1. LEAD SERVICE LINE REPLACEMENTS

Under the ILSLRNA and the federal LCRR, the City is required to facilitate the full replacement of lead and GRR water service lines. The ILSLRNA requires lead and GRR water service lines be replaced if they are disturbed (repaired) or starting in 2027 at a designated rate of 205 replacements each year for ten (10) years until all lead and GRR water service lines are completely removed.

Since 2018, the City has been working to identify the material of water service lines and has been reporting materials to IEPA annually.

1.1 Water Service Line Material Inventory

A comprehensive water service line material inventory includes compiling a list of each active water service line, its location within the City and identifying the material type for both the public side (from the watermain to the meter/exterior shut-off valve) and the private side (from the meter/exterior shut-off valve to into the building/interior shut-off valve). The water piping inside of the building after the interior shut-off valve is deemed plumbing. Internal plumbing is the full responsibility of the property owner.

The City is continuing to identify the material of water service lines and at this time is estimating that the total number of lead and GRR water service lines will be approximately 2,044. This estimate is based on assessing the installation dates of the water service lines, construction records, visual inspections, and data received from property owners.

1.1.1 Material Inventory Methodology and Continuing Efforts

When completing the water service line material inventory, a CWS is to utilize, at minimum, the following methods to complete the identification of pipe material types:

- Review of historical documentation, such as as-builts, permits information, construction records, or subdivision plans
- Visual inspection during distribution system maintenance
- Utilize known installation time periods for when lead was or was not installed
- Discuss with staff, contractors, or local plumbers who have worked on service lines connected to the distribution system

Note that under the ILSLRNA and LCRR, the City is not required to excavate water service lines to determine their material. However, certain circumstances may warrant the City to complete more invasive methods, such as excavation, on a case-by-case basis.

In addition to the above methods, the City is conducting a resident information survey and performing in-home inspections. Both the resident information survey and in-home inspections utilized visual inspection of the water service line as it enters the building to confirm the material type. The resident information survey requests customers self-report the material type of the water service line where it enters the building. As a part of the survey, customers were asked to provide a photo of the water service line, allowing the City to review and confirm the information provided. When necessary, the City followed up with customers and performed in-home inspections to verify submitted information.

To date, there remain 1,349 water service lines within the City with an undetermined material type. The City is continuing to use the resident information survey, in-home inspections, and review of historical documents to identify the remaining unknown services.

1.2 Replacement Schedule

1.2.1 Federal Replacement Schedule

Per the LCRR, the City must initiate lead and GRR water service line replacements based upon the results of the water sampling conducted throughout the distribution system at specified locations/properties approved by the state's primacy agency (agency responsible to ensure that a CWS meets all national drinking water regulations). The City is required to respond under the LCRR if the following occurs:

- **Exceedance of Action Level:** In the event that the City has an exceedance of 15 parts per billion at the 90th percentile, the City must begin annual lead and GRR water service line replacements at a rate of 3% per year. The City has been able to maintain lead 90th percentile levels below the 0.005 mg/l and has been moved to triennial lead monitoring.

1.2.1 Illinois Replacement Schedule

Based on the estimated number of lead and GRR water service lines, the City will be required to replace 205 lead services starting in 2027.

1.3 Prioritization of Lead Service Line Replacements

The City first intends to prioritize the replacement of lead and GRR water service lines at facilities that serve populations most sensitive to the effects of lead. Additionally, the City will be reviewing other CIP programs to assist with the prioritization of the remainder of replacements in the future.

1.3.1 Future Replacement Planning

Beginning 2027, the City will be required to facilitate the replacement of an estimated 205 water service lines each year. The City is considering the following ways to prioritize lead and GRR water service lines replacements outside of planned Capital Improvement Projects:

1.3.1.1.1 **Census Tracts** – In an effort to prioritize disadvantaged customers, the City is considering prioritizing areas of town based upon census tract information.

1.3.1.1.2 **Presence of Children** - Children under the age of six and pregnant women are the most susceptible to the health effects from lead exposure. The City is considering prioritizing areas of town where the City anticipates higher concentrations of children, such as near elementary schools or parks/playgrounds.

1.3.1.1.3 **Lead and GRR Water Service Line Locations** – In an effort to reduce the mobilization costs related to moving construction efforts throughout a community, the City will work to minimize the limits of each year's replacement project by focusing on areas of town with higher concentrations of lead and GRR water service lines.

