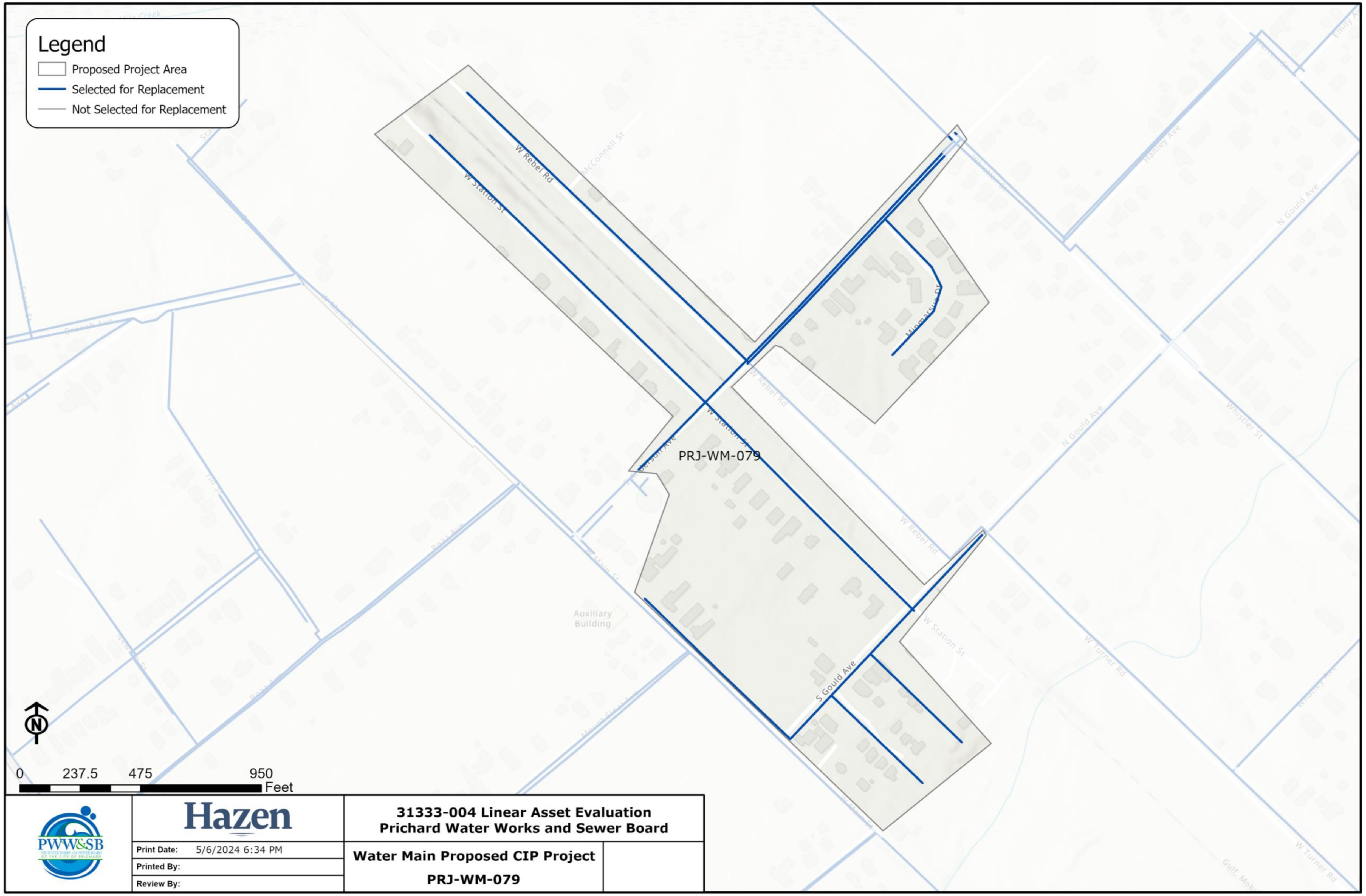


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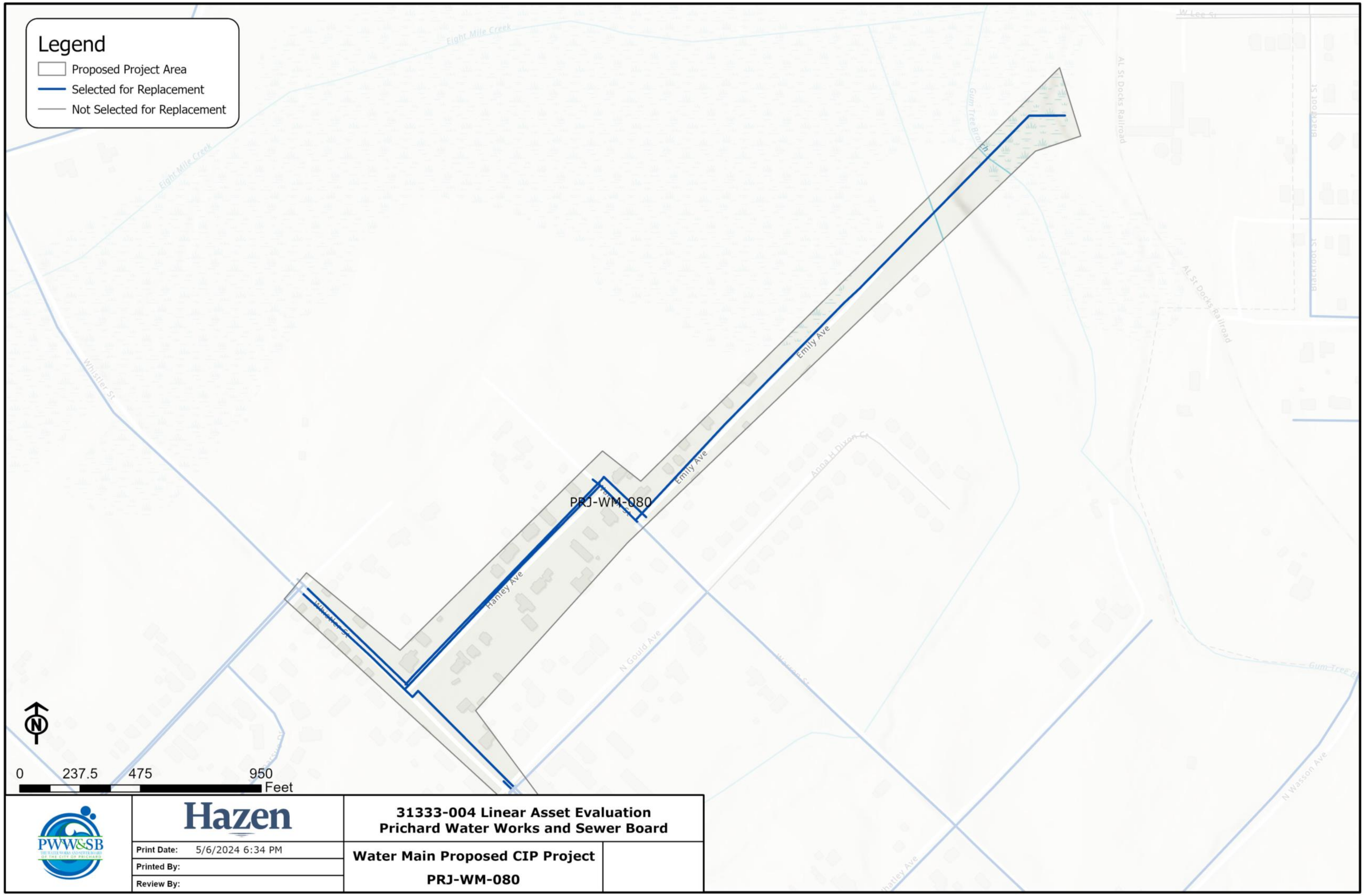


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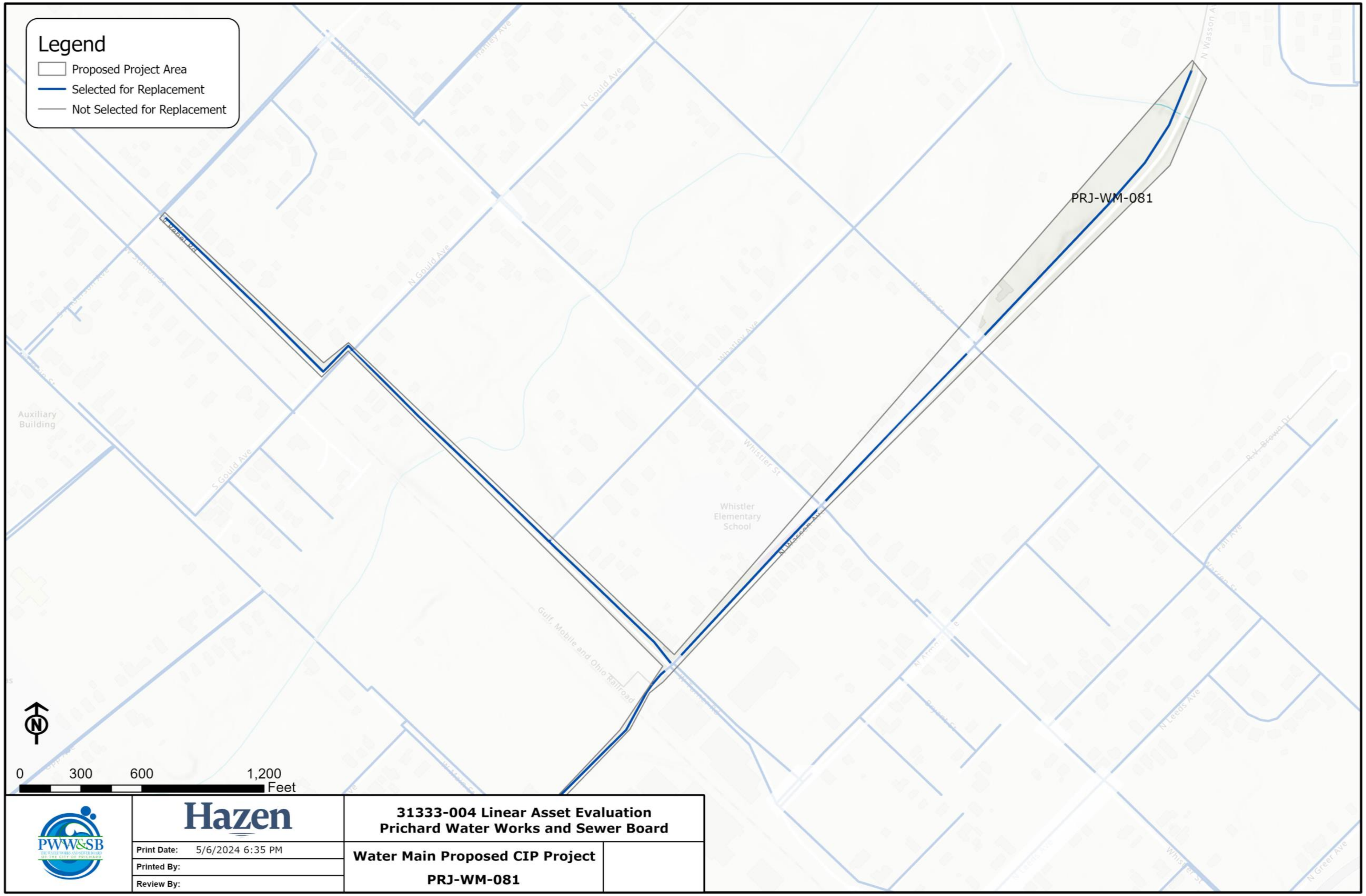


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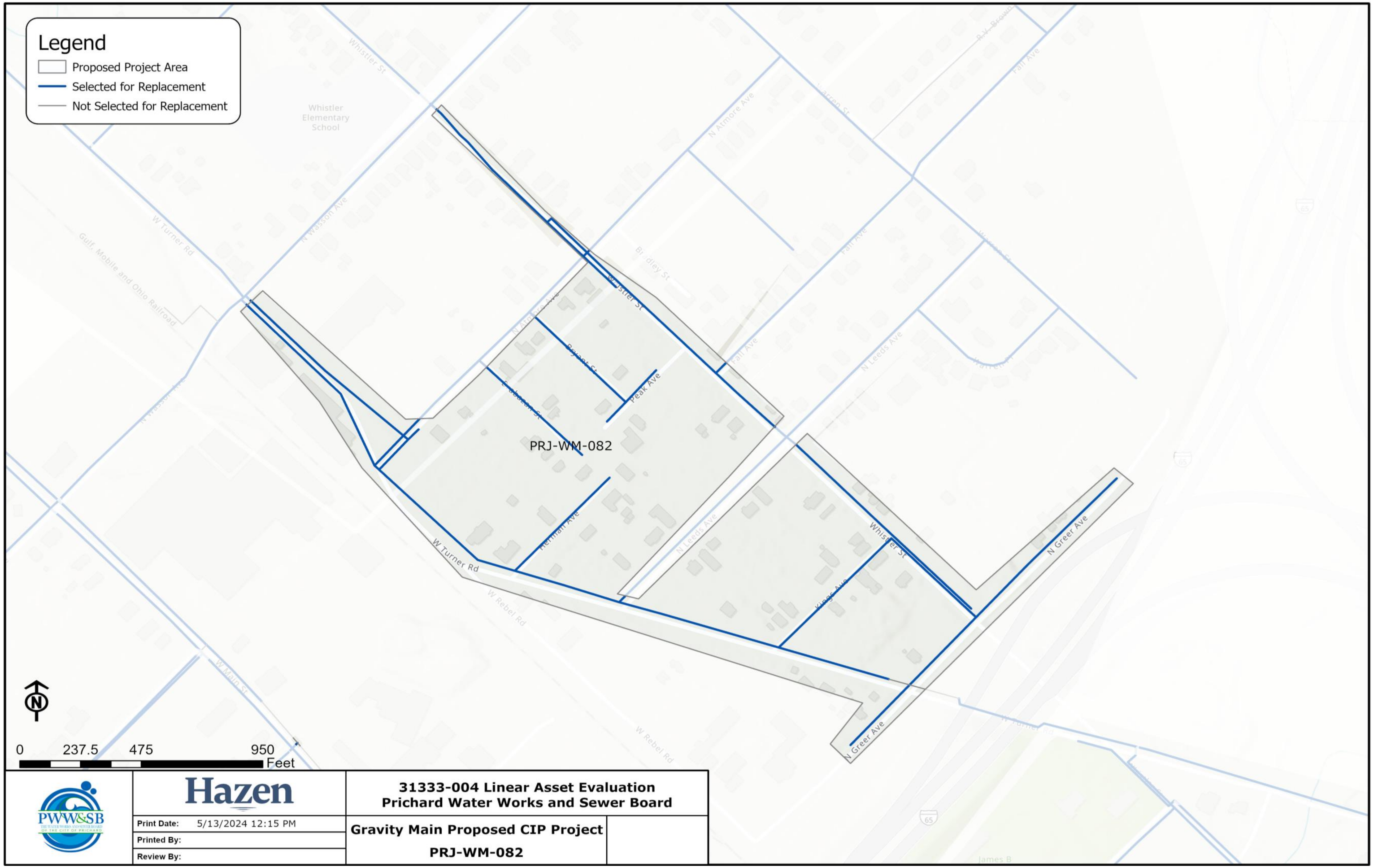


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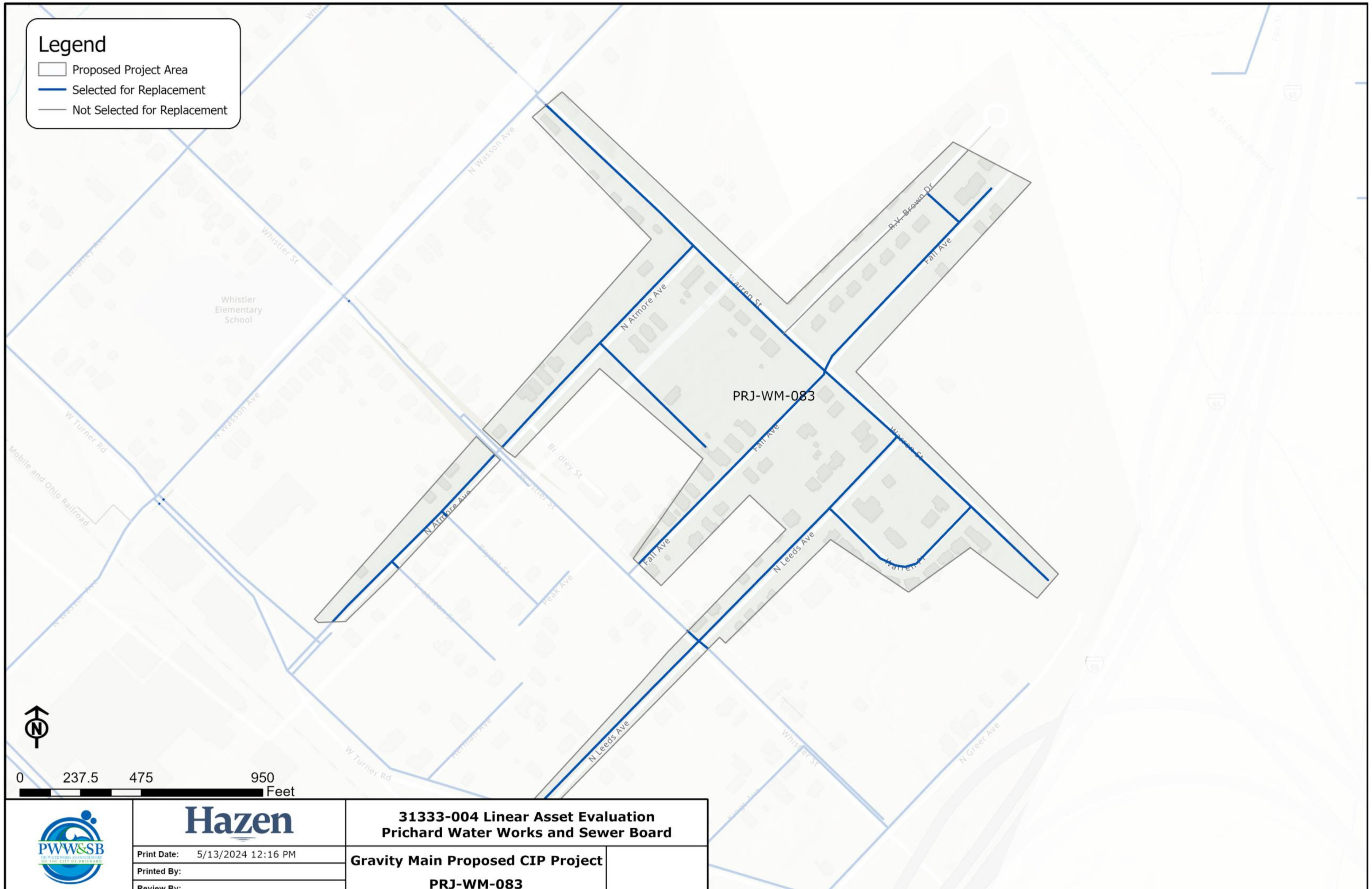


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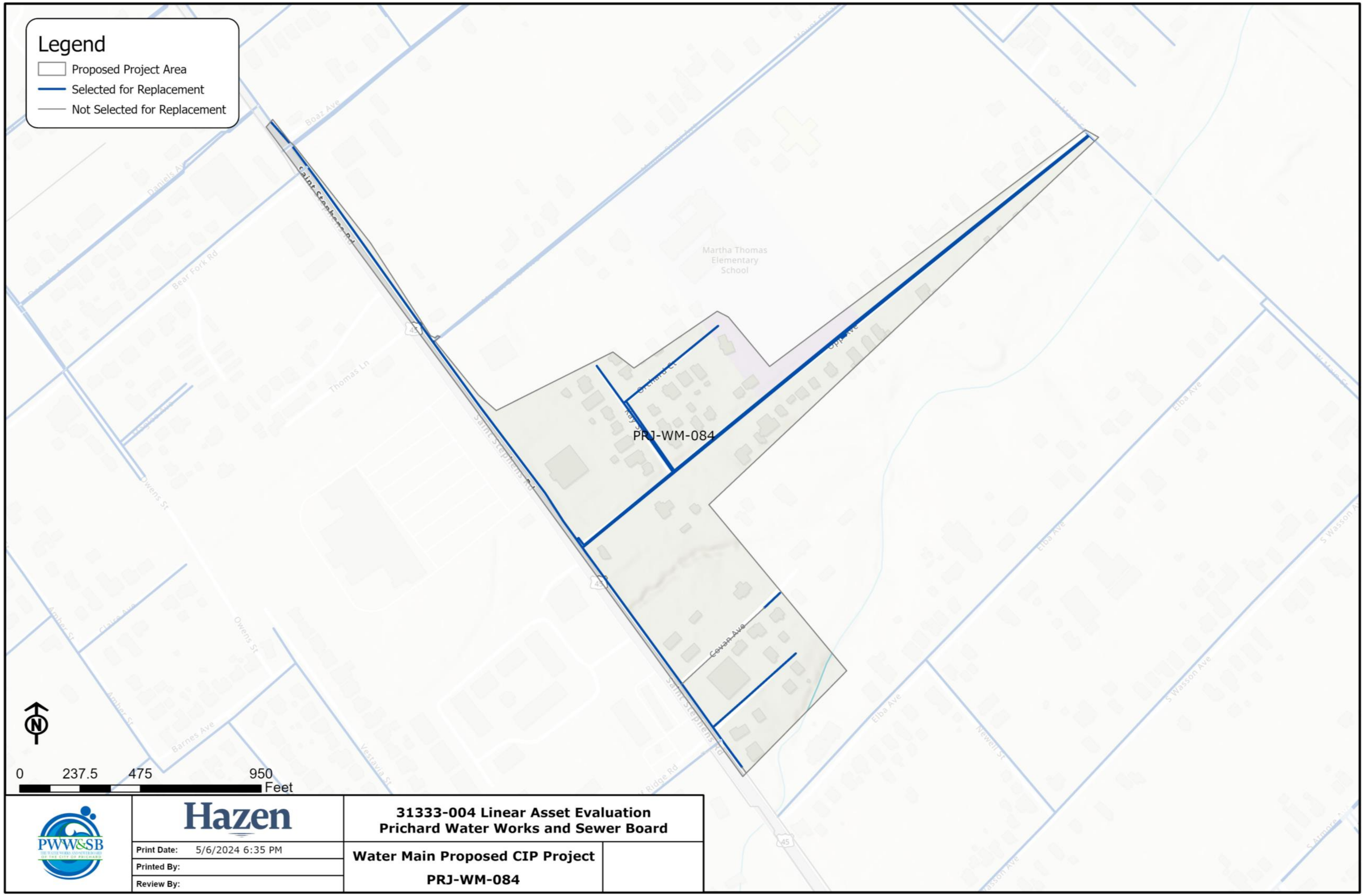


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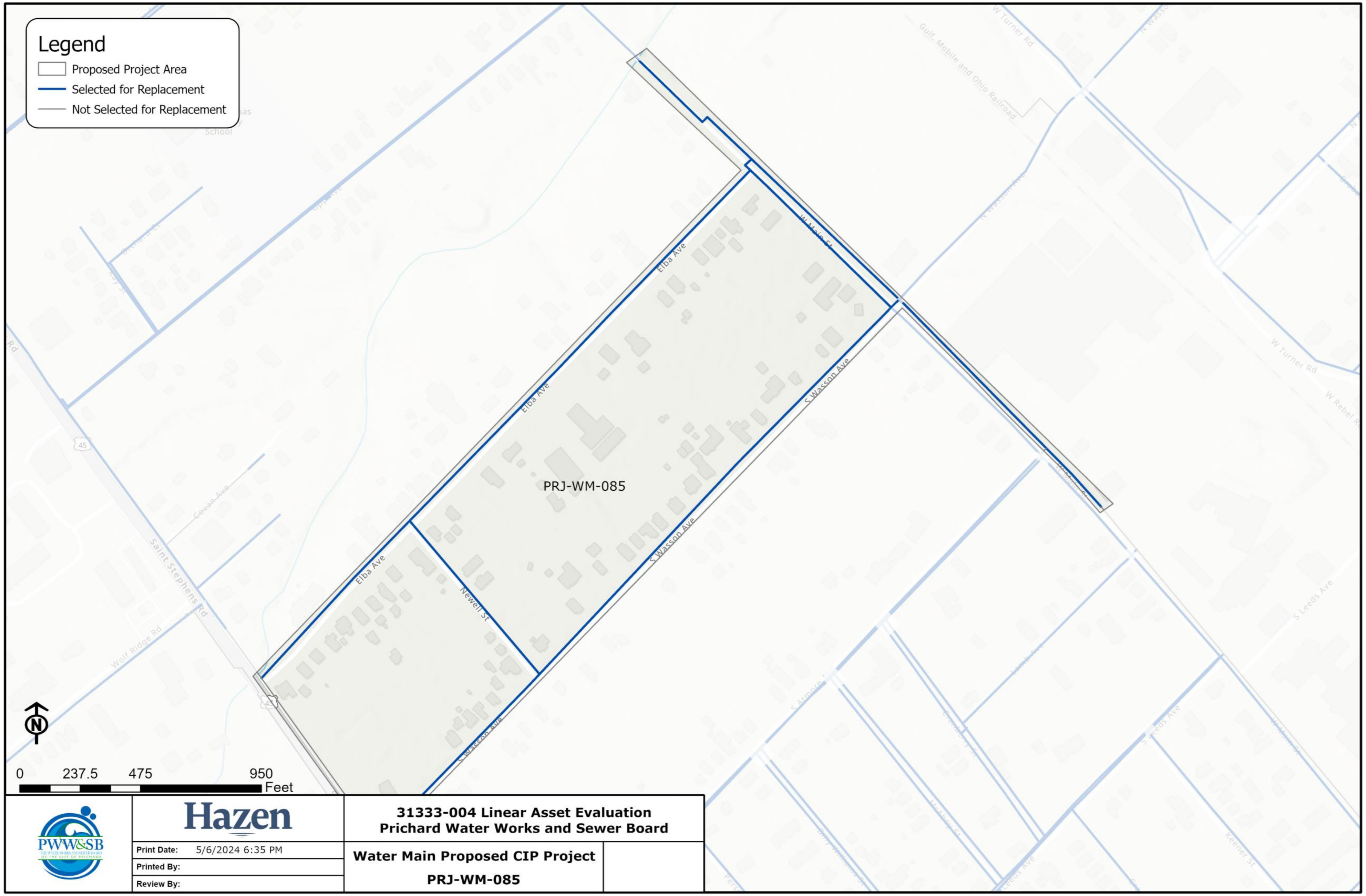


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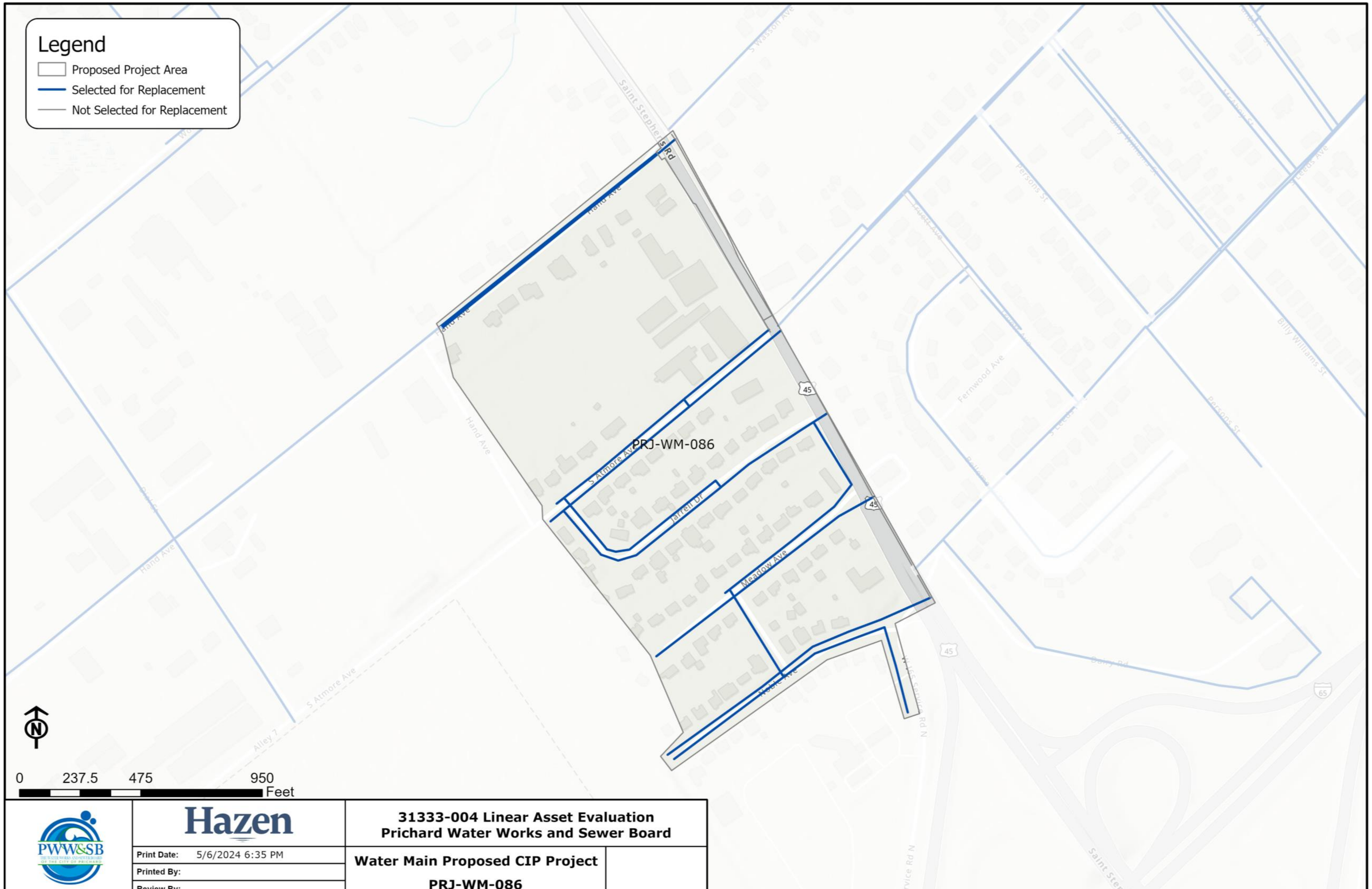


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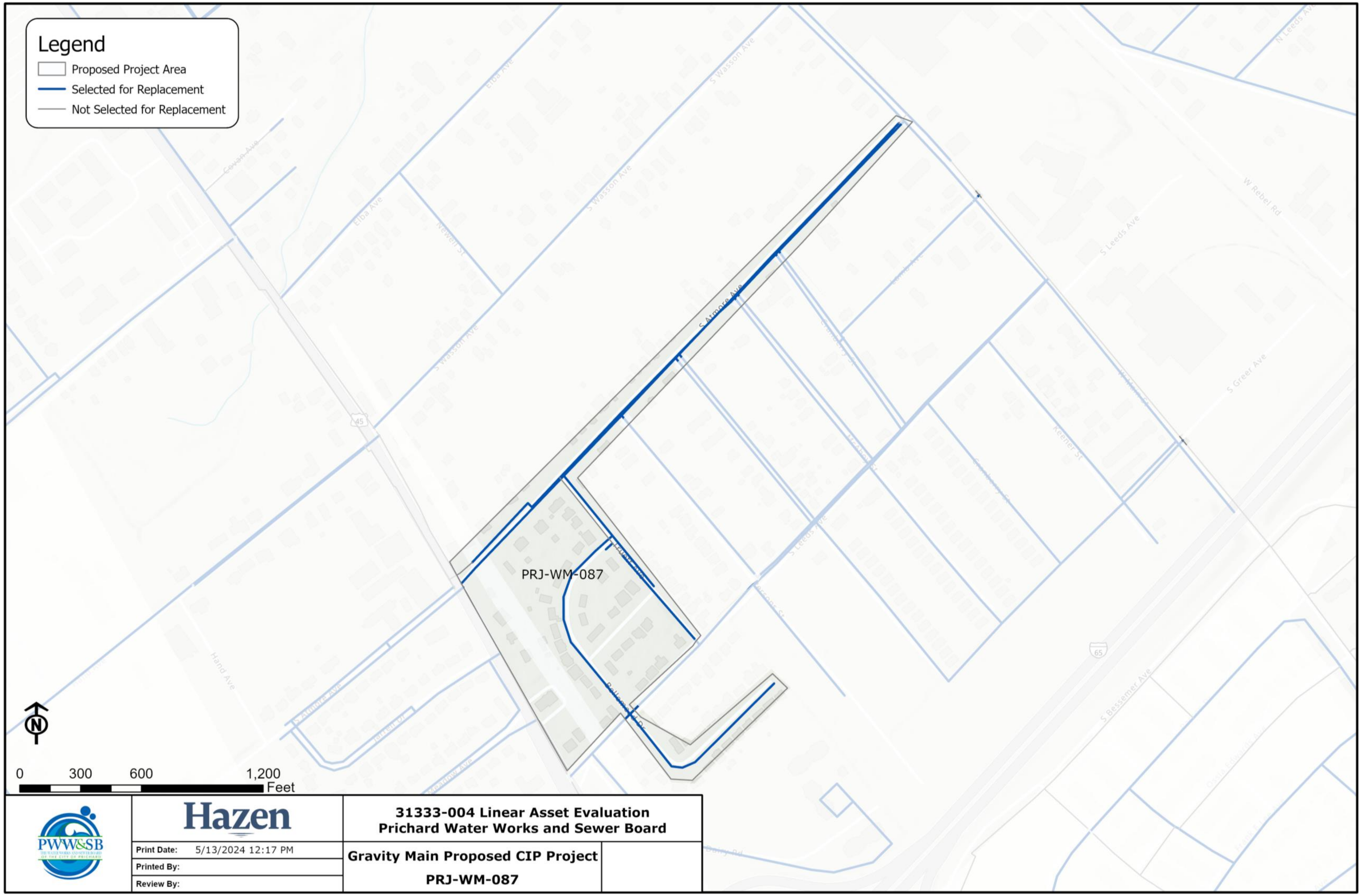


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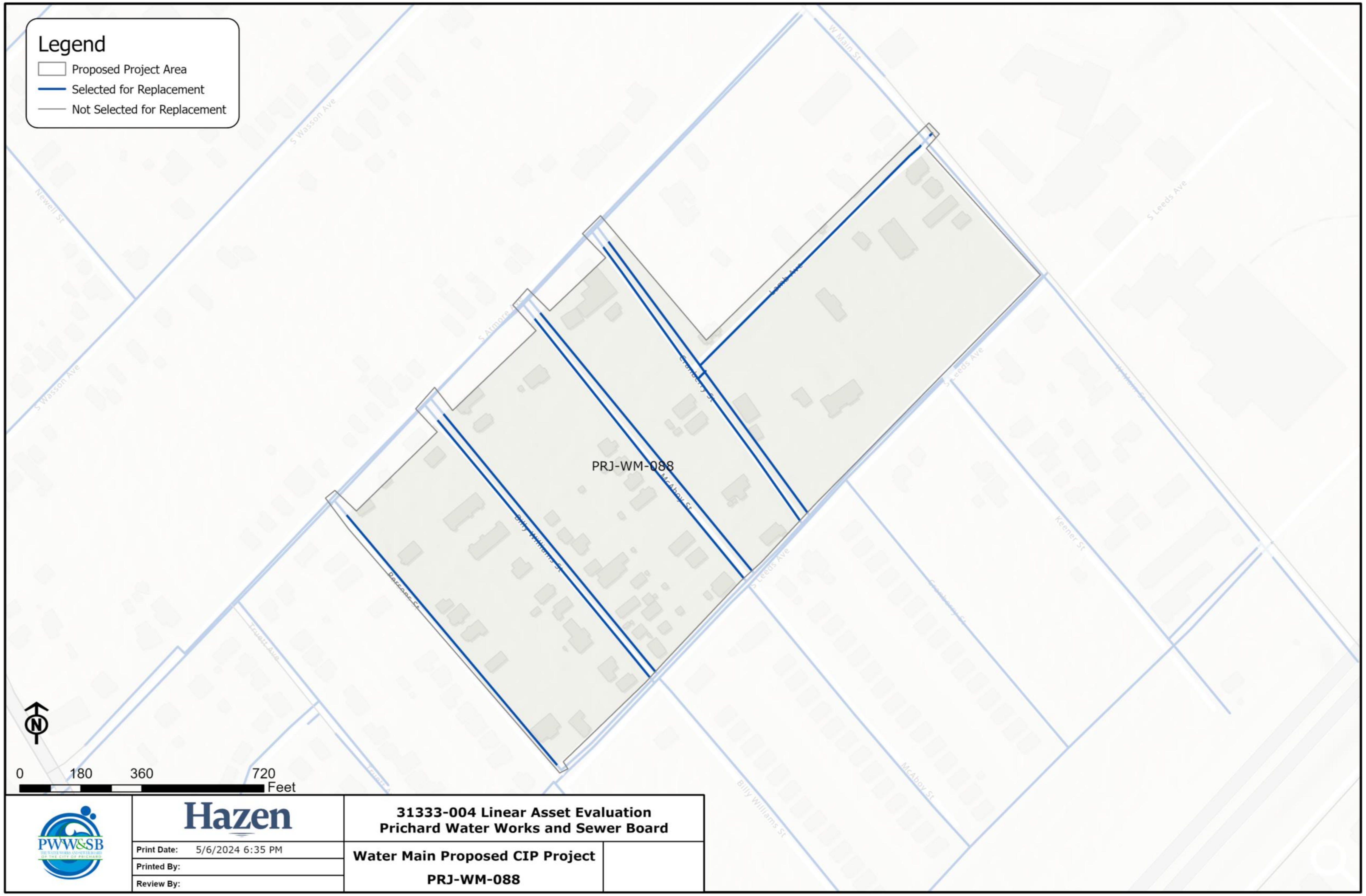


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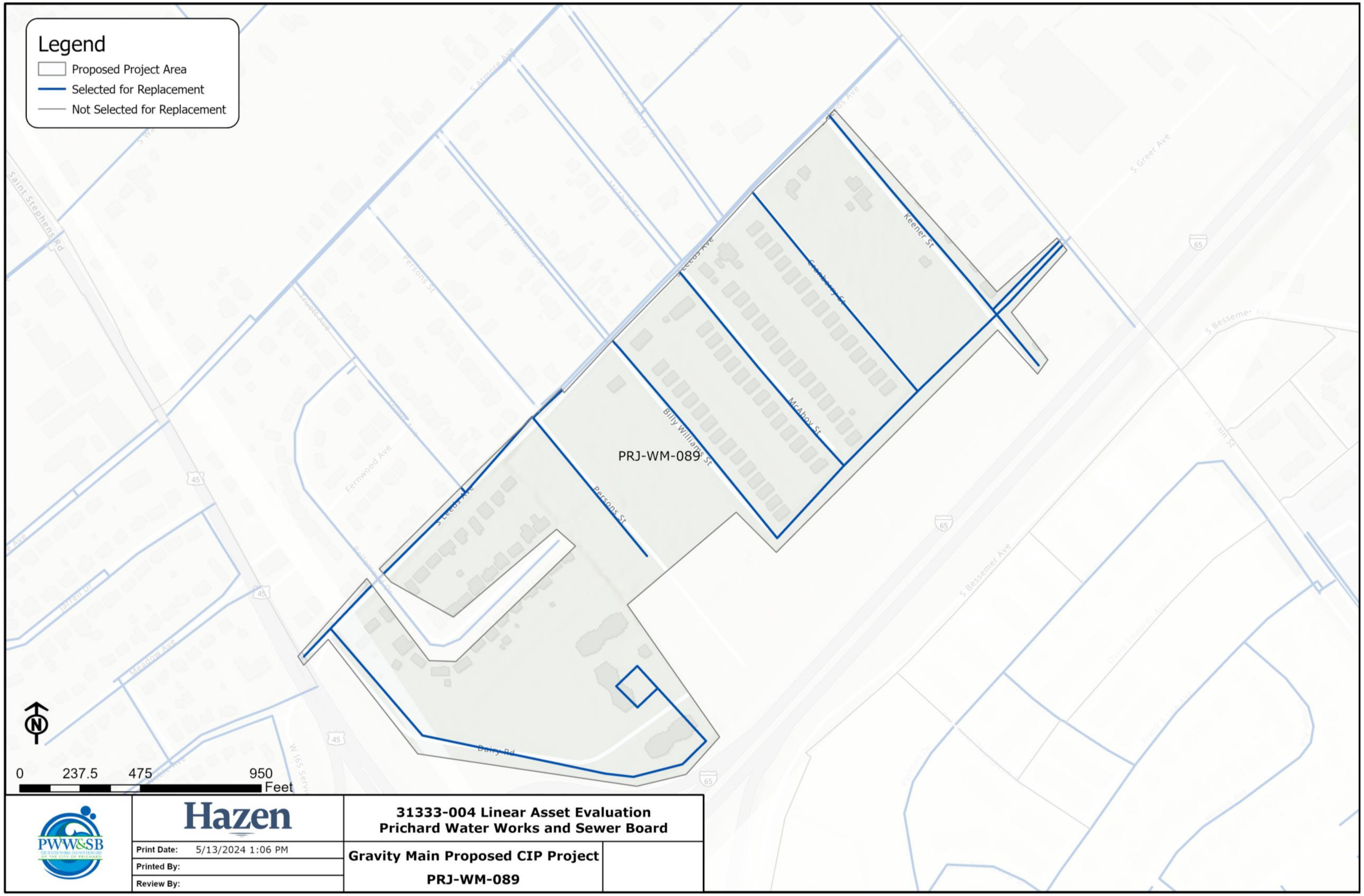


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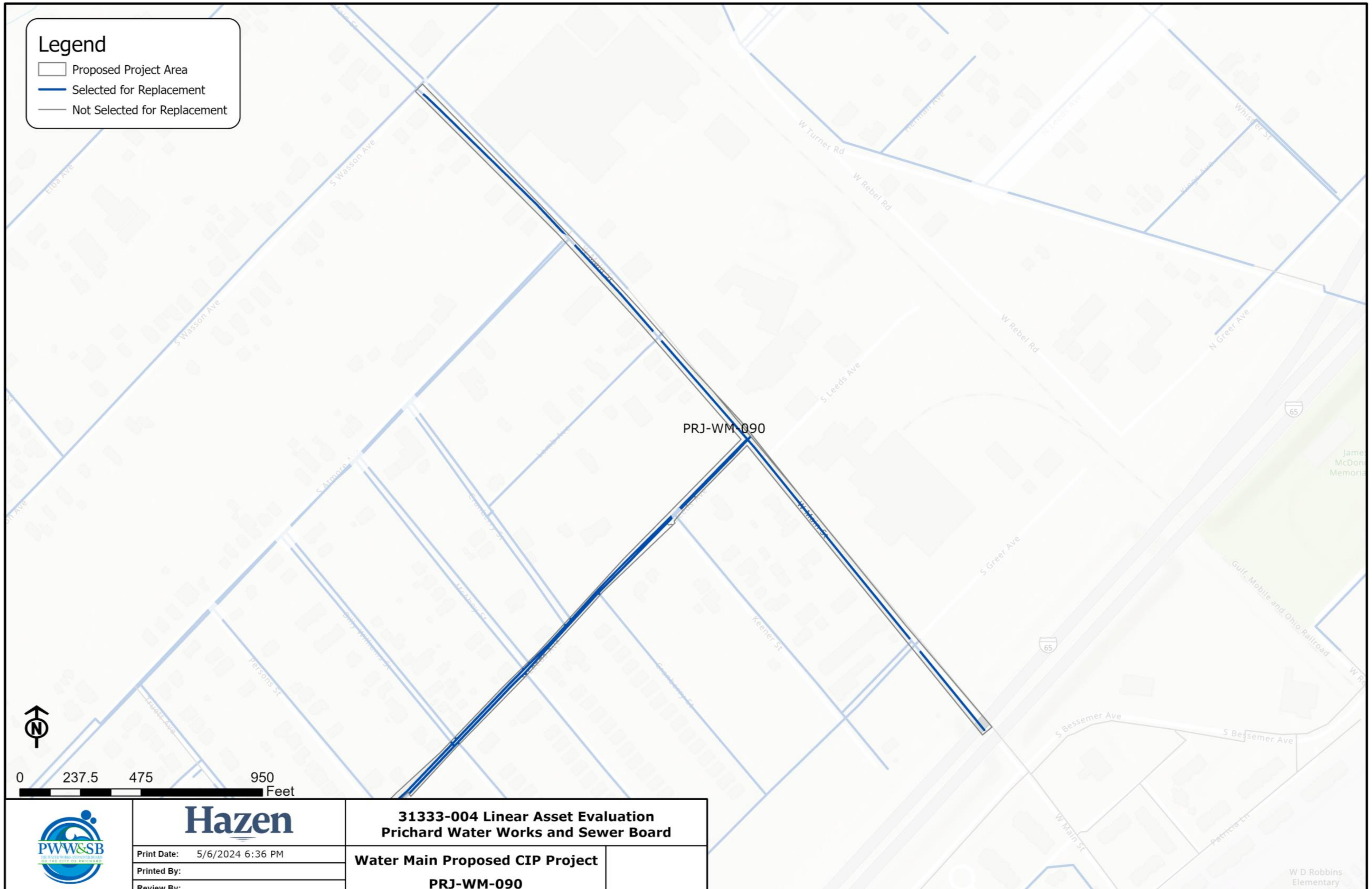


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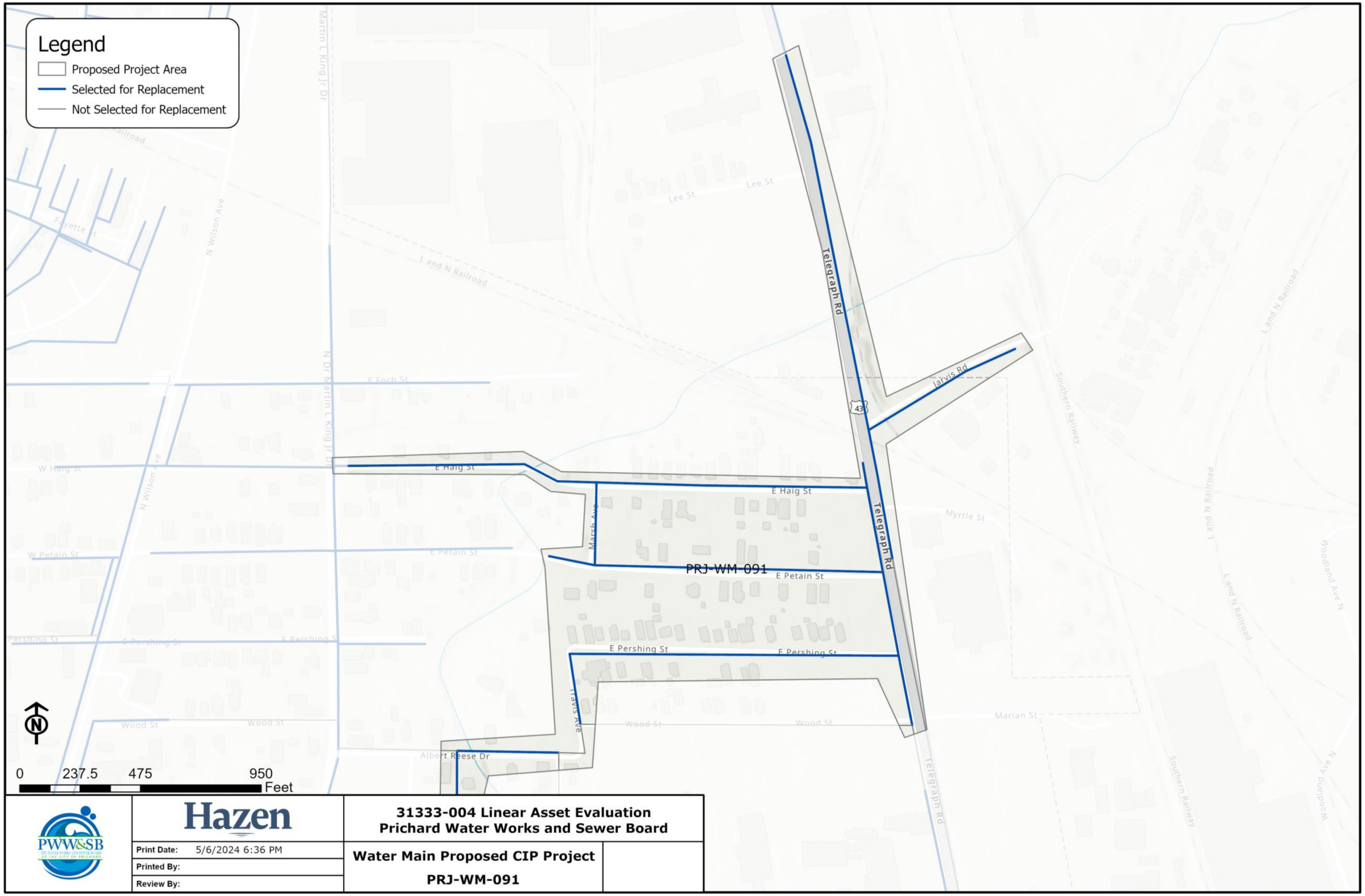


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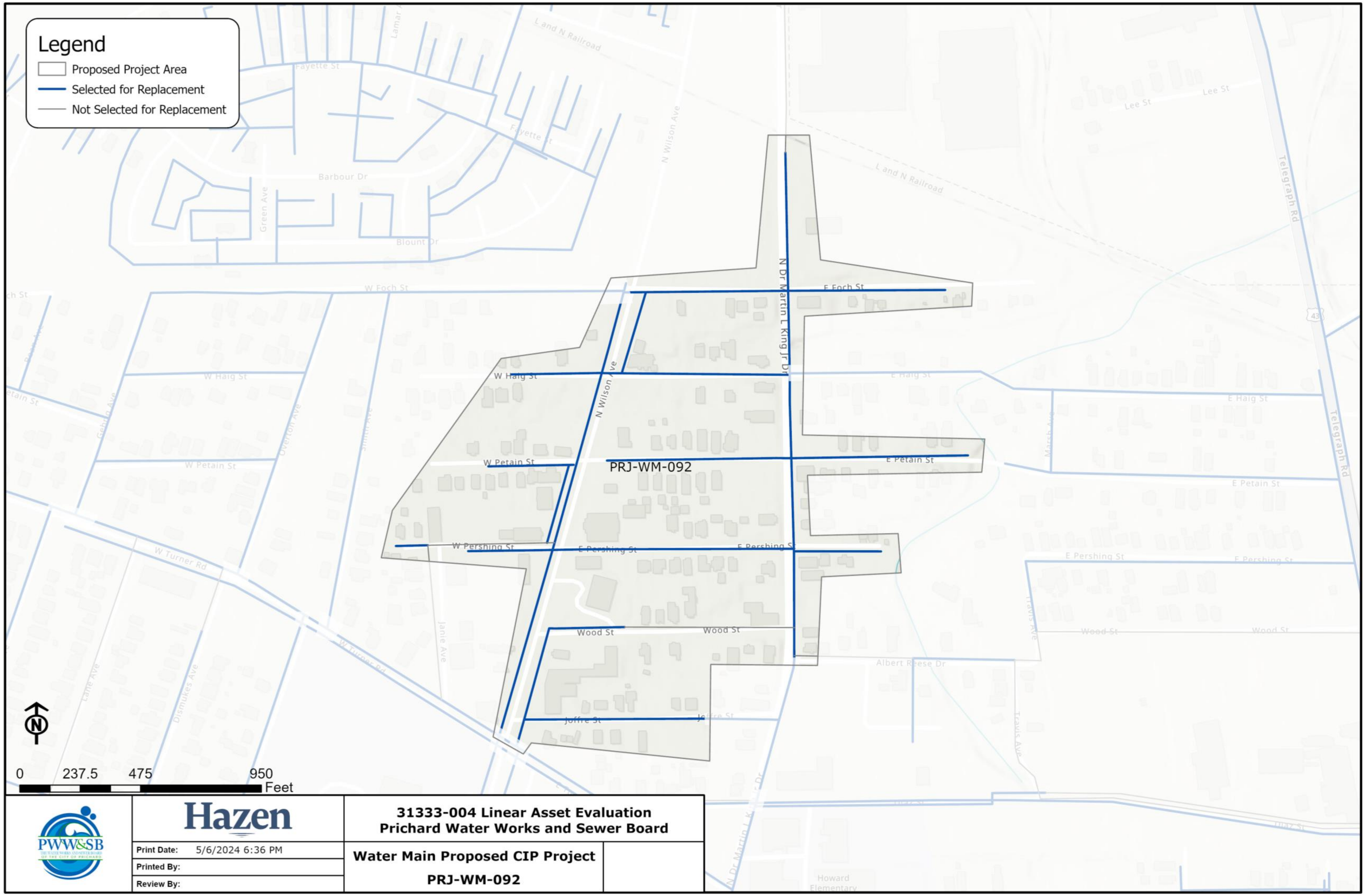
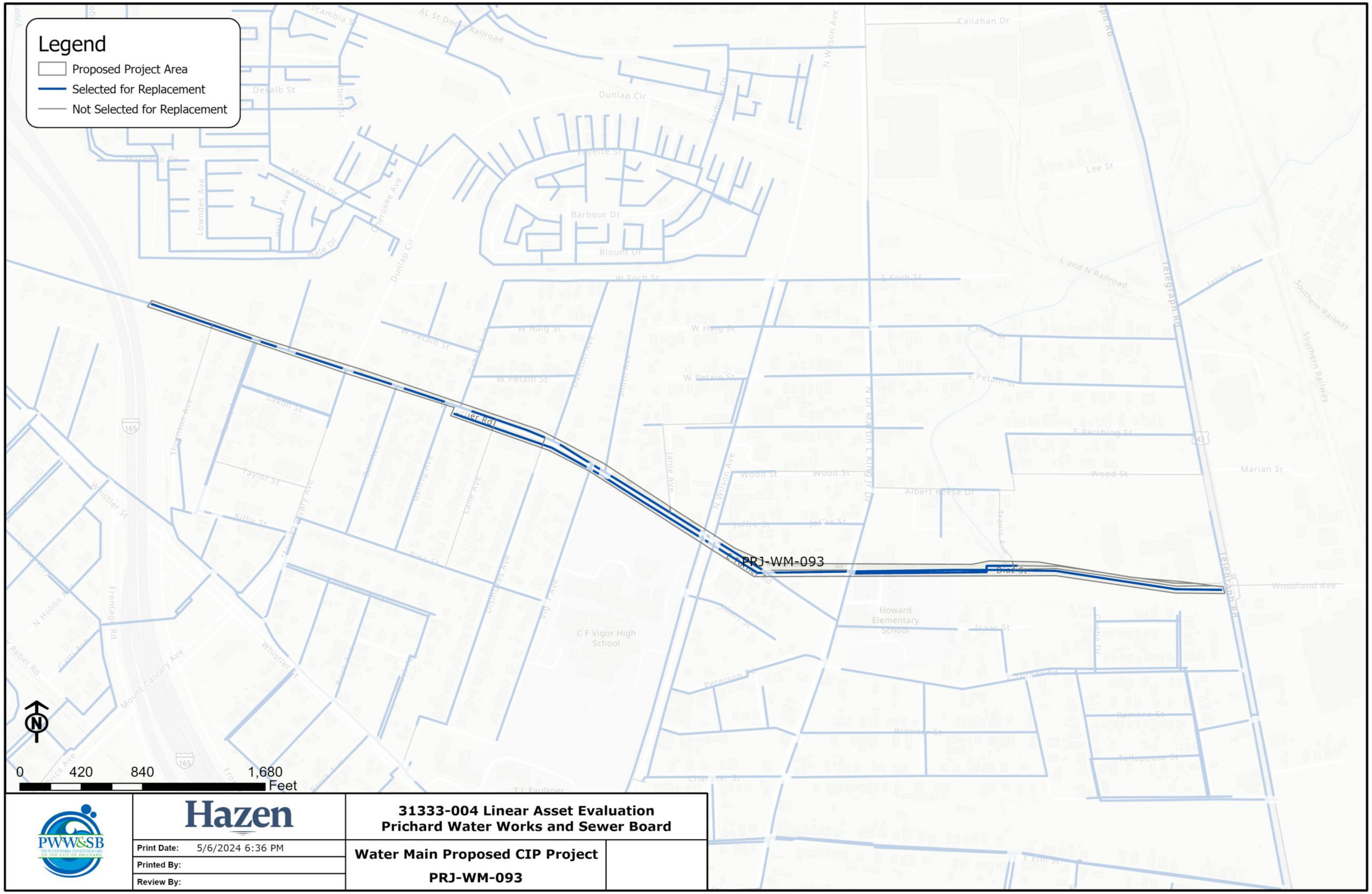
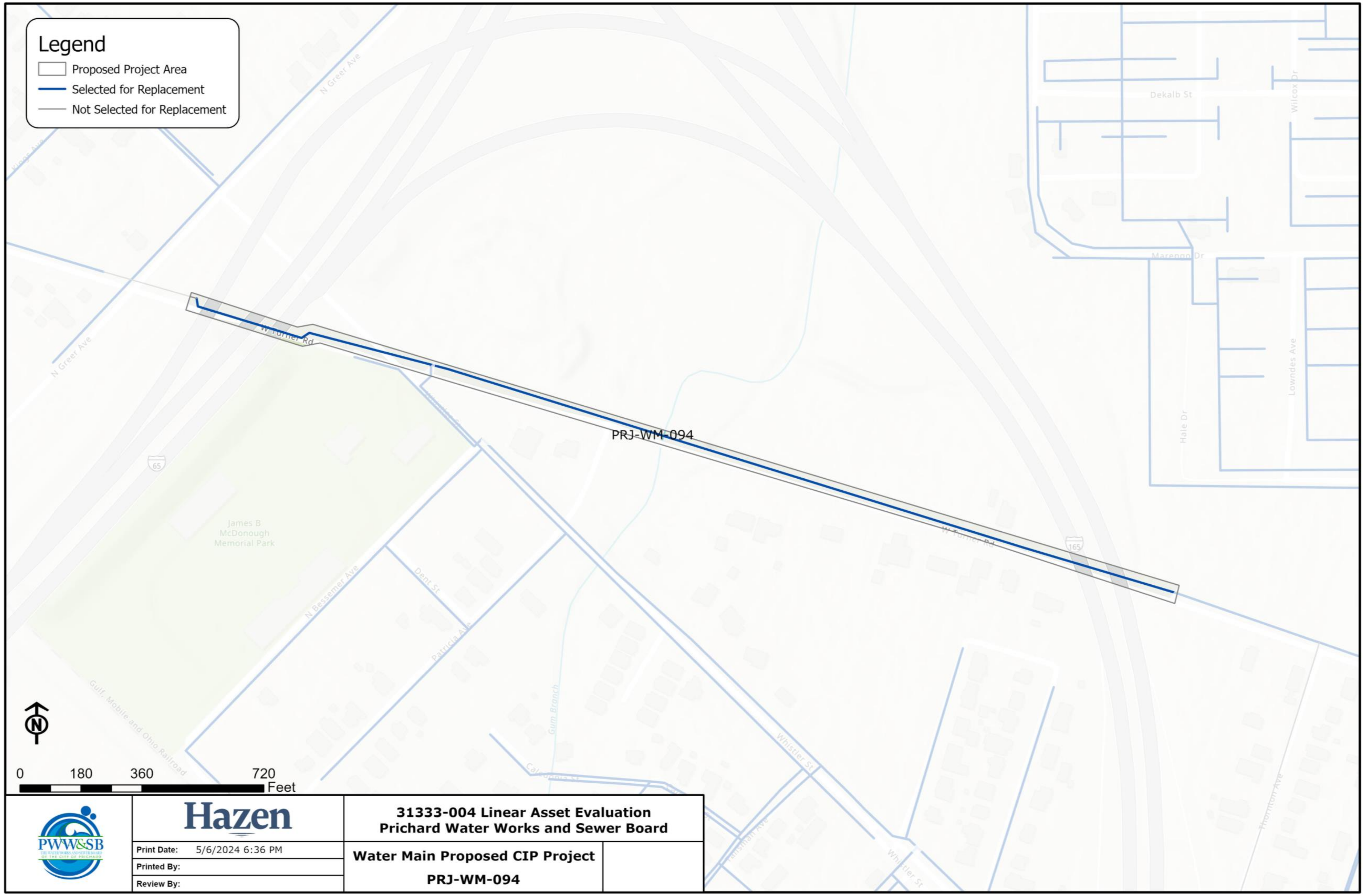


