



City of Markham Strategy to Reach 100% Compliance and Zero Infrastructure Damages

June 2025

The Challenge and Current Outcome

In October 2022, when the Administrative Monetary Penalties (AMPs) were posted for public comment and Ontario One Call (OOC) started to issue compliance reports in mid 2022, the City of Markham locates compliance record was in the range of 0 to 55% for locates of water, wastewater, stormwater, streetlights and traffic signals. This was alarming as the preliminary estimates considering the proposed AMPs at the then performance levels it pointed to \$7 million per month to cover the cost of AMPs or approx. \$84 million per year. At the time of the Ministry of Public and Business Services Delivery (Ministry) posting, it was noted the AMPs would likely be in effect by April 2023. This provided a window of only six (6) months to make necessary adjustments towards avoiding any potential penalties.

In a span of six (6) months, the City was able to turn around the performance record to nearly 100% compliance for all City utilities, and by February 2023, to a consistent 100% compliance. This accomplishment was in part attributable to a combination of technology, contract negotiations with Locate Service Provider (LSP), hiring additional LSP, standardizing internal procedures, and City staff inter-departmental collaboration.

Initial Steps to Tackle the Locates Challenge

All locates for the City of Markham were handled by two Departmental teams: Environmental Services (ES) for the locates on water, wastewater and storm; and Operations (OPS) responsible for streetlights and traffic signals. Both Departments had different delivery models (Table 1).

Table 1. City of Markham's Locate Delivery Models

Department	Delivery Model	Asset Type	Staff/Resources Involved
Environmental Service (ES)	In-house by Waterworks Operations staff	Water, Wastewater and Stormwater	2 Non-union + 4 Unionized
Operations (OPS)	One Locate Service Provider (LSP)	Streetlights Traffic Signals	2 Non-union + External LSP Contractor

Both Departments had the similar key performance indicator (KPI) of 0 to 55% regulatory compliance. Consistently, the lowest performance was during the construction season from April to November of every year. Since October 2022, and for the following two months, City staff collaboratively shared and analyzed internal procedures, staffing levels, process bottlenecks, potential process streamlining and improvement based on existing budgets and magnitude of estimated AMPs.

A jurisdictional scan was also completed reaching out to nine (9) Ontario municipalities. The insights shared by those municipalities assisted the City's inter-departmental team to have a better appreciation of other alternative delivery models, compliance records, and plans for addressing the new AMPs. The information on lessons learned by implementing different approaches, allowed City staff to have a wider perspective with the objective to improve performance records at a reasonable cost, amending contract

terms with external LSPs and assess implementability to resolve internal bottlenecks in the short and long terms. The level of cooperation by other municipalities was stellar and valued by staff and senior leadership.

Steps Taken to Improve Performance in the Short-Term

By December 2022, City staff was able to identify three plausible scenarios: outsourcing with SLPs, in-house or hybrid delivery models. In considering these scenarios, it was acknowledged the time implications associated with the intertwined internal processes for:

- (a) the annual budget cycle, which was concluded at that time for 2023.
- (b) the current SLP was under contract on annual basis and it had been extended for another year in December 2022.
- (c) the potential procurement for additional LSPs, which require anywhere between 2- to 6 months depending on procurement option.
- (d) the internal recruitment processes, which requires higher levels of authorization and budget allocations, typically linked to annual budget cycles.

Considering the time implications noted above, City senior leadership provided direction to staff to further develop and start implementation of a comprehensive plan for the short- and long-terms. The **short-term plan** considered a hybrid approach whereby existing processes were to be optimized by making adjustments to the internal in-house approach, change order to the existing LSP contract for better control over the Contractor performance and by procuring a second LSP for one more year to ensure levels of compliance were increased in the short term. The short-term plan was defined as to be implemented immediately to cover the 2023 calendar year in a transitional approach working towards implementing the long-term plan.

This short term plan completed by Environmental Services Department for In-House part of locate services involved a re-organization from the current Waterworks Operations – Customer Service group (Figure 1), which is the group who oversee all customer service requests including Ontario One Call locate requests. This group is staffed with licensed Waterworks Operators, who are responsible for addressing customer service requests including water meters, water shut-offs & turn-ons, water quality and pressure issues, among other tasks.

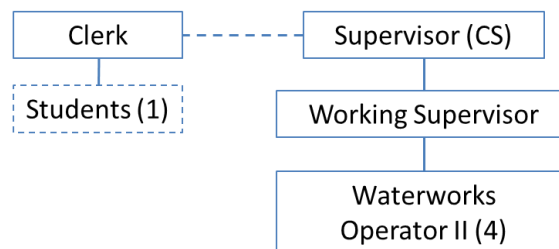


Figure 1. Waterworks Operations - Customer Service, Organizational Structure for Locates

The amount of time the existing Customer Service group dedicates to locates activities was possible to extract based on the CMMS recorded work orders. The new Customer Service structure involved the creation of one new unionized position, the Municipal Utility Locator. This new position would be dedicated to complete locates on full time basis, and also assist the Waterworks team at times of low

demand for locates during the Winter months. The new organization structure for the Customer Service group is illustrated in Figure 2.