1.3.1.1.4 **Future CIP Projects** – The City will continue to plan other CIP projects based on community needs. To date, water main replacement projects have prioritized cast iron main replacement as those mains have a higher percentage of lead services based on data collected on previous main replacement projects. As CIP projects are developed, the City will coordinate lead and GRR water service line replacements within the limits of these projects.

2 FINANCING LEAD SERVICE LINE REPLACEMENTS

The ILSLRNA and the LCRR do not require a CWS to finance the full replacement of a lead or GRR water service line. The City is currently assessing what funding options are available for both the City and property owners. Different funding sources have different requirements associated with utilizing those funds and impact the City and their consumers in different ways.

2.2 Water Service Line Replacement Cost Analysis

In recent years, the water industry has seen an increase in replacement costs for lead and GRR water service lines, mostly due to an increase in material costs and contractor availability. Additionally, each water service line requiring replacement is unique and dependent on the constraints of an individual property. Interior and exterior restoration efforts may vary from property to property, even within the same area of the City. Due to this, an average construction cost ranging from $12,000 to $15,000 for a full water service line replacement (from watermain to inside the property to the first interior shut-off valve or 18-inches, whichever is shorter) was used for the purpose of this draft LSLR Plan.

For budgetary purposes, design engineering, construction engineering, and a contingency were included in the cost estimate. Design and construction engineering efforts will vary significantly, depending on whether the City is using City staff or a consultant and whether a water service line is being replaced as a part of an existing CIP project or a stand-a-lone lead water service line replacement program. At this time, the City is estimating that the total cost to replace all 2,044 lead and GRR water services lines will be $25 million, with an annual estimated cost of $2,460,000 beginning in 2027.

2.3 Current Funding Considerations

Understanding the various funding mechanisms available is crucial for the City to begin planning future replacements and sequencing replacement work with other infrastructure projects. Funding sources may include, but are not limited to:

- Federal loan and grant programs
- State loan and grant programs
- County grant programs
- Local revenue sources, such as water and sewer rates

The City's eligibility to obtain funds from any of the above sources will be dependent on the requirements of that funding source. At this time, the City of Macomb is assessing what funding programs and local revenue sources will minimize the debt service and overall financial impact on the City and its consumers.

If the City implements a cost-share program with property owners, the City understands that consideration needs to be given to how funds will be obtained from the property owner. The following are a list of options, but are by no means all inclusive:

- Request property owner to pay at or before replacement occurs.
- Rebate property owner after replacement occurs.
- Provide a payback period for the property owner utilizing water billing or other method.
- Provide a differed loan to property owner, until either the property is refinanced or sold.

3 REPLACEMENT PROCEDURES

Under the ILSLRNA, partial lead and GRR water service line replacement is prohibited, except in the event a property owner has denied access. To facilitate and complete the replacement of the entire water service line, from the water main to the first interior shut-off valve or 18-inches within the property, work is completed both within the City right-of-way as well as on private property.

A lead or GRR water service line replacement shall be completed in accordance with the ILSLRNA, LCRR, Illinois Plumbing Code and City ordinances. Requirements vary depending on if the City or the property owner initiates replacements.

3.2 Community Initiated Replacement Procedure

When the City initiates the replacement of a lead service line, whether planned or during emergency maintenance efforts, the City must follow specific procedures during the bidding process, resident notification process and at time of construction. Below identifies the various replacement scenarios. These procedures are based on current state and federal regulations.

3.2.1 Minorities, Women, and Persons with Disabilities Act

Per the ILSLRNA, the City is to make a good faith effort to use contractors and vendors owned by minority persons, women, and persons with a disability for not less than 20% of the total contracts, as defined in Section 2 of the Business Enterprise for Minorities, Women, and Persons with Disabilities Act.

1. Contracts representing at least 11% of the total projects shall be awarded to minority-owned businesses.
2. Contracts representing at least 7% of the total projects shall be awarded to women-owned businesses.
3. Contracts representing at least 2% of the total projects shall be awarded to businesses owned by persons with a disability.

In order to meet the above standards, the City will request bidders to post in the local newspaper in order to reach contractors and vendors owned by minority persons, women, and persons with a disability.

