TORONTO POLICE SERVICE

Body-Worn Cameras

A report on the findings of the pilot project to test the value and feasibility of body-worn cameras for police officers in Toronto.

June 2016

TPS Strategy Management, Strategic Planning Section

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EXECUTIVE SUMMARY

The Toronto Police Service began the pilot project in early 2014 with the purpose of exploring the benefits, challenges, and issues surrounding the use of body-worn cameras by Toronto police officers.

Planning for the Pilot:

Planning for the pilot was well-executed and comprehensive, with as many issues as possible addressed in early stages, building on the experience of project managers with the in-car camera pilot project. Consultation with the community and with major stakeholders – the Office of the Information and Privacy Commissioner, the Ministry of the Attorney General, and the Ontario Human Rights Commission – began early and continued during the pilot to ensure governance and training balanced current community concerns, privacy concerns, and officer concerns. Working with a Stakeholder Working Group and involved in all aspects of the operational implementation, the diligence of the project managers ensured that the pilot project was implemented carefully and provided a sound basis for assessing the body-worn cameras.

Evaluation:

The Service's evaluation team was contacted during the initial planning phase. In line with research design and methodology used in evaluations in other jurisdictions, pre and post pilot measurement of officer and community perceptions, as well as experimental and control group comparisons of qualitative and quantitative information were planned. Surveys, interviews, and focus groups were used to assess community and officer perceptions of safety, training, interaction with the public, implementation and operation of the cameras, police accountability, and level of public awareness, as well as general impressions of benefits and drawbacks of body-worn cameras.

On behalf of the evaluation team in March 2015, the Chief of Police invited external evaluation and data specialists to provide guidance on, and monitor the quality of, the evaluation, and an independent, expert Evaluation Advisory Committee was established.

In total, 85 officers (constables and sergeants) used the body-worn cameras for at least some time during the pilot period. The officers were in four different functions: 43 Division Community Response, 55 Division Primary Response, Traffic Services Motor Squad, and TAVIS Rapid Response. For purposes of the evaluation, officers in similar functions and environments formed the comparison group.

Surveys were sent to the officers participating in the pilot, comparison officers, supervisors of the pilot officers, unit complaint co-ordinators, and investigators in the pilot divisions in January/February 2015 (just before the start of the pilot) and again in March 2016 (near the end of the pilot). In 2014 and 2015, a question about the level of support for body-worn cameras was also included in the Service's annual personnel survey. At the end of the pilot, interviews were held with some of the officers who wore the cameras, supervisors, investigators and unit complaint co-ordinators, Information Technology Services personnel, with Video Evidence personnel, with Access & Privacy personnel, with Toronto Police College personnel, and with representatives of Crown Operations in the Ministry of the Attorney General.

In total, over 45,000 surveys were distributed to the community – roughly 20,000 in May 2015 and 25,000 in January 2016. Over 7,500 surveys were completed and returned (3,399 in 2015 and 4,141 in 2016). While it is recognized that the results of surveys may be shaped by those who choose to respond, the 17% response rate for both surveys was a good response to a direct mail survey and the results are considered accurate ±1.7% and ±1.5%, respectively, 19 times out of 20.

In addition, in 2014 and 2015 general questions relating to body-worn cameras were included in the Service's annual community telephone survey, focus groups, and follow-up survey with victims of violent crimes. A follow-up survey was also mailed directly to a sample of people who'd had law enforcement contact with an officer wearing a camera during the pilot project. Surveys were mailed to 4,285 people

between August 2015 and February 2016; 427 surveys were returned, with 319 indicating that they had in fact had contact with a BWC officer. On-line versions of the general and contact surveys were also available on the Service's website for broader community input.

Quantitative data were also collected, including calls to the ITS Help Desk, requests to Video Evidence, Freedom of Information requests, on-duty injuries to officers, public complaints, and officer workload and availability indicators.

Findings

Support for Body-Worn Cameras:

Overall, support for the body-worn cameras was extremely strong in the community, and strong, though somewhat less so, among those members of the community who'd had law enforcement contact with an officer wearing a camera. The officers who wore the cameras during the pilot also generally supported the body-worn cameras, though not as strongly as the community. Both the community and the officers became more positive about the cameras during the course of the pilot project. The comparison officers, while not very positive about the body-worn cameras, became less negative about them.

Impact on Officers:

For the officers, technical problems and an increased administrative workload were particular challenges, as was the belief that the cameras changed how they interacted with the community. Although officers generally believed that people were comfortable with them wearing the cameras, they also felt that people were less willing to provide them with information; officers, themselves, felt the cameras limited their ability to use discretion when dealing with people. Workload indicators, specifically an increased number of arrests and a considerably decreased number of *Provincial Offences Act* warnings (compared to the previous year and the comparison group), may be a reflection of officers feeling less able to use discretion.

Impact on Community:

Consistent with what the officers believed, most people in the community did say that they would feel comfortable talking to an officer with a body-worn camera, particularly as a victim of a crime, though they thought they'd be less comfortable in investigative or enforcement situations. Most people who'd actually had contact with an officer using a body-worn camera in an enforcement situation, said that the camera hadn't changed their comfort level or affected their behaviour. For those people who'd felt that the camera had an effect on them, they tended to be more comfortable or feel that the camera had a positive effect on their behaviour.

Technology:

There were a number of process and technology-related issues that were raised during the pilot that would need to be reviewed and addressed should the Service choose to adopt body-worn cameras for wider use. Participants in the pilot project identified a number of technical concerns relating to the body-worn cameras and the associated hardware/software, including issues with battery life, camera mounting, docking, recharging, general functionality, upload speed, ability to classify, and ease of review.

Video corruption was also a major technical challenge during the pilot and recovery tools were not always successful in recovering the video and associated audio. Given the current level of community expectations, this issue has the potential to be critical. If videos are not available for Freedom of Information requests, for court, or in highly-scrutinized situations, there is the risk that any gains in public trust may be lost.

Impact on Workload:

As noted above, in addition to the technical challenges, the administrative responsibilities associated with the body-worn camera in the pilot project resulted in a significant commitment of time by front-line officers – time that was then not available to spend on other duties. The body-worn cameras also resulted in increased workload in support units, particularly the Video Evidence section of the Property & Video Evidence Management unit, and the Information Systems Support section of Information Technology Services.

Financial Impact:

The major challenge that would be associated with any adoption of body-worn cameras by the Service is the cost. While the pilot itself was not a major expense, projected costs of staffing, technology, and storage requirements would be about $20 million in the first year of implementation, with a total 5-year estimated cost of roughly $51 million, not including costs of integrating the Service's current records management and video asset management systems with a body-worn camera system. The most expensive component of any wider adoption of body-worn cameras is the storage of the video recordings. With no change to the storage solution, retention schedule, video resolution, or volume of video requiring storage, storage requirements could reach almost 4.56 PB in five years. Long-term, sustainable funding for the project would be essential.

Goals of the Pilot:

In addition to exploring the issues and challenges associated with the use of body-worn cameras, the pilot project also aimed to explore whether or not the cameras could:

- enhance public and officer safety;
- enhance public trust and police legitimacy;
- enhance commitment to bias-free, professional service delivery by police;
- protect officers from unwarranted complaints and accusations of misconduct; and
- provide improved evidence for investigative, judicial, and oversight purposes.

The final goal of the pilot was to:

- provide information on the effectiveness of Service procedures and training.

At the end of the pilot, a majority of the community said they felt that body-worn cameras would help make the community safer. While only about one in five officers said that cameras would help them feel safer, many did feel that the cameras helped to deter assaults against police and to make people less confrontational and aggressive. As the number of Injured on Duty reports submitted during the pilot was very small, more, longer term data are required before any inferences should be drawn. Officer injury in relation to the cameras is an area requiring further study.

There was a relatively small number of officers who wore the cameras during the pilot. Perhaps because of this, there was no significant incident or situation that arose that would have provided an opportunity for the body-worn cameras and associated video to demonstrate value, or lack thereof, for police accountability and public trust. That said, most people in the community felt that the cameras would make the police more accountable and improve public trust in the police, and felt even more so at the end of the project than at the beginning.

Among the benefits most frequently noted by the community for body-worn cameras was that they can provide an unbiased account of interactions between the police and members of the community. Focus group participants in particular felt the cameras would help to ensure that officers treated everyone fairly and impartially, and make officers more aware of their actions. For their part, some officers noted that with the cameras they tended to be more cautious about what they said, and more likely to be certain that they clearly articulated reasons for an interaction.

Most of the officers in the pilot felt strongly that the body-worn cameras would help respond to public complaints against them and protect them from false accusations of misconduct. Again during the pilot, the number of public complaints made was small, but there were indications that video from the body-worn cameras can help resolve complaints, possibly in a shorter time. There was also some indication that the video can help resolve potential complaints before they are submitted. Because of the small number of complaints during the pilot, the value of the body-worn camera video to complaint investigation and resolution, and to early complaint resolution, would benefit from further study.

Given the time required for a case to go before the courts, and the relatively small number of cameras being used in the pilot, there have to date been few cases for which body-worn camera evidence was available and useful. It was, therefore, difficult to reliably assess the value of body-worn camera video evidence in court at present. Crown representatives did believe, however, that body-worn camera evidence could have a positive impact on the early resolution potential of some cases and the litigation process as a whole. This is another area that would benefit from continued study.

A majority of the officers involved in the pilot also said they believed that the videos from the body-worn cameras would be valuable in court. Investigators in the pilot divisions agreed that videos from body-worn cameras were a valuable tool for them, and that the videos would be valuable in court. Experience with the videos was likely an influence – a majority of the investigators had used body-worn camera video in at least one investigation and had found it useful.

If the Service adopts body-worn cameras for use, a process should be established to monitor the impact of the cameras on workload, officer availability, officer injury and use of force, public complaints and resolutions, and court.

Finally, with regard to the Procedure and training, the officers involved in the pilot were generally positive about both, though suggestions for changes were made during the interviews and in the surveys. In particular, the Procedure seems to have worked reasonably well, although officers felt it needed to provide clearer direction about when the body-worn cameras should be on and when they should be off. They also felt that there needed to be more discussion about the Procedure during the in-class component of the training. While the officers were not as sure about the value of the mock court component of the training, they felt that the scenario training gave them valuable, hands-on experience with the cameras themselves before they had to use them during the operational part of the pilot.

Conclusions:

Overall, the pilot did find that, with specific challenges addressed, body-worn cameras could feasibly be worn by those front-line Toronto Police Service officers most likely to be involved in service-related, enforcement, or investigative contact with the community. Again, the primary challenge that would need to be addressed is the substantial, sustainable financial investment that would be needed.

In terms of achieving the pilot goals, the quantitative results were not compelling, though they did perhaps indicate trends that would have become clearer in a longer study. What was compelling, however, was the level of support for the cameras in the community – strong initial support that increased over the course of the pilot project. Although “the plural of anecdote is not data”, anecdote can be compelling and can influence belief and expectations. The community strongly believes that body-worn cameras will make the police more accountable to the public, improve public trust in police, and that they will help to ensure professional service that benefits both the public and officers. Though not as strongly in favour of body-worn cameras as the community, officers, too, became more supportive of the cameras over the pilot project, and felt particularly strongly about the ability of the cameras to protect them from false accusations of wrong-doing.

There is considerable public interest in the use of body-worn cameras by the Toronto Police Service, as indicated by the unprecedented response to the neighbourhood surveys carried out for this evaluation. Community expectations for body-worn cameras are high, but relatively few people showed concern for possible negative aspects of the body-worn cameras, including privacy issues and the associated costs.

There are also consequences to having officers wear cameras that the community may not be aware of, though these consequences may be ameliorated by time and technical/process changes. For example, increased administrative responsibilities could affect the availability of officers in responding to calls for service; and, if officers feel they are less able to use discretion, people may be given a ticket instead of a warning.

If the challenges identified in the evaluation can be addressed, the use of body-worn cameras by Toronto Police officers would be seen as a powerful indication of commitment to accountability, the desire to strengthen public trust and police legitimacy, and a commitment to ensuring officers are protected from unwarranted accusations of misconduct.

A. DEVELOPMENT OF PILOT PROJECT

Background

> "Body-worn cameras are small video cameras – typically attached to an officer's clothing, helmet, or sunglasses – that can capture, from an officer's point of view, video and audio recordings of activities, including traffic stops, arrests, searches, interrogations, and critical incidents such as officer-involved shootings." [Police Executive Research Forum, 2014][1]

Body-worn cameras are being used or tested by an increasing number of police agencies, for a variety of reasons, many of which relate to police officer interaction with members of the public. Intended objectives noted by police agencies include: target community violence and anti-social behaviours, address public concerns about police-community interactions, increase transparency and accountability, reduce complaints of officer misconduct, improve evidence for courts, provide information for investigations of public complaints and use of force situations, and demonstrate officer professionalism in difficult situations.

Within the Toronto Police Service, the Police and Community Engagement Review (PACER), which aimed to improve community engagements and eliminate bias-based policing, produced a report in 2013 recommending "That the Service continue to leverage and monitor the In-Car Camera System currently installed in all marked police vehicles, as well as explore the possibility of equipping all uniform Officers with Body Worn Video (Body Cameras)."[2]

In 2014, the Coroner's Inquest into the deaths of Reyal Jardine Douglas, Sylvia Klibingaitis, and Michael Eligon recommended that the Toronto Police Service "investigate and evaluate the adoption of improved equipment and alternative use of force measures for Primary Response Officers such as… body-worn camera technology…".[3] Also in 2014, in the report of the review of Police Encounters with People in Crisis, the Honourable Frank Iacobucci also recommended that "The TPS issue body-worn cameras to all officers who may encounter people in crisis to ensure greater accountability and transparency for all concerned."[4]

Given these recommendations and the increasing consideration and use of body-worn cameras by police agencies around the world, in early 2014, the Toronto Police Service decided to undertake a pilot project to explore the use of body-worn cameras in Toronto.

Purpose and Goals of Pilot

The purpose of the pilot was to explore the benefits, challenges, and issues surrounding the use of body-worn cameras by Toronto Police Service officers, and the feasibility of adopting the cameras for regular use.

In capturing an objective, accurate record of police officer encounters with members of the public, the overall goals of equipping front-line officers with body-worn cameras were:

- enhance public and police officer safety,
- enhance public trust and police legitimacy,
- enhance the commitment to bias-free service delivery by police officers to the public,
- protect officers from unwarranted accusations of misconduct,
- provide improved evidence for investigative, judicial, and oversight purposes, and
- provide information on the effectiveness of Service procedures and training.

Timelines

The year-long pilot project had two phases. Initial training for the pilot began on March 23rd, 2015, and continued through May 7th, 2015. The use of the body-worn cameras began in the field on May 18th, 2015, and continued through March 31st, 2016.

Preparation and Implementation

Planning for the pilot project began in March 2014. The Pilot Project Lead was Staff Superintendent Tom Russell, Area Field Command, assisted by Mick Damani, Information Technology Services Project Leader, Staff Sergeant (now Inspector) Mike Barsky, Area Field, and Staff Sergeant Graham Gibson, Area Field.

Initial planning involved a review of body-worn camera-related reports from a variety of sources. The review included reports from the Police Executive Research Forum, the PACER report, the report by the Honourable Frank Iacobucci, the report on the inquest into the deaths of Jardine-Douglas, Klibingaitis, and Eligon, and reports on operational findings from police services in North America and internationally.

Funding for the year-long pilot – $500,000 – was also secured at this time from the 2014 operating budget.

Stakeholder Working Group

An internal Working Group was created in March 2014, to assist the project managers in preparing for the pilot project. Working Group members included representatives from the units that would be participating in the pilot as well as members from other areas of the Service that would be affected by the pilot, including Information Technology Services, Professional Standards Support (Information Security and Governance sections), Legal Services, Property & Video Evidence Management, Strategy Management (Business Change Management section), and the Toronto Police College. A representative of the Toronto Police Association was also a member of the Working Group.

The Working Group met about once a month during the planning stages of the pilot. The Group assisted in defining the goals of the pilot, defining the technical requirements, providing input into the training that would be provided to pilot officers, and developing a Procedure to govern use of the body-worn cameras and the associated video during the pilot. The Working Group was also involved in creating the Request for Proposal (RFP) to solicit body-worn camera systems for testing during the pilot, as well as assessing the proposals that were received, and selecting the initial three cameras for testing.

The project managers found the contributions of the Working Group to be valuable and critical in ensuring comprehensive preparation for the pilot project and enabling a smooth implementation.

Feedback from Working Group members was also very positive. Members felt that there was sufficient representation from all appropriate stakeholders, including the Association, and that everyone in the Group had the opportunity to contribute to discussions and to raise issues and concerns. All those who provided feedback felt that they were listened to and that their concerns were taken seriously. While some members indicated that it would have been beneficial to receive regular progress updates during the pilot, all felt that the Working Group contributed significantly to the successful implementation of the pilot project.

External Consultations

External consultations began in mid-2014 with the Ontario Ministry of the Attorney General, the Ontario Human Rights Commission, and the Office of the Information and Privacy Commissioner of Ontario. Follow-up meetings were held again later that year with both the Human Rights Commission and the Office of the Information and Privacy Commissioner. As a major partner, ongoing meetings were held with representatives of the Ministry of the Attorney General throughout the planning phase and the pilot project.

Issues covered in these consultations included, among other things, transparency, public vs. private spaces, when cameras should be activated and deactivated, retention of videos, security of videos, and the importance of clear, comprehensive governance during the pilot.

Opinion was also formally solicited from the Ministry of the Attorney General on the legal implications of using body-worn camera technology, including use in public and private spaces and special considerations that might result from recording interactions with vulnerable populations.

The project managers also met and consulted with a number of other agencies that might be affected by or have an interest in the body-worn cameras during the planning phase of the pilot project. These agencies included: the Office of the Independent Police Review Director (OIPRD), the Canadian Civil Liberties Association, Toronto Emergency Medical Services, Toronto Fire Services, Toronto Community Housing, the University of Toronto, and the Criminal Intelligence Service Ontario.

With regard to community-based consultation, in November 2014, consultations were held with the Service's Community Police Liaison Committees in 43 and 55 Divisions (the pilot divisions) for their input into and feedback on police use of the body-worn cameras. Beginning in 2015, consultations were also held with Community Police Liaison Committees in other divisions, mainly in the east and south areas of the city, and with the Chief's Community Consultative Committees. Meetings were also held with the PACER Advisory Committee, the Domestic Violence Advisory Committee, and members of the Consumer/Survivor Resource Information Centre.

The external consultations were acknowledged by project managers as invaluable to pre-pilot planning. The information and input received was all carefully considered, and used in the preparation and review of pilot governance, in particular.

Overview of Evaluation Methodology

The Service's evaluation team was contacted in March 2014 during the initial planning phase, so that an evaluation plan could be established and evaluation activities could begin prior to the start of the pilot project. In line with research design and methodology used in evaluations in other jurisdictions, pre and post pilot measurement of officer and community perceptions, as well as experimental and control group comparisons of qualitative and quantitative information were planned.

Full details of the evaluation methodology, the evaluation logic model, and response rates to surveys are provided in Appendix A.

Surveys were used to assess community and officer perceptions of officer safety, training, interaction with the public, implementation and operation of the cameras, police accountability, and level of public awareness, as well as general impressions of benefits and drawbacks of body-worn cameras.

A survey link was e-mailed to officers participating in the pilot and to the comparison officers in January/February 2015, and again in March 2016. Surveys were also sent to the supervisors of the officers wearing the cameras, and to the unit complaint co-ordinators and officers in the detective office of the divisions involved in the pilot. A question about the level of support for body-worn cameras was also included in the Service's annual personnel surveys in December 2014 and 2015.

In total, over 45,000 surveys were distributed to the community – 20,086 in May 2015 and about 25,133 in January 2016. Over 7,500 surveys were completed and returned (3,399 in 2015 and 4,141 in 2016). While it is recognized that the results of surveys may be shaped by those who choose to respond, the 17% response rate for both surveys was a good response to a direct mail survey and the results are considered accurate ±1.7% and ±1.5%, respectively, 19 times out of 20.[5] In addition, in 2014 and 2015 general questions relating to body-worn cameras were included in the Service's annual community telephone survey, focus groups, and follow-up survey of victims of violent crimes.

In order to assess perceptions of the body-worn cameras more specifically, a follow-up survey was mailed directly, on a monthly basis, to a sample of people who'd had law enforcement contact with an officer wearing a camera during the pilot project. Surveys were mailed to 4,285 of the 6,914 contacts with valid data between August 2015 and February 2016, roughly 600 for each month; 427 surveys were returned, with 319 indicating that they had in fact had contact with a BWC officer.

At the end of the pilot, to gather more detailed information on the benefits and challenges associated with the cameras, individual interviews were held with some of the officers who wore the cameras and their supervisors, with investigators and unit complaint co-ordinators in the pilot divisions, with Information Technology Services (ITS) personnel, with Video Evidence personnel, with Access & Privacy personnel, with Toronto Police College personnel, and with representatives of Crown Operations in the Ministry of the Attorney General.

Quantitative data were also collected, including calls to the ITS Help Desk, requests to Video Evidence, Freedom of Information requests, on-duty injuries to officers, public complaints, and officer workload and availability indicators.

During the planning and pilot periods, the evaluation team reviewed available reports and research relating to body-worn cameras. This information indicated a number of specific issues to consider in the evaluation, and provided context for the evaluation analyses. An outline of some of the information reviewed is provided in Appendix C.

Finally, on behalf of the evaluation team, in March 2015, the Chief of Police invited external evaluation and data specialists to provide guidance on, and monitor the quality of, the evaluation. An independent, expert Evaluation Advisory Committee was established with the following members:

- Harvey Low, Manager, Social Research & Analysis Unit, City of Toronto Social Development Finance & Administration Division
- Dr. Flora Matheson, Scientist, Centre for Research on Inner City Health, St. Michael's Hospital
- Dr. Sara Thompson, Associate Professor, Department of Criminology, Ryerson University

Project Participants

In total, 85 officers (constables and sergeants) used the body-worn cameras for at least some time during the pilot period. Officers in the following assignments used the cameras and in this report are referred to as BWC officers:

- 43 Division Community Response (CR)
- 55 Division Primary Response (PR), D Platoon
- Traffic Services Motor Squad
- TAVIS Rapid Response Blue Team 2

The selection of these areas allowed assessment of the body-worn cameras in four different policing functions, two of which were geographically centred and two of which provided Service across the city.

For purposes of the evaluation, officers in similar functions and environments, as listed below, were also part of the pilot project as comparison groups:

- 41 Division and 42 Division Community Response
- 55 Division Primary Response, A, B, C, and E Platoons
- Traffic Services A, B, C, D, and E Platoons
- TAVIS Rapid Response Red Teams 1 and 2, Blue Team 1

It should be noted that officer mobility – movement in and out of the above units – meant that the officers who started the pilot project wearing the cameras, were not necessarily the same officers who completed the pilot wearing the cameras. During the pilot, 16 officers transferred out of or left the pilot units, while 11 officers transferred in. A total of 58 officers stayed with their units through the entire pilot period. The list of officers wearing the cameras was updated on a regular basis and efforts were made to factor any changes into the data collection processes.

Implementation Process

As noted previously, the Working Group, in collaboration with ITS and Purchasing Support, identified user requirements for the pilot project that were included in an RFP. The RFP was released on August 19th, 2014, and closed on September 26th, 2014. The vendors who met the mandatory requirements were asked to present their solutions to the Working Group in late October 2014. Based on these presentations and assessment of the proposals, three camera systems, including hardware, software, technical support, and training, were selected for testing during the pilot project.

Training on the three camera systems began in March 2015 and concluded in early May 2015, prior to the deployment of the cameras in the field. The training had three components – an in-class day, simulated experiences with the cameras, and a mock court situation. On the in-class day, in addition to other information, officers received training on the Procedure that would provide governance during the pilot project. Information about the training is provided in greater detail later in this report.

While all three cameras were used during training, only two camera systems were used during the pilot project. Three vendors were initially selected through the RFP process to participate in the pilot project and to supply the body-worn cameras required. The three vendors were Integrys (Reveal Media), Panasonic Canada (Panasonic), and MediaSolv (Wolfcom).

After being selected as a participant, MediaSolv advised that it was no longer capable of providing the body-worn cameras that had been identified in its proposal, which had been part of the basis for selection as a project participant. To maintain a fair procurement process, MediaSolv was not permitted to substitute body-worn cameras different from those that were described in the original proposal, and they withdrew from the project. The pilot continued with the two remaining vendors. However, this did mean that there were not enough cameras to equip all participant officers on May 18th, 2015, at the start of the pilot project, delaying the rollout to some officers. Additional cameras had to be purchased from Panasonic Canada and Integrys, and were available on July 16th, 2015. The loss of one vendor also meant that the testing rotation cycle had to be revised.

Cameras were provided to 55 Division beginning May 18th, to 43 Division beginning May 20th, and to Traffic Services beginning May 26th. Cameras were not available for the TAVIS officers until July 16th. Both 43 and 55 Division officers wore the Reveal cameras until the end of November, and switched at the beginning of December to the Panasonic cameras. Traffic Services and TAVIS officers wore the Panasonic cameras until the end of November, and switched to the Reveal cameras at the beginning of December. All officers stopped wearing the cameras March 31st, 2016.

The project managers held informal meetings with each of the pilot areas about mid-way through the pilot. These meetings allowed the officers to provide feedback on the camera operations and processes, and gave the project managers an opportunity to address some officer issues and concerns.

Technology and Operational Processes

There were 142 user requirements developed by the Working Group and the ITS BWC Project team that outlined requirements for hardware, software, reporting/printing, security, performance, and systems, as well as corporate-level requirements, such as training. Of the requirements, 76% were deemed mandatory, including, for example:

- The cameras had to meet standards for temperatures, humidity, and shock, have secure mounts, infinite focus, rechargeable battery, docking station that could accommodate multiple cameras, optimized sound quality, and recording indicator.
- There had to be role-based access controls for videos.
- The system had to be tamper-proof – videos could not be deleted or modified once captured.
- There had to be an audit capability tracking inquiries/accesses, playbacks, etc.
- The associated software had to allow videos to be classified, as well as manage storage, search/retrieval, retention, and encryption.

As to the general operation of the camera, once plugged into a docking station, both the uploading of recordings and battery recharging was started automatically. Once the recordings were uploaded to the unit server and the upload was validated, they were automatically purged from the camera. The recordings on the unit server were then transferred to the central server. Again, once transfer was validated, recordings were purged from the unit server.

Officers were able to view, bookmark, and classify videos (as Provincial Offence, criminal, investigative, or other). The Video Evidence section of the Property & Video Evidence Management unit was responsible for managing the video assets, as well as for searching, retrieving, redacting, and preparing recordings for disclosure to courts, for investigative purposes, or for Freedom of Information requests.

The process for associating an in-car camera video with a General Occurrence that involved or could involve arrest was adapted for the body-worn camera video. This would ensure that the existence of a body-worn camera video was noted in the system for the purposes of disclosure to court.

In these instances, an officer would playback and review the recording, and complete an Asset Entry Template in Versadex, the Service's records management system. The template contains information about the recording, including recording officer, asset inventory number, recording start and end times, whether or not charges were laid, and details if the video was viewed. If the video and/or audio captured non-disclosable information, such as the visible presence of third parties, personal identifiers seen or heard, or licence plate numbers, the officer completed an additional part of the template to note the areas of video requiring redaction. Case managers were responsible for completing a Video Redaction Template to formally request the specific redactions be completed by Video Evidence.

The cameras selected for the pilot are described in Section D of this report.

Retention

Retention periods for in-car camera video have been used for the retention of the body-worn camera video. The retention period is determined by classification:

- 1 year for unclassified or 'other' videos,
- 2 years for *Provincial Offences Act*-related videos, and
- 11 years for criminal, investigative, or professional standards-related videos.

Once the pre-defined expiration period has been reached, the video is automatically destroyed, along with any associated metadata. Audit logs remain and report on all lifecycle activity of a video.

Security

The Toronto Police Service has an established two-factor authentication process involving identification and authorization for access to and use of Service workstations. As noted above, one of the mandatory system requirements was that the body-worn camera recordings also have role-based access controls. The role-based access meant, for example, that:

- The officers who wore the cameras were able to view and classify only their own recordings.
- Supervisors and management were able to search and view recordings (to monitor content).
- Video Evidence staff were able to search and view videos, convert video to standard media format, edit file titles and descriptions, and burn DVDs for disclosure.
- Video Evidence supervisors could further create audit reports, including user and system activity.
- Authorized Professional Standards staff were able to search and view videos, and to change the file owner to restrict video access.
- Information Security unit staff were able to search and view videos, and could manage video audit reports.
- ITS (Information Systems Services) staff were able to search and view videos, manage video audit reports, import/export videos, and perform system configurations.

In addition, the ITS Help Desk staff could provide hardware and software support, but had no video access.

As noted previously, the body-worn camera systems included validated data transfer processes to ensure there was no manipulation or modification of data. Videos were not accessible until securely uploaded and stored. And, again as a mandatory requirement, the camera systems provided detailed audit data, including reports on system, user, and application activity to deter unauthorized use/access.

Communications – Public and Internal

Information about the body-worn cameras was disseminated to the public and to Service members in a number of different ways.

Prior to the pilot project, the external consultations outlined previously also served as a means of communicating information about the pilot project, particularly the meetings with the community consultative committees. A press conference, with all of the major media outlets represented, was held in May 2015 by the project managers to formally launch the pilot project, and project managers were visible in and accessible to the media – print, television, and radio – during the project.

Also in May 2015, a page for the pilot project was added to the Toronto Police Service's website. The Body-Worn Camera site contained a very brief outline of the pilot project, however, due to resourcing issues, the information contained on the site was not updated or changed during the pilot to provide on-going information to the community. Body-worn camera information was also available on other areas of the Service's website, such as media releases, stories posted on the website's main page, and articles in the Service's community newspaper 'The Badge', which is accessed through the Service's main page. However, stories on the Service's website and articles in The Badge were not frequent, those that were posted were quickly superseded by other stories and lost from view without searching. Posting links to these other areas on the Body-Worn Camera page would have made the information related to the cameras easily accessible to the community in a central location.

The Body-Worn Camera site did provide a link to a 'Frequently Answered Questions' document. As the title suggests, this document contained brief answers to questions that were raised by community members. While this document was updated and added to occasionally during the pilot, and may have been a good vehicle for communicating information about the pilot, there was no indication on the site that, or when, an update had been made.

Beginning in August 2015, the project managers provided a monthly update to the Toronto Police Services Board on the status of the project, including information on any issues that had arisen, communications made, and community and member feedback. While these meetings are open to the public, live streamed on the Service's YouTube channel, and the Board's website provides written minutes of the meetings, it may, again, have been beneficial to provide a link to these updates on the Body-Worn Camera website.

If the Service adopts body-worn cameras for wider use, the Body-Worn Camera website should be regularly updated and as comprehensive as possible, since it could be an important tool for providing information to the public, soliciting feedback, and managing community expectations.

With regard to general communication about the pilot project to Service members, the information available on the internet site was also available on the Service's internal intranet. Further, the Staff Superintendent leading the pilot provided information prior to the project to front-line members during e-parades at the start of officers' shifts. Information on the status of the project continued to be provided regularly through e-parades during the pilot project.

And finally, though not always part of the Toronto community, the Project managers also met with and/or made presentations on the pilot project to a number of external organizations, including police services (including Montreal, New York, South Australia, Durham Regional, Ottawa, Halifax, and Amherstburg), the OIPRD, Osgoode Hall, the Ontario and Canadian Associations of Chiefs of Police, the Ministry of the Attorney General Crown School, and the Provincial Special Investigations Unit, among others.

B. Findings: Processes

Governance

In the early 2000s, the TPS had conducted a pilot project to assess the viability of using in-car cameras. Using the Procedure that had governed that pilot project as a starting point, the project managers and the Working Group recognized the importance of creating a Procedure for the body-worn camera pilot that balanced the needs of law enforcement, accountability, transparency, and individual privacy rights. The Procedure outlined how the body-worn cameras would be used, and how the audio/digital media recorded would be collected, managed, stored, and retrieved during the pilot. Minor changes were made to the Procedure twice during the pilot project to address issues as they arose.

