Surveillance Impact Report

Driver-Safety Video Analytics
Municipal Transportation Agency

As required by San Francisco Administrative Code, Section 19B, departments must submit a Surveillance Impact Report for each surveillance technology to the Committee on Information Technology ("COIