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The background of the page features a large, semi-transparent watermark of the Toronto Police Service crest. The crest is circular with a yellow border and contains a central shield with a crown, a caduceus, and two scales of justice. Above the shield is a pair of wings and a gear. The word 'TORONTO' is written across the top of the crest, and 'POLICE' is written across the bottom, flanked by two maple leaves.

TORONTO POLICE SERVICE

IN-CAR CAMERA

**PILOT PROJECT
EVALUATION**

JANUARY 2007

IN-CAR CAMERA PILOT PROJECT EVALUATION

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EXECUTIVE SUMMARY

The current in-car camera pilot project evolved from discussions between the Police Services Board and Service Command, that began in December 2003. At that time, the Board requested a report on the advantages and disadvantages of installing video cameras in Toronto Police Service cars. That report was followed in June 2004 with a report on the feasibility of establishing a pilot project involving cameras in TPS patrol cars. The Board supported a pilot project as part of the 2005 capital budget program and, in September 2004, approved capital funding in the amount of \$562,000 over two years for a limited version involving 15 police vehicles and limited technological infrastructure.

At its December 2005 meeting, the Board received an update on the In-Car Camera Pilot Project. Eighteen digital in-car camera systems were installed in marked vehicles in 13 Division and Traffic Services on September 30th, 2005. As systematic testing of the camera systems began, however, a series of technical challenges arose. The pilot initially proceeded in a limited manner, with only 8 of the in-car camera systems activated until solutions for the technical problems could be found and applied.

Although all 18 cameras were eventually installed, equipment challenges and failures continued. In February 2006, the vendor updated all 18 in-car camera systems with new and improved hardware/software. However, within 4 weeks, intermittent functionality problems began to reappear at both pilot locations.

Given these technical issues, the Service is looking at piloting alternative products and in late 2006, re-issued a 'Request for Proposal' relating to in-car camera systems. While many of the same equipment-related 'growing pains' are likely, others may be avoided from experience. Peripheral issues, such as downloading, will not likely be as much of an issue in a second pilot.

Pilot Project expenditures in 2005 and 2006 totalled \$452,253. There was a \$109,747 variance at year-end 2006. Due to City one-year cashflow carry forward rules, only \$24,000 can be carried forward; the remaining \$85,000 has been returned to the City. In the 2006-2010 Capital Budget Plan, total funding in the amount of \$10,471,000 was approved for a Service-wide implementation of the program, including the necessary dedicated infrastructure (servers and data storage). Current capital funding for the implementation is \$8.1M (this includes \$8.0M in the 2007-2011 Capital Budget Plan, approved at the Board's special meeting of February 26, 2007, and 0.1M previously approved for 2006). The reduction was based on: (i) the assumption that full implementation would be phased in, beginning with 140 traffic vehicles and (ii) up-to-date information on the project. Full implementation and resultant costs would be reflected in future capital programs.

With the continual technical problems, it was felt the evaluation period needed to be longer than the originally planned 6 months. Therefore, the evaluation period was November 1st, 2005 to October 31st, 2006. Continued technical difficulties and significant changes to hardware and software, from the time of initial implementation of the in-car cameras, resulted in a limited ability to properly evaluate the system or the pilot project goals. These goals were:

- I) Enhance officer safety
- II) Re-affirm the commitment to professional and unbiased policing in all encounters between officers and citizens.
- III) Protect officers from unwarranted accusations of misconduct in the lawful performance of duties.
- IV) Improve the quality of evidence for investigative and court purposes.

Acknowledging the limitations and unsatisfactory equipment performance, member perceptions and data were collected. While officers tended to be concerned about 'big brother' monitoring and the potential for discipline at the outset of the in-car camera project, by the end of the evaluation period, officers tended to be more positive. The benefits of the cameras for traffic-related policing, rather than for general patrol or street level investigations, were particularly recognised by officers.

With regard to the Pilot Project goals, the in-car cameras did not appear to improve officer safety, as measured by violent offences against officers, or perceptions of officer safety while patrolling. However, more than half of the officers interviewed said they had observed a change in attitude and/or behaviour toward them once the person stopped was advised of being recorded. Officers also said they had used the presence of the cameras to de-escalate a situation. Traffic stops/investigations were again specifically noted in both instances.

While the in-car cameras did not appear to reduce the number of conduct complaints against officers, both pilot units showed larger proportions than the rest of the Service of conduct complaints that were withdrawn, not completed, or unsubstantiated. There appeared to be no effect on length of time to complete conduct complaint investigations, nor on the number of frivolous, vexatious, or made in bad faith conduct complaints.

Measurement of the effects of in-car camera video as evidence was not possible at the time of writing. Given the technical difficulties, particularly at the beginning of the pilot, and the length of time between charge and trial dates, it is unlikely that any trial requests relating to 13 Division or Traffic Services and the in-car camera pilot would have been to trial yet. Evaluation of this measure would require a longer period of time.

The two Crown Attorneys interviewed seemed positive about the potential of in-car videos and the affects on cases. And, while neither Crown had used TPS in-car video evidence as yet, it was felt that the videos, depending on the quality, could increase the number of guilty pleas and convictions, particularly in cases involving Impaired or Over 80mgs charges.

With continued or expanded use of the in-car video systems, the potential requirements for disclosure with *Criminal Code* and *Highway Traffic Act* (HTA) charges were a significant concern for Video Services personnel. With a large increase in requests for video disclosure, Video Services does not feel it would be able to handle the increase in workload at current staffing levels. While many of the charges that may involve the in-car cameras have not yet reached the courts, some requests for disclosure have already been received. Over half were criminal-driving related (e.g. Over 80mgs, Impaired, etc.) or traffic-related (e.g. HTA, Careless Driving, etc.).

Finally, according the results of the general survey of Toronto residents carried out in late 2006, more than three in four people said they believed that having video cameras in marked police cars had made the police more accountable to the community. And 7 in 10 Toronto residents said they believed that having video cameras in marked police cars had improved relations between the police and the public.

If the Service intends to continue to have video cameras in patrol cars, based on the limited data and the unreliable equipment performance during the evaluation, it is recommended:

That, given the ongoing performance issues with current vendor, equipment testing continue with new vendors until a reliable, consistent in-car camera system that satisfies the Service's requirements is found.

That once a reliable system has been identified, expansion of the in-car cameras be limited to Traffic Services and divisional Traffic Response vehicles. Officers using the in-car cameras believed that the system was more beneficial to traffic investigations, since traffic offences and criminal offences involving the operation of a vehicle, such as impaired driving, were more likely than other offences to be captured on video. And, a vehicle that has been stopped for a traffic offence will most likely be positioned in front of the police car, keeping the vehicle and driver within the view of the camera.

That infrastructure issues (such as network upgrades, video storage capability, potential staffing issues in Video Services and ITS, etc.) be addressed prior to any expansion of the in-car camera system. Some of these issues (such as video storage capability) may need to be addressed before a decision about expansion is made, given continued product testing.

And, that, given officer comments on the lack of information provided during the pilot project, a mechanism to improve communication of information addressing officer concerns, positive experiences of officers using the cameras, equipment updates, etc., be developed.

BACKGROUND

At its meeting in December 2003, during discussions relating to the Digital Video Asset Management System (DVAMS) Project, the Toronto Police Services Board noted that the Ontario Provincial Police (OPP) announced that it will install digital video cameras in some police cars in selected areas in Ontario on a trial basis beginning in January 2004.¹ The Board further noted that a report released by the Ontario Human Rights Commission entitled *Paying the Price: The Human Cost of Racial Profiling*, contained a recommendation on the use of cameras in police cars. The Board requested that the Chief (Julian Fantino) provide the Board with a report regarding the advantages and disadvantages of installing video cameras in Toronto Police Service (TPS) cars.

In March 2004, the Board received the requested report.² According to the report, preliminary research indicated there was inconclusive evidence that the use of in-car cameras would address the issue of targeted policing stops and the reasons for the stops. However, there was evidence to suggest that the use of cameras could have an effect upon officer-citizen interaction subsequent to a traffic stop. The research also indicated that there were advantages in the area of police professionalism and officer safety through the use of in-car cameras.

At the time, although a number of police agencies in Canada and the United States (US) cited budgetary concerns as the main reason for not installing in-car cameras, many were also awaiting publication of the results of a study by the International Association of Chiefs of Police (IACP) on the use of in-car cameras, and/or the outcome of a study by OPP. The Board received the report and requested that the Chief provide a further report on the feasibility of establishing a pilot project involving cameras in TPS patrol cars, in the most cost-effective manner possible.

In June 2004, the Board received the report on the feasibility of establishing a pilot project involving cameras in TPS patrol cars.³ To prepare the report, the Video Services Unit researched the leading in-car camera technologies, researched the solution architecture and business processes implemented by other law enforcement agencies in Canada and the US, consulted with digital video storage and management technology companies, and reviewed the OPP in-car camera pilot program.

The report suggested that an in-car camera pilot project was feasible and outlined a number of key operational requirements, including: officer training, capture technology, video transport system, video management system, video storage system, and disclosure. The report estimated the total pilot program cost to be \$1,803,600. The Board supported a pilot project as part of the 2005 capital budget program.

At its meeting in February 2005, the Board was provided an update on the status of the In-Car Camera Pilot Project.⁴ It was expected that capital funding of \$562,050 would be approved by the end of February 2005. Consistent with the project methodology outlined in the business case

¹ Information from Police Services Board Minute No. P350/03 (Meeting of December 11th, 2003).

² Information from Police Services Board Minute No. P82/04 (Meeting of March 25th, 2004).

³ Information from Police Services Board Minute No. P197/04 (Meeting of June 21st, 2004).

⁴ Information from Police Services Board Minute No. P49/05 (Meeting of February 10th, 2005).

prepared for the capital budget process, the In-Car Camera Pilot Project was to begin in April 2005, with a final report completed for January 2007.

The Chief directed then Staff Superintendent, now Deputy Chief, Kim Derry of Central Field to oversee the project and to chair the Steering Committee. Former Staff Sergeant, now Inspector, Thomas Russell of Central Field Planning was assigned to act as project manager and to chair the Pilot Program Executive Committee.

In March 2005, the Board received a further report from Interim Chief of Police Michael Boyd, addressing the significant amount of detailed and comprehensive planning required to implement the Pilot Project.⁵ With the earlier than expected Executive Committee meeting in February, the project timelines were revised to reflect a span of February 2005 to the end of July 2006, with the field testing to begin in September 2005. The Board requested that Interim Chief Boyd explore opportunities to accelerate the exploratory phase of the Pilot so that cameras could be installed as soon as possible. The Board also requested a report on the feasibility of extending the installation of in-car cameras into all cars.

In June 2005, Chief William Blair responded to the Board's request to explore accelerating the In-Car Camera Pilot Project.⁶ Consulting firm discussions with key stakeholders explored opportunities for accelerating the project, however, it was decided that the many tasks to be completed required the September 2005 installation date. The Service would provide a final full report on the results of the pilot program and a future action plan in June 2006.

At its December 2005 meeting, the Board received an update on the In-Car Camera Pilot Project.⁷ Eighteen digital in-car camera systems were installed in marked vehicles on September 30th, 2005, with companion equipment installed at 4 locations. As systematic testing of the camera systems began, a number of technical challenges arose, including:

- intermittent problems with the in-car camera system hardware/software,
- original installations requiring equipment retrofitting,
- system conflicts with TPS equipment,
- system conflicts with electronic equipment outside of the TPS's control, and
- delays in shipping and receiving of replacement parts.

These technical difficulties required an adjustment to the implementation schedule. The Board was advised that in October 2005, the pilot proceeded in a limited manner, with only 8 of the in-car camera systems activated until solutions for all of the technical problems were found and applied. It was expected that installation of all 18 in-car camera systems would now be complete by the end of November 2005. The final report to the Board would be presented in August 2006.

In May 2006, the Board was provided with a status report on the In-Car Camera Pilot Project.⁸ In November 2005, new equipment challenges and failures surfaced, including:

- intermittent failure of wireless transfers video files from the car to the station server,

⁵ Information from Police Services Board Minute No. P76/05 (Meeting of March 8th, 2005).

⁶ Information from Police Services Board Minute No. P196/05 (Meeting of June 13th, 2005).

⁷ Information from Police Services Board Minute P393/05 (Meeting of December 15th, 2005).

⁸ Information from Police Services Board Minute P151/06 (Meeting of May 18th, 2006).

- intermittent video file corruption,
- intermittent system functionality and reliability, and
- failure of car batteries.

The vendor systematically replaced hardware and software in an attempt to isolate and fix the problems. Parts were replaced repeatedly and although some improvements were recorded, this approach did not provide a solution to stabilize the systems. This performance of the equipment was acknowledged as unacceptable and in February 2006, the vendor updated all 18 in-car camera systems with new and improved hardware/software. However, within 4 weeks, intermittent functionality problems began to reappear at both pilot locations.

The vendor was advised by the Service that if the equipment was not stabilized by the end of May 2006, then the project team would seek alternatives, including an evaluation of other equipment and vendors. As a result of the technical challenges, the Pilot Project schedule was revised with the final report being provided to the Board in March 2007.

While the current equipment operation has become fairly consistent, the Service is looking at piloting alternative products and in late 2006, re-issued a 'Request for Proposal' relating to in-car camera systems. While many of the same equipment-related 'growing pains' are likely, others may be avoided from experience. Peripheral issues, such as downloading, would not likely be as much of an issue in a second pilot.

PILOT PROJECT EVALUATION

While the ongoing technical difficulties outlined above have confounded any evaluation results, data was collected as planned, to, as much as possible, examine outcomes related to the initial goals of the in-car camera pilot.

Given the ongoing problems, it was felt the evaluation period needed to be longer than the planned 6 months. Therefore, the evaluation period was November 1st, 2005 to October 31st, 2006. The same time period of the previous year was the comparison period (November 1st, 2004 to October 31st, 2005).

With the limited number of cameras to be made available, one division was selected to receive some of the cameras, with Traffic Services receiving the rest. An explanation of how the pilot division – 13 Division – was selected can be found in Appendix A. As noted previously, 18 in-car camera systems were installed in front-line marked patrol vehicles – 12 assigned to 13 Division and 6 assigned to Traffic Services. Again, as noted previously, companion equipment related to audio/video transfer, management, storage and retrieval was installed at 13 Division, Traffic Services, Information Technology Services (ITS), and Video Services.

In addition to examining Service member perceptions of the technical process aspects of the in-car camera systems, the evaluation also examined the four outcome goals set by the Steering Committee. For each of these goals, a number of general performance objectives and indicators were approved.

- I) Enhance officer safety
 - decrease in assaults against officers
 - increase in officer perception of safety while patrolling
 - increase in officer perception of decrease in aggressive behaviour of those contacted

- II) Re-affirm the commitment to professional and unbiased policing in all encounters between officers and citizens.
 - increase in public perception of police accountability
 - increase in public perception of positive relations between police and members of the public

- III) Protect officers from unwarranted accusations of misconduct in the lawful performance of duties.
 - decrease in complaints related to officer conduct
 - increase in withdrawal of complaints
 - decrease in length of time of conduct investigations
 - decrease in number of frivolous, vexatious, made in bad faith complaints

IV) Improve the quality of evidence for investigative and court purposes.

- increase in number of accused pleading guilty
- increase in convictions
- positive Crown perception of video evidence from front-line investigators
- positive investigative officer perception of video evidence

Data for both parts of the evaluation, process and outcome, were collected from a number of sources, including:

- general TPS personnel and community surveys,
- Professional Standards complaints data,
- the Service's eCRIME database, and
- face-to-face interviews with
 - front-line officers from 13 Division and Traffic Services
 - management and supervisors from 13 Division and Traffic Services
 - 13 Division detectives
 - ITS personnel
 - Video Services personnel
 - Fleet & Materials Management personnel, and
 - Crown Attorneys (telephone interviews).

Almost 1,200 Service members responded to the December 2006 internal personnel survey, while there were just over 1,200 randomly selected respondents to the December 2006 general Toronto community telephone survey. The results for both surveys are considered accurate within $\pm 3\%$, 95 times out of 100, of what they would have been had the entire populations responded/been surveyed.

In November and December 2006, Corporate Planning staff interviewed 35 front-line officers, 22 from 13 Division and 13 from Traffic Services, in relation to their perceptions and comments on the in-car cameras. Also interviewed were 15 supervisory and management personnel from 13 Division and Traffic Services, and 6 investigators from 13 Division CIB.

Pilot Project Financial Summary Overview:

As noted previously, in May 2004, at the request of the Police Services Board, the Service prepared a feasibility report on establishing a pilot project involving cameras in police patrol vehicles. At that time, a cost estimate of \$1.8 million was presented for a pilot involving 20 police vehicles, with dedicated servers and storage. In September 2004, the Police Services Board approved capital funding in the amount of \$562,000 over two years for a limited version involving 15 police vehicles and limited technological infrastructure.

Pilot Project expenditures in 2005 and 2006 totalled \$452,253. There was a \$109,747 variance at year-end 2006. Due to City one-year cashflow carry forward rules, only \$24,000 can be carried

forward; the remaining \$85,000 has been returned to the City. Revised future requests have taken this returned funding into consideration.

In the 2006-2010 Capital Budget Plan, total funding in the amount of \$10,471,000 was approved for a Service-wide implementation of the program, including the necessary dedicated infrastructure (servers and data storage). Current capital funding for the implementation is \$8.1M (this includes \$8.0M in the 2007-2011 Capital Budget Plan, approved at the Board's special meeting of February 26, 2007, and 0.1M previously approved for 2006). The reduction was based on: (i) the assumption that full implementation would be phased in, beginning with 140 traffic vehicles and (ii) up-to-date information on the project. Full implementation and resultant costs would be reflected in future capital programs.

A more detailed summary of the Pilot Project financial information can be found in Appendix B.

PROCESS

How the In-Car Camera Systems Work:

Location of System:

There were two separate cameras located in the police vehicle. A first camera (Cam 1) that captures video in front of the vehicle (attached to the windshield), and a second camera (Cam 2) to capture the back seat area. The audio was captured by way of microphones worn by officers or by way of an in-car microphone for use when the rear seat camera was recording.

The hard-drive for the video, audio, and metadata was secured and located within the police car. The rest of the equipment relating to the in-car camera system was secured in the trunk. A server, located in the station, received the downloaded video file (video and audio) and the metadata (data such as how the system was activated, fleet number, information for searching purposes, etc.), by way of a secured wireless download.

Operation of System:

The in-car camera system booted-up upon ignition of the police car, taking 1-2 minutes to complete. During this time, the fleet number and date/time stamp was captured from the configuration files and displayed on the LCD screen. After booting-up, the camera was ready for recording.

The in-car cameras were installed in a manner that ensured the system would activate when the emergency equipment (lights/siren/loud hailer) was turned on, when the vehicle was involved in a collision, when the record button was activated on the wireless transmitter, or when the record button was activated on the control panel in the vehicle.

Each microphone synchronised to the camera located in its companion police car, so that a microphone from one specific police car cannot turn on another in-car camera system in another police car. The microphone could be activated at a distance of more than 100 feet.

A red light flashing on the front of the camera indicated when the camera started recording. The means of activation was also indicated – for example, an ‘L’ was displayed on the screen if the lights were the cause of the activation, an ‘S’ if the siren was the cause, and so on. Once activated, the camera continued to record until shut off manually by pressing the ‘stop’ button on the camera console. The system had a small buffer, so that, upon activation, the system captured video for the thirty seconds prior to activation. Before being downloaded to the station, a video and audio clip (to a maximum of 2 hours) could be played back on the console unit in the police car.

The cameras were to be activated by officers to record all investigative contact with the general public, all vehicle pursuits, all prisoner transports, crimes in progress that were taking place within the viewing range of the in-car camera, crime and collision scenes (until the officer

determined that no benefit was to be gained by further recording), and any situations or events that the officer believed should be audibly and visually recorded.

Incidents that were not to be recorded included formal statements, investigative discussions or inquiries between police personnel, and situations that revealed police investigative techniques.

When the cameras were activated, members advised persons upon contact and/or arrest as soon as practicable, that their words and actions were being recorded through the use of the in-car camera system.

The audio/video records created using the in-car camera system are subject to a minimum one-year retention, as per the Toronto Police Service Records Retention Schedule (Toronto By-law 686-2000), which is consistent with section 5(1) of Ont. Reg. 460 of the Provincial Freedom of Information and Protection of Privacy Act.

Downloading the Video, Audio and Metadata:

As noted above, the video, audio, and metadata were captured on a hard drive secured in the police vehicle, between the back seat screen and the passenger seat, with no access from the rear seat. Each video clip was captured as a separate file.

The system was capable of capturing approximately 44 hours of video before it had to be downloaded. Upon arrival at the police station parking lot, the files (video/audio and metadata) were transmitted by way of a secure wireless device in the police car to the server located in the Staff Sergeant's office in the station. If the vehicle was turned off at the station, the system continued to download data for 30 minutes. Once the data was securely downloaded at the station and verified, the file was automatically deleted from the hard drive in the car. The system, as currently configured, allowed downloading from police vehicles assigned to that particular station only, so, for example, a patrol car from Traffic Services could not download its data to the 13 Division server.

At midnight, the Staff Sergeant inserted a clean hard drive into the server and archived or downloaded the day's data. The Staff Sergeant then removed the hard drive with the day's archived data, completed the associated paperwork, and placed both in the station's secure evidence bin for transportation to Video Services. Once the hard drive was received by Video Services, the data was uploaded to the DVAM server.

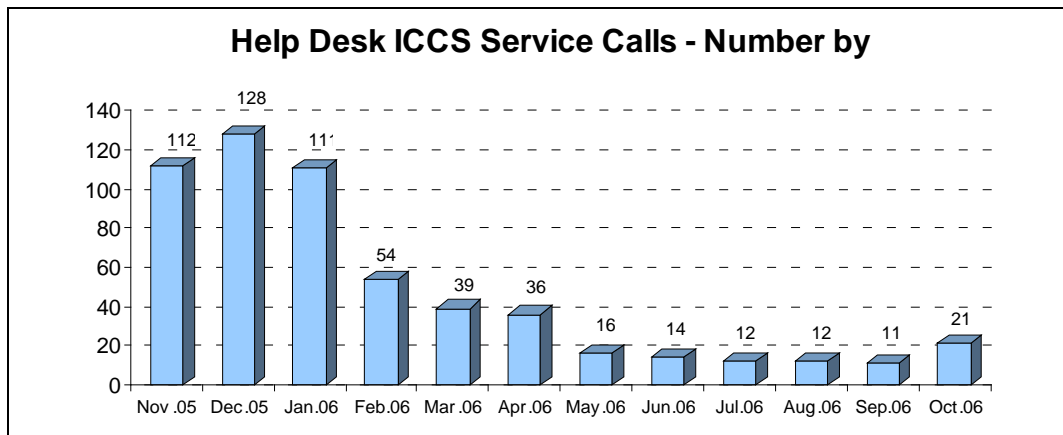
Servicing the In-Car Camera Systems:

When a system was in need of upgrading or repairs, a call was placed to the Service's Help Desk. The Help Desk or ITS then contacted the vendor's call centre and the vendor contacted the local support unit, Digital Mobile Systems Inc. Digital Mobile then sent a technician (usually the next business day) to repair the system at the police station. This served the purpose of keeping the vehicle at the station, reducing down time, and technicians were able to test the equipment by wireless download.

