

**2023**

# 2023 Sanitary Collection System Performance Report

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**EDWARDSBURGH  
CARDINAL**

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For: CAO and Council  
1/22/2024

## Introduction

Under Environmental Compliance Approval Linear (ECA) # 155-W601 issued by the Ministry of Environment, Conservation and Parks (MECP), Edwardsburgh/Cardinal is required to prepare and submit an annual performance report for the Sanitary Collection System by March 31<sup>st</sup> of the following year. The performance report covers the period of January 1<sup>st</sup> to December 31<sup>st</sup>, 2023 and is submitted to council and MECP. The report is also made available for public viewing on the Township site.

The Cardinal Sanitary Collection system includes four sanitary lift stations, four force mains and pipework ranging in size from 200 mm to 450 mm comprised of clay, PVC and CIPP lined main. Flow discharges to the Cardinal WPCP for treatment.

The Spencerville Sanitary Collection System was commissioned in 1989 and consists of approximately 4000 meters of PVC piping ranging in size from 100mm to 250 mm. The system utilizes two remote and one main pumping station that pumps sewage via a 125 mm force main to one of two facultative stabilization ponds for treatment.

The Edwardsburgh Cardinal Industrial Park Sanitary Collection System consists of gravity pipework ranging in size from 300 mm to 914.4 mm comprised of reinforced concrete and PVC. Flow discharges into the Town of Prescott's WPCP for treatment.

**Executive Summary**

The annual performance report summarizes monitoring data, operational problems, inspection and maintenance programs, calibration activities and overflow events for the Edwardsburgh-Cardinal sanitary collection system. Alterations and efforts to reduce collection system overflows are discussed in this report.

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**System Approvals**

<b>System</b>	<b>Linear ECA</b>	<b>Renewal Date</b>
Edwardsburgh/Cardinal Sewage Collection System	155-W601	June 15, 2026

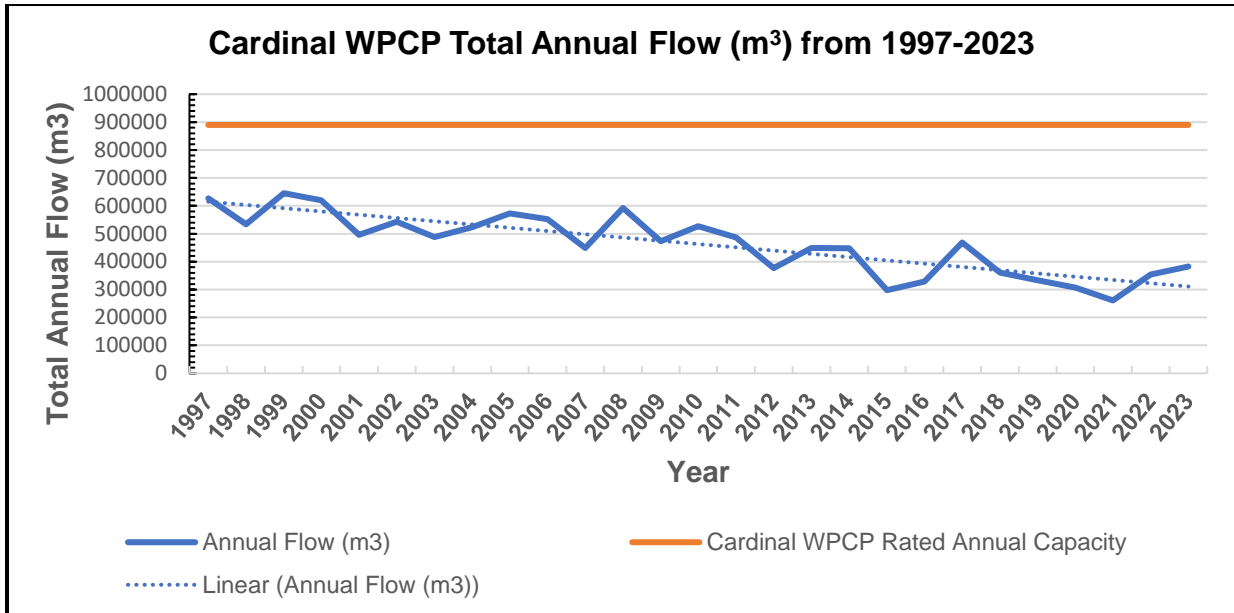
**Sanitary Collection System Monitoring Data**