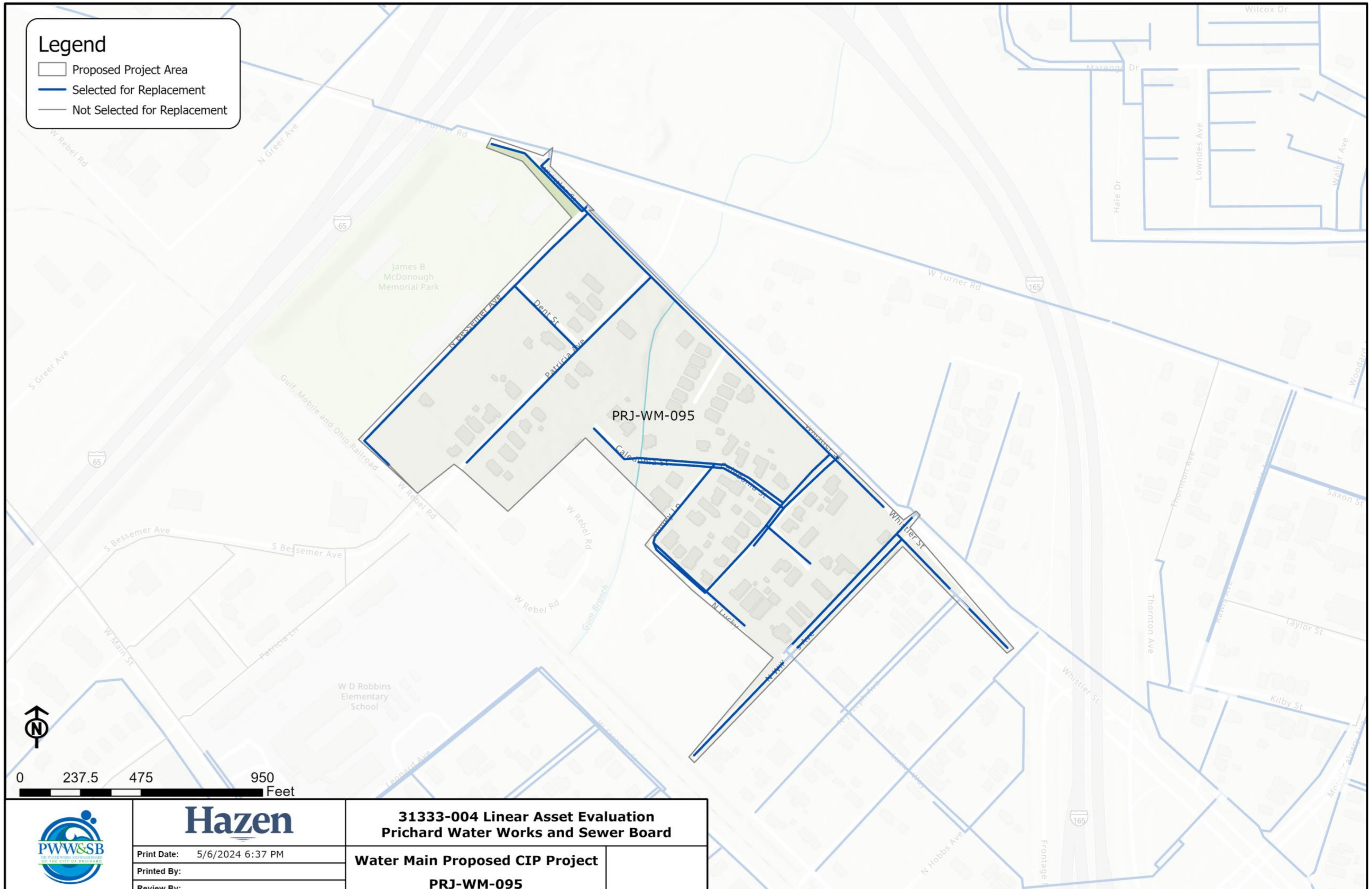

C-4-93. Water Main Proposed CIP Project – PRJ-WM-092



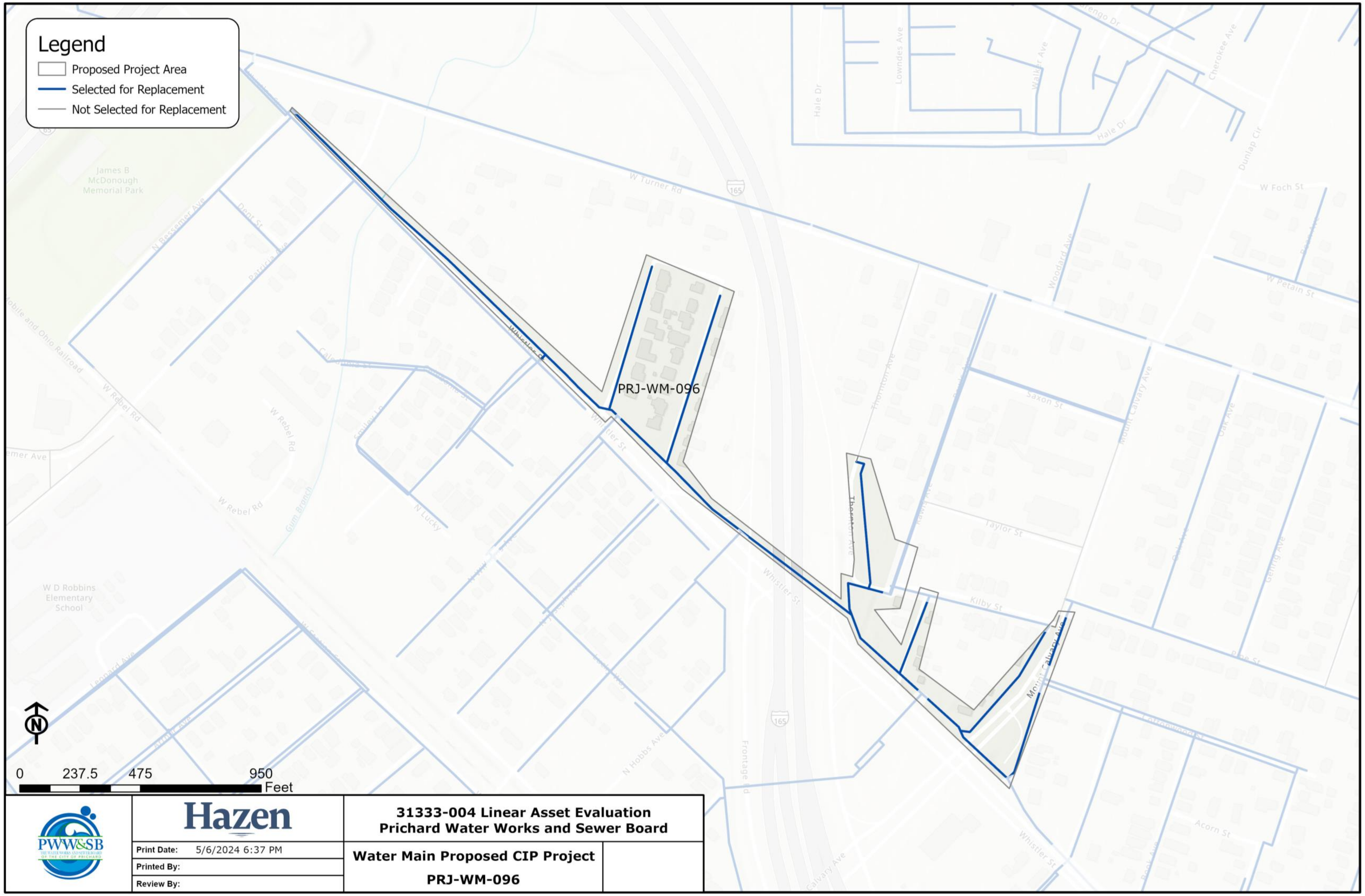

**C-4-94. Water Main Proposed CIP Project – PRJ-WM-093**



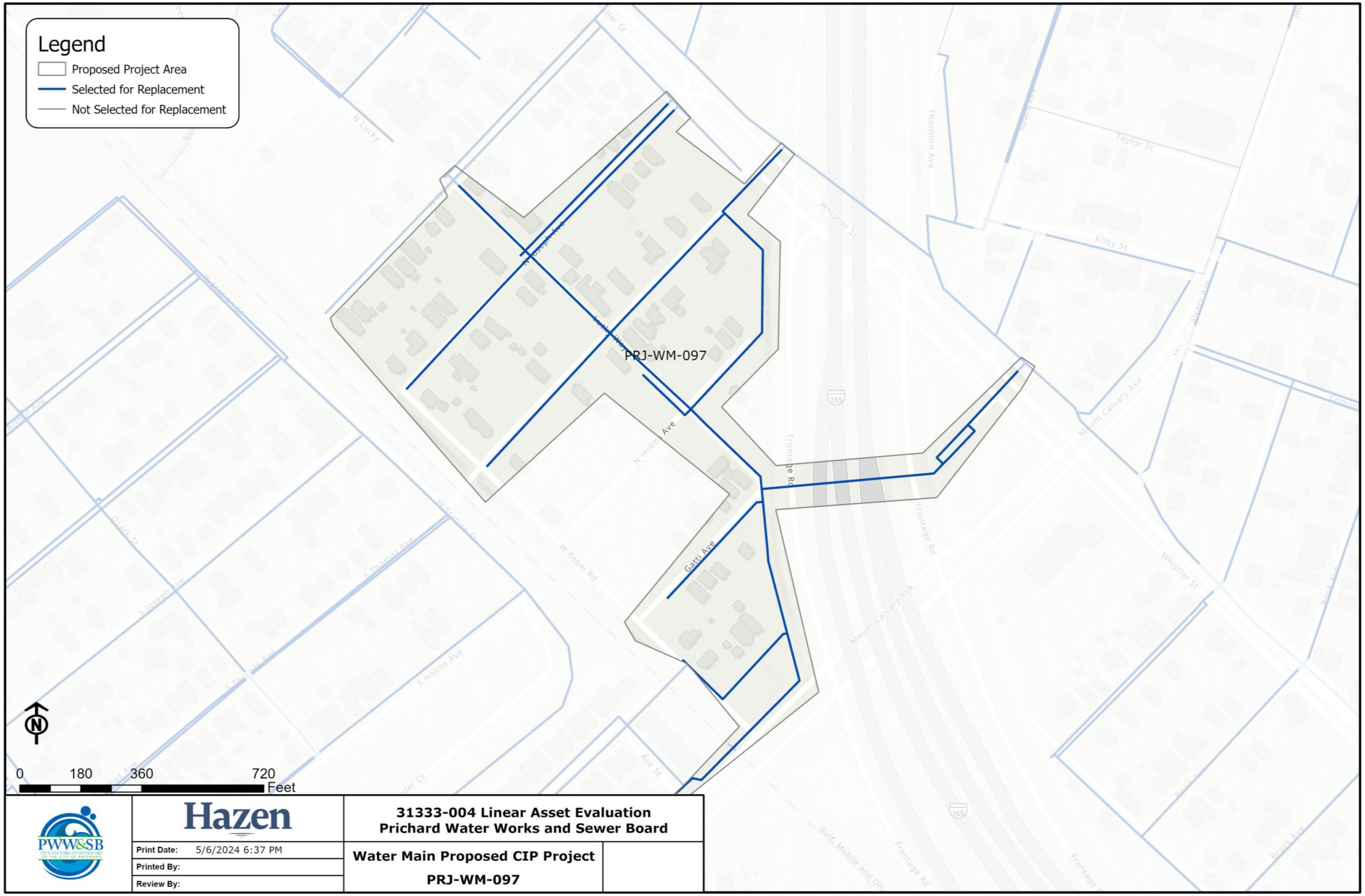

**C-4-95. Water Main Proposed CIP Project – PRJ-WM-094**



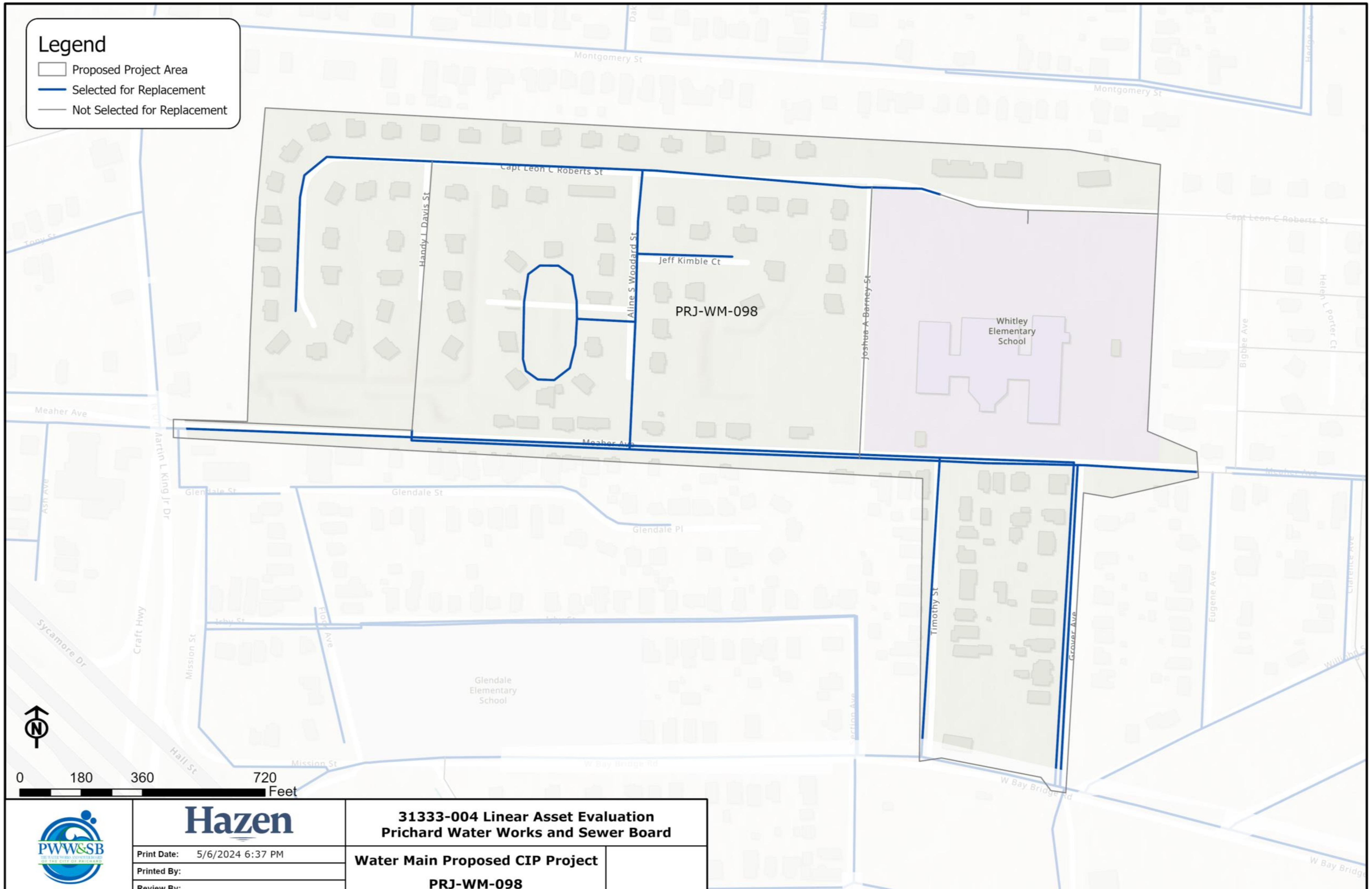

C-4-96. Water Main Proposed CIP Project – PRJ-WM-095



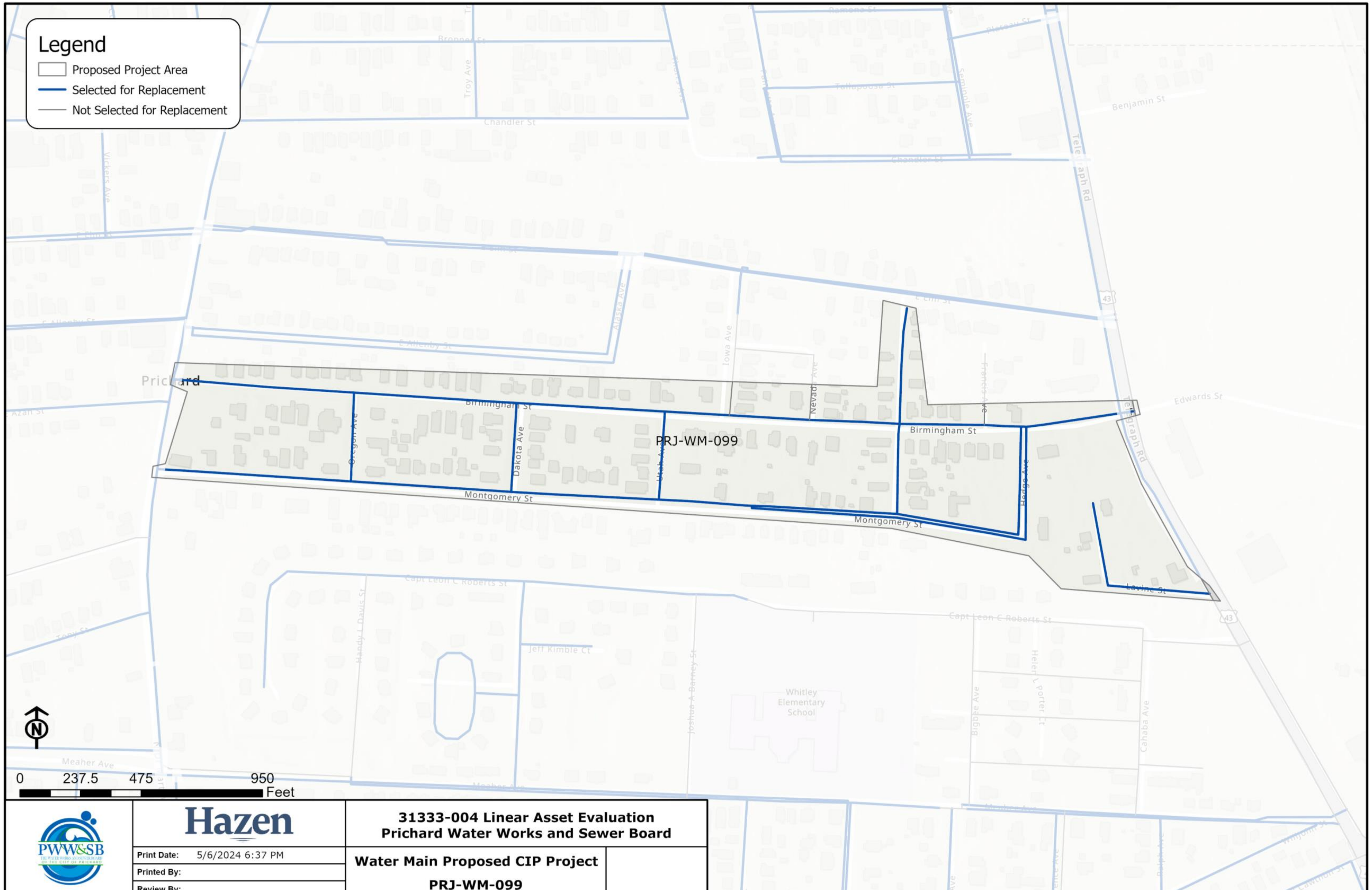

**C-4-97. Water Main Proposed CIP Project – PRJ-WM-096**



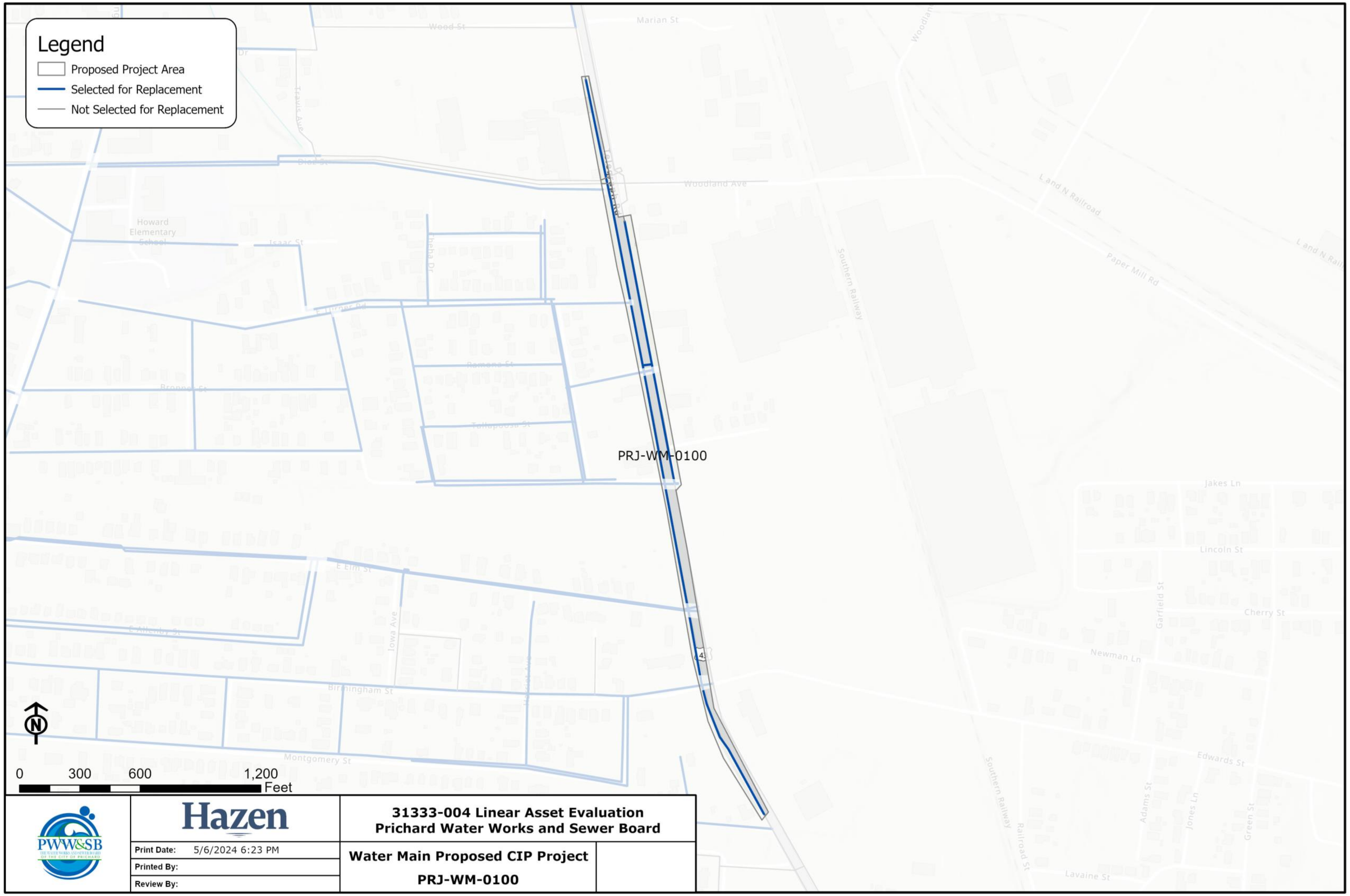

**C-4-98. Water Main Proposed CIP Project – PRJ-WM-097**



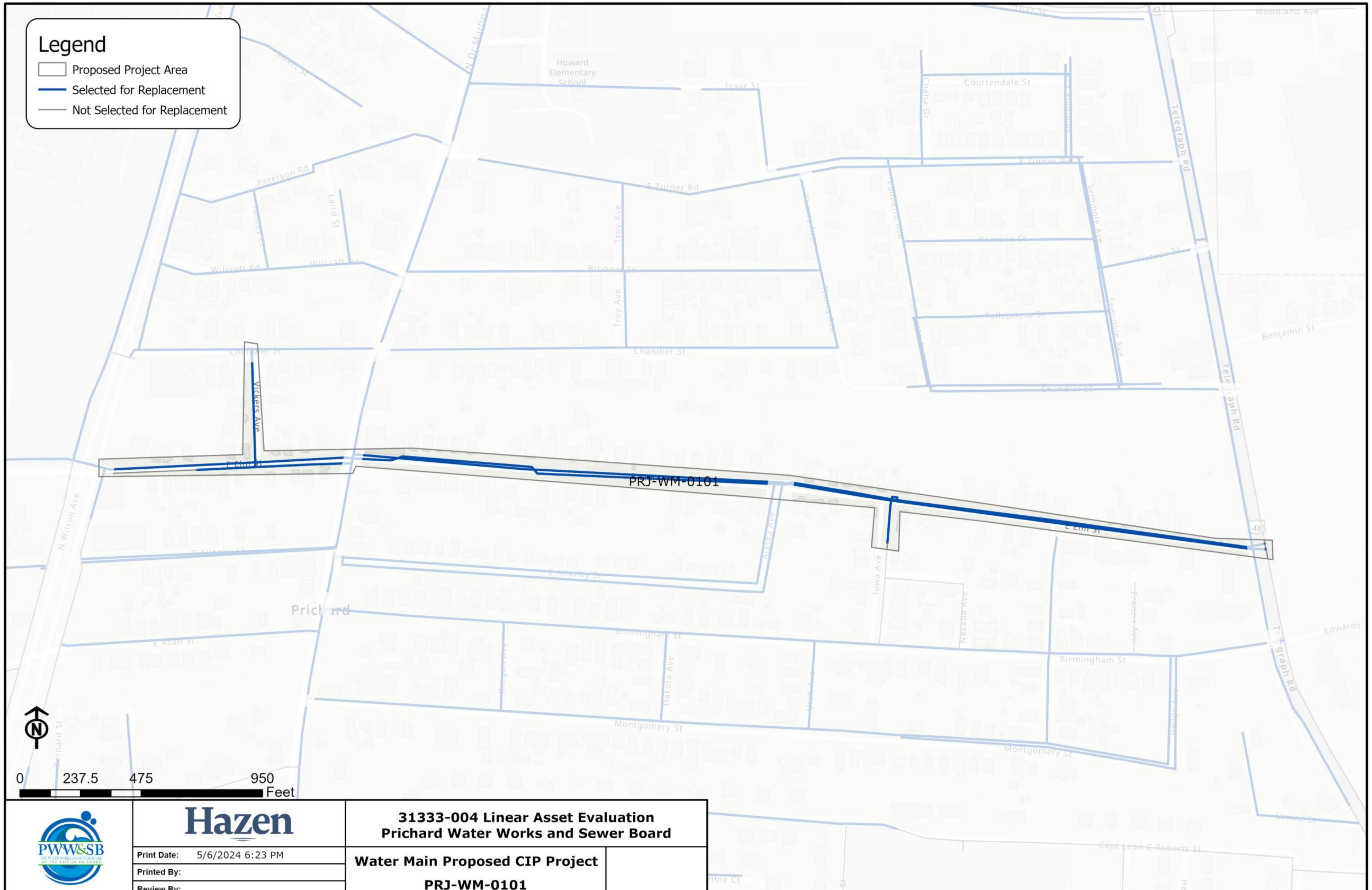

**C-4-99. Water Main Proposed CIP Project – PRJ-WM-098**



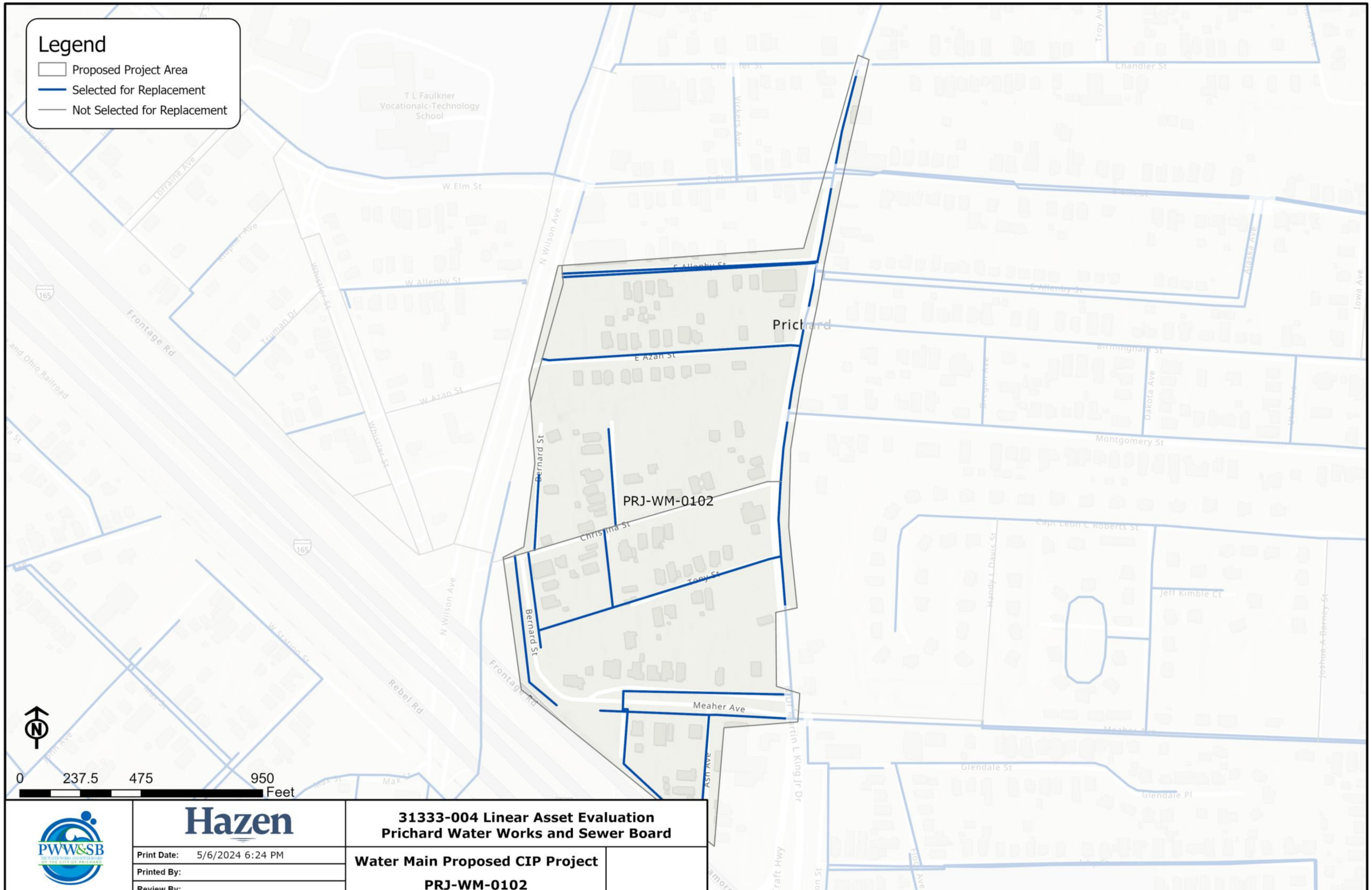

**C-4-100. Water Main Proposed CIP Project – PRJ-WM-099**



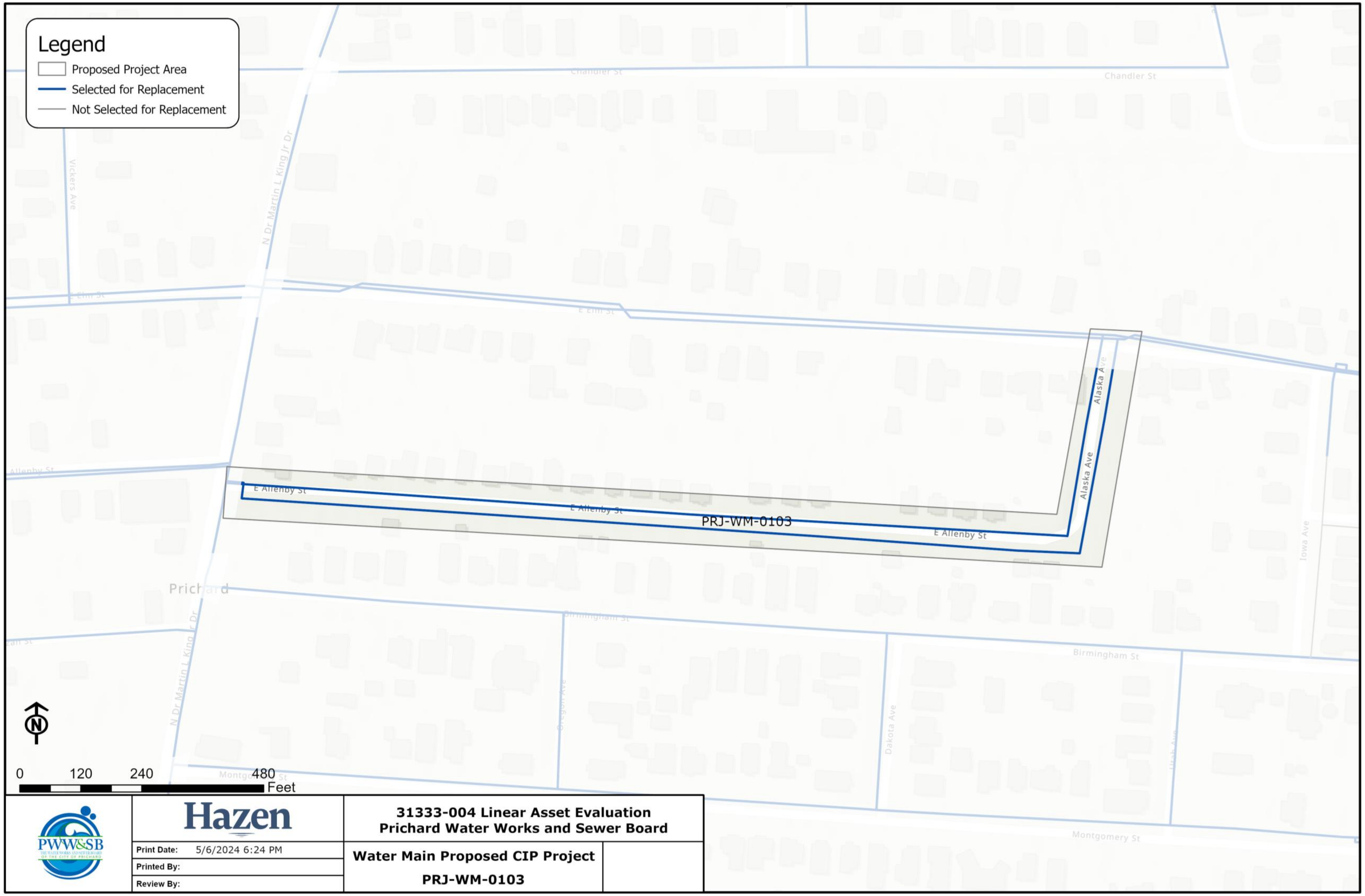

C-4-101. Water Main Proposed CIP Project – PRJ-WM-0100



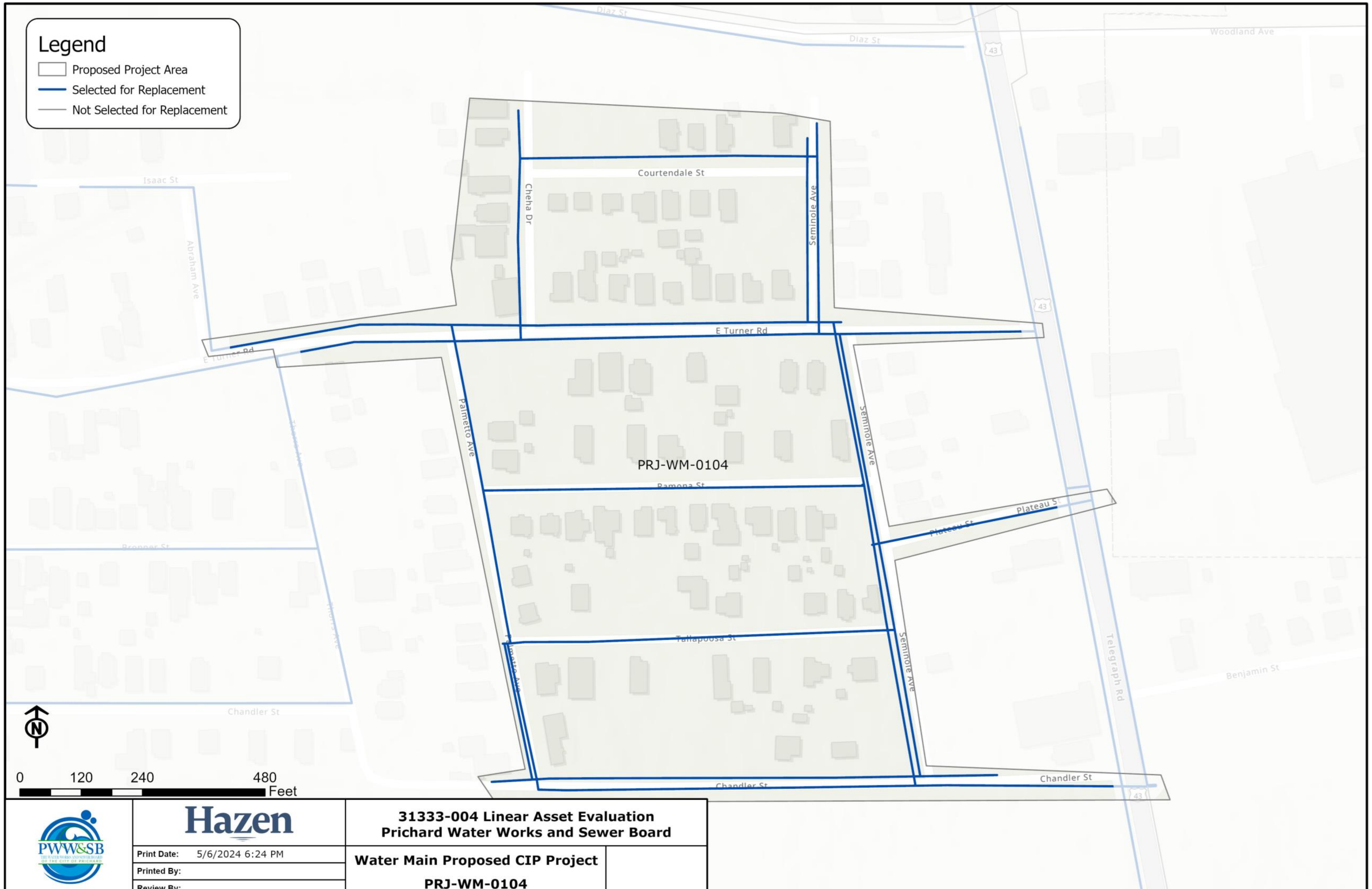

**C-4-102. Water Main Proposed CIP Project – PRJ-WM-0101**



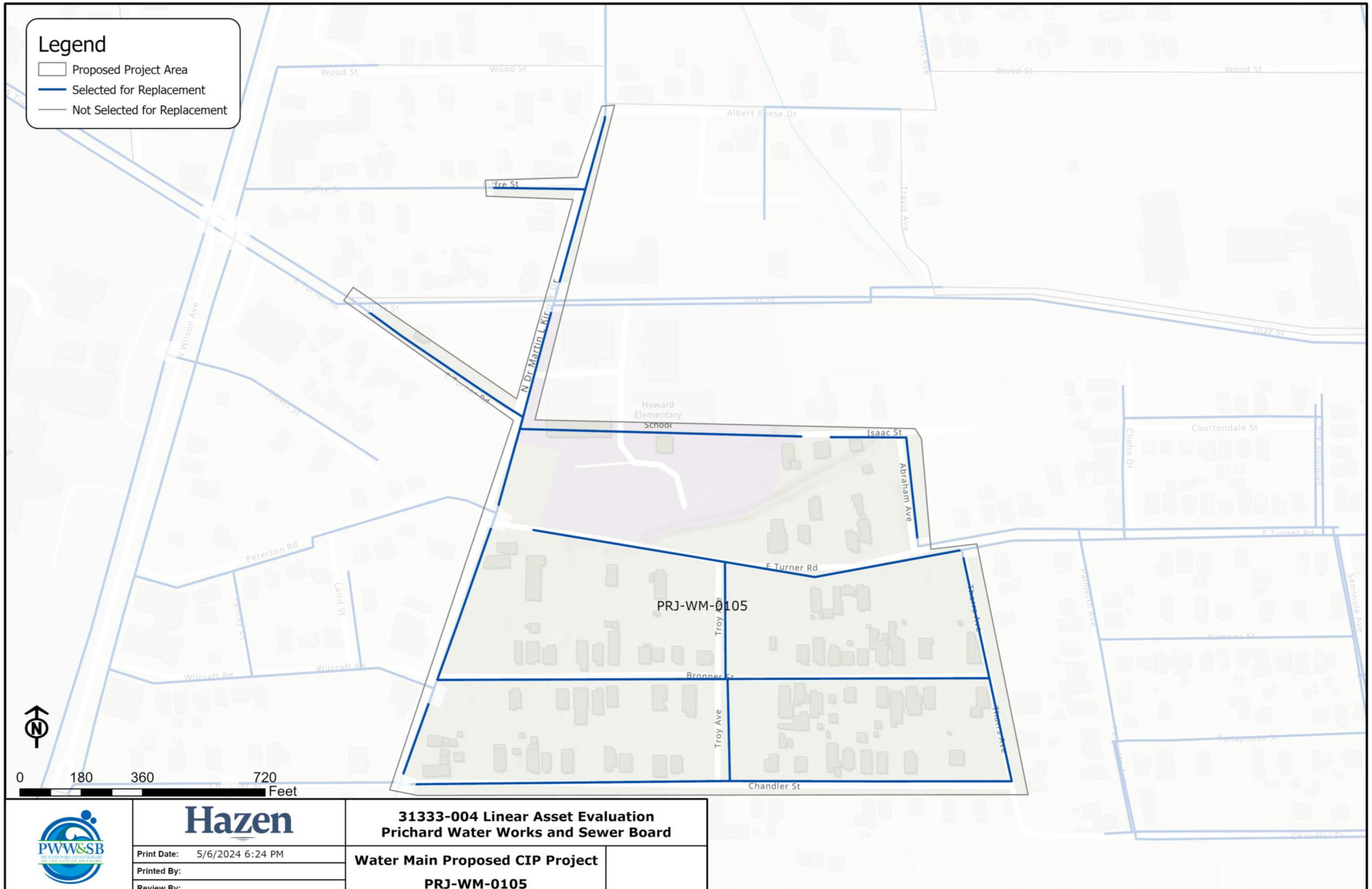

C-4-103. Water Main Proposed CIP Project – PRJ-WM-0102



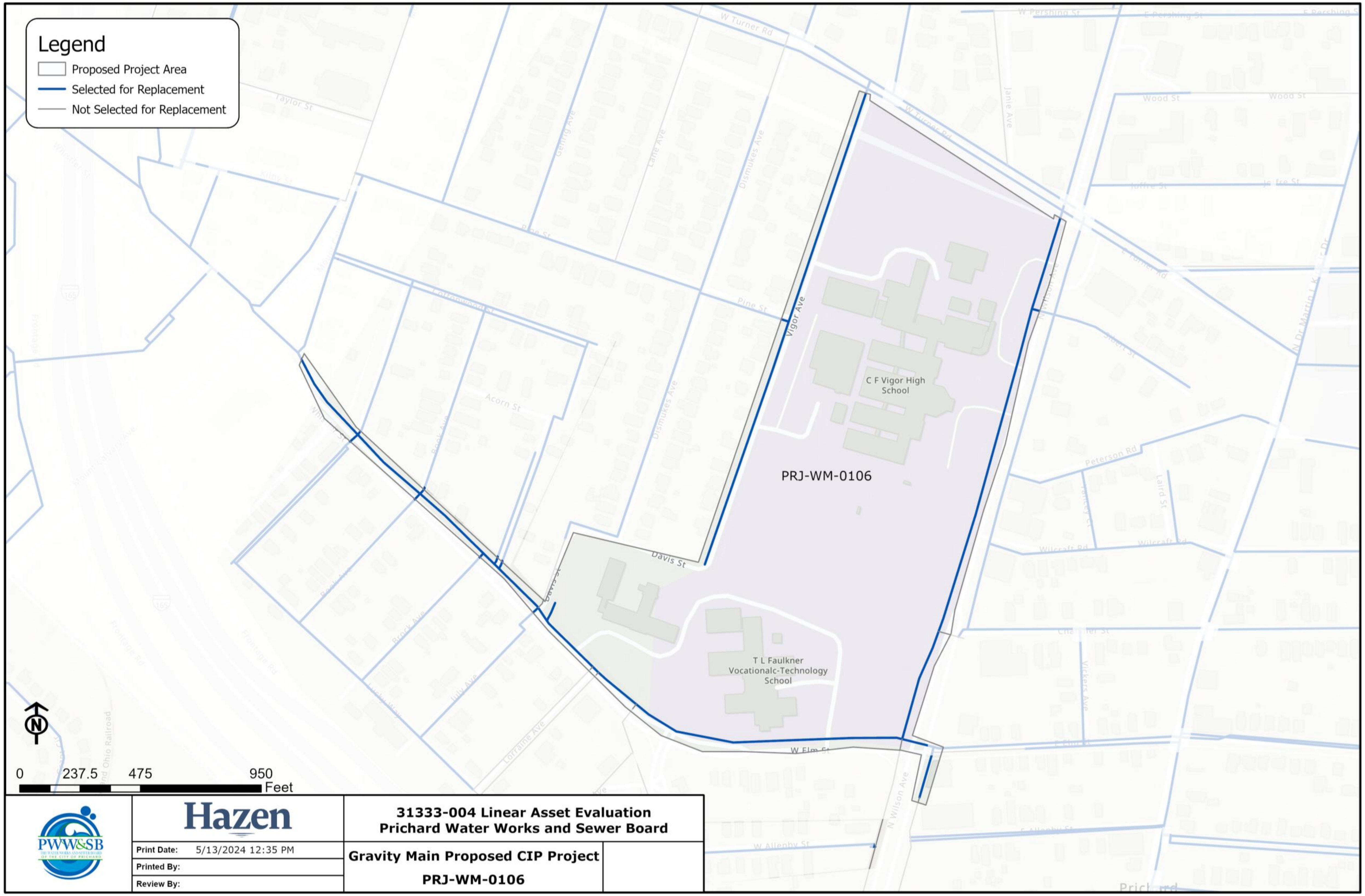

**C-4-104. Water Main Proposed CIP Project – PRJ-WM-0103**



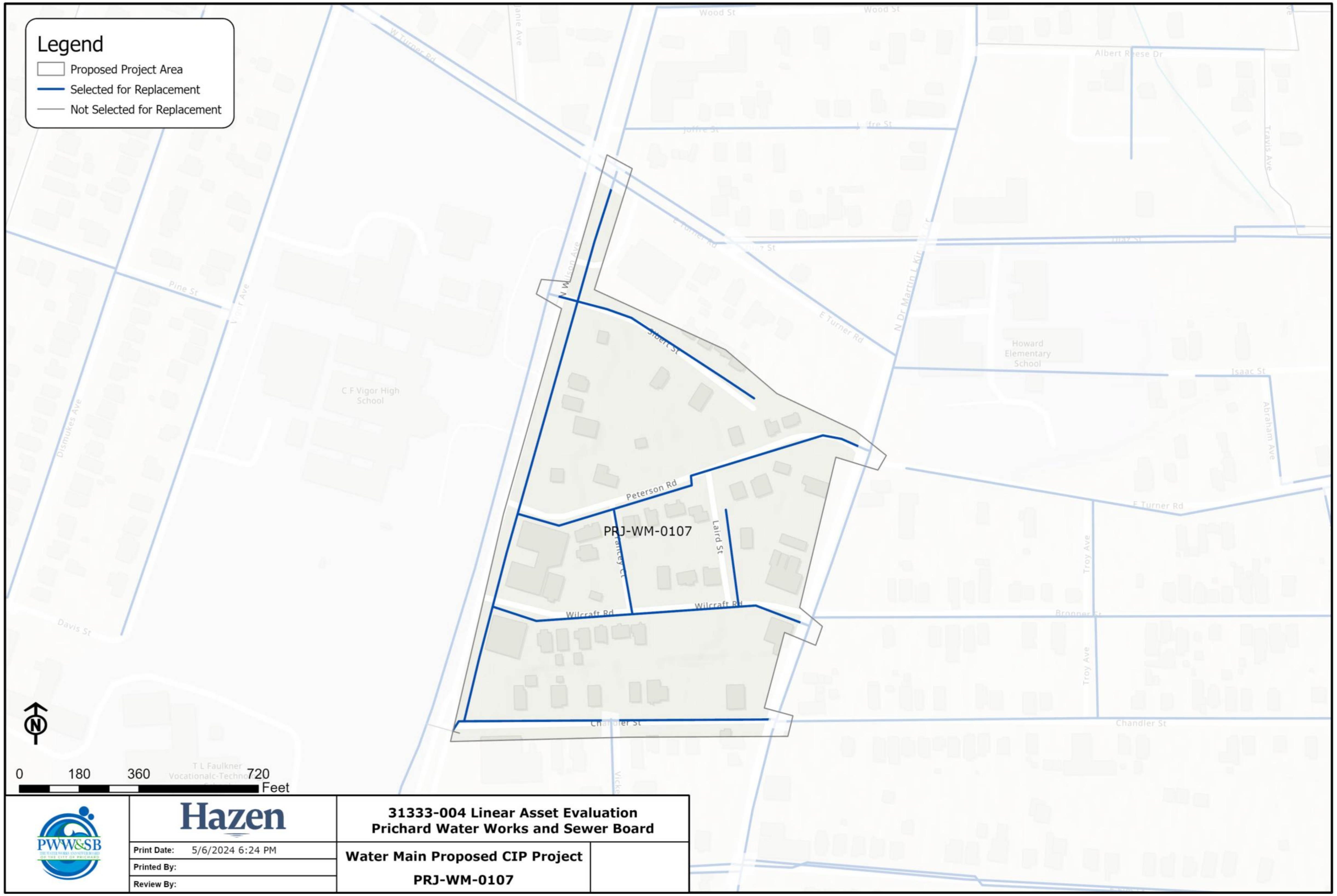

**C-4-105. Water Main Proposed CIP Project – PRJ-WM-0104**



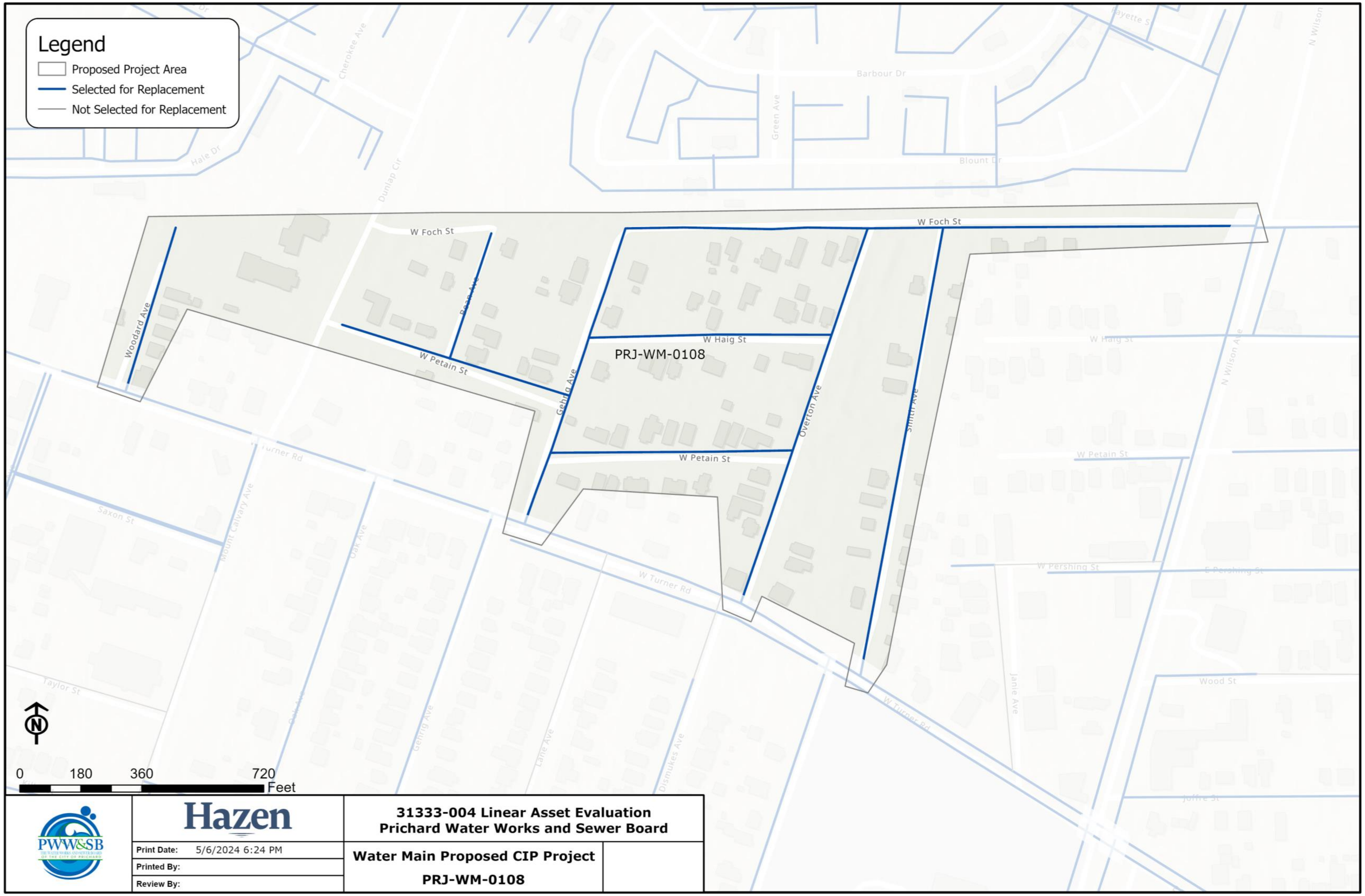

C-4-106. Water Main Proposed CIP Project – PRJ-WM-0105



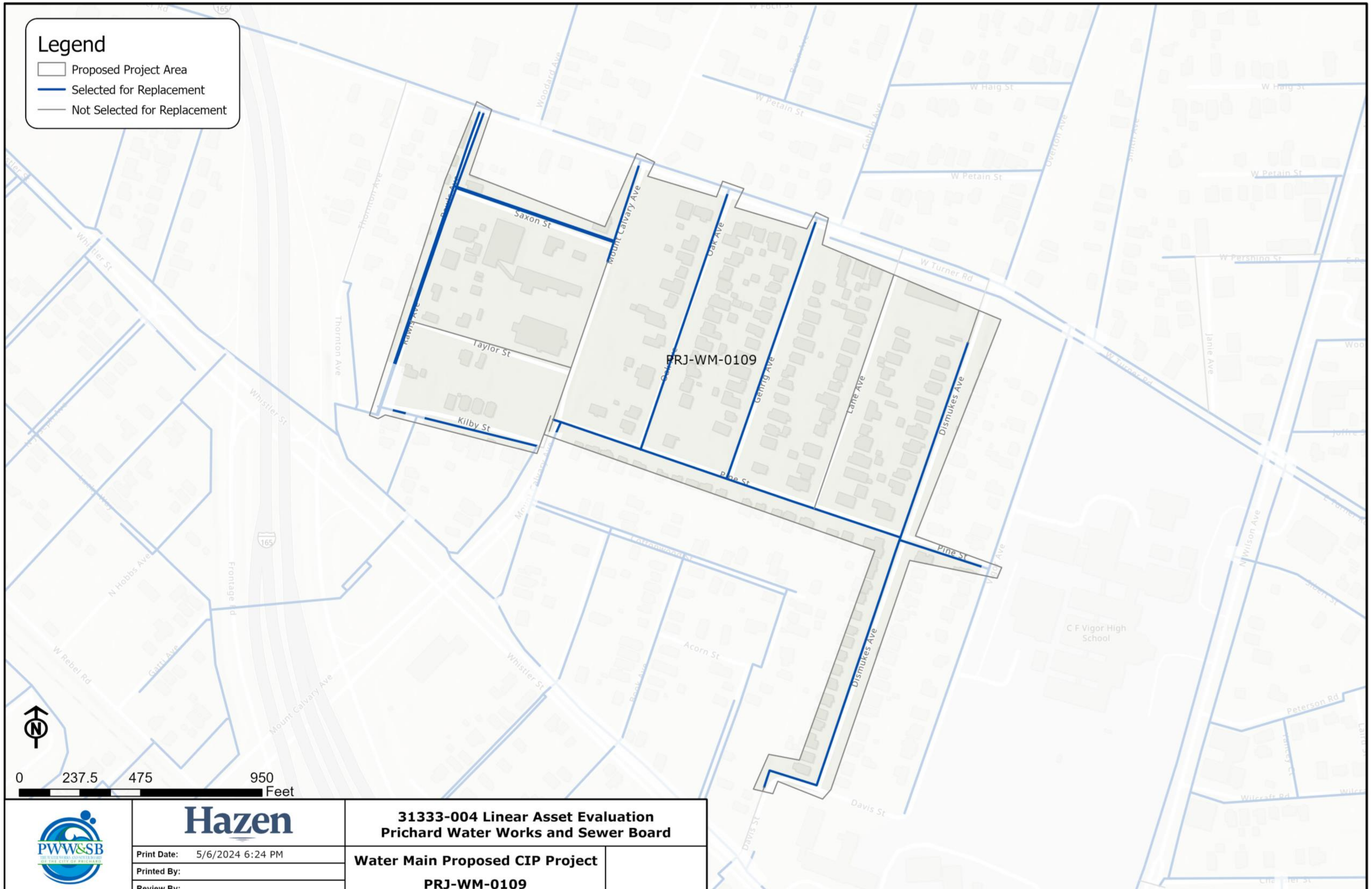

**C-4-107. Water Main Proposed CIP Project – PRJ-WM-0106**



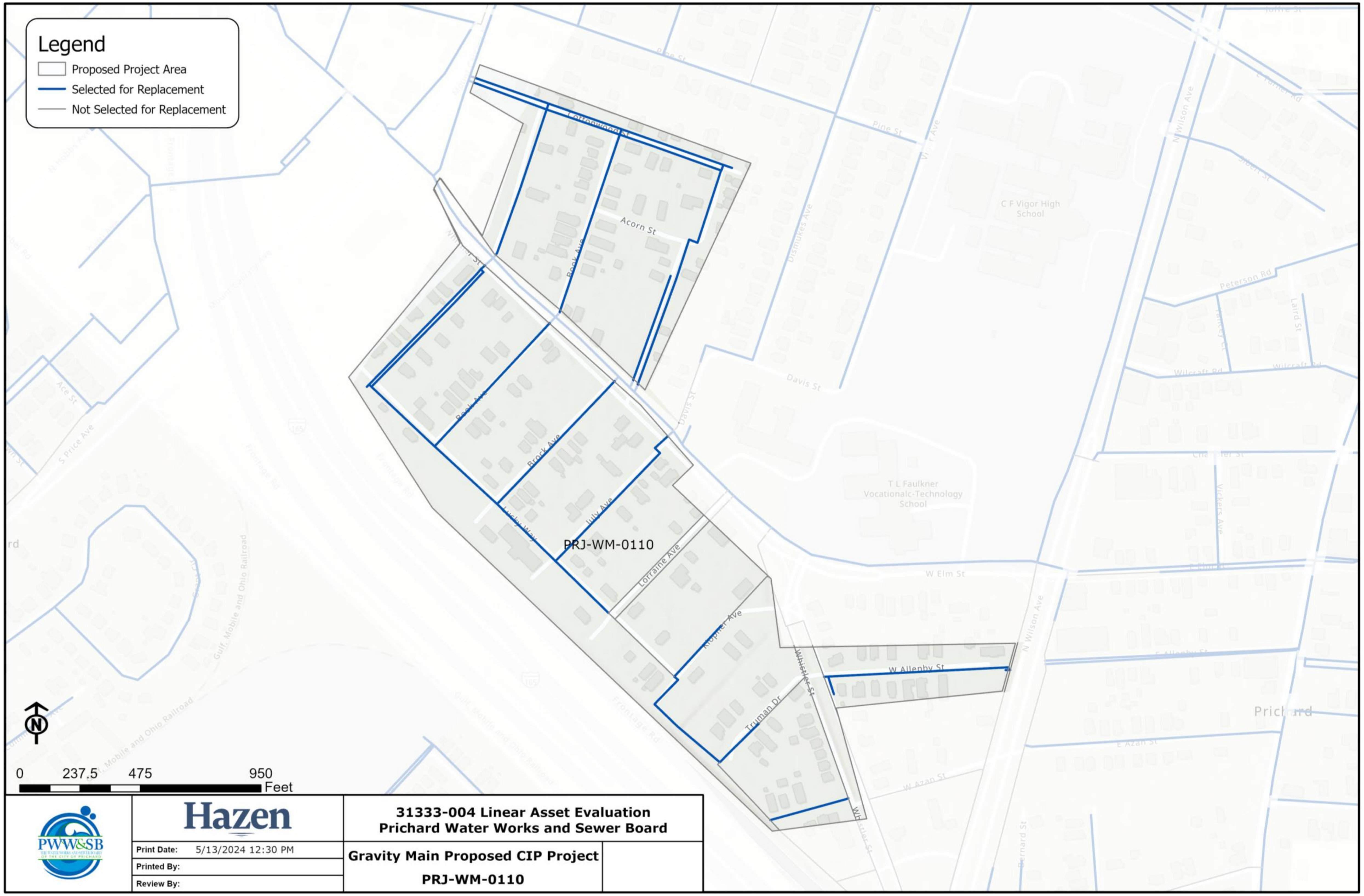

**C-4-108. Water Main Proposed CIP Project – PRJ-WM-0107**




**C-4-109. Water Main Proposed CIP Project – PRJ-WM-0108**




**C-4-110. Water Main Proposed CIP Project – PRJ-WM-0109**

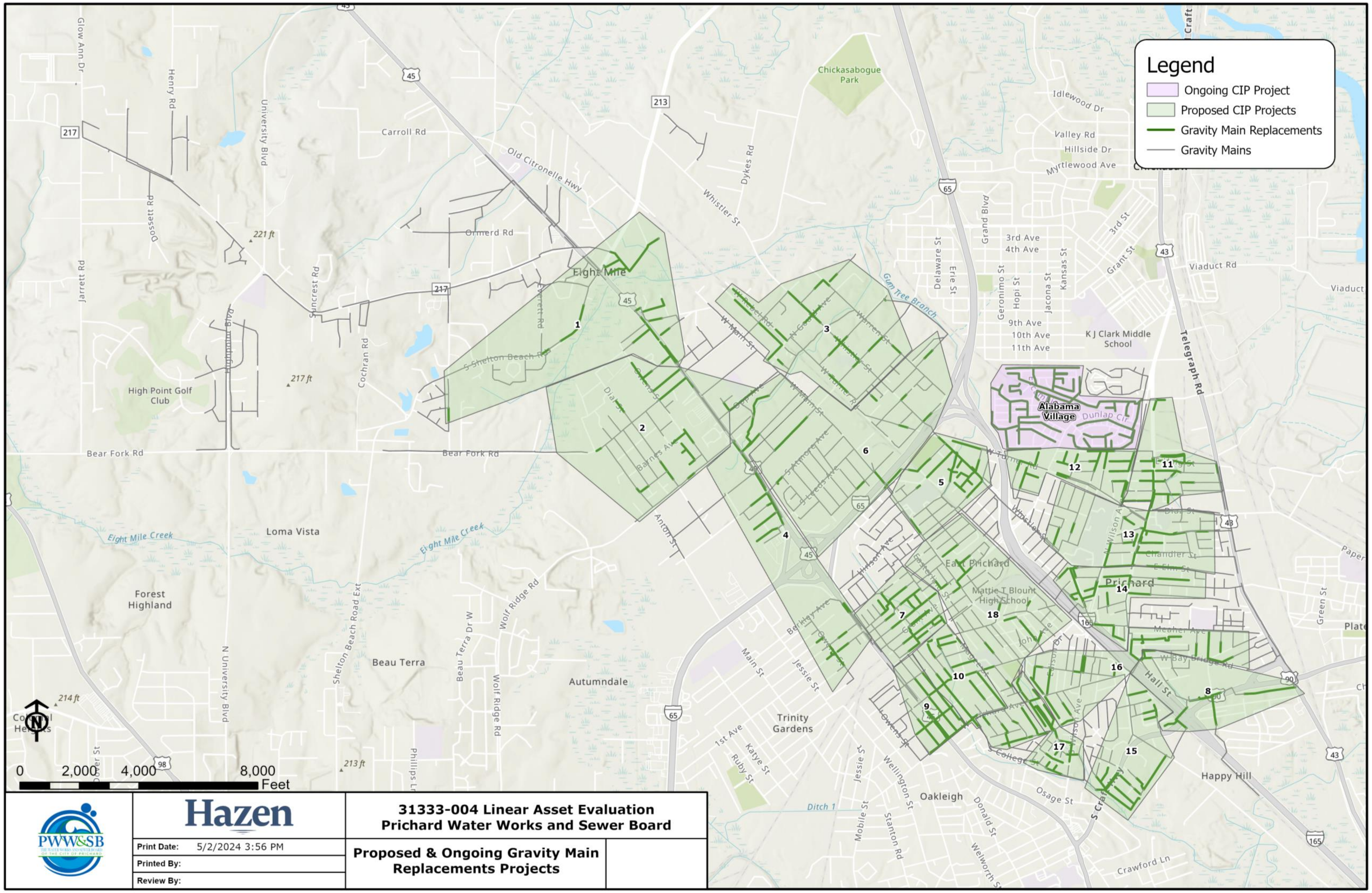



**C-4-111. Water Main Proposed CIP Project – PRJ-WM-0110**

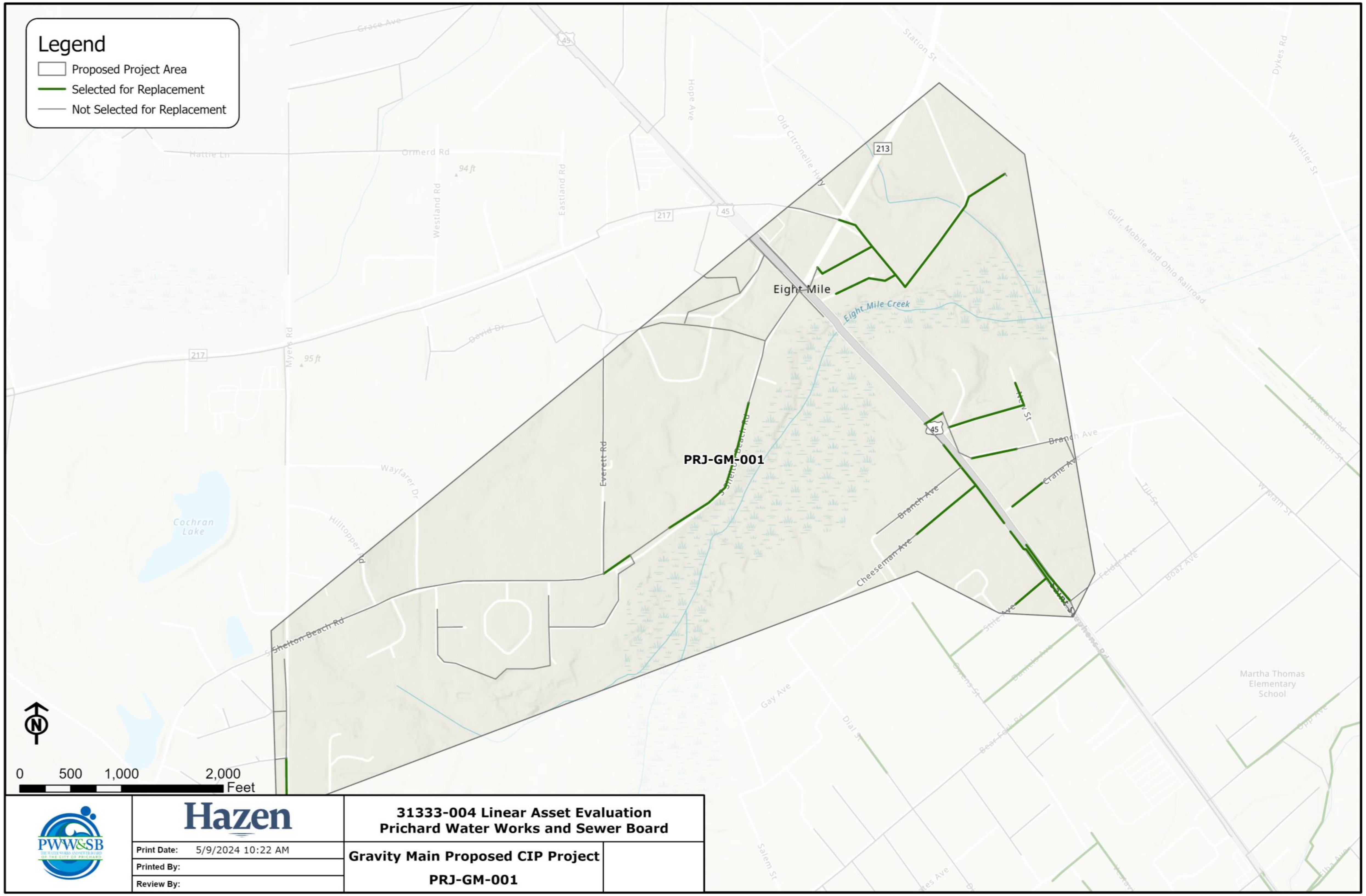
## C-5. Gravity Main Proposed CIP Project Maps

**Table C-5-1. Summary of 20-year Gravity Main Recommended CIP Projects**

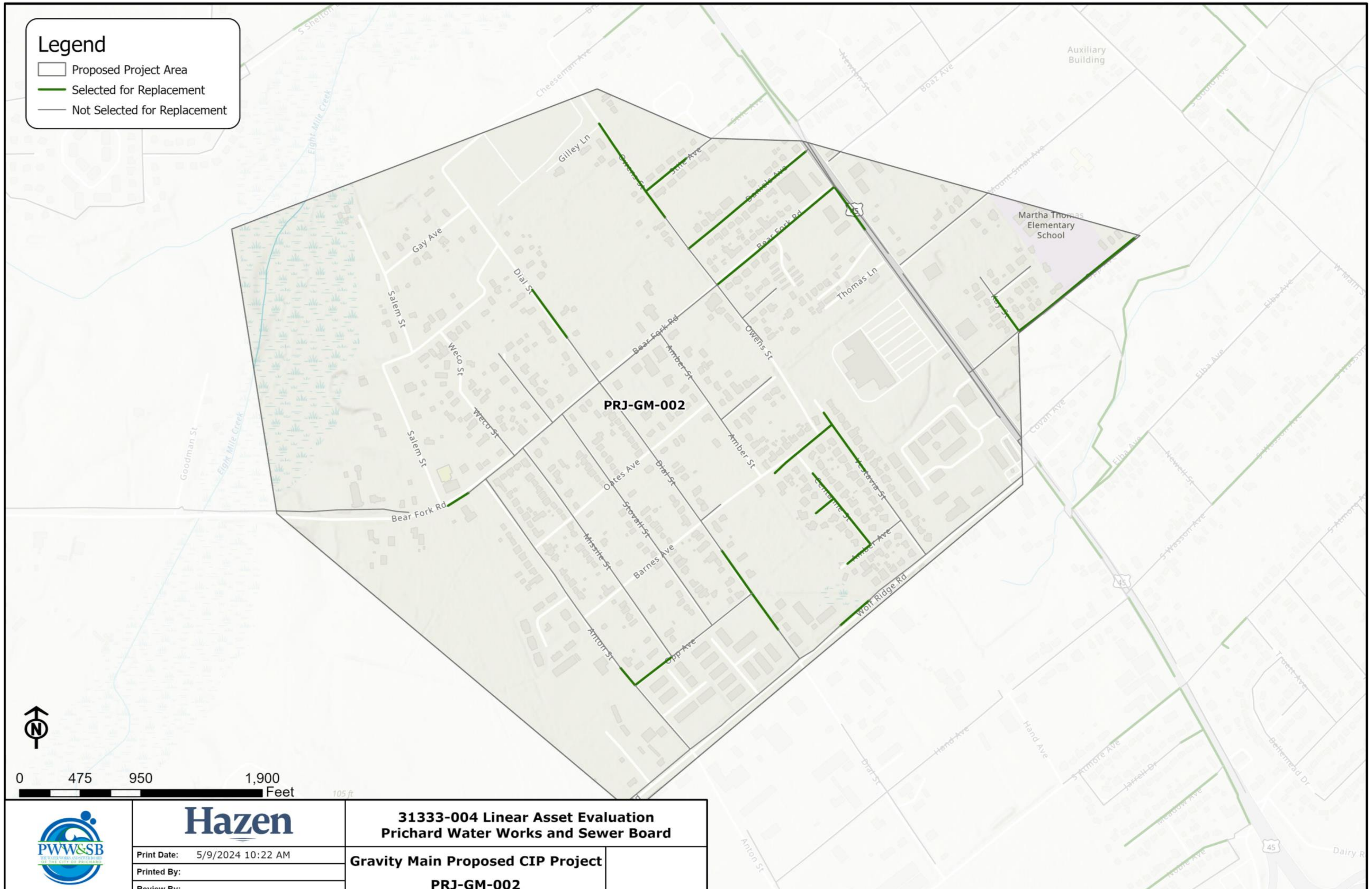
| Project Name | Average Risk Score | Project Start Year | Total Replacement Length (mi) | Replacement Cost Estimate | Replacement Cost Estimate, Inflated |
|---|---|---|---|---|---|
| **PRJ-GM-008** | 14.55 | 2026 | 1.2 | $6,510,000 | $6,910,000 |
| **PRJ-GM-017** | 10.44 | 2028 | 1.58 | $4,390,000 | $4,940,000 |
| **PRJ-GM-005** | 10.41 | 2029 | 1.82 | $5,950,000 | $6,900,000 |
| **PRJ-GM-015** | 10.01 | 2030 | 1.62 | $4,980,000 | $5,950,000 |
| **PRJ-GM-007** | 9.71 | 2031 | 1.99 | $4,940,000 | $6,080,000 |
| **PRJ-GM-010** | 9.36 | 2032 | 1.67 | $4,610,000 | $5,840,000 |
| **PRJ-GM-004** | 9.04 | 2033 | 1.9 | $6,260,000 | $8,170,000 |
| **PRJ-GM-001** | 8.91 | 2034 | 1.93 | $5,250,000 | $7,060,000 |
| **PRJ-GM-011** | 8.47 | 2036 | 1.96 | $4,990,000 | $7,110,000 |
| **PRJ-GM-013** | 8.37 | 2037 | 1.84 | $4,860,000 | $7,140,000 |
| **PRJ-GM-009** | 8.06 | 2038 | 1.88 | $4,660,000 | $7,050,000 |
| **PRJ-GM-014** | 7.91 | 2039 | 1.79 | $4,990,000 | $7,770,000 |
| **PRJ-GM-018** | 7.46 | 2040 | 1.77 | $4,450,000 | $7,140,000 |
| **PRJ-GM-016** | 7.18 | 2041 | 1.89 | $4,830,000 | $7,980,000 |
| **PRJ-GM-003** | 7.1 | 2042 | 1.97 | $4,940,000 | $8,410,000 |
| **PRJ-GM-012** | 7.05 | 2043 | 1.78 | $4,420,000 | $7,750,000 |
| **PRJ-GM-006** | 6.83 | 2044 | 0.88 | $2,430,000 | $4,390,000 |
| **PRJ-GM-002** | 6.31 | 2044 | 1.65 | $4,100,000 | $7,410,000 |
| **TOTALS** | | | **31.12** | **$87,560,000** | **$124,000,000** |
| **TOTALS, LOW RANGE (-50%)** | | | | | **$62,000,000** |
| **TOTALS, HIGH RANGE (+100%)** | | | | | **$248,000,000** |