Procedural Overview

During the pilot, officers were instructed to activate the body-worn camera as soon as reasonably possible, prior to arriving at a call for service or at the decision to initiate any investigative contact.

For the purposes of the pilot, a call for service was defined as an incident attended by police in response to a call for assistance or service. Investigative contact was defined as any direct contact between a police officer and a member of the public where that contact was for the purpose of a police investigation, including, but not limited to, calls for service, investigative detention, apprehension under the *Mental Health Act*, arrests, interactions with persons in crisis, crimes in progress, investigations, active criminals, and public disorder issues. Officers participating in the pilot were given to understand that an investigative contact included asking a member of the public for personal identifiers or to explain why they were at a particular address or location.

When the body-worn camera was activated, officers were required, as soon as reasonably possible, to advise the person(s) being investigated that they were being recorded by the body-worn camera. Officers wearing the cameras were similarly required to advise other Service members on scene that a body-worn camera was in use and that they may be recorded.

The body-worn camera, once activated, was not to be deactivated until the incident had concluded or in certain exceptions, including being directed to do so by a supervisor.

Cameras were not to be activated or were to be deactivated or repositioned when taking a formal statement inside a police facility, when investigations or investigative techniques were being discussed, when doing administrative duties, when at court/hospital/healthcare facility/place of worship, when with an individual in circumstances of a sensitive nature, during level 3 and 4 searches of person, and during interactions that could potentially identify informants or undercover officers. Prohibited by law, covert recordings with the body-worn cameras were not permitted under any circumstance.

Legal opinion gathered by the project managers during the planning for the pilot indicated that it is legal for police services to gather, use, and retain information from members of the public as long as it is gathered lawfully for legitimate policing purposes. Law enforcement under the *Municipal Freedom of Information and Protection of Privacy Act (MFIPPA)* includes policing and investigations that lead or could lead to proceedings in court.

Guidelines released in February 2015 by the Office of the Privacy Commissioner of Canada addressed the issue of continuous versus intermittent recording. It was recognised that while continuous recording might be preferable from an accountability perspective, intermittent recording was preferable from a privacy perspective, as it lessened the amount of personal information collected. The guidelines noted that law enforcement agencies may have difficulty justifying the need for continuous recording, and that intermittent recording may be more easily justified for carefully defined operational purposes.

Similarly, in a personal communication to the Chief of Police in July 2015, Ontario's Information and Privacy Commissioner, Mr. Brian Beamish, reiterated the need for body-worn camera systems to balance the requirements of law enforcement with respect for privacy rights. He noted that "It is not clear that recording informal interactions is necessary for any law enforcement purpose, including the purpose of enhancing police accountability, bias-free policing and public trust. On the other hand, it is clear that recording all such encounters would have a significant impact on personal privacy."[6]

Officer Feedback

The BWC officers were asked to provide feedback on the Procedure in the survey they received at the end of the pilot. While fewer than 10% felt that the direction contained in the Procedure was very clear, 68% felt the direction was generally clear.

Just over one-third of the BWC officers (37%) said changes should be made to the Procedure if cameras are adopted for use by the Service. Suggested changes mainly focused on including more discretion in camera use for officers in certain situations and improving clarity about when the camera must be on and when it can be off. These were the foremost changes suggested by officers in PR, CR, and TAVIS; Traffic officers suggested more clarity around note-taking and viewing the videos. It was also noted that a non-pilot body-worn camera procedure would have to address the integration of the body-worn cameras and the in-car cameras, if both systems were kept.

In the body-worn camera training assessment completed by officers, some noted that it would have been beneficial to receive a copy of the Procedure rather than just reviewing the contents during training. According to Toronto Police College personnel involved in the body-worn camera training and project managers, officers had access to the Procedure, and any updates made to it, through the Sharepoint site that was set up for communication with and between the participant officers. However, an examination of the Sharepoint site found little activity after the first few months of camera deployment. While the changes made to the Procedure were communicated to officers during e-parades, it was also acknowledged by program managers that officers were not formally notified when changes, all relatively minor, were made to the pilot Procedure. While this is not normally an issue, since there is a formal process for announcing changes to Procedures in non-pilot situations to Service members, it may have been worthwhile to have had supervisors review the Procedure mid-pilot with officers wearing the cameras to ensure they were up-to-date with any changes.

Staff sergeants and investigators (Detectives and Detective Sergeants) were also asked about the Procedure in a survey at the end of the pilot. As were the BWC officers, these officers were asked how clear they felt the direction contained in the Procedure was, for the purposes of the pilot, and whether any changes should be made.

All five staff sergeants said they felt the direction in the Procedure was generally clear, with three saying that changes should be made to the Procedure if the body-worn cameras are adopted by the Service. The suggested changes again included more officer discretion in when to turn the cameras on and off, and that consideration should be given to using the cameras anytime an officer is working, including paid duties.

Just over half of the investigators said that the Procedure was very or generally clear, with one suggesting that, should the body-worn cameras be adopted by the Service, direction to officers should be more specific and clear, with as little 'grey' area as possible.

In the end-of-pilot interviews, it was consistently noted by officers, supervisors, and investigators that while the Procedure needed to be very clear and straightforward, there also needed to be more discretion/flexibility for officers in when the cameras were turned on and off, and/or when the audio could be turned off. This increased flexibility was felt particularly important when speaking to informants and when gathering intelligence. Supervisors also felt that, rather than regular mandatory review of video, reviews should only be conducted when there was a complaint.

Community Feedback

In the surveys distributed in 43 Division, 55 Division, and neighbourhoods where TAVIS officers had spent time, members of the community were asked when they felt the body-worn cameras should be on. As shown in Figure 1, peoples' opinions did not change much from the start of the pilot project to the end.

Almost half (49% at each time) felt that the body-worn cameras should be on all the time, except for breaks. For those who did not feel that the camera should be on all the time, the most frequent responses at both times were when an officer was arresting someone or when there was a threat or potential threat to the officer. About one-third of people responding to both surveys also felt the camera should be on when the officer was questioning or investigating someone and when the officer was at the scene of a crime.

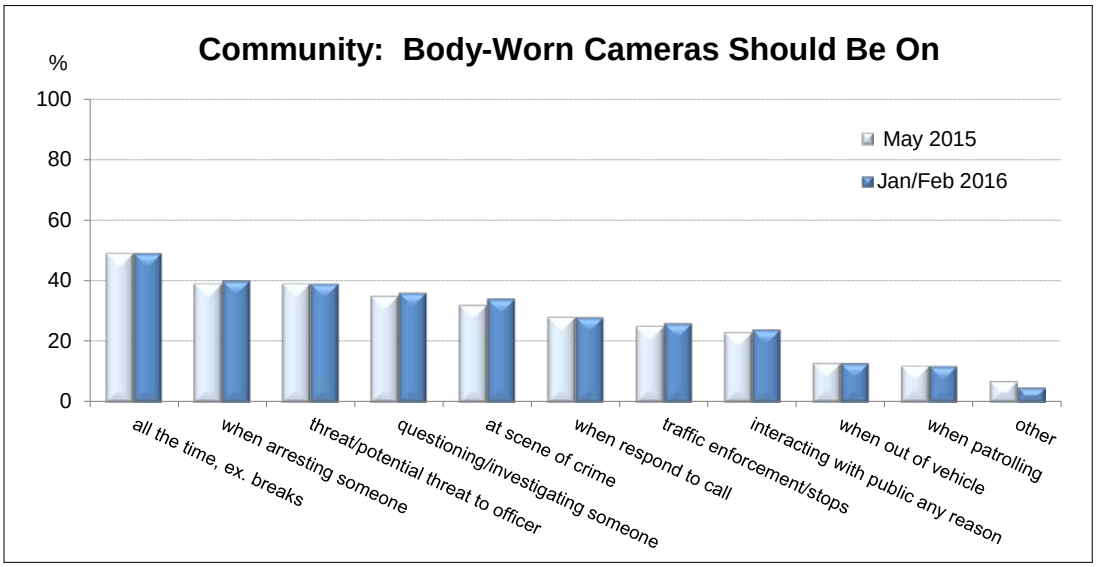


Figure 1

Exploring demographic group differences, a pattern of response similar to the group as a whole was found for men and women, for people who identified as a visible minority and those who did not, for people in all age groups, and for people in all three geographic areas. About half of the people in each of these groups felt the body-worn camera should be on all the time, except for breaks. And for those who did not feel that way, the next most frequent responses were that the camera should be on when the officers was arresting someone or when there was a threat or potential threat to the officer.

While a large proportion of the community would like the body-worn cameras to be on the whole time an officer is on duty, except for breaks, the responses also indicate that the community acknowledges it is a priority for the cameras to be on during investigative and law enforcement-related contacts, and that cameras might not need to be on when officers are not dealing with people in a law-enforcement context.

At the end of the pilot, people were also asked what they thought about different uses of the video from the body-worn cameras. Almost everyone (91%) supported officers being able to view the videos at a later point in time when they're investigating a specific situation or crime. This high level of support was consistent across all three geographic areas.

People were less likely to support the idea of officers viewing videos later simply to look for any criminal or suspicious activity that might have been caught by the camera: 71% of people overall supported this use of the videos. There were, however, significant differences in the level of support in the different geographic areas for the this general viewing of body-worn camera videos. People in the TAVIS areas

were most likely to support this use of the videos (83%), followed by 43 Division (78%); people in 55 Division were least likely to support viewing of the videos for non-specific purposes (63%).[7]

Privacy Considerations

Given the significant privacy implications associated with body-worn cameras, considerable effort and consultation went into drafting a pilot Procedure that, as much as possible, balanced the needs of law enforcement with the privacy rights of individuals.

The pilot Procedure restated for officers the definitions of private and public places. As noted above, in either type of location, officers were required, as soon as reasonably possible, to advise the person(s) being investigated or assisted that a body-worn camera was being used.

Officers were advised that recording in a private place was dependent on the lawful authority that was the basis for the officer's attendance. If at any time during the attendance, when recording with the consent of an owner/occupant, the person requested that the interaction not be recorded, the officer was required to deactivate the camera or leave the private place. When an officer was lawfully entitled to enter a private place in exigent circumstances or on the authority of a search warrant, the officer was lawfully permitted to have his or her body-worn camera activated when at the location, and was to continue recording even if there were objections. Officers were also to continue to record if a person objected to being audio and/or video recorded in a public place.

Officers were further advised to be aware of the impact the camera might have on victims, witnesses, or suspects involved in incidents of a sensitive nature. In such circumstances, an officer could temporarily turn a camera away or deactivate the video recording function.

As noted previously, similar to the in-car cameras, a process was established to allow the officers with the body-worn cameras to recommend redaction if the video and/or audio captured non-disclosable information, such as the visible presence of third parties, personal identifiers seen or heard, or licence plate numbers.

As also noted previously, the audio/video records created using the body-worn cameras were kept strictly secure. They were edit-proof, encrypted and stored on a secure server, and restricted from access except on a need-to-know basis. An audit capability ensures that recordings were not modified or accessed inappropriately.

A Privacy Impact Assessment was completed in May 2015, by the Corporate Risk Management section of Professional Standards to review risks to privacy that could potentially arise with the body-worn cameras. The comprehensive assessment considered risks related to accountability, purpose, consent, data collection, data use/disclosure/retention, accuracy, safeguards, administrative safeguards, technical safeguards, physical safeguards, openness, individual access, and challenging compliance. Five privacy-related risks were identified and taken into consideration by the Project Managers. The Executive Summary of the Privacy Impact Assessment can be found in Appendix B.

Officer-Identified Privacy Concerns

Over half (59%) of the officers who wore the cameras during the pilot said that members of the public rarely or never asked them to turn the camera off. None of the officers said that they were frequently asked to turn the camera off.

The BWC officers were asked if they felt that the Procedure written for the pilot project adequately addressed the privacy concerns for various groups. Half or just over half of the officers felt that privacy concerns for offenders/suspects (60%), victims (54%) and complainants (50%) were adequately addressed. The officers were less certain privacy concerns for themselves (49%), general members of

the public (41%), and other officers (40%) were adequately covered. The PR officers were generally less certain than officers in the other assignments that privacy concerns were adequately covered.

When asked to explain their concerns, many officers felt the Procedure was too 'grey' and not clear enough about when the cameras should be on and when they should be off; other officers felt that more discretion needed to be given to officers in camera use in private homes, in sensitive situations, or to increase information for investigations and confidence/security for victims and witnesses. It was also suggested that clarity was needed around what should be flagged for redaction, and that the issue of information captured by accidental activation of the camera needed to be addressed.

In the end-of-pilot interviews, almost all the officers who'd worn the cameras had some privacy concerns. Many expressed concern that if the cameras were accidently turned on, investigative techniques, confidential informants, or personal calls/conversations might be captured. They also felt that many of the victims/complainants/witnesses they dealt with wanted to help, but also wanted to be anonymous.

The officers emphasized the need to be especially careful when reviewing video to ensure that personal information captured was properly marked for redaction: they found, for example, that personal information was sometimes unintentionally captured while running a licence plate, while writing notes, or when information came over the radio.

The BWC officers interviewed also noted that other first responders (EMS, Fire, other officers), hospital staff, and security guards had concerns about the cameras being on: interactions became more cautious, or they tried to stay out of the camera's view. In particular, officers in the Emergency Task Force and in Police Dog Services were apprehensive about revealing investigative techniques, while medical personnel had privacy concerns for their patients.

Community-Identified Privacy Concerns

At some of the initial consultations and public meetings for the body-worn camera pilot, members of the community expressed concerns about the recording of informal interactions with the police. According to the project managers, community members were reassured when the intent to only record investigative contacts was explained.

The community surveys distributed at the start and again near the end of the pilot project asked people about the drawbacks of Toronto Police officers using body-worn cameras. One of the possible drawbacks they could indicate was "violation of privacy". Less than one-third of the community at both times indicated this as a concern (29% at the start of the pilot project and 30% at the end).

In the context of all the possible drawbacks of body-worn cameras, "violation of privacy" was not one of the top three drawbacks noted by community members at either time (that is, at the beginning or end of the pilot project). When demographic groups were examined, it was also not among the top three drawbacks for men, women, people who identified as visible minority, those who did not, for any age group, or in any of the three geographic areas surveyed. Further discussion of the perceived drawbacks of the body-worn cameras can be found in the Community Impact section of the report.

Concern about privacy was also discussed in the Service's annual focus groups. In the focus groups held in November 2014 before the pilot project started, one of the main concerns about body-worn cameras held by participants was related to privacy, particularly for those reporting crimes or people captured by the video who were not involved in the situation. However, in focus groups held mid-way through the pilot project in November 2015, violation of privacy was seen as a relatively minor concern, and the concerns noted were for the privacy of both members of the public and officers.

The focus group participants also raised concerns about the possible release of video and were emphatically against making videos public. They were particularly concerned about videos from the body-worn cameras being posted on social media.

While people may not want all videos released to the public, there will undoubtedly be situations that arise where members of the community call on the Service to make a video or videos public. If the Service adopts the use of body-worn cameras, these exceptional situations will have to be anticipated and planned for in a public release policy.

Information Technology Services

The ITS BWC Project team within ITS played a key role in the body-worn camera pilot project. This section addressed all configuration issues related to the three original vendors – that is, ensured the configuration of Toronto Police Service systems to integrate with the software of the vendors. Since each of the camera systems to be tested was unique, this essentially meant that the ITS BWC Project team had to set-up and manage three separate projects, resulting in a significant impact on staff time. The loss of the third vendor about 5 months after configuration had begun meant that the staff time spent on this system was effectively to no purpose.

The ITS BWC Project team, comprised of specialised members, for the sake of expediency took a more active role in what typically would have been the responsibility of other sections of ITS. These other responsibilities included:

- access controls,
- storage of video assets,
- infrastructure (workstations, docking stations, system servers),
- network connections,
- purge of video assets based on retention schedule,
- maintenance of the body-worn cameras,
- recovery or extraction of lost or corrupted video assets,
- relationship with vendors, including management of issues related to new technology,
- assistance to officers wearing the cameras,
- ongoing training, including ongoing training of Help Desk staff, and
- rotation of the cameras.

A number of issues relating to the camera systems had a major impact on the ITS BWC Project team. Hardware issues (docking issues, in particular), camera stability, video corruption/loss, and vendor communication all added to the staff time required to support the project.

All the ITS BWC Project team member were involved in the support of the pilot project. In addition to the time of the ITC BWC Project Leader, the project required about 50% of the business analyst's time, and 50% to 60% of the other 4 technical analysts' time. Since much of the roll-out of cameras and related systems took place on weekends or evenings to minimize disruption to the units involved, the ITS BWC Project Leader estimated about 220 hours of overtime were required by the team, including approximately 50 hours of unclaimed time.

Resourcing within ITS was a major challenge prior to and during the pilot project. The commitment of staff time to the body-worn camera pilot meant that work on a number of other projects (for example, upgrades for the Digital Video Asset Management System – DVAMS) was postponed or curtailed.

Based on the experience with the current pilot project, and the ameliorating effect of returning some responsibilities adopted during the pilot project to other sections of ITS, the ITS BWC Project Leader estimated that, should body-worn cameras be adopted by the Service, two contract resources would be required for the first two years of implementation. These contract resources would assist with managing the larger implementation and allow current ITS resources to spend the necessary time on the body-worn cameras while also maintaining work on other projects. After the first two years of rollout, the Project Leader estimated that two additional technical analysts would still be required to assist with maintaining

the body-worn camera system, and with its integration with other systems, including DVAMS, eDisclosure, and, if required, the in-car camera system.

Another potential resourcing implication lies with the current ITS classification of the project. The body-worn camera project was not considered a Class A system, and therefore not supposed to receive 24/7 support. However, given the profile of the project and the desire to support the officers as fully as possible, the ITS BWC Project team kept two members on stand-by during the rollout periods. Should the cameras be adopted by the Service, and should the camera system used not be more fault-tolerant, the classification of the project may need to be reviewed. If designated a Class A system, there would not only be staffing implications, but cost implications as well – Class A systems require a mirrored back-up system in case of failure.

The other area of ITS that was affected by the pilot project was the Help Desk. During the pilot project, there were 118 calls to the Help Desk related to the body-worn cameras, with the greatest number of calls being made in June, July, and October 2015 (Figure 2). Fewer calls were received as officers became more experienced with the equipment and could attempt to resolve issues without calling the Help Desk. Just over half (58%) of the calls were for hardware-related issues, with the remaining 42% were for workstation or application issues. While the number of workstation or application-related calls decreased toward the end of the pilot project, the number of calls for hardware-related issues actually increased. This increase was related mainly to docking station issues.

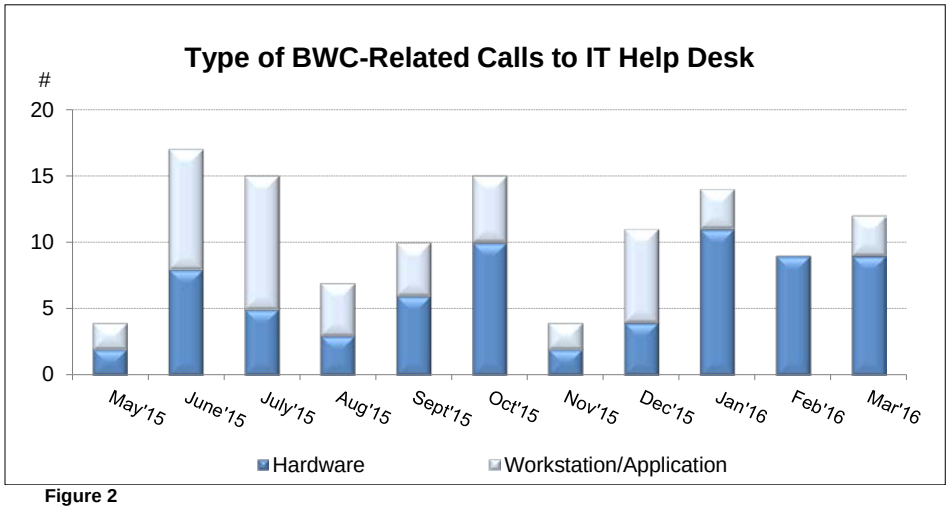


Figure 2

With the exception of December 2015, the median length of time it took to close calls each month was about the same for hardware calls as it was for workstation/application calls. The median length of time a call was open was 31 hours, ranging from less than 1 hour in March 2016 to 330 hours in December 2015. In addition to dealing with issues that arose following the camera switch-over in November, in December, video corruption and loss became an issue with one of the camera systems. The ITS BWC Project team spent more than 150 hours, along with vendor engineers, to try to address the problem and prevent its recurrence.

About 40% of the calls to the Help Desk came from each of Traffic Services and 55 Division, and 17% came from 43 Division; only 2% of Help Desk calls came from TAVIS. Since the ITS BWC Project team spent a considerable amount of time on location at the TAVIS unit in July, due to the delay in getting the additional cameras required for the pilot, TAVIS officers tended later to call them directly rather than going through the Help Desk for assistance, accounting for the differences in proportions of calls to the Help Desk.

Property & Video Evidence Management

The Video Evidence section of the Property & Video Evidence Management unit also had a key role in the pilot project. The section was responsible for redacting videos from the body-worn cameras and burning DVDs for the Crown, defence, and investigators for disclosure purposes. Redaction addresses confidentiality and privacy issues and involves pixilation of the contents of the video that do not directly relate to the case (e.g. bystander faces). This vetting process uses a copy of the original recording to maintain the integrity of the original.

Video Evidence adapted the processes currently in place for the in-car camera video for the body-worn camera video generated during the pilot project, and two members received an abbreviated 2-day training course so that they would be able to accommodate the requirements of the body-worn camera pilot.

In general, except for February 2016, the Video Evidence section tended to receive between 20 and 30 requests for video each month during the pilot, with a total of 277 requests over the 10 month period (Figure 3). Most of these requests were for video for both disclosure and investigative purposes, although the number of requests for video for disclosure purposes alone did increase toward the end of the pilot. This finding is not unexpected, given the length of time required for cases to progress through the judicial system – incidents occurring earlier in the pilot project would likely just be coming before the courts toward the end of the pilot.

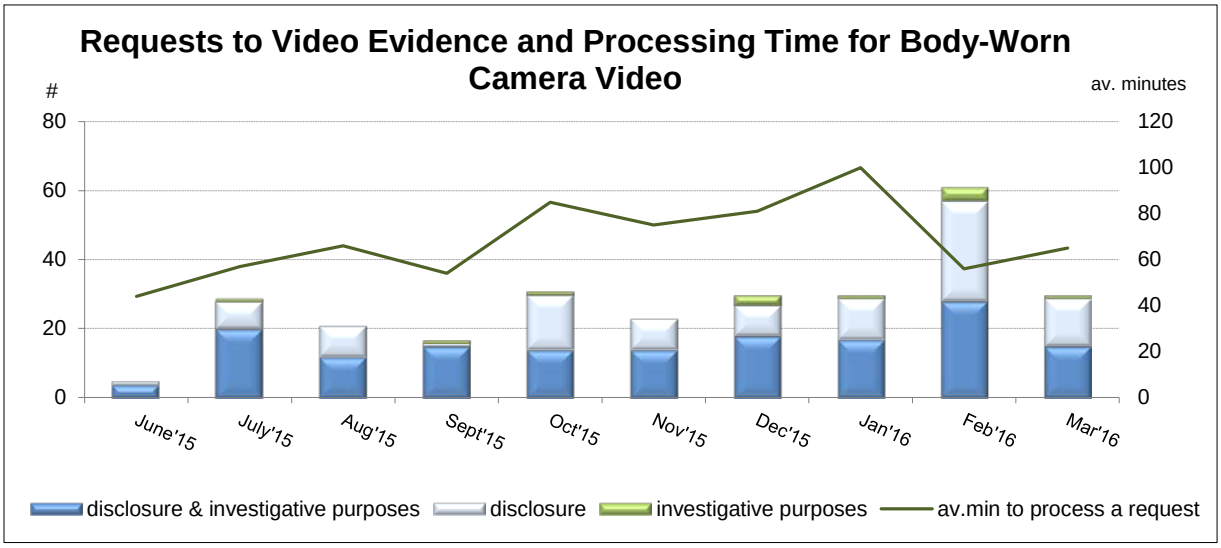


Figure 3

Overall during the pilot project, Video Evidence took 68 minutes on average to process each request, ranging from an average of 44 minutes in June 2015 to an average of 100 minutes in January 2016. The time required to process a video clip is affected by a number of factors, including the length and the complexity of the recording, that is, the number and type of redactions required, if any. Figure 3 provides some indication of this with the longer average processing time in January and the shorter average processing time in February. The average length of recording in January was also longer at 62 minutes, compared to 25 minutes in February. According to Video Evidence staff, in addition to being longer, the recordings in January were relatively complex, requiring longer to process. In contrast, the shorter recordings in February were often less complex or required no redactions, just needing to be burned to DVD, resulting in less time needed to process.

Further affecting processing time, since there was no redaction capability/software in the body-worn camera software, all requested videos that required redaction had to be exported into a file compatible with the redaction software currently being used by Video Evidence. According to staff, the processing power of the current workstations within Video Evidence also limited the speed with which the video could

be exported for redaction. Should the Service adopt body-worn cameras, staff suggested that an all-in-one solution or better redaction software, along with improved workstations, would help decrease processing time.

The video from the body-worn cameras generally tended to be more complex and capture more extraneous information and people than the video from the in-car cameras, as the body-worn cameras moved about with the officer and had a wider field of vision. Given this, Video Evidence staff suggested that, should the Service adopt body-worn cameras for wider use, there needs to be very clear legal opinion as to what needs to be redacted in public spaces; this in turn needs to be clearly communicated to officers.

According to Video Evidence management, given the current workload of the Video Evidence section, additional staff would also be required should the Service adopt body-worn cameras. Given the volume of requests (4 per officer) and average processing time (68 minutes) during the 10-month pilot, and the number of front-line officers, there would be need for an initial increase of 7 video analysts. Management also noted that, over time, should the volume of video requests follow the exponential growth pattern of the in-car cameras (in-car camera video requests are now seven times what they were in the first year), a further large increase in staff would be necessary to meet Service demands, along with a potential change in location or the creation of a second shift to accommodate more staff in the current facility.

Freedom of Information

The Access & Privacy section of Records Management Services is responsible for responding to access requests from the public under *MFIPPA*. In responding to requests for video, Access & Privacy staff must acquire the recording; review it, often multiple times, to identify the visual and audio portions that require redaction; liaise with the Video Evidence section of the Property & Video Evidence Management unit to get an estimate of the time that will be needed to perform the required redactions; review the final, redacted version of the video; and burn copies of the final video file for the requester and for the file.

During the pilot project, the section received 10 access requests related to the body-worn cameras: 3 from media, 1 from a researcher, and 6 from private individuals; 2 of these requests were still open at the time of writing. While the number of requests during the 10 months of the pilot was low, it is anticipated that the volume of requests for body-worn camera video would eventually reach the same volume as for video from the in-car cameras.

Access to information requests are mandated to be completed within 30 calendar days. As noted in the section's annual report to the Toronto Police Services Board in February 2016, compliance with *MFIPPA* in 2015 was 60%, within an environment of an increasing number of requests being received.[8]

The time it took Access & Privacy staff to review body-worn camera video during the pilot depended very much on the incident itself. As an example of one of the more time-consuming requests, Access & Privacy reports that it took over four hours to process a 5-minute video. Although only one instance, should the cameras be adopted by the Service, and should the volume of requests mirror that for the in-car camera videos, the Access & Privacy Co-ordinator advised the additional time required to review body-worn camera video – from possibly more than one officer – in processing access requests would have a considerable impact on the section and the *MFIPPA* compliance rate. An increase in access to information requests related to body-worn camera video would also have an impact on the workload of Video Evidence, since that section is responsible for the actual redaction of the video. Delay in receiving the redacted video from Video Evidence would, in turn, likely also have a negative effect on the *MFIPPA* compliance rate.

Finally, beyond the ability to respond within the mandated 30 days, the time required to process requests involving body-worn camera video may have a more direct impact on members of the public. According to the *MFIPPA* fee schedule, the charge for preparing a response to a request is $7.50 per 15 minutes. Requesters may be charged far more for a 5-minute video than expected.

Training

In March, April, and May 2015, the Toronto Police College provided training to 79 officers who would be wearing the body-worn cameras during the pilot. To accommodate transfers into and out of the pilot areas, an additional 12 officers received training mid-way through the pilot.

The training was developed by Toronto Police College staff in partnership with the project managers and the Ontario Ministry of the Attorney General. Assistance was also provided by the Information Security section of Professional Standards Support and the Business Change Management (Versadex) section of Strategy Management, as well as the Toronto Police Association.

The training took place over four days, and had three components. Generally, no more than 14 officers went through the training at any one time.

The Sergeant who co-ordinated the development of and participated in providing the training at the Toronto Police College felt that overall training went very well and commended the commitment of the officers who had participated. The officers themselves were asked to evaluate the first three days of the training, immediately following each component, and their feedback was generally positive as well.

The first day of the training involved in-class information sessions in the following seven areas:

- introduction and overview of the project,
- writing memo book notes,
- privacy issues,
- governance – procedure to be followed during the pilot,
- information entry into the Service's records management system,
- presentation from the Ontario Ministry of the Attorney General, and
- presentation from the Toronto Police Association.

Officers also spent time during this first day becoming familiar with the three camera systems. The camera vendors had provided training to the ITS BWC Project team and to the Sergeant at the Toronto Police College, who then provided the training to the officers.

With regard to the in-class training, between 57% and 70% of the officers felt that about the right amount of time was spent on most of the topics, although about one-third said that more time should be spent. The exception was the presentation from the Ministry of the Attorney General – only 48% of the officers felt that the right amount of time was spent here, and 42% felt more time should be spent on this area. The presentation by the Ministry reviewed specific aspects of governance for the pilot, including when to activate the camera, notifying people that they being recorded, dealing with objections, and note-taking.

When asked if there was something they would have liked to see included in the training that wasn't, or for general comments, officers felt it might be beneficial to hear about the experiences of other police services using body-worn cameras and to have more discussion around legal issues and governance.

The second and third days of training involved practical scenario training. The situations included in the training were ones that create a high volume of court cases, present a high level of risk to the community, and have the potential to affect community and officer safety and public trust. The seven different simulated scenarios were:

- a break & enter
- a domestic violence situation
- theft from an auto
- an impaired driving situation
- dealing with a confidential (drug) informant
- speeding in a motor vehicle
- dealing with an emotionally disturbed person

The officers generally agreed that the scenarios they participated in were realistic and gave them valuable practical experience with the cameras. Most of the officers agreed that the scenarios were

relevant to their current duties, and that based on the governance training they'd received, they understood when the cameras were to be activated. While more officers agreed than disagreed with the statement "The BWC video improved my evidence about the scenario" for each of the scenarios, there was some difference between the scenarios. Officers were particularly likely to feel the body-worn camera improved their evidence in scenarios that were dynamic (e.g. domestic violence scenario) or that were more familiar to officers in one function than in other functions (e.g. impaired driving scenario).

Just over two-thirds of the officers agreed that the in-class training day had adequately prepared them to use the body-worn cameras in the scenarios, but a similar proportion felt more confident about their ability to use the camera after the scenario training than if they had only received the in-class training. When asked if there were any changes they would make to the scenario training, officers suggested more dynamic and/or high stress situations be included.

The fourth day of training took place a week or so later, and involved each officer participating in a mock trial incorporating video taken from his or her body-worn camera from one of the practical scenario sessions. Two Crown Attorneys from the Ontario Ministry of the Attorney General participated in the mock trials. The mock trial was felt to be a valuable part of the training, since it showed officers how their videos and memo book notes would potentially be used together in court.

The training, particularly the scenario exercises and the mock court, allowed both the Service and the Ministry of the Attorney General to prepare for the new processes and governance that would be involved with the body-worn cameras, as well as to make any adjustments, if required. It also importantly provided the officers with an opportunity to become familiar with using the equipment.

When asked about the sustainability of the pilot training model should the Service adopt the body-worn cameras for wider use, the training co-ordinator expressed some reservations. Given that only 14 officers were involved in the training at any one time, it would take a significant amount of time to train all officers, particularly given the on-going mandated training that the College must also provide.