<b>Month</b>	<b>Cardinal North side Adelaide Station (m<sup>3</sup>)</b>	<b>Cardinal South side</b>	<b>Spencerville Alum Building (m<sup>3</sup>)</b>	<b>Industrial Park Prescott WPCP (m<sup>3</sup>)</b>
January	20,952	29,983	8,433	10,916
February	16,206	20,532	6,975	12,917
March	20,776	26,102	8,679	15,123
April	22,373	33,077	11,232	13,951
May	13,720	26,175	8,063	8,990
June	5,908	13,797	3,207	5,397
July	6,866	13,639	3,130	6,254
August	8,169	13,442	3,391	8,565
September	7,078	11,660	2,975	4,144
October	7,651	11,889	3,102	6,622
November	8,040	10,552	3,373	6,626
December	15,179	19,020	5,972	10,989
<b>Summary (m<sup>3</sup>)</b>				
Minimum	5,908	10,552	2,975	4,144
Maximum	22,373	33,077	11,232	15,123
Average	12,743	19,156	5,711	9,208
<b>Total</b>	<b>152,918</b>	<b>229,868</b>	<b>68,532</b>	<b>110,494</b>
Measurement	Daily Readings collected off ABB Totalizer for all flow on north side of Cardinal.	Calculation. Totalized flow at Cardinal WPCP minus Adelaide Stn Flow.	Readings collected off ABB Totalizer for all Collection System flow.	Prescott WPCP calculates Industrial Park usage by taking the difference from Station 6 and 5 flow meter readings.

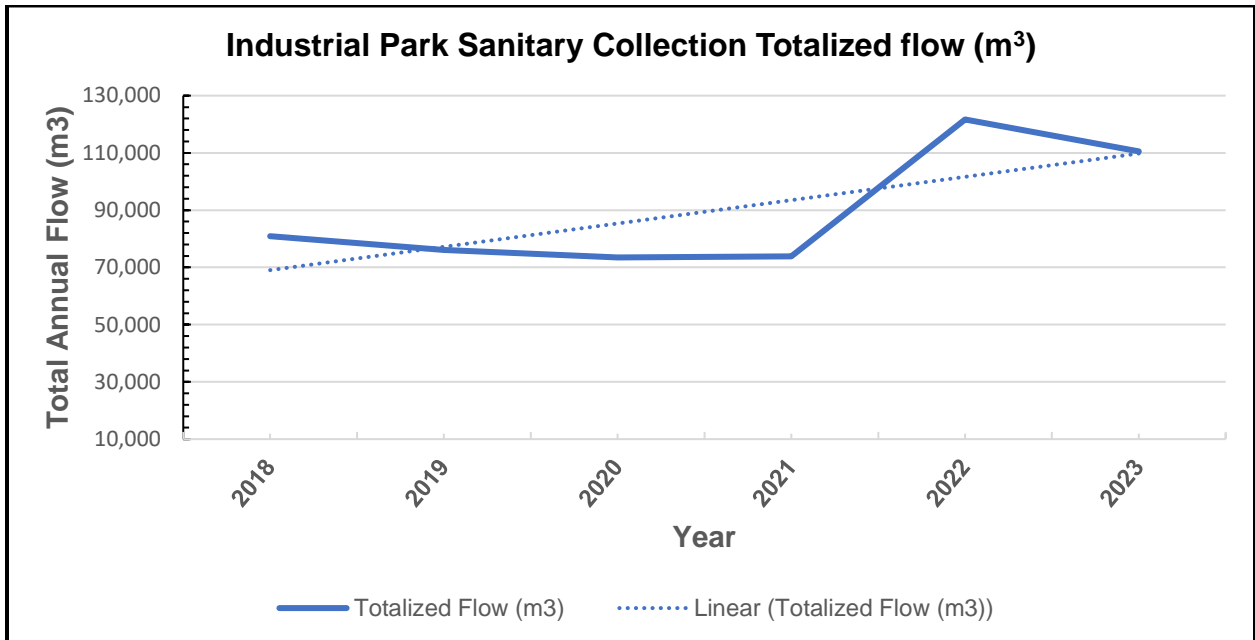
**Monitoring Data Trending Review/ 5-year review**

Totalized sanitary flow into the Cardinal WPCP has been steadily declining since 1997. This can be attributed to reduced infiltration as a result of sanitary main replacement and CIPP lining as well as reduced use resulting from a potable water metering program.

