



MOTOR CARRIER COMMISSION



Discussion Paper

Installation of Digital Cameras
in Taxis Operating in the Lower Mainland

February 6, 2004

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A. Introduction

Taxi driver safety is a significant concern to the industry, law enforcement and the Motor Carrier Commission. The Commission has been working with industry to address this issue. The Commission, along with the industry, has concluded that the installation of cameras in taxis operating in the Lower Mainland is an effective way to reduce criminal acts committed against taxi drivers.

Taxi Camera Plan

This discussion paper summarizes the work and planning done to date. It includes the risks of driving a taxi in the Lower Mainland, past work and consultations to address the problem, and details of the Commission's plan for having taxi cameras installed in the Lower Mainland. This plan affects the 27 taxi companies that are listed in appendix A. It is an initiative that, after an assessment and where sufficient rationale and demand exists, could be expanded to other cities or regions of British Columbia.

Invitation for Public Comment

Before implementation, the Commission is seeking broader input from the public on its plans to have taxi cameras installed in Lower Mainland taxis. In particular, it is seeking input from individual taxi drivers and people who use taxis for transportation. The main objective of the taxi camera plan is to reduce crimes against taxi drivers. The

Commission is seeking comment on the design of its plan to maximize the effectiveness of taxi cameras and to enable advance consideration of issues and concerns before the plan is finalized and implemented.

Submissions must be received by **February 20, 2004**, by email at motorcarriercommission@gems8.gov.bc.ca or by mail addressed to:

Motor Carrier Commission
PO Box 9850 STN PROV GOVT
Victoria BC V8W 9T5

B. Background

The Motor Carrier Commission of British Columbia licences and regulates commercial passenger transportation services, including taxis, in accordance with the objectives set out in section 39 of the Motor Carrier Act:

- a) promoting adequate and efficient service and reasonable and just charges for it
- b) promoting safety on the public highways, and
- c) fostering sound economic conditions in the transportation business in British Columbia.

Taxi Drivers at Risk

Driver safety is a significant issue in the taxi industry. The “Study of the Taxi Industry in BC” states¹:

One striking result of the responses to our questionnaire was the extraordinarily high percentage of drivers who reported that they have been victims of violence while driving their taxis. This was a finding that was consistent among both rural and urban drivers. The violence ranged from pushing, shoving, and punching, to severe beatings, armed robbery and stabbings. Many Lower Mainland drivers referred to the recent stabbing death in Vancouver of one of their colleagues. This is clearly a source of great anxiety for drivers, and clearly has an impact on both the quality of service and financial implications for the industry. It is difficult to attract and retain trained and qualified employees in an industry where violence is a routine feature of the workplace.

The Lanyon Committee, in its Study of the Taxi Industry, made the following recommendations regarding driver safety:

¹ This is a 1999 report from a study panel chaired by Stan Lanyon, QC and commissioned by the (then) Ministry of Transportation.

36. We endorse the recommendations of the Taxi Drivers Task Force. We encourage the implementation of strategic devices to ensure driver safety including such technologies as barriers, cameras and lights. We note that the Vancouver Taxi Association is recommending that taxis be equipped with cameras. We also favour the use of cameras in taxis, but we recognize the necessity, as stated by the Task Force, for local decision-making on all aspects of driver safety.²

37. We recommend that in cases where safety strategies involve a cost to the company, such costs be included in a targeted fare increase.

38. We further recommend that a timeline be developed to ensure that safety measures are in place within the year.

In the United States, taxi drivers have a victimization rate 20 times higher than the US national average and a homicide rate 40 times the national average. Over 85 % of taxi drivers will experience some form of criminal behaviour.

The Workers' Compensation Board reports that between 1997 and 2002, about 10% of the claims and 17% of the claim costs in the taxi sector were the result of injuries sustained from acts of violence.