Technical Challenges:

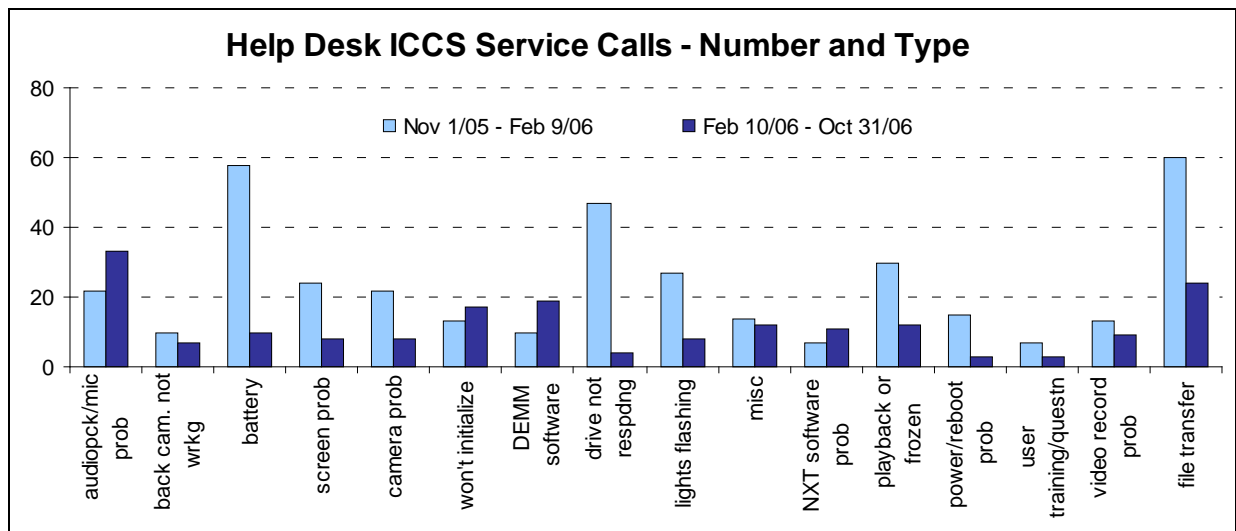
Calls for Service to the ITS Help Desk:

As noted in the section outlining the background of the In-Car Camera Pilot Project, there were a number of technical difficulties with the camera systems during the evaluation period, particularly prior to February 2006 when all the camera hardware and software was updated by the vendor. The figure below shows the number of service calls received by the Help Desk during each month of the evaluation period. As can be seen, there was noticeable improvement from February onward.



Source: TPS Information Technology Services - Help Desk

Service calls were examined by type, before and after the February system update. As shown below, while many of the technical problems decreased, problems with the microphones/audio packs increased. File transfer also remained an area of difficulty.



Source: TPS Information Technology Services - Help Desk

Interviews with ITS Personnel:

Interviews with ITS personnel at the end of the pilot period confirmed that the main challenges with the in-car camera system in the early months were the drain on the car batteries, the microphones, and the wireless download from the cars to the station. It was noted that while the issue of dead batteries was a major one, the cameras alone were not the cause but rather the last straw – MDTs, radios, etc. in the cars were, together, responsible for dead batteries. It was also felt that while the reliability of the technology was not at the level expected, some of the failures might have been user rather than technology related (for example, ‘things coming loose’ may have been due to wear and tear rather than poor construction).

The continuing microphone-related problems were noted in the interviews, and these continued to be addressed. One difficulty may be related to the fact that the microphones were oriented to rural services rather than urban centres where background noise is more of an issue. The microphones were to be replaced a second time. The issue of the possibility that the audio transmissions could be eavesdropped was also raised (it was suggested that tow truck drivers may be eavesdropping). However, at the time of the interview there was no plan to encrypt audio transmissions.

ITS personnel felt that since the vendor had made very recent changes to the system (the cable, NXT box – heart of the system, and case), too little time had passed to allow any evaluation of the product.

In the interviews with ITS personnel, a number of issues were raised should the in-car cameras go City-wide. If the program is expanded, plans include a major improvement in download process that was not feasible or cost effective in the pilot stage. While the video/audio and metadata will continue to download to a server at a police station, instead of transporting the removable hard drive, the data will be transmitted to Video Services by way of the TPS local area network (LAN), and automatically uploaded to the DVAM server. This will decrease work for divisions and Video Services.

However, it was also noted that the volume of storage required will be immense – in the one year pilot for only 18 cars, with significant equipment down time, five terabytes of storage was required.

Other concerns expressed in relation to possible expansion included:

- the need to upgrade the Service network,
- the potential increase in number of calls to the Help Desk,
- the need for appropriate training for staff who will be servicing the hardware,
- the need for a support staff in ITS for the wireless download and the in-car camera application software,
- the need for appropriate training for Service members who will be using the system, and
- the need to ensure appropriate security in relation to the in-car system.

Interviews with Officers from the Pilot Units:

Officers participating in the pilot project were asked what, if any, were the most frequent technical problems with the in-car cameras.

All but two of the front-line officers interviewed had a number of technical concerns with relation to the in-car cameras. The concerns mentioned included: 'glitches'/malfunctions, size of screen, time not accurate, microphones unreliable and bulky, camera mount/location poor (affects picture, obstructs view), downloads slow and unreliable, drains car battery, and difficult to search/review. Malfunctions and the problems with the microphones were also identified by the investigative officers interviewed.

Similar technical concerns were noted by management/supervisors in the pilot units, with a strong emphasis on the lack of reliability of the system and the additional concern that officers were tied up or off the road during camera system maintenance.

Interviews with Fleet & Materials Management Personnel:

While Fleet members initially encountered difficulties with both the draining of the car batteries and the placement/mounting of the equipment and how it affected the safety features of the vehicle (such as the air bags), these challenges were addressed. In particular, the battery problems were corrected by an automatic shutoff feature. Fleet personnel saw no issues should the in-car camera system be expanded Service-wide.

Interviews with Video Services Personnel:

Video Services personnel noted in the interviews that the in-car cameras seem now to be working, with a few remaining issues. One of the problematic areas for Video Services during the pilot was the manual download of the hard drives – each took about one hour, with 3 to 4 hours per day spent loading, verifying, and documenting downloads. It was noted, however, that should the project go City-wide, the capital budget includes funding for a more efficient automatic wireless transmission to the central servers; Video Services personnel will not need to manually download the information from a much larger number of patrol vehicles.

Training:

Training for the in-car camera system was conducted between August and November, 2005, with a total of 23 classes held. During this period, a total of 210 members were trained. Of the 210 members trained, the largest groups were uniformed constables (74%) and uniformed sergeants (13%).⁹ The one-day training course was held at the Service's Police Vehicle Training unit.

⁹ Of the remainder, 5% were plainclothes constables, 4% were detectives, and 2% were staff sergeants. The final 2% were a senior officer, a detective sergeant, and civilian members.

The course consisted of a half day of theory relating to:

- the laws governing the in-car cameras,
- understanding and operating the equipment, and
- in-car camera applications.

The other half of the day involved practical training with officers driving a police vehicle equipped with an in-car camera, operating the in-car camera system, and reviewing test video tapes.

Course critiques were received from 160 officers – 54% from 13 Division and 41% from Traffic Services (the remainder were from Professional Standards or did not identify their unit); 74% were constables, 15% were sergeants or staff sergeants, and 7% were investigative officers (detective constables, detectives, or detective sergeants); the remainder did not identify their rank.

Overall, perceptions of the training were good, with 85% of the officers noting positive aspects of the course. In particular, officers felt the practical/“hands on” part of the course was valuable. Officers also liked the in-class discussion and the instructors (knowledgeable, able to answer questions, etc.), and the videos that were used.

Only 36% of the officers noted something negative about the course. The most common response regarding what officers did not like was that the equipment malfunctioned or didn’t work (26%). Other negative comments were received about the equipment (quality of audio or video, the microphone, etc.) and that there wasn’t enough practical/“hands on” time.

