



BRAMPTON

Flower City

Security Services

Recording of Traffic Cameras Impact on Security Services

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Ver 2.9

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1. Scope

This document will outline the anticipated impacts and estimated budget requirements for Security Services if the City of Brampton implements the recording of video footage at intersections where traffic cameras are currently installed. This document will also provide estimated costing provisions in relation to the expansion of the project to other intersections around the City. Security Services will be responsible for the implementation, maintenance, and overall administration of these “traffic monitoring cameras” and will provide footage/assistance to Law Enforcement Agencies, Traffic Services, Transit Operations, and members of the public (in accordance with FOI and MFIPPA).

2. Background

Historically the cameras at City of Brampton traffic intersections are used by the City of Brampton Traffic Service Management department to view current traffic, and road conditions. Given the current utilization it was not necessary for these cameras to be recorded. City Council has requested that staff report back on the viability of recording these cameras for the purposes to aid Law Enforcement during traffic and criminal related investigations.

3. Current State of CCTV at Traffic Intersections

Currently there are 20 Pan/Tilt/Zoom (PTZ) cameras installed at intersections around the City. Their locations are listed in Appendix “A”. These cameras are not recorded and are running on Digital Video Recorders (DVR) with no recording hard drives installed. While these PTZ cameras suited the needs of Traffic Service Management, these types of cameras will not suffice for collision investigations, as PTZ’s do not provide optimal fixed coverage of a given area (PTZ’s are best utilized for active video monitoring rather than historical video footage review). All the cameras transmit their signal via the Region of Peel’s fibre optic network back to the City’s CCTV system. Servicing these cameras requires coordination with both internal and external groups. These include:

- IT-Network access
- City of Brampton Traffic Services- access to traffic control box
- Traffic Light Service Company- camera replacement (labour and boom lifts), power and communications issues
- Security Vendors- supply and troubleshooting of camera issues

The security systems team cannot currently access the traffic control boxes or directly access the cameras.

4. Assumptions

Security Services has made the following assumptions in the writing of this report

- The ability to read a license plate from these cameras is not required
 - This ability can be added in the future, and would require significant additional funding.

- Street light levels will be adequate for low light cameras at night (approximately 0.16 lux at its lowest).
- All intersections will have:
 - Access to the fibre optic network
 - Conduit space to the camera location
- Cameras/recorders experiencing technical problems will be responded to within 3 hours, with complete repair(s) in 72 hours. This will require coordination/response from:
 - Security Services
 - City of Brampton IT
 - Region of Peel Fibre Optic team
 - Third party contactors
- Camera locations will be within the recommended distance specifications for cabling.
- Location environment has no issues or obstructions that will prevent the installation.
- Service levels with respect to Law Enforcement viewing video will be maintained (24/7) and will require additional staffing levels.

5. Requirements

The below recommendations are based on the current known information at the time of writing.

Cameras

- Replace all cameras with high mega pixel 360-degree cameras to allow for better coverage, higher quality video, better low light views, and wider areas of coverage.

Digital Video Recorders

- The digital video recorders (DVR's) currently being used will require upgrades (to the latest model), for video retention and to support the increased load. Based on the current number of cameras four [X1232 Series Hybrid Recorders](#) (2 primary units and 2 live back-up units) will be required.
- The DVRs will require racks with UPS backup. These racks will need to be in a secure climate controlled environment.

Security Systems Technician

- Due to the high profile and complexity of these cameras, Security Services will require one full time security technician to provide support, service and maintenance of cameras and the system.
- A full time technician will allow Security Services to maintain continuity of service in a 24/7/365 environment. The technician will maintain/repair the system, and coordinate with the various required third parties, allowing the City of Brampton to control the priority and quality of the service.

Access to the Traffic Control Boxes

- Security Systems staff will require training to allow access to the traffic control boxes, as many of the camera issues involve either the power supply or the network, (both serviced via the traffic control box).

Video Review Staff

- Two full time video review staff will be required to allow for the efficient and effective collection and distribution of video evidence. Requests for video footage from Law Enforcement, Brampton Transit, members of the Public, and other City departments will increase significantly.
- Both staff will require video review workspaces (desk) PC, phones etc.

