



Department Source: City Utilities - Sewer/Stormwater

To: City Council

From: City Manager & Staff

Council Meeting Date: May 20, 2019

Re: Report: Evaluation of proposals to expand Sewer Utility cost reimbursement programs.

Executive Summary

Staff has prepared for Council consideration a report on proposals to expand the Cost Reimbursement Program for Private Source Inflow and Infiltration Reduction and the Cost Reimbursement Program for the Installation of Pressure Sewers/Backflow Devices or Removal of Plumbing Fixtures in the Sanitary Sewer Utility, as requested by Councilperson Thomas.

Discussion

On July 17, 2017 City Council authorized amending the City Code to establish a cost reimbursement program for the installation of pressure sewers and backflow prevention devices or the removal of plumbing fixtures. The program provides reimbursement for the three most effective and reliable interventions to address basement backups due to wet weather sewer surcharges. There is currently \$100,000 in the Sewer Utility budget to reimburse qualified applicants 50% of the cost of this private property improvement up to a maximum amount depending on the improvement option chosen by the owner. Since July 2017, there have been three applications for the cost reimbursement program for the installation of pressure sewers, backflow prevention device or removal of plumbing fixtures. Staff has met with the owners, performed property inspections and issued determinations of eligibility. All three properties were approved for participation in the backup program. Once the property owners complete the improvements, the reimbursement can be provided. Property owners have not completed the necessary improvements and no reimbursements have been provided to date.

On December 4, 2017, City Council authorized amending the City Code to update the Inflow and Infiltration Reduction Program to more closely align with the cost reimbursement program. Reimbursement for the inflow and infiltration reduction program items are 100% of the cost up to a maximum amount. There is currently \$100,000 available in the Sewer Utility budget to reimburse qualified applicants for these private property improvements. Since 2017, there have been three applications for the inflow and infiltration reduction program. Staff has met with the owners, performed property inspections and issued determinations of eligibility. One property is approved for participation in the private source inflow and infiltration reimbursement program and the other two were determined not to be eligible as their defect was not a significant source of inflow and infiltration. For portions of the work that do not directly reduce significant inflow and infiltration, the one eligible property is seeking financial assistance through Housing Programs Division of the Office of Neighborhood Services existing programs as further discussed below.



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Previous to the 2017 program upgrades, the Inflow and Infiltration Reduction reimbursement program had a total of \$21,817.02 of reimbursements over five years benefitting 33 property owners. The Sewer Utility has been spending approximately \$2.7 million each year focused on rehabilitating the public system, mains and manholes, to reduce inflow and infiltration. The yearly rehabilitation addresses less than 2% of the sewer system, which means it will take many years to rehabilitate the public system for inflow and infiltration reduction. The cost reimbursement programs are a mechanism to support private property owners in reducing sources of inflow and infiltration and basement backup prevention through private property improvements.

Request: Proposal to expand existing cost-reimbursement programs for backflow preventers and grinder pumps, to include additional private side interventions (such as overflow basins in basements, other items that may be recommended by City staff).

Response: Under the current reimbursement program, a qualified property owner has three options available to them to address the issue of qualifying sewer backups:

1. Installation of a backflow prevention device, 50% reimbursement of cost up to a \$1,000 maximum reimbursement
2. Removal of plumbing fixtures below grade, 50% reimbursement of cost up to a \$1,000 maximum reimbursement
3. Installation of a pressure sewer system, 50% reimbursement of cost up to a \$4,000 maximum reimbursement

Solving basement backup and wet basement problems can require multiple steps to reduce the problem and may never completely eliminate it. These programs provide homeowner assistance for the most reliable and effective long term solutions. Please note, a backup prevention device or these plumbing modifications will not resolve basement water problems caused by cracks in walls, floors, window well leakage, and surface water flooding. The program also reimburses 50% of the cost, up to a \$1,000 maximum reimbursement, for the installation of a new sump pump if needed which can assist in removing excess water from the basement for those homeowners with a qualifying sewer backup issue.

In response to Councilperson Thomas's request, Staff researched similar programs and found that the City of Columbia's program aligns with those offered by other municipalities in the surrounding area. However, each situation is unique and may require a different approach in order to effectively address the issue of sewer backups.

The current program provides a significant benefit to the property owner in the staff time and resources made available to the applicant to troubleshoot these complex issues. Upon receipt of a completed application, staff will gather information from the City's GIS sewer maps as well as maintenance records for the public sewer main serving the property. The applicant is then contacted to schedule an in-home inspection with a Sewer Utility engineer. During the inspection, staff inspects the private sewer lateral for deficiencies as well as the home for potential inflow and infiltration sources that could be contributing to the sewer



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backup. Staff will also determine the low floor elevations of the property as it relates to plumbing fixtures and compare to the rim elevation of the City manhole located immediately upstream of the point of connection to determine the likelihood/severity of a potential sewer backup.