In the surveys they were sent at the end of the pilot, the BWC officers were again asked to rate each section of the training they'd received: they were least positive about the mock court. About two-thirds of the officers rated the in-class section (68%) and the scenarios (66%) as excellent or good, however only half (50%) rated the mock trial as excellent or good; 11% rated the mock trial as poor.

Similarly, in the end-of-pilot interviews, officers felt the scenarios were the most valuable part of the training, because they got practical, hands-on experience with the cameras in different situations, learned how to use the cameras properly (e.g. muting, activating), and saw the limitations and benefits of the cameras. It should be noted, however, that while not rated as highly as the scenarios, the mock trial experience was particularly appreciated by newer officers who had little experience in court.

In the interviews, officers also felt that the in-class section of the training could have been longer so that they could spend more time learning about the functions of the camera, classifying, the Procedure (legalities, when the camera should be on/off), and what would be required of them administratively. While very few of the officers interviewed said they'd spend less time on any part of the training, those who did said that they would choose to spend less time on the mock court since they already have experience in this area with the in-car camera videos.

Should the Service adopt body-worn cameras for use, given the amount of time that would be required to train officers, revisions to the training model would have to be considered. Possible adjustments that were suggested by the officers and by the Sergeant at the Police College included creating an on-line component for some of the material so that more time in-class could be spent on the Procedure, administrative requirements, and hands-on time with the cameras; and scaling back the scenario training from two full days to one day or two half days. While the mock court was appreciated, given general officer familiarity with in-car camera video in court and the need for participation by the Ministry of the Attorney General, which might not be feasible, consideration could be given to adding a video component to the mock trial part of current recruit training.

C. FINDINGS: OUTCOMES

Operational Impact

Officer Safety

Data:

The Toronto Police Service Occupational Health & Safety unit examined Injured on Duty (IOD) reports submitted by BWC officers and comparison officers between May 18th, 2015, and March 30th, 2016, and in the same period one year earlier (May 18th, 2014, to March 30th, 2015). It should be noted that under the *Workplace Safety & Insurance Act*, members have six months from the time of learning of a condition to submit a claim, so data for the most recent months of the pilot period may be undercounts.

Injuries on duty are to be reported when a member:

- has been injured and may require medical care immediately or at some time in the future;
- has been or may have been exposed to a physical, chemical, biological, radiological, nuclear, and/or explosive hazard or communicable disease;
- sustains a work-related injury or illness that results in or may result in first aid, medical care, or time lost from work; or
- experiences a recurrence of a previously reported work-related injury/illness that has been approved by the Workplace Safety & Insurance Board (WSIB).

For the purposes of this evaluation, the Occupational Health & Safety unit looked at only those IOD reports deemed reportable to the WSIB (that is, Health Care, Lost Time from Work, and Recurrence claims).

The number of IOD reports for both the BWC and comparison officers during the periods examined were low. Therefore, while possibly providing an indication of trends, it is difficult to draw any conclusions. With regard to any pre-pilot/pilot comparison, it should also be noted that officers may not have been in the same assignment during both periods.

Given these qualifications, the number of IOD reports per officer was higher for the BWC officers than for the comparison officers during the pilot period. And compared to the pre-pilot period, the rate of IOD reports increased for the BWC officers, while decreasing for the comparison officers.

IOD Reports per Officer *	Pre-Pilot Period	Pilot Period
BWC Officers	0.07	0.15
Comparison Officers	0.12	0.09

** Due to the difference in size of the BWC and comparison group, rates per officer are used.[9] With regard to numbers, BWC officers submitted 6 IOD reports pre-pilot and 13 IOD reports during the pilot.*

There was, however, little difference between the BWC and comparison officers in the type of incident resulting in the IOD during the pilot period. The most frequent types of incidents for both groups were motor vehicle/motorcycle incident and assaults. Although during the pilot period, a greater proportion of the IOD reports arose from assaults for the BWC officers than for the comparison officers, given the small numbers and the possible delay in submitting IOD reports, it is difficult to draw any conclusions.

According to the Occupational Health & Safety unit, a Lost Time IOD may reflect more serious injury, since it results in a member being unable to complete one or more scheduled shifts. The comparison officers had a higher proportion of Lost Time than Health Care reports in both the pre-pilot and pilot period, and the BWC officers also had a higher proportion of Lost Time reports in the pre-pilot period. However, for the BWC officers during the pilot period, the proportion of Lost Time IOD reports was lower than the proportion Health Care reports.

Although it cannot be claimed that the body-worn cameras were the reason for the decrease, and caution is again required in interpreting the data due to the small numbers involved, the data may suggest that the severity of injuries among the BWC officers was less during the pilot than in the prior year and less than injuries to the comparison officers during the pilot.

% of IOD Reports – WSIB Claim Type	Pre-Pilot		Pilot	
	BWC	Comparison	BWC	Comparison
Health Care	20%	41%	54%	30%
Lost Time	80%	55%	46%	62%

Information on officer injury is also collected on Use of Force reports that are submitted by officers in a number of situations, including when they use physical force on another person that causes injury requiring medical attention. Professional Standards examined the officer injuries reported during use of force incidents in the pilot period (from May 18th, 2015, to March 23rd, 2016) and in the same period of the year prior (from May 18th, 2014, to March 23rd, 2015).

None of the BWC officers reported any injuries during use of force incidents in either period. In contrast, while only 1% of comparison officers reported injuries before the pilot, 14% of the comparison officers reported injuries during the pilot period.

Again, while no causality can be concluded and the numbers of IOD and Use of Force reports small, the pattern of data may suggest a number of possible influences. Since no BWC officers reported injuries resulting from a use of force, officers with cameras may be hesitating to use force when appropriate, and getting injured themselves. The officers may be more likely to report an assault or IOD that is caught on camera. As found in recent research, officers with body-worn cameras may be more likely to be assaulted.[10] And/or, people being arrested may put up less resistance when officers have cameras, resulting in no or less serious injuries to officers. Should the Service adopt body-worn cameras for use, injuries to officers must be closely monitored to identify and address any negative impacts to officer health and safety.

Possible Impact on Officer Health

During a presentation by project managers to the Police Services Board in September 2015, a question arose as to whether body-worn camera technology could interfere with a pacemaker, given that the cameras were being worn on officers' chests. The project managers contacted Dr. Brian Gilbert, a senior staff cardiologist at the Sunnybrook Health Sciences Centre and a Professor of Medicine at the University of Toronto.

In response to the inquiry and after investigation, Dr. Gilbert responded that he had found no information to implicate any significant side effects involving a person with a pacemaker who wears a body-worn cameras.[11] He also noted that there was no indication that there would be side effects from Wifi or GPS. Given that the camera would be worn in front of an officer's Kevlar vest, Dr. Gilbert felt it extremely unlikely that the camera would be able to affect a pacemaker.

Officer Perceptions of BWC Effect on Safety:

In the survey before the start of the pilot project, only 11% of the officers who would be wearing the cameras agreed or strongly agreed that having a body-worn camera would help them to feel safer when dealing with members of the community. Though not a statistically significant increase, 19% of the officers felt that way at the end of the pilot.

Though fewer than half of the officers felt that the cameras would deter assaults on officers, significantly more BWC officers than comparison officers at the start of the pilot project agreed that "body-worn cameras are a good way to deter assaults on officers" (Figure 4). By the end of the pilot, however, this difference had almost disappeared, as more comparison officers agreed. The most notable change, however, was the significant decrease in comparison officers who disagreed with this statement, and the significant increase in comparison officers who were not sure if the cameras would help deter assaults on officers.

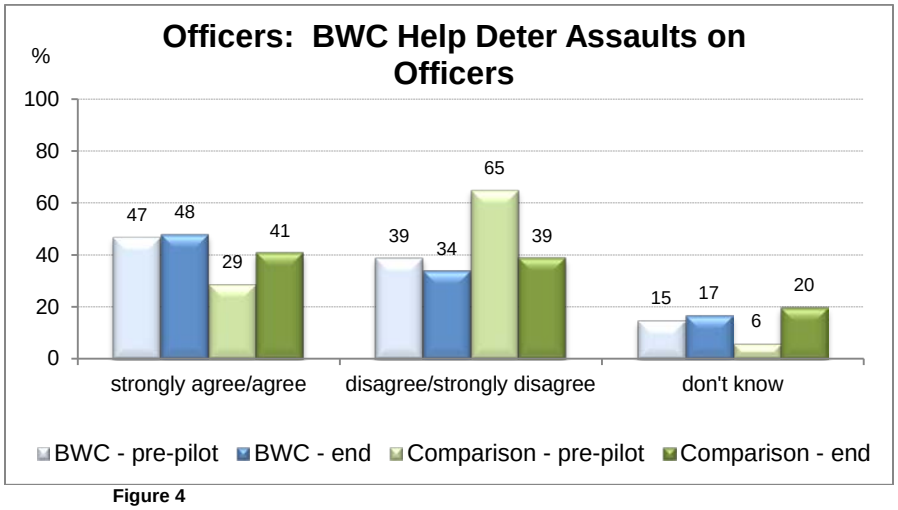


Figure 4

By assignment, only the CR officers were more likely at the end of the pilot than at the beginning to agree that the body-worn cameras would help deter assaults on officers. The PR, Traffic, and TAVIS officers were less likely to agree at the end of the pilot than at the beginning, with the TAVIS officers least likely to agree by the end of the pilot period.

Very similar patterns were seen in officer responses to the two statements "body-worn cameras make people less confrontational with officers" and "body-worn cameras make people less aggressive with officers". For both statements, BWC officers were significantly more likely to agree/strongly agree at the end of the pilot project than at the beginning. They were also significantly more likely to agree at the end of the pilot than were the comparison officers. However, the comparison officers also tended to agree more by the end of the pilot and were significantly less likely to disagree. Comparison officers were significantly more likely at the end of the pilot than at the start to say they were not sure. Figure 5 shows the results related to the statement "body-worn cameras make people less confrontational with officers".

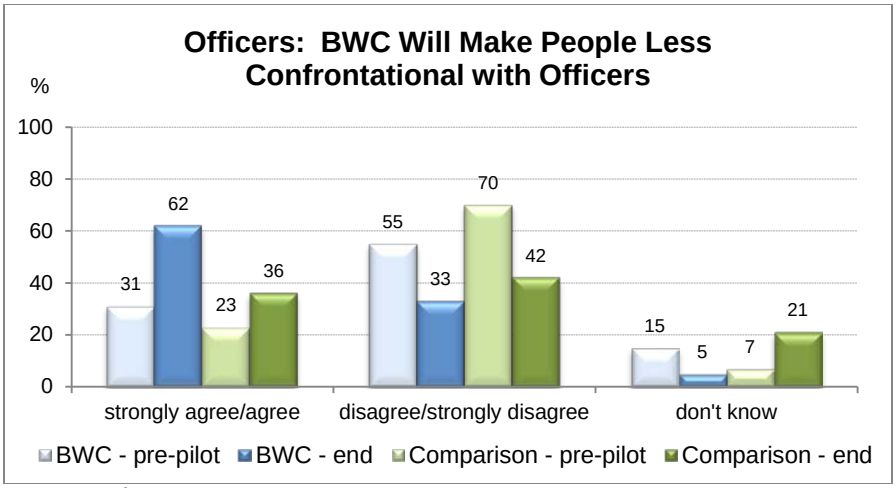


Figure 5

Of the BWC officers who felt that the body-worn cameras had changed the behaviour of members of the community, about half felt that people were less likely to be verbally aggressive or confrontational, and less likely to be physically aggressive.

Officers in all four assignments were more likely to agree at the end of the pilot than at the beginning that body-worn cameras would make people less confrontational and less aggressive with officers. CR officers were the group most likely to agree with both statements at the end of the pilot.

Agree/Strongly Agree That BWCs Make People Less Confrontational	Pre-Pilot	End-of-Pilot	Agree/Strongly Agree That BWCs Make People Less Aggressive	Pre-Pilot	End-of-Pilot
CR	13%	83%	**CR**	27%	75%
PR	32%	56%	**PR**	27%	39%
TAVIS	35%	45%	**TAVIS**	35%	45%
TSV	38%	62%	**TSV**	38%	56%

In the end-of-pilot interviews, officers were divided: some said the body-worn camera made them feel safer and more confident while dealing with the public, while others said it didn't make any difference. For those who said they felt safer, they said that the cameras generally seemed to have a calming effect on people (especially when they could see themselves on screen) – people tended to be less confrontational and more respectful. The exceptions were in interactions with emotionally disturbed people or with those who were drunk, where the camera sometimes aggravated the situation. The cameras also gave some officers a sense of confidence as they felt any potential complaints would be more easily resolved.

Public Complaints

Data:

In Ontario, the public complaints system is operated by the Office of the Independent Police Review Director (OIPRD). The OIPRD is a civilian-staffed, independent agency that acts as an objective, impartial office responsible for receiving, managing, and overseeing the investigation of all public complaints against police officers and services. The investigation of complaints can be conducted by OIPRD investigators or by the police service in question. It should be noted that complainants have six

months from the date of occurrence to file a complaint, so data for the most recent months of the pilot period are possibly undercounts; more of the pilot period complaints may also still be classified as 'open'.

Professional Standards provided information on the number of public complaints made against the BWC officers and the comparison officers for May 18th, 2015, to March 23rd, 2016, and for the same period one year earlier (May 18th, 2014, to March 23rd, 2015).

The number of public complaints against both the BWC and comparison officers during the periods examined were very low. Therefore, while possibly providing an indication of trends, it is difficult to draw any conclusions. With regard to any pre-pilot/pilot comparison, it should be noted again that officers may not have been in the same assignment during both periods.

Notwithstanding these qualifications, during the pilot project, the BWC officers had a slightly higher rate of public complaints than the comparison officers, and a slightly higher rate than during the pre-pilot period. The rate of complaints for the comparison officers was the same in both periods.

Public Complaints per Officer *	Pre-Pilot Period	Pilot Period
BWC Officers	.03	.06
Comparison Officers	.04	.04

** Due to the difference in size of the BWC and comparison group, rates per officer are used. With regard to numbers, BWC officers were subjects of 3 complaints during the pre-pilot period and 5 complaints during the pilot period.*

Of the complaints made against BWC officers and dealt with by Professional Standards, all (3) were withdrawn or found unsubstantiated in the pre-pilot period, and almost all (4) were found unsubstantiated in the pilot period – the remaining pilot period complaint was still open at time of writing. Of the 4 complaints found unsubstantiated during the pilot, body-worn camera video was viewed in two and assisted in the ultimate finding. Of the complaints made against the comparison officers, just under half (47%) were withdrawn or found unsubstantiated in both the pilot and pre-pilot periods (12% were still open in the pilot period).

From the experience of other police agencies using body-worn cameras, it was anticipated that video from the cameras would assist in investigating and responding to public complaints against officers.[12] Again, while the numbers were small and not all investigations from the pilot period have been concluded, there was some indication that videos from body-worn cameras may have shortened the time taken to conclude complaints.[13] The average number of days to conclude complaint investigations for BWC officers decreased 18%, from 142 days in the pre-pilot period to 116 days during the pilot, while the average number of days to conclude investigations for comparison officers decreased only 5%, from 89 to 84 days.

Unit Complaint Co-ordinators:

The unit complaint co-ordinators in 43 and 55 Divisions were surveyed before the pilot began and again at the end of the pilot period. They were also interviewed at the end of the pilot to get their general impressions of the cameras. Possibly reflecting the fact that they had made use of video from the in-car cameras in investigating complaints, and found the video helpful, at the start of the pilot project both complaint co-ordinators said they supported the idea of Toronto police officers having body-worn cameras. Similarly, having found video from the body-worn cameras useful during the pilot, they continued to be supportive of the cameras at the end of the pilot. One complaint co-ordinator said that at the start of the pilot, they'd had some concern for the privacy of the officers, but having seen how valuable the cameras were in clearing officers of false complaints, now had few reservations.

At both the initial and end-of-pilot surveys, the complaint co-ordinators agreed that the body-worn cameras would be helpful to officers in responding to complaints against them, and agreed that the videos from the body-worn cameras would be a valuable tool for investigators. However, they did not think equipping officers with body-worn cameras would necessarily reduce the number of public complaints made.

In the end-of-pilot interviews, the complaint co-ordinators said that during the pilot, they'd used body-worn camera footage in two Special Investigations unit investigations, to respond to two complaints, and for two early complaint resolutions. In each case, the complaint co-ordinators said that the video showed that the allegations made against the officers were false.

Both unit complaint co-ordinators felt that the Service should adopt the use of body-worn cameras, since they were beneficial in protecting officers and the Service from false allegations. These officers felt that both the in-car cameras and the body-worn cameras were necessary, since they provided different perspectives on an incident and would provide back-up should one not work.

Officer Perceptions of BWC Effect on Complaints:

Before the start of the pilot project, almost all of the BWC officers and over three-quarters of the comparison officers agreed or strongly agreed with the statement "body-worn cameras will help respond to public complaints against officers" (Figure 6). By the end of the pilot, there was a significant difference between the groups, with the BWC officers more likely to agree or strongly agree. There was also a significant change within the BWC officer group: the proportion of officers who strongly agreed with the statement doubled from 19% to 40%. All or almost all of the officers in the four assignments testing the cameras agreed at the end of the pilot that body-worn cameras would help with the response to public complaints.

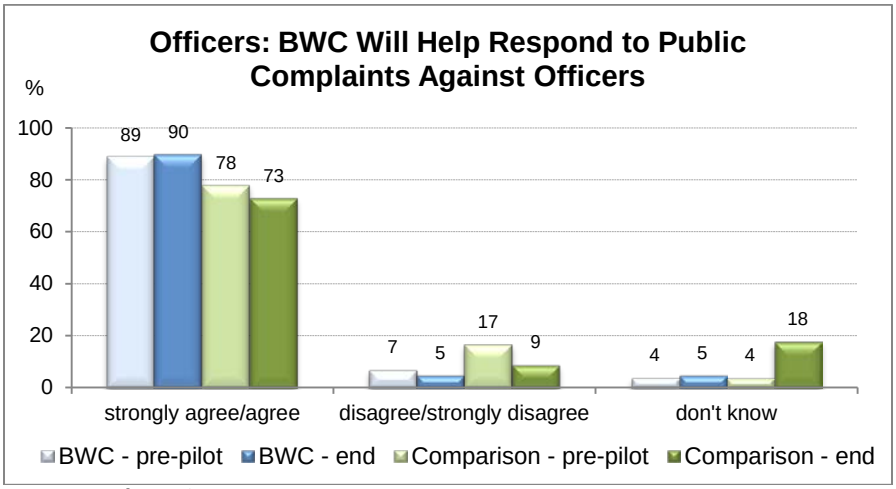


Figure 6

All officers were less certain that body-worn cameras would reduce the actual number of public complaints made. However, slightly more BWC than comparison officers felt the cameras would reduce complaints, and an increased proportion of officers in both groups felt this way by the end of the pilot (BWC pre-pilot: 35%, end pilot: 45%; comparison pre-pilot: 27%, end pilot: 29%).

A few of the officers who were wearing the cameras during the pilot said that they were aware of a situation where a member of the public wanted to make a complaint against them, but did not, due to the body-worn camera. According to the survey respondents, they were aware of this occurring 5 times.

Use of Force

Officers are required to submit a Use of Force report whenever they:

- use physical force on another person that results in an injury that requires medical attention,
- draw a handgun in the presence of a member of the public,
- discharge a firearm,
- point a firearm, or
- use a weapon other than a firearm on another person.[14]

Professional Standards compared the number of Use of Force reports submitted by BWC officers and by comparison officers in the pilot period (from May 18th, 2015, to March 23rd, 2016) and in the same period one year earlier (May 18th, 2014, to March 23rd, 2015). It should be noted, for both groups of officers, that given the time it may take for Use of Force reports to be received and entered into the Professional Standards database, reports relating to the most recent months of the pilot may not yet be available.

The number of Use of Force reports submitted by both the BWC and comparison officers during the periods examined were low. Therefore, while possibly providing an indication of trends, it is difficult to draw any conclusions. And as stated previously, with regard to any pre-pilot/pilot comparison, it should be noted that officers may not have been in the same assignment during both periods.

Notwithstanding these qualifications, both during the pilot project and in the pre-pilot period, the BWC officers submitted fewer Use of Force reports than the comparison officers. Between the two periods, the number of Use of Force reports by BWC officers decreased by 15%, while the number submitted by comparison officers decreased by 5%.

Use of Force Reports per Officer *	Pre-Pilot Period	Pilot Period
BWC Officers	.15	.12
Comparison Officers	.21	.20

** Due to the difference in size of the BWC and comparison group, rates per officer are used. With regard to numbers, BWC officers submitted 13 Use of Force reports during the pre-pilot period and 11 during the pilot period.*

Injuries to subjects that require medical attention are also captured by the Use of Force reports. While the number of Use of Force reports submitted by BWC officers decreased more than for comparison officers, the proportion of the incidents involving injuries to subjects increased more for BWC than for comparison officers. Of the incidents involving BWC officers during the pilot year, 30% involved injuries to the subject, while 23% of the incidents reported by the comparison officers involved injuries to the subject. Both these proportions were increases from the year prior to the pilot period, when none of the incidents reported by the BWC officers and 17% of the incidents reported by comparison officers involved injuries to subjects.

Again, although conclusions are difficult to draw given the small numbers, the data above may suggest a number of possible influences, including officers who have cameras perhaps hesitating to use force, even when it might be appropriate, and/or, as noted by officers, some people being less aggressive when the officer is wearing a camera. As mentioned previously, officers also noted in interviews that the camera sometimes aggravated people, which in turn may have resulted in more injuries as reported on the Use of Force form. Should body-worn cameras be adopted by the Service, use of force situations would need to be monitored, particularly in light of recent research that suggests that body-worn cameras may reduce police use of force when officers have little discretion about when to activate the camera.[15]

Officer Perceptions of/Experience with the Cameras

Level of Support:

Although there were few statistically significant differences either within or between the BWC and comparison groups in the extent of their support for Toronto officers having body-worn cameras, the BWC officers tended to show more support than the comparison officers, both at the start and the end of the pilot project (Figure 7). And, both groups of officers showed somewhat more support for the cameras by the end of the pilot. Overall, 46% of the BWC officers said they supported/strongly support the cameras at the start of the pilot, increasing to 58% by the end, while 29% of the comparison officers supported/strongly supported the cameras at the start of the project, increasing to 42% by the end.

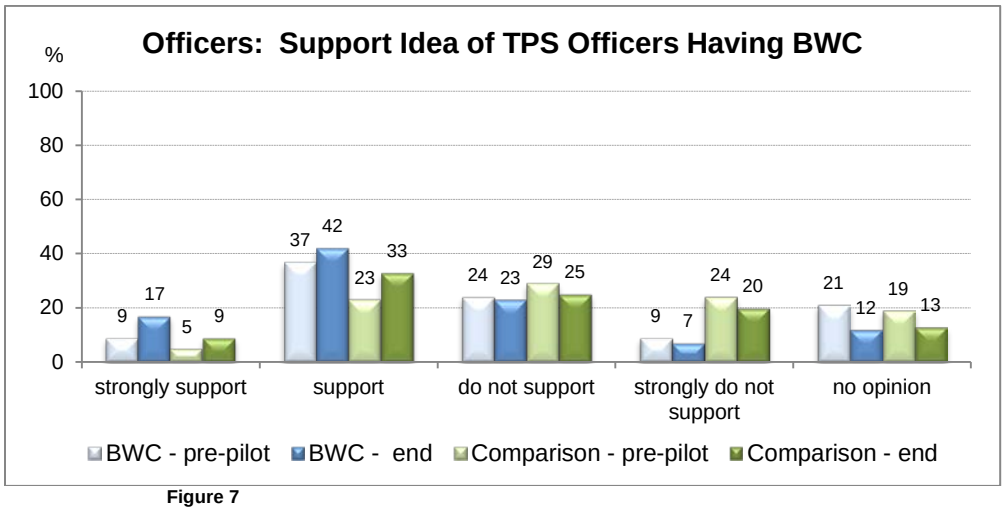


Figure 7

Within the BWC group, at the start of the pilot project, the Traffic officers showed the most support for the body-worn cameras, while the TAVIS officers showed the least. However, at the end of the pilot, the CR officers showed the most support for the body-worn cameras, while the PR officers showed the least. Notwithstanding this change, the extent of support shown by officers in all four assignments increased over the pilot period.

Support/Strongly Support Toronto Police Having Body-Worn Cameras	Pre-Pilot	End-of-Pilot
CR	47%	67%
PR	45%	50%
TAVIS	41%	64%
TSV	52%	56%

Mirroring the perceptions of the BWC and comparison officers, the support of all uniform members for body-worn cameras, as indicated in the Service's annual personnel surveys, also increased during the pilot. In December 2014, 35% of uniform members said they supported/strongly supported the idea of Toronto Police officers having body-worn cameras. And, in December 2015, 58% of uniform members said they supported officers having body-worn cameras.

There was a significant difference between BWC and comparison officers when they were asked in the end of pilot survey if their opinion about body-worn cameras had changed during the pilot project: significantly more BWC officers said that their opinion had become more positive (43% compared to 11%

of comparison officers). Comparison officers, on the other hand, were significantly more likely to say that their opinion hadn't changed during the pilot (60% compared to 32% of BWC officers).

About half of the BWC officers interviewed said that their opinion of the cameras had changed over the course of the pilot, and half said it hadn't changed. For those who had changed their opinion, most said it was a positive change as video had been used successfully in resolving a court case, to back up evidence, or to resolve complaints. Also contributing to the positive change was realizing that video hadn't been used against officers by supervisors. For the few who became more negative about the cameras, the main reason was that the increased administrative requirements took too much time and kept officers off the road.

Effect on Community:

Before the pilot project started, 27% of the officers who would be wearing the cameras felt that the body-worn camera would change the behaviour of members of the community they came in contact with. At the end of the pilot, well over half of the officers (60%) felt that the cameras actually had changed the behaviour of members of the community.

> The CR officers (75%) were most likely to say that people's behaviour had changed, while the Traffic officers (37%) were least likely to say that there had been change.

About three-quarters (74%) of the officers who felt that the cameras had changed people's behaviour said that people were less likely to offer them information; over half also said that people were less likely to make a false complaint, less likely to be verbally aggressive or confrontational, less likely to talk/interact with officers, and less likely to be physically aggressive. As mentioned previously, in the end-of-pilot interviews, most officers indicated that people did behave differently because of the cameras: they were less willing to share information, and some were less confrontational and verbally aggressive, especially when they could see themselves on the camera screen.

BWC officers were specifically asked in the survey at the end of the pilot project if they felt that the camera affected whether or not people gave them information about incidents or events. Just over two-thirds of the BWC officers (69%) felt that the cameras had such an effect. Most of these officers (90%) believed that people were less likely to give them information while they were wearing the camera; only 2% thought that people were more likely to give them information.

> Almost all of the PR officers (89%) felt that the body-worn camera affected whether or not people gave them information, while only just over one-quarter of the Traffic officers (27%) felt this way.

However, compared to how they felt before the pilot started and compared to the comparison officers, by the end of the pilot BWC officers were also significantly more likely to say they agreed with the statement that "in general, members of the community feel comfortable talking to officers with body-worn cameras" (Figure 8). And, while the proportion of comparison officers agreeing with this statement did not change much during the pilot, the comparison officers were significantly less likely by the end of the pilot to strongly disagree and significantly more likely to say they didn't know how comfortable the community would feel.

The majority of BWC officers interviewed at the end of the pilot felt that most people were receptive to and accepting of the cameras.

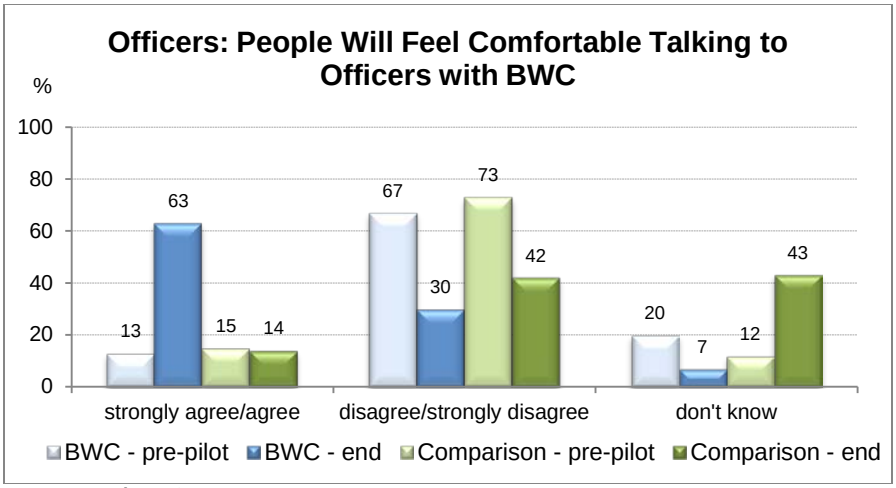


Figure 8

Effect on Selves and Other Responders:

Officers were also asked if they felt that body-worn cameras would change their interactions with members of the community (Figure 9). There was little difference between the BWC and comparison officers before the start or at the end of the pilot: roughly two-thirds of both groups at both times agreed that "body-worn cameras will change how officers interact with the community". However, the comparison officers were significantly more likely at the end of the pilot than the beginning, and compared to the BWC officers, to say that they didn't know if cameras would change how they interacted with people.

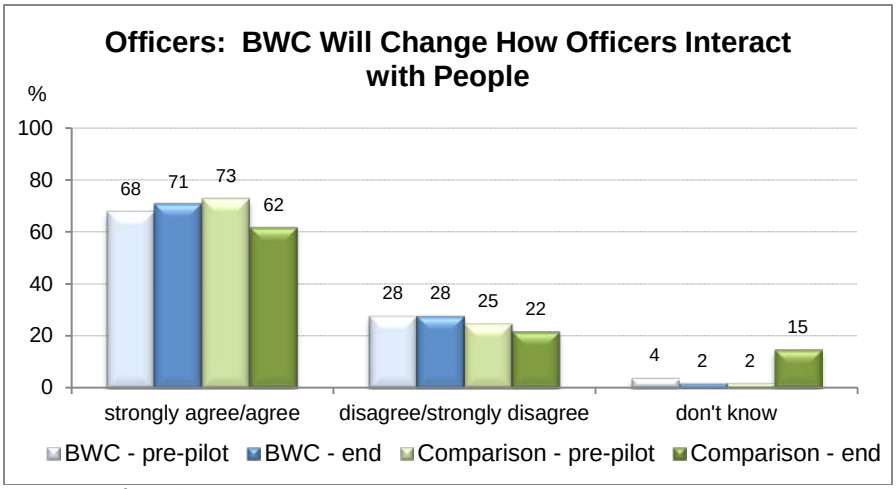


Figure 9

In the survey at the end of the pilot, when asked specifically, about one-third (32%) of the officers wearing the cameras said that the cameras actually had changed the way they dealt with the community. All of these officers said that they were more 'by the book'/less likely to use discretion; almost three-quarters said they were more cautious about what they said or how they said it, and almost two-thirds said they were less likely to engage in proactive policing or subject stops.

> By assignment within the BWC group, more TAVIS (55%) and Traffic (44%) officers said that the body-worn camera had changed how they dealt with people, while more CR (83%) and PR (72%) officers said the camera hadn't changed how they dealt with people.

In the interviews at the end of the pilot, BWC officers were asked again about any differences in how they interacted with people by type of contact. While the majority of the officers said that wearing the body-

worn camera did not change how they dealt with people in enforcement situations, they did say it changed how they dealt with people in non-enforcement situations (e.g. talking to a witness or someone reporting a crime). Officers said they tended to choose their words more carefully or feel like they couldn't speak as freely for fear of being criticized later; they also said that people tended to be more reserved. With both of these effects together, officers felt the cameras took some of the 'human' touch out of interactions.

The BWC officers felt that the cameras changed how other officers behaved with the community more than for themselves: 52% of the BWC officers felt that the camera changed the behaviour of other officers they were working with, compared to the 32% who said it changed their own. These BWC officers felt that other officers were more cautious about what they said or how they said it, and were more 'by the book'/less likely to use discretion.