Physical Access to the Cameras

- Security Services will need to clearly outline expectations (including contractual updates) regarding response times and prioritization of service with the traffic light Contractor (i.e. priority for camera repairs and expected timelines).
- Security Services will require the ability to directly contact the traffic light contractor to arrange service. (Historically this has been completed by the City of Brampton Traffic Service Management however, due to the sensitivity and urgency surrounding recorded video the ability to contact the vendors directly to schedule work is required.

6. Maintenance

Preventative Maintenance

- Due the increased awareness of these cameras, regular preventative maintenance will be required. This will include:
 - Cleaning of the domes
 - Firmware upgrades
 - Hard drive checks (bad drive space, failing drives, storage space issues)
 - Cameras operation checks (Blocked images, dirty lens, blurry images)
 - Testing redundancies
 - Inspection of physical components

Demand Maintenance

- Designated as top priority, cameras experiencing service issues will require an initial response within 3 hours, with full repair within 72 hours.
- Demand maintenance will include issues caused by:
 - Weather
 - Animals
 - Environmental factors (snow, rain)
 - Damage
 - Hardware failure

All maintenance requiring accessing the physical camera will require the traffic light contractor to attend to provide lane closure, and boom lifts. Security Systems staff being trained and authorized to access to traffic control box will reduce the need for the third party vendor for some maintenance.

Service Spares

- Security will require a minimum of one spare DVR, and five spare cameras in inventory for this project. These will be used exclusively for the traffic monitoring camera system.

7. Budgetary Costing

Start-up Cost - Estimated (Table 1)

| | |
|---|------------------|
| New employees (1 x Tech + 2 x Video reviewer) (Table 2 + Table 3) | \$419,000 |
| Hardware and software (Table 4) | \$297,500 |
| Contingency | \$43,500 |
| Total estimated program start-up cost | \$760,000 |

Video Reviewer (per staff member) (Table 2)

| Description | Cost |
|--|------------------|
| Salary | \$102,000 |
| Desk Top PC | \$4,000 |
| Desk Phone | Nil |
| Cell phone | \$500 |
| Estimated Total per staff member | \$106,500 |
| Estimated Total for two staff members | \$213,000 |

Security Technician (Table 3)

| Description | Cost |
|--|------------------|
| Salary | \$114,500 |
| Tools | \$5,000 |
| Laptop | \$3,000 |
| Cell phone | \$500 |
| Third party training | \$10,000 |
| Truck/Van | \$70,000 |
| PPE (harness, safety line, work boots, etc.) | \$3,000 |
| Estimated Total | \$206,000 |

Upgraded Hardware (Table 4)

| Description | Unit Cost | Qty. | Extended |
|---|-----------|------|------------------|
| Digital Video Recorders | \$25,500 | 5 | \$127,500 |
| Cameras (Existing) | \$5,000 | 20 | \$100,000 |
| Cameras (Inventory) | \$5,000 | 5 | \$25,000 |
| DVR Racks (half rack with UPS and network switch) | \$5,000 | 2 | \$10,000 |
| Labour to install cameras and recording equipment | \$35,000 | 1 | \$35,000 |
| Estimated Total | | | \$297,500 |

Peel Regional Police Identified Intersections Cost – Estimated (Table 5)

| Description | Unit Cost | Qty. | Extended |
|--|-----------|------|------------------|
| Camera Package | | | |
| Cameras | \$5,000 | 20 | \$100,000 |
| Third Party Contractor Installation (Cameras and Related Infrastructure) | \$5,000 | 20 | \$100,000 |
| 15% Contingency | \$750 | 20 | \$15,000 |
| Camera Package Sub-Total (Estimated) | | | \$215,000 |
| DVR Package | | | |
| Digital Video Recorders | \$25,500 | 2 | \$51,000 |
| DVR Racks (half rack with UPS and network switch) | \$5,000 | 1 | \$5,000 |
| Installation | \$2,000 | 1 | \$2,000 |
| 15% Contingency | \$3,825 | 1 | \$3,825 |
| DVR Package Sub-Total (Estimated) | | | \$61,825 |
| Estimated Total | | | \$276,825 |

8. Future Planning

Every effort has been made to allow for realistic growth with the initial design. The recommended system size in this document will support up to 50 cameras. After 50 cameras are installed (25 per pair of DVR's) two new DVR's, the associated hardware and staff resources will need to be added to the system to support the additional cameras.

