



# 2016 Subdrain Annual Inspection Report and Maintenance Summary

Prepared by the City of Rochester Public Works Department  
Engineering Division, Water Resources Section





## **2016 Subdrain Annual Inspection Report and Maintenance Summary Engineering Division, Water Resources Section**

In 2016 the City Council adopted a Subdrain and Edgedrain System Maintenance and Operations Policy. The policy intends for the City to provide consistent, cost effective and efficient design, operation and maintenance of the public subdrain system throughout Rochester. Under this policy, it is the City's intent to inspect every subdrain manhole every year. It is the City's intent to inspect approximately 20% of the subdrain pipes each year until data and trends are established that direct a different inspection schedule. This inspection from 2016-2020 will be performed by the City's Contractor.

The City Council adopted a resolution awarding the Subdrain Inspection, obstruction removal, maintenance and televising, 5 year contract to Rochester Plumbing/Roto-Rooter. Primary tasks include visual inspection of subdrain manholes, jetting and cleaning of subdrain pipes (4", 6", and 8" (Inch) perforated PVC), removal of the buildup of hard mineral deposits (calcite, flowstone, etc.), removal and cutting of roots, and other obstruction. Vacuuming and retrieval of the loosened obstructions after cleaning, and televising of the subdrain pipes, and other tasks as they relate to subdrain maintenance.

Funding for this work came from the Storm Water Utility Fund and will be capped at a maximum of \$200,000 per year. It is estimated that 5-6 miles of subdrain system will be maintained and jetted each year, so the entire subdrain system is to be cleaned within the 5 year contract. The main goal of the 2016 year was to establish a condition rating of the subdrain system, start routine maintenance, focus on the Rochester's deep subdrain pipes, and identify areas where major repairs are required.

The following pages and tables summarize the 2016 maintenance activities and costs associated with maintenance performed. The report also summaries major maintenance goals for the upcoming 2017 calendar year.

**Table 1. 2016 Subdrain Maintenance Costs and Description of Maintenance Performed**

<b>Month</b>	<b>Location/Subdivision</b>	<b>Total Invoice Cost</b>	<b>Maintenance Description</b>
January	Meadow Park	\$3,060.00	High pressure water Jet, root cutting, sand removal in lines.
April	Apple Ridge	\$12,549.00	High pressure water Jet, mineral cutting, debris and obstruction removal from lines and manholes.
May	Meadow Park and North Park	\$12,810.00	Roots and hard mineral removal.
Spring Manhole inspections	All Subdivisions	\$13,230.00	Visual Inspection of all Subdrain Manholes, condition assessment, and future maintenance planning.
June	North Park and NW areas	\$37,661.95	High pressure water Jet, mineral cutting, debris and obstruction removal from lines and manholes.
August	North Park	\$19,085.63	Hard mineral removal and Televising of subdrain main lines.
September	Multiple Subdivisions	\$19,270.00	High pressure water Jet, mineral cutting, debris and obstruction removal from lines and manholes.
October	Fox Croft Sewer Correction	\$4,800.00	Correct subdrain and sanitary sewer issue.
October	Ridgeview Manor Sewer Correction	\$4,800.00	Correct subdrain and sanitary sewer issue.
October	Multiple Subdivisions	\$7,740.00	Hard mineral removal and Televising of subdrain main lines.
November	Multiple Subdivisions	\$15,501.00	High pressure water Jet, mineral cutting, debris and obstruction removal from lines and manholes.
November	Subdrain Main Repair in 44 <sup>th</sup> AVE NW.	\$10,800.00	Excavate and replace portion of subdrain main in street.
Fall Manhole inspections	All Subdivisions	\$14,595.00	Visual Inspection of all Subdrain Manholes, condition assessment, and future maintenance planning.
December	Multiple Subdivisions	\$8,936.00	Hard mineral removal and Televising of subdrain main lines.
	<b>Total</b>	<b>\$180,038.58</b>	

**Table 2. 2017 Priority Work Areas (Future Maintenance and Inspection) Identified thru the Visual Inspection Process**

**General Maintenance Goals:**

1. Increase amount of jetting and mineral removal at all sites.
  - a. Per linear foot of subdrain main each year.
2. Continue visual manhole inspection, minimum 2 times per year.
  - a. Problem areas may review 3 times per year.
3. Continue GIS map updates.
  - a. Provide all as-built plans to the contractor for detailed maintenance.
4. Continue to monitor for illicit connections.
  - a. There does not appear to be additional cross connections suspected at this time.
5. Perform Edgedrain and inspection and maintenance in one subdivision to determine costs and develop baseline for program.