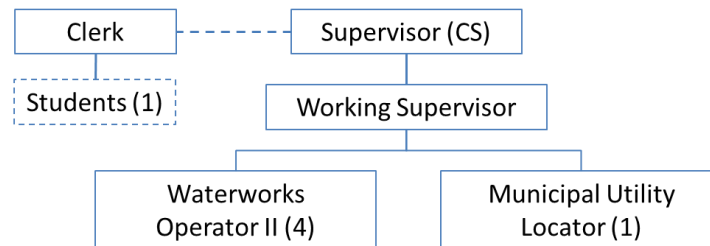


Figure 2. Customer Service Reorganization (Short-Term plan)

The new Customer Service short-term reorganization plan implemented in early 2023, considered additional time dedicated to locates with the new Municipal Utility Locator spending 100% of the time on locates field work. Starting in May 2023, after budget approval, the recruitment process and training necessary for this new full time position was completed in October 2023.

The short-term improvement plan undertaken by Operations Department for the locate of Streetlight and Traffic Signal outsourced to external LSPs involved:

- 1- Increase the frequency of Vendor Performance Evaluation of the existing LSP contractor and meet with the executive team of the contractor on monthly basis to review locate compliance report, share the City concerns about locate response time, ensure compliance to contract terms and regulation requirements as well as review possible solutions to improve the locate performance. The City closely monitoring the contractor performance and negotiation on rate adjustment for 2023 resulted that the LSP's cooperation in adding new resources including staff and equipment and gradually improved the performance level from 10% in April 2022 to 100% in January 2023.
- 2- Prepared a Change Order for 2023 contract renewal added new terms and conditions to enable the City to hold the Contractor accountable and provided tools and measurements for better control over the Contractor performance. The new provisions required LSP to reduce the locate unit rates by certain percentage for any non-compliant tickets and authorized the City to terminate the contract based on number of non-compliant performances and notices issued to the contractor by the City. Furthermore, a term was added to the contract provided the City the authority to hire additional LSPs at sole discretion of the City based on the locate performance and volume of locates requests.
- 3- Hired a second LSP in shortest time possible and divided the Streetlight and Traffic Signal Locate scope between the two LSPs to ensure 100% performance compliance is maintained during construction season.

Steps Taken to Improve Performance in the Long-Term

The **long-term plan** considered a fully centralized **in-house** approach. This plan involved:

- Achieving Full Compliance through Strategic Transformation: Through leadership's operational reform, the City improved locate performance from historical lows to a

consistent 99-100% compliance rate, achieved since early 2023. This milestone ensures excavators receive timely, accurate information essential for safe digging.

- **Innovation through Automation for Advanced Safety:** The City adopted an Enterprise Asset Management (EAM) system as its new Computerized Maintenance Management System (CMMS). The EAM system incorporates as-built drawings and GIS mapping and is able to link with Ontario One Call (OOC) database. The linkage between EAM and OOC database enables automation in some locate requests promoting efficient and accurate locates processing. EAM also allows locators to report incorrect information in the system. This self-correction mechanism helps improve system data and GIS accuracy contributing to excavation safety.

The City also had a great collaboration with Ontario One Call (OOC) staff to establish data communication between OOC data and the City's EAM data. This process links the City's EAM work orders with customer service request and OOC's 360 Feedback and automated some administrative processes. These new technologies greatly ensured both regular locates and emergency locates are completed within their respective time frames and finished in an accurate manner protecting dig safety, even when the locate volume increased significantly through the year. This eliminated some manual steps, which decrease the risk of delays and errors.

- **Cultural Transformation Through a New Human Resources Strategy:** Created a brand-new position, the "Municipal Utility Locator". This new position and three new Full Time Employees (FTEs) assisted in the implementation of the new strategy, along with a robust training program to foster a culture of safety (Job Description and Competency assessment form enclosed). The City proactively established standard operating procedures (SOPs) and work instructions (WIs) for its utility locates processing. These initiatives established a consistent, accountable framework that promotes a safety-first culture (enclosed).
- **Innovative Dig Safe Strategies:** Prior to 2023, the City averaged 4-5 claims for contractor's damaging City infrastructure associated with miss locates. After completing an analysis of historic occurrences, City staff developed internal procedures that evolved CCTV camera to identify buried assets for providing more precise locate information for digging on residential infill development projects. This strategy reduced the number of claims to zero (0) since 2023.
- **Industry Leadership & Advocacy:** The City's successful story through Ontario One Call's monthly reports were noticed by other Ontario One Call members. OOC members continuously approach the City to inquire about its successful rapid improvement. Ontario One Call also noted the City's improvement and in 2023 requested the City to provide a case study for OOC's training material. By sharing the City's successful transition, the City advocates higher safety standards and lead by example, inspiring industry-wide improvements.