Additional 25 Intersections

Assuming: Fiber optical cable is present at the traffic box, and there is available conduit (Table 6)

| Description | Cost |
|--|------------------|
| Cameras (Qty. 1) | \$5,000 |
| Third Party Contractor Installation (Cameras and Related Infrastructure) | \$5,000 |
| 15% Contingency | \$750 |
| Estimated Total Per Camera | \$10,750 |
| Total Estimate (25 Cameras) | \$268,750 |

DVR Package To Support The Recording of 25 Additional Cameras

(Table 7)

| | |
|---|------------------|
| Digital Video Recorders (Qty. 2) | \$51,000 |
| DVR Racks (half rack with UPS and network switch) | \$5,000 |
| Installation | \$2,000 |
| 15% Contingency | \$3,825 |
| Estimated Total Per DVR Package | \$61,825 |
| Total Cost (25 Additional Cameras) (Table 6 + Table 7) | \$330,575 |

Given the anticipated success of the project and the assistance it will provide to law enforcement agencies (and to the Corporation of the City of Brampton), it follows that the number of recorded intersections will expand. As a result, Security Services in collaboration with Peel Regional Police identified twenty high priority intersections where traffic monitoring cameras are recommended to be installed. Note: these additional intersections have not be reviewed or approved by City of Brampton Traffic Services.

These high priority locations were determined based on the total number of collisions reported at those intersections between 2018 and 2022 inclusive. These locations are as follows:

(Table 8)

| # | Road Name | Cross Street | Intersection | Project Year |
|----|-----------------|---------------|-----------------------------------|--------------|
| 1 | Bovaird Dr | Hurontario St | Bovaird Dr and Hurontario St | 2 |
| 2 | Steeles Av | Rutherford Rd | Steeles Av and Rutherford Rd | 2 |
| 3 | Queen St | Kennedy Rd | Queen St and Kennedy Rd | 2 |
| 4 | Sandalwood Pkwy | Kennedy Rd | Sandalwood Pkwy and Kennedy Rd | 2 |
| 5 | Queen St | Bramalea Rd | Queen St and Bramalea Rd | 2 |
| 6 | Queen St | Main St | Queen St and Main St | 2 |
| 7 | Steeles Av | Mavis Rd | Steeles Av and Mavis Rd | 2 |
| 8 | Steeles Av | McLaughlin Rd | Steeles Av and McLaughlin Rd | 2 |
| 9 | Bovaird Dr | Kennedy Rd | Bovaird Dr and Kennedy Rd | 2 |
| 10 | Steeles Av | Kennedy Rd | Steeles Av and Kennedy Rd | 2 |
| 11 | Sandalwood Pkwy | Heart Lake Rd | Sandalwood Pkwy and Heart Lake Rd | 3 |
| 12 | Queen St | McLaughlin Rd | Queen St and McLaughlin Rd | 3 |
| 13 | Williams Pkwy | Main St | Williams Pkwy and Main St | 3 |
| 14 | Queen St | Goreway Dr | Queen St and Goreway Dr | 3 |
| 15 | Steeles Av | Torbram Rd | Steeles Av and Torbram Rd | 3 |
| 16 | Bovaird Dr | Bramalea Rd | Bovaird Dr and Bramalea Rd | 3 |
| 17 | Bovaird Dr | Torbram Rd | Bovaird Dr and Torbram Rd | 3 |
| 18 | Williams Pkwy | McLaughlin Rd | Williams Pkwy and McLaughlin Rd | 3 |
| 19 | Main St | Vodden Rd | Main St and Vodden Rd | 3 |
| 20 | Williams Pkwy | Rutherford Rd | Williams Pkwy and Rutherford Rd | 3 |

It is anticipated that the cameras at the top ten locations will be installed in year two of the program, with the remaining ten cameras being installed in year three.

Appendix “A”

Intersections with Existing Traffic Cameras

Queen St & Dixie Rd
Queen St & Airport Rd
Queen St & Hwy 50
Queen St & Hansen Rd
Hurontario & 407 North Terminal
Hurontario & Steeles Ave
Main St & Wellington St
Main St & Church St
Hurontario & Bovaird Dr
Hurontario & Sandalwood Pkwy
Queen St & Chapel St
Steeles Ave & Mississauga Rd
Steeles Ave & Airport Rd
Steeles Ave & Bramalea Rd
Bovaird Dr & Airport Rd
Bovaird Dr & Dixie Rd
Bovaird Dr & Great Lakes Dr
Bovaird Dr & Heart Lake Rd
Bovaird Dr & Ashby Field
Queen St & Rutherford Rd