The Vancouver Taxi Association (VTA) provided the following statistics on taxi driver attacks on City of Vancouver drivers which includes incidents that were and were not reported to police. In the past 12 years, eight City of Vancouver cab drivers were killed. Six were killed in the period between 1989 and 1997, and two were killed between 1998 and 2002. The VTA provides the following breakdown of robberies and assaults on City of Vancouver taxi drivers:

1998	27
1999	78
2000	172

² The Office of Attorney General established the Taxi Drivers Task Force in 1998. The report made a series of recommendations; however, it does not appear that they were implemented.

2001 112

2002 87

Of note, in a period of less than two months that spans the years 1999 and 2000, a pair of individuals was responsible for dozens of armed robberies against taxi drivers. Statistics have yet to be compiled for 2003, although there have been three high-profile assaults on cab drivers in the City of Vancouver in late 2003 and early 2004. The BC Taxi Association and the Vancouver Taxi Association report that many violent incidents go unreported to police because of the resulting vehicle down-time that occurs when an incident is reported (i.e. the car is out of service or impounded which results in lost revenue).

At the inaugural meeting of the Commission's Taxi Advisory Committee (TAC) in May 2000, driver safety was identified as one of the three priorities of the Committee and a driver safety sub-committee was established, comprised of industry, ICBC and WCB representatives. The sub-committee identified the installation of cameras as the best security device for cabs. In April 2002, TAC agreed to pursue a model for installing cameras in all taxis within a defined area. In this model, a surcharge is applied for a specified time to the flag rate, and the revenue collected is applied to the cost of installing cameras. Both the BC Taxi Association and Vancouver Taxi Association are proponents of this model.

Also, as the issue of driver safety has been most prevalent in the Lower Mainland³, it was decided that initially this initiative would be restricted to the Lower Mainland. Appendix A identifies 27 taxi companies that operate within the Lower Mainland. The initiative could be expanded to other cities or regions of British Columbia where sufficient rationale and demand exists.

³ The Lower Mainland includes: Vancouver, Burnaby, New Westminster, North Vancouver and the District of North Vancouver, West Vancouver, Surrey, Pitt Meadows, Delta, Richmond, Maple Ridge, Langley and the Township of Langley, White Rock, Port Coquitlam, Port Moody and Coquitlam.

Safety Programs in Other Jurisdictions

New York, Toronto and Winnipeg all have mandatory installation of safety devices. New York permits either shields or cameras and Toronto permits either GPS⁴ or cameras. Winnipeg requires the installation of shields and cameras both. San Francisco has also implemented a camera-based security system.

In Winnipeg, a requirement for all 430 standard and accessible taxicabs has been in effect since July 1, 2002, to have an operational in-cab camera, and the requirement to have a safety shield installed has been in effect since January 8, 2003. The safety initiatives taken in Winnipeg include other measures such as mandatory first aid kits (effective July 1, 2002), improved taxicab driver training, and a requirement that any taxi with GPS must have the system working at all times. Winnipeg Police Services data indicates that since the introduction of taxicab safety measures in 2002, robberies of taxicabs were reduced by 71%. The Winnipeg Taxicab industry indicated that it is very pleased with the decrease in all crimes (fare jumpers, assaults, robberies) involving taxicabs since the introduction of the safety measures.

Drivers find that customers, while in the cab, will “settle down” knowing that a camera is taking their picture. There are very few instances of hostile incidents in taxicabs. Crimes that do happen in taxicabs are solved quickly by the police using the digital images to identify and find the suspects. In many cases, the perpetrator will admit to the crime, thus enabling a swift resolution to an incident. New York City reports that the device has aided in catching criminals and also serves as a deterrent.

⁴ global positioning system

It has been reported in the *Toronto Star* that there has been an 18 percent reduction in overall crime against cabbies since the installation of cameras and/or GPS in the city. The paper has also cited the following police statistics: 479 crimes committed against cab drivers in 2000. The number dropped to 395 in 2001 and there were 140 in the first six months of 2002.

In Perth, Australia cameras have been mandatory since 1997. This resulted in a 60% reduction in attacks on drivers within a year after introduction.

Effectiveness of Taxi Cameras

The Manitoba Taxicab Board reported on the results of its 2003 Owner and Driver Survey. The following statistics are note-worthy:

- 3.8% of taxi driver incidents involved robbery
- 15.2% of taxi driver incidents involved an assault
- 10.6% of incidents were reported to police; 36.4% were unreported.
- 83.6% consider taxi cameras to be effective (86% said they feel safer because of an in-car camera)
- 19.5% consider safety shields to be effective (81.7% said they do not feel safer because of a shield)
- Other safety initiatives considered effective are GPS (71.9%), driver controlled trunk lock (68.9%) and emergency roof light (56.6%)

Alternatives and Their Success

GPS, or Global Positioning System. GPS systems have panic buttons. However, these are often set off for non-issues. Consequently, police may not take these calls seriously.

Based on its experience, Toronto advises against GPS as an alternative. Also, it takes police about 15-20 minutes to get to a crime scene after a “panic button” call.

Shields. The driver safety sub-committee of the Taxi Advisory Committee does not support mandatory installation of shields for the following reasons:

Inhibit seating adjustments. Cabs serving Vancouver and the Airport must be five years old or newer. This means many cabs are smaller-type sedans (only Crown Victoria manufactures a car for use as a cab and this is being phased out). Installation of a shield could result in the loss of about four inches of leg room. London cabs are a different design to North American cars, so comparisons are not realistic.

Customer dissatisfaction. Some passengers complain that shields make a taxi too much like a police car.

Inhibit passenger entering and exiting. Often persons with mobility impairments use the seatback as a lever to enter and exit a vehicle. Shields inhibit this leverage.

Driver dissatisfaction. Many drivers choose their line of work to be able to interact with people and shields reduce this interaction. Also, drivers may act as tour guides and need ongoing dialogue with customers to provide a high standard of service that will result in a satisfied customer and a fair tip for the driver.

Safety. Shields may increase the risk of injury to passengers (and may increase insurance claims). In the early 80s, some companies in Vancouver tried to use shields as a safety initiative but were not successful because drivers did not like them due to passenger complaints.

Assault Avoidance. Most municipalities require drivers to attend and pass the TaxiHost Level I program. Personal safety is addressed as part of this course. Also, TaxiHost

Level II, which is mandatory for drivers who pick-up at the Airport and in some municipalities, includes a 4.5 hour workshop on assault avoidance. Some taxi companies offer assault avoidance workshops and others make videos available.

Other. Many companies are implementing pre-payment by credit card, especially at night, to limit the amount of cash a driver will carry.

The driver safety sub-committee of TAC, submits that cameras work as a deterrent to crime, are not as intrusive as shields, may provide evidence that could be used in prosecutions and are more "tourist friendly" than shields.

Installation of cameras in and of itself is not a panacea to the issue of driver safety. Drivers themselves and taxi companies must also learn, and practice, effective assault avoidance techniques and measures.

Privacy

Although some jurisdictions are reporting that cameras are proving a deterrent to crime, there are personal privacy issues associated with their installation and use. Their utility as a crime deterrence and enforcement tool must be balanced by measures to minimize personal privacy concerns. Just as technology has contributed to the installation of mobile surveillance products to be installed in school buses, police cars, buses and taxis, it has also enabled personal privacy safeguards to be implemented.

The Commission sees that the primary usefulness of cameras is deterrence of crimes against cab drivers. It may also give passengers a measure of security and can assist with the prosecution of criminal offences against drivers and passengers. However, the system must be designed to prevent taxi companies, drivers and all other unauthorized people from having any access to the images, flashcard memory or the

operational controls for the camera system. This prevents unauthorized viewing, tampering and the display of images for unintended purposes.

To ensure that the camera is used for its intended purposes, certain issues must be addressed.

Access to Pictures. 1. Restricted to authorized law enforcement officers (i.e. police).
2. Incident-driven. 3. Used for investigation of *Criminal Code* offences.