3.2.2 Scheduled Water Service Line Replacements

A scheduled replacement is when the City has an upcoming project, such as a watermain replacement project, sewer replacement project, or a lead and GRR water service replacement project, where lead or GRR water service lines are known or suspected and will be physically disturbed, requiring full replacement of the service line. Under these circumstances, the City will complete the following:

1. At least 45 days prior to replacement, the City or the City's representative shall contact the property owner by written notice of the potentially affected service line to request access and permission to replace the lead or GRR water service line.
    a. If the property owner does not respond within 15 days, the City shall post the request on the building entrance.
        i. If private side replacement is denied due to the property owner not granting access to the property, the City will request that the property owner should sign the Illinois Department of Public Health's (IDPH) Waiver of Complete Lead Service Line Replacement. The City may continue with the replacement of the public side and continue with steps 2 through 5.
            1. If a property owner of a nonresidential building or residence operating as a rental property denies a complete water service line replacement, the property owner is responsible for installing and maintain point-of-use filters at all fixtures intended to supply water for the purpose of drinking, food preparation or making baby formula. The filters must meet NSF/ANSI 53 and NSF/ANSI 42 for the reduction of lead.
        ii. If the owner fails to respond, the City shall notify IDPH within 30 days by filling out the Partial Lead Service Line Replacement – IDPH Notification Form. The City may continue with the replacement of the public side and continue with steps 2 through 5.
2. At least 14 days prior to replacement, by mail/posted at entrance/electronically, the City or the City's representative shall notify the owner and occupants of the upcoming replacement. The notice will include the following information:
    a. The replacement of the lead or GRR water service line may result in a temporary increase in lead levels.
    b. Information on best practices to reduce lead in drinking water
    c. Information regarding health dangers to young children and pregnant women.
3. The standard method of conducting full lead service line replacement shall be directional drilling, which will minimize the area disturbed by construction and reduce restoration costs. However, site conditions will vary and may require other construction methods, such as pulling a new water service line or performing open-cut replacement.
    a. When using directional drilling or the pulling construction method, a water service line may be replaced at or in close proximity to the same location of the existing lead or GRR water service line, even if water-sewer service separation requirements are not met, so long as the water service line is either encased or Type K Copper is used, and there is no observed leak on the sewer service per IDPH's Sewer/Water Service Separation Variance. In the event of open-cut replacement, if the water-sewer service separation requirements are not met, the water service will require encasement.
4. At the time of replacement, the City shall provide the property owner with a Point-Of-Use Filter or Pitcher Filter meeting NSF/ANSI 53 and NSF/ANSI 42 requirements and provides up to 6-months of filtration.

5. Within 24 hours of replacement, the City shall notify the owner and occupants of the executed replacement, including:
    a. The replacement of the lead or GRR water service line may result in a temporary increase in lead levels for the next six months.
    b. Information on best practices to reduce lead in drinking water, including the flushing procedures described in Section 4.3 Flushing Procedure After Lead Service Line Replacement.
    c. Information regarding health dangers to young children and pregnant women.
    d. Offer to have the property's water sampled for lead in the next 3 to 6 months by the City or City representative.

3.2.3 Emergency Water Service Line Repair and Replacements

An emergency replacement is when the City disturbs a lead or GRR water service line during unplanned maintenance, such as a water main break or water service line leak. The City may temporarily repair the lead service line and maintain water service, however by disturbing a lead service line, full replacement will then be required.

1. At the time work is initiated, by mail/posted at entrance/electronically, the City shall notify the owner and occupants of the lead service line and provide a Point-Of-Use Filter or Pitcher Filter meeting NSF/ANSI 53 and NSF/ANSI 42 requirements until such time that the remaining portions service line have been replaced or replacement is waived. The notification shall include:
    a. The replacement of the lead or GRR water service line may result in a temporary increase in lead levels.
    b. Information on best practices to reduce lead in drinking water
    c. Information regarding health dangers to young children and pregnant women.
    d. Information on how to use the provided water filter (pitcher or point-of-use)
    e. Information on the upcoming full water service line replacement and required coordination efforts.
2. From the time of the repair, the City has 30 days, or 120 days in the event of weather or other circumstances beyond reasonable control that prohibits construction, to facilitate the full replacement of the lead or GRR water service line.
        i. If replacement is denied due to the property owner not granting access to the property, the City will request that the property owner should sign the Illinois Department of Public Health's (IDPH) Waiver of Complete Lead Service Line Replacement.
            1. If a property owner of a nonresidential building or residence operating as a rental property denies a complete water service line replacement, the property owner is responsible for installing and maintain point-of-use filters at all fixtures intended to supply water for the purpose of drinking, food preparation or making baby

formula. The filters must meet NSF/ANSI 53 and NSF/ANSI 42 for the reduction of lead.

ii. If the owner fails to respond, the City shall notify IDPH within 30 days by filling out the Partial Lead Service Line Replacement – IDPH Notification Form.