**High Priority Maintenance on Specific Subdivisions:**

6. North Park Area
  - a. Highest priority to continue to use high pressure water jet and grind and remove mineral from pipes and manholes.
    - i. Continue to have subdrain main issues, both obstructions and voids in pipes.
  - b. Approximately 40% of subdrain mains were successfully jetted in 2016 (15,000 feet).
    - i. Does not mean the pipe is back to its original 6" capacity.
  - c. Requires 4 or more spot resin liners in pipe voids.
7. Carla Lane NW and 26<sup>th</sup> AVE NW
  - a. Continue to perform mineral removal on the main line in Carla Lane NW. Currently 70% clogged. If mineral grinding is not successful, may require multiple street openings.
  - b. Connection Permit Information indicates 16 houses are connected in this stretch of roadway.
8. Apple Ridge
  - a. Continue to Jet and grind mineral from pipes.
  - b. Locate backyard subdrains and jet pipes if feasible with equipment.
  - c. Install manhole structure to provide access at the subdrain at Apple Ridge BLVD SW.
9. Rocky Creek Glendale Hills
  - a. Continue to Jet and remove mineral from pipes.
  - b. Jetted 100% of mains in 2015 and 2016, (5,000 feet).
    - i. Does not mean the pipe is back to its original 6" capacity.
10. Meadow Park
  - a. Priority to continue to Jet for root removal, some small amount of mineral build up.
  - b. Mains have sand in pipes.
  - c. Visual inspection important in this subdivision, may increase to 3 times per year.
  - d. May require spot liners in rusted CMP pipes or in voids.
    - i. Only location in town that metal subdrains are present (6",8", and 10")

**Table 3. 2016 Subdrain Manhole Inspection Comparison Summary Spring and Fall**

Spring (June-July)		Fall (November - December)		Corrective Action
Number of Manholes	Description	Number of Manholes	Description	Summary
47	Could not locate in the field either from mapping errors or were buried.	12	Could not locate in the field either from mapping errors or were buried.	Corrected mapping errors, cleanouts drawn on as Manholes. Located buried manholes in yards and streets, exposed to surface.
382	Inspected between 6/20 and 7/12	417	Inspected between 11/28 and 12/02	Documented Inspection Findings, includes pictures and maps.
29	In Bad or Poor Condition	48	In Bad or Poor Condition	Highest priority for repair and main line cleaning where necessary. 2 <sup>nd</sup> Inspection rated more manholes in bad or poor condition.
38	In Fair Condition	29	In Fair Condition	Secondary priority for repair and main line cleaning where necessary.
315	In Good Condition	340	In Good Condition	No additional scheduled maintenance on manholes.
429	Total Mapped Manholes in GIS	429	Total Mapped Manholes in GIS	Updates in GIS.
Inspection Cost	\$13,230.00	Inspection Cost	\$14,595.00	

**Figure 4. 2016 Subdrain Main Line Findings**

Spring (June-July)		Fall (November - December)		Summary
Number	Description	Number	Description	
2	Verified Cross connections at Residential Properties (sanitary to subdrain).	0	Verified Cross connections at Residential Properties (sanitary to subdrain).	City Contractor dug up cross connections in street or BLVD to make necessary repairs.
1	Other Utility Bored thru subdrain.	0	Other Utility Bored thru subdrain.	Utility company hired contractor to remove utility and repair subdrain main.
2	Main line clog's (water is draining but unable to jet)	1	Main line clog identified but still draining.	1 under further investigation. May require street opening in early spring as emergency repair.
		1	Requires a new manhole to be constructed in the Street.	The Apple Ridge Line located in backyards between Regent Lane and Haralson Lane, blind ties to the Storm Sewer. Install a manhole at this junction in Apple Ridge BLVD.
		4	Void's in Subdrain Main	Schedule to line with resin liner in 2017.