Cardinal WPCP Totalized Flow

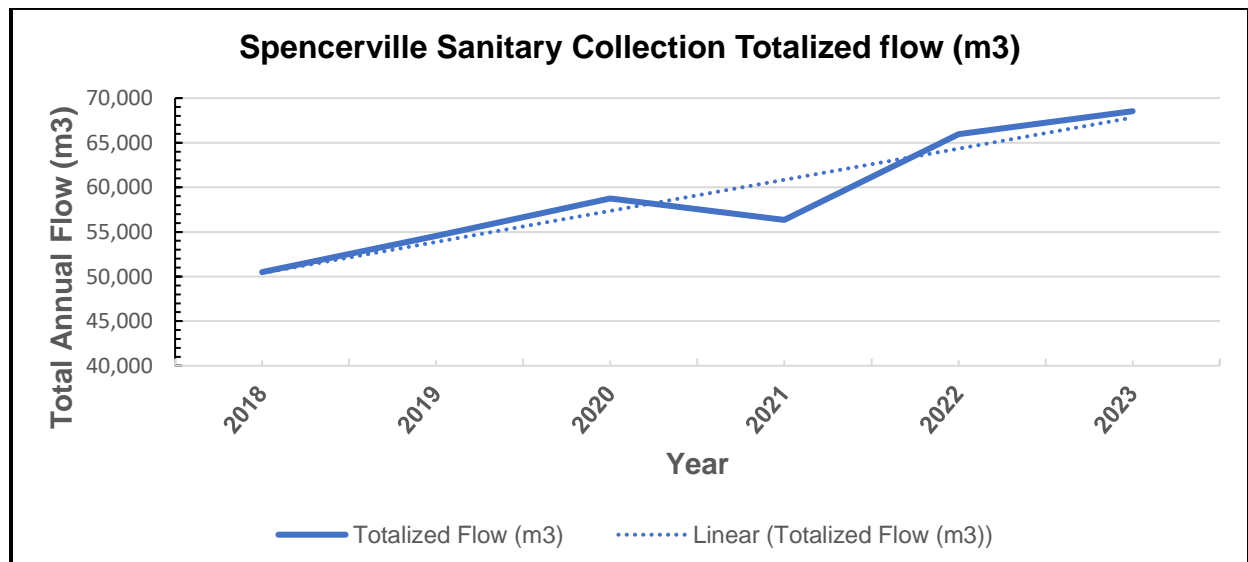


Industrial Park Sanitary Collection Consumption



Totalized flow into the Prescott WPCP steadily declined from 2018 through 2021. Flow has increased between 2021 to 2023 due to increased industrial usage and above average precipitation. Sanitary manhole rehabilitation work is scheduled to be completed in 2024 to help address infiltration.

Spencerville Sanitary Collection Annual Consumption Review



Totalized flow into the Spencerville lagoons has steadily increased from 2018 through 2022. A Wet vs Dry Flow Assessment study was performed to assess infiltration. Manhole rehabilitation work is planned for 2024 to help address and reduce infiltration.

**Inspection, Maintenance, Repair and Operational Problems**

The following is a summary of inspection, maintenance, repair and operational problems for the sanitary collection systems.

**2023 Inspection, Repairs and Maintenance Summary**

<b>Cardinal</b>			
<b>Date</b>	<b>System</b>	<b>Asset ID</b>	<b>Inspection/Corrective Action</b>
January 11, 2023	Hwy 2 Pumping Station	605	IECBL completed electrical upgrade.
March 1, 2023	Adelaide Station	604	GAL Power performed semi-annual generator servicing.
March 24, 2023	Adelaide Station	604	Chart recorder losing power. Capital Controls repaired relay board in recorder.
March 28, 2023	Sanitary manholes	See Form	Inspected multiple manholes
April 12, 2023	Henry St Pumping Station	603	Inspected overflow pipework. No issues identified.
April 14, 2023	Sanitary manholes	See form	Inspected multiple manholes.
April 26, 2023	Sanitary lateral	N/A	Replaced sanitary lateral to main on Dundas Street.
May 2, 2023	Sanitary manholes	See form	Inspected multiple manholes
May 4, 2023	Adelaide Station Henry St Station Highway 2 Station Flett St Station	604 603 605 2608	CWW high pressure cleaned. CWW high pressure cleaned. Inspected- okay. Inspected- okay.
May 31, 2023	Sanitary lateral	N/A	Replaced no corrode pipework connecting into manhole on Adelaide Street.
June 13-14, 2023	Sanitary lateral	N/A	Replaced no corrode pipework to main on John Street.
July 4, 2023	Henry St Pumping Station	603	Installed overflow notice signage.
September 27, 2023	Adelaide Station Henry Station Sanitary manholes	604 603	High pressure clean Adelaide/Henry Street Stations and 3 sanitary manholes.
September 28, 2023	Highway 2 Pumping Station	605	Capital Controls replaced Greyline PSL 5.0 controller.
October 25, 2023	Adelaide Station	604	GAL Power performed semi-annual generator service.
November 23, 2023	Highway 2 Pumping Station	605	Cleaned pressure sensor, inspected pressure board and re-established communication.
November 23, 2023	Henry St Station	603	Inspected overflow pipework, no issues identified.
<b>Spencerville</b>			
<b>Date</b>	<b>System</b>	<b>Asset ID</b>	<b>Inspection/Corrective Action</b>
January 11, 2023	Spencerville Station 1	2605	Clean and inspect floats.
February 2, 2023	Spencerville Station 2	2606	Pulled and unplugged pump..