Comparison officers who'd worked with an officer wearing a camera, however, were only just slightly more likely than the BWC officers to feel that the cameras had actually changed their behaviour. Over two-thirds (69%) of the comparison officers said that during the pilot they'd had contact/worked with an officer who had a body-worn camera. Of these, only 37% felt that the camera had changed their behaviour, just slightly more than the 32% of BWC officers who felt the cameras changed their behaviour. These officers said that they were more cautious about what they said or how they said it, less likely to interact with/talk to people, and less likely to engage in proactive policing or subject stops.

Most of the BWC officers interviewed at the end of the pilot indicated that they had never been asked by a member of the public to turn the camera off. Officers who had been asked to turn the camera off said it had occurred when they were going into someone's home, when they were dealing with children, and in a domestic assault case. Most officers also indicated that they had deactivated their camera at some time while dealing with the public – when they were dealing with confidential informants, when in a hospital or at other medical situation, at a sudden death call, when talking about personal information not investigative in nature, and in other situations as required by the Procedure. One officer indicated that rather than deactivate the camera and having a gap in the investigation, when necessary, they simply muted the audio to protect members of the public.

Officer perception that they are less able to use discretion in dealing with members of the public has been raised in reports by other police agencies that have tested body-worn cameras.[16] Toronto officers shared this concern, though the concern lessened somewhat during the pilot (Figure 10). Just over three-quarters of both BWC and comparison officers before the start of the pilot agreed that "body-worn cameras reduce officer discretion in making decisions when dealing with members of the community". However, roughly about two-thirds of BWC officer and of comparison officers agreed with the statement at the end of the pilot.

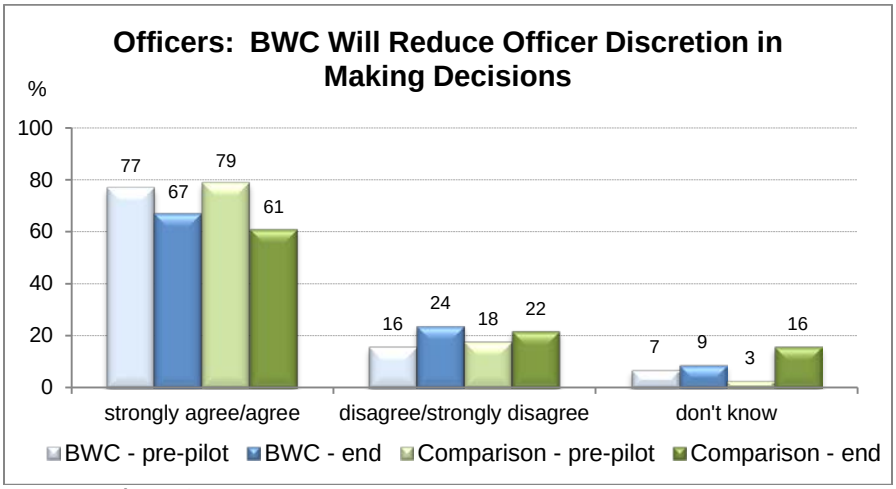


Figure 10

At both the start and end of the pilot project, TAVIS and Traffic officers showed the most concern that the body-worn cameras would reduce officer discretion in making decisions. While the concern lessened somewhat for officers in these assignments over the course of the pilot, both CR and PR officers were considerably less concerned about reduced discretion by the end of the pilot period.

Agree/Strongly Agree That BWC Will Reduce Officer Discretion in Making Decisions	Pre-Pilot	End-of-Pilot
CR	67%	48%
PR	71%	56%
TAVIS	88%	82%
TSV	81%	75%

Almost all the BWC officers interviewed felt that the body-worn camera had affected their discretion – they felt they had to be more 'by the book' and that they couldn't write-off minor infractions. The perceived lack of discretion was especially of concern to officers when they were dealing with a young person – they felt it negatively affected the relationships they were trying to build with youth. Officers said they were less likely to use discretion because they were concerned about being questioned or disciplined by their supervisors, being judged by the courts, or that people may think that they were not doing their job.

For a few of the officers interviewed, however, the perceived effect on discretion did not last – toward the end of the pilot, they felt they were more likely to use discretion again, but efforts were made to ensure the reasoning and any conversation with the person was captured on video.

Most of the officers who wore the cameras during the pilot either didn't view footage from the camera when making their memo book notes (36%) or made their notes before they viewed footage from the camera (53%).[17] Additions to notes as a result of viewing footage from the camera were made only infrequently: 25% of officers said they never made any additions, while 56% said they made additions less than 25% of the time. Contrary to what has been indicated in previous research, fewer than one-third of the BWC officers (29%) felt that having access to the body-worn camera video improved their note-taking.[18]

Overall Impact and Opinions of Cameras:

When asked if the body-worn camera had made a difference to their job, the largest proportion of the pilot officers (41%) said that it hadn't made any difference. Almost one-third (32%) said that the camera was a positive addition to their job, while 27% said it had been a negative addition.

With regard to assignment, the largest proportion of PR (39%), CR (55%), and Traffic (56%) officers said that the body-worn camera hadn't made any difference to their job. In contrast, the largest proportion of TAVIS officers (55%) said the camera had been a positive addition. It should be noted however, that TAVIS also had the largest proportion of officers (36%) who said the camera had been a negative addition.

The officers wearing the cameras did become more comfortable with them during the pilot project. Compared to the start of the pilot, significantly more BWC officers at the end of the pilot both strongly agreed and agreed with the statement "I feel comfortable wearing a body-worn camera". The proportion who strongly agreed increased from 1% to 14%, while the proportion who agreed increased from 38% to 57%. When asked at the end of the pilot, 39% of the comparison officers agreed or strongly agreed that they would feel comfortable wearing a camera, significantly fewer than the 71% of BWC officers who said they felt comfortable.

While TAVIS officers were most likely at the beginning of the pilot to agree they would feel comfortable wearing a body-worn camera, and most likely at the end to agree they did feel comfortable, the CR officers and the PR officers showed the largest increases in comfort with the cameras. The Traffic officers showed only a small increase, and were least comfortable wearing the body-worn cameras at the end of the pilot.

Agree/Strongly Agree Will Feel (Feel) Comfortable Wearing a Body-Worn Camera	Pre-Pilot	End-of-Pilot
CR	27%	83%
PR	27%	67%
TAVIS	62%	91%
TSV	43%	50%

Improved accountability and public trust in the police were two goals of the pilot project. While somewhat positive about the potential to improve accountability, officers generally did not feel that the body-worn cameras would improve public trust.

Although not statistically significant, slightly more BWC than comparison officers agreed/strongly agreed with the statement that "body-worn cameras make the police more accountable to the public", before the pilot started and at the end of the pilot (Figure 11). However, the number of officers in both groups who agreed with the statement decreased during the pilot, and the proportion of officers who strongly disagreed with the statement significantly increased in the BWC group, but significantly decreased in the comparison group. The comparison officers were significantly more likely at the end of the pilot than the beginning to say that they didn't know if cameras would make the police more accountable.

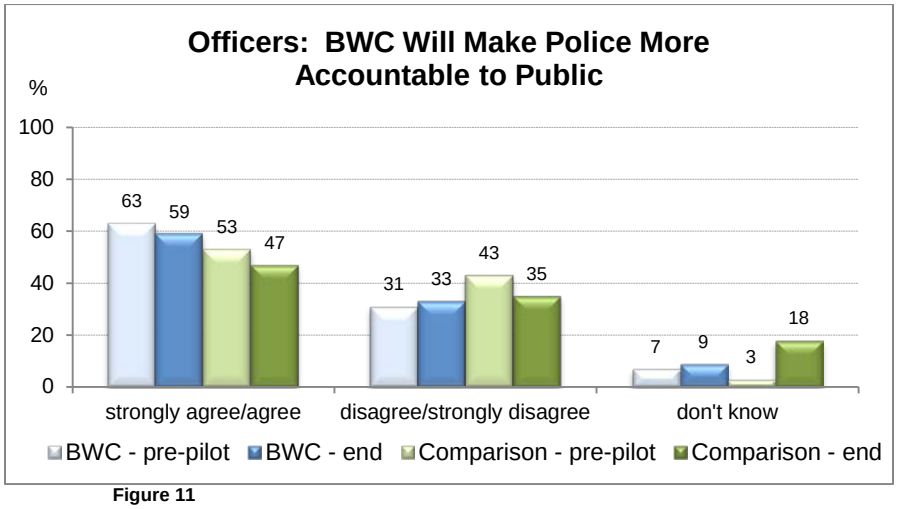


Figure 11

Before the start of the pilot, only about one-quarter of the BWC and comparison officers agreed/strongly agreed that "body-worn cameras improve public trust" (Figure 12). By the end of the pilot, the proportion in both groups increased somewhat. Once again, comparison officers were significantly more likely at the end of the pilot than the beginning to say that they didn't know if cameras would improve public trust.

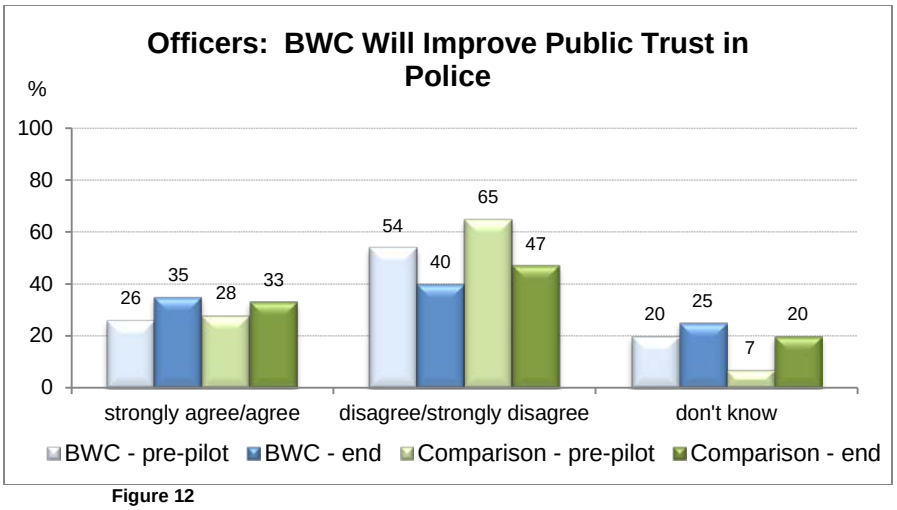


Figure 12

Both the TAVIS and the CR officers were more likely to agree at the end of the pilot than at the beginning that the cameras would improve accountability and public trust. The PR officers, in contrast, were less likely at the end of the pilot to agree that accountability and public trust would be improved by body-worn cameras. The opinions of the Traffic officers showed only slight changes.

Agree/Strongly Agree BWC Will Make Police More Accountable to Public	Pre-Pilot	End-of-Pilot	Agree/Strongly Agree BWC Will Improve Public Trust in Police	Pre-Pilot	End-of-Pilot
CR	53%	67%	**CR**	20%	42%
PR	82%	44%	**PR**	41%	28%
TAVIS	41%	64%	**TAVIS**	12%	45%
TSV	67%	62%	**TSV**	24%	27%

In the survey at the end of the pilot, only just over one-third of the pilot officers (37%) said that they would recommend the Service adopt the cameras for use; a further 23% said they weren't sure.

There were considerable differences by assignment: half or more of the CR (50%) and TAVIS (55%) officers said they'd recommend the Service adopt body-worn cameras, compared to one-third (33%) of PR officers and only 19% of Traffic officers.

Of all the BWC officers, almost all of those who said they'd recommend adopting the cameras felt they would be beneficial if used by Primary Response (90%) and Community Response (90%) officers, followed by Traffic Services' Motor Squad (81%).

In the end-of pilot interviews, BWC officers gave reasons both for keeping the body-worn cameras and for not keeping them. Reasons for keeping the cameras included:

- protect officers from complaints,
- improve officer safety (calms people down),
- public trust (transparency),
- should shorten court time for some cases, and maybe help with plea bargaining, and
- help with investigations (better evidence, capture everyone at an incident, better descriptions, etc.).

Reasons for not keeping the cameras included:

- put a barrier between officers and the public (undermine rapport, relationship building, getting information),
- less discretion when dealing with people,
- increased administrative workload keeps officers off the road,
- cost – money could be better spent on other things,
- too many problems with current technology and processes, and
- negatively affects officer safety (thinking about camera rather than attention immediately on situation).

Almost all the officers interviewed felt that in-car cameras would still be necessary if body-worn cameras were adopted, since the in-car camera captures a wider angle, erratic driving, pursuits, prisoner transportation, and is better for traffic stops. The need for both camera systems (particularly microphones) to be integrated was emphasized.

Supervision

Officers:

As has been noted by other police agencies when testing body-worn cameras, in the surveys before the pilot project started, both BWC and comparison officers expressed some concerns that body-worn cameras would lead to them being over-supervised and under constant scrutiny.[19] These concerns were mirrored in the three-quarters of BWC (75%) and comparison (77%) officers who said they agreed or strongly agreed with the statement "I am concerned about the potential for internal review that body-worn cameras will provide".

At the end of the pilot, while three-quarters (76%) of the BWC officers still agreed they were concerned about the potential for internal review, comparison officers were somewhat less concerned: 62% agreed with the statement; the proportion of comparison officers who said that they didn't know showed a significant increase (from 5% to 20%).

> By assignment, the CR officers and the TAVIS officers showed the most concern about the potential for internal review at the end of the pilot, and the level of concern in both groups increased over the pilot period. The level of concern expressed by the PR officers remained the same during the pilot, while the level of concern about the potential for internal review decreased among the Traffic officers.

As noted above, as expressed in the interviews with the BWC officers, as they realized that video from the cameras was not being used against them by supervisors, opinions of the cameras became more positive.

Supervisors:[20]

As noted previously, the five staff sergeants of the pilot participants were surveyed before the pilot began and again at the end of the pilot period. Four of five responded to the first survey, five to the second. These supervisors became more positive about the body-worn cameras during the ten and a half months of the pilot.

In the initial survey, half of the staff sergeants said they strongly supported and half said they did not support the idea of Toronto officers having body-worn cameras. In the final survey, all supported or strongly supported the idea. Furthermore, before the pilot started, two of the staff sergeants agreed or strongly agreed that equipping officers with body-worn cameras would help supervisors; at the end of the pilot, all agreed or strongly agreed with that statement.

In the interviews carried out at the end of the pilot, most of the supervisors interviewed said their opinion of body-worn cameras had not changed over the pilot; however, one noted that at the beginning of the pilot, they thought the cameras were just one more thing officers had to worry about; after seeing the benefits of the cameras in protecting officers from false complaints they were now more supportive of them. Also, one supervisor who supported the body-worn cameras initially, was less supportive at the end due to the problems with the technology.

In the survey before the pilot started, sergeants who would be participating were asked if they thought the cameras would change how they supervised their officers, who would also be wearing cameras; at the end of the project, they were asked if the cameras had, in fact, changed how they supervised their officers. Only 20% at the start of the project felt that the cameras would change how they supervised, and similarly, only 22% at the end of the project said that the cameras had changed how they supervised. For those who felt there had been a change, the change was related to an increase in administrative responsibilities.

Only one staff sergeant in the survey before the start of the pilot felt that the cameras might change the way they managed their officers. Similarly, only one at the end of the pilot felt that the cameras actually had changed how they managed their officers – mainly in how they provided feedback regarding performance.

In both surveys, the staff sergeants were given a list of situations and asked to indicate when they thought supervisors should be allowed to view body-worn camera video. More of these situations were noted in the end-of-pilot survey, indicating that the staff sergeants now saw more value in or use for the videos than they'd anticipated. All staff sergeants at both times felt supervisors should be able to view the body-worn camera videos to view officer actions (good or bad) when something was brought to their attention and to investigate specific complaints. In the final survey, all the staff sergeants also now indicated they should be able to view the videos randomly, to monitor officer performance (good and bad). And four of the five staff sergeants now indicated that they should be able to view the videos for an officer's annual evaluation, to get examples for training purposes, and to assess proper use of equipment, up from the two or fewer who felt this way initially.

In the interviews, beyond monitoring the video to ensure that officers were complying with the requirements of the Body-Worn Camera Procedure, the extent of use of video from the body-worn cameras varied by supervisor. The video was felt to be a useful assessment tool for seeing how their officers interacted with people, especially for the newer officers they didn't know very well, useful for promoting positive work, and useful in training. One supervisor felt that the cameras made the officers more aware of how they conducted themselves.

Four of the five staff sergeants in the final survey and all the staff sergeants and sergeants who were interviewed said that they'd used body-worn camera video for training and found it beneficial. As to how the video was used in training, examples provided included:

- to point out best practices and things that should be avoided;
- as a basis for discussing articulation, grounds, and authority in relation to their everyday duties and how wearing a camera affected those practices;
- for debriefs and reviewing de-escalation tactics;
- to show good examples of how the cameras could benefit officers – e.g. dealt with an unruly crowd in a park and once they realized they were being videotaped their attitudes and behaviour changed; and,
- for one-on-one discussions with officers where the supervisor used the video to identify what was wrong in that situation and discuss ways to correct it.

While it was noted that the Toronto Police College currently uses videos from the United States and that the body-worn cameras could provide more relevant videos for use by Toronto officers, one supervisor also emphasized the importance of getting the permission of the officer(s) involved before using the video, as some officers may not feel comfortable with having their video shown as part of training.

In the end-of-pilot survey, the staff sergeants were roughly split on the impact the cameras had on their officers and interaction with members of the public. Three of these supervisors felt that the body-worn cameras had changed how their officers interacted with members of the public in general and with suspects/offenders, while two felt that the cameras had changed how their officers interacted with complainants and with victims. When explored further in the interviews, it was typically felt that in both enforcement and non-enforcement situations, the body-worn cameras increased the professionalism of their officers. With regard to enforcement situations in particular, supervisors also felt that the actual process of arrest was followed more stringently, that officers were more 'by the book' and less likely to use discretion or to 'give someone a break', and that the cameras added a level of comfort for the officers should a complaint be made, since the encounter was captured on video.

It was also noted that while the cameras seemed to make people less confrontational with officers, the officers were sometimes articulating prior to engaging in a situation rather than at the end of a situation because they were concerned with being criticized in court. An officer's action could be delayed by several seconds and supervisors expressed some concern that this delay could be an officer safety issue.

In the end-of-pilot survey, four of the five staff sergeants said that, based on their experience with the body-worn cameras during the pilot, they would recommend that the Service adopt the cameras for use. All four agreed that the assignments where the cameras would be beneficial are: Primary Response, Community Response (general, bike, foot), Traffic Services (platoons and Motor Squad), RIDE spot checks, TAVIS, Public Order, and Marine. When asked where the cameras would be *most* beneficial, three indicated Primary Response, while the fourth indicated Traffic Services.

Similarly, in the interviews, most of the supervisors supported keeping body-worn cameras for officers, noting that cameras were good for evidence in court, deterring frivolous complaints, resolving complaints, and objectively capturing events. Supervisors acknowledged that the public seems to want officers to wear cameras, but also noted that officers are frequently being videotaped already and can forget that – having the body-worn cameras would be a constant reminder. The supervisors who were not as supportive of keeping the cameras mainly cited technical reasons (battery life, real time viewing only, etc.) and cost concerns.

All supervisors interviewed felt that both Primary Response officers assigned to a car should wear a camera, since officers are not always together at a scene and each camera would provide a different perspective. And, while all supervisors also felt that in-car cameras would still be required if the Service adopted body-worn cameras, they noted that it would be best if the body camera and the in-car camera systems were integrated.

Investigations and Court

Front-Line Officers:

Although not statistically significant, before the start and at end of the pilot slightly more BWC than comparison officers agreed/strongly agreed with the statement that "videos from body-worn cameras are a valuable tool for investigators" (Figure 13). However, the number of officers in both groups who agreed with the statement decreased during the pilot. This decrease may be due to possibly unrealistic expectations at the start of the pilot; it may be that a longer period of use in more areas of the Service would have produced more video that could be used by investigators.

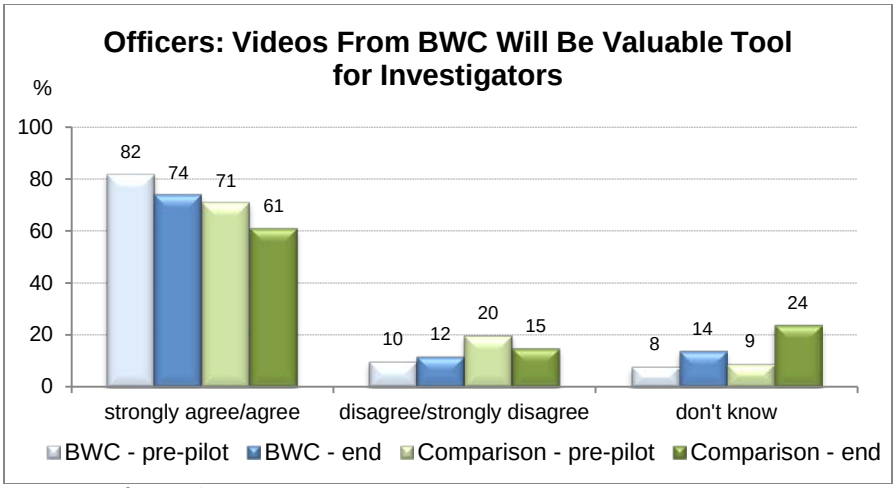


Figure 13

About 60% of officers in both the BWC and comparison groups, at both times, agreed that the videos from the body-worn cameras would be valuable in court. By the end of the pilot, the remaining officers weren't quite so negative: fewer officers in both groups disagreed, and slightly more said they weren't sure. These results likely again reflect the general belief that the videos should be valuable in court, but also that very few videos, if any, had actually been used in court by the end of the pilot project.

Investigators:

In the January 2015 survey, prior to the pilot project, two-thirds of the investigators (detectives and detective sergeants) in 43 and 55 Divisions said they supported (53%) or strongly supported (13%) body-worn cameras for Toronto officers. Support for the cameras increased during the pilot: in March 2016, almost three-quarters of the investigators said they supported (43%) or strongly supported (29%) the body-worn cameras.

This increased support was also voiced during the interviews at the end of the pilot. Some investigators commented that their opinion about the cameras had become more positive during the pilot after seeing the benefits of the cameras in regard to such things as resolving false complaints, completing notes, capturing the officers side of the story, and improving officer articulation and conduct.

Investigator concern about officer discretion, however, grew during the pilot. In the survey before the start of the pilot, one-third of the investigators (33%) agreed that body-worn cameras would reduce officer discretion in making decisions when dealing with members of the public. This proportion increased to 43% at the end of the pilot period. And, while before the pilot started 13% agreed that body-worn cameras would reduce officer discretion in making decisions about whether or not to lay charges against someone, this increased to 29% by the end.

Still, investigator agreement about the benefits of body-worn cameras increased. In January 2015, almost three-quarters (73%) agreed that videos from body-worn cameras would be a valuable tool for investigators and that the videos would be valuable in court. These opinions prior to the start of the pilot may have been influenced by past experience: most had used video from the in-car cameras in at least one investigation (86%), and had found the video useful.

At the end of the pilot, all of the investigators agreed that videos from body-worn cameras would be a valuable tool for investigators and that the videos would be valuable in court. Again, experience with the videos was likely an influence: 71% had used video from a body-worn camera in an investigation during the pilot, with over half using video more than once, and most found the video useful.

This was again reinforced during the interviews at the end of the pilot, with investigators indicating that body-worn camera video had been successfully used in investigations. They also felt that there was greater potential for the use of video in investigations, since it could provide compelling evidence and the courts are looking for video evidence; it could give a picture of the environment, people's demeanours, and the state of the victim, particularly in cases of child abuse and domestic violence; and it could provide additional video for use in investigations. Investigators did caution, however, that the video should just be considered an extra tool to use in building cases, not the only tool.

While privacy, for both the public and officers, was the main area of concern for investigators before the pilot started, this was not noted as a concern at the end. Instead investigators commented on the effect of the cameras on officer discretion and proactive work, costs, and software/hardware issues.

When asked in the survey at the end of the pilot if the Service should adopt body-worn cameras for use, 71% of investigators said yes, while 29% said no. Similarly, in the interviews most, but not all, investigators felt that it was a good idea for officers to have body-worn cameras. Reasons given for this were related to officer safety (people conduct themselves better when they're being recorded), the objectivity of video, the improvement in officer ability to articulate what they did and why they did it, and the value as an investigative tool, particularly in capturing what the officer may not have noticed. Concerns were raised, however, about the costs involved with the cameras and the need for better technology.

The investigators interviewed felt that if the Service was to have body-worn cameras that all front-line officers having contact with the public should wear them, with the exception of specialized units, for example, the Emergency Task Force and the Public Order Unit, since the cameras could reveal investigative tactics.

As with supervisors, investigators felt that it would be best if both Primary Response officers assigned to a car wore a camera because having two cameras would show two different views, there could be an utterance that is not captured if one officer is not wearing a camera, and officers are not always together at a scene. Investigators also felt it was important to continue to use the in-car cameras, since they captured footage as the officers arrived on scene, they are used for transporting/monitoring prisoners in vehicles, and provide static video from a different angle.

Crown Attorneys:

As a criminal justice system partner, the Ontario Ministry of the Attorney General was also asked for feedback on the pilot project. Representatives from Crown Attorney Operations emphasized that the low number of cases for which body-worn camera evidence was available, and the even lower number of cases for which the evidence was useful, made it difficult to reliably asses the value of body-worn camera video in the court process at the present time. They noted that, to date, body-worn camera evidence had very little impact in managing cases through the court process. On the other hand, a number of challenges were encountered. These challenges included:

- Body-worn camera contacts tended to be responsive rather than proactive, so the video captured only the reporting of the incident rather than usable evidence of the incident itself.
- Crown staff viewed hours of BWC video that provided little, if any, usable evidence.
- Timely disclosure of the body-worn camera video was a challenge; video was almost never received prior to the accused's first appearance when it would be most beneficial in deciding the Crown's case strategy.

With a broader use of body-worn cameras and the establishment of best practices for disclosure, the Crown representatives felt that body-worn camera evidence could have a positive impact on the early resolution potential of some cases and the litigation process as a whole (for example, shortened trials, better court decisions, and improved Crown case management strategy). They noted that they expect that the body-worn camera evidence would be most valuable in cases involving serious violence, domestic assault, impaired driving, firearms, sexual assaults, and child abuse, as these cases are most

likely to proceed to a trial. Further, for the purpose of responding to *Charter* motions in court, it was also felt that body-worn camera video of arrests, execution of warrants, vehicle searches, and general patrols in areas such as the Entertainment District, would be particularly useful.

When asked if their opinion of body-worn camera evidence had changed over the term of the pilot, the representatives from Crown Attorney Operations indicated that while they still believed the evidence could be valuable, they noted that their expectations had decreased somewhat, and they recognized that the likely usefulness of the evidence may not justify the associated costs. That said, they also pointed out that jury expectations of evidence presented at trial may impose the necessity of this type of evidence in the future. And finally, they cautioned that body-worn camera video has, to date, not been presented at trial and it is unknown how judges may deal with such evidence.

Officer Availability

Front-line Officers:

Almost all (93%) of the officers believed that they spent more time on administrative work due to the body-worn camera. More constables using the body-worn cameras (96%) said they spent more time on administrative work because of the cameras than did the sergeants wearing cameras (70%).

Overall, the officers who wore the cameras during the pilot project estimated that, roughly, they spent an average of 39 minutes each shift classifying and/or reviewing video footage from the cameras.

> By assignment, the rough estimates provided by the CR officers indicated that they spent the most time reviewing body-worn camera video: 47 minutes per shift on average. TAVIS officers' estimates indicated they spent about 40 minutes per shift on average. Both the PR and Traffic officers estimated about the same amount of time per shift reviewing body-worn camera footage: 30 minutes on average for PR and 29 minutes on average for Traffic. These estimates may be a reflection of the different functions of the officers: PR officers are generally tied to responding to calls for service, while the CR officers may have a bit more flexibility in the time they able to spend reviewing video.
>
> For the divisional CR officers, then, over one cycle, each officer could spend very roughly about 752 minutes, or about 12 hours, on average, reviewing body-worn camera video given the current camera system capabilities. With 13 cycles per year, this would mean that mean that a CR officer could spend roughly 156 hours a year on average reviewing body-worn camera video. For the PR officers, over one compressed work week cycle, each officer could spend very roughly about 630 minutes, or about 10 hours, on average reviewing body-worn camera video,. With about 10 compressed work week cycles per year, this would mean that a PR officer could spend roughly 100 hours a year on average reviewing body-worn camera video.

Divisional constables, in all assignments, are currently generally available for about 79% of their total scheduled hours, due to current detractors such as time off, training, sick time, annual leave, and so on. The additional review of body-worn camera video for redaction, investigation, and notes, would another detractor to officer availability. Using the PR estimates above of time that could be required to review body-worn camera video with the current technology, and using divisional constable staffing levels as of December 31st, 2015, availability of divisional constables could decrease to roughly 74% of total scheduled work hours with the adoption of body-worn cameras.

All constables who were interviewed at the end of the pilot, said that the body-worn cameras had definitely added to their administrative workload. Extra time was required to complete the Versadex template, to complete video request forms, to classify video, and to review video for redaction for disclosure; since videos had to be reviewed in real time, these latter two tasks took longer than officers had originally anticipated.

The amount of administrative time added per shift depended on various factors, such as the length of recordings, how many incidents were recorded that day, whether there were arrests, whether there were disclosure requests, availability of computers at the unit, and the officer's comfort level with technology. Since most of the constables indicated that they had not done overtime specifically to deal with the administrative requirements related to the body-worn cameras, this time came from time they would have spent on other duties.

Some of the officers interviewed suggested that vetting video for redaction might be something that clerks could do, as they already review officer memo books for redaction for disclosure. This would decrease the amount of time officers would need to be in station doing the vetting themselves. Officers also suggested there could be fewer questions on the Versadex template.

In addition to an increase in administrative workload, anticipating that video from body-worn-cameras might prove helpful in reducing potential liability and risk to the Service and officers, officers wearing the cameras were occasionally asked to assist with tasks that they would not normally perform. For example, in one instance, officers wearing cameras were asked by another section of their unit to assist with door-to-door canvassing in an investigation. Another time, officers wearing body-worn cameras were asked to assist in serving documents to an individual.

Supervisors:

At the end of the pilot, three of the five staff sergeants felt that they spent more time on administrative work due to the body-worn cameras, while the remaining two felt that the time they spent on administration had not changed. Estimating roughly, most of the staff sergeants thought they spent 10 minutes or fewer each shift reviewing footage from the body-worn cameras. However, all the staff sergeants felt that their officers spent more time on administrative work.

The sergeants in the pilot estimated that they roughly spent 25 minutes on average per shift reviewing body-worn camera footage.

In interviews, the staff sergeants confirmed that the extra administrative duties associated with the body-worn cameras were the responsibility of the sergeants. Staff sergeant workload increases tended to be specific to complaints and serious incidents. Reasons for workload increases for supervisors included:

- the need to review the videos in real time;
- extra forms on Versadex to be completed; and,
- the need to conduct video spot checks to ensure officers were using the cameras properly, classifying videos appropriately, and to see how officers interacted with people.

All noted that technical problems further increased the amount of time required to review a video.

The TAVIS supervisors also noted that since their unit did not have administrative staff to assist with the deployment of the cameras at the beginning of a shift, they took over the necessary tasks, adding up to an hour per shift to their administrative workload. Should the Service adopt the body-worn cameras, appropriate administrative support would be needed.

Most of the supervisors said they did not require overtime to take care of the administrative work associated with the cameras. Those who did require overtime said they did not claim it or adjusted their shift to accommodate the extra work.

Dealing with the additional administrative work was felt by supervisors to be one of the most unexpected challenges associated with the pilot project. In interviews, the supervisors supported what had been noted by the BWC officers as the reasons for the increased workload (mainly, reviewing videos in real time for investigations and for redaction and completing the Versadex form); supervisors also noted that the inability to classify videos on the camera (for one of the cameras being tested), meant that officers had to come off the road to do so. And, since the classifying was being done later, each video had to be

opened and reviewed to be classified correctly. The supervisors also confirmed that their officers did overtime rarely or not at all to deal with the administrative work associated with the body-worn cameras.