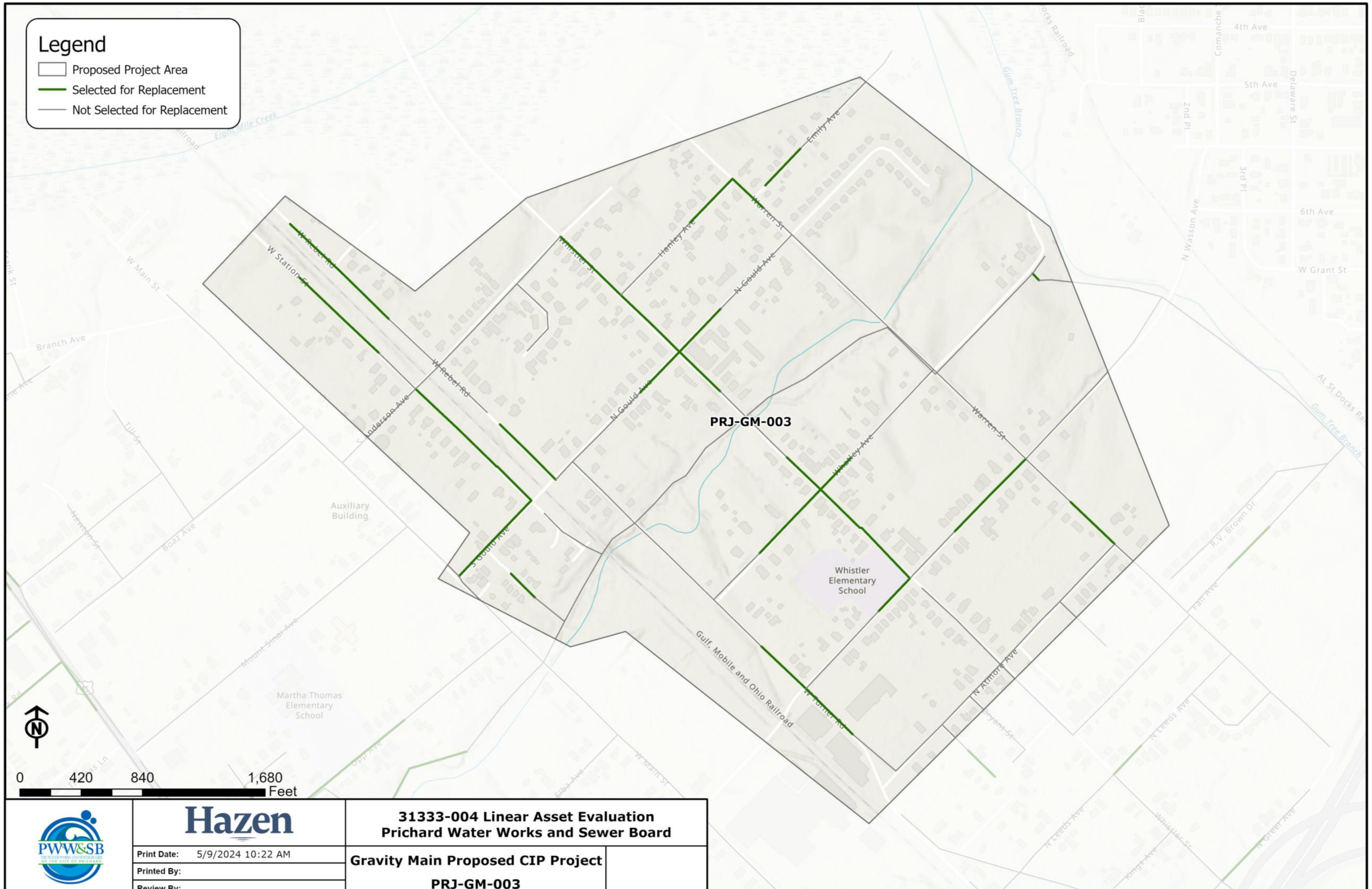

**C-5-1. Proposed and Ongoing Gravity Main Replacement Projects**



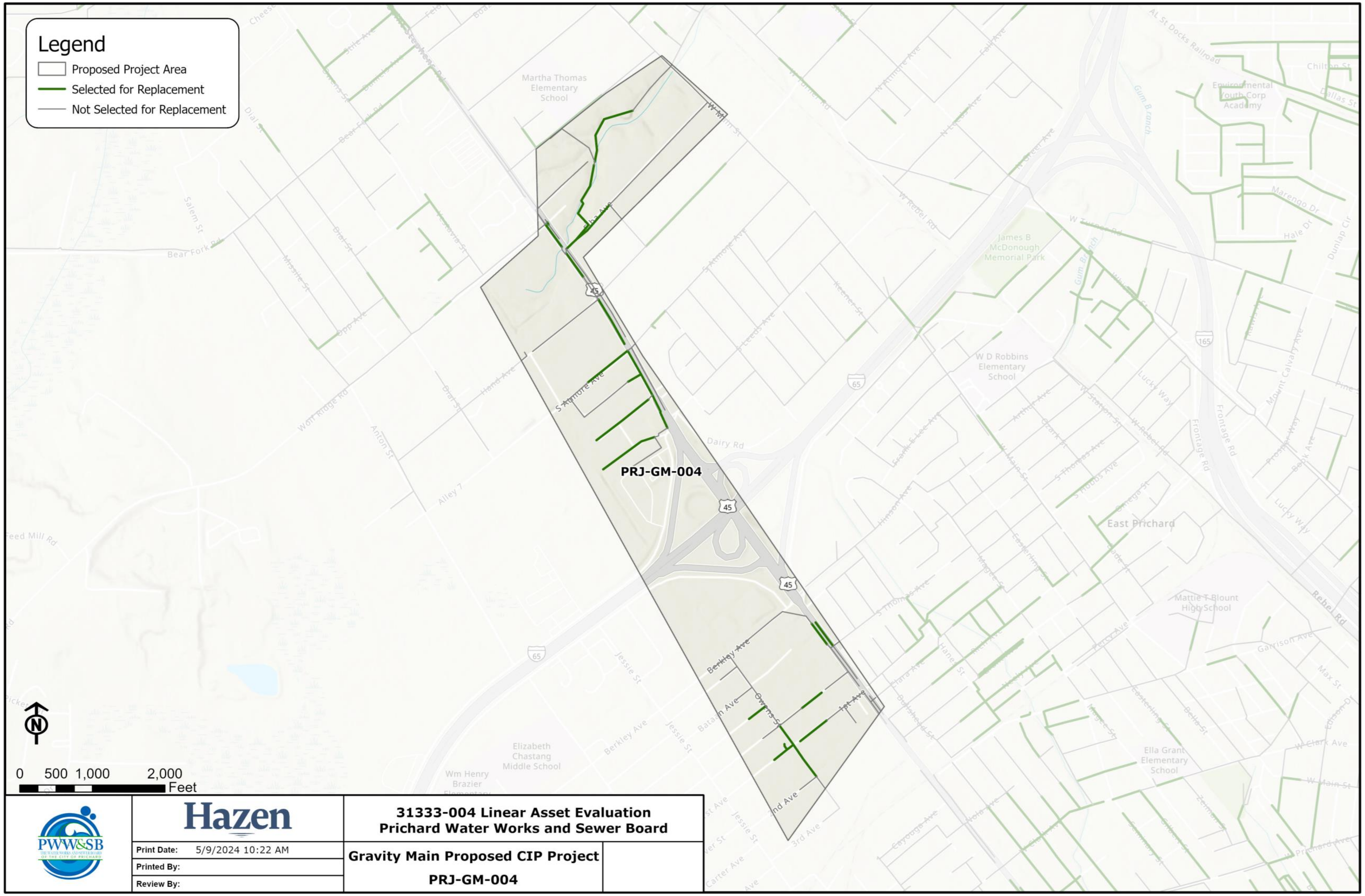

**C-5-2. Gravity Main Proposed CIP Project – PRJ-GM-001**



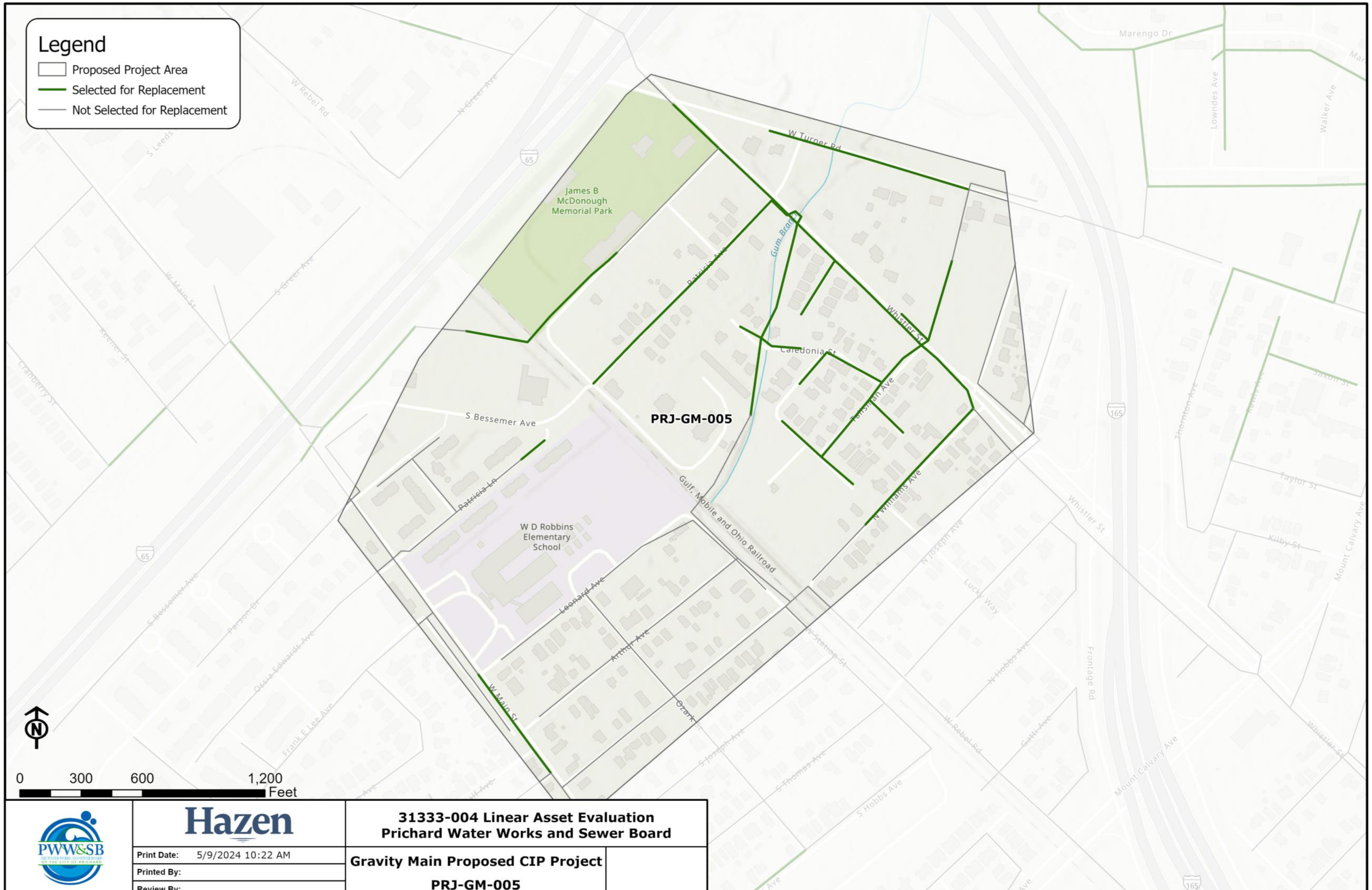

**C-5-3. Gravity Main Proposed CIP Project – PRJ-GM-002**



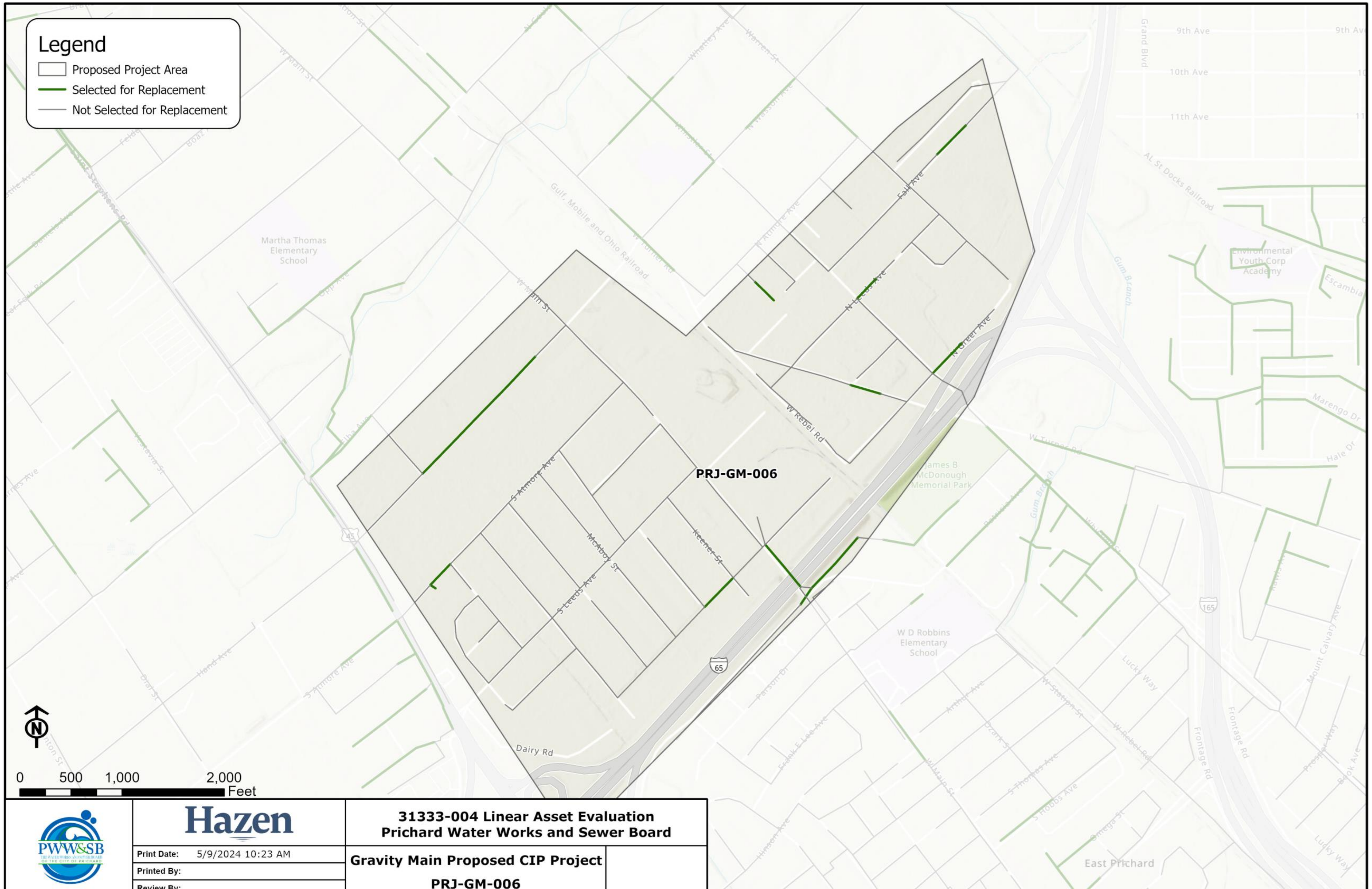

**C-5-4. Gravity Main Proposed CIP Project – PRJ-GM-003**



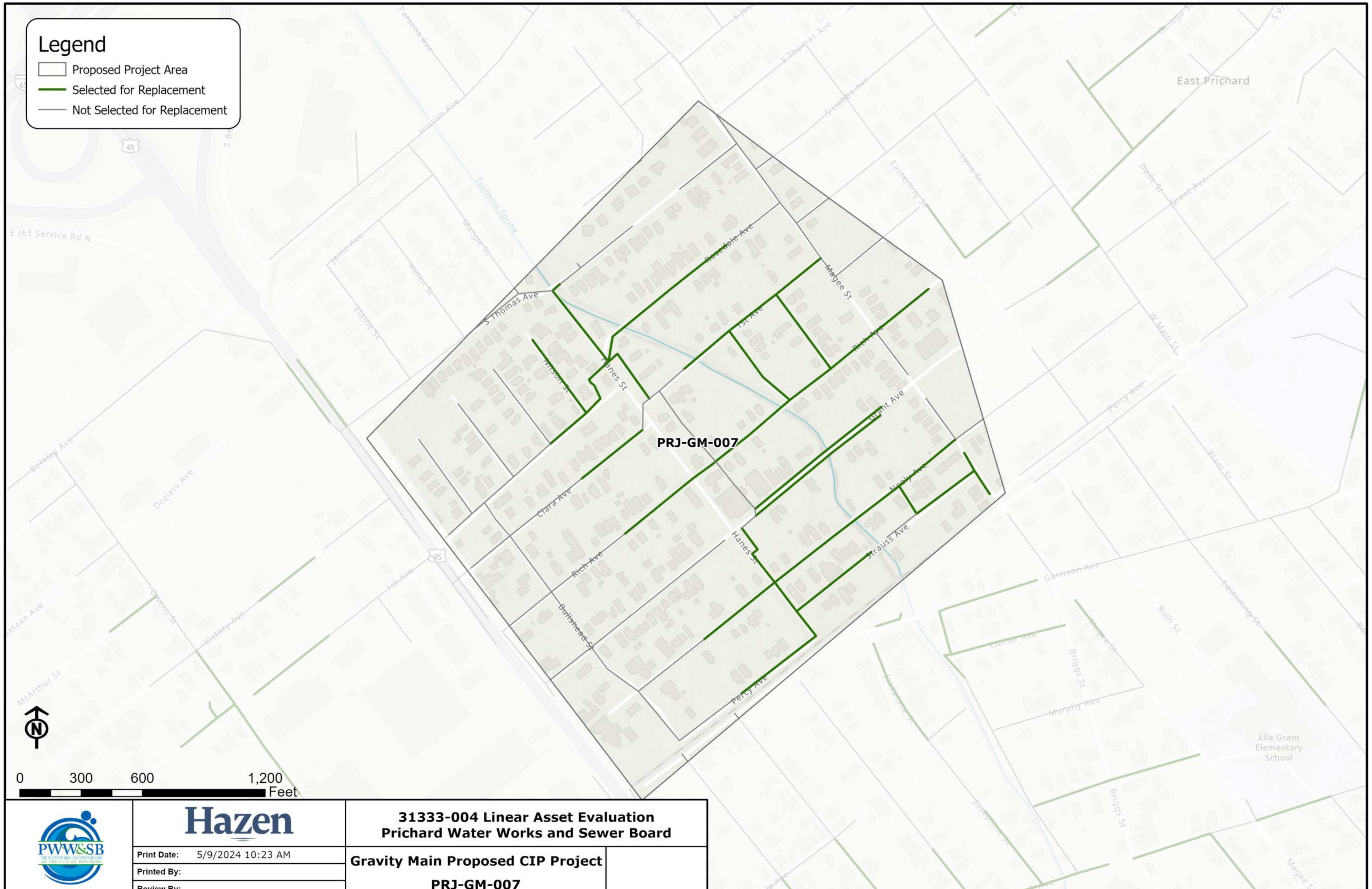

C-5-5. Gravity Main Proposed CIP Project – PRJ-GM-004



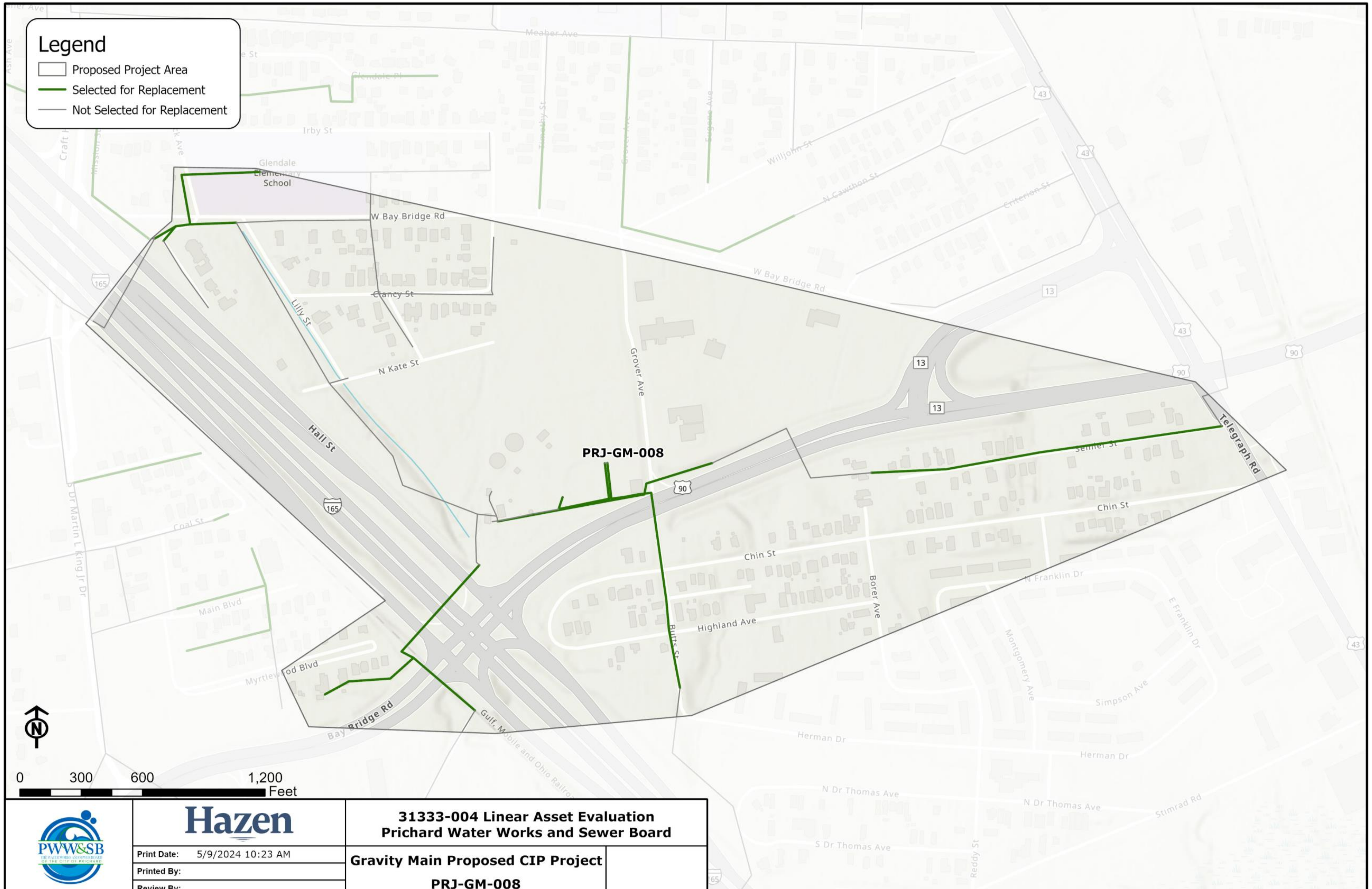

C-5-6. Gravity Main Proposed CIP Project – PRJ-GM-005



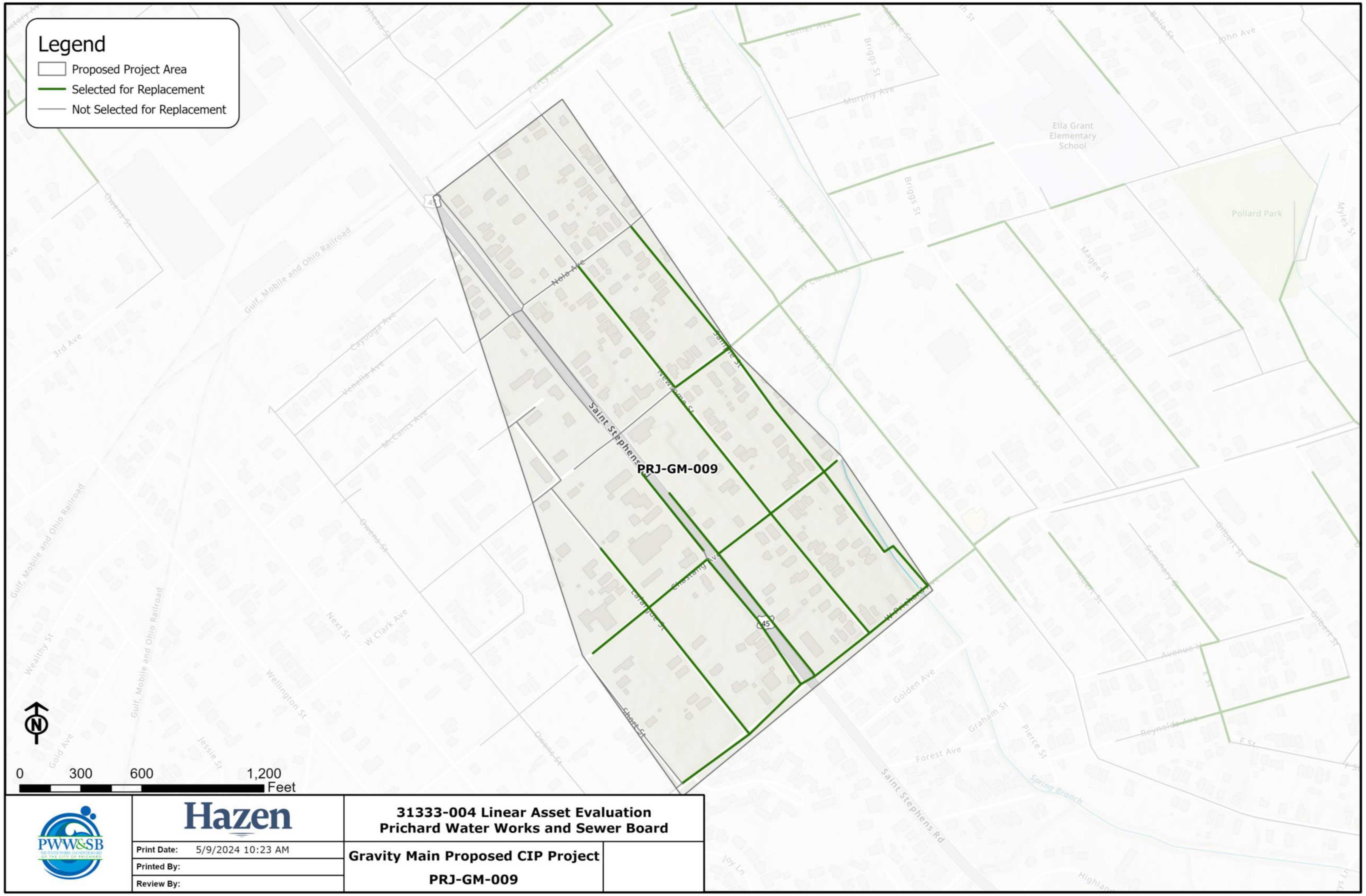

C-5-7. Gravity Main Proposed CIP Project – PRJ-GM-006



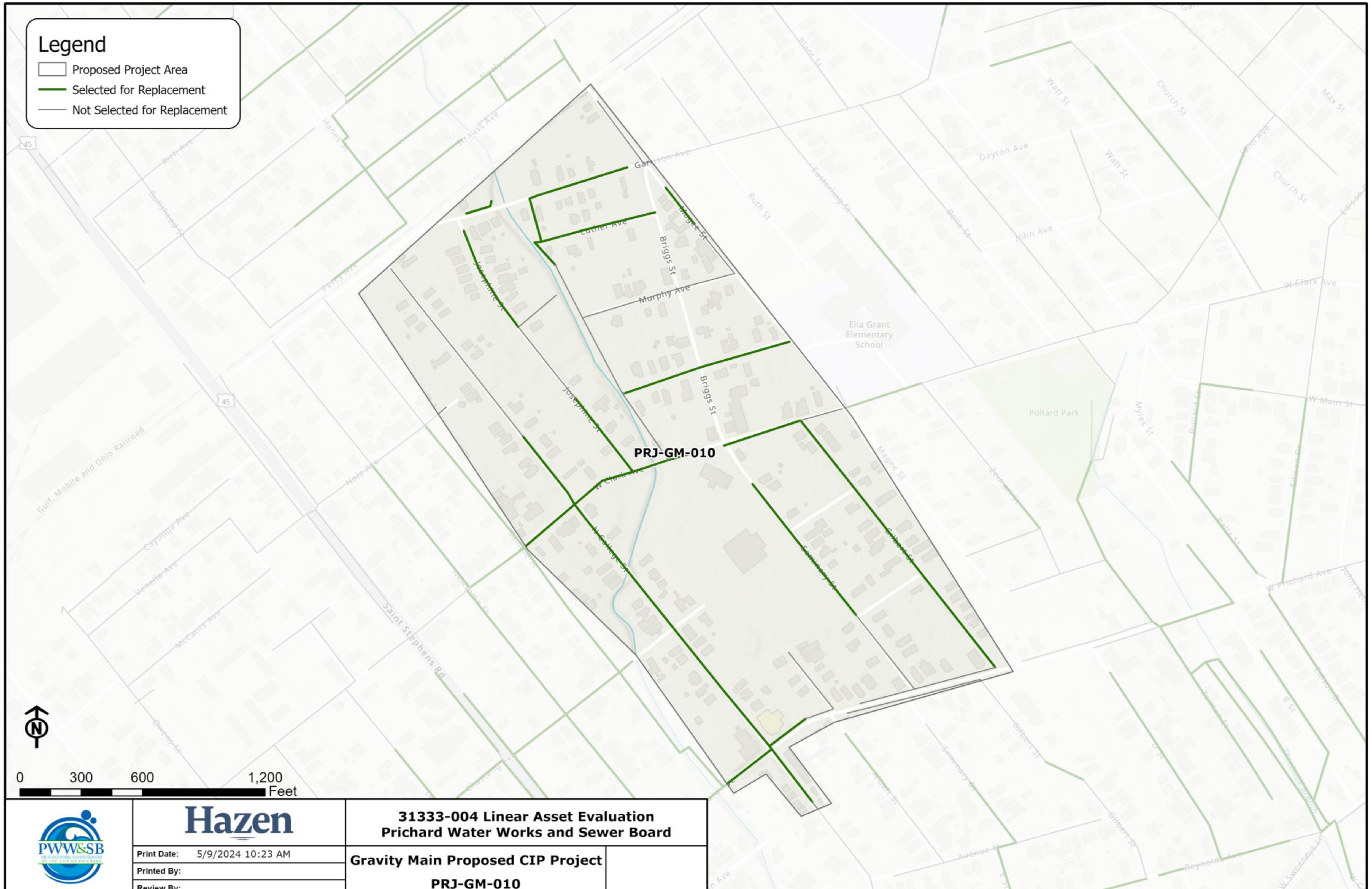

C-5-8. Gravity Main Proposed CIP Project – PRJ-GM-007



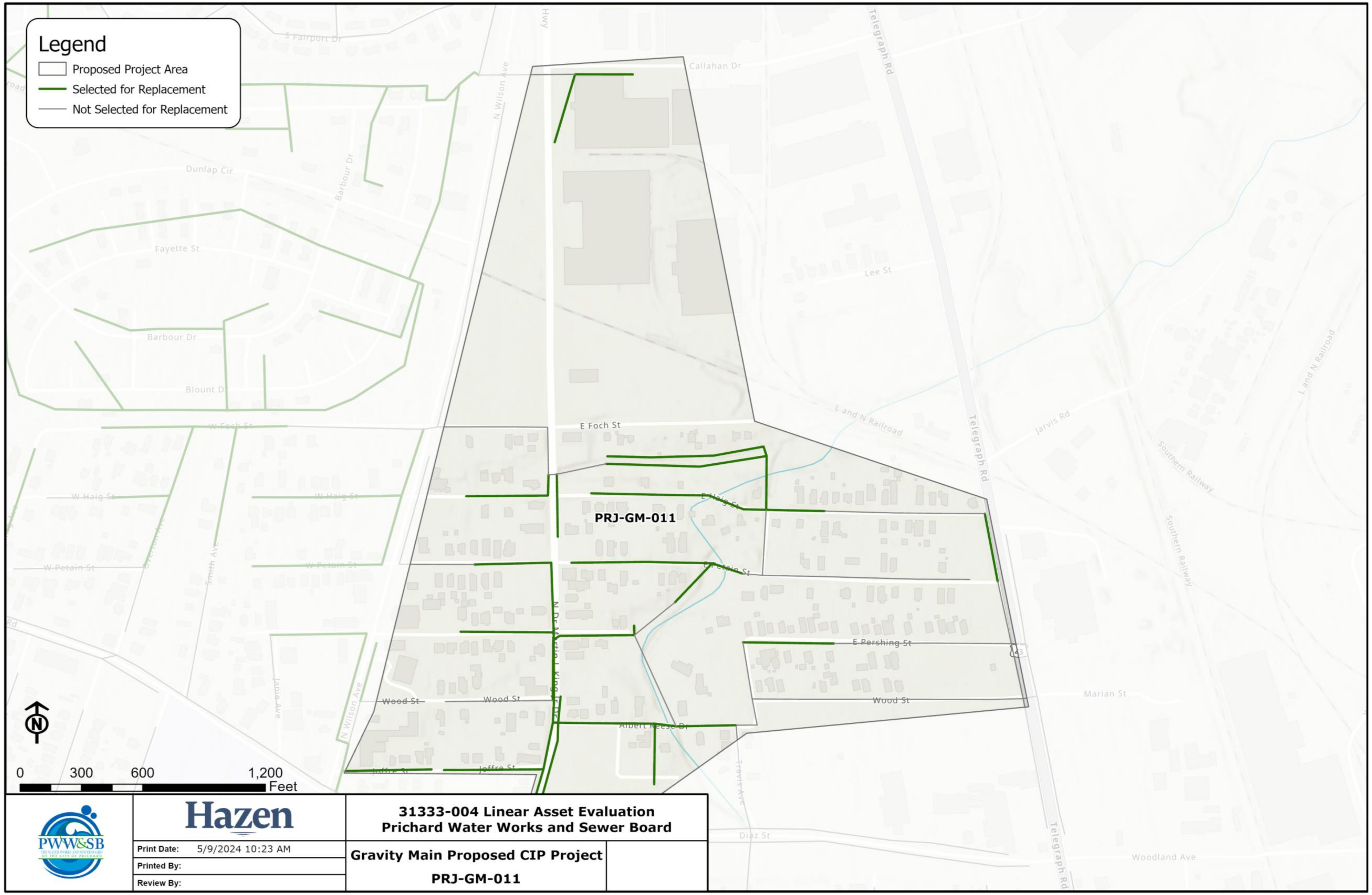

C-5-9. Gravity Main Proposed CIP Project – PRJ-GM-008



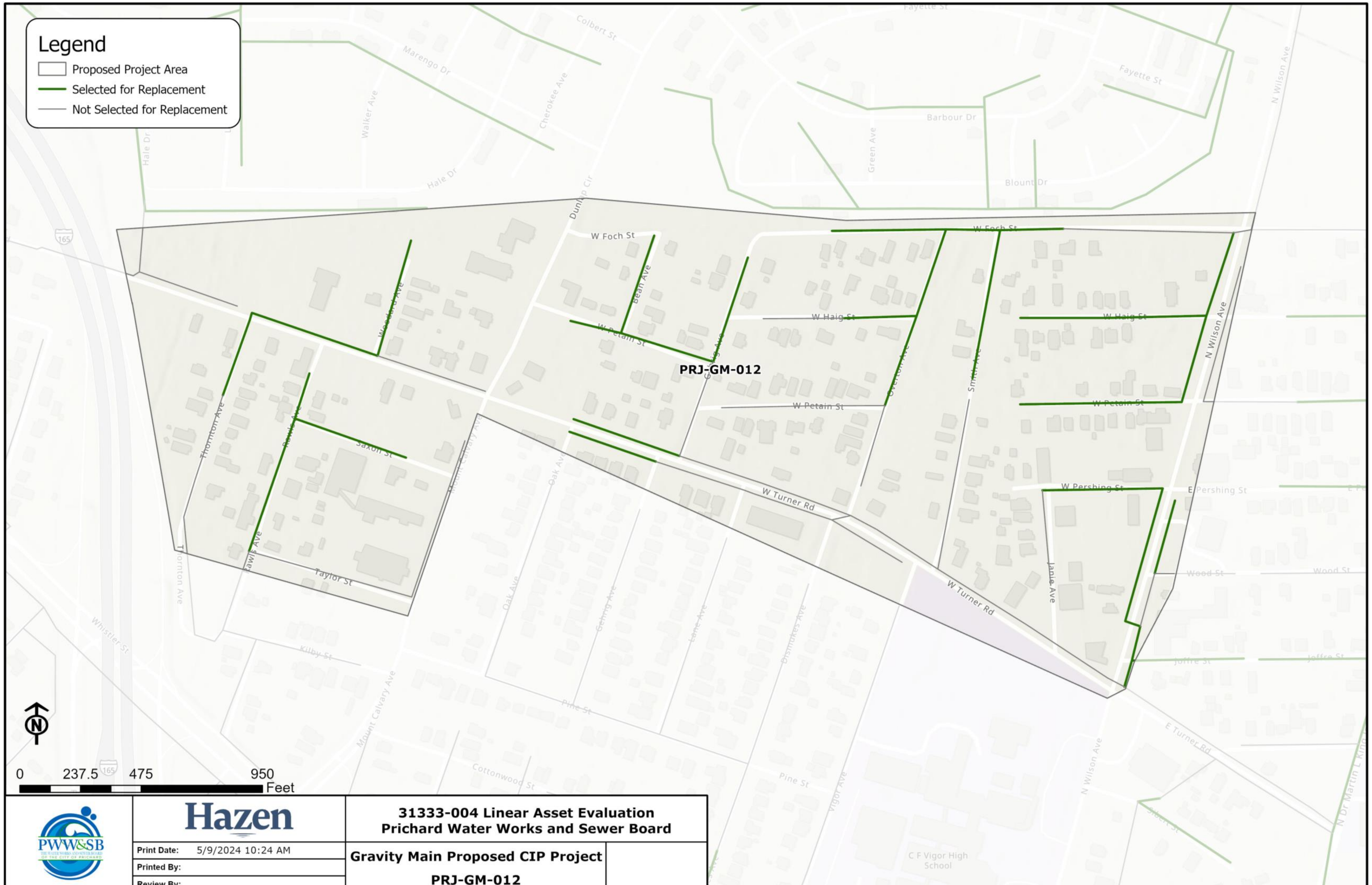

C-5-10. Gravity Main Proposed CIP Project – PRJ-GM-009



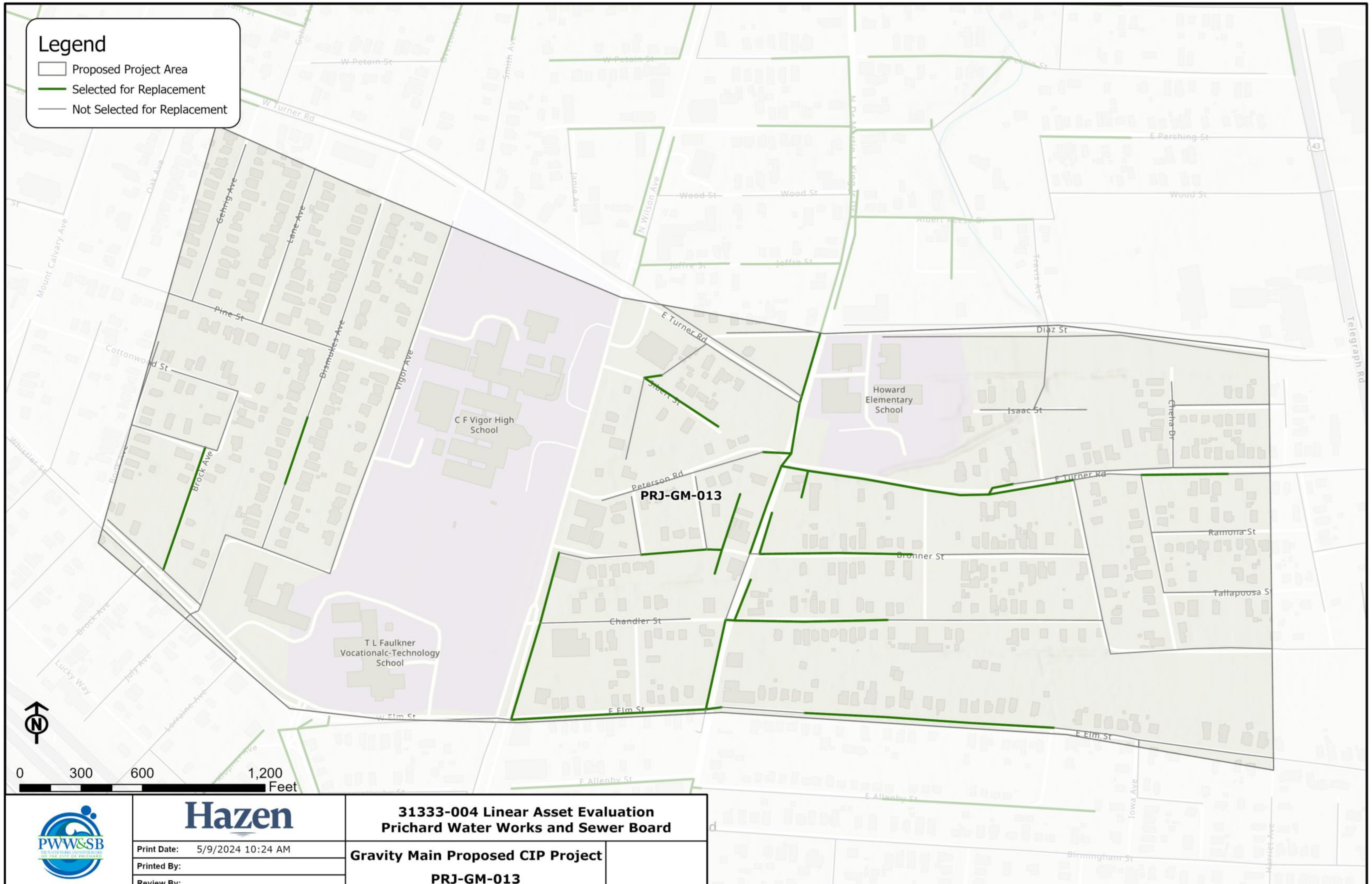

C-5-11. Gravity Main Proposed CIP Project – PRJ-GM-010



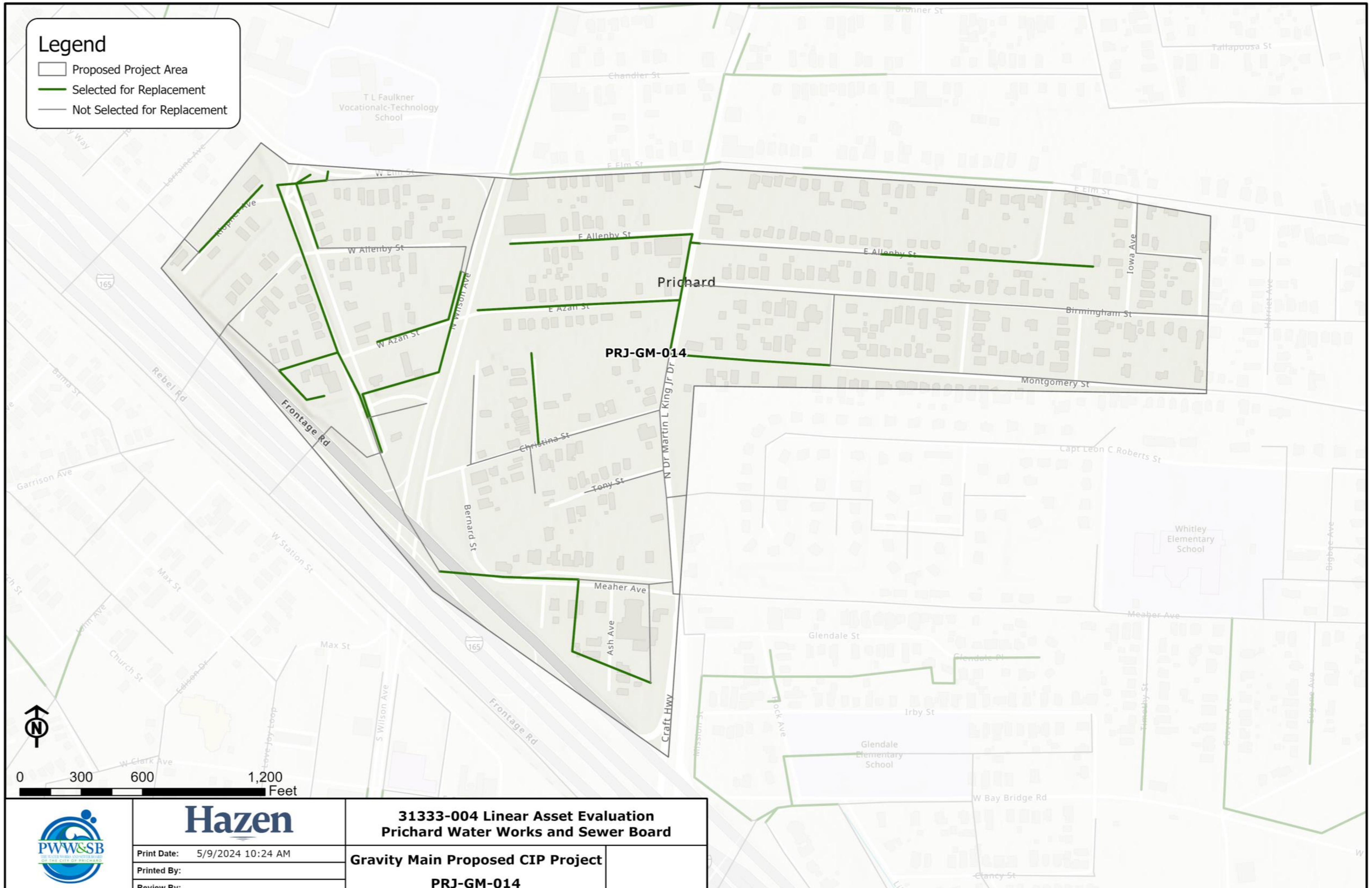

**C-5-12. Gravity Main Proposed CIP Project – PRJ-GM-011**



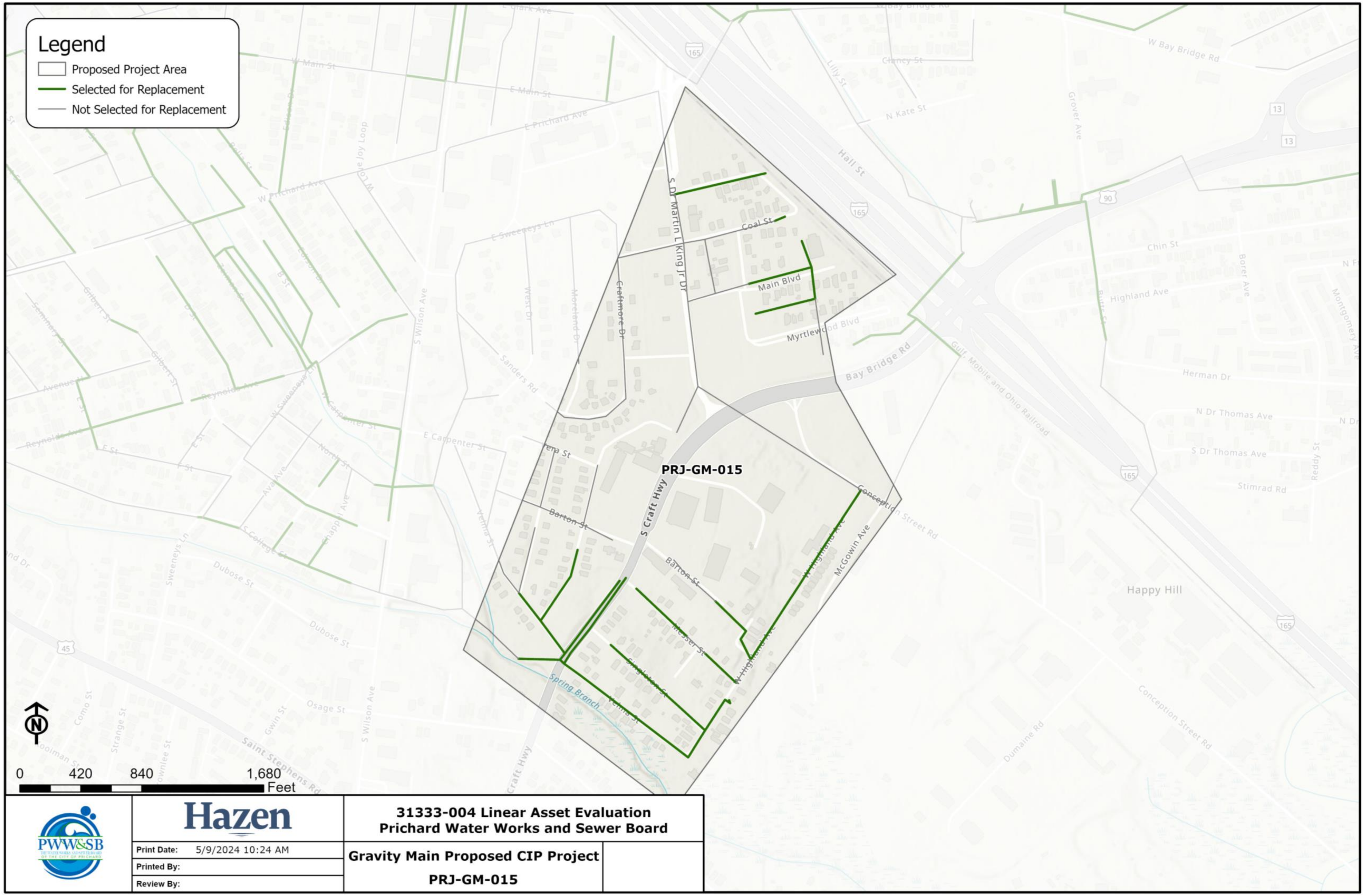

C-5-13. Gravity Main Proposed CIP Project – PRJ-GM-012



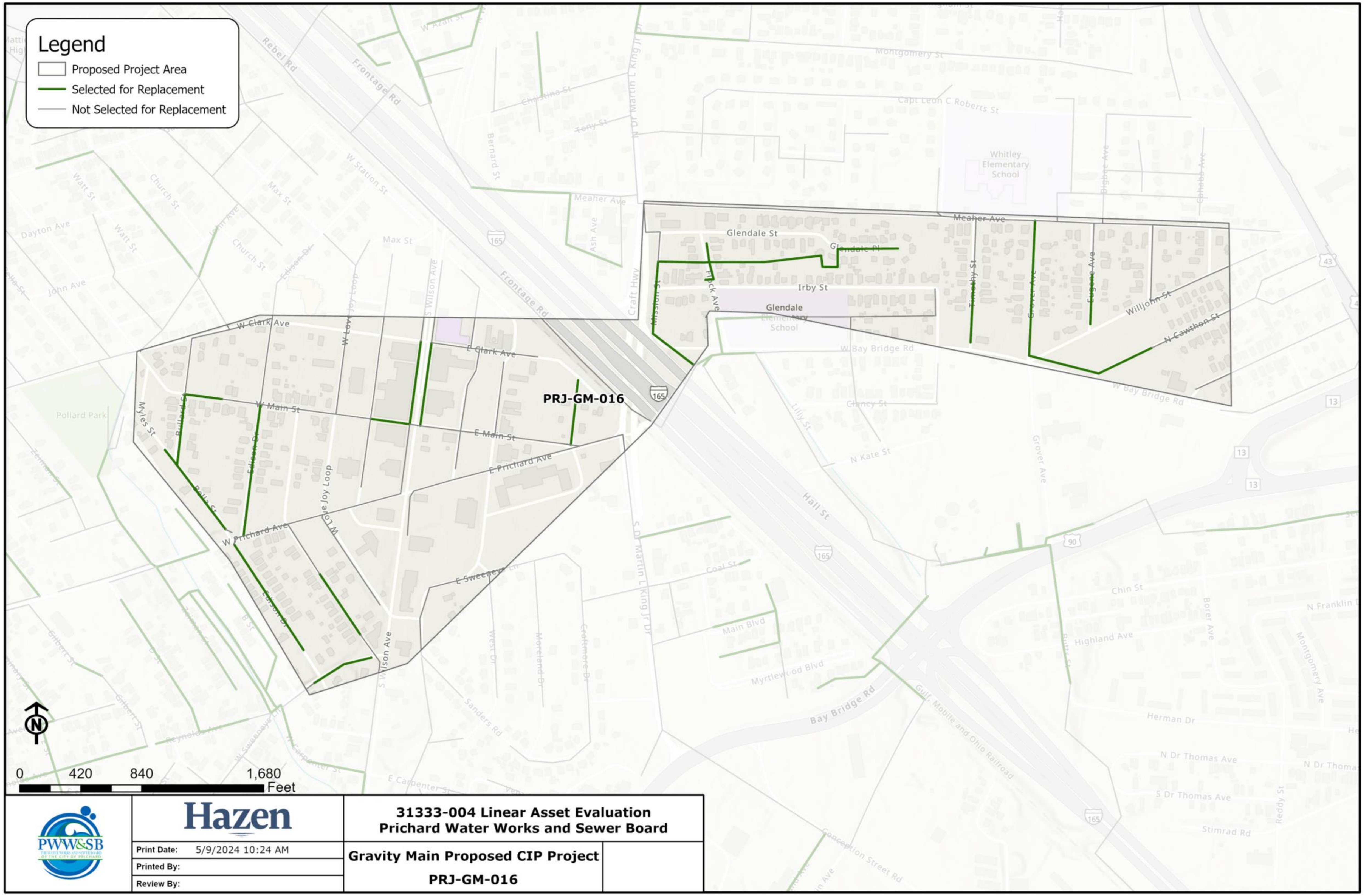

C-5-14. Gravity Main Proposed CIP Project – PRJ-GM-013



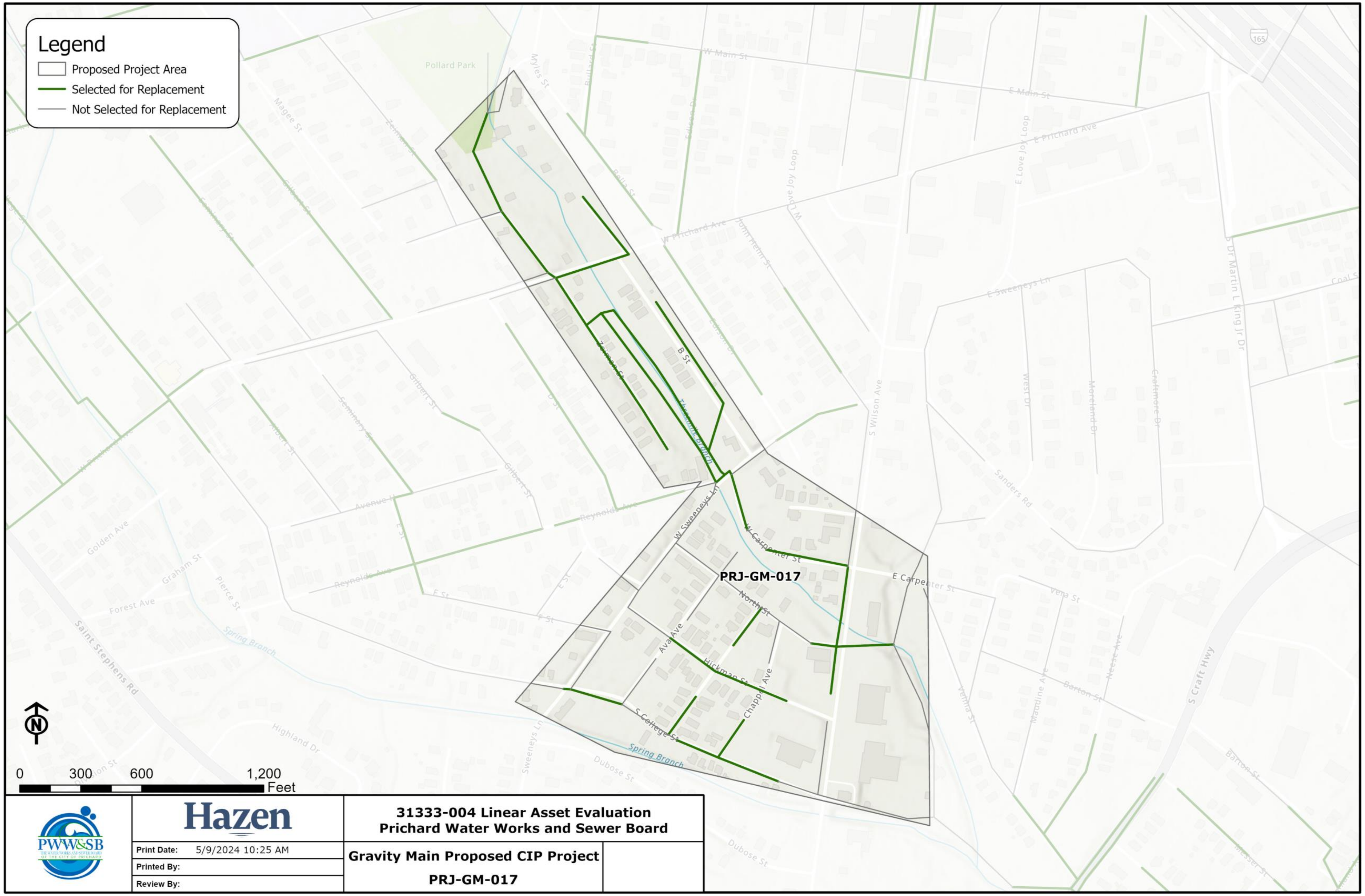

**C-5-15. Gravity Main Proposed CIP Project – PRJ-GM-014**



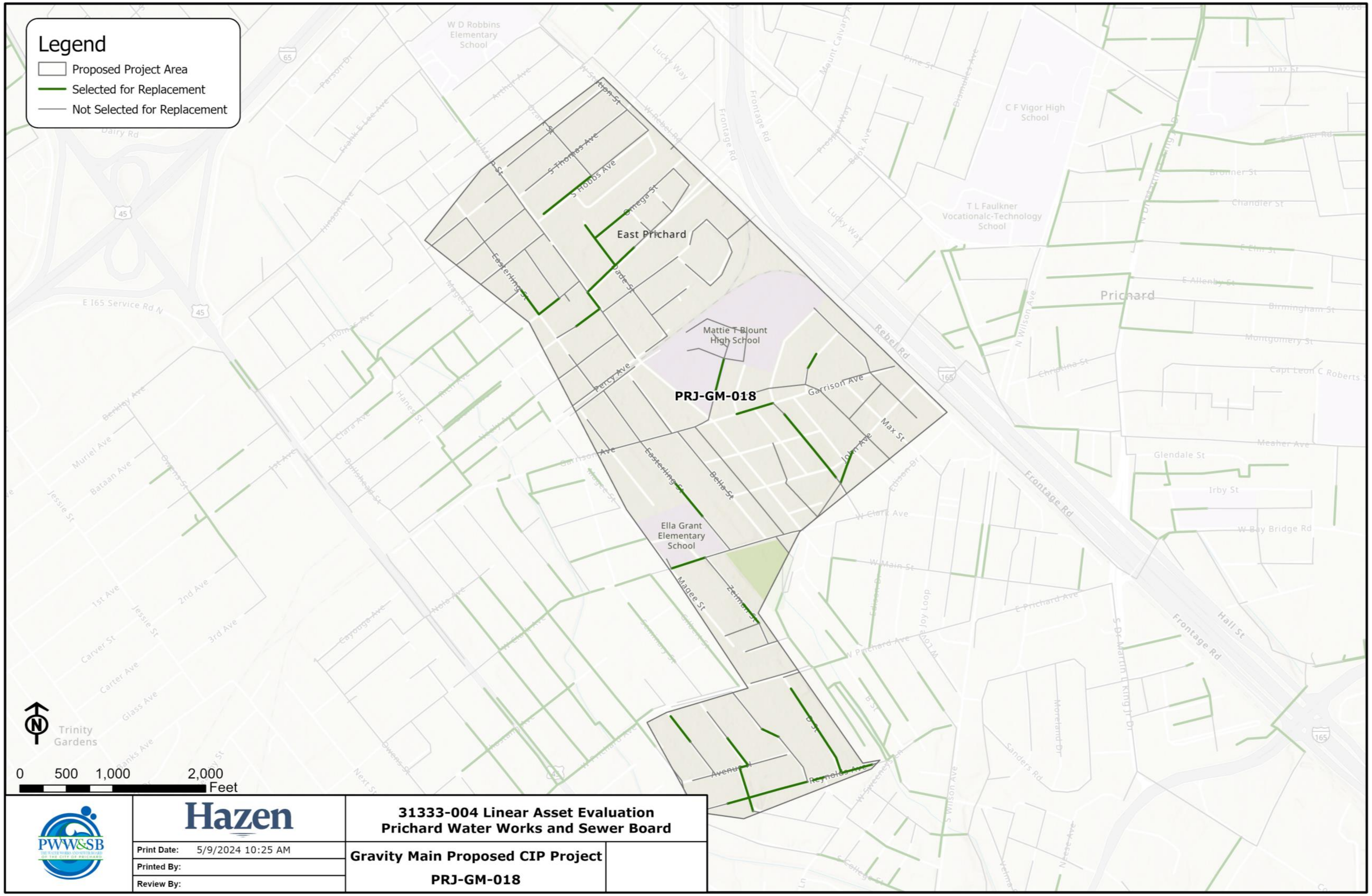

C-5-16. Gravity Main Proposed CIP Project – PRJ-GM-025




**C-5-17. Gravity Main Proposed CIP Project – PRJ-GM-016**




**C-5-18. Gravity Main Proposed CIP Project – PRJ-GM-017**

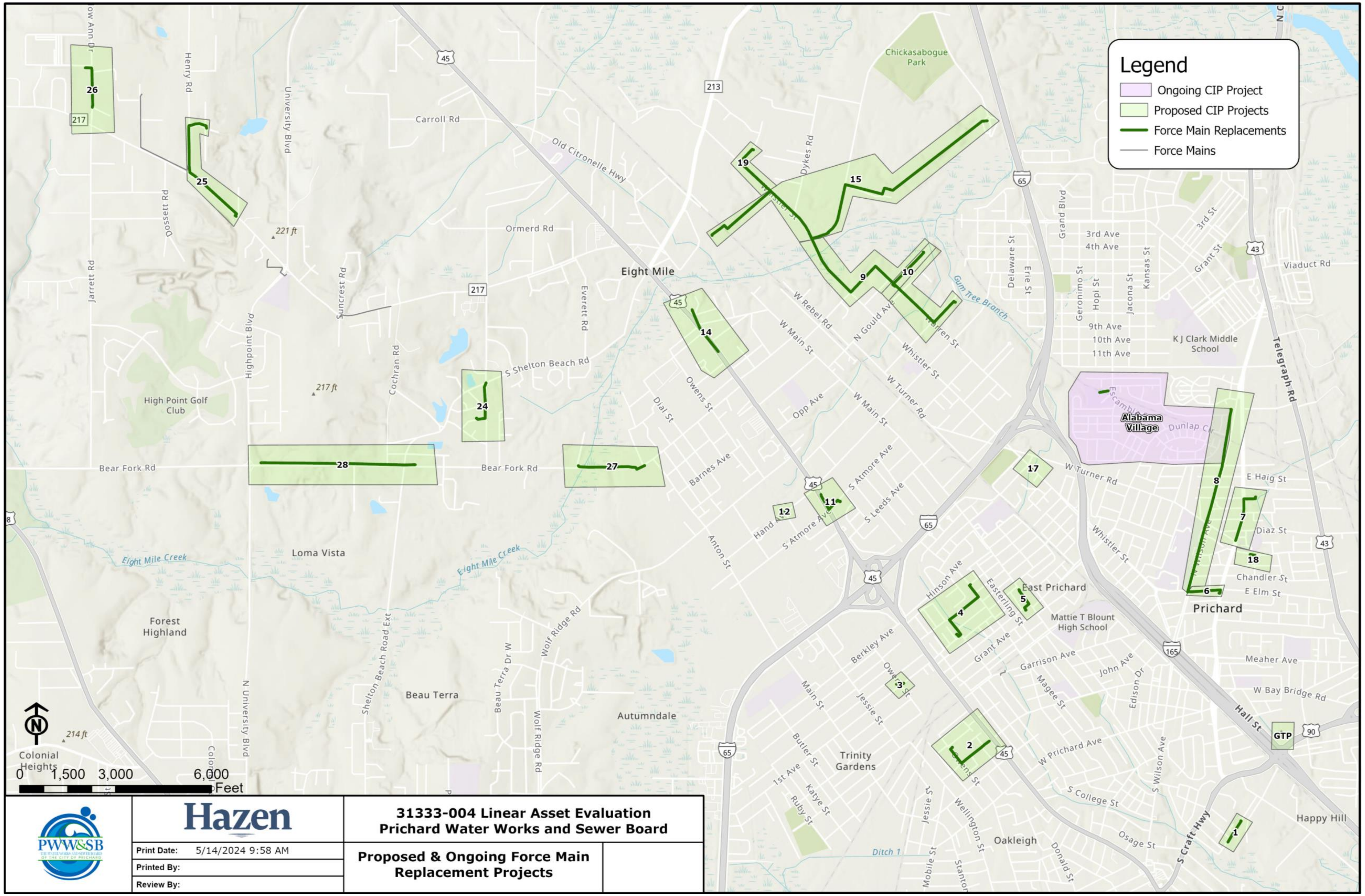



C-5-19. Gravity Main Proposed CIP Project – PRJ-GM-018

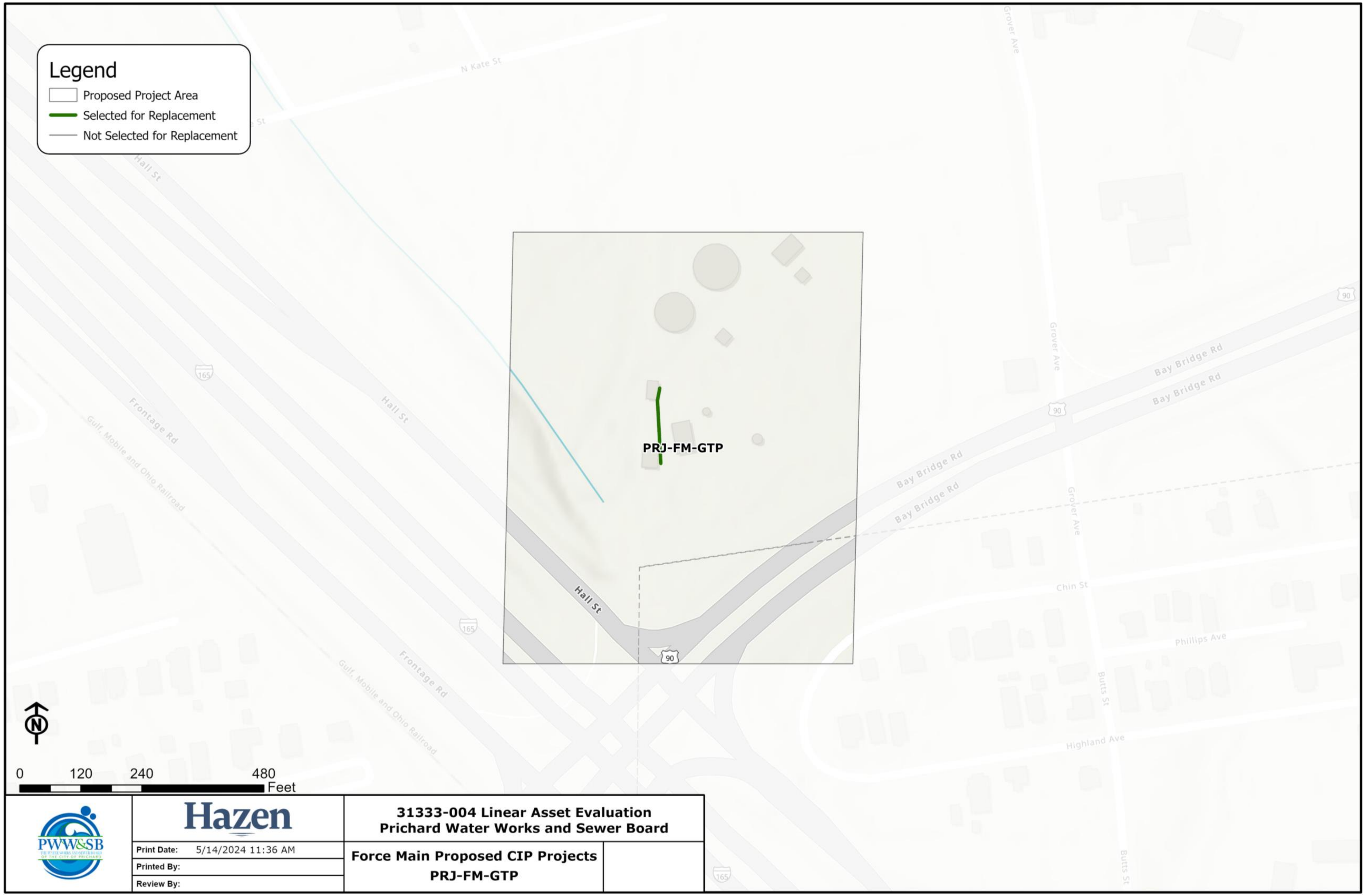