Date	System	Asset ID	Inspection/Corrective Action
February 2, 2023	Spencerville Station 3	2607	Pulled and unplugged pump.
February 21, 2023	Spencerville Station 3	2607	Pulled and unplugged pump.
March 1, 2023	Spencerville Station 1	2605	GAL Power serviced generator (semi-annual maintenance).
March 13, 2023	Spencerville Station 2	2606	Pulled and unplugged pump.
March 17, 2023	Spencerville Station 1	2605	Clean floats.
April 6, 2023	Spencerville Station 1	2605	Inspected overflow pipework. No issues identified.
April 24, 2023	Spencerville Station 1	2605	Replaced float. IECBL rewired float and replaced pump relays.
May 4, 2023	Spencerville Station 1	2605	IECBL replaced remaining pump relays.
May 4, 2023	Spencerville Station 2 Spencerville Station 3	2606 2607	Clean Water Works high pressured cleaned wells.
May 15, 2023	Spencerville Station 2	2606	Pull and unplug pump.
June 12, 2023	Spencerville Station 1	2605	GAL Power replaced generator transfer switch ( <b>Capital project</b> )
June 20, 2023	Spencerville Station 3	2607	Pulled and unplugged pump.
July 12, 2023	Spencerville Station 1	2605	Pulled and unplugged pump.
July 24, 2023	Spencerville Station 3	2607	Pulled and unplugged pump.
July 25, 2023	Spencerville Station 1	2605	Re-painted all doors.
Sept 8, 2023	Spencerville Station 3	2607	Pulled and unplugged pump.
Sept 18, 2023	Spencerville Station 3	2607	Pulled and unplugged pump.
Sept 25, 2023	Spencerville Station 3	2607	Replaced west pump. Purchased new pump.
Sept 27, 2023	Spencerville Station 1 Spencerville Station 2 Spencerville Station 3	2605 2606 2607	High pressure clean High pressure clean. High pressure clean.
Sept 27, 2023	Spencerville manholes	MH 29-34	Vacuumed sanitary manholes on David and Irving Street.
October 10, 2023	Spencerville Station 3	2607	Pull and unplug pump.
October 12, 2023	Spencerville Station 1	2605	Semi-annual inspection of overflow pipe completed.
October 13, 2023	Spencerville Station 3	2607	Delivered notices to residents regarding what to flush and not flush/ Pull and unplug pump.
October 26, 2023	Spencerville Station 1	2605	GAL Power serviced generator (semi-annual). Cleaned floats
October 27, 2023	Spencerville Station 1	2605	Replaced north pump due to higher running amperages.
November 7, 2023	Generator	N/A	Replaced portable generator.
November 20, 2023	Spencerville Station 1	2605	Pulled and unplugged pump.
December 8, 2023	Spencerville Station 1	2605	IECBL repaired wiring in panel and north pump unplugged.
December 9, 2023	Spencerville Station 1	2605	Pulled north pump and unplugged. Replacing once new pump arrives.

Date	System	Asset ID	Inspection/Corrective Action
December 14, 2023	Spencerville Station 2 Spencerville Station 3	2606 2607	Replaced galvanized pump guide rails with stainless steel.
December 27, 2023	Spencerville Station 1	2605	Pull and unplug north pump.
December 29, 2023	Spencerville Station 1	2605	Falcon Security serviced storage door contactor.
Industrial Park Sanitary System			
Date	System	Asset ID	Inspection/Corrective Action
September 21, 2023	Industrial Park	N/A	Inspected all sanitary manholes. Two identified for repairs to address infiltration.