Investigators and Unit-Complaint Co-ordinators:

In the interviews at the end of the pilot, the investigators who had used body-worn camera videos said that their administrative, investigative, case preparation, and disclosure workload had increased because of the videos. In addition to the extra forms that needed to be completed, the increase was mainly due to the time it took to review any video without the ability to fast forward or rewind. The investigators estimated roughly that it took 3 to 5 hours a week toward the end of the pilot to review video and confirm what needed redaction; as cases involving body-worn camera video reach court, this time will increase. However, investigators also acknowledged that this longer time spent on case preparation could potentially cut down on the amount of court time required later.

Some investigators also noted that during the pilot, because officers on relieving shifts had not received any training related to the body-worn cameras and video, officers who had been trained ended up handling all the administrative and disclosure requests related to body-worn camera footage. This should not be an issue if the Service adopts use of the cameras, since training would be provided to an expanded number of officers – though particular effort should be made to include investigators in training as well.

The Unit Complaint Co-ordinators also indicated in the interviews that the need to review the body-worn camera video in real time had added to their administrative workload. They felt that, on average, the video could add about 4 hours per investigation. However, because of the evidentiary value of the body-worn camera video, the Complaint Co-ordinators also said that investigations could be resolved quicker and the video made it easier for them to prove their case. It was estimated that, overall, the video could save a day of work per investigation.

Response to Calls for Service:

While also an indicator of workload, the number of calls for service from the public that officers respond to can also be an indicator of availability – if an officer is already on a call or tied up on other duties, they are not able to respond to a call when it is received.

As shown in the table below, both the BWC officers and the respective comparison officers from three of the four functions participating in the pilot attended fewer calls for service during the pilot compared to the previous year.[21] The Community Response BWC officers did not show as large a decrease as their comparison officers, while the TAVIS and Traffic BWC officers showed a larger decrease than their comparison officers. However, since these functions are not typically calls-for-service driven, interpretation of these changes is difficult and could be the result of changes in the units involved or the community.

The activities of Primary Response officers, on the other hand, are often directly driven by calls for service and may be, therefore, a better indication of the availability of these officers. In contrast to the other three functions in the pilot, the Primary Response officers, both BWC and comparison, attended more calls for service in the pilot year than in the year prior. The BWC officers, however, showed a smaller increase in calls attended than did the comparison officers. In the end-of-pilot interviews, BWC officers explained that the administrative responsibilities related to the cameras (e.g. classifying, reviewing for redaction, etc.) increased their unavailable time. This extra time off the road may have contributed to the decrease in number of calls these officers attended.

Calls for Service	BWC Officers	Comparison Officers
CR	-21%	-56%
PR	33%	54%
TAVIS	-59%	-52%
TSV	-45%	-14%

Officer Workload

To explore the impact of the body-worn cameras on officer performance, workload indicators (occurrences submitted, arrests, and *Provincial Offences Act (POA)* tickets – both warnings and charges) during the pilot were compared with the same period in the previous year.[22]

Overall, having the body-worn cameras appeared to have little effect on the number of occurrences submitted, with the BWC officers and comparison officers both showing about an 8% increase during the pilot over the previous year. The cameras may, however, have had an effect on arrests and POA tickets: the BWC officers showed a larger increase in arrests than the comparison officers, but a small increase in POA charges. And while the number of POA warnings increased for the comparison group, they showed a considerable decrease for the BWC officers. These results may reflect some hesitation by the BWC officers in approaching or engaging people, particularly given the current uncertainty around investigative detention, and these officers feeling less able to use discretion in encounters that occur.

It should be noted that not all the units participating in the pilot interact with the community in the same manner or are equally represented by the selected workload indicators, so comparisons between the four functions are not necessarily appropriate. However, the performance of each of the pilot units in relation to their comparison group does give some indication of potential effects of the body-worn cameras. And, as was previously noted for pre-pilot to pilot period comparisons, officers may not have been in the same assignment during both periods.

Occurrences During Pilot: Change from Pre-Pilot Period	BWC Officers	Comparison Officers	Arrests During Pilot: Change from Pre-Pilot Period	BWC Officers	Comparison Officers
CR	-8.8%	-51.0%	**CR**	22.5%	-20.1%
PR	48.1%	34.9%	**PR**	58.7%	21.4%
TAVIS	-24.6%	-36.7%	**TAVIS**	-12.3%	13.3%
TSV	-1.4%	11.3%	**TSV**	23.5%	-37.3%
OVERALL	**8.5%**	**8.1%**	**OVERALL**	**15.6%**	**5.3%**

POA Tickets During Pilot: Change from Pre-Pilot Period	BWC Officers		Comparison Officers	
	Warning	Charge	Warning	Charge
CR	-66.7%	-26.7%	-14.4%	-32.8%
PR	40.3%	32.1%	21.0%	6.7%
TAVIS	12.1%	56.5%	93.9%	0.3%
TSV	-57.6%	-5.7%	8.7%	20.1%
OVERALL	**-22.9%**	**4.1%**	**36.9%**	**13.6%**

For the Primary Response officers, each of the workload indicators (occurrences submitted, arrests, *POA* tickets – both warnings and charges) increased during the pilot period for the BWC officers and for the comparison officers, however, they increased considerably more for the BWC officers. This increased performance by the Primary Response BWC officers may be the result of changes in behavior when people know they are being observed. While there was little difference between performance at the end of the pilot compared to the beginning, it is possible that longer exposure to wearing the cameras could lessen the initial effect.

While for both the BWC and comparison Community Response officers occurrences and *POA* tickets (warnings and charges) decreased during the pilot, with the exception of *POA* warnings they decreased less for BWC officers. And, in contrast to occurrences and *POA* tickets, the number of arrests increased for BWC officers, but decreased for the comparison officers. The substantial decrease in POA warnings and increase in arrests by the Community Response BWC officers may be an indication that these officers feel they are less able to use their discretion in interactions with the public.

For the TAVIS officers, the number of occurrences during the pilot period decreased for both BWC and comparison officers, but decreased less for BWC officers; arrests by the BWC officers decreased during the pilot period, while arrests by the comparison officers increased. Further, while *POA* tickets increased for both groups of officers, the BWC officers showed a greater increase in charges and the comparison officers showed a greater increase in warnings. Contact with members of the community is generally more officer-initiated in TAVIS and can involve investigative detention. Given this, these results may indicate that the BWC TAVIS officers were somewhat more hesitant in approaching or engaging with people, particularly in the current uncertain environment around investigative detention, than were the officers who were not wearing cameras. Further, the tendency toward *POA* charges rather than warnings may indicate again that the officers felt less able to use discretion in their contacts with people.

The changes in the workload indicators of the BWC and comparison officers in Traffic Services are not as suggestive of possible impacts, and may be due to the differences in function of both groups of officers. While officers on the Traffic platoons were selected as the comparison group for the Motor Squad (motorcycle) officers who would be wearing the cameras, it was recognized from the start that this would be the least similar comparison group when examining quantitative data. However, even given this basic difference in function, the changes in the workload indicators are much more difficult to interpret. Occurrences and *POA* tickets (charges and warnings) all decreased for the BWC officers, but increased for the comparison officers. In contrast, the number of arrests increased for the BWC officers, but decreased for the comparison officers.

Community Impact

Awareness

As noted previously, in May 2015 and again in January 2016, surveys were distributed door-to-door to households and businesses in 43 Division and in 55 Division; in January 2016, surveys were also distributed in areas where TAVIS officers had spent time the previous summer and fall. A total of 45,000 surveys were sent out, and 7,540 surveys were returned (3,002 from 43 Division, 4,089 from 55 Division, and 449 from TAVIS areas), resulting in a 17% response rate to each survey.

These surveys asked whether the person responding had known, before they received the survey, that the Toronto Police Service was testing body-worn cameras. Just over half (52%) of the community said they knew about the pilot project in January 2015, with the proportion increasing to two-thirds (66%) in May 2016.

> There were differences noted in the level of public knowledge by geographic area. In January 2015, people in 43 Division were significantly more likely than those in 55 Division to say they knew about the pilot project. And, in May 2016, people in both 43 Division and 55 Division were significantly

more likely than those in the TAVIS neighbourhoods to say they knew about the pilot. Given the focus of the public consultations in and near the two divisions where the body-worn cameras were to be geographically located, and, given that officers in the two pilot divisions wore cameras there throughout the project, the greater awareness among people in 43 and 55 Divisions was not unexpected.

A similar question was also included in the Service's annual general community telephone survey of 1,200 adults, carried out by Forum Research in recent years.[23] People were asked if they were aware that the Toronto Police Service was undertaking a project testing the use of body-worn cameras by officers. There was a larger increase in awareness among the general community than was seen in the pilot areas. Just under half of Torontonians (47%) in December 2014 said they were aware of the upcoming body-worn camera pilot; this increased to three-quarters (75%) in December 2015.

Neighbourhood Surveys

People were overwhelmingly in support of Toronto Police officers using body-worn cameras: over 90% of people at both times said they supported or strongly supported the idea, with the largest proportion in each survey saying they strongly supported body-worn cameras (Figure 14). Overall, 92% of people surveyed said they supported/strongly supported body-worn cameras in May 2015, increasing to 94% support for the cameras in January/February 2016. In particular, those who said they strongly supported the cameras increased significantly.

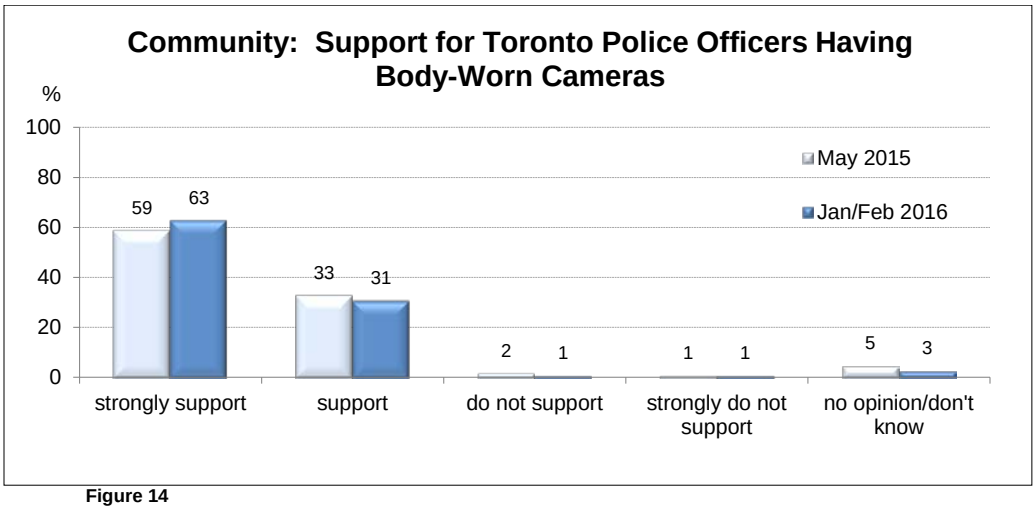


Figure 14

There were no significant differences in the extent of support between the geographic areas, either at the beginning of the pilot or at the end, with over 90% of people in each of the areas saying they supported or strongly supported Toronto officers having body-worn cameras. In January 2016, 94% of people in 43 and 55 Divisions, and 95% of people in TAVIS areas supported the body-worn cameras.

During the pilot project, support for the cameras increased significantly within 55 Division (from 91% at the start to 94% at the end), but remained about the same in 43 Division (93% to 94%).

In both surveys, 90% or more of men and women, those who identified as visible minority and those who did not, and in all age groups, said they supported or strongly supported Toronto officers having body-worn cameras.

Again, while it is recognized that the results of surveys may be shaped by those who choose to respond, the high level of support shown by all respondents lessens this concern.

In both surveys, people were asked how they felt body-worn cameras would affect police accountability, trust in police, confrontational behaviour in encounters with police, and safety in the community. They were most sure that the cameras would help with accountability and trust in police, but a bit less certain that body-worn cameras would reduce confrontational behaviour or make the community safer. Agreement that the cameras would make the police more accountable was particularly notable, with half or more of people in each of the areas surveyed strongly agreeing with this statement.

During the pilot, the proportions of people who agreed that the body-worn cameras would improve police accountability and public trust in police both increased significantly. The proportions of people who felt cameras would reduce confrontational behaviour and make the community safer remained the same or showed a small increase.

Agree/Strongly Agree that officers having body-worn cameras will: *(% strongly agree in brackets)*	**May 2015**	**January 2016**	
make the police more accountable	92% *(50%)*	94% *(55%)*	*
improve public trust in the police	82% *(39%)*	85% *(43%)*	*
help reduce confrontational behaviour when people interact with the police	78% *(38%)*	78% *(38%)*	
help make the community safer	69% *(34%)*	71% *(36%)*	

** significant difference at p<.05*

People in each of the geographic areas showed consistently high levels of agreement that body-worn cameras would make the police more accountable: there were no differences between the areas in May 2015 or in January 2016, and there were no changes within 43 or 55 Divisions during the pilot.

In contrast, people in 43 Division were significantly more likely than people in 55 Division at the start of the pilot to agree that the cameras would improve public trust in the police, help reduce confrontational behaviour, and help make the community safer. At the end of the pilot, there were significant differences between the three areas in belief that confrontational behaviour would be reduced and safety improved: those in the TAVIS neighbourhoods were most likely to agree, followed by 43 Division. Again, there were no changes within 43 or 55 Divisions during the pilot.

Overall, people in the TAVIS neighbourhoods were consistently the most likely to agree with all four statements. People in 55 Division were the least likely to agree with the statements, regardless of the time of the survey.

There was little change from the start of the pilot project to the end in the perceived benefits of Toronto officers having body-worn cameras (Figure 15). At both times, the benefits most frequently noted by people were that the cameras provide an unbiased account of what happens in an interaction between an officer and a member of the public, they provide evidence that can be used in investigations and in court, they protect officers from false complaints, and they provide accountability for police. Improved public perception of safety was the least frequently noted benefit at both times.

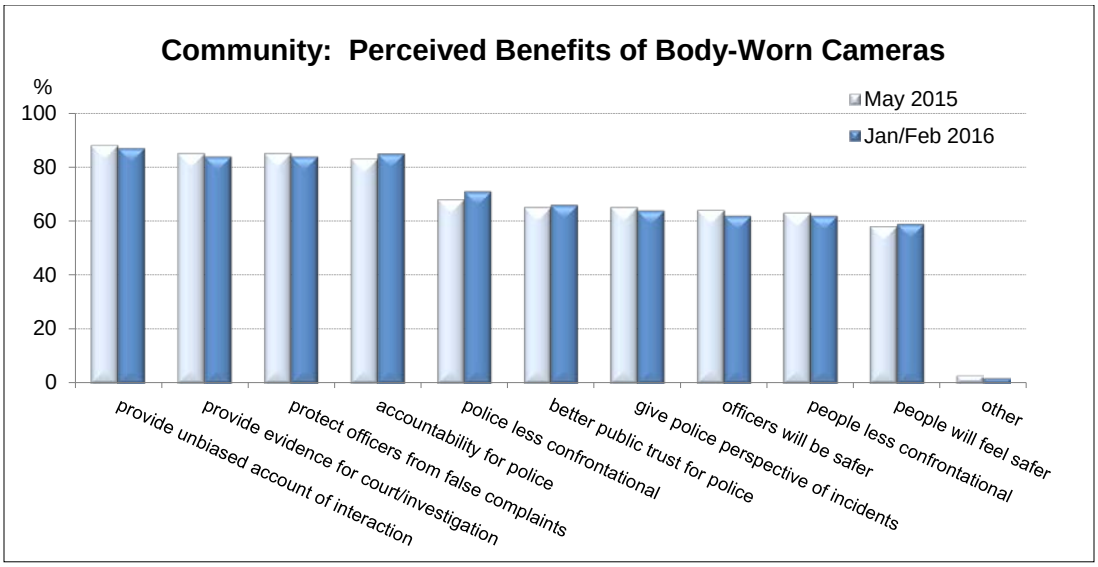


Figure 15

During the pilot project, there was little change in the most frequently perceived benefits within 43 Division or within 55 Division. At the end of the pilot, among the most frequently perceived benefits in each of the three areas were that the cameras would provide an unbiased account of interactions between police and members of the public, and that the cameras would provide evidence for use in investigations and court.

There was also little change during the pilot in what people perceived as the drawbacks of body-worn cameras (Figure 16). Just under one in five people (17%), both at the beginning of the pilot project and at the end, said they didn't think there were any drawbacks to officers having body-worn cameras.

For those who did think the cameras have some drawbacks, by far the most frequently noted, at both times, was that people might not want to talk to an officer or report a crime because they'd be recorded. The second most frequently noted drawback was that cameras can only see what's in front of them and officers may see something the cameras don't.

Only about one-third of people, at both the beginning and end of the pilot, thought that costs associated with the cameras or violation of privacy were drawbacks.

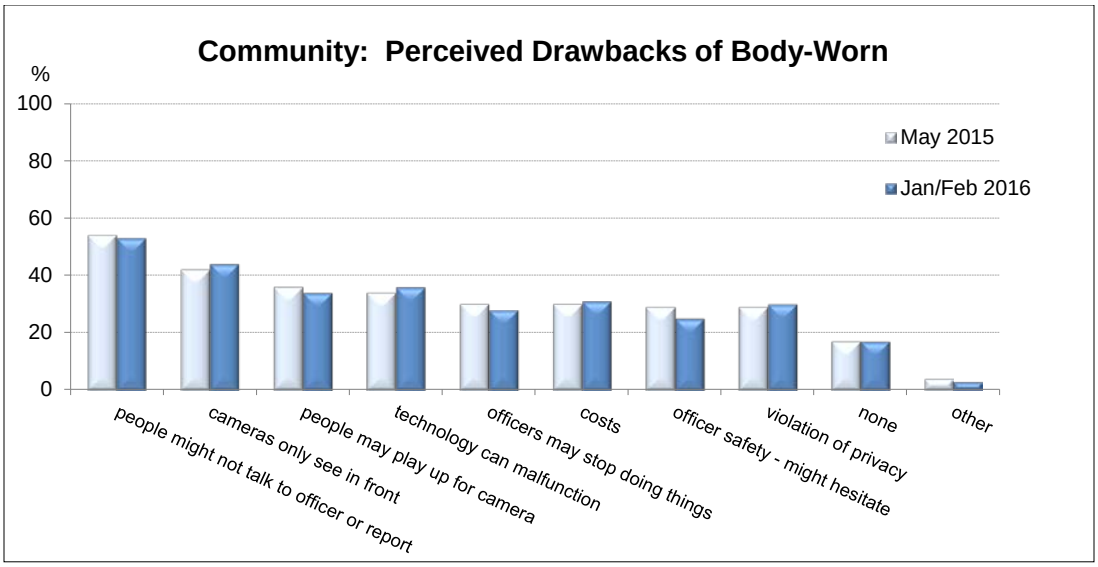


Figure 16

There was again little change in the most frequently perceived drawbacks within 43 Division or within 55 Division during the pilot project. At the end of the pilot, among the most frequently perceived drawbacks in each of the three areas were that people might not want to talk to officers or report crimes because of the cameras, and that cameras only see what's in front of them.

In addition to the perceived benefits and drawbacks of the body-worn cameras, the surveys also explored how comfortable people thought they would be when interacting with officers wearing a camera. Almost all people said they agreed or strongly agreed that they would feel comfortable talking to an officer with a body-worn camera, with an increase during the pilot project: from 88% in 2015 to 90% in 2016. The increase was driven by a significant increase in the proportion of people who said they strongly agreed: from 47% to 50%.

At the beginning of the pilot, people in 43 Division were significantly more likely than people in 55 Division to agree that they would be comfortable talking to an officer with a body-worn camera. By the end of the pilot, following a significant increase in agreement in 55 Division, there were no significant differences between the three geographic areas.

At the end of the pilot project, people were asked more specifically about their comfort level talking to an officer with a body-worn camera in different situations. As can be seen in Figure 17, people thought they would feel most comfortable if they were victim of a crime or if they were just asking the officer for information. People were less comfortable with the thought of talking to an officer with a body-worn camera as a witness or in enforcement situations.

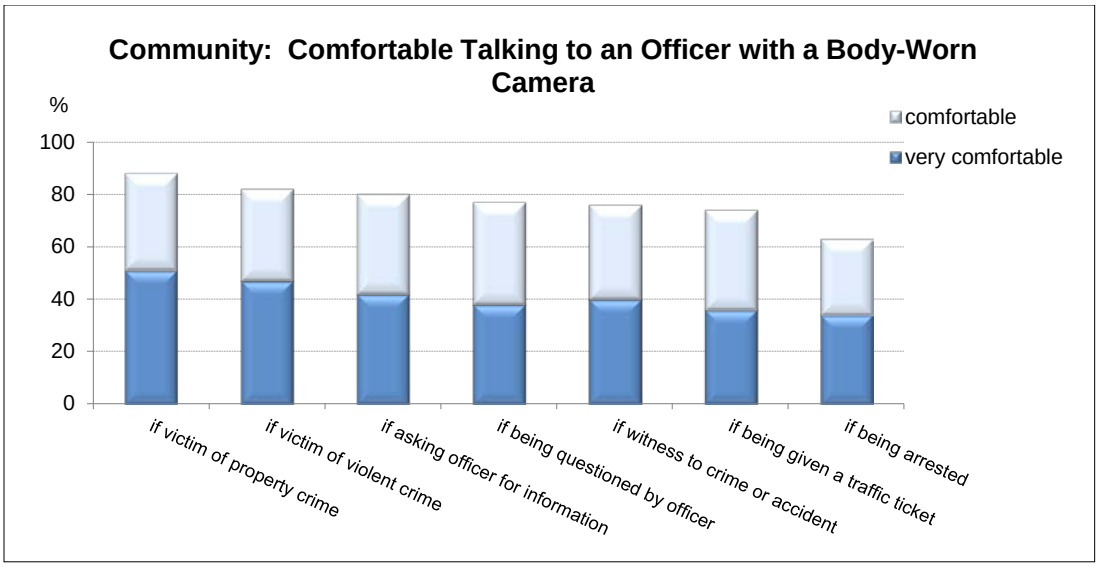


Figure 17

Looking at the three geographic areas, there were no significant differences in proportions of people who said they'd feel comfortable talking to an officer with a body-worn camera if they were the victim of a property crime, if they were being questioned, if they were being given a traffic ticket, if they were being arrested, or if they were asking for information. People in 43 Division significantly more often than people in 55 Division said they'd be comfortable talking to an officer with a camera if they were victim of a violent crime; the proportion of those from the TAVIS areas feeling comfortable in this situation fell between the two divisions. And people from 55 Division significantly more often than people in 43 Division and the TAVIS areas said they'd be comfortable talking to an officer if they were witness to a crime or accident.

In the January 2016 survey, people were asked whether or not they'd seen an officer with a body-worn camera during the pilot. About 15% said they had, with 5% saying they had seen and spoken to the officer and 10% saying they'd just seen the officer. Those who'd said they'd seen an officer with a body-worn camera tended to be male, younger, and identify as visible minority. The 15% was consistent across the three areas that received surveys.

Looking at comfort in talking to an officer with a body-worn camera again, it was found that people who said they'd seen an officer with a camera were significantly more likely to say they would feel very comfortable in each of the situations below.

Very comfortable talking to an officer with a body-worn camera if they were:	Saw an Officer with BWC	Did Not See an Officer with BWC	
victim of a violent crime	53%	46%	*
victim of a property crime	55%	50%	*
witness to a crime or an accident	48%	39%	*
being questioned by an officer	45%	37%	*
being given a traffic ticket	42%	35%	*
being arrested	40%	32%	*
asking the officer for information	47%	40%	*

** significant difference at p<.05*

Survey of Those Who Had Contact with a BWC Officer

As outlined previously, each month from August 2015 to February 2016, a follow-up survey was mailed directly to a sample of people who'd had law enforcement contact with an officer wearing a camera during the pilot project. Surveys were mailed to 4,285 of the 6,914 contacts with valid data between August 2015 and February 2016, about 600 for each month. Roughly 80% of the contacts were for *POA* offences (charged or warning). Of the 427 surveys that were returned, 319 indicated that they had in fact had contact with a BWC officer.[24]

Of the 319 people who'd had contact with an officer wearing a camera, 93% indicated that their interaction with the officer was recorded, 3% said it was not recorded and 3% said they were not sure if their interaction was recorded. Most people had contact with either a Traffic officer (43%) or PR officer (39%); 13% had contact with a TAVIS officer, and just 5% had contact with a CR officer.

According to responses, the majority of interactions occurred either in a vehicle (60%) or on the street (24%), and the most common reason indicated for the interaction was a traffic stop (80%). Other reasons for the interactions included to report a crime (5%), victim of a crime (2%), witness to an incident (1%), person of interest (1%), and arrested (1%).

Most people (90%) said that the officer advised them as soon as possible that he/she was wearing a body-worn camera. When asked if they had, at any time, asked the officer to turn the body-worn camera off, only 2% said that they had. Of these 8 people, most said the officer turned the camera off when asked; in the two cases where the officer did not turn the camera off, both of the respondents said that the officer did not explain why the camera could not be turned off.

People were asked if they felt it was appropriate that the interaction they had with the officer was video recorded; most of the respondents said yes (80%). For those who did not feel that recording the interaction was appropriate, reasons included: there was no threat to warrant the recording, recording a simple traffic stop seemed excessive, it was a waste of money and resources, or it was an invasion of privacy.

For a majority of respondents, the body-worn cameras had little impact on them: 58% said that the officer's camera had no effect on their level of comfort during the interaction, and 77% said it had no effect on their behaviour. For those who felt the camera had some impact, the effect was generally positive: 28% said the body-worn camera increased their level of comfort, while 14% said it had a positive effect on their behaviour. Over one-third of respondents (37%) also felt that the camera had a positive effect on the officer's behaviour.

> Women (20%) were significantly more likely than men (11%) to say that the body-worn camera decreased their level of comfort when interacting with the officer. Respondents who identified as visible minority (44%) were significantly more likely than those who did not identify as visible minority (21%) to say the camera increased their level of comfort during the interaction; those who did not identify as visible minority were significantly more likely to say that it had no effect on their comfort level. And, while not statistically significant, the younger age groups tended to be more likely to say the body-worn camera increased their level of comfort when interacting with the officer. The largest proportion in each age group said that the camera had no effect on their comfort level.

A majority of respondents agreed or strongly agreed that body-worn cameras will make the police more accountable (90%), improve public trust (77%), reduce confrontational behaviour when people interact with the police (75%), and make the community safer (69%). However, these proportions are slightly lower than were seen in the broader neighbourhood surveys, as shown on page 50.

Those who'd had contact with an officer wearing a camera were also somewhat less likely to support the idea of Toronto police officers having body-worn cameras (Figure 18). Of those who'd had contact with a BWC officer, 85% said they supported/strongly supported the cameras, compared to 94% in the neighbourhood surveys who supported/strongly supported the cameras in January 2016.

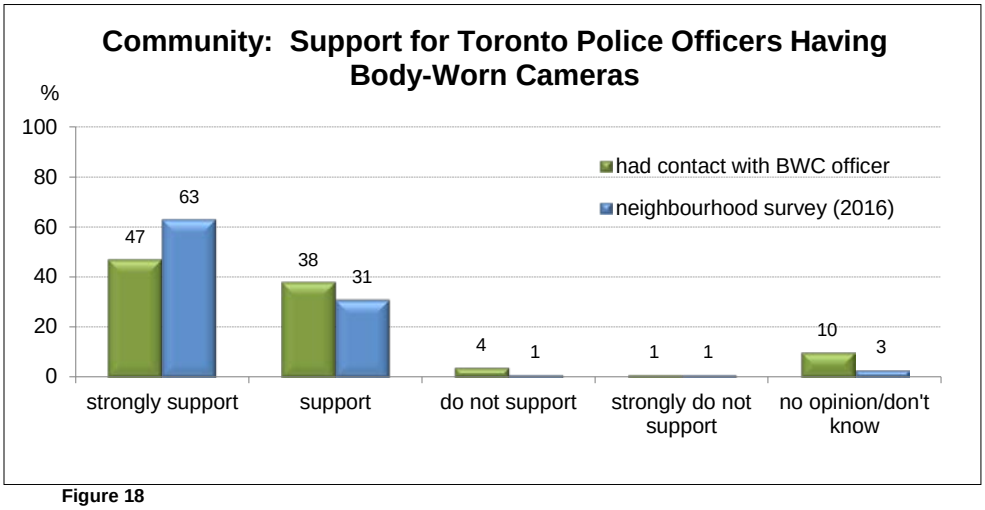


Figure 18

When asked if their level of support for body-worn cameras had changed as a result of their interaction with an officer wearing a camera, 67% said it had not changed and 27% said their support had increased as a result of their experience.

Feedback from Victims of Crime

To assess performance related to the Service's stated Priorities, a structured telephone interview is conducted with a randomly selected sample of victims of assault and robbery. The telephone survey was carried out in February 2015 and February 2016, and a question related to body-worn cameras was included at both times.

In February 2015, before the pilot project started, 427 victims were asked how comfortable they would have been speaking to the officer if the officer had a body-worn camera. Almost one-quarter (22%) said they would have been more comfortable, while 59% said they would have been as comfortable.

In February 2016, toward the end of the pilot project, 426 victims were asked first if the officer they'd dealt with had a body-worn camera. While almost half (49%) didn't remember, 42% said no and 9% said yes. Of those who said no, 31% said they would have been more comfortable speaking to the officer if the officer had been wearing a camera, while 50% said they would have been as comfortable. Of those who said the officer they dealt with was wearing a camera, 52% said they were more comfortable speaking to the officer than if the officer had not been wearing the camera; only 9% said they were less comfortable because of the body-worn camera.

General Community Feedback

Telephone Survey:

Each year, the Toronto Police Service contracts for a telephone survey of 1,200 randomly selected adults; in recent years, the survey has been carried out by Forum Research. In 2014 and 2015, questions related to body-worn cameras were included in this survey.

As with the results of the neighbourhood surveys in 43 and 55 Divisions, support for body-worn cameras increased among the general population. In November 2014, 78% of Torontonians said they supported or strongly supported the idea of Toronto police officers having body-worn cameras, increasing to 88% in

November 2015. This increase was driven more specifically by an increase in those who said they strongly support Toronto officers having body-worn cameras: from 45% to 56%.

There was also an increase between 2014 and 2015 in the proportions of people who said that they agreed or strongly agreed that having body-worn cameras would:

- make police more accountable (86% to 91%);
- improve public trust in the police (78% to 86%); and,
- help reduce confrontational behaviour when people interact with the police (78% to 85%).

More people in November 2015, mid-way through the pilot project, than in November 2014, prior to the pilot, also said they would feel comfortable talking to an officer with a body-worn camera (91% up from 86%).

Focus Groups

Body-worn cameras were also discussed in focus groups that were conducted by Forum Research in 2014 and 2015 at about the same time as the telephone survey was being carried out. The six focus groups each year included participants who were generally representative of Toronto (in age, gender, ethnicity/visible minority group, and area of the city lived in).

In November 2014, a majority of the participants in the focus groups, particularly the younger participants, said that they were in favour of officers having body-worn cameras. They felt cameras would help to ensure that officers treated everyone fairly and impartially, make officers more aware of their actions, and provide a way to hold officers accountable for their actions. They also believed that body-worn cameras would provide situational transparency, since interactions would be recorded and could show exactly what happened. Improved safety for both the public and officers was also considered a benefit because cameras would capture any wrongdoing on both sides – people would feel safer because they knew their side of the story would be heard, and police would be protected if the public was a danger to them.

A major concern in these focus groups before the pilot project started was privacy, particularly for people reporting crimes or people who were captured on video but not involved in the incident. Some participants also said that they would be nervous knowing they were being recorded, and were worried about saying something they might later regret, especially if they were already stressed by the situation that had brought them into contact with police. Participants also expressed concern that the body-worn cameras would make people hesitant to report or reach out to police, and make police hesitate in situations where they shouldn't.