3. The remaining replacement procedures will follow steps 2 through 5 below.

3.3 Property Owner Initiated Replacement Procedure

When the property owner initiates the replacement of a lead service line, whether planned or during emergency maintenance efforts, the property owner and City must follow specific procedures during prior to and at time of replacement. These procedures are based on current state and federal regulations.

3.3.1 Scheduled Water Service Line Replacement

A scheduled replacement is when the property owner is planning to replace their lead or GRR water service line. This may be due to wanting to remove the lead or GRR water service line or may be due to other property improvements requiring an increase in size of their water service line. Under these circumstances, the property owner will complete the following:

1. **The property owner must notify the City at least 45 days before commencing work to replace the lead or GRR water service line.**
2. The City of Macomb requires property owners to obtain a permit for water service line replacements, which can be initiated by contacting the City's Building Department.
    a. The City will provide the following information to a property owner intending to replace their lead or GRR water service line.
        i. The replacement of the lead or GRR water service line may result in a temporary increase in lead levels for the next six months.
        ii. Information on best practices to reduce lead in drinking water, including the flushing procedures described in Section 3.4 Flushing Procedure After Lead Service Line Replacement.
        iii. Information regarding health dangers to young children and pregnant women.

3.3.2 Emergency Water Service Line Repair and Replacement

An emergency replacement is when property owner disturbs their lead or GRR water service line during unplanned maintenance, such as water service line leak. The property owner may temporarily repair the lead or GRR water service line and maintain water service, however by disturbing the service line, full replacement will then be required. Under these circumstances, the property owner will complete the following:

1. The property owner must provide filters in each kitchen area. The filters must meet NSF/ANSI 53 and NSF/ANSI 42 requirements for the reduction of lead and particulate.

2. If the property owner notifies the City of the completion of the emergency repair, the City has 30 days, or 120 days in the event of weather or other circumstances beyond reasonable control that prohibits construction, to complete the replacement of the public portion of the lead or GRR water service line.
    a. At the time of the public side replacement, the City will provide a Point-Of-Use Filter or Pitcher Filter meeting NSF/ANSI 53 and NSF/ANSI 42 requirements and provides up to 6-months of filtration. Additionally, the City will provide notice to the property owner and occupants of the completed lead or GRR water service line replacement. The notice will include:
        i. The replacement of the lead or GRR water service line may result in a temporary increase in lead levels for the next six months.
        ii. Information on best practices to reduce lead in drinking water, including the flushing procedures described in Section 3.4 Flushing Procedure After Lead Service Line Replacement.
        iii. Information regarding health dangers to young children and pregnant women.
        iv. Offer to have the property's water sampled for lead in the next 3 to 6 months by the City or City representative.

3.4 Flushing Procedure After Lead Service Line Replacements

At the time of a lead or GRR water service line replacement, lead particles can migrate into a property's plumbing during the construction effort. Due to this, it is strongly recommended that property owners flush out all the plumbing within the property.

The following flushing instructions are in accordance with ANSI/AWWA C810-17 (First Edition) Replacement and Flushing of Lead Service Lines Section 4.4.2 "Flushing by the customer after lead service replacement". Property owners should follow the below flushing instruction the day of replacement or before water is used following a lead or GRR water service line replacement to reduce particulate lead. The steps below should be followed every two weeks for three months following replacement. Hot water should not be used until initial flushing is complete.

1. Locate all faucets in the building, including laundry tubs, hose-bibs, bathtubs, and showers.
2. Remove aerators and screens from faucets where possible, including showerheads.
3. Open faucets in the basement or lowest floor in the building. Using cold water, leave faucets running at the highest rate possible.
4. Open faucets on the next highest floor in the building, going from lowest level to the highest level in the building, until all faucets are open on all floors in the building.
5. Once all faucets are open, leave the water running for at least 30 minutes.
6. After 30 minutes, turn off faucets in the order they were opened.
7. Clean aerators or screens at each faucet.