



Maintenance holes located in roadside ditches and gutters were the major source of surface water inflow into the sewer-shed.

The purpose of the project was to construct and calibrate a computer model in order to identify the specific infrastructure needs within the existing sewage collection system.



Project Facts

Client: Loyalist Township

Scope of Work:

- Visual survey
- Preparation of a working computer model of the collection system
- Calibration of the computer model
- Smoke testing and CCTV inspections
- Determination of the design capacity of specific pipe sections
- Identification of system deficiencies
- Final report preparation.

Project Cost: \$22,000 (2005)

Sanitary Sewer Collection System Model Amherstview, Loyalist Township

In 2005, the Ainley Group was retained by Loyalist Township to undertake an analysis, study and report of the sewer infrastructure needs of the Briscoe Area – Amherstview using computer modeling. The purpose of the project was to construct and calibrate a computer model in order to identify the specific infrastructure needs within the existing sewage collection system.

The Ainley Group used database information provided by the Township to develop a computer model of the Briscoe Area – Amherstview sanitary sewer collection system using SewerCAD (computer software program developed by Haestad Methods). A sanitary sewer flow-monitoring study was conducted from March 2 to March 11, 2005 and March 30 to April 26, 2005 to gather data used to calibrate the computer model.

Smoke testing and CCTV inspections of some areas of the system were also undertaken as part of this project. Although the results of these investigations did not identify any significant structural deficiencies, a number of multiple-point sources of extraneous flows were found.

Conclusions and Recommendations

It was apparent that the major source of inflow to the Briscoe Area sewer-shed was caused by surface water flow into sanitary sewer maintenance-hole tops located within street gutters. Additionally, many other maintenance holes are located within roadside ditches with lid elevations lower than the top of the ditch; resulting in significant inflow during periods of ditch surcharge. Such surcharge is probable when the outlet culvert is blocked or partially blocked by snow/ice and or debris during spring run-off or heavy rainfall events.

To prevent surface water from entering, it was recommended that inflow protectors be inserted in all maintenance holes located within the roadside ditches and gutters. Inflow protectors are shallow ABS, PVC or HDPE dishes, which are installed on the maintenance-hole frame beneath the lid. The inflow protectors are a cost-effective solution (\$100/ea) and can be fitted by municipal staff since they do not require specialized skills for installation.