## C-6. Force Main Proposed CIP Project Maps

**Table C-6-1. Summary of 20-year Force Main Recommended CIP Projects**

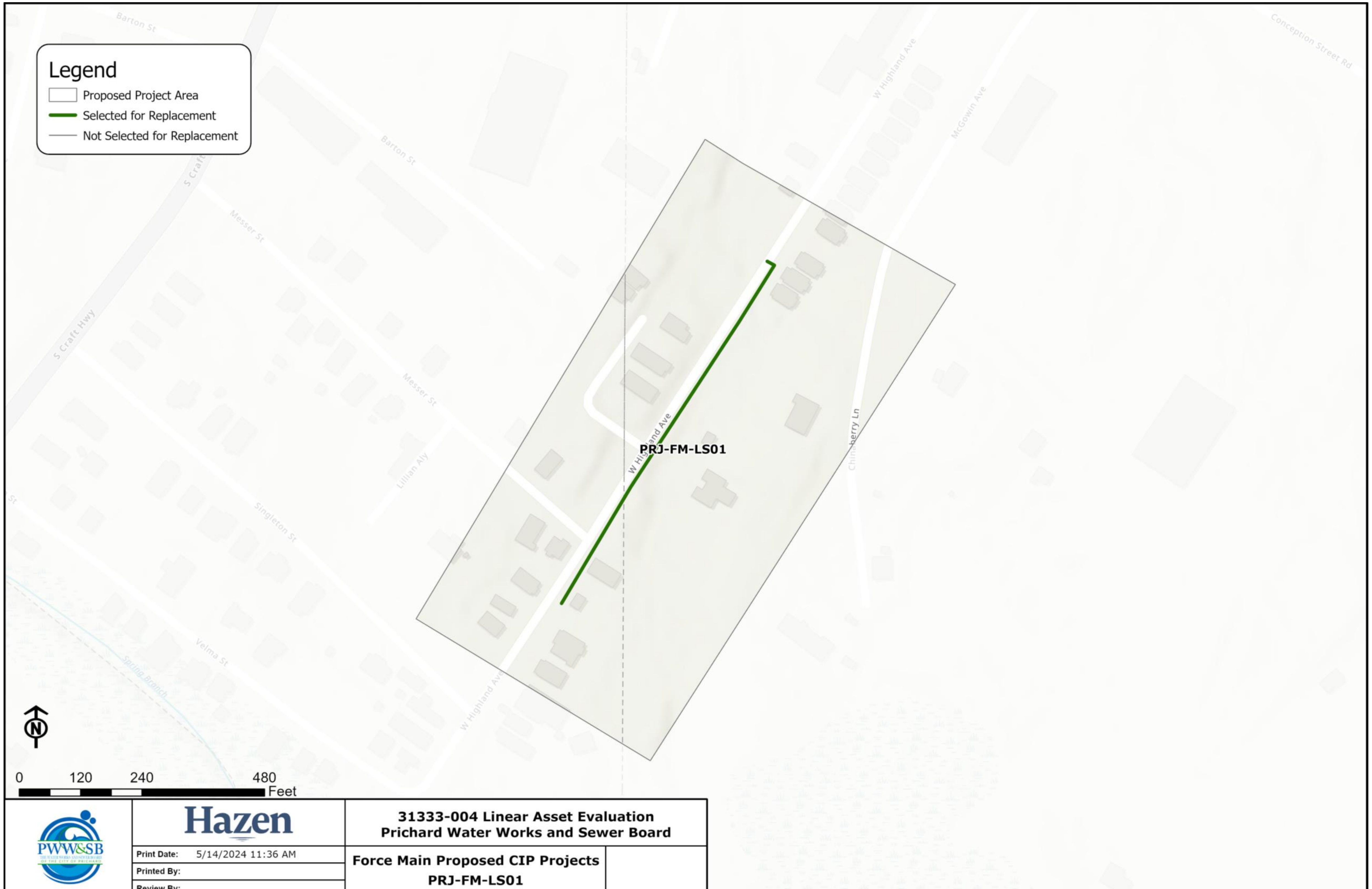
| Project Name | Average Risk Score | Project Start Year | Total Replacement Length (mi) | Replacement Cost Estimate | Replacement Cost Estimate, Inflated |
|---|---|---|---|---|---|
| **PRJ-FM-LS04** | 18 | 2025 | 0.4 | $660,000 | $680,000 |
| **PRJ-FM-LS09** | 18 | 2025 | 1.09 | $2,580,000 | $2,660,000 |
| **PRJ-FM-LS27** | 22 | 2025 | 0.35 | $830,000 | $850,000 |
| **PRJ-FM-LS01** | 11 | 2027 | 0.13 | $210,000 | $230,000 |
| **PRJ-FM-LS05** | 11 | 2027 | 0.14 | $180,000 | $200,000 |
| **PRJ-FM-LS08** | 14 | 2027 | 0.96 | $1,590,000 | $1,740,000 |
| **PRJ-FM-LS17** | 11 | 2027 | 0.01 | $10,000 | $10,000 |
| **PRJ-FM-LS24** | 13 | 2027 | 0.23 | $290,000 | $320,000 |
| **PRJ-FM-LS28** | 13 | 2027 | 0.79 | $1,300,000 | $1,420,000 |
| **PRJ-FM-LS06** | 10 | 2031 | 0.19 | $240,000 | $300,000 |
| **PRJ-FM-LS02** | 9 | 2034 | 0.29 | $370,000 | $500,000 |
| **PRJ-FM-LS10** | 9 | 2034 | 0.25 | $170,000 | $230,000 |
| **PRJ-FM-LS26** | 9 | 2034 | 0.23 | $390,000 | $520,000 |
| **PRJ-FM-LS15** | 13.26 | 2035 | 1.95 | $4,950,000 | $6,850,000 |
| **PRJ-FM-LS03** | 8 | 2039 | 0.05 | $70,000 | $110,000 |
| **PRJ-FM-LS14** | 8 | 2039 | 0.25 | $320,000 | $500,000 |
| **PRJ-FM-LS25** | 8 | 2039 | 0.68 | $860,000 | $1,340,000 |
| **PRJ-FM-LS07** | 12 | 2040 | 0.29 | $370,000 | $590,000 |
| **PRJ-FM-LS11** | 7 | 2043 | 0.17 | $220,000 | $390,000 |
| **PRJ-FM-LS12** | 6 | 2044 | 0.02 | $20,000 | $40,000 |
| **PRJ-FM-LS18** | 5 | 2044 | 0.03 | $10,000 | $20,000 |
| **PRJ-FM-LS19** | 5 | 2044 | 0.31 | $210,000 | $380,000 |
| **TOTALS** | | | **8.81** | **$15,850,000** | **$19,880,000** |
| **TOTALS, LOW RANGE (-50%)** | | | | | **$9,940,000** |
| **TOTALS, HIGH RANGE (+100%)** | | | | | **$39,760,000** |



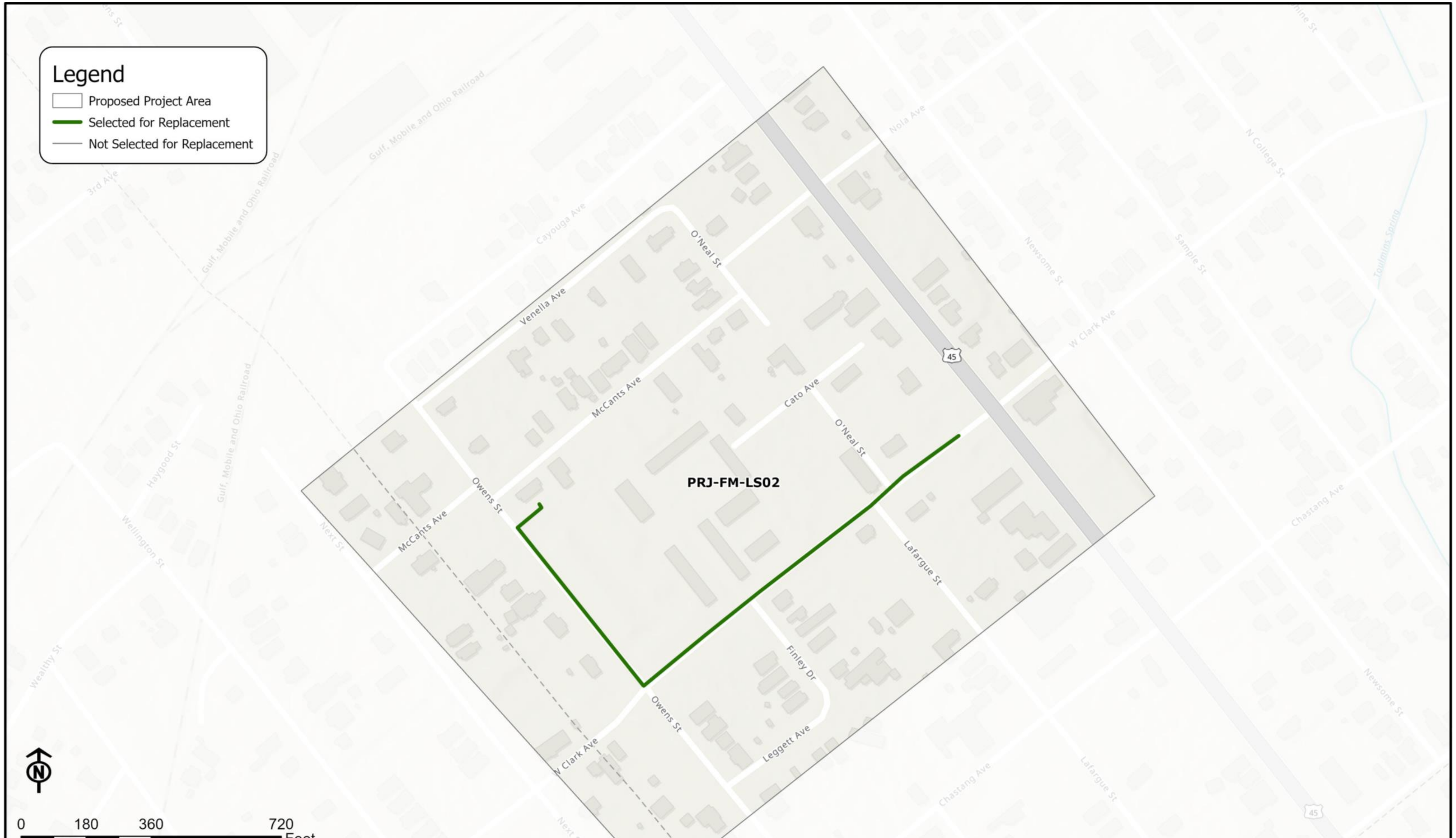

C-6-1. Proposed and Ongoing Force Main Replacement Projects




C-6-2. Force Main Proposed CIP Project – PRJ-FM-GTP

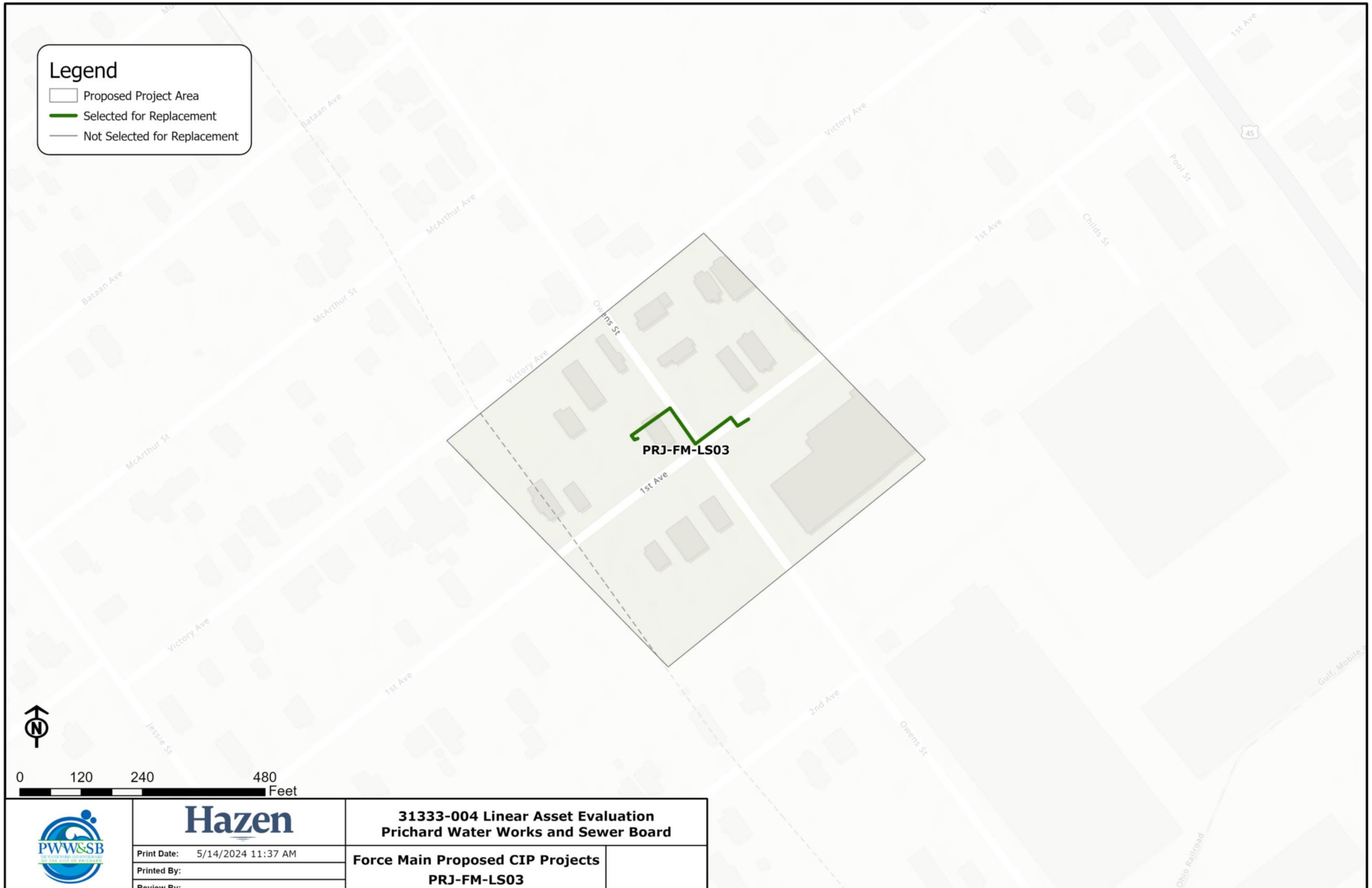



**C-6-3. Force Main Proposed CIP Project – PRJ-FM-LS01**

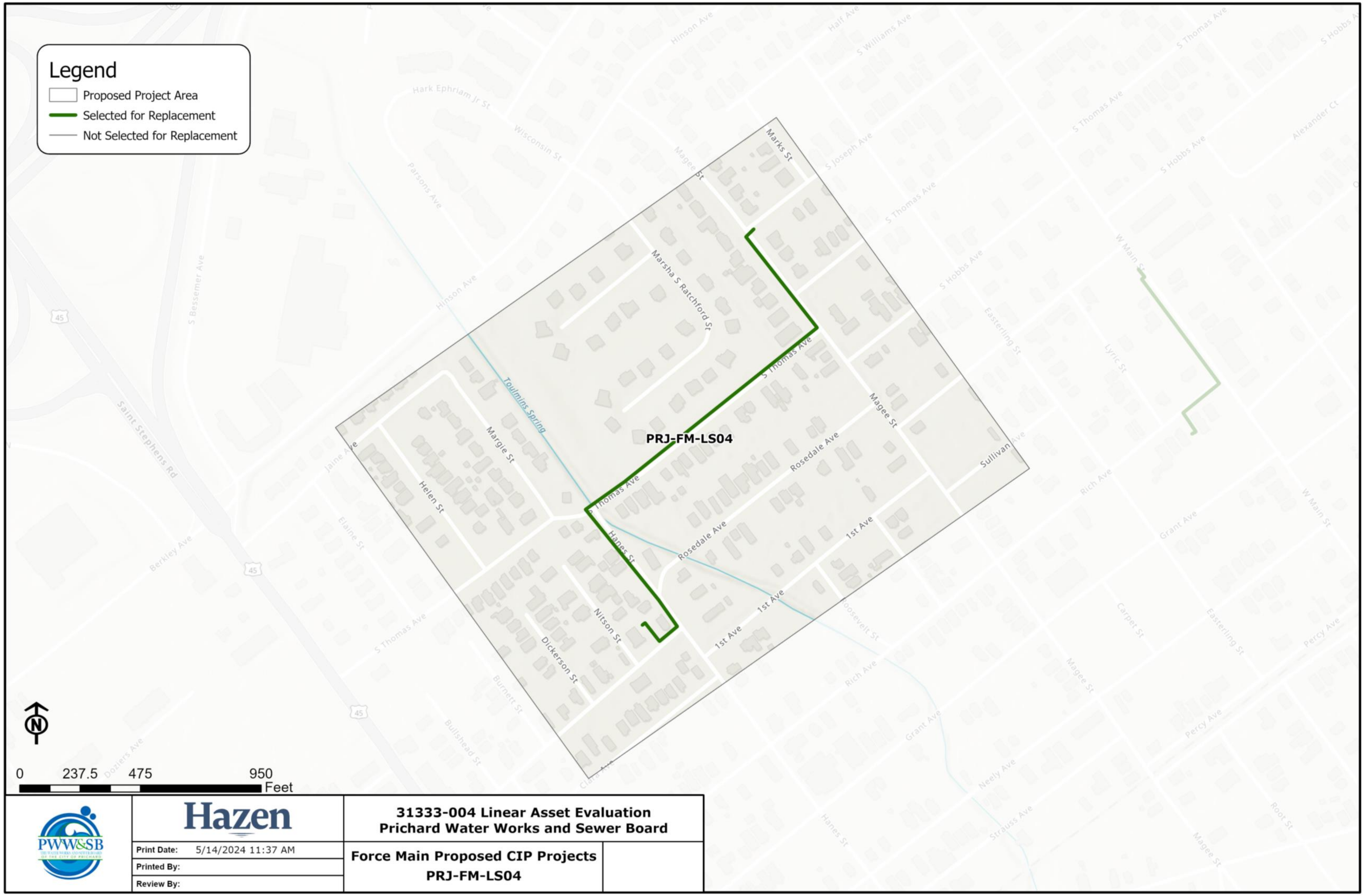



| | | |
|---|---|---|
| Hazen | 31333-004 Linear Asset Evaluation<br>Prichard Water Works and Sewer Board | |
| Print Date: 5/14/2024 11:36 AM<br>Printed By:<br>Review By: | Force Main Proposed CIP Projects<br>PRJ-FM-LS02 | |

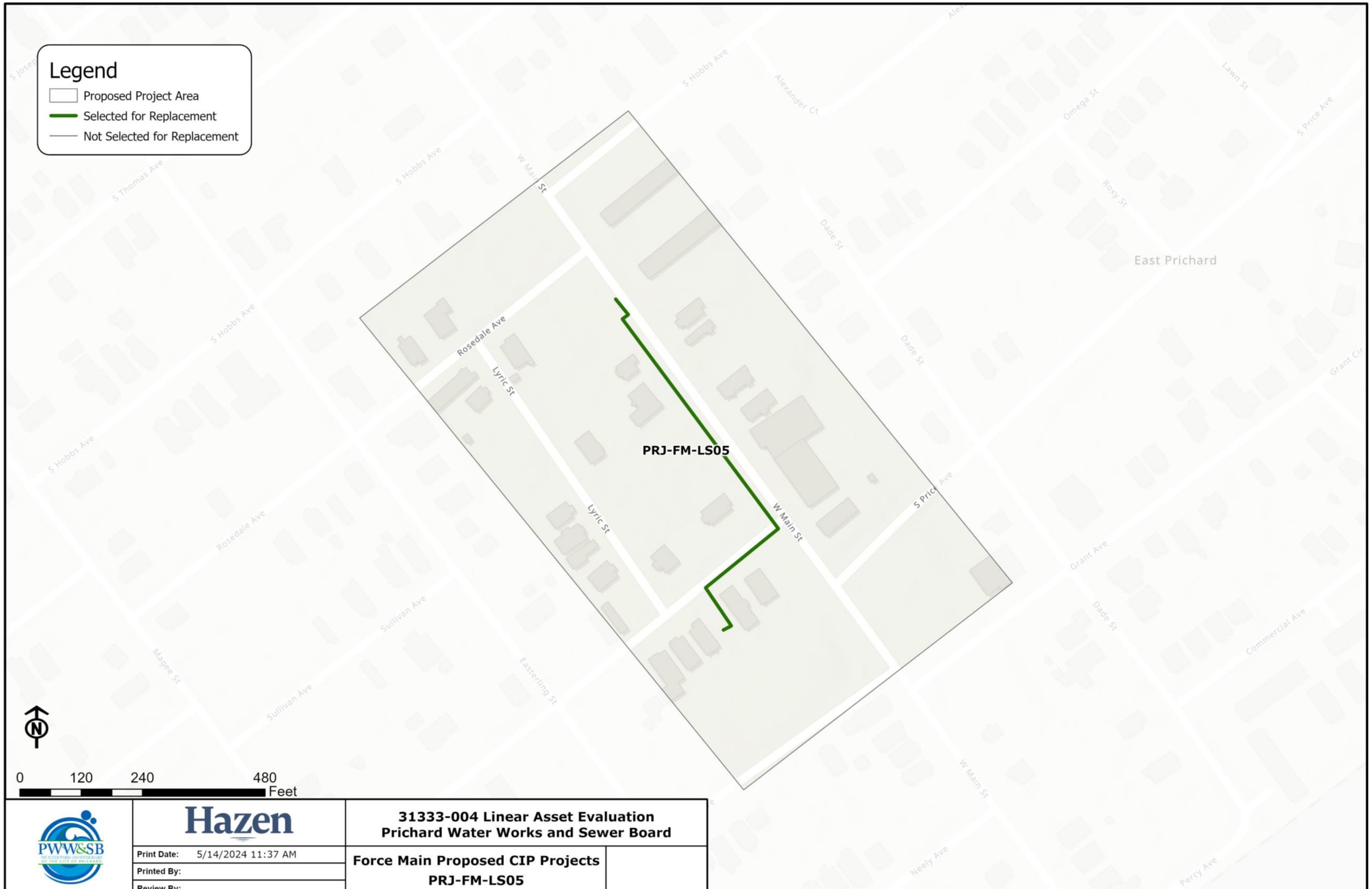
**C-6-4. Force Main Proposed CIP Project – PRJ-FM-LS02**