In the November 2015 focus groups, mid-way in the pilot project, participant reaction to the body-worn cameras was overwhelmingly positive. The cameras were felt to provide protection for the public and for police officers by eliminating any 'he said, she said' issues. People believed that officers would be held accountable for and more aware of their actions, and the police would benefit from the videos as evidence in court and be protected against false claims of misconduct. Participants also felt the videos might be useful in police training and performance reviews.

In comparison to 2014, violation of privacy was only a minor concern in 2015, and the concern was for the privacy of both members of the public and for officers. The main concern in the 2015 focus groups was officer discretion in turning the cameras on and off. If cameras were to be used, people wanted them worn by all officers and turned on at all times. A few respondents were also concerned about police tampering with the videos or the cameras.

As in 2014, when participants were asked how comfortable they themselves would be talking to an officer with a body-worn camera, they expressed some discomfort. They were again worried that they would be stressed, nervous, and not thinking straight, leading them to say something they shouldn't or would later regret.

As noted previously, participants generally felt that police viewing body-worn camera video while investigating a specific crime or incident was fair and useful. However, they were mostly opposed to the idea of "fishing" – police reviewing the videos in general to look for any criminal activity.

People were emphatically against making videos public, and were particularly concerned about videos from the body-worn cameras being posted on social media.

On-Line Surveys

Two surveys were available on the Body-Worn Camera website for general community input: one that mirrored the initial May 2015 survey that was distributed in the pilot divisions, and one that mirrored the survey for people who'd had contact with an officer using a body-worn camera during the pilot. There were 293 respondents to the general on-line survey and 91 respondents who'd had contact with a BWC officer.

As was found with the other sources of public feedback, the level of support for the body-worn cameras was strong in the general on-line survey, although not as strong as in the neighbourhood survey. By the end of the pilot when the on-line survey closed, 81% said they supported/strongly supported body-worn cameras for Toronto officers.

Similarly, although positive, respondents to the general on-line survey were also somewhat less likely than those who answered the neighbourhood surveys to say that the body-worn cameras would make the police more accountable (87%), improve public trust in the police (76%), reduce confrontational behaviour when people interacted with police (68%), or make the community safer (65%).

The main benefits of the cameras for the on-line respondents were the same as for the neighbourhood respondents: cameras provide an unbiased account of an interaction between an officer and a member of the public, they provide accountability for the police, they provide evidence that can be used in investigations and court, and they can protect officers from false complaints.

Also similar to the neighbourhood respondents, the main drawbacks of the cameras in the opinions of the on-line respondents were that people might not want to talk to an officer because they'd be recorded and that cameras only see what's in front of them and officers may see something the cameras don't. More of the on-line respondents (46%) than the neighbourhood respondents (31%) saw the costs of the cameras as a drawback.

For the on-line contact survey, the most commonly reported circumstances were the same as for those who received the mailed survey: mainly in a vehicle or on the street, and a majority of the contacts involved a traffic stop. While a smaller proportion than was seen in the mailed survey, 64% felt that is was appropriate that their interaction was recorded. As with the mailed survey, for those who did not think it was appropriate, the main reasons were that it wasn't necessary or required, or that it was an invasion of privacy.

In contrast to those who responded to the mailed survey, a majority of whom said the camera had no effect on their level of comfort during the interaction, the largest proportion of on-line contact respondents (40%) said the camera increased their level of comfort; one-third said it had no effect on their comfort level. Although a smaller proportion, as with those who responded to the mailed survey, most people who responded on-line said the body-worn camera had no effect on their behaviour (47%); for those whose behaviour was affected, an equal proportion said it had a positive effect (26%) as a negative effect (26%).

Finally, those who responded to the on-line contact survey were the least likely in all of the public surveys to support the idea of Toronto officers having body-worn cameras: 70% said they supported/strongly supported the cameras. Just under half (47%) said that their opinion had not changed as a result of their experience, while 32% said their support for the cameras had increased.

D. FINDINGS: TECHNICAL OVERVIEW OF CAMERA SYSTEMS & INFRASTRUCTURE

(Information in this section provided by TPS Information Systems Services, ITS)

NOTE: This section provides only a high-level overview of the cameras and operational processes/systems that were tested. The detailed assessment of each of the solutions as outlined in the RFP will be provided in a separate document.

Body-Worn Cameras

As described previously, the Toronto Police Service initially selected three vendors to participate in the body-worn camera pilot project, but for contractual reasons, one of the vendors withdrew from the pilot before the devices were rolled out to the field. This section refers only to the two remaining solutions.

Panasonic

The Panasonic solution included 50 cameras, 6 docking stations, and the Arbitrator 360 software installed on standard Service desktop workstations. Unit supervisors used the software to assign cameras to the officers at the beginning of the shift. Officers also used the software to view and classify videos.

The pilot was conducted using the Panasonic MK2 (Mark 2) cameras. These were newly designed and the Service was the first law enforcement organisation to test them. Design elements took into consideration typical law enforcement requirements, including ease of use, audio and video quality, LED indicators and the associated accuracy of the information being conveyed, and device robustness. The latter was especially critical due to the nature of the policing environment. Each of these categories was part of the overall vendor assessment. A 30-second pre-event buffer allowed capture of video, though not audio, from the 30 seconds prior to the camera being activated.

Docking stations, with slots for 10 cameras, were attached to Service workstations specifically configured to upload video files to the backend server. Officers were able to drop their cameras into one of the slots at the end of their shift and walk away. The video upload and camera charge process started automatically as soon as the camera was mounted onto the docking slot. The vendors were also evaluated on how well their solution conformed to the 'drop and walk' requirements.

One of the unique features of the Panasonic solution was the ability for officers to classify the video on the camera while out in the field. Though not mandatory, it was viewed as a benefit since the officer did not need to set aside additional time at the station to review their video and assign the appropriate classification. This did not preclude them, however, from using the software on the workstations to view the video and assign or change the classification if they chose to do so.

Reveal

For the most part, the Reveal RS2 camera had features similar to the Panasonic camera, with the added feature of an outward-facing LED screen that allowed the public to view themselves being recorded. Various models of the Reveal cameras are in use world-wide, however, their primary customer base is in the United Kingdom (UK).

The Reveal solution included 50 cameras, 9 docking stations, and the DEMS software installed on standard Service workstations. As with the Panasonic solution, the DEMS software was used by the supervisors to assign each camera to an officer at the beginning of the shift and for the officers to view and classify the videos. Again, a 30-second pre-event buffer allowed capture of video, though not audio, from the 30 seconds prior to the camera being activated.

The RS2 camera came equipped with a signal LED light that changed colour, indicating status information to the officer, in addition to the status details available on the screen. This solution did not

offer the ability to classify the video on the camera. It did, however, allow the officers, while recording, to flag video as evidential for further review if necessary. While it was a simple process to classify each video online at the station after their shift, it was time consuming for the officers to review each one of their videos before assigning the correct classification.

Challenges

As with any other technology project, the body-worn camera pilot project had challenges, including ITS resources, hardware and software stability, functional gaps, limited funding, and vendor management.

Each solution had common functional overlaps that were relatively easy to learn and support across all platforms. However, there were also very unique hardware and software component features and configurations for each solution. As a result, throughout the pilot, each solution required dedicated resources and specialised technical skills to support the officers and supervisors in the field. As noted previously, due to the limited availability of the ITS BWC Project team analysts, and given the high priority and profile of the pilot, other active and downstream projects, including on-going system support and maintenance, were negatively affected, as were overtime costs.

Hardware and software stability and functional gaps were an on-going challenge throughout the pilot. Multiple software and firmware upgrades were necessary, which required intensive, time consuming full regression testing and verification before implementation in order to ensure a stable environment. In some cases, the upgrades were not rolled out because they did not resolve the issue, introduced new issues, or included functional changes not previously agreed to.

Inadequate camera battery life proved to be the most critical challenge. The current Service operational model requires the battery to last a minimum of 10 hours for most shifts. However, both solutions fell significantly short of this requirement, and resulted in the cameras being available for only part of the shift unless the officer had the opportunity to attend the unit and swap the camera for one with a charged battery. This proved to be time consuming and inconvenient since the officer had to find an available supervisor or designate to reassign a fully charged camera to their badge number. They could not simply drop off the camera and pick up a replacement.

The project team explored a number of options to allow the officers to recharge the battery while out in the field, however, all viable options required the officer to unmount the camera while it was in the charging mode. The risk was that the officer might forget to remount the camera when responding to an emergency call. External chargers were also explored, but it was determined that they took too long to recharge the battery to be of any value. In addition, one of the cameras was rendered inoperable while connected to an external charging source.

Finally, video corruption also proved to be a major technical challenge. Videos were often corrupted when an active recording was interrupted because the battery was completely depleted or when the camera encountered an issue that resulted in it either freezing or shutting down prematurely. Both vendors provided recovery tools that were not always successful in recovering the full video and the associated audio. In one instance, a firmware upgrade led to the loss of an unacceptable number of videos in spite of the engineering expertise made available by the vendor to assist with the recovery process.

Security and Access Control

As described previously, the user access matrix had 8 levels (officer, supervisor, Video Evidence staff, Video Evidence supervisors, Information Security members, Professional Standards members, and Information Support Services staff), with the flexibility to expand to accommodate business process revisions.

Only one of the solutions accommodated full implementation of the user access matrix, while the other limited the implementation to a maximum of the top three levels. Both solutions, however, allowed the complete lock-down of the video on the device and after the video was uploaded, to prevent anyone from deleting or changing videos, or changing any of the critical metadata.

All activities associated with the cameras were fully logged, including when video was viewed, by whom, before and after images of metadata changes, and date and time of the activity. Access to the log files was restricted to the ITS administrative personnel only. However, as an additional security layer, all the activities by the ITS administrative staff were also tracked.

Lessons Learned

Throughout the body-worn camera pilot, the ITS project team gained significant technical and operational knowledge and expertise. Some of the more important lessons learned were:

Video Resolution/Storage

The video resolution implemented for the pilot by both solutions was HD 720P recording at 5 mbps. This configuration delivered a relatively high video resolution, but the one major drawback of higher resolution setting was that it required more storage. A lower resolution would, then, lower storage requirements. Since storage is the most expensive component of any solution, lower resolution could significantly reduce storage costs. Any move toward lower resolution would have to be reviewed, however, to ensure it does not compromise the principle of 'best evidence'.

Battery Life (Charge)

As indicated above, battery life proved to be the most challenging aspect both for the technical team as well as for the front-line officers participating in the pilot. The project team expected the battery life to vary depending not just on the volume of recordings, but also on environmental factors such as exposure to extreme heat and cold weather. In reality, based on data monitored and officer feedback, it was found that the battery life varied significantly amongst all the devices, even with very slight activity variances. This could be due to insufficient charging time, since each solution required approximately four hours to achieve a full charge, or to other undiagnosed technical issues. External charging methods or the ability to swap out batteries while in the field could significantly enhance the camera uptime and would need to be explored more fully.

Camera Mounting

It was challenging for the front-line officers to find a camera placement location on their vests or jackets that optimized video and audio quality, video angle, and camera visibility during interactions with the public. Should cameras be adopted by the Service, the ITS project team would review the mounting options currently available, as well as options employed by other large police services.

Officer Perception

In the survey and interviews at the end of the pilot, almost all of the officers who wore the cameras had technical concerns about the cameras. Some of the most frequently mentioned concerns included:

- the short battery life,

- the inability to classify videos on the road for both solutions,
- the mounting of the cameras,
- the need for more reliable docking and faster uploading of videos, and,
- the functionality of the cameras (ease of activation, ability to mute, the ability to activate without looking away from the situation/person).

In interviews, officers were strongly supportive of the 30-second pre-event buffer, since it recorded the events leading up to an incident, often capturing what caused the officer to feel the camera needed to be turned on. One supervisor noted that the video captured by the pre-event buffer had helped officers who had received false complaints. The complaint co-ordinators and investigators also felt the pre-event buffer was important because it captured evidence, contextual information (e.g. person's initial demeanour) and again, the reason the officer activated their camera. Officers did, however, also express some privacy concerns as personal information could potentially be captured by the buffer.

Video Assets

As shown in the table and Figure 19 below, over the 10 months of the pilot project, the Traffic and PR officers had the most video recordings, and, accordingly, used the most storage. However, while the Traffic officers recorded more videos than the PR officers, the recordings of the PR officers were longer and required more storage. As a relatively small unit, the CR officers had the fewest recordings and required the least storage.

Video Assets	Total Number	Average Number per Week	Total Hours	Average Hours per Week	Average Video Length (min)	Total Video Size (GB) **	Average GB per Week
CR	2,493	54	363	8	8.7	980	21
PR	9,361	203	1,319	29	8.5	3,562	77
TAVIS *	6,858	180	850	22	7.4	2,295	60
TSV	11,199	249	1,174	26	6.3	2,970	66
TOTAL	29,911	650	3,706	81	7.4	9,808	213

** Cameras were not available for TAVIS officers until mid-July 2015, 9-10 weeks after cameras were deployed to the other units.*
*** Due to structure of file storage, etc. 5%-10% should be added to total video size for storage estimation requirements.*

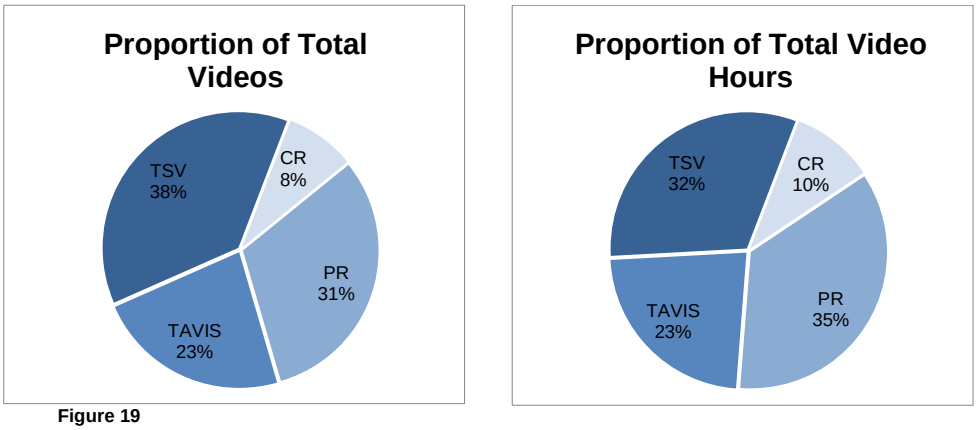


Figure 19

An estimate of per officer video activity over the 46 week pilot period found that, consistent with the information above, the Traffic officers had the largest number of videos per officer, while the PR had the longest videos and storage requirements per officer.

Video Assets	Number per Officer	Hours of Video per Officer	Video Size on Disk (GB) per Officer **
CR	208	30	82
PR	407	57	155
TAVIS *	298	37	100
TSV	415	43	110

** Cameras were not available for TAVIS officers until mid-July 2015, 9-10 weeks after cameras were deployed to the other units.*
*** As per ITS, due to structure of file storage, etc. 5%-10% should be added to total video size for storage estimation requirements.*

While the size of storage required by each of the different units is important, of greater impact is the classification of the videos classification determines the length of time the video needs to be kept.

Of the more than 29,000 videos recorded during the pilot, 28% will need to be retained for 11 years, having been classified as criminal, investigative, or Professional Standards. A further 37% were classified as Provincial Offence and so must be retained for 2 years. The remaining 35% (unclassified, training, non-evidential, or other) need only be retained for 1 year.

There were differences in classification volume by unit. About half or more of the videos by the PR (49%) and the CR (53%) officers were classified as criminal or investigation, and will need to be retained for 11 years. In contrast, half or more of the videos by TAVIS (52%) and Traffic (65%) officers were classified as Provincial Offence and only need to be retained for 2 years.

E. Summary of Financial Impacts/Total Costs

Costs of Pilot

Staffing

At the start of the pilot project, the officers who would be wearing the cameras were asked to keep track of all project hours, particularly overtime and callback hours, related to the body-worn cameras. This was to be done by using a unique project code (SWE2211) in the Service's daily Time and Resource Management System (TRMS).

While there is some uncertainty about the reliability of the TRMS data due to different interpretations of the initial request, the data are in line with the information provided by officers during the end-of-pilot interviews. During the interviews, officers indicated that they had done little to no overtime specifically related to the body-worn cameras.

As per the Collective Agreement, officers can elect to take overtime and callbacks in time or in cash; however, since officers may change this election at a later point in time, both types of election are given cash values in the table below. As shown, far more overtime than callbacks were recorded for the pilot project's SWE2211 code, and most of the overtime elections were to take time. If none of the elections are changed, then the overtime and callback monetary costs associated with the officers in the pilot project was $22,755.

TRMS Project Code SWE2211	**Overtime – Time Elected**	**Overtime – Cash Elected**	**Callback – Time Elected**	**Callback – Cash Elected**
HOURS	1,139	396	14	83
CASH	$53,281	$18,881	$738	$3,874

In addition to the officers wearing the cameras, as noted earlier, the ITS staff supporting the pilot project also incurred overtime since much of the roll-out of cameras and related systems took place on weekends or evenings to minimize disruption to the units involved. Again, the ITS Project Leader estimated about 220 hours of overtime were required by the team, including approximately 50 hours of unclaimed time. At time and a half, and assuming that for all overtime cash was elected, although it likely was not, a very rough estimate would be an additional $11,500 of overtime cost associated to the pilot project.

Operational Costs

According to the project managers, the original cost estimates for the pilot project technology and storage totalled less than $500,000, as shown in the table below. To keep costs manageable for the pilot, these estimates did not include the full requirements for the pilot project: ITS provided additional storage, servers, and tapes from Service resources. The costs in the table for these three items, therefore, do not reflect the full costs or requirements for the pilot project. That said, the costs projected at the start of the project were sufficient and the pilot concluded within the budget provided.

Pilot Cost Estimates

Vendor Solution (cameras, docking stations, software)	$100,000
Servers (4 unit level, SQL, 3 Application, 3 Database)	$131,482
Disk Storage (164 TB of useable space)	$184,992
Tape Storage (to backup data and to provide tape redundancy)	$54,000
Workstations (including software)	$16,800
TOTAL (including 1.76% tax)	**$495,850**

Projected Costs if Cameras Adopted

All the cost projections shown in this section are high-level, summary estimates only; they are simply intended to provide a very basic sketch of possible costs associated with adopting the body-worn cameras for wider use by the Service.

Staffing

All projected staffing requirements identified below are based on information provided earlier in this report in the discussion of the impacts of the pilot project on support units. The projected requirements are estimated based on technology, software, and processes used during the pilot project. Should any of these change, the projected staffing requirements should be revisited.

The table below outlines those staffing requirements that were identified by the ITS BWC Project team and Video Evidence managers as being imminently necessary, should the Service adopt body-worn cameras for wider use.

Immediate Staffing Requirements Identified by Units	Estimated Cost	# Requested	Total Cost per Year
ITS – contract resource *	$149,940	2	$299,880
Video Evidence Section – A05(40) Audio Visual Operator **	$78,639	7	$550,473
TOTAL		**9**	**$850,353**

** Required for two years; capital budget funded. (Approx. cost estimate based on $85/hour, 252 working days/year, 7 hours/day.)*
*** Includes salary as per 2015-2018 salary rates, plus 28% for benefits as recommended by Budget & Financial Analysis.*

The table below identifies staffing requirements that were projected by managers in the near future, should the Service adopt body-worn cameras for wider use.

Future Staffing Requirements Identified by Units *	Estimated Cost	# Requested	Total Cost per Year
ITS – A09 Programmer Analyst **	$94,043	1	$94,043
ITS – A11 Sr Programmer **	$113,892	1	$113,892
Access & Privacy – A08 Disclosures Analyst	$67,774	1	$86,751
TOTAL		**3**	**$294,686**

** Includes salary as per 2015-2018 salary rates, plus 28% for benefits as recommended by Budget & Financial Analysis.*
*** To be hired after two years.*

The impacts of any wider use of body-worn cameras on the units above would have to be monitored closely, so that appropriate staff levels to meet service demands are maintained.

In addition to the above staffing cost estimates, there would be associated costs incurred. For example, Video Evidence management estimated an additional $49,169 would be required for equipment (desks, phones, workstations, etc.) for 7 additional staff, plus $5,775 for training on the required systems.

As noted above, the impacts of any process or technology improvements would also have to be monitored closely so that staffing adjustments could be made. For example, better redaction software and more powerful workstations might decrease the number of additional Video Evidence staff required, though cost saving in personnel, equipment, and training costs would likely be offset by the technology costs.

Operational Costs

Should the Service adopt body-worn cameras, by far the most expensive component of any wider use of body-worn cameras would be the technology and storage of the video recordings, particularly given the video resolution and the retention schedule used in the pilot project.

All the summary estimates shown below were provided by the ITS BWC Project Team. The estimates assume the high video resolution, retention schedule, and storage solutions used during the pilot, and that the number of recordings will grow as officers become more comfortable with the technology.

In order to estimate future storage requirements, the ITS BWC Team approximated the number of officers that would require body-worn cameras per day by averaging the number of officers that were logged into the Computer-Aided Dispatch (CAD) system each day in 2015, with the assumption that officers logged into CAD would be those most likely to be responding in the community. Due to variation around the average and the likely need to equip more officers than the average number, one standard deviation was added to approximate the upper limit. Dividing this number by three – the number of shifts each day – the ITS BWC Team estimated 700 officers per shift.

While 2 hours of video per officer per shift was expected during the initial project planning, less than 1 hour per officer per shift was actually recorded during the pilot and so 1 hour was used in the ITS estimation. As 1 hour of video requires 2.25 GB of storage, with 700 officers per shift, 1.575 TB storage would be required per shift, or 4.72 TB per day. With 15% additional storage buffer space included, it was estimated that the Service would require 1.98 PB of storage per year.

Based on this annual estimate of storage requirements and the purge requirements of the retention schedule, the amount of storage required would increase exponentially to an estimated 4.56 PB of storage in the fifth year.

As noted, the rough cost estimates and projections above are based on the technology and storage solutions used in the pilot project, with an assumption of increased video generated per officer. Given the large volume of recordings that would require storage (roughly 4.56 PB in the fifth year), the feasibility of cloud storage and other efficiencies such as lower video resolution should be examined if the Service adopts body-worn cameras for wider use.

Data storage in general is a growing concern shared by many police services as smartphones and other devices have changed how police agencies operate and have changed the way police agencies store and manage digital evidence.[25] Recognizing this going concern across service areas, the City of Toronto has issued a Cloud Computing Framework which provides guidance on the evaluation, acquisition, implementation and management if Cloud Computing services for the City of Toronto.

With the above estimated storage requirements, the ITS BWC Project Team was able to provide a five-year estimate of capital and operating costs that would be associated with Service-wide adoption of the body-worn cameras. The cost estimates, summarized in the table below, include:

- fixed costs (infrastructure, software support, system integration, etc.),
- variable costs (cameras, software, docking stations, additional workstations to support the docking stations, storage, etc.), and
- lifecycle costs (replacement of the cameras every three years, replacement of the storage and workstation hardware every five years).

Year	1	2	3	4	5	TOTAL
Total Capital Costs	$18,625,200	$2,380,000	-	-	-	$21,005,200
Total Operating and Lifecycle Costs	-	$1,481,800	$3,438,400	$2,732,200	$21,550,500	$29,202,900
TOTAL PROJECTED COSTS	**$18,625,200**	**$3,861,800**	**$3,438,400**	**$2,732,200**	**$21,550,500**	**$50,208,100**

Staffing costs, outlined previously are not included in the table above.

It should be noted that the above estimated cost projections also do not include costs (dollar and staffing) that would be associated with ensuring that a body-worn camera system is integrated with the Service's records management system (Versadex) and the Digital Video Asset Management system (DVAMS). According to the ITS BWC Project Team, given the extremely large volume of body-worn camera video that would be expected, integration with these two systems would be crucial. Integration with Versadex would be necessary to appropriately link video assets with incidents and occurrences, and DVAMS integration would be essential to streamline the redaction, disclosure, security, and management of evidence assets.

The estimated costs above do not assume the body-worn cameras would be classified as a Class A system. If the cameras were adopted and so classified, there would be an increased financial impact.

Again, all the cost projections shown in this section are high-level, summary estimates only; they are only intended to provide a very basic outline of possible costs associated with adopting the body-worn cameras for wider use by the Service.

CONCLUSIONS

The Toronto Police Service began the pilot project in 2014 with the purpose of exploring the benefits, challenges, and issues surrounding the use of body-worn cameras by Toronto police officers.

Planning for the pilot was well-executed and comprehensive, with as many issues as possible addressed in early stages, building on the experience of project managers with the in-car camera pilot project. Consultation with the community and with major stakeholders – the Office of the Information and Privacy Commissioner, the Ministry of the Attorney General, and the Ontario Human Rights Commission – began early and continued during the pilot to ensure governance and training balanced current community concerns, privacy concerns, and officer concerns. Working with the Stakeholder Working Group and involved in all aspects of the operational implementation, the diligence of the project managers ensured that the pilot project was implemented carefully and provided a sound basis for assessing the body-worn cameras.

Overall, support for the body-worn cameras was extremely strong in the community, and strong, though somewhat less so, among those members of the community who'd had law enforcement contact with an officer wearing a camera. The officers who wore the cameras during the pilot also generally supported the body-worn cameras, though not as strongly as the community. Both the community and the officers became more positive about the cameras during the course of the pilot project. The comparison officers, while not very positive about the body-worn cameras, became less negative about them.

For the officers, technical problems and an increased administrative workload were particular challenges, as was the belief that the cameras changed how they interacted with the community. Although officers generally believed that people were comfortable with them wearing the cameras, they also felt that people were less willing to provide them with information; officers, themselves, felt the cameras limited their ability to use discretion when dealing with people. Workload indicators, specifically an increased number of arrests and a considerably decreased number of *Provincial Offences Act* warnings (compared to the previous year and the comparison group), may be a reflection of officers feeling less able to use discretion.

Consistent with what the officers believed, most people in the community did say that that they would feel comfortable talking to an officer with a body-worn camera, particularly as a victim of a crime, though they thought they'd be less comfortable in investigative or enforcement situations. Those who'd actually seen or talked to an officer with a camera during the pilot said they'd be more comfortable than those who hadn't, in all situations. Most people who'd actually had contact with an officer using a body-worn camera in an enforcement situation, said that the camera hadn't changed their comfort level or affected their behaviour; for those who had been affected, they tended to be more comfortable or feel that the camera had a positive effect on their behaviour.

There were a number of process and technology-related issues that were raised during the pilot that would need to be reviewed and addressed should the Service choose to adopt body-worn cameras for wider use. Participants in the pilot project – officers, supervisors, ITS staff – identified a number of technical concerns relating to the body-worn cameras and the associated hardware/software, including issues with battery life, camera mounting, docking, recharging, general functionality, upload speed, ability to classify, and ease of review.

Video corruption was also a major technical challenge during the pilot and recovery tools were not always successful in recovering the video and associated audio. Given the current level of community expectations, this issue has the potential to be critical. If videos are not available for Freedom of Information requests, for court, or in highly-scrutinized situations, there is the risk that any gains in public trust may be lost.

As noted above, in addition to the technical challenges, the administrative responsibilities associated with the body-worn camera in the pilot project resulted in a significant commitment of time by front-line officers

– time that was then not available to spend on other duties. The body-worn cameras also resulted in increased workload in support units, particularly the Video Evidence section of the Property & Video Evidence Management unit, and the Information Systems Support section of Information Technology Services. Based on experiences during the pilot project, projected workload, and anticipated expert technical support that would be required, it was estimated that an additional nine positions, two contract, would be required in the initial years of implementation, at an estimated cost of roughly $900,000 per year. These requirements could be reduced by enhanced technology solutions, including improved redaction capability and more powerful workstations.

The major challenge that would be associated with any adoption of body-worn cameras by the Service is the cost. While the pilot itself was not a major expense, projected costs of staffing, technology, and storage requirements would be about $20 million in the first year of implementation, with a total 5-year estimated cost of roughly $51 million, not including costs of integrating the Service's current records management and video asset management systems with a body-worn camera system. The most expensive component of any wider adoption of body-worn cameras is the storage of the video recordings. With no change to the storage solution, retention schedule, video resolution, or volume of video requiring storage, storage requirements could reach almost 4.56 PB in five years. Long-term, sustainable funding for the project would be essential.

In addition to exploring the issues and challenges associated with the use of body-worn cameras, the pilot project also aimed to explore whether or not the cameras could:

- enhance public and officer safety;
- enhance public trust and police legitimacy;
- enhance commitment to bias-free, professional service delivery by police;
- protect officers from unwarranted complaints and accusations of misconduct; and
- provide improved evidence for investigative, judicial, and oversight purposes.

The final goal of the pilot was to:

- provide information on the effectiveness of Service procedures and training.

At the end of the pilot, a majority of the community said they felt that body-worn cameras would help make the community safer. The officers, in contrast, were not as positive with regard to their safety: only about one in five said that cameras would help them feel safer. However, more officers did feel that the cameras helped to deter assaults against police and to make people less confrontational and aggressive with officers.

As the number of Injured on Duty reports submitted by officers during the pilot was very small, more, longer term data are required before any inferences should be drawn. Officer injury in relation to body-worn cameras is an area requiring further study.

There was a relatively small number of officers who wore the cameras during the pilot. Perhaps because of this, there was no significant incident or situation that arose that would have provided an opportunity for the body-worn cameras and associated video to demonstrate value, or lack thereof, for police accountability and public trust. That said, most people in the community felt that the cameras would make the police more accountable and improve public trust in the police, and felt even more so at the end of the project than at the beginning. The officers were less persuaded by the end of the project that the cameras could help police be more accountable, but they were more positive that body-worn cameras could improve public trust, perhaps reflecting personal experiences while wearing the cameras.

Among the benefits most frequently noted by the community for body-worn cameras was that they can provide an unbiased account of interactions between the police and members of the community. Focus group participants in particular felt the cameras would help to ensure that officers treated everyone fairly and impartially, and make officers more aware of their actions. For their part, some officers noted that with the cameras they tended to be more cautious about what they said, and more likely to be certain that

they clearly articulated reasons for an interaction. Supervisors also felt that their officers acted with more professionalism when they were wearing the cameras.

Most of the officers in the pilot felt strongly that the body-worn cameras would help respond to public complaints against them and protect them from false accusations of misconduct. The unit complaint co-ordinators and supervisors were also strongly supportive of the cameras because of the potential benefit in this area. Again during the pilot, the number of public complaints made was small, but there were indications that video from the body-worn cameras can help resolve complaints, possibly in a shorter time. There was also some indication that the video can help resolve potential complaints before they are submitted. Because of the small number of complaints during the pilot, the value of the body-worn camera video to complaint investigation and resolution, and to early complaint resolution, would benefit from further study.

Given the time required for a case to go before the courts, and the relatively small number of cameras being used in the pilot, there have to date been few cases for which body-worn camera evidence was available and useful. It is, therefore, difficult to reliably assess the value of body-worn camera video evidence in court at present. Crown representatives did believe, however, that body-worn camera evidence could have a positive impact on the early resolution potential of some cases and the litigation process as a whole (for example, shortened trials, better court decisions, and improved Crown case management strategy). This is another area that would benefit from continued study.

A majority of the officers involved in the pilot also said they believed that the videos from the body-worn cameras would be valuable in court. In interviews, officers who may not have been very supportive of the cameras initially found their opinion changed when video was used successfully in resolving a case, backing up evidence, or resolving complaints. And, by the end of the pilot, the investigators in the pilot divisions agreed that videos from body-worn cameras were a valuable tool for investigators, and that the videos would be valuable in court. Experience with the videos was likely an influence – a majority of the investigators had used body-worn camera video in at least one investigation and had found it useful.

If the Service adopts body-worn cameras for use, a process should be established to monitor the impact of the cameras on workload, officer availability, officer injury and use of force, public complaints and resolutions, and court.