Also, the system must be “tamper-proof” so that neither companies nor drivers can manipulate it. Wireless downloads (even by police) and any form of “real time” monitoring must be prohibited.

Retention of Pictures. Access to pictures must be restricted as described previously. The unused images must either be destroyed or overwritten without providing an opportunity to view the images. Cameras must have digital still imaging (not video) where images are recorded onto a “rewritable loop” and erased automatically, unless police are investigating a criminal offence.

Public Notice. Passengers must know that cameras are in the vehicle before they begin their journey, and they must be able to get more information about the use of the camera and have a taxi company contact person to talk to.

Auditory Capacity. Cameras must be prohibited from having auditory capacity.

Consultations

MCC Taxi Advisory Committee. This committee has representatives from the BC Taxi Association, the Vancouver Taxi Association, the Union of BC Municipalities, the City of Vancouver, BC Transit, TransLink, the Vancouver Airport Authority, the Ministry of

Transportation and the Workers' Compensation Board. The Taxi Advisory Committee supports the installation of cameras in Lower Mainland taxis, as well as the fare surcharge.

Information and Privacy Commissioner. British Columbia's Information and Privacy Commissioner has been kept apprised of the Motor Carrier Commission's taxi camera installation plan.

Municipalities. The City of Vancouver participated on the Taxi Advisory Committee that recommended the installation of taxi cameras. Other municipalities will have an opportunity to make submissions on this discussion paper.

Police. The Commission has consulted with the Vancouver Police Department and the Royal Canadian Mounted Police (RCMP).

Tourism. The Commission has met with the Vancouver Tourism Association and the Council of Tourism Associations of BC.

Camera Manufacturers. Some camera manufacturers offered technical information about taxi camera systems that are available in the marketplace.

C. Taxi Camera Installation Plan

The Commission recognizes that taxi drivers are very vulnerable to victimization, particularly in the Lower Mainland. The Commission is satisfied that the installation of digital cameras has been instrumental in decreasing and prosecuting crimes against taxi drivers in other jurisdictions. The Commission is therefore proceeding with the installation of digital cameras in all taxicab vehicles in the Lower Mainland. The degree of success of a taxi camera program depends on a number of factors, including:

- Public confidence that images will and can be used only by authorized justice system personnel in the investigation or prosecution of an offence under the Criminal Code of Canada,
- Reliable equipment and secure systems that can capture pictures when a crime is committed and lead to prosecution and deter future crimes against taxi drivers,
- Installation by all taxi companies,
- Proper monitoring and use by all taxi drivers,
- Providing clear communications about how the program works to taxi companies, drivers and their clients, and establishing an effective complaint process, and
- An evaluation of the program after it has been in effect.

Important Factors

Given the importance of these factors, the Commission intends to proceed with a program designed with the following principals in mind:

- No video images or audio recordings will be captured.
- No images will be monitored in real time by police or any other person.
- All digital images that are captured will automatically be over-written without anyone having access or seeing them unless they are needed by police in the investigation of a criminal offence.
- Only authorized police personnel will be able to access images.

- The Commission will set minimum camera and operating standards to ensure the effectiveness of camera systems.
- The Commission will establish a list of approved suppliers that demonstrate compliance with camera system specifications.
- Taxi companies will be responsible for digital camera system acquisition, installation, operation, servicing and replacement according to Commission standards.
- Taxi operators will be authorized to charge a minor, time-limited surcharge on flag rates to offset the costs of installing and operating taxi cameras.
- A visible notice regarding the operation of taxi cameras must be placed within view of taxi passengers, and further information about their operation must be readily available to passengers upon request.