During the interviews conducted at the end of the pilot project period, officers were asked whether the training they received on the in-car cameras was sufficient to help them operate the system correctly. Most (77%) of the front-line officers agreed the training was sufficient, with more officers from Traffic Services feeling this way (85%), than officers from 13 Division (73%). Officers from 13 Division noted that additional training, refresher training, and updates were provided by divisional staff, as required.

Although some of the management/supervisory respondents did not receive training on the in-car cameras, of those who did, 73% thought the training on the in-car cameras enough to help operate the system correctly.

OUTCOME

Interviews with Officers – General Perceptions of the In-Car Camera Systems:

Initial Perceptions:

Over two-thirds (69%) of the front-line officers interviewed responded with negative remarks when asked how they felt initially about being assigned to a scout car equipped with an in-car camera. Remarks included concerns that the cameras were ‘big brother’ watching, that the police officer’s word was no longer good enough, and the potential for management review, criticism, and punishment. A far greater proportion of 13 Division front-line officers were initially more negative than Traffic Services officers.

When asked to describe the officers’ initial response to having in-car cameras installed in their patrol cars, most of management and supervisory personnel (87%) interviewed said there were negative reactions to the initial introduction. Many of the comments related to the officers’ suspicions of being watched by ‘big brother’ or supervisory officers for accountability reasons.

Perceptions at the End of the Pilot Evaluation Period:

When asked how they felt now about being assigned to a scout car equipped with an in-car camera, over half (54%) of front-line officers interviewed were positive, while 23% were negative. The rest of the officers had no strong feelings one way or the other. Once again, Traffic Services officers were more positive than front-line officers from 13 Division.

Many of the officers who responded positively from both locations commented on the positive use of the camera for traffic-related policing, and on benefits related to avoiding frivolous or unfounded complaints. Other officers commented specifically on the benefits of the in-car camera for traffic investigations, but that it was of no help to street level investigations and subject stops.

Discussions with officers, particularly those who indicated a change in their attitude toward the cameras, revealed a relationship between their own experience (or that of a co-worker) and their change in attitude. Officers who experienced a benefit from the use of the camera, or who knew of a positive experience of another officer, tended to have a more favourable attitude.

While 40% of the management/supervisory personnel interviewed said they saw a positive change in the attitude of officers towards the cameras, many commented that officer perception generally depended on the officer’s experiences with the camera.

Almost three-quarters (73%) of management/supervisory personnel said activities by management had also contributed to front-line officer change in opinion. Such activities included education, training, and stressing the positive aspects of the video clips.

Officer Concerns Relating to In-Car Camera Use:

Just over half (54%) of the front-line officers interviewed said that the cameras created additional personal stress for them. For these officers, some remarks related to situations when the camera or microphone activated when it was not supposed to, capturing private conversation. A number of other remarks related to the perception of supervisors watching and scrutinizing their actions and behaviours, with the result that they felt they had to be even more aware and careful about how they spoke or acted in front of the camera, or were concerned about jeopardizing their own safety by hesitating to use force when necessary. 13 Division officers were more likely to say being videotaped created additional personal stress than Traffic Services officers.

When asked specifically about reluctance to use the in-car cameras due to the potential for internal review, fewer than half (43%) of the front-line officers felt this way. Some of the reluctance stemmed from possible misinterpretation of the in-car camera video, and side issues or criticism that could come about from the video. Again, 13 Division officers were more concerned about the potential for internal review than Traffic Services officers.

(In the interviews, ITS personnel recognised possible officer concerns about remote control of cameras/microphones by supervisors (i.e. recording unknown to officers, or real-time viewing), but stated that this was not technologically possible with the current equipment. It should be noted that this information was not conveyed to the officers.)

Front-line officers were also asked whether being recorded affected how they dealt with a situation. Again, fewer than half (46%) said that it did. Some officers commented that they now almost have a script when approaching someone and that it impairs their ability to react. There was no difference in officer response by unit to this question.

When specifically asked, more than half (57%) of the front-line officers interviewed believed that the in-car camera system had reduced their discretion in decision-making. Many of these officers commented about the camera's affect on giving warnings to drivers, saying there were now less likely to simply caution drivers. More front-line officers from 13 Division than from Traffic Services believed that the in-car camera system reduced their discretion in decision-making.

One investigative officer also believed that the in-car cameras had reduced discretion; the specific concern raised was that an officer may feel compelled to lay a charge when another action, such as diversion, might be more appropriate.

Only 20% (7 officers) of the front-line officers interviewed had encountered a citizen who objected to being taped, generally citing privacy concerns.

Measurement of Specific Pilot Project Goals:

As noted earlier, there were specific goals set by the In-Car Camera Pilot Project Steering Committee. These were:

- I) Enhance officer safety.
- II) Re-affirm the commitment to professional and unbiased policing in all encounters between officers and citizens.
- III) Protect officers from unwarranted accusations of misconduct in the lawful performance of duties.
- IV) Improve the quality of evidence for investigative and court purposes.

Again, as outlined previously, each of these goals had a number of associated performance objectives. Measurement results for each indicator in each goal are provided following.

I) Enhance officer safety.

(a) Decrease in Assaults Against Officers:

As shown in the table below, there was no decrease in violent offences (primarily assaults) against officers in the pilot units; both 13 Division and Traffic Services showed increases. (13 Division actually showed the largest increase of all divisions between the two periods.)

Violent Offences against Officers

	evaluation period	comparison period	% change
13 Division	74	59	+ 25.4%
Traffic Services	10	4	+ 150.0%
Rest of Service	1551	1524	+ 1.8%

Source: TPS eCRIME database

When front-line officers in the pilot units were asked if they thought the in-car cameras were effective in deterring assaults on officers, two-thirds (66%) said no; 20% said yes. A number of officers felt that if someone had the mindset to assault an officer, they would do so regardless of the camera. There was little difference in the response from 13 Division and Traffic Services officers.

Similarly, most of the investigative officers interviewed (5 of 6), felt the in-car cameras were not effective in deterring assaults against officers, however, one officer suggested that it would provide good evidence after the fact.

On the other hand, 40% of management/supervisory officers interviewed thought that the in-car cameras were or potentially were effective in deterring assaults on officers; 27% said they would not be a deterrent.

(b) Increase in Officer Perception of Safety While Patrolling:

According to the results of the general personnel survey of TPS members in December 2006, fewer than half (49%) of police constables agreed or somewhat agreed with the statement “I

believe in-car cameras increase officer safety.” However, almost three-quarters (74%) of other uniform members (supervisors, managers, senior officers) agreed or somewhat agreed with the statement.

When asked during the interviews, two-thirds (66%) of the front-line officers in the pilot units said that the in-car camera did not make them feel safer when dealing with members of the public. Again, officers tended to feel that if they were going to be assaulted or injured, the presence of the camera would not prevent it. Once more there was little difference in the response from 13 Division and Traffic Services officers.

Similarly, most (89%) officers said the presence of the in-car camera did not help them feel safer when on general patrol.

Interviews with management/supervisory officers in the pilot units found that they were more likely to believe officers felt safer when patrolling in cars equipped with the cameras – 40% of management/supervisory officers believed officers felt safer.

During the interviews, comments were made regarding an unexpected outcome of the in-car cameras – it was felt that the cameras had reduced the number of Service vehicle collisions. Subsequent analysis of Service vehicle collision information showed that when January 1st - November 22nd, 2006 was compared to the same period in 2005, 13 Division showed a 77% decrease in service vehicle collisions, while Traffic Services showed an 88% decrease. Although the rest of the Service also showed a decrease (15%), it was much smaller than the decreases seen for the pilot units.

(c) Increase in Officer Perception of Decrease in Aggressive Behaviour of Those Contacted:

According to the results of the general personnel survey of TPS members in December 2006, only 38% of police constables agreed or somewhat agreed with the statement “When the public knows there are cameras in the police cars, I think they are less likely to be aggressive with officers.” Over half (57%) of other uniform members (supervisors, managers, senior officers) agreed or somewhat agreed with this statement.

In the interviews, front-line officers were asked if they believed that the in-car camera system decreased aggressive behaviour in persons who were videotaped. In line with the responses relating to officer safety, fewer than half (46%) of the officers felt that it did. However, there was a notable difference in responses between the two pilot units, with almost two-thirds (62%) of Traffic Services’ officers believing that the cameras decreased aggressive behaviour compared to just over one-third (36%) of 13 Division officers.

When asked if they had observed any change in attitude and/or behaviour toward them, once the person they stopped was advised of being recorded, 57% of the front-line officers said they had. A number of these officers suggested that it changed attitude and behaviour specifically during

traffic stops. Slightly more officers from Traffic Services than 13 Division said they'd seen such a change in behaviour or attitude, although it was also noted by traffic officers in 13 Division.

The front-line officers were also asked if they'd ever used the presence of the in-car camera to de-escalate a situation – more than half (57%) said they had. Many of these officers spoke of the benefits of the cameras specifically in traffic stops/investigations, having the effect of calming down irate drivers and accusatory situations in these instances. More officers from Traffic Services than from 13 Division said they had used the presence of the in-car camera to de-escalate a situation

II) Re-affirm the commitment to professional and unbiased policing in all encounters between officers and citizens.

(a) Increase in Public Perception of Police Accountability:

According to the results of the general community survey carried out in November and December 2006, more than three-quarters (77%) of Toronto residents said they believed that having video cameras in marked police cars had made the police more accountable to the community.

(b) Increase in Perception of Positive Relations Between Police and Members of the Public:

Again, according to the results of the general community survey, 7 in 10 Toronto residents (70%) said they believed that having video cameras in marked police cars had improved relations between the police and the public. For those who said they weren't aware of cameras in cars (only 23% of all people surveyed), 55% said they believe that video cameras in cars could improve relations between the police and the public.

During the interviews with officers from the pilot units, management and supervisors were asked if they had noticed improvement in the performance of officers using the in-car cameras. While most said they had not noticed an improvement in performance because officers performance was already good, others commented that they believed officers were more professional when the cameras were recording.

III) Protect officers from unwarranted accusations of misconduct in the lawful performance of duties.

(a) Decrease in Complaints Related to Officer Conduct:

The table below shows the number of conduct complaints against officers during the evaluation and comparison periods. As can be seen, while there was a decrease in conduct complaints against officers in 13 Division, it was smaller decrease than that seen for the rest of the Service.

Total Conduct Complaints against Officers

	evaluation period	comparison period	% change
13 Division	17	22	- 22.7%
Traffic Services	17	17	0%
Rest of Service	201	430	- 53.3%

Source: TPS Professional Standards

In the interviews in the pilot units, management and supervisors were asked if they felt there was a change in the number of complaints concerning police conduct during the in-car camera pilot. Most (80%) said they did not believe there had been a change in such complaints.

Management/supervisory officers were also asked if they felt the in-car camera system had reduced their discretion in making decisions with relation to officer conduct. Almost half (47%) felt they had less discretion.

(b) Increase in Withdrawal of Complaints:

The table below shows the number of conduct complaints against officers that were withdrawn, not completed, or unsubstantiated during the evaluation and comparison periods. As can be seen, both pilot units showed larger proportions of complaints withdrawn, not completed, or unsubstantiated than the rest of the Service.

% of Conduct Complaints against Officers Withdrawn, Not Completed, Unsubstantiated

	evaluation period	comparison period	change
13 Division	94%	77%	+ 17%
Traffic Services	71%	24%	+ 47%
Rest of Service	81%	76%	+ 5%

Source: TPS Professional Standards

In addition, in the interviews, 40% of management/supervisory officers recalled at least one instance where citizens had not filed or had withdrawn a complaint because of the in-car camera video.

Similarly, 2 of the 6 investigative officers interviewed knew of instances when citizens had withdrawn or not filed complaints after learning of the existence of the in-car camera video. Both instances were traffic related, and involved fail-to-stop situations caught on tape.

(c) Decrease in Length of Time for Conduct Complaint Investigations:

The table below shows the average number of days for conduct complaint investigations during the evaluation and comparison periods. While there were decreases in investigation time in the pilot units, the was also a decrease for the rest of the Service.

Average Days for Conduct Complaint Investigations

	evaluation period	comparison period	% change
13 Division	84	118	- 28.8%
Traffic Services	91	100	- 9.0%
Rest of Service	59	93	- 36.6%

Source: TPS Professional Standards

(d) Decrease in Number of Frivolous, Vexatious, and Made in Bad Faith Conduct Complaints:

Although the table below shows a large percentage decrease in 13 Division in the number of conduct complaints against officers where no further action was taken, the actual numbers were very small and make drawing any inference related to the in-car cameras difficult.

No. of Complaints against Officers with No Further Action Taken
(incl. Frivolous, Made in Bad Faith complaints)

	evaluation period	comparison period	% change
13 Division	2	4	- 50%
Traffic Services	1	0	
Rest of Service	81	68	+ 19%

Source: TPS Professional Standards

IV) Improve the quality of evidence for investigative and court purposes.

(a) Increase in Number of Accused Pleading Guilty:

Measurement of the number of accused pleading guilty was not possible at the time of writing. Given the technical difficulties, particularly at the beginning of the pilot, and the length of time between charge and trial dates, it is unlikely that any trial requests relating to 13 Division or Traffic Services and the in-car camera pilot would have been to trial yet. cursory examination of the *Provincial Offences Act* conviction rates during the evaluation and comparison periods showed little difference. Evaluation of this measure would require a longer period of time.

In the interviews with officers from the pilot units, investigative officers were asked if they had used the images from the in-car camera system in any investigations they'd conducted. One officer was using in-car camera video in an ongoing investigation; a second officer said that the video was very useful with the accused pleading guilty. No investigative officers had used in-car camera evidence for an impaired driving case, but thought that it would provide good evidence.

Only 2 front-line officers said in the interviews that they'd used evidence from the in-car cameras for impaired driving cases. In one instance the evidence assisted the case by making it more difficult for the defence to dispute, resulting in a guilty plea before trial. A number of officers noted that they were planning to use in-car video evidence in pending trials.

(b) Increase in Convictions:

As with the previous objective, measurement of the number of convictions was not possible at the time of writing. Given the technical difficulties, particularly at the beginning of the pilot, and the length of time between charge and trial dates, it is unlikely that any trial requests relating to 13 Division or Traffic Services and the in-car camera pilot would have been to trial yet. cursory examination of the *Provincial Offences Act* conviction rates during the evaluation and comparison periods showed little difference. Evaluation of this measure would require a longer period of time.

(c) Positive Crown Perception of Video Evidence from Front-Line Investigators:

While none of the investigative officers interviewed said they had received any specific feedback from Crown attorneys relating to in-car camera evidence, one front-line officer had received very positive comments.

Telephone interviews with held with two Crown attorneys to get their perceptions about the in-car camera systems. Both Crowns seemed positive about the potential of in-car videos and the affects on cases.

While neither Crown had used TPS in-car video evidence as yet, it was felt that the videos, depending on the quality, could increase the number of guilty pleas and convictions, particularly in cases involving Impaired or Over 80mgs charges. One Crown said that they had used OPP in-car video information in such cases, with the video providing great evidence.