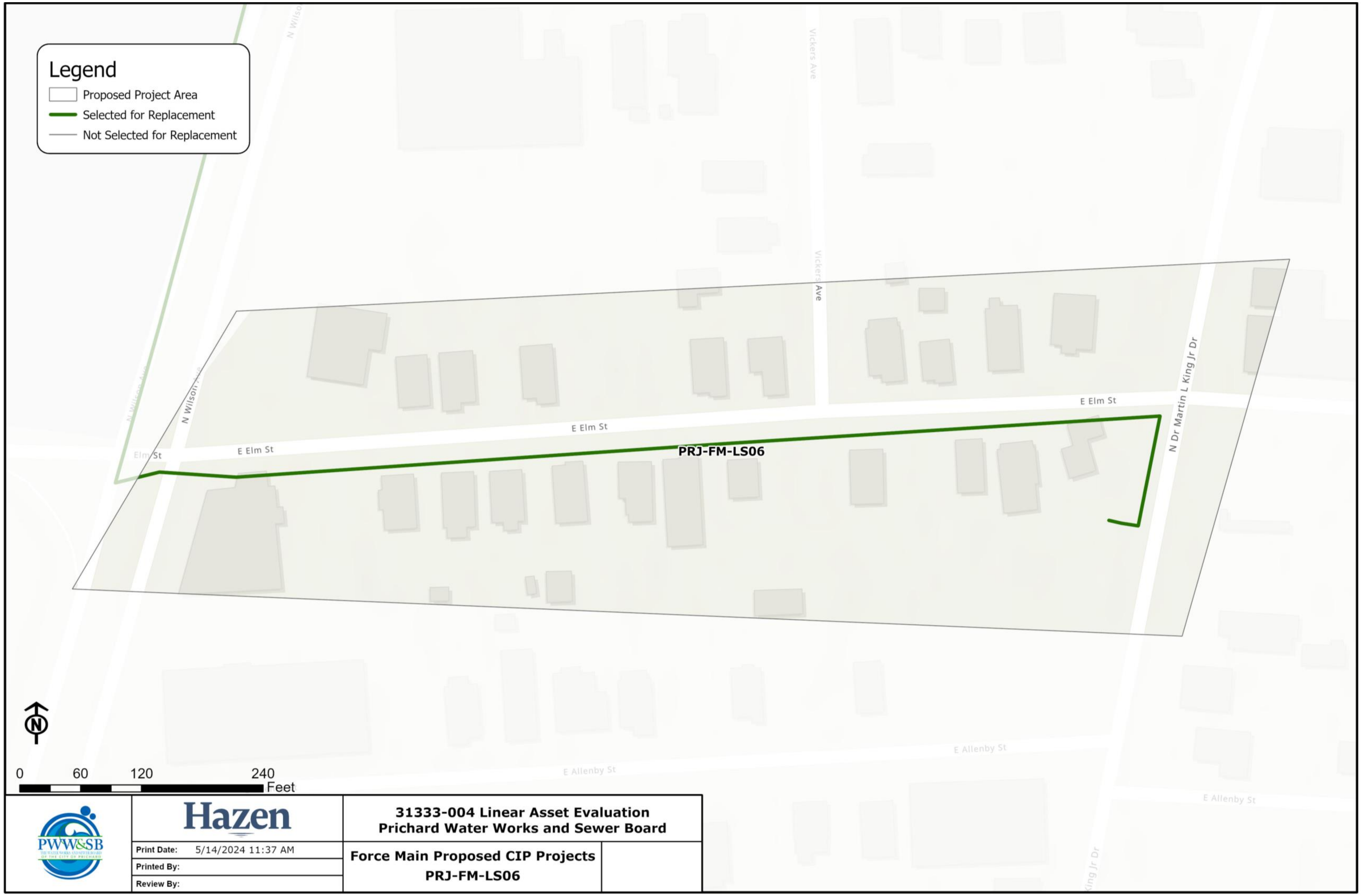

**C-6-5. Force Main Proposed CIP Project – PRJ-FM-LS03**



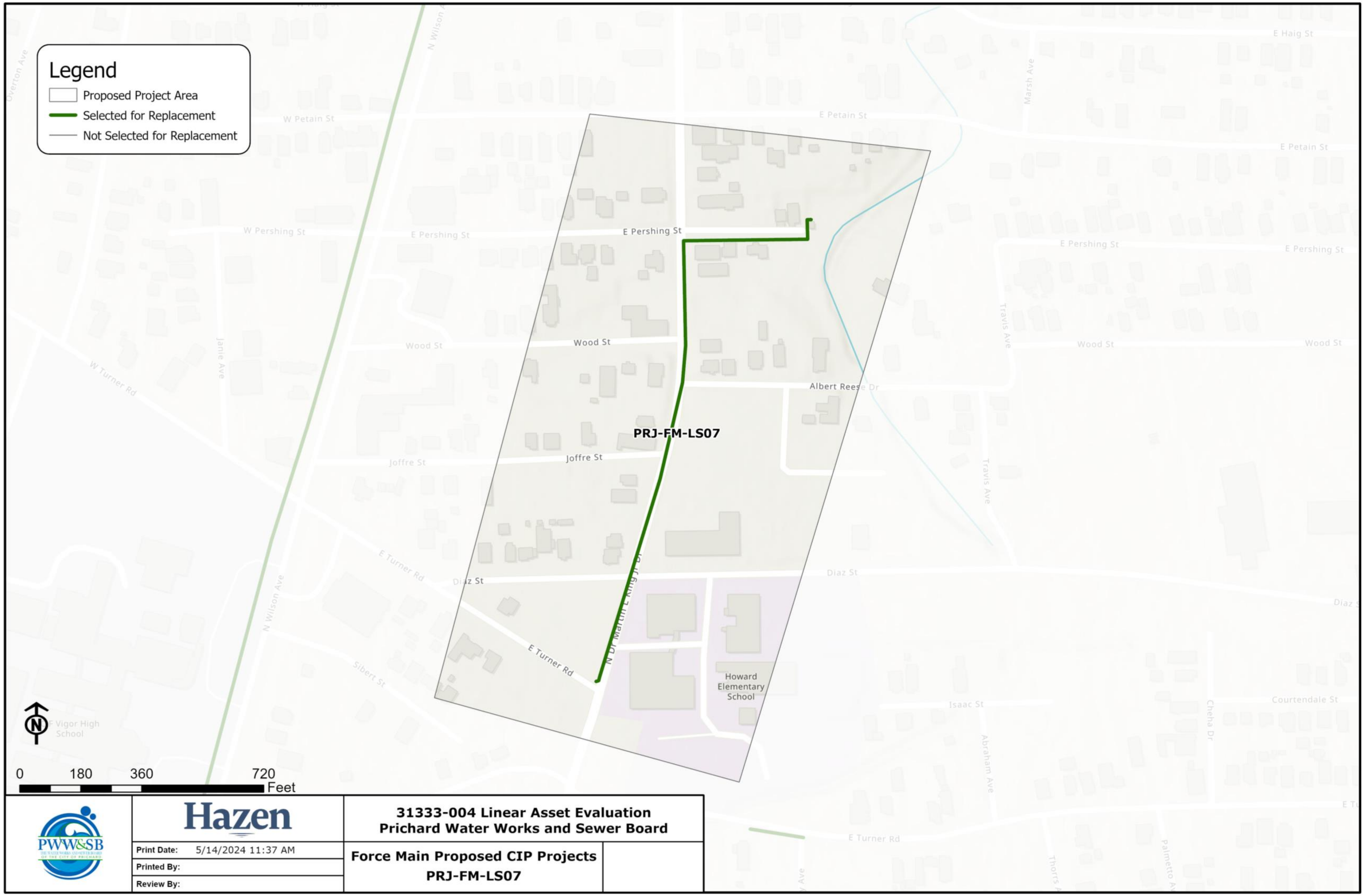

**C-6-6. Force Main Proposed CIP Project – PRJ-FM-LS04**



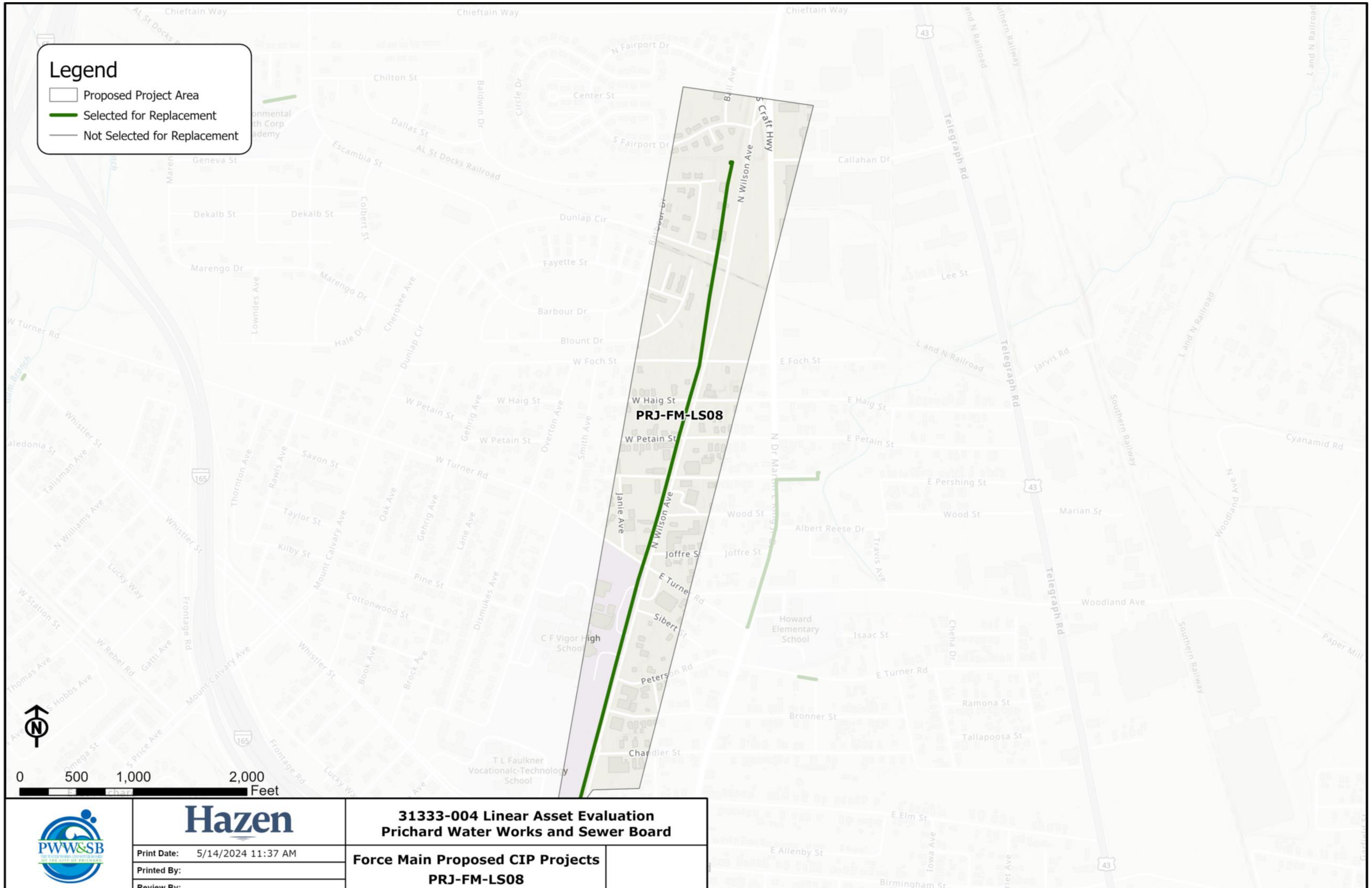

**C-6-7. Force Main Proposed CIP Project – PRJ-FM-LS05**



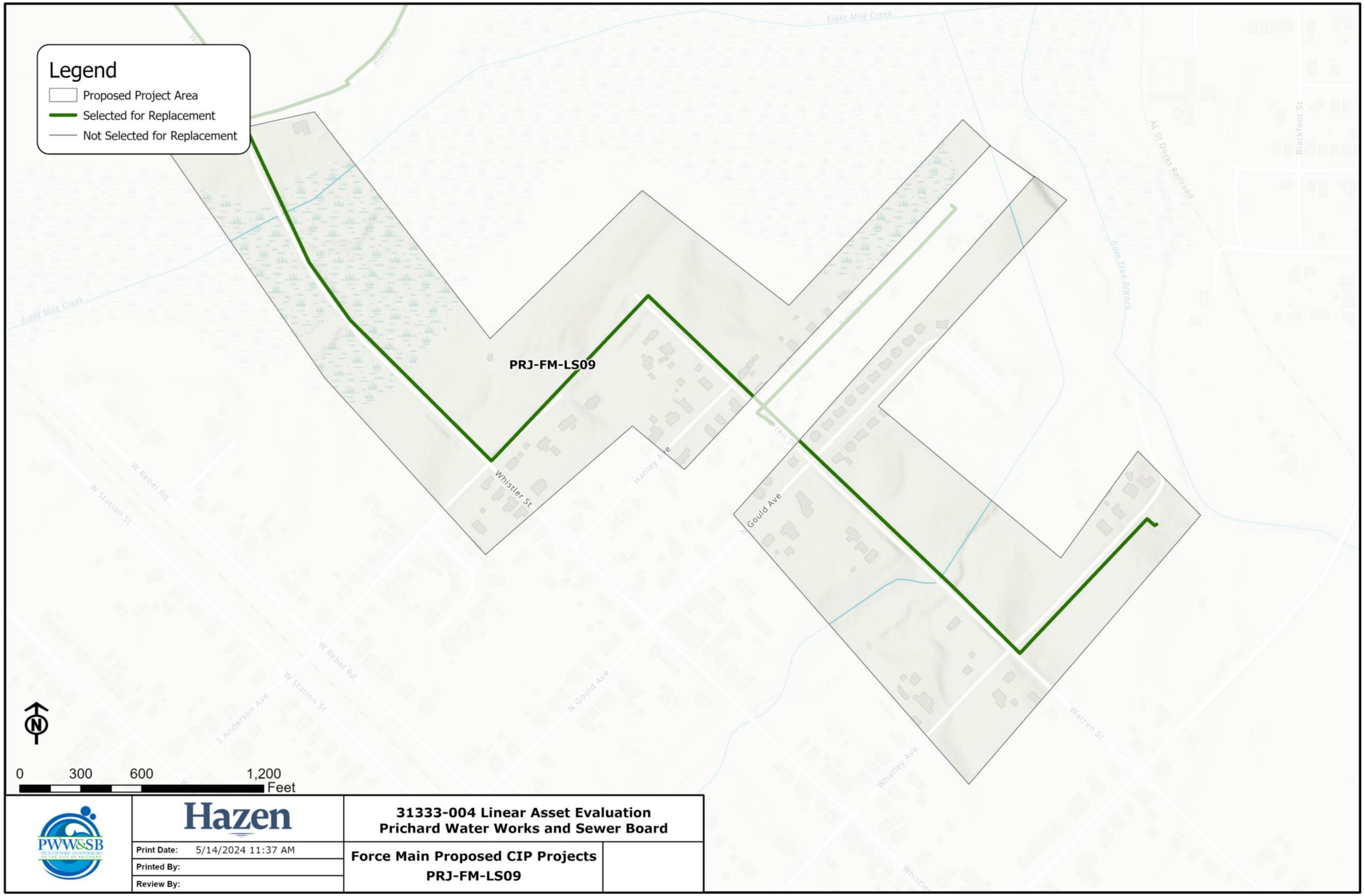

**C-6-8. Force Main Proposed CIP Project – PRJ-FM-LS06**



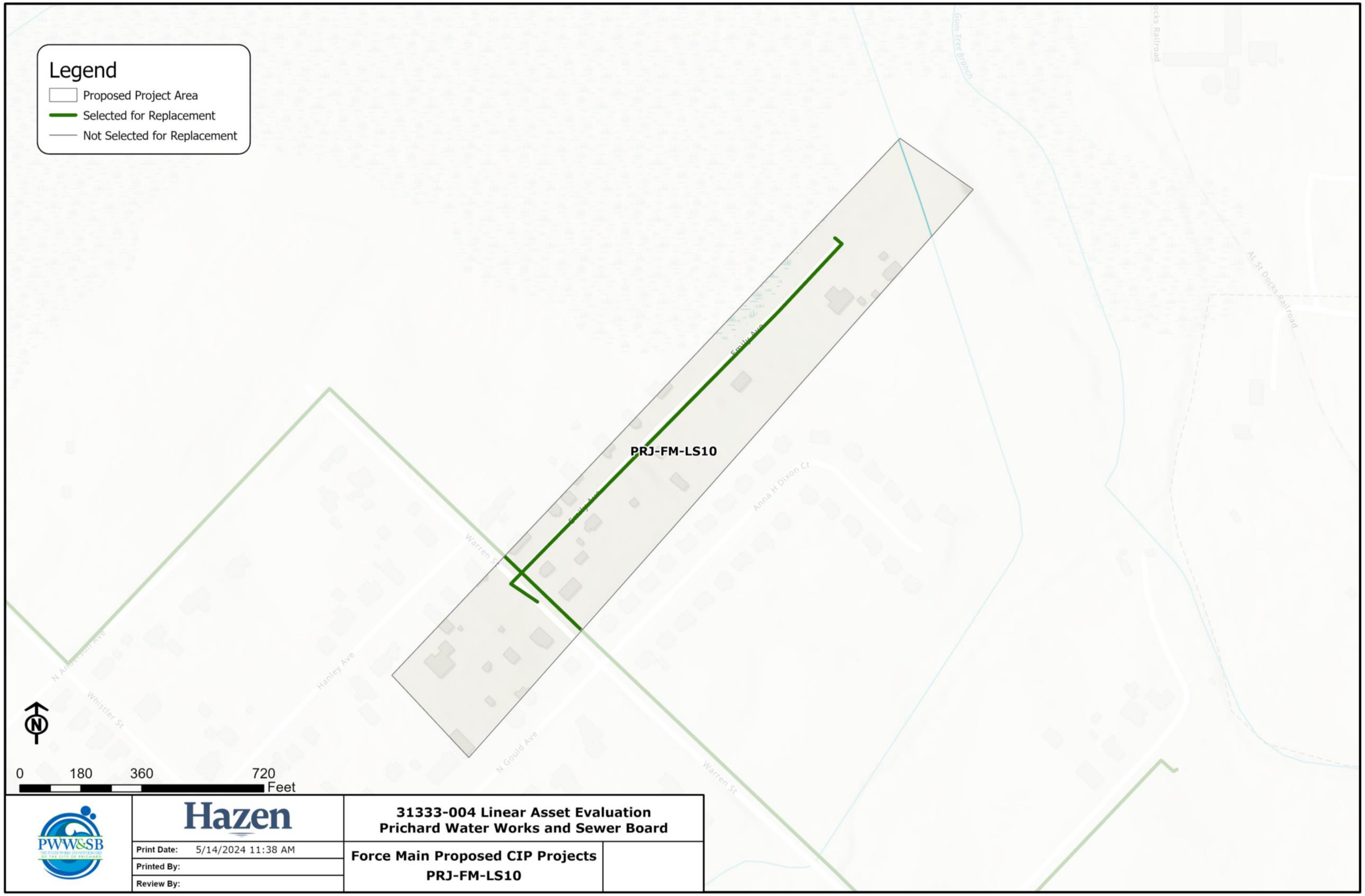

**C-6-9. Force Main Proposed CIP Project – PRJ-FM-LS07**




**C-6-10. Force Main Proposed CIP Project – PRJ-FM-LS08**

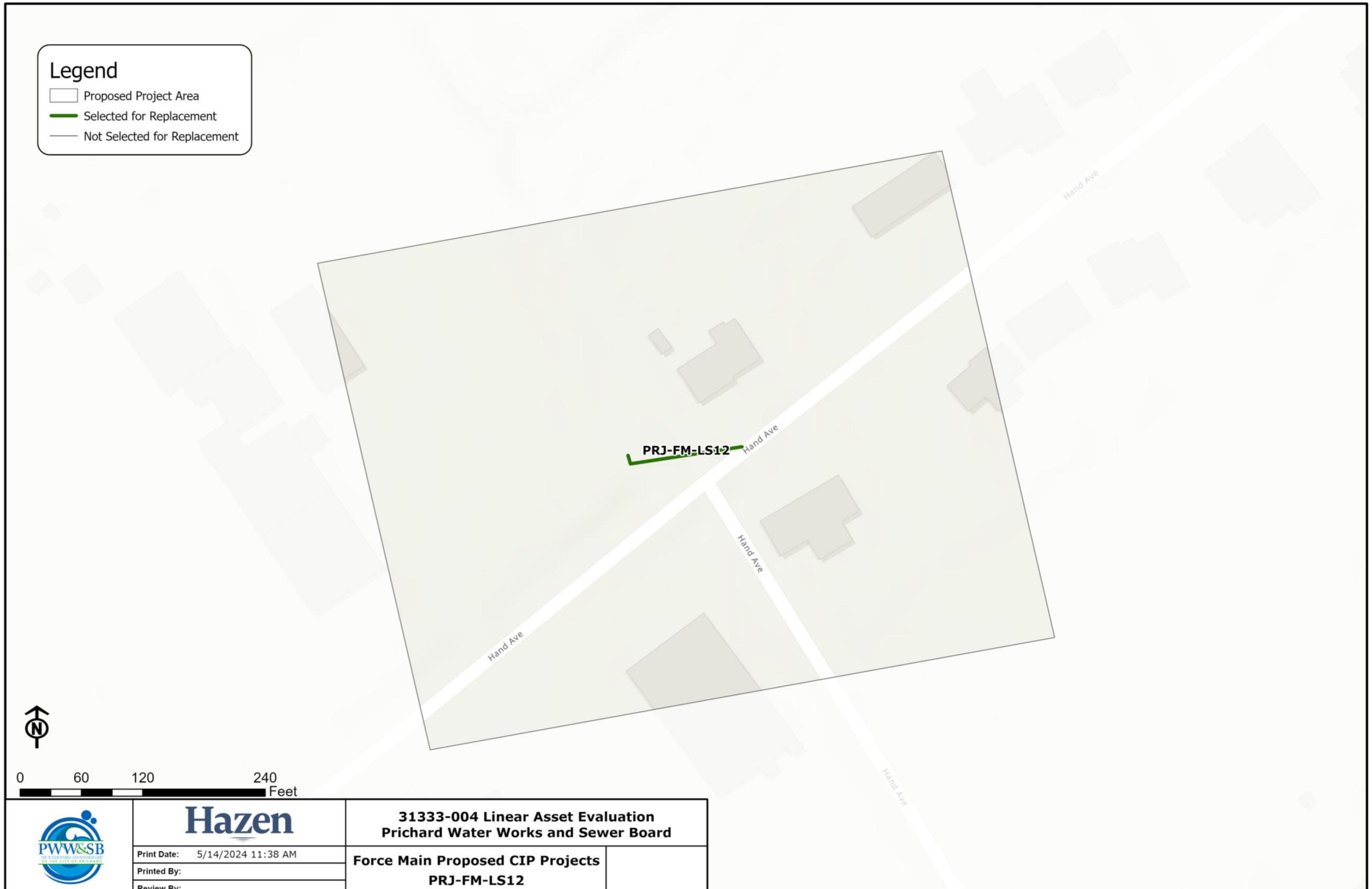



C-6-11. Force Main Proposed CIP Project – PRJ-FM-LS09

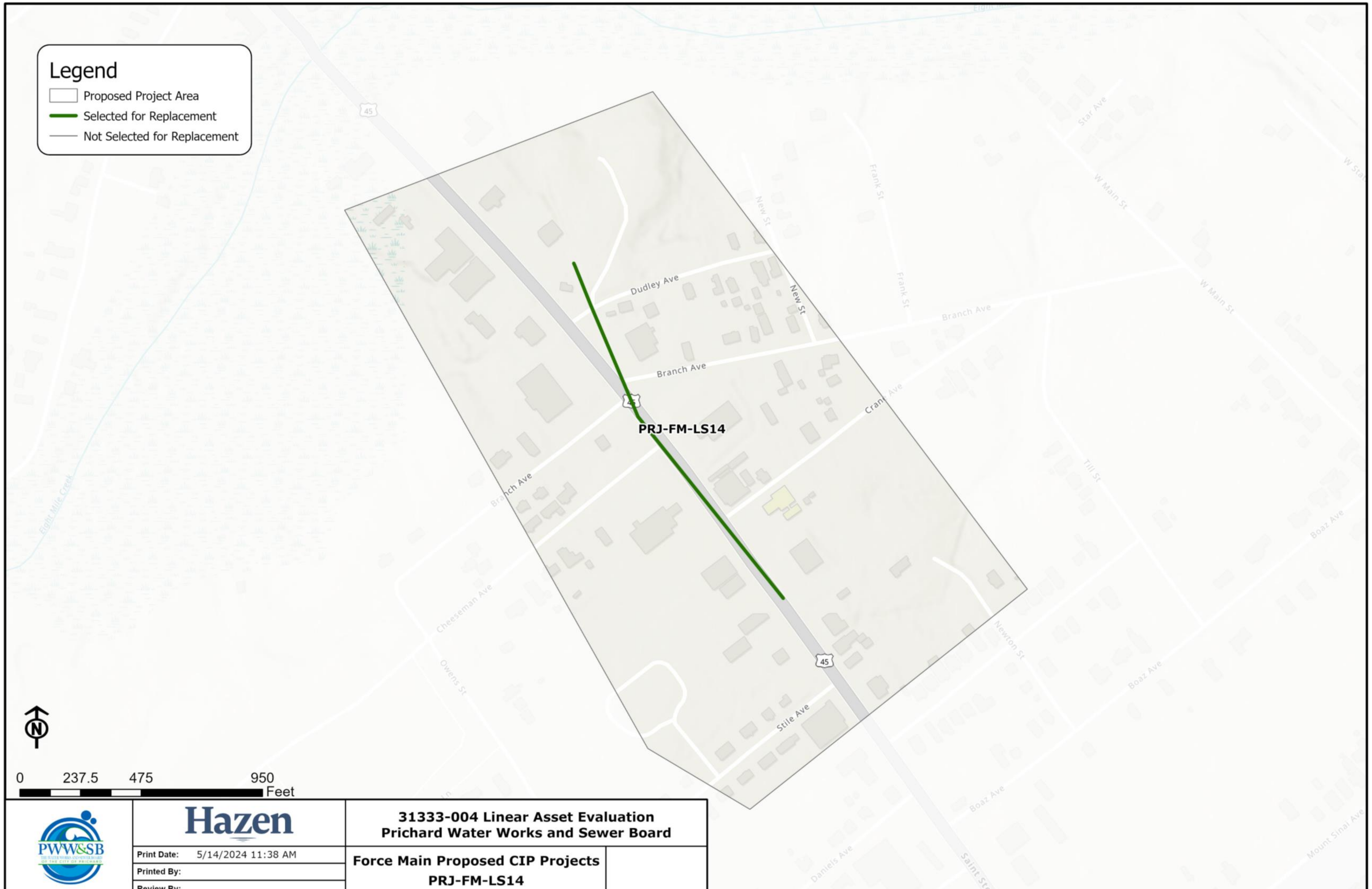



C-6-12. Force Main Proposed CIP Project – PRJ-FM-LS10

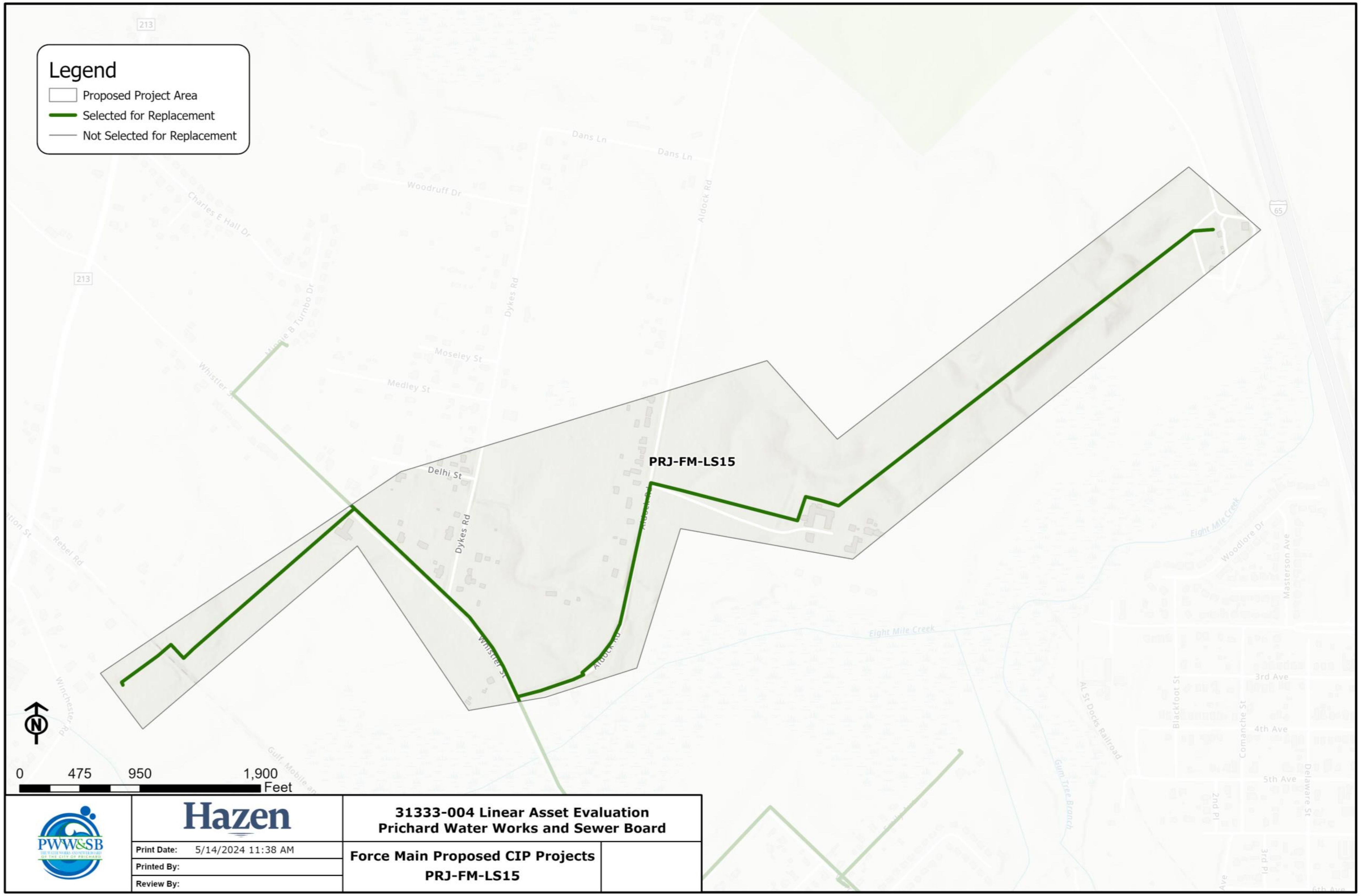

**C-6-13. Force Main Proposed CIP Project – PRJ-FM-LS11**



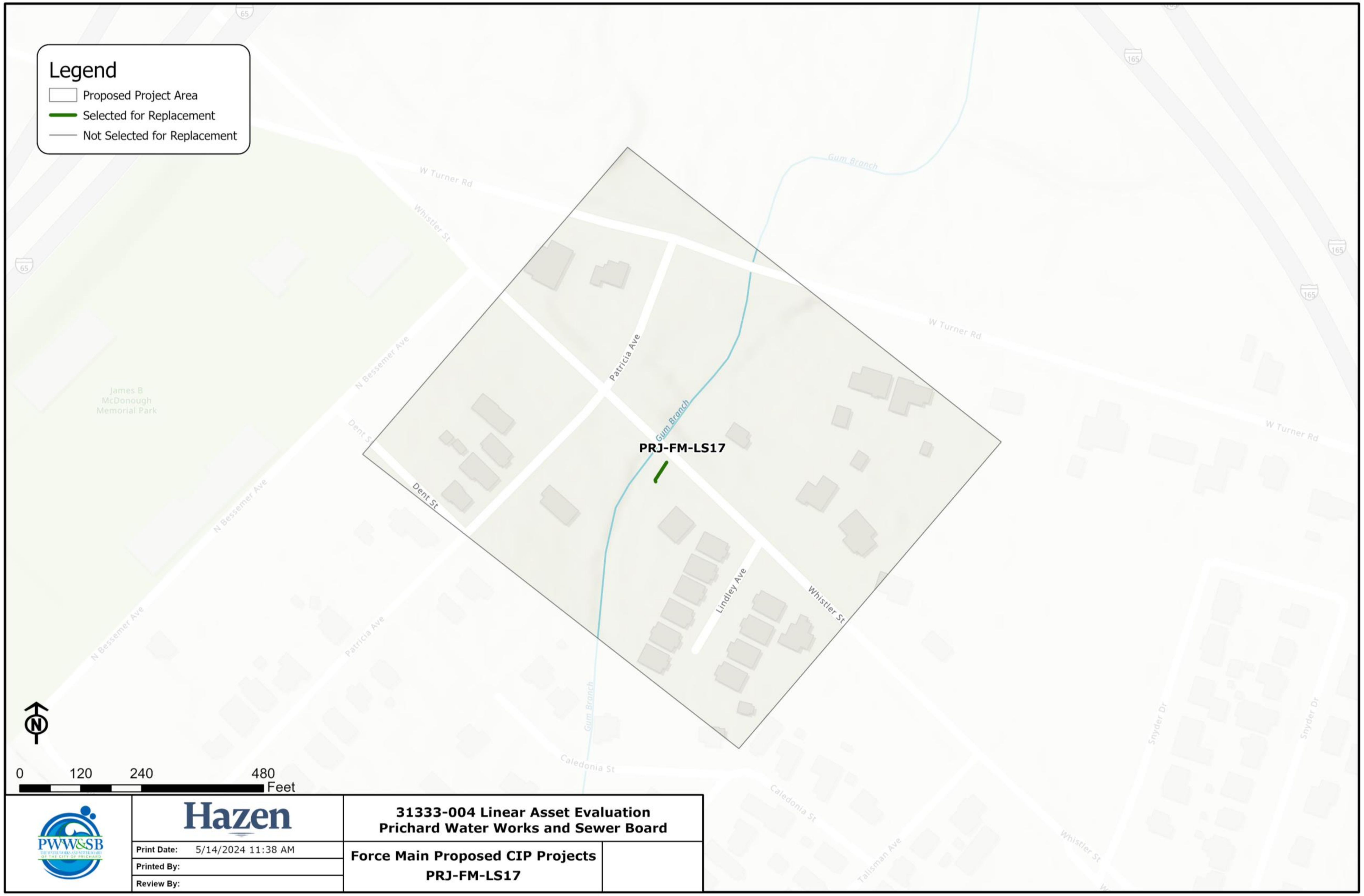

**C-6-14. Force Main Proposed CIP Project – PRJ-FM-LS12**



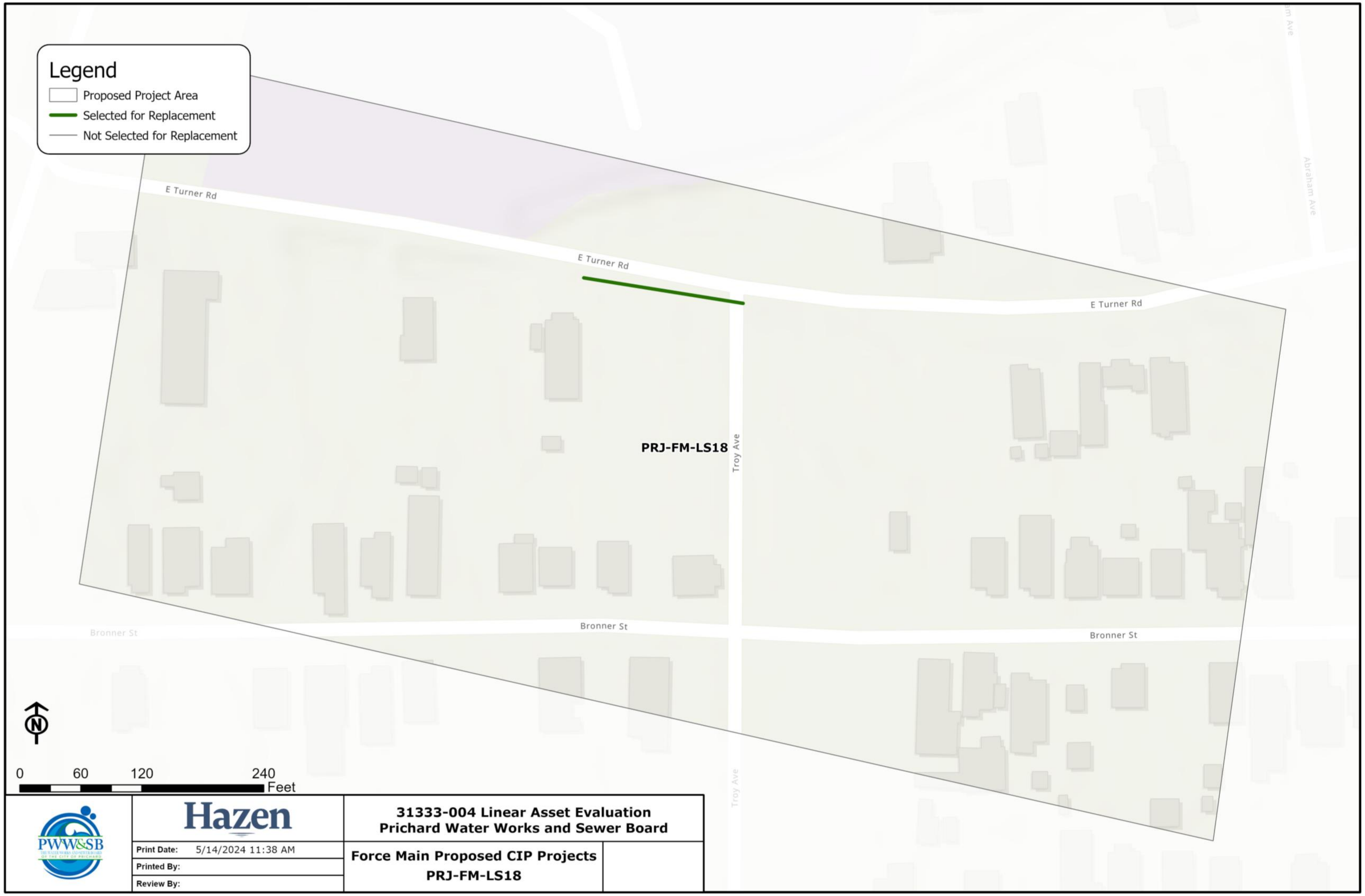

**C-6-15. Force Main Proposed CIP Project – PRJ-FM-LS14**



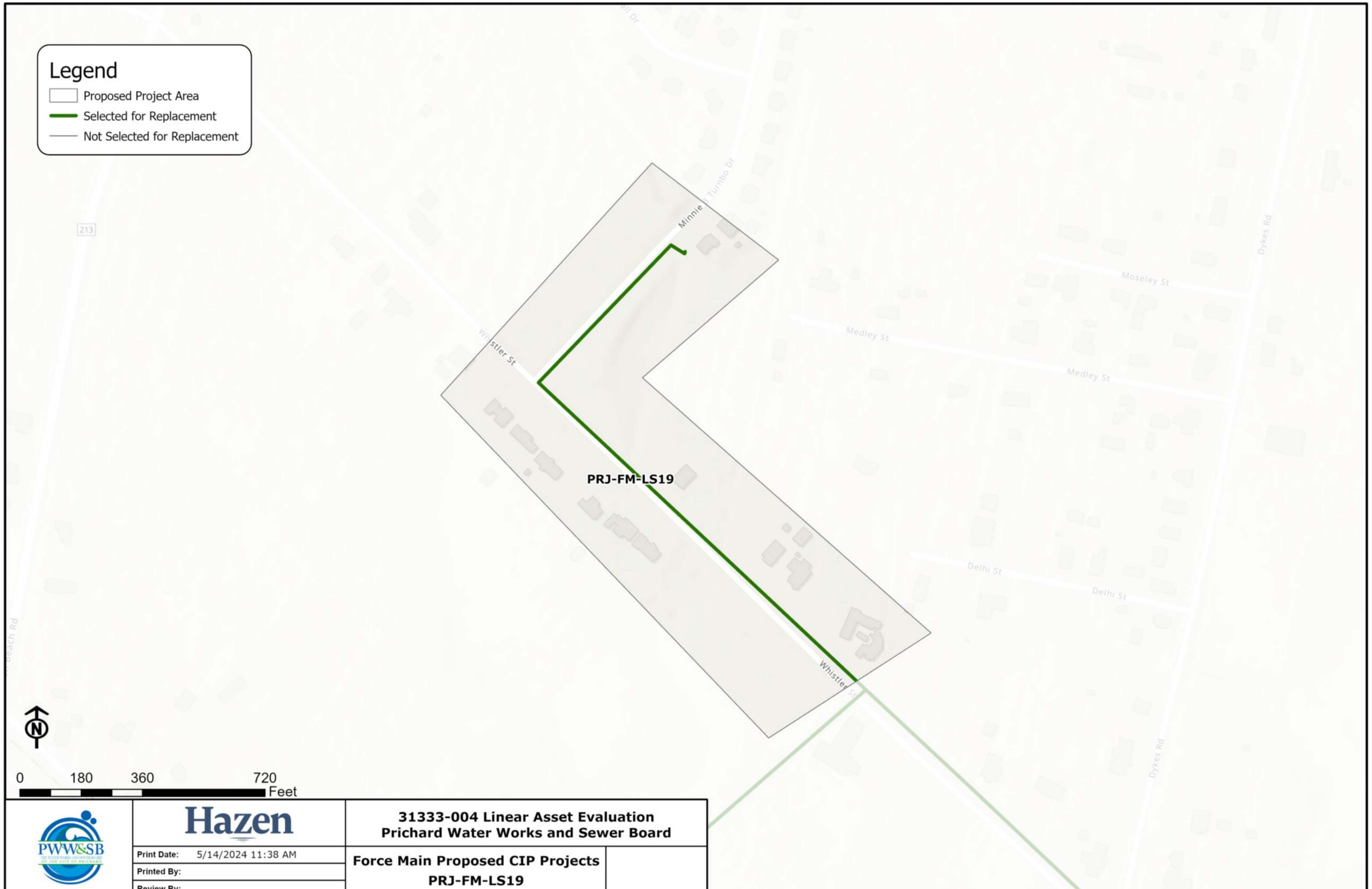

C-6-16. Force Main Proposed CIP Project – PRJ-FM-LS15



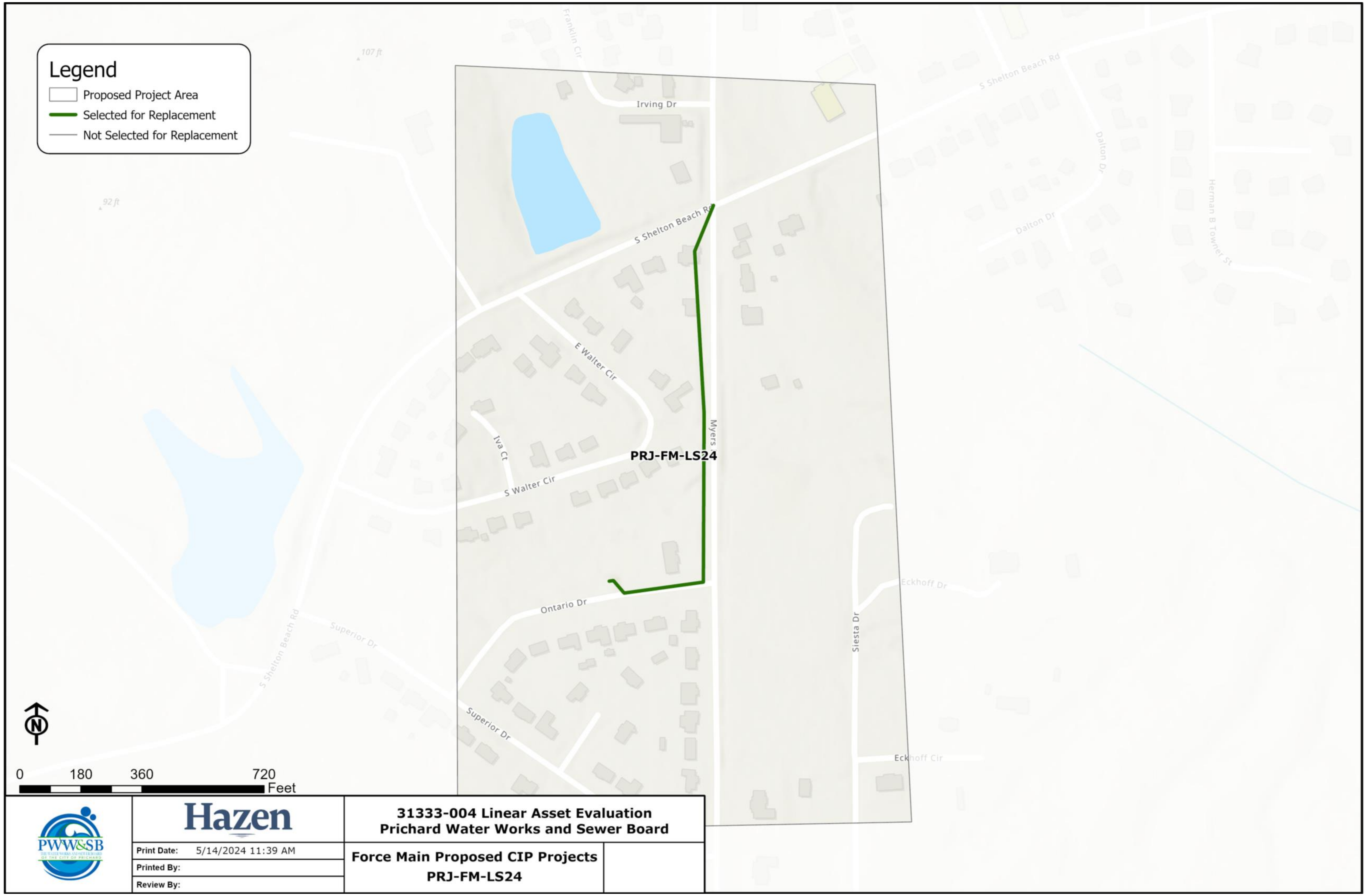

C-6-17. Force Main Proposed CIP Project – PRJ-FM-LS17



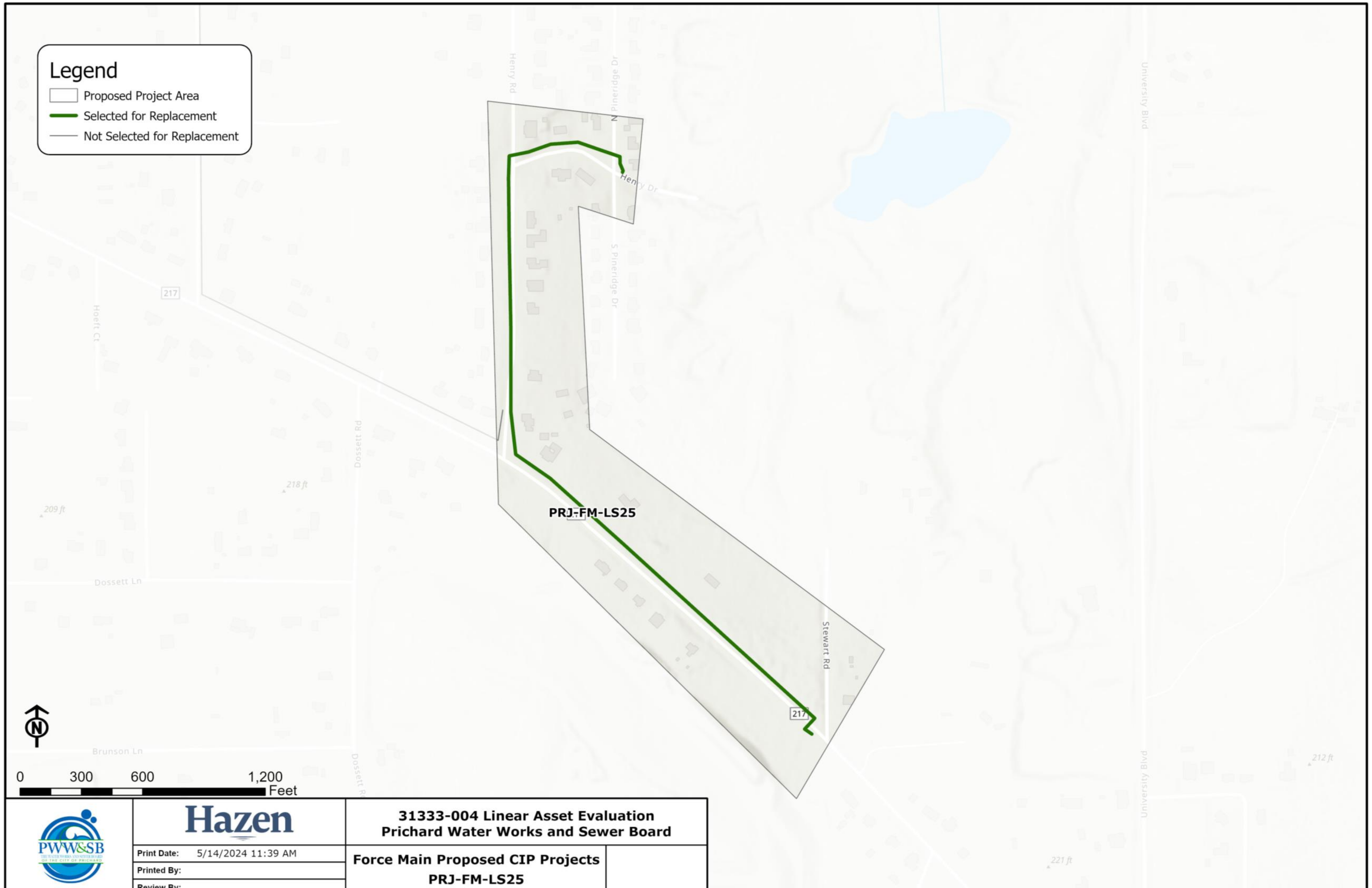

C-6-18. Force Main Proposed CIP Project – PRJ-FM-LS18




**C-6-19. Force Main Proposed CIP Project – PRJ-FM-LS19**

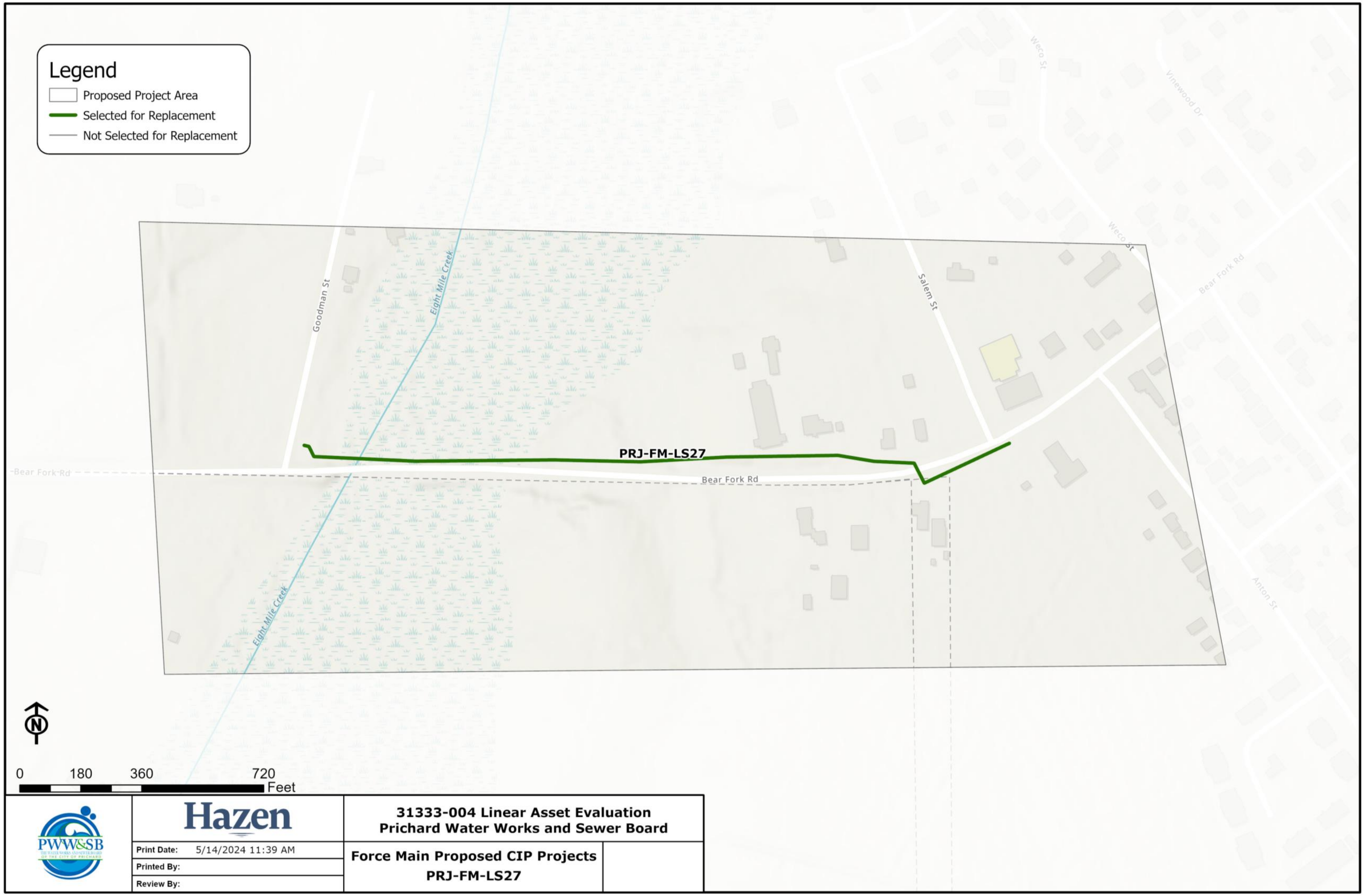



**C-6-20. Force Main Proposed CIP Project – PRJ-FM-LS24**

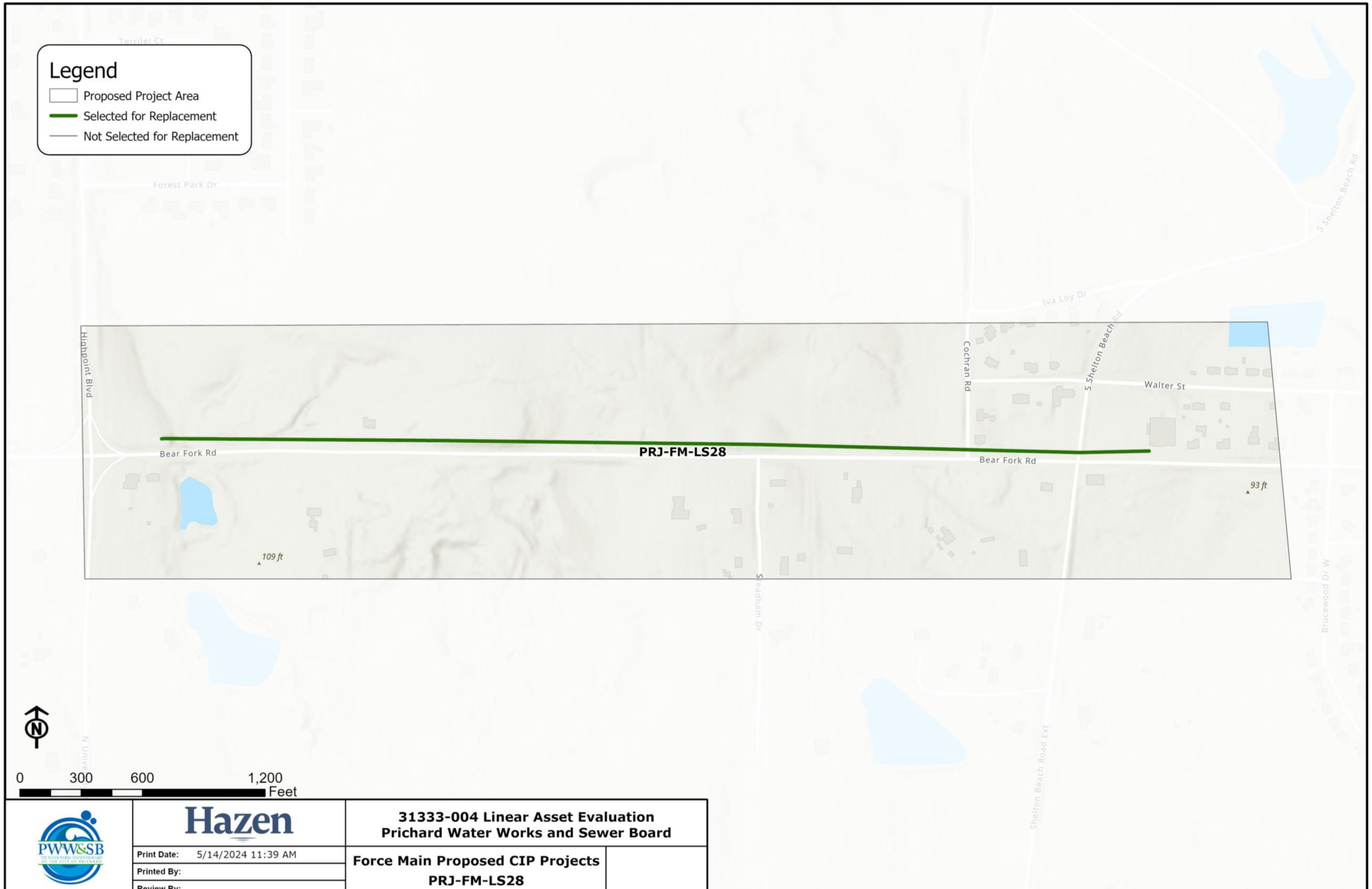



**C-6-21. Force Main Proposed CIP Project – PRJ-FM-LS25**


C-6-22. Force Main Proposed CIP Project – PRJ-FM-LS26




**C-6-23. Force Main Proposed CIP Project – PRJ-FM-LS27**




C-6-24. Force Main Proposed CIP Project – PRJ-FM-LS28