Installation Plan

1. All digital camera systems must meet the minimum standards listed in Appendix B.
2. All digital cameras systems must be obtained from a supplier approved by the Motor Carrier Commission.
3. All digital cameras systems must be installed by a supplier-certified installer according to manufacturer specifications and Commission regulations and orders.
4. Every vehicle with a digital camera system must have affixed on the inside and outside of both rear windows a decal with black, capital lettering at least 5 mm high in a sans serif font that states "YOU ARE ON CAMERA FOR DRIVER AND PASSENGER SAFETY".
5. Every person who is transporting passengers in a vehicle with a digital camera system must carry in the vehicle a public information sheet approved by the Motor Carrier Commission. This information sheet must be provided to passengers or potential passengers, upon request, and contain the name and contact information of a person in the company who is able to answer questions about the system.

6. Licensed taxi operators (listed in Appendix A) must:
 - a. Arrange for the installation, maintenance, operation and repair of digital camera systems, in accordance with Commission orders and policies
 - b. Obtain a document signed by the installer stating:
 - i. the name, address and phone number of the installer
 - ii. the date of installation (or transfer or reinstallation)
 - iii. the make, model and serial number of the digital camera system
 - iv. the vehicle registration number of the vehicle into which the digital camera system was installed
 - v. the digital camera system was installed and is operational
 - c. Provide to the Commission, upon request, the document referred to in 6(b)
 - d. Not have any digital camera system inoperable for more than 5 business days
 - e. Ensure that all drivers complete a pre-trip inspection to ensure that the digital camera system is operational
 - f. Establish practices and procedures as required by the Privacy Information Protection Act
 - g. Ensure that all drivers are able to answer basic questions about the system to passengers, and to provide the name of the person and contact information of the person in the licensee's organization who can provide further details.
 - h. Cooperate and provide any information requested to the Commission during any audit of the camera in cabs initiative.
7. Licensed taxi operators listed in Appendix A and their drivers must not interfere with the operation of a digital camera system after it has been installed.
8. Based on approximate cost estimates provided by various companies in the Lower Mainland, a \$0.15 surcharge on the flag rate would be applied for taxicabs licensed to pick up fares in Vancouver, Burnaby and New Westminster; and a \$0.20 surcharge would be applied on the flag rate for taxicabs licensed to pick up fares in

the North Shore, Surrey, Richmond, Maple Ridge, Langley and Coquitlam. The different rates account for a general difference in the volume of trips made in a day. The surcharge would be applied after the Commission publishes an Order regarding the taxi camera installation plan.

9. All taxicabs in the Lower Mainland must have digital cameras installed within a year of date of the Commission's Order implementing the plan.
10. The Commission may refuse to renew to a licensee (listed in Appendix A) certificate(s) for any vehicles that do not have a digital camera system installed that meets the requirements of the Commission within the one-year deadline established by the Commission. This means that the vehicle could not be operated as a taxi.
11. The Commission plans to review of the implementation of this initiative, including camera standards, processes and compliance, in a reasonable period of time after all Lower Mainland taxis are equipped with cameras.

D. Conclusion

Based on previous consultations and research by the Motor Carrier Commission, it has concluded that taxi drivers in the Lower Mainland face significant safety risks, and that the most promising way to improve driver safety is to establish a taxi camera program that can deter would-be attackers and lead to the prosecution of those who commit crimes against drivers. Cameras should also give passengers a greater sense of security when riding in a taxi. The Commission has also determined that taxi cameras can be installed and operated in a way that protects privacy, and it has designed a program it believes can make it safer to drive and ride in a taxicab.

The Commission intends to proceed with the implementation of its taxi camera plan late February or early March 2004. However, as outlined at the front of this document, the Commission first wishes to obtain broader public comment on any of the various aspects of this plan to equip Lower Mainland taxis with cameras. The Commission hopes that such comment in advance will improve the effectiveness of the taxi cameras when installed.