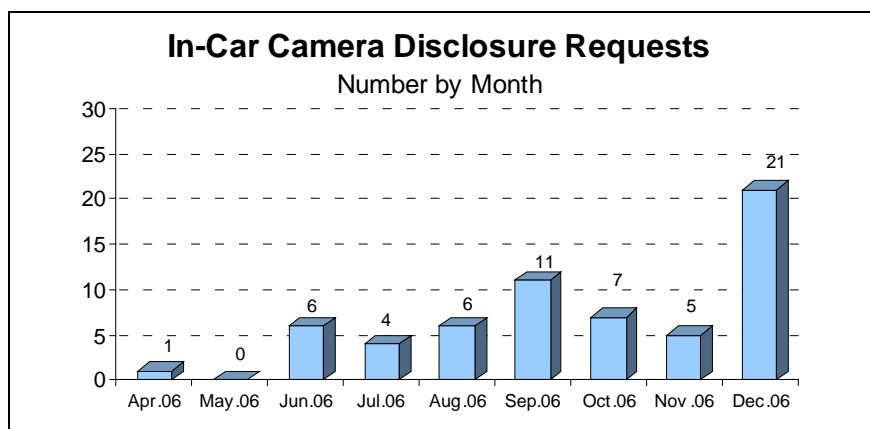
With regard to disclosure, one Crown believed it might be a challenge to get disclosure by the set date, while the other Crown saw no real problems in this area. It was noted, however, that defence attorneys had not really become aware of the in-car videos yet. Both Crowns felt that the more situations that had video evidence, the better, and that all cases where there was an in-car video, it should be made available. A concern was raised about who would vet the videos to remove third party identifiers.

Interviews with Video Services personnel:

The huge potential requirements for disclosure with *Criminal Code* and *Highway Traffic Act* (HTA) charges were the main concern for Video Services personnel.¹⁰ Should there be a significant increase in requests for video disclosure, Video Services does not feel it would be able to handle the increase in workload at current staffing levels. As noted previously, the relatively short time frame for the pilot project means that many of the charges that may involve the in-car cameras have not yet reached the courts. However, some requests for disclosure have already been received. The figure below shows the requests received during the last 9 months of

¹⁰ According to Video Services, POINTTS, a traffic court agents firm, has indicated that they will request disclosure of the in-car camera tapes; they handle about 30,000 cases per year.

2006. Over half (56%) of the 61 requests were criminal-driving related (e.g. Over 80mgs, Impaired, etc.) or traffic-related (e.g. HTA, Careless Driving, etc.).



Source: TPS Video Services

As seen above, just over one-third of the disclosure requests were received in December 2006. This number is expected to increase as more cases come up in court and as more judges, Crowns, and defence attorneys become aware of the in-car videos. Fitting more patrol vehicles with the cameras will also eventually lead to an increase in disclosure requests.

Video Service advised that it now takes at minimum 1 hour to complete each request for disclosure:

- 2-10 minutes to locate the clip, assuming there is good search information,
- 5-10 minutes to scan the clip to match the synopsis,
- 5 minutes to export and name the video,
- ½ hour to transcribe video to required file type (the operator is free to do something else, but the workstation is not available during this time), and
- 20 minutes to 1 hour to burn the CD.

Three copies are made (one each for the officer, Crown, and defence) and the original is returned to the video library. Paperwork is completed for continuity of evidence.

To date, none of the clips have been vetted to remove third party information/identifiers. Video Services personnel advised that while booking hall tapes have been vetted in special circumstances, this is a very time-intensive process. The clip must be watched in real-time and is often rewind to determine the portions that must be deleted or blocked. The blocking/deleting process itself is also extremely time-consuming, since any editing must be done frame by frame. Should vetting become a standard practice for disclosure, and particularly if disclosure requests increase markedly, Video Services feels staffing requirements will be substantial.

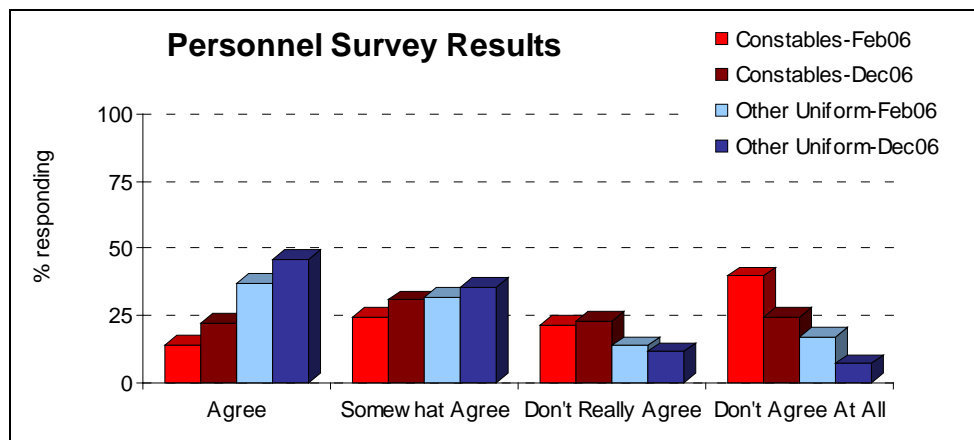
(d) Positive Investigative Officer Perception of Video Evidence:

Investigative officers in the pilot units were asked for their thoughts on the quality/usefulness of evidence from in-car cameras to their cases. Officer comments included that they were impressed with the video quality and felt had good potential to be useful for evidence, depending on the situation.

General Results of the Personnel Surveys in 2006:

The personnel surveys that were distributed in February and December 2006 were used to gauge Service member perceptions of in-car cameras on a general level. At both times, members were asked whether they agreed, somewhat agreed, didn't really agree, or didn't agree at all, with the statement: "I think in-car cameras are a good idea."

The results for uniform members are shown in the figure below. While more constables and other uniform officers agreed with the statement in December than in February, at both times, other uniform officers (supervisors, managers, and senior officers) were more positive than constables.



CONCLUSIONS AND RECOMMENDATIONS

Continued technical difficulties and significant changes to hardware and software, from the time of initial implementation of the in-car cameras, resulted in a limited ability to properly evaluate the system or the pilot project goals.

Acknowledging the limitations, member perceptions and data were collected to provide some evaluation of the system and goals.

While officers tended to be concerned about ‘big brother’ monitoring and the potential for discipline at the outset of the in-car camera project, by the end of the evaluation period, officers tended to be more positive. The benefits of the cameras for traffic-related policing, rather than for general patrol or street level investigations, were particularly recognised by officers.

With regard to the Pilot Project goals, the in-car cameras did not appear to improve officer safety, as measured by violent offences against officers, or perceptions of officer safety while patrolling. However, more than half of the officers interviewed said they had observed a change in attitude and/or behaviour toward them once the person stopped was advised of being recorded. Officers also said they had used the presence of the cameras to de-escalate a situation. Traffic stops/investigations were again specifically noted in both instances.

While the in-car cameras did not appear to reduce the number of conduct complaints against officers, both pilot units showed larger proportions than the rest of the Service of conduct complaints that were withdrawn, not completed, or unsubstantiated. There appeared to be no effect on length of time to complete conduct complaint investigations, nor on the number of frivolous, vexatious, or made in bad faith conduct complaints.

Measurement of the effects of in-car camera video as evidence was not possible at the time of writing. Given the technical difficulties, particularly at the beginning of the pilot, and the length of time between charge and trial dates, it is unlikely that any trial requests relating to 13 Division or Traffic Services and the in-car camera pilot would have been to trial yet. Evaluation of this measure would require a longer period of time.

The two Crown Attorneys interviewed seemed positive about the potential of in-car videos and the affects on cases. And, while neither Crown had used TPS in-car video evidence as yet, it was felt that the videos, depending on the quality, could increase the number of guilty pleas and convictions, particularly in cases involving Impaired or Over 80mgs charges.

With continued or expanded use of the in-car video systems, the potential requirements for disclosure with *Criminal Code* and *Highway Traffic Act* (HTA) charges were a significant concern for Video Services personnel. With a large increase in requests for video disclosure, Video Services does not feel it would be able to handle the increase in workload at current staffing levels. While many of the charges that may involve the in-car cameras have not yet reached the courts, some requests for disclosure have already been received. Over half were criminal-driving related (e.g. Over 80mgs, Impaired, etc.) or traffic-related (e.g. HTA, Careless Driving, etc.).