### Cardinal Sanitary Collection Rehabilitation Program

Ongoing efforts are occurring to reduce extraneous flow into the collection and treatment systems. Below is a summary of capital maintenance activities since 2011.

Year	Street	Project
2011	Joseph Street	CIPP lined.
2011	George Street	CIPP lined.
2012	East Street	CIPP lined.
2012	Victoria Street	CIPP lined.
2012	Middle Street	CIPP lined.
2012	Dundas Street	CIPP lined.
2012	Gill Street	Sanitary main and manholes replaced.
2013	Hoy Street	CIPP lined.
2013	Adelaide Street	CIPP lined.
2013	County Road 2	CIPP lined.
2016	James Street	Sanitary main and manholes replaced.
2017	Walter St Easement	CIPP lined
2018	William-Henry Easement	CIPP Lined
2018	Walker Street	Sanitary main and manholes replaced.
2019	Marjorie Street	CIPP lined.
2022	Helen/Walker to Helen/Shanly Road.	CIPP lined.
2023	County Road 2/St Lawrence to 740 County Road 2.	Sanitary main and manholes replaced.

### Sanitary Main flushing and CCTV Inspection Program

Edwardsburgh Cardinal routinely high pressure cleans sanitary mains to reduce the likelihood of backups. CCTV inspections are completed to assess and identify structural defects and prioritize mains for CIPP work or replacement.

Cardinal			
Year	Sanitary Main(s)	Cleaning	CCTV Inspection
2018	Walker, Adelaide, Marjorie Streets	High Pressure cleaning.	Walker Street
2019	Dishaw, Canal, West Streets	High Pressure cleaning.	N/A
2020	County Road 2	High Pressure cleaning.	N/A
2021	George, Benson, Helen, William, Flett and Loyalist Streets	High Pressure cleaning.	William and Helen Street
2022	East, Middle, Victoria and Dundas Streets.	High Pressure cleaning.	N/A



Year	Sanitary Main(s)	Cleaning	CCTV Inspection
2023	Dundas Street West and portion of easement	High Pressure cleaning	Dundas St and portion of easement.
2023	New Street, Adelaide Street (West)	High Pressure cleaning	New Street.
Spencerville			
Year	Sanitary Main(s)	Cleaning	CCTV Inspection
2012	Goodin Road, Bennett, South, Spencer, David, Cedar, Irving, Water Streets	High Pressure Cleaning	All CCTV inspected
2020	Center, Ryan, David, Cedar, Charles, Irving, South Streets. Station 3 Force main.	High Pressure cleaning	All CCTV Inspected
2022	Charles, David, Cedar, Irving Streets.	High Pressure cleaning	All CCTV Inspected
2023	County Road 44/Sloan to Pumping Station # 1.	High Pressure cleaning	N/A
Industrial Park			
Year	Sanitary Main(s)	Cleaning	CCTV Inspection
2016	Giant Tiger Blvd.	High Pressure Cleaning	CCTV Inspected
2016	County Road 2	High Pressure Cleaning	CCTV Inspected
2020	Commerce Drive	High Pressure Cleaning	

**Summary of Calibration and Equipment Maintenance**

Capital Controls is sub-contracted to completed annual calibrations and repairs to process equipment. The following work was completed during the 2023 review period.

Date	System	Activity	Corrective Action (if applicable)
January 12, 2023	Spencerville	Calibration	Calibration failed. Internal alarms could not be cleared to perform test. Purchased and received new mag meter and controller. Installation plan pending in 2024.
March 24, 2023	Adelaide Station	Chart Recorder	Capital Controls repaired board in chart recorder at Adelaide Pumping Station.
July 11, 2023	Adelaide Station	Calibration	Capital Controls performed annual calibration of ABB Flow meter.

**Summary of Complaints**

The following complaints were received during the reporting year.