Upon completing the inspection and preparing a report, staff will meet with the applicant to discuss the findings and educate them on the different options available to them for reimbursement. This allows the applicant to make an informed decision as to which method of backflow prevention they install to improve their private property. The decision can vary based upon how much risk the applicant is willing to accept versus the cost of the chosen method. In general, the lower cost methods offer a lower level of protection against future backups.

Based upon the research conducted and the in-home inspections completed to date, the current City of Columbia Cost Reimbursement Program for the Installation of Pressure Sewers and Backflow Prevention Devices or the Removal of Plumbing Fixtures provides reimbursement for a sufficiently broad range of effective and reliable interventions to address sewer backups.

Request: Proposal to expand existing Inflow and Infiltration remediation program to include stormwater management and mitigation practices (such as dirt banking, swales, French drains, rain gardens, catchment basins, sump pumps, and rerouting driveway grates away from the sewer system and into the stormwater system, other items that may be recommended by City staff) and to expand funding for the program.

Response: The current cost reimbursement program for the removal of private source inflow and infiltration (I&I) provides reimbursement to qualified property owner for the following items:

1. Sump Pump (disconnect existing pump from sewer and permanently discharge outside of residence), 100% reimbursement of cost up to \$1,000 reimbursement
2. Downspout disconnection from sewer (up to 4), 100% reimbursement of cost up to \$500 reimbursement with a maximum unit price of \$125.00 each
3. Service Lateral, 100% reimbursement of cost up to \$2,500 reimbursement with a maximum unit price of \$30 per foot
4. Sewer Service Connection, 100% reimbursement of cost up to \$1,900 reimbursement
5. Pavement Restoration in street rights-of-way, 100% reimbursement of cost up to \$4,500 reimbursement with a maximum unit price of \$115.00 per square yard

Staff has identified two additional potentially significant sources of inflow and infiltration that could be included in this reimbursement program. One reimbursement for the disconnection of driveway/stairwell/patio area drains that have a contributing area larger than 75 square



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feet. Staff will need to do some evaluation on reasonable reimbursement amounts for this item. Depending on the circumstances, it could be a costly improvement. A second reimbursement would include the installation of a sump pump, minor site grading around the property or minor concrete work to direct storm water runoff away from a stairwell drain or window well. These items would be reviewed on a case by case basis. Staff will develop ordinance revisions that include reimbursement for both of these items for Council consideration.

The success of the inflow and infiltration reduction program will be dependent on the most efficient utilization of the sewer funds made available for inflow and infiltration reduction. For this reason, Section 22-217.3(2) of the City Code of Ordinances gives the director of utilities the authority to deny any application where it is determined that improper inflow and infiltration are likely not occurring or there is minimal impact on the public sewer system.

As part of the application process, an identified source of improper inflow and infiltration is evaluated based upon its potential impact on the system and rated as minimal, moderate or significant. This evaluation takes in to account the nature of the source as well as the wet weather capacity of the public sewer system in the associated sub-basin. An improper source of inflow and infiltration in an area with known sewer backups and wet weather overflows will have a greater impact on the system than in a sub-basin with no known wet weather issues.

Other stormwater management and mitigation practices on residential property, such as raingardens and infiltration practices, do not typically have a direct reduction in improper inflow and infiltration flow to the sewer system. Sewer Utility funds should focus on work that eliminates a direct connection to the sanitary sewer system.

Staff can continue to evaluate developing Storm Water Utility reimbursement programs for privately installed storm water management practices (raingardens and infiltration practice) to improve storm water management. It will be necessary to identify a public benefit for using public money to fund storm water management features on private property. Effective long term maintenance of these installations can be difficult, especially for rain gardens or swales or French drains (infiltration practices). A change in ownership can quickly change the effectiveness of the practice if an owner removes the device or fails to maintain it. However, if so directed, the Storm Water Utility could investigate development of a small grant program to support private property storm water management improvements where there is public benefit. At this time, the two engineering staff members for storm water are focused on Capital Improvement Projects to reduce significant flooding concerns and failing infrastructure and compliance with our MS4 (Municipal Separate Storm Sewer System) permit requirements. Development and implementation of this type of program would require additional resources in the Storm Water Utility.

Request: Proposal for making all city residents eligible for a 50% reimbursement for approved back-up prevention costs and establishing an income/means test for providing additional



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reimbursement up to 100% for homeowners for whom the improvements would create an economic hardship.

Response: The current reimbursement program offers a 50% reimbursement to any property owner that meets the following minimum criteria:

1. Building sewer lateral is connected directly to the city's public sewer main, inside or outside of the corporate limits of the City of Columbia
2. Building was permitted prior to May 9, 2011
3. Owner shall be in a City sewer customer in good standing with all fees and charges due to the City.
4. All sources and potential sources of infiltration and inflow must be eliminated as part of the program

Current exemptions from the program that should remain in place include properties that are connected to private common collectors and those connected to Boone County Regional Sewer District, the Sewer Utility does not maintain the sewer systems to which they are connected, and newly constructed buildings (permitted after May 9, 2011) as plumbing codes subsequent to this date have required permitted buildings to install backflow prevention devices as needed.

In response to the second half of this request, Sewer Utility staff is working with the Housing Programs Division of the Office of Neighborhood Services. Currently, the Housing Programs Division offers a Minor Home Repair Program (up to \$10,000). This program promotes neighborhood stability by making 0% interest loans to qualifying low-and-moderate income property owners to make necessary improvements to their homes, including plumbing repairs. Sewer Utility staff will continue to partner with the Housing Programs staff to assist low to moderate income property owners with funding their private property improvements to address basement backups or direct sources of inflow and infiltration. This type of partnership has already proven to be a success as the Minor Home Loan Program currently partners with the Water & Light Department's Enhanced Home Performance with Energy Star program.

By running an applicant concurrently through both the Sewer Utility's cost reimbursement program and the Minor Home Repair Program, the qualifying applicant would receive the following benefits:

1. 0% interest deferred loan on the first \$5,000 in assistance through the Minor Home Repair Program
2. Any amount of assistance exceeding \$5,000 will be repaid with monthly payments of \$25 until the loan amount exceeding \$5,000 has been paid in full
3. 50% reimbursement to the loan for qualifying work from the Sewer Utility's cost reimbursement program
4. \$1,000 grant from the Minor Home Repair Program
5. Guidance through the application and construction process from the Housing Specialist with the Minor Home Repair Program



Sewer Utility staff and Housing Program staff have already worked together to approve a Minor Home Loan Repair program participant for additional reimbursement for work covered under the Cost Reimbursement Program for Private Source Inflow and Infiltration. Currently, the participant has received an approved determination of eligibility for the repair of the sewer service connection and associated pavement restoration within right-of-way. Final reimbursement amounts will be determined upon receipt of an approved scope of work with the cost of these items broken out. By working with the Minor Home Loan Repair program, property owners can acquire funding for the incidental costs of the improvement work such as tile, paint, carpet, etc. which are not included in the sewer reimbursement program.

It is anticipated that participation in these reimbursement programs will increase moving forward. This is expected to increase due to increased efforts to inform property owners of the availability of these reimbursement programs through the City's website, City Source and staff participation in neighborhood association meetings. The proposed reimbursements to address driveway / stairwell / patio drains and the availability of the Minor Home Repair Program for qualified applicants should also increase participation. Increased participation will increase actual operating expenses for the Sewer Utility. The Integrated Management Plan recommends funding the backup reimbursement program at a level of \$500,000 over the first five years. Currently, \$100,000 is budgeted for both reimbursement programs. Increased participation will warrant increased funding in the future to a level of \$100,000 for each program or a total of \$1,000,000 over the first five years.

Fiscal Impact

Short-Term Impact: No fiscal impact due to this report.
Long-Term Impact: No fiscal impact due to this report.

Strategic & Comprehensive Plan Impact

[Strategic Plan Impacts:](#)

Primary Impact: Infrastructure, Secondary Impact: Social Equity, Tertiary Impact: Not Applicable

[Comprehensive Plan Impacts:](#)

Primary Impact: Infrastructure, Secondary Impact: Livable & Sustainable Communities, Tertiary Impact: Not Applicable

Legislative History

Date	Action
11/05/2018	Report Status of the Cost Reimbursement Program for the Installation of Pressure Sewers and Backflow Prevention Devices or the Removal of Plumbing Fixtures
12/04/2017	



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07/17/2017	B351-17 Amending Chapter 22 of the City Code to update requirements relating to the inflow and infiltration reduction program.
05/15/2017	B190-17 Cost Reimbursement programs for installation of pressure sewers and backflow prevention devices or the removal of plumbing fixtures.
08/1/2011	REP38-17 Update on sewer system inflow and infiltration reduction efforts and impact on the reduction of overflows and sewer backups into buildings
03/7/2011	
07/23/2010	B192-11 Inflow & Infiltration Reduction Program Amendment B54-11 Inflow & Infiltration Reduction Program REP- 70-10 Inflow and Infiltration Reduction

Suggested Council Action

For information purposes only.