In conclusion

Implementation of both short- and long-term plans, required critical actions, some of which were already in the making, such as the new CMMS. The new CMMS implemented in July 2022, allowed staff to work with Ontario One Call staff to integrate communication of data sets that would allow the management of locate request and automation more efficiently. The CMMS had been in the planning and development phase for two years already. The coincidence of having a brand new, more capable CMMS linking work orders with customer service request and now with the Ontario One Call system, was critical in automating some administrative steps for the 360 Feedback process. In summary, the different pieces for the immediate and rapid success to bring the compliance levels from 0-55% to a consistent 100% since January/February 2023 involved in no particular order:

- brining a new LSP for the outsource of streetlights and traffic signals in 2023.
- negotiation of the existing contract with the existing LSP to ensure levels of compliance were complied with and maintained.
- new CMMS, which afforded opportunities for automating administrative processes.
- great collaboration with Ontario One Call staff to make the necessary data communication linkages to bring the Ontario One Call raw data into the City's CMMS.
- development of new procedures, clear definition of roles and responsibilities.

Figure 3 illustrates the automated processes vis-à-vis the manual process to complete the locates including the administrative and field work. This success story is an ongoing story still with components in the making and important parts to be defined and implemented.

Process Flowchart – LOCATES (Oct 2022)

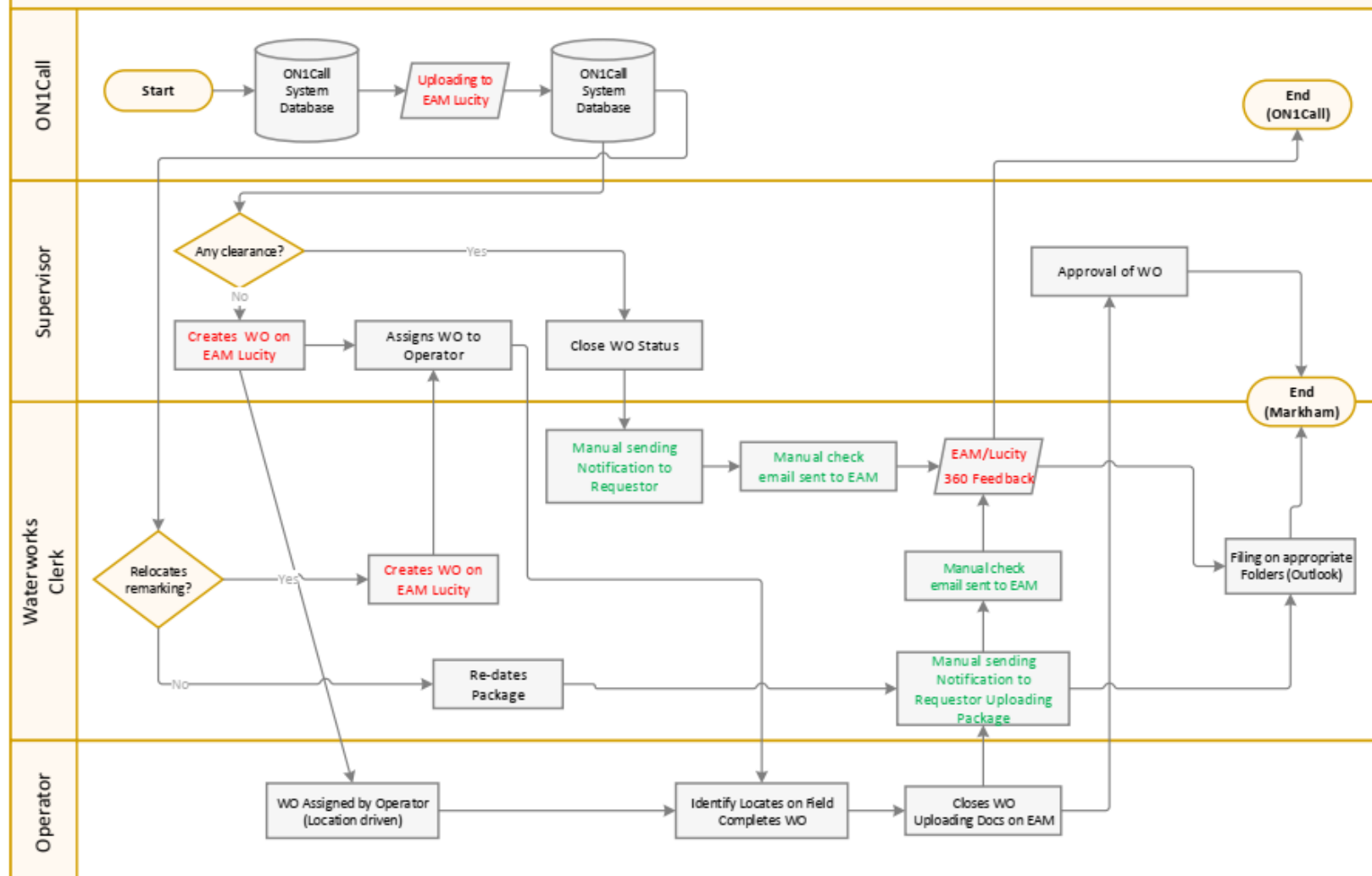


Figure 3. Waterworks Process Flowchart for Locates