<b>Date</b>	<b>System</b>	<b>Complaint</b>	<b>Corrective Action(s)</b>
April 12, 2023	Cardinal- Dundas Street	Sewer lateral stoppage	Checked upstream and downstream manholes- okay. Morrisburg Plumbing augured and CCTV Inspected lateral. No-corrode lateral replaced from house to sewer main on April 26, 2023. Cost: \$7000.
June 11, 2023	Cardinal- John Street	Sewer lateral stoppage	Lateral augured and CCTV inspected. No-corrode lateral replaced to main on June 13-14, 2023. Cost- \$15,000
August 10, 2023	Spencerville- Bennett Street	Sewer Lateral Stoppage	Lateral augured and CCTV inspected. Issue identified on private property. Homeowner to correct. Cost: \$ 300
October 7-8, 2023	Cardinal- Helen Street	Sewer lateral stoppage	Plumber had no success with auguring transite lateral. Lateral replaced from property line to sanitary main on October 8, 2023. Cost: \$5000
December 30, 2023	Cardinal- County Road 2	Sewer lateral stoppage.	Homeowner augured. Follow up CCTV inspection will be completed in 2024.

**Alterations to Authorized System**

Approximately 750 meters of existing sanitary main was replaced on County Road 2, Cardinal in 2023. One additional sanitary manhole was installed during this project. The replacement project was not identified to be a significant drinking water threat.

**Collection System Overflows and Leaks**

The following Sanitary Collection System overflows occurred in 2023.

Spencerville Pumping Station # 1 (Asset ID #2605)

Spills Action Reference # 1-34RL40

No adverse impacts observed or reported. Report submitted to MECP.

<b>Date</b>	<b>Start Time</b>	<b>End Time</b>	<b>Volume (m<sup>3</sup>)</b>	<b>Loading Concentration</b>	<b>Disinfection</b>
April 5, 2023	19:00	02:30 April 6, 2023	35	Total Suspended Solids: 2.4 Kg BOD: 1.2 kg Total Phosphorus: 0.05 kg TKN: 0.40 kg E.Coli: 86,250,000	No

- April 5, 2023 loading concentration calculations used grab sample results (collected on August 8, 2022) as part of the Linear ECA sampling requirements for stations with overflows.

**Sanitary Force Main Break**

**September 1-4, 2023:** Operator observed abnormal pump trending at Adelaide Pump Station. Further investigation indicated a leak but location unknown (chart recorder shows leak started at approximately 9:00 a.m. on August 31. Notifications made to Spills Action Center (Reference # 1-3SRPPV), Leeds, Grenville & Lanark Health Unit

and downstream user. Environmental Services reached out to two leak detection companies but options were limited. Leak surfaced on September 4<sup>th</sup>. Environmental Services coordinated an emergency bypass at Adelaide Station and completed repairs on force main. Flow meter totalizer shows 978 m<sup>3</sup> of raw sewage discharged from leak prior to bypass operations. No adverse impacts observed or reported. Report submitted to MECP.

### Efforts made to reduce Collection System Overflows, Spills, STP Overflows and/or STP Bypasses.

#### Capital Upgrades and Maintenance

Edwardsburgh/Cardinal is proactively working to reduce infiltration and collection system overflows. Approximately 750 meters of sanitary main was replaced on County Road 2 in Cardinal in 2023 and 2.0 kilometers in total since 2012. Approximately 4 kilometers of sanitary main have been CIPP lined. Annual sanitary main flushing is completed to reduce the likelihood of backups and overflows.

Edwardsburgh/Cardinal contracted Stantec Consulting to complete a Wet Vs Dry Flow Assessment of the Spencerville Collection System. The report concluded the overflow event that occurred at Spencerville Station # 1 and the secondary discharge did not occur during an average precipitation year. The report provided recommendations including: sanitary relining, pump drawdown testing at Station # 1 and flow monitoring. Sanitary manhole rehabilitation work is being planned in 2024 to reduce the impacts of infiltration.

The transfer switch at Spencerville Station # 1 was identified to be obsolete with no availability of spare parts. The transfer switch was replaced to reduce the likelihood of a power disruption causing an overflow or bypass event. Aging pump relays were replaced at Spencerville Station # 1 to reduce the likelihood of a pump failure. Two sanitary pumps were replaced in Spencerville due to impellor wearing and frequency of plugging.

#### Monitoring

Sanitary pumping stations in Cardinal with Greyline level transmitters also have a secondary pressure sensor in the event there is a loss of signal. This adds redundancy and reduces the risk of overflows or bypasses.

Routine rounds are completed three times a week at all sanitary pumping stations. Pumps and amperages are monitored to ensure pumps are operating as designed. Pumps with higher-than-normal amperages are pulled and cleaned. High Level and/or power loss alarms are tested weekly to verify proper communication of alarm signals.