Appendix A

Licensed Taxi Companies in the Lower Mainland

1. Alouette Transit Systems Ltd.
2. Bel-Air Taxi (1982) Limited
3. Black Top Cabs Ltd.
4. Bonny's Taxi Ltd.
5. Burnaby Select Taxi Ltd.
6. Coquitlam Taxi (1977) Ltd.
7. Coral Cabs Ltd
8. Delta Sunshine Taxi (1972) Ltd.
9. Guildford Cab (1993) Ltd.
10. Kimber Cabs Ltd.
11. MacLure's Cabs (1984) Ltd.
12. Meadow Ridge Taxi Ltd.
13. Newton Whalley Hi Way Taxi Ltd.
14. North Shore Taxi (1966) Ltd.
15. Port Coquitlam Taxi Ltd.
16. Queen City Taxi Ltd.
17. Richmond Cabs Ltd.
18. Royal City Taxi Ltd.
19. Sunshine Cabs Ltd.
20. Surdell Kennedy Taxi Ltd.
21. Syd's Taxi (1984) Ltd.
22. Tarantino, Gary Albert
23. Tsawwassen Taxi Ltd.
24. Vancouver Taxi Ltd.
25. Vancouver Taxi Ltd., dba Handicapped Cab
26. White Rock South Surrey Taxi Ltd.
27. Yellow Cab Company Ltd.

Appendix B

Draft Camera Design Specifications

Note: These draft specifications may be further refined to ensure that the standards can achieve the camera performance purpose and privacy protection objectives of the Motor Carrier Commission's taxi camera plan.

All systems must meet the following minimum standards. Carriers may only use systems obtained from suppliers who are approved by the Motor Carrier Commission.

1. Equipment Construction

The following equipment construction standards are provided to ensure that camera system equipment and installations will result in reliable recording and access to images under variable circumstances, and so as not to compromise occupant or vehicle safety, the integrity of the vehicle or any of its systems, or compliance with any safety regulation.

Feature	Minimum Standard
Shock Resistant	1. Camera and recording unit components shall be sufficiently shock resistant to withstand vehicle movements over variable terrain and the impact of typical vehicle collisions.
Component Inter-changeability	2. System components shall be easily interchangeable in the event that one component fails or is damaged.
Protection from Power Failure	3. Systems shall be designed to ensure access to all recorded material for at least 7 days after the normal power source is removed.
Electrical Current	4. Electrical current draw shall not exceed 2.0 amps for each camera when taking pictures. 5. Electrical current draw shall not exceed 0.1 amps for each camera when not taking pictures.
Normal Voltage	6. System components shall be fully operational within normal input voltages of vehicles operated as taxicabs.
Electrical Safeguards	7. System components shall be protected from reverse voltage, short circuits and high voltage transients likely to be encountered in the electrical system of the vehicle. 8. Operation shall not be adversely affected by lower voltages that are likely to be encountered with the starting of the engine.
Vehicle Integrity and Safety Compliance	9. System components and their installation shall not interfere with the safe operation of the vehicle, the safety or integrity of the vehicle or any of its systems. 10. System components and their installation shall not contravene and safety regulations or requirements.

2. Image Access Protections

Feature	Minimum Standard
Recording Unit	11. Concealed from view and fastened securely inside the passenger compartment under the dashboard. 12. Housing and installation bracket are tamper-proof.
Flashcard memory access	13. Flashcard memory is accessible only by authorized police personnel via a hardware key.
Installers' Software	14. Installers will have not ability to access flashcard memory or the images recorded on memory. 15. Installers will have system configuration software to confirm that the camera system is operational, that information associated with an image is being captured, and that the camera is positioned correctly.
Viewing Software	16. Only authorized police personnel will receive proprietary image viewing software and confidential passwords. 17. Proprietary viewing software is required to download, view, archive and print images.
Wireless technology	18. Electronic images shall not be accessible using wireless technology.