Finally, according to the results of the general survey of Toronto residents carried out in late 2006, more than three in four people said they believed that having video cameras in marked police cars had made the police more accountable to the community. And 7 in 10 Toronto residents said they believed that having video cameras in marked police cars had improved relations between the police and the public.

If the Service intends to continue to have video cameras in patrol cars, based on the limited data and the unreliable equipment performance during the evaluation, it is recommended:

That, given the ongoing performance issues with current vendor, equipment testing continue with new vendors until a reliable, consistent in-car camera system that satisfies the Service's requirements is found.

That once a reliable system has been identified, expansion of the in-car cameras be limited to Traffic Services and divisional Traffic Response vehicles. Officers using the in-car cameras believed that the system was more beneficial to traffic investigations, since traffic offences and criminal offences involving the operation of a vehicle, such as impaired driving, were more likely than other offences to be captured on video. And, a vehicle that has been stopped for a traffic offence will most likely be positioned in front of the police car, keeping the vehicle and driver within the view of the camera.

That infrastructure issues (such as network upgrades, video storage capability, potential staffing issues in Video Services and ITS, etc.) be addressed prior to any expansion of the in-car camera system. Some of these issues (such as video storage capability) may need to be addressed before a decision about expansion is made, given continued product testing.

And, that, given officer comments on the lack of information provided during the pilot project, a mechanism to improve communication of information addressing officer concerns, positive experiences of officers using the cameras, equipment updates, etc., be developed.

**IN-CAR CAMERA PILOT PROJECT – DIVISIONAL SELECTION METHODOLOGY
(April/May 2005)**

Objective – to select a division for the In-Car Camera pilot project

- All the factors provided/suggested by Steering Committee as important for consideration in the determination of the pilot division were reviewed – 7 were selected.
- The pilot division selected would need to be generally representative of the City with regard to these factors.
[With the additional criteria that the division could not have far more Primary Response cars than there were cameras.]
- The 7 factors were not deemed of equal importance in determining the pilot division – a simple weighting process based on the ranked importance of each factor was used.
- The 7 factors and their determined ranks/weights were:
 - 1: number of marked Primary Response/Traffic Response vehicles
 - 2: representative demographics (number of youth, young adults, immigrants, and visible minorities, and average household income, as per the 2001 Census)
 - 3: number of external conduct complaints
 - 4: number of 208s
 - 4: number of POTs
 - 5: Primary Response/Traffic Response officer length of service
 - 6: representative land use/housing types (number of owned dwellings, rented dwellings, and apartments, as per the 2001 Census)
- For each of the divisions, the number of marked cars, number of complaints, number of 208s, number of POTs, and average officer length of service were collected.
 - The value of each of these factors for each division was transformed into a ‘z-score’.
 - The z-score is a standardised value of a variable (factor) based on a simple linear transformation of the original value. Standardising allows different types of variables to be compared, summed, etc.. The z-score minimizes possible distortion caused by inter-unit variation in measurement under each of the factors and possible distortion caused by inter-factor variations in terms of unit of measurement.
 - The z-score tells how far from the mean (or average) of the variable the original value was, with ‘how far’ being measured in terms of the standard deviation – a small value for the z-score means that the original value was close to the average.
- Z-scores for the demographic and land use factors were calculated slightly differently, since each of these factors had a number of components.¹¹

¹¹ For the demographics and land use factors, the following process was used to provide a z-score:

- a z-score was calculated for each division for each component of each factor;
- each z-score was multiplied by the weigh/rank assigned to the component;
- the weighted z-scores were summed to a total score for each division for each factor; and

- Since it did not matter whether a division was above or below the average, the absolute value of the z-scores were used.
- A score for each factor for each division was computed by multiplying the z-score by the previously determined weight/rank.
- A total score for each division was computed by summing the z-scores of all the factors.
- The divisions with the smallest total scores were the ones closest to the City average and were the potential candidates for the pilot project.
[Again, there was also the criteria was that the division could not have more Primary Response cars than there were cameras – this criteria assisted the Steering Committee in the selection of the pilot division from among those with the lowest score.]

Using the above information, the Steering Committee selected 13 Division to test the in-car camera systems, along with Traffic Services.

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- each total score was itself transformed into a z-score that represented the standardised score for that factor for each division.

IN-CAR CAMERA PILOT PROJECT – FINANCIAL SUMMARY

Budget Development:

In May 2004, the Police Services Board received a report outlining the feasibility of establishing a pilot project involving cameras in police patrol cars, for consideration as part of the 2005 capital budget program.¹² The total estimated budget for the pilot project was \$1,803,600.

In the 2005-2009 Capital Budget process, total funding in the amount of \$562,000 was approved for the In-Car Camera Pilot Program, over two years, as follows:

<u>ITEM</u>	<u>2005</u>	<u>2006</u>
Costs per Vehicle	\$ 210,000	
▪ based on equipping 15 police patrol vehicles at a cost of \$14,000 each		
Fixed Infrastructure Costs	304,000	
▪ DVD-RAM Media		
▪ LTO Media		
▪ Offline storage system		
▪ In-car Video Management System		
▪ In-car camera installation services		
▪ Storage system installation/configuration		
▪ Project Management		
Pilot Program Labour Costs	24,000	24,000
Total Funding	\$ 538,000	\$ 24,000

In the 2006-2010 Capital Budget Plan, total funding in the amount of \$10,471,000 was approved for the full Service-wide implementation of the program, including full dedicated infrastructure as detailed in the original estimate. Funding was distributed as follows:

2006	2007	2008	2009	2010
\$100,000	\$5,225,000	\$5,146,000	0	0

Current capital funding for the implementation is \$8.1M (this includes \$8.0M in the 2007-2011 Capital Budget Plan, approved at the Board’s special meeting of February 26, 2007, and 0.1M previously approved for 2006). The reduction was based on: (i) the assumption that full implementation would be phased in, beginning with 140 traffic vehicles and (ii) up-to-date information on the project. Funding is distributed as follows:

2006	2007	2008	2009	2010
\$100,000	\$1,000,000	\$2,300,000	\$2,300,000	\$2,400,000

¹² Information from Police Services Board Minute No. P197/04 (Meeting of June 21st, 2004).

Pilot Project Expenditures:

The capital costs of the In-Car Camera Pilot Project, for camera installations in 18 police patrol vehicles and a limited dedicated infrastructure, were as follows:

	<u>2005</u>	<u>2006</u>
Budget	\$538,000	24,000
Expenditures	<u>387,144</u>	<u>65,109</u>
Variance	<u>\$150,856</u>	<u>(\$41,109)</u>
 Total Pilot Budget		 \$562,000
 Pilot Program Expenditures		
Hardware/Software	\$381,052	
Personnel Costs	55,961	
Training/Consulting	15,240	
 Total Pilot Program Expenditures		 <u>452,253</u>
 Pilot Project Variance		 <u>\$109,747</u>

The project variance at year-end 2006 was \$109,747. Due to the City’s cashflow carry forward rules, only \$24,000 can be carried forward to 2007. The remaining \$85,000 has been returned to the City. This funding was to be used for data storage; in light of the cashflow loss, the Service is borrowing from temporary storage available in DVAMS. The 2007-2011 revised project request has taken this loss into consideration.

It is important to note that the capital costs noted above covered the hard dollar costs of the project. There were also a number of other soft costs:

- Officers were often not available on the road because vehicles were being serviced for ongoing and regular equipment malfunctions/upgrades.
- At each pilot site, a supervisory officer was tasked with managing the in-car camera program – regular equipment testing, extracting hard-drives, training updates or for new personnel, liaising with vendor service personnel, over-seeing repair of equipment in police vehicles, dealing with misuse of equipment, etc..
- Garage staff were required to attend on-site to charge police vehicle batteries which had discharged due to the additional draw of the in-car cameras.
- Personnel required to produce video clips for disclosure purposes exceeded the initial personnel assignment for the project.
- And, during the pilot, existing servers and data storage were used.