Finally, with regard to the Procedure and training, the officers involved in the pilot were generally positive about both, though issues were raised and suggestions for changes were made during the interviews and in the surveys. In particular, although the Procedure seems to have worked reasonably well, officers felt it needed to provide clearer direction about when the body-worn cameras should be on and when they should be off. They also felt that there needed to be more discussion about the Procedure during the in-class component of the training. Though the officers were not overly positive about the value of the mock court component of the training, particularly since some had experience with the use of in-car camera video in court, the officers felt that the scenario training gave them valuable, hands-on experience with the cameras themselves before they had to use them during the operational part of the pilot.

Almost half of the community felt that the cameras should be on all the time, except during breaks; those who didn't feel the cameras needed to be on all the time tended to believe they should be on only during enforcement and investigative situations. Officers, on the other hand, felt the cameras limited their ability to use discretion and that the direction contained in the current Procedure governing camera use was not as clear as they would have liked. Guidelines released in February 2015 by the Office of the Privacy Commissioner of Canada noted that law enforcement agencies may have difficulty in justifying the need for continuous recording, and that intermittent recording may be more easily justified for defined operational purposes. Service governance would have to be reviewed to ensure that it balances community expectations, officer concerns, privacy concerns, and current research into the effects of body-worn cameras.

Overall, the pilot did find that, with specific challenges addressed, body-worn cameras could feasibly be worn by those front-line Toronto Police Service officers most likely to be involved in service-related,

enforcement, or investigative contact with the community. Again, the primary challenge that would need to be addressed is the substantial, sustainable financial investment that would be needed.

In terms of achieving the pilot goals, the quantitative results were not compelling, though they did perhaps indicate trends that would have become clearer in a longer study. What was compelling, however, was the level of support for the cameras in the community – strong initial support that increased over the course of the pilot project. Although "the plural of anecdote is not data", anecdote can be compelling and can influence belief and expectations. The community strongly believes that body-worn cameras will make the police more accountable to the public, improve public trust in police, and that they will help to ensure professional service that benefits both the public and officers. Though not as strongly in favour of body-worn cameras as the community, officers, too, became more supportive of the cameras over the pilot project, and felt particularly strongly about the ability of the cameras to protect them from false accusations of wrong-doing.

There is considerable public interest in the use of body-worn cameras by the Toronto Police Service, as indicated by the unprecedented response to the neighbourhood surveys carried out for this evaluation. Community expectations for body-worn cameras are high. Though there was no clear evidence during the pilot that the cameras would do so, people strongly support their use and expect them to increase accountability, public trust in police, and make the community safer.

Relatively few people showed concern for possible negative aspects of the body-worn cameras, including privacy issues and the associated costs. There are also consequences to having officers wear cameras that the community may not be aware of, though these consequences may be ameliorated by time and technical/process changes. For example, increased administrative responsibilities could affect the availability of officers in responding to calls for service; and, if officers feel they are less able to use discretion, people may be given a ticket instead of a warning.

If the challenges identified in the evaluation can be addressed, the use of body-worn cameras by Toronto Police officers would be seen as a powerful indication of commitment to accountability, the desire to strengthen public trust and police legitimacy, and a commitment to ensuring officers are protected from unwarranted accusations of misconduct.

ENDNOTES

[1] Police Executive Research Forum. (2014). **Implementing a Body-Worn Camera Program: Recommendations and Lessons Learned.** Washington, DC: Office of Community Oriented Policing Services, in footnote, p. 1.

[2] Toronto Police Service. (2013). **The Police and Community Engagement Review: The PACER Report**, p.58.

[3] Office of the Chief Coroner. (2013). **Verdict of Coroner's Jury**. Inquest into the deaths of: Reyal Jardine Douglas, Sylvia Klibingaitis, and Michael Eligon. Toronto, ON, p.6, on-line at www.mcscs.jus.gov.on.ca.

[4] Iacobucci, The Hon. F. (2014). **Police Encounters with People in Crisis**. An Independent Review Conducted for Chief of Police William Blair, Toronto Police Service. Toronto, ON, p.263.

[5] Based on a survey of 485 industry respondents, the Direct Marketing Association found that direct mail surveys had an average response rate of 3.7%. Cited on http://www.marketingcharts.com/traditional/direct-media-response-rate-cpa-and-roi-benchmarks-53645/.

[6] Beamish, B. (Ontario Information and Privacy Commissioner) Personal Communication to Chief of Police Mark Saunders, dated July 23rd, 2015. Available in Toronto Police Services Board Minute No. 250 (September 17th, 2015 meeting).

[7] All statistically significant comparisons are χ^2 comparisons at $p<0.05$.

[8] Toronto Police Services Board, February 24th, 2016 Meeting, Minute No. 40.

[9] In any per officer calculations, the total number of officers used includes any officer who was in one of the pilot or control units for any amount of time during the pilot period (that is, 85 BWC officers and 389 comparison officers).

[10] Ariel, B. et al. (2016). Wearing body cameras increases assaults against officers and does not reduce police use of force: Results from a global multi-site experiment. **European Journal of Criminology**, on-line at euc.sagepub.com.

[11] Gilbert, B.W. (Senior Staff Cardiologist, Sunnybrook Health Sciences Centre) Personal Communication to Staff Sergeant Graham Gibson, dated December 2nd, 2015.

[12] For example: ODS Consulting. (2011). **Body Worn Video Projects in Paisley and Aberdeen Evaluation Report**. Glasgow, Scotland.

[13] While complaint investigations should be completed within 90 days, there are provisions for investigations that may take additional time.

[14] Since each officer who uses force in any given incident is required to submit a Use of Force report, it is possible that multiple reports may be submitted for one incident.

[15] Ariel, B. et al. (2016). Report: increases in police use of force in the presence of body-worn cameras are driven by officer discretion: a protocol-based subgroup analysis of ten randomized experiments. **Journal of Experimental Criminology**, on-line at Springerlink.com.

[16] For example: Ready, J.T. and Young, J.T.N. (2015). The impact of on-officer video cameras on police-citizen contacts: Findings from a controlled experiment in Mesa, AZ. **Journal of Experimental Criminology**, 11(3).

[17] Reviewing of video when making memo book notes was not required by the Procedure. However, if the video was reviewed, it was to be recorded in the memo book notes.

[18] Dawes, D. et al. (2015). Body-Worn Cameras Improve Law Enforcement Officer Report Writing Accuracy. **Journal of Law Enforcement (On-Line)**, 4(6), www.jghcs.info.

[19] For example: Katz, C.M. et. al. (2014). **Evaluating the Impact of Officer Worn Body Cameras in the Phoenix Police Department**. Phoenix, AZ: Center for Violence Prevention and Community Safety, on-line at https://publicservice.asu.edu/sites/default/files/ppd_spi_feb_20_2015_final.pdf.

[20] In the end-of-pilot interviews, sergeants were also included in the supervisor group, since they were most directly responsible for supervising the officers who wore the cameras.

[21] The periods compared were June 1st, 2015, to March 31st, 2016 (pilot period) and June 1st, 2014, to March 31st, 2015 (pre-pilot period).

[22] The periods compared were June 1st, 2015, to March 31st, 2016 (pilot period) and June 1st, 2014, to March 31st, 2015 (pre-pilot period).

[23] The 2014 and 2015 telephone surveys were carried out for the Toronto Police Service by Forum Research. The results are considered accurate within ± 2.8%, 95 times out of 100.

[24] The names of all officers involved at an incident/event are associated with that incident/event. If other officers were at the scene as well as the officer(s) with a body-worn camera, then the person may not have spoken to a BWC officer.

[25] As discussed in Sallee, V. (2016). Outsourcing the Evidence Room: Moving Digital Evidence to the Cloud. **The Police Chief**, 51(4). On-line at http://www.policechiefmagazine.org/magazine/index.cfm?fuseaction=display_arch&article_id=3319&issue_id=42014.

REFERENCES

(Note: The Internet references cited were valid as of the date of writing.)

Ariel, B., Farrar, W.A., Sutherland, A. (2015). The Effect of Police Body-Worn Cameras on Use of Force and Citizens' Complaints Against the Police: A Randomized Controlled Trial. **Journal of Quantitative Criminology,** 31(3).

Ariel, B., Sutherland, A., Henstock, D., Young, J., Drover, P., Sykes, J., Megicks, S., & Henderson, R. (2016). Report: increases in police use of force in the presence of body-worn cameras are driven by officer discretion: a protocol-based subgroup analysis of ten randomized experiments. **Journal of Experimental Criminology**. On-line at http://wwwSpringerlink.com.

Ariel, B., Sutherland, A., Henstock, D., Young, J., Drover, P., Sykes, J., Megicks, S., & Henderson, R. (2016). Wearing body cameras increases assaults against officers and does not reduce police use of force: Results from a global multi-site experiment. **European Journal of Criminology**. On-line at http://euc.sagepub.com.

Dawes, D., Heegaard, W., Brave, M., Paetow, G., Weston, B., & Ho, J. (2015). Body-Worn Cameras Improve Law Enforcement Officer Report Writing Accuracy. **Journal of Law Enforcement** (On-Line), 4(6), http://www.jghcs.info.

Edmonton Police Service. (2015). **Body Worn Video (BWV): Considering the Evidence***, Final Report of the Edmonton Police Service Body Worn Video Pilot Project*. Edmonton, AB.

Ellis, T., Jenkins, C., & Smith, P. (2015). **Body-Worn Video: Evaluation of the Introduction of Personal Issue Body Worn Video Cameras (Operation Hyperion) on the Isle of Wight**. Final Report to Hampshire Constabulary. Institute of Criminal Justice Studies, University of Portsmouth. Portsmouth, UK.

Force Science Institute. (2010). **Do head cameras always see what you see in a force encounter?** Force Science News #145. On-line at http://www.forcescience.org.

Force Science Institute. (2015). **10 limitations of body cams you need to know for your protection**. Force Science News #265. On-line at http://www.forcescience.org.

Forum Research Inc. (2014). **Toronto Police Service Qualitative Research Report, December 2014.** Toronto, ON.

Forum Research Inc. (2015). **Toronto Police Service Qualitative Research Report, December 2015.** Toronto, ON.

Grossman, L., Owens, C., Finn, W., Mann, D., Davies, T, & Baika, L. (2015). **Police, Camera, Evidence: London's cluster randomised controlled trial of Body Worn Video**. College of Policing and the Mayor's Office for Policing and Crime. London, UK.

Guza, M. (2016). Study reverses praise for police-worn body cameras. **Pittsburgh Tribune-Review**, May 30, 2016. On-line at http://triblive.com/news/allegheny/10483723-74/cameras-police-body.

Harvard Law Review. (2015). **Considering Police Body Cameras**. Developments in Law. Vol.128, No.6. On-line at http://harvardlawreview.org.

Her Majesty's Inspectorate of Constabulary for Scotland. (2011). **HMICS Effective Practice submission: Strathclyde Police and Grampian Police Body Worn Video**. On-line at http://www.hmics.org/publications/body-worn-video.

Iacobucci, The Hon. F. (2014). **Police Encounters with People in Crisis**. An Independent Review Conducted for Chief of Police William Blair, Toronto Police Service. Toronto, ON.

Jennings, W.G., Fridell, L.A., & Lynch, M.D. (2014). Cops and cameras: Officer perceptions of the use of body-worn cameras in law enforcement. **Journal of Criminal Justice**, 42(6).

Jennings, W.G., Lynch, M.D., & Fridell, L.A. (2015). **Evaluating the Impact of Police Officer Body-Worn Cameras (BWCs): The Orlando Police Department (OPD) Experience**. Executive Summary of Final Report Submitted to Orlando Police Department: 10-6-15. Tampa, FL.

Katz, C.M., Choate, D.M., Ready, J.T., Nuňo, L. (2014). **Evaluating the Impact of Officer Worn Body Cameras in the Phoenix Police Department**. Phoenix, AZ: Center for Violence Prevention and Community Safety, Arizona State University.

Lum, C., Koper, C., Merola, L., Scherer, A., & Reioux, A. (2015). **Existing and Ongoing Body Worn Camera Research: Knowledge Gaps and Opportunities**. Report for the Laura and John Arnold Foundation. Fairfax, VA: Center for Evidence-Based Crime Policy, George Mason University.

Mateescu, A., Rosenblat, A., & boyd, d. (2015). **Police Body-Worn Cameras**. Working Paper. Data & Society Research Institute. New York, NY. On-line at http://www.datasociety.net.

Mesa Police Department. (2013). **Program Evaluation & Recommendations On-Officer Body Camera System** (October 1, 2012 – September 30, 2013). *Prepared by L. Rankin, Program Manager*. Mesa, AZ.

Metropolitan Police Department. (2015). **A Report on MPD's Use of Body-Worn Cameras.** Washington, DC.

New York City Department of Investigation and The Office of the Inspector General for the NYPD. (2015). **Body-Worn Cameras in NYC: An Assessment of NYPD's Pilot Program and Recommendations to Promote Accountability**. New York, NY.

ODS Consulting. (2011). **Body Worn Video Projects in Paisley and Aberdeen: Evaluation Report**. Glasgow, Scotland.

Office of the Chief Coroner. (2013). **Verdict of Coroner's Jury**. Inquest into the deaths of: Reyal Jardine Douglas, Sylvia Klibingaitis, and Michael Eligon. Toronto, ON.

Office of the Privacy Commissioner of Canada. (2015). **Guidance for the Use of Body-Worn Cameras by Law Enforcement Authorities**. Gatineau, QC.

Owens, C., Mann, D., & Mckenna, R. (2014). **The Essex Body Worn Video Trial: The impact of Body Worn Video on criminal justice outcomes of domestic abuse incidents**. College of Policing, in collaboration with the Essex Police, Essex, UK.

Police and Crime Standards Directorate. (2007). **Guidance for the Police Use of Body-Worn Video Devices**. Home Office, UK.

Police Executive Research Forum. (2014). **Implementing a Body-Worn Camera Program: Recommendations and Lessons Learned**. Washington, DC: Office of Community Oriented Policing Services.

Ready, J.T. and Young, J.T.N. (2015). The impact of on-officer video cameras on police-citizen contacts: Findings from a controlled experiment in Mesa, AZ. **Journal of Experimental Criminology**, 11(3).

Sallee, V. (2016). Outsourcing the Evidence Room: Moving Digital Evidence to the Cloud. **The Police Chief**, 51(4). On-line at http://www.policechiefmagazine.org/magazine/index.cfm?fuseaction=display_arch&article_id=3319&issue_id=42014.

San Diego Police Department. (2015). **Body Worn Camera Program Update.** Provided to City Council. San Diego, CA.

Scientific American's Board of Editors. (2014). Cities Want Cops to Wear Cameras, but Technology Could Heighten Distrust If Not Carefully Used. **Scientific American**, 311(6). On-line at http://www.scientificamerican.com/

Toronto Police Service. (2013). **The Police and Community Engagement Review: The PACER Report**. Toronto, ON.

Toronto Police Service. (2014). **Body Worn Camera System (BWC) Detailed User Requirements Document**. Information Technology Services. Toronto, ON.

Toronto Police Service. (2014). **Body Worn Camera Project Charter**. Information Technology Services. Toronto, ON.

Toronto Police Service. (2014). **Toronto Police Service Request for Proposal #1145114-14 For Body Wearable Camera**. Toronto, ON.

Toronto Police Service. (2014). **Body Worn Camera, Procedure 15-19**. Draft for Pilot Project Purposes Only. Toronto, ON.

Toronto Police Service. (2015). **Body Worn Camera (BWC) Pilot Project Privacy Impact Assessment Report**. Corporate Risk Management, Professional Standards. Toronto, ON.

Toronto Police Service. (2015). **Body Worn Camera Pilot Project Operational Plan**. Community Safety Command. Toronto, ON.

Toronto Police Service. (2015). **Body Worn Camera Pilot Project Operational Plan – Volume 2, Training Syllabus**. Community Safety Command and Toronto Police College. Toronto, ON.

White, M.D. (2014). **Police Officer Body-Worn Cameras: Assessing the Evidence**. Washington, DC: Office of Community Oriented Policing Services.

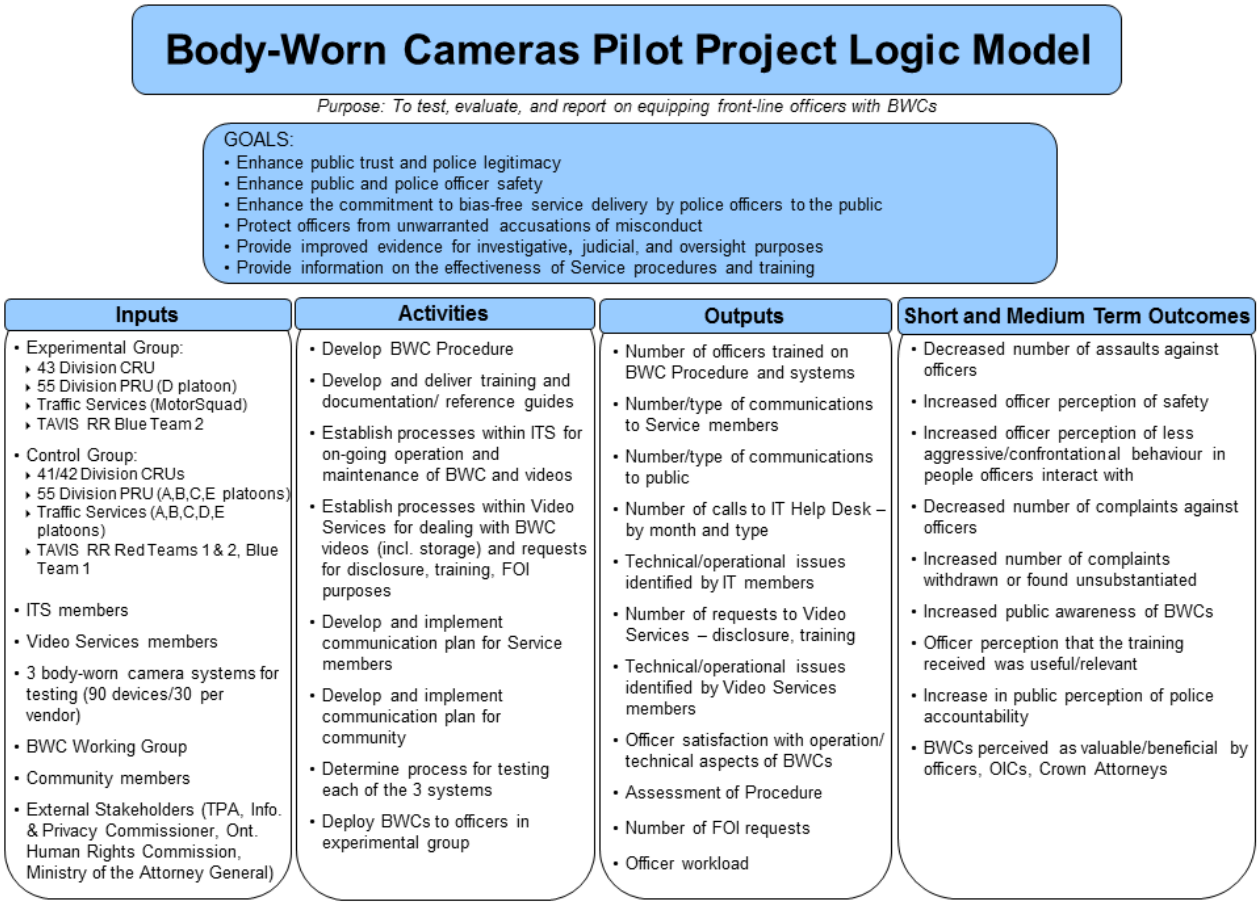
Williams, T., Thomas, J., Jacoby, S., & Cave, D. (2016). Police Body Cameras: What Do You See? **The New York Times**, April 1, 2016. On-line at http://www.nytimes.com/interactive/2016/04/01/us/police-bodycam-video.html?_r=0.

Yium, L.J. (2014). **Status Report and Findings from Field Test of 100 Body Worn Cameras**. Office of Planning, Houston Police Department. Houston, TX. On-line at https://www.scribd.com/doc/266175198/Body-cameras-report

APPENDIX A: METHODOLOGY

Since it is important to know both how and how well a program has been implemented to adequately assess outcomes, this evaluation examined both process (implementation) and outcomes, using quantitative and qualitative data.

How well and to what extent the body-worn camera pilot project was implemented as planned was assessed mainly by documenting the activities, and collecting information associated with the outputs, identified in the logic model for the evaluation. Similarly, outcomes were to be assessed through the short and medium term indicators identified in the logic model, as shown below.



Data Collection: Surveys

From the start of the pilot, it was realized that perceptions of and feedback from both officers and members of the community were going to be essential to the evaluation of the feasibility of body-worn cameras. The need for community reactions and opinions were felt particularly important, given the expectation that the cameras would help to enhance public trust and police legitimacy.

Surveys to officers and members of the community were used to assess views and observations relating to issues such as safety, police accountability, training, police/community interaction, privacy, level of public awareness, as well as general impressions of the benefits and drawbacks of body-worn cameras.

Service Members

Pilot and Comparison Officers:

Officers in both the body-worn camera group and the comparison group were surveyed at two times – before the start of the pilot project and at the end. At both times, a link to the survey was e-mailed directly to the officers. Before the pilot started, the survey link was sent to 86 officers who were slated to wear the cameras, and to 319 comparison group officers. Near the end of the pilot, a second survey link was sent to the 85 officers who had worn a camera at some point in the project, and to 319 comparison officers.

In January-February 2015, 76 officers in the body-worn camera group and 129 officers in the comparison group responded to the pre-pilot survey. In March 2016, 60 officers from the body-worn camera group and 89 officers from the comparison group responded to the end of pilot survey. The end-of-pilot survey was mailed to all officers who wore a camera at any time during the pilot period, whether or not they were still currently involved in the pilot project.

There were no significant differences between the BWC officers and the comparison officers in age or length of service in either survey.

Supervisors, Investigative Officers, and Unit Complaint Co-ordinators:

Supervisors of officers wearing body-worn cameras in all four participating units, as well as investigative officers and the unit complaint co-ordinators in 43 and 55 Divisions, were also surveyed at two times – before the start of the pilot and at the end.

Four staff sergeants, 15 investigative officers, and the two unit complaint co-ordinators responded to the survey sent out prior to the start of the pilot project, and five staff sergeants, 7 investigative officers, and 1 unit complaint co-ordinator responded to the survey at the end of the pilot.

All Uniform Personnel:

The Service conducts a personnel survey at the end of each year, e-mailing a survey link directly to each member. To collect the general perceptions of all Service member, questions related to body-worn cameras were included in both the 2014 and 2015 year-end personnel surveys.

There were 1,143 uniform members who responded to the question relating to body-worn cameras included in the December 2014 personnel survey, and 1,346 uniform members who responded to the question relating to body-worn cameras included in the December 2015. The 2014 responses to the personnel survey are considered accurate within ± 2.6%, 19 times out of 20, and the 2015 responses to the personnel survey are considered accurate within ± 2.3%, 19 times out of 20.

Community

So that there were widespread opportunities for community input, a number of different methods and surveys were used to collect public perceptions of, and experiences with, body-worn cameras.

Door-to-Door Delivery in Pilot Areas *(Neighbourhood Surveys)*:

Since response rates to mail-in surveys are typically low, it was hoped that sending out a large number of surveys would result in a reasonable return rate for the surveys sent out at the beginning and the end of the pilot project. In May 2015, surveys were delivered to 10,083 residences and businesses in 43 Division and 10,096 residences and businesses in 55 Division. In January 2016, surveys were delivered to 10,030 residences and businesses in 43 Division and 10,062 residences and businesses in 55 Division.

In January 2016, 5,041 surveys were also delivered to residences and businesses in 12, 23, and 31 Divisions; the areas selected were areas in which the TAVIS officers had spent time between July and October, 2015.

In all, 20,179 surveys were distributed door-to-door at the beginning of the pilot, and 25,133 surveys were distributed door-to-door at the end of the pilot – 45,312 surveys in total.

To choose where the surveys would be distributed in the two divisions and the TAVIS areas, maps of the Canada Post letter carrier walks, along with the associated house, apartment, and business counts, were used. Letter carrier walks were selected at random until roughly 10,000 units were reached in each division, and then an additional 5,000 units were reached in the TAVIS areas for the end-of-pilot survey. The surveys were delivered to the residences and businesses along the selected letter carrier routes by Toronto Police Auxiliary Officers.

Also, to ensure that as many members of the community as possible in the pilot areas got the opportunity to provide their thoughts, letter carrier routes used for the beginning-of-pilot survey were removed from the possible routes for the end-of-pilot survey.

The routes covered in 43 and 55 Divisions are shown on the maps below.

In total, 3,399 of the May 2015 community surveys were returned (a 17% return rate), 1,366 from 43 Division and 2,033 from 55 Division. And, 4,141 of the January 2016 community surveys were returned (again, a 17% return rate), 1,636 from 43 Division, 2,056 from 55 Division, and 449 from the TAVIS areas. Based on the number of surveys returned and the total number of residences and businesses in the divisions, according to the 2011 Census, the responses to the May 2015 survey are considered accurate within ±1.7%, 19 times out of 20, while the responses to the January 2016 survey are considered accurate within ±1.5%, 19 times out of 20.

The proportions of males and females who responded to the initial survey were not significantly different from the proportions who responded to the second survey: about 51% were female and 44% male; the remainder preferred not to say. There were also no differences in proportion of males and females responding between the three areas (43 Division, 55 Division, and the TAVIS neighbourhoods).

Overall, just under one-quarter (about 22%) in both surveys identified as visible minority. There was, however, a significant difference in the proportion of people who identified as visible minority in each area: 43% of those from the TAVIS areas, 31% of those from 43 Division, and 14% of those from 55 Division identified as visible minority.

There was a significant difference in age of respondents, with people generally older in the second survey: significantly fewer people were aged 25-44 and significantly more were aged 45-64 in the January 2016 survey. The largest age group at both times, in all areas, was people aged 45-64..

Direct Mailing *(Contact Survey)*:

To assess perceptions of people who had contact with officers using body worn cameras, a survey was developed to assess feelings about the interaction and the use of body-worn cameras in general. On a monthly basis, from August 2015 to February 2016, the one-page survey, along with a business reply envelope, was mailed to a random selection of approximately 600 people who might have come in contact with an officer using a body-worn camera. While the surveys were anonymous, they were coded to record the TPS unit involved and the type of contact.

To select the random sample, a complete list of recorded contacts for all officers using body-worn cameras during the prior month was extracted from Versadex by the Service's Business Intelligence & Analytics unit. The data was reviewed and records were eliminated for the following reasons:

- invalid addresses (including unknown address, no street address, shopping centre, etc.);
- out of province addresses;
- youth (under 18 years of age) contacts;
- organization contact name and/or address;
- duplicate contact records (i.e. where there were multiple records in a single month with the same first name, last name, and date of birth, only one record was retained).

Proportions in the sample for unit, contact type, gender, and age (under and over 30 years) were compared to the proportions in all the valid records each month to ensure they were roughly similar. There was never a need to adjust any of the randomly-drawn samples.

Over the seven months, there was a total of 9,985 contacts recorded for officers using body worn cameras. From the 6,914 valid records, a total of 4,285 records were selected for the sample. Roughly 80% of the contacts were for *POA* offences (charged or warning). The names/badge numbers of all officers involved at an incident/event are associated with that incident/event. If other officers were at the scene as well as the officer(s) with a body-worn camera, then the person may not have spoken to a BWC officer. Of the 427 surveys that were returned, 319 indicated that they had in fact had contact with a BWC officer.

Of those 319 people, 67% were male and 33% female. Just under half 47% were aged 45-64, with another 30% aged 30-44. And, 25% identified as visible minority.

Questions in TPS Annual General Community Survey & Focus Groups:

In the final quarter of each year, the Toronto Police Service contracts for a community telephone survey of 1,200 randomly selected Toronto residents and for six focus groups on a variety of topics; in November 2014 and 2015, the telephone survey and focus groups were carried out by Forum Research.

In each year, the survey focuses on people's perception of crime and personal safety, and on their satisfaction with the delivery of policing services. The responses to the telephone survey are considered accurate within ± 2.8%, 19 times out of 20.

Of the six focus groups, one group has participants who are 65 years or older and two groups have participants who are 18 to 24 years of age. The remaining three groups have participants who are representative of the diversity and different geographical areas of the city.

Questions relating to body-worn cameras were included in the telephone survey in both November 2014 – before the pilot project started – and in November 2015 – just over half way through the pilot. And similarly, in both 2014 and 2015, participants in the focus groups discussed how they felt about and

issues around officers having body-worn cameras. A total of 46 people participated in the 2014 focus groups and 49 people participated in the 2015 focus groups.

Questions in Victim Follow-up Survey:

The Service's Priorities frequently include a goal or goals that require follow-up with victims of violent crime to provide information on Service performance. In the years that a victim follow-up survey is carried out, the structured telephone interviews collect feedback on the level of satisfaction with the police and the services that were provided. Those who are called are randomly selected from the Toronto Police database of people who had reported incidents of assault or robbery during that year. The victim survey was carried out in February in both 2015 and 2016, with 427 people participating in 2015 and 426 participating in 2015.

A question was included in both of these telephone surveys asking about level of comfort with body-worn cameras on officers from their perspective as the victim of an offence.

On-Line:

Again, so that as many people as possible had the opportunity to provide their thoughts and feedback on Toronto officers using body-worn cameras, both the May 2015 community survey and the contact survey were posted on the Service's Internet website. The on-line surveys were noted in news releases, community meetings, and the monthly reports to the Police Services Board.

By the end of the pilot project, there were 293 respondents to the general survey and 91 respondents to the contact survey. For the on-line general survey, 61% were male and 29% were female; 45% were aged 25-44, with another 21% were 45-64 and 20% were 18-24; and 26% identified as visible minority. For the on-line contact survey, 63% were male and 31% were female; 34% were aged 18-29, 27% were 30-44, and 24% were 45-64; and 30% identified as visible minority.

Data Collection: Interviews

Selected interviews were also carried out at the end of the pilot to supplement the information collected through the surveys.

Pilot Participants

In addition to the officer surveys, at the end of the pilot, interviews were held with some of the officers who wore cameras during the pilot, supervisors of those officers, detectives, and unit complaint co-ordinators. These interviews provided an opportunity to explore in greater detail the officers' personal experiences with the body-worn cameras, the training provided, the impact on their administrative workload, the usefulness of the video, any suggested changes to the Procedure or processes, and their perceptions of the public's reaction to the cameras.

A total of 24 officers were interviewed:

- 10 randomly selected police constables who had worn cameras (representative of each the units participating in the pilot);
- 5 sergeants who had worn cameras and supervised officers wearing cameras;
- the Unit Complaint Co-ordinators from 43 and 55 Divisions;
- 5 detective sergeants and detectives from the 43 and 55 Division investigative sections; and,
- 2 staff sergeants supervising the pilot officers.

The TAVIS staff sergeants were not interviewed since they had little direct involvement with the officers wearing the cameras; the staff sergeant of the pilot officers in Traffic Services was also not interviewed as he retired just prior to the end of the pilot.

Specific interview guides were developed and used for the interviews. Officers were individually interviewed at their home unit and interviews generally lasted about one hour.

Support Areas

Interviews were held with managers and members in areas of the Service that supported or were affected by the pilot, to gain some insight into wider organizational impacts of the body-worn cameras, as well as implementation and operational challenges. These support areas included Information Systems Services of the ITS unit, the Video section of the Property & Video Evidence Management unit, and the Access & Privacy section of the Records Management Services Unit. A semi-structured interview guide was used and each of the three interviews lasted about one hour.

Crown Attorneys

At the end of the pilot, two representatives from Crown Attorney Operations in the Ontario Ministry of the Attorney General were also interviewed to obtain their feedback on the pilot project. Again, a semi-structured interview guide was used, to ensure areas of interest to the evaluation were covered while also allowing a wider-ranging discussion on issues of specific interest to the Ministry. The interview lasted about 90 minutes.