3. Camera Design

Feature	Minimum Standard
General Functionality	19. Cameras shall produce sharp images under lighting conditions where infrared lighting is needed, and where it is not.
Type of Image Sensor	20. 1/3" CMOS sensor or 1/3" CCD sensor.
Lighting	21. Near-infrared LED lighting that is adequate for normal lighting, low-light conditions, and conditions where outside light is strong.
Aperture	22. Fixed at f2.0
Sensor Resolution	23. 510 x 492 pixels
Image Resolution (File Size)	24. 350 x 240 pixels
Display Resolution	25. 300 TV lines
Lenses	26. 3.7 mm lens (70-degree field of view) or 2.9 mm lens (90-degree field of view)
Lens Coverage	27. Full face will be in view and focus of for all occupants when seated in the vehicle.
Number of Camera Heads	28. A second camera unit must be installed if a security shield is installed in the vehicle.
Camera Head Casing	29. Camera head casing installed securely and adjacent to rear view mirror. 30. No sharp corners or edges.
Status Indicator	31. The system will have a discreet LED status light on the camera case showing, at a minimum, when the following occur: (a) System is functional, and power is on. (b) System is not functioning properly.

4. Digital Image Recording Unit

The following standards are set to enable the capture and cyclical purging of a sufficient number of digital images of sufficient resolution for successful identification and prosecution of an offender. This entails recording enough images so previous images remain accessible (not overwritten) for at least 4 days.

Feature	Minimum Standard
Camera Connection	32. Connections for at least two cameras.
Automatic storage loop	33. All images, including those triggered by a panic button, shall be stored in sequence and automatically overwritten in a continuous loop.
Image Timing & Trigger Parameters	34. Timing and trigger parameters shall be re-programmable without replacing system components.
Panic Button	35. The Commission will determine timing and trigger parameters. 36. System shall include a panic button that shall be installed on the lower dashboard to the left of the steering wheel.
Triggers	37. Recording unit can be connected and programmed according to the timing and trigger parameters set out in section 5.
Automatic Power Save Mode	38. System automatically switches to power save mode after cycle ends.
Memory	39. Removable flashcard memory with a capacity of 5,000 images (automatically purged as the cycle completes).
Isolation Memory (for Panic Button Images)	40. If an isolation memory is used, the images must automatically purge after 9 "panic button" events have been recorded.
Installation	41. Digital Image Recording Unit is concealed and secured inside the passenger compartment under the front dashboard, and placed where the memory flashcard is accessible to authorized police personnel. 42. The digital image recording unit, including any installation brackets, will be at least 1 cm from any pinch weld on the inside of the vehicle compartment. 43. Download port is installed in glove box or under the dashboard in an inconspicuous location that is accessible to police. 44. Recording unit is housed in a tamper-proof box. 45. Recording unit is secured to the vehicle with tamper-proof hardware.

5. Programming Parameters (Triggers & Timing)

Taxi camera systems in the Lower Mainland will be programmed with the following image “trigger” and “timing” parameters:

Standard	Trigger	Timing Cycle	Interruption
46.	Panic Button	<ul style="list-style-type: none"> 1 image every second for 29 seconds. Commence the “door” cycle (described below) immediately after 29 seconds. 	<ul style="list-style-type: none"> No interruption for 29-second “panic” cycle.
47.	Meter	<ul style="list-style-type: none"> 1 image recorded every 5 seconds for the first 60 seconds. 1 image every 60 seconds for the next 5 minutes. 	<ul style="list-style-type: none"> Panic trigger interrupts at any point Door trigger interrupts if more than 45 seconds has passed.
48.	Door	<ul style="list-style-type: none"> 1 image recorded every 5 seconds for the first 60 seconds. 1 image every 60 seconds for the next 5 minutes. 	<ul style="list-style-type: none"> Panic and meter triggers interrupt at any point. Subsequent door openings restart the door cycle.
49.	Background	<ul style="list-style-type: none"> 1 image every 5 minutes as long as the vehicle ignition is on. 	<ul style="list-style-type: none"> Panic, meter and door triggers can interrupt the background cycle, even if the vehicle is turned off.

6. Image Files

Feature	Minimum Standard
File Format	50. JPEG or convertible to JPEG
Grey scale	51. 256 level grey scale
Maximum file compression	52. 8:1
Image Data	53. The following data will be captured and associated with each image: <ol style="list-style-type: none"> Date Time Vehicle Registration Serial number of digital image recording unit Type of trigger