Data Collection: Quantitative Data

To provide information to assess indicators identified in the output section of the Pilot Project's logic model, the following data were collected:

- officers trained
- internal and public communications
- calls to the ITS Help Desk related to the body-worn cameras
- requests to Property & Video Evidence Management Unit related to body-worn camera video
- Freedom of Information requests related to body-worn camera video
- officer workload indicators (e.g. calls for service, arrests, occurrences, *Provincial Offences Act* tickets)

To provide information to assess indicators identified in the outcome section of the logic model, the following data were collected:

- assaults against officers
- on-duty injuries to officers
- public complaints

Where possible and relevant, data was collected for the body-worn camera officers and the comparison officers during the pilot period. In addition, data for each group during the pilot period was also compared with data for each group for the same period in the year prior to the pilot project. These comparisons would provide context for any changes observed within the camera group during the pilot period, and permit inferences about possible effects of the presence of the body-worn cameras.

Data Limitations

As always, there were some limitations to the data used in the analyses for this report. All are noted in the body of the report, but are worth noting again.

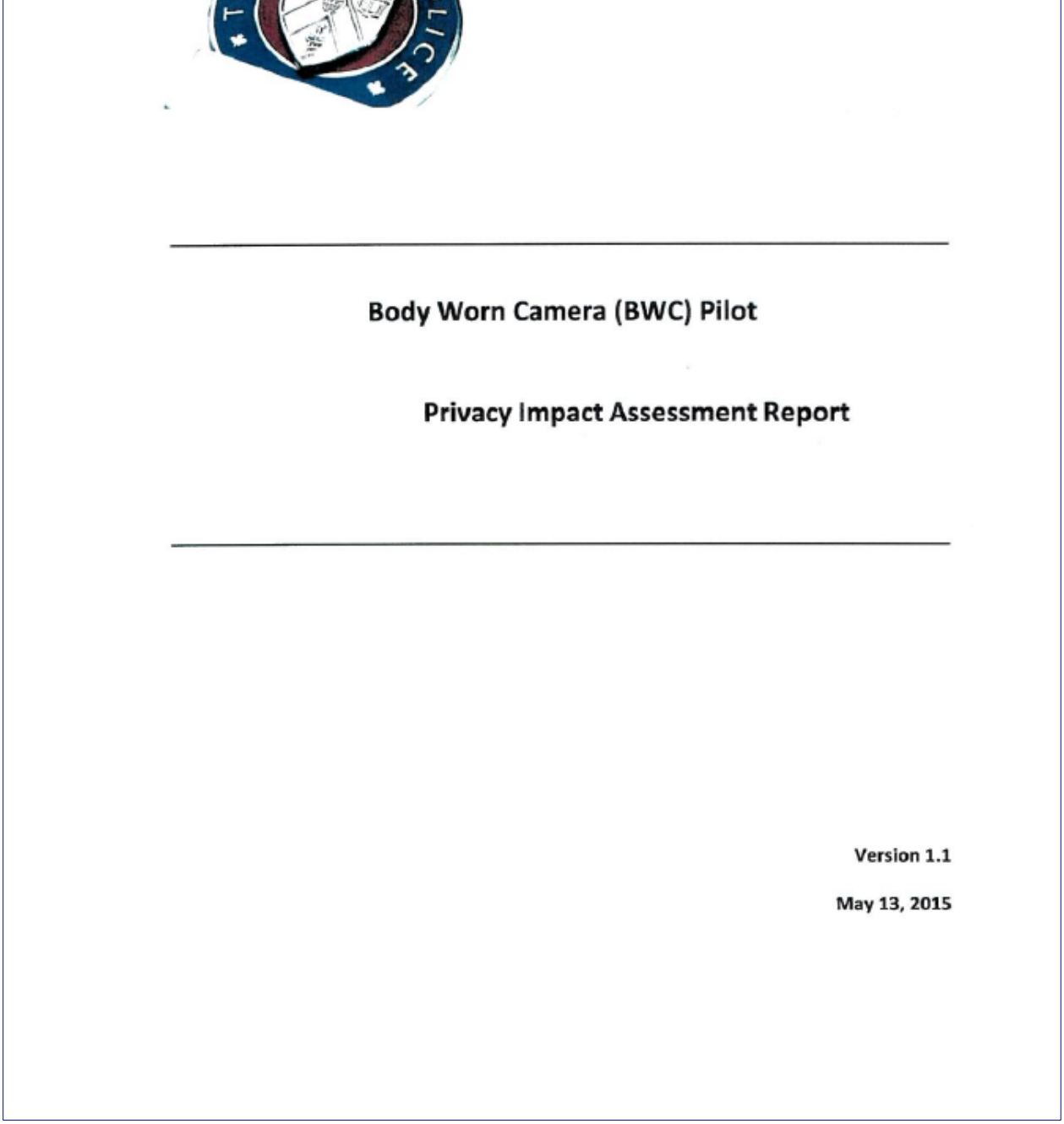
There were relatively few public complaints, Use of Force reports, or Injured on Duty reports during the pilot period and the small numbers made it difficult to identify trends – positive or negative. There is also no formal data collected on the number of potential complaints that are resolved before a formal complaint is filed, so this information relied on the recollection of Service members in the pilot areas.

The six-month window for submission of public complaints and Injured on Duty forms, and the delay in receiving and entering Use of Force reports, may mean that the numbers for the last few months of the pilot period are undercounts.

While officers on the Traffic platoons were selected as the comparison group for the Traffic Services Motor Squad (motorcycle) officers who would be wearing the cameras, it was recognized from the start that this would be the least similar comparison group when examining quantitative data, since these groups of officers perform their functions in a different manner.

Finally, officers within the Police Service are mobile and frequently move between units and functions. As much as possible, the evaluation team tried to keep track of officer movement into and out of pilot and comparison units, and tried to factor this movement into the data being tracked. Officer mobility also meant that for the pre-pilot comparison period, the officers may not have been in the assignment that they were in during the pilot period.

APPENDIX B: PRIVACY IMPACT ASSESSMENT – EXECUTIVE SUMMARY



Body Worn Camera (BWC) Pilot

Privacy Impact Assessment Report

Version 1.1

May 13, 2015

Executive Summary

The following report has been completed in accordance with the Toronto Police Services Board (TPSB) meeting of September 14th, 2011 in which it was held that *"The Chief of Police ensure that Privacy Impact Assessments are incorporated into all future information technology projects at the initial stages of project development. "*

There are a number of emerging issues including the proliferation of body worn cameras (BWCs) by police officers throughout North America, which have contributed to the Toronto Police Service (TPS) implementing the BWC Pilot Project.

The TPS "Police and Community Engagement Review" (PACER) worked with a mandate to improve community engagements and eliminate bias-based policing. In 2013, PACER recommended exploring the potential of equipping uniform officers with BWCs. In July 2014, the *"Independent Review Conducted by the Honourable Frank Iacobucci for Chief of Police William Blair"* echoed a similar recommendation for issuing BWCs to enhance accountability and transparency when encountering people in crisis. That theme continued with Premier Kathleen Wynne's 2014 *Mandate Letter*, identifying several policing and public safety priorities for review, including one specific priority of consideration for the review of issues regarding BWC use by police. Finally, the Ontario Coroner's Inquest into the police shooting deaths of Reyal Jardine-Douglas, Sylvia Klibingaitis and Michael Eligon include 74 recommendations aimed at preventing similar tragedies, including the investigation and evaluation of body worn camera technology for front line officers.

By virtue of their authority, law enforcement is held to a higher degree of accountability by the community and must ensure that public trust is maintained. The TPS recognizes that the BWC Pilot raises privacy concerns from both the public and its members. Given the importance of implementing BWCs in an effective manner that accounts for these concerns, the TPS proactively reached out to independent third parties for consultation. External stakeholders include the Ministry of Attorney General, Ontario Human Rights Commission, Office of the Information Privacy Commissioner of Ontario, as well as various communities within the City of Toronto. The discussions and varied perspectives informed the BWC procedures and governance to address privacy concerns.

The TPS has made a progressive commitment to strengthen public trust and provide professional and unbiased policing by initiating a 12 month evaluation of BWCs. There are 7 business objectives for the BWC Pilot:

1. Capture a more accurate record of specific law enforcement-related incidents that involve direct contact with members of the public.
2. Enhance public trust and police legitimacy.
3. Enhance officer safety and public safety.

4. Enhance the commitment bias-free service delivery by officers to the public.
5. Protect officers from unwarranted accusations of misconduct.
6. Provide improved evidence for investigative, judicial and oversight purposes with respect to specific law enforcement-related incidents.
7. Provide information as to the effectiveness of Service Procedures and training.

The BWC Pilot involves 100 uniform officers participating from four different units (Traffic, Divisions and specialized response), who will test and evaluate three different cameras and related video management software. If results from the BWC Pilot are positive, the TPS will conduct a cost-benefit analysis and further evaluate whether a larger scale implementation is both feasible and desirable.

Key features of this Privacy Impact Assessment (PIA) will include an overview of all known components of the BWC Pilot, coupled with a structured privacy analysis under the Canadian Standards Association's *Model Code for the Protection of Personal Information*.

Specifically, this report will:

- describe the BWC Pilot Objectives and Scope
- illustrate technology components – cameras and video management software
- describe personal information - source, use, disclosure, retention and destruction
- describe TPS governance, new and existing, for collection, use and disclosure
- illustrate data flow of video assets
- assess privacy-related risk of the BWC Pilot in achieving a balance between the lawful mandate to collect, use and disclose personal information and individuals' privacy rights
- detail potential privacy risks or vulnerabilities
- recommend solutions to enhance privacy management for the BWC Pilot

A PIA in the law enforcement context presents a unique challenge because of the extensive range of authorities which permit, require or compel the collection, use and disclosure of personal information. The challenge is how and by what standards the law enforcement requirements will ensure accountability, balance and transparency (use and disclosure) in respecting individuals' right to privacy. Also unique to the BWC Pilot PIA is the challenge of examining three different technology solutions under a privacy lens, yet ensure there is no actual or perceived bias of one particular vendor.

This PIA will identify five privacy-related risks for the BWC Pilot which are detailed in Section 6 of this report. In summary, the risks include:

1. Impact on TPS units required to process access and disclosure requests, including redaction of BWC videos.
2. Consistency for TPS Procedures and forms that incorporate BWC videos.
3. Guidelines for extended use of BWC videos for training or early conduct inquiries.
4. Consistency and formality for 3 software solutions (for categories and associate retention)
5. Private setting for playback of videos by officers and supervisors.

It is important to note that there is a provision with the contractual framework for the Pilot that permits vendors to amend or replace the cameras and/or software within specific time periods.

This PIA evaluates vendor solutions introduced up to May 10, 2015.

APPENDIX C: KEY LITERATURE REVIEWED

Ariel, B., Farrar, W.A., Sutherland, A. (2015). The Effect of Police Body-Worn Cameras on Use of Force and Citizens' Complaints Against the Police: A Randomized Controlled Trial. **Journal of Quantitative Criminology,** 31(3).

The researchers hypothesized that body-worn cameras would create a self-awareness effect that would have an effect on members of the public and officers, resulting in more socially desirable behaviour (i.e. calming the suspect and deterring unnecessary or excessive force by officers). All 54 Rialto Police officers participated in the 12-month pilot that began in February 2012. To deal with the small number of officers, each shift (10 officers) was randomly assigned to wear a camera (treatment condition) or not (control condition).

Analysis suggested that use of force incidents were twice as likely in the control shifts than when the officers wore the cameras. Of the 25 use of force incidents during the pilot, 17 occurred during control shifts and 8 occurred during camera shifts. When measured in terms of rate per 1,000 encounters, the effect size was statistically significant.

Due to the low number of public complaints during the pilot (3 – 1 during a control shift and 2 during a treatment shift), the difference between the treatment and control shifts was not statistically significant. There was, however, a significant decrease in the number of citizen complaints received, from 24 in the 12 months prior to the pilot to 3 during the pilot.

Ariel, B., Sutherland, A., Henstock, D., Young, J., Drover, P., Sykes, J., Megicks, S., & Henderson, R. (2016). Wearing body cameras increases assaults against officers and does not reduce police use of force: Results from a global multi-site experiment. **European Journal of Criminology**, on-line at euc.sagepub.com.

This research reports on the results of 10 randomized controlled trials from 8 police departments. As in the Rialto study, each week, shifts were randomly assigned to wear cameras or not. The trial design meant that officers did not have discretion about when the cameras were to be on – they were to be on the entire shift. They were also supposed to let member of the public know the camera was recording the encounter.

The researchers found no overall effect of body-worn cameras on police use of force (defined as any physical restraint beyond verbal commands) during an arrest; in some sites, use of force increased when the officers were wearing cameras, in other sites, use of force decreased. The research did find, however, that cameras increased the likelihood of officers being assaulted compared to when not wearing a camera. The rate of assault against officers per 1,000 arrests was 15% higher when wearing cameras.

While emphasizing the need for further study, the researchers speculated that officers may be more likely to report assaults for which there is objective evidence, that officers may be less assertive due to the camera monitoring, and/or that increased assaults against officers may be associated with decreased use of force in some cases.

Ariel, B., Sutherland, A., Henstock, D., Young, J., Drover, P., Sykes, J., Megicks, S., & Henderson, R. (2016). Report: increases in police use of force in the presence of body-worn cameras are driven by officer discretion: a protocol-based subgroup analysis of ten randomized experiments. **Journal of Experimental Criminology**, on-line at Springerlink.com.

This research reports on the results of 10 randomized controlled trials from 8 police departments. As in the Rialto study, each week, shifts were randomly assigned to wear cameras or not. Overall, there was no significant difference between the camera and the control shifts with regard to use of force incidents – for some sites, use of force increased, for other departments, use of force decreased. However, there was a difference when officer compliance with the research protocol was examined. Four sites gave officers complete discretion as to when and where the cameras would be used (with little regard for treatment or control assignment), 3 sites gave officers no discretion in either treatment or control assignment, and 3 sites strictly followed the control protocol, but allowed officers when in the treatment condition to when the cameras were turned on.

The researchers found that when officers followed the protocol strictly, use of force incidents decreased by 37%. When officers had complete discretion, there was no difference in use of force incidents between the treatment and control groups. However, when officers had discretion over whether and when to turn the cameras on in the treatment condition only, use of force incidents increased by 71%.

The researchers speculated that when officers had discretion, the cameras may have been more selectively activated in situations where aggression was already escalating. They also suggested that activating the camera during a tense situation might serve to increase the person's aggression, and therefore also the officer's. Given the findings, the researchers recommend that body-worn cameras remain on for an entire shift and that during encounters, people be reminded that the camera is present.

Edmonton Police Service. (2015). **Body Worn Video (BWV): Considering the Evidence**, *Final Report of the Edmonton Police Service Body Worn Video Pilot Project*. Edmonton, AB.

The Edmonton Police Service Body Worn Video Pilot ran from fall 2011 to fall 2014, and had three main goals:

- Assess Body-Worn Video for operational effectiveness, evidentiary value, potential to reduce complaints and use of force, impact on the public, possible training benefits, and costs.
- Establish a Body-Worn Video data management system that securely stores and retrieves data to preserve evidence and minimize human error.
- Develop Body-Worn Video policy and operational procedures.

Cameras were issued to 56 officers working in different environments (Downtown Division and Beats, West Edmonton Mall and Whyte Avenue Beats, the Impaired Driving Countermeasures Unit, and the Disaster and Emergency Operations Unit for a training exercise with Fire Rescue and EMS).

The research suggested that body worn video had potential for positive outcomes, but that there was need for improved hardware and data management, lack of a clear policy on when to record, no cost benefit analyses to show the value of investment, and little information on the evidentiary value of body-worn video.

In particular, the research found:

- No evidence that body-worn video had an impact on complaints, although it was noted that may help with investigation and earlier resolution.
- No statistically significant evidence that body cameras reduced police use of force. Members suggested that the cameras could cause them to hesitate to use appropriate levels of force.
- Police administrative work time would increase if video review became part of daily routine.

- Officers felt they may be more careful and patient, but also more 'robotic'.
- The general public in Edmonton was positive about the cameras, with possibly unrealistic, high expectations.
- Since no significant trials took place using body-worn camera video evidence, there was no evidence of any value to prosecutions.
- Procedural issues required clarification.
- Major financial investment would be required to implement a body-worn camera program in a service the size of the Edmonton Police Service.

The key recommendations of the pilot were that the Edmonton Police Service should wait before investing further in body-worn cameras and monitor other Canadian Police Services testing cameras; and that the Edmonton Police Service should consider the viability of a body-worn video program for specific policing units.

Grossman, L., Owens, C., Finn, W., Mann, D., Davies, T, & Baika, L. (2015). **Police, Camera, Evidence: London's cluster randomised controlled trial of Body Worn Video**. College of Policing and the Mayor's Office for Policing and Crime. London, UK.

This study examined the impact of body-worn cameras between April 2014 and May 2015 on complaints against police, frequency of stop and search, and criminal justice outcomes of violent incidents through a randomised controlled trial in 10 Metropolitan Police Service boroughs. Of the 5 emergency response teams in each borough, 2 were randomly assigned to wear cameras and 3 were assigned as controls without cameras. In total, 814 officers wore cameras, and 1,246 did not.

In addition to data on stop and searches, complaints, and crime reports, researchers used surveys, observation, and interviews to collect qualitative information. They also used an existing victim user satisfaction survey and an existing public attitudes survey to gather victim and public views.

Although the researchers found a lower rate of complaints against the officers wearing cameras than the controls, overall, the difference was not statistically significant, likely due to the relatively small number of complaints received. There was, however, a statistically significant difference when the data was examined by type of complaint: looking at complaint categories linked to police-public interaction, the camera wearing officers had significantly fewer complaints than officers not wearing cameras. In particular, allegations relating to oppressive behaviour were 2.55 times more likely to be received by an officer not wearing a camera than for an officer wearing a camera. In surveys, officers wearing the cameras were significantly more likely than the control group to say they felt protected against complaints. Officers also reported that unfounded complaints were being quickly resolved using video from the body-worn cameras.

Although there was some variability from borough to borough, there was no evidence that the body-worn cameras reduced the number of stop and searches performed by the officers. In the surveys, officers reported no differences in relation to discretion or compliance with procedure; officers not wearing cameras were also more likely than officers who wore them to agree that they needed stronger justification for their actions. The researchers suggested that officers wearing the cameras may feel more confident if challenged, that the video would provide support for their justification to search.

There was no evidence that body-worn cameras increased the rate of arrest for violent incidents, though there was a slight difference in the proportion of charges laid, with officers wearing the cameras laying fewer charges. By examining when officers flagged cases to identify that video evidence was available, the authors speculated that officers might be using the cameras during arrest to strengthen existing or collect more evidence. In surveys, officers wearing the cameras were significantly more likely than those not to feel that they were capturing good quality evidence.

The researchers also found that an officer was not less likely to be assaulted when wearing a camera, that, at this stage, the body-worn cameras had no significant impact on victims, and that the general public felt that the cameras would make the police more accountable for their actions, make them treat people fairly, and reassured them that officers would do the right thing.

Jennings, W.G., Fridell, L.A., & Lynch, M.D. (2014). Cops and cameras: Officer perceptions of the use of body-worn cameras in law enforcement. **Journal of Criminal Justice**, 42(6).

Of nearly 400 eligible patrol officers in the Orlando Police Department, 95 volunteered to participate in a research project to examine the impact of body-worn cameras and were randomly assigned to either wear a camera or not wear a camera. The current study looks at the responses collected through a survey distributed to the officers before the cameras were deployed.

The researchers found that the officers were generally supportive of body-worn cameras and believed they would be comfortable wearing them. The officers tended to believe that the behaviour of citizens would improve if officers were wearing cameras, but less likely to believe their own behaviour would improve or that they would behave more 'by the book'. They also generally agreed that the cameras would have more of an impact on other officers' behaviour than on their own. Finally, there was some belief that using the body-worn cameras would reduce their and other officers' internal and external complaints.

Examining the results by officer demographics, the researchers found that male officers were significantly more likely than female officers to agree that the cameras would improve their behaviour, while female officers were significantly more likely to agree that the cameras would reduce internal and external complaints against other officers. Officers with more years of experience were significantly more likely to agree that wearing the cameras would increase the likelihood of them behaving more 'by the book'.

Jennings, W.G., Lynch, M.D., & Fridell, L.A. (2015). **Evaluating the Impact of Police Officer Body-Worn Cameras (BWCs): The Orlando Police Department (OPD) Experience**. Executive Summary of Final Report Submitted to Orlando Police Department: 10-6-15. Tampa, FL.

Beginning in March 2014, the Orlando Police Department participated in a 12-month randomized experiment where 46 officers were randomly assigned to wear a body-worn camera and 43 officers were assigned not to wear a camera. The researchers from the University of South Florida noted that the results suggested that the body-worn cameras were an effective tool in decreasing response-to-resistance incidents and serious external complaints. Significantly fewer officers with cameras were involved in response-to-resistance (use of force) incidents and had fewer external complaints overall than the officers not wearing the cameras.

Officers also believed that the cameras helped improve evidence collection, report writing, and officer behaviour and police work in general by providing the opportunity to review their own videos. The majority of officers wanted to keep their body-worn camera and believed that the department should implement a full-scale adoption.

Katz, C.M., Choate, D.M., Ready, J.T., Nuňo, L. (2014). **Evaluating the Impact of Officer Worn Body Cameras in the Phoenix Police Department**. Phoenix, AZ: Center for Violence Prevention and Community Safety, Arizona State University.

In the roughly 15 month pilot, 56 cameras were deployed to all officers in a one of the two patrol areas in the Maryvale Precinct. The other patrol area was the comparison area. The body-worn camera officers were trained in the use of the camera, its maintenance and the related policy. The purpose of the evaluation was to examine the effect of body-worn cameras on complaints against police officers (police accountability) and on domestic violence case processing and outcomes. The evaluation also sought to assess the potential impact of the cameras on officer performance and job satisfaction.

Results included:

- Only 13% to 42% of incidents were recorded by body-worn camera, with domestic violence incidents most likely to be recorded.
- Officers were dissatisfied with long download times, the increased time that it took to complete reports, and the possibility that recordings might be used against them by the department.
- There were processing issues when video was submitted to the courts (chain of custody and length of time it took prosecutors to view video).
- Officer productivity, measured by arrests, increased by about 17% in the camera group compared to 9% in the control group.
- Complaints against officers decreased by 23% compared to a 11% increase in the comparison group. And the complaints against officers wearing the cameras were significantly less likely to be sustained. Officers also suggested that a number of complaints were not pursued because of the video from the body-worn cameras.
- Domestic violence cases involving body-worn camera video were significantly more likely to be initiated, result in charges, and result in guilty plea or guilty verdict.

Mesa Police Department. (2013). **End of Program Evaluation & Recommendations On-Officer Body Camera System** (October 1, 2012 – September 30, 2013). *Prepared by L. Rankin, Program Manager*. Mesa, AZ.

The Mesa Police Department started a twelve-month pilot of a body camera system to determine its impact on reducing civil liability, addressing complaints, enhancing criminal prosecution and providing operational transparency. The evaluation also assessed the ease of use, durability and comfort of the camera.

Fifty cameras were deployed primarily to patrol officers in their four patrol divisions, and three cameras were assigned to traffic officers. Approximately half of the officers volunteered to take part in the pilot while the others were chosen by their respective division commanders. Fifty demographically similar officers were used as a control group.

For the first six months required mandatory activation of the cameras when responding to a call or having any contact with the public; for the last six months, officers had discretion to activate the cameras when they felt it was appropriate.

The evaluation found that there was a 40% decrease in complaints and 75% decrease in use of force complaints for officers equipped with cameras, compared to the previous twelve months. Officers who volunteered to wear the cameras were 60.5% more likely to use the system than assigned officers, and that redaction requests were very labour intensive and required a lot of administrative time by officers and the Video Services Unit.

The evaluation recommended expansion of the body camera program by an additional 100 systems in 2013/14, by an additional 100 systems in 2014/15 and another 100 cameras in 2015/16, purchasing of a hand held player for each camera allowing officers to finalize recording events out in the field, continuing to fund the camera program through asset forfeiture funds, centralizing program management responsibilities within the Training Unit, incorporate mandatory activation of cameras when practical in their policy, and committing to automating processes to minimize the administrative burden on officers.

Metropolitan Police Department. (2015). **A Report on MPD's Use of Body-Worn Cameras.** Washington, DC.

In October 2014, the Metropolitan Police Department (MPD) began Phase I of the body-worn camera program focusing on the selection of the best camera model out of five tested. They selected a camera by TASER which allowed officers to access the video in the field.

Phase II was launched on June 29, 2015, with 200 cameras deployed to each of the Fifth and Seventh Police Districts. This phase focused on the impact of body-worn cameras on such issues as citizen complaints and use of force.

In this bi-annual report, data for the first six months of 2015 were released: 4,554 hours of recordings were collected; no recordings were used to investigate public complaints against officers but recordings were used once in an internal affairs investigation; four internal investigations were opened for failure to turn the body-worn cameras on during interactions, with misconduct sustained in three cases.

Phase III of the body-worn camera program is expected to be launched during 2016. Pending available funding, 2,400 cameras will be deployed to the remaining police districts by the end of 2016 pending. One million dollars was given by the U.S. Department of Justice in support of expansion of the program, the remaining is expected to be funded by the Mayor.

New York City Department of Investigation and The Office of the Inspector General for the NYPD. (2015). **Body-Worn Cameras in NYC: An Assessment of NYPD's Pilot Program and Recommendations to Promote Accountability**. New York, NY.

In December 2014, the New York City Police Department (NYPD) launched its Volunteer Body-Worn Cameras Pilot Program. Fifty-four cameras were deployed to patrol officers across the City. This assessment focused on evaluating the policies and procedures governing the body-worn cameras (BWC). Examination of five specific policy topics identified areas not adequately covered by policy. The five topics examined were:

- officer discretion regarding when to record,
- notifications to citizens by officer when a BWC is activated,
- safeguards to ensure officer compliance with BWC policy,
- access to footage by officers and the public, and
- retention and purging of BWC footage.

Key findings included that the policy:

- should broaden mandatory BWC activation including all street encounters or all investigative contacts, while having stricter limitations on recording of vulnerable populations (victims of sex crimes, abused children, undercover officers, confidential or citizen informants, and witnesses);
- should include a standard notification phrase that officers could use when advising a member of the public that they are being recorded;

- should include regular review of footage by supervisors to ensure compliance with the policy, disciplinary action for non-compliance, and periodic high-level review of footage by a central NYPD unit;
- should grant supervisors access to BWC footage for specific purposes such as investigative and quality assurance purposes, but not for arbitrary review; should restrict pre-statement review of footage by subject/witness officers involved in internal or external misconduct investigations; prohibit pre-statement review of footage by members of the public; should include protocols to address Freedom of Information requests; and,
- should include a minimum retention period of 18 months (ensuring availability for any administrative proceedings) while promptly purging archived video that is longer required.

ODS Consulting. (2011). **Body Worn Video Projects in Paisley and Aberdeen: Evaluation Report**. Glasgow, Scotland.
and
Her Majesty's Inspectorate of Constabulary for Scotland. (2011). **HMICS Effective Practice submission: Strathclyde Police and Grampian Police Body Worn Video**. On-line at http://www.hmics.org/publications/body-worn-video.

The Strathclyde Police and Grampian Police were chosen for piloting body-worn cameras as both had a high level of violence and anti-social behaviour (the focus of the pilot).

Funded by the Fairer Scotland Fund, 56 cameras were purchased. Within the Strathclyde Police (Paisley/Renfrewshire area), cameras were worn by community police officers on routine patrols as well as targeted deployments, and within Grampian (Aberdeen/Northfield/Mastrick areas), cameras were worn by officers from local policing teams in specific deployments.

Results included:

- Reductions in anti-social behaviour, disorder, and violence in the pilot areas compared to the wider policing divisions.
- Some evidence of reduced assaults on police officers.
- About half of the public felt safer as a result of the use of body-worn cameras.
- Some evidence of reduction in crime – with wider economic benefits equating to an estimated £275,000 in a year.
- Early guilty pleas in cases involving body-worn video; fewer cases needing to go to trial – estimated an annual £125,000 saving.

Owens, C., Mann, D., & Mckenna, R. (2014). **The Essex Body Worn Video Trial: The impact of Body Worn Video on criminal justice outcomes of domestic abuse incidents**. College of Policing, in collaboration with the Essex Police, Essex, UK.

The fourth-month Essex pilot took place from January to May 2014. Of the 308 officers, 70 response officers at the constable rank were randomly assigned to wear cameras from the 9 Stations, in each of the five shifts. The officers not wearing cameras were the control group.

The purpose of the randomised controlled trial was to determine the impact of cameras on criminal justice outcomes for domestic abuse cases.

The findings from this study showed that issuing officers with body-worn cameras could increase the proportion of domestic abuse incidents resulting in a criminal charge: a significantly higher proportion of domestic incidents involving a body-worn camera video resulted in criminal charge rather than another

outcome (81% in the pilot group compared to 72% in the control group). And, while the cameras increased the probability of an individual being charged at all risk levels, the effect was most notable for lower risk cases. While there were too few cases to determine the impact the cameras had on guilty pleas and sentencing, half the officers interviewed had an increased confidence in getting convictions with the camera recordings.

Police Executive Research Forum. (2014). **Implementing a Body-Worn Camera Program: Recommendations and Lessons Learned**. Washington, DC: Office of Community Oriented Policing Services.

The purpose of this study was to provide information and policy guidance to police agencies about key questions that body-worn cameras raise.

This research study included three main sections: a survey of 500 law enforcement agencies nationwide; interviews with police executives; and a conference in which police chiefs and other experts gathered to discuss the use of body-worn cameras.

Of the 500 surveys distributed in July 2013, 254 responded (51%). Over 75% of the respondents reported that they did not use body-worn cameras; of those who did, approximately one-third did not have written policies governing body-worn camera usage, highlighting the need for a set of standards and best practices. The main reason for using body-worn cameras was to provide an accurate record of encounters with members of the public.

The report discussed policy concerns, as well as perceived benefits and challenges of body-worn cameras. Among the benefits were that agencies would be seen as more transparent and accountable, videos may help clear officers in public complaints, and videos would provide better evidence for investigations and trials. Officer buy-in, and the need for supervisors/management to avoid second-guessing the actions of officers based solely on video footage were recognized as challenges.

The report presented 38 recommendations (addressing recording, downloading and storage, access and review of recorded data, training and policy and program evaluation) to help law enforcement agencies as they develop body-worn camera policies.

Ready, J.T. and Young, J.T.N. (2015). The impact of on-officer video cameras on police-citizen contacts: Findings from a controlled experiment in Mesa, AZ. **Journal of Experimental Criminology**, 11(3).

This study analysed data from the Mesa Police Department pilot of on-officer cameras to examine whether the cameras influenced officer behaviour and perceptions of camera technology. The analyses indicated that officers wearing the cameras conducted fewer ‘stop-and-frisks’ and made fewer arrests, but issued more citations for ordinance violations and initiated more contacts with citizens than the control officers. The authors suggest that officers may be more self-aware when the camera is on and that officers may be concerned about being reprimanded for not writing a ticket when video evidence showed that someone had violated a traffic law or ordinance. With regard to the increased contacts with citizens, the authors speculated that the cameras may allow officers to record suspicious behaviour before initiating contact with someone, giving them grounds and more confidence about initiating a proactive encounter.

White, M.D. (2014). **Police Officer Body-Worn Cameras: Assessing the Evidence**. Washington, DC: Office of Community Oriented Policing Services.

This report reviewed available evidence on police use of body-worn cameras to provide law enforcement agencies with a resource to help them understand the factors they should consider to make an informed decision about the use of body-worn camera technology. Five empirical studies were identified for review.

Perceived benefits of body-worn cameras included:

- Increased transparency and citizen views of police legitimacy.
- A civilizing effect, improving behaviour among both officers and the public.
- Providing evidence that can speed up resolution of citizen complaints.
- Providing improved evidence for arrest and prosecution.
- Providing opportunities for police training.

Perceived problems relating to body-worn cameras included:

- Citizen privacy concerns.
- Officer privacy concerns.
- Concerns for officer health and safety.
- Investments in training and policy development.
- Sizable commitment of finances and resources.

The report recommends that agencies interested in adopting body-worn cameras proceed cautiously and make decisions that are as informed as possible. The author also recommends that agencies collaborate with researchers to evaluate implementation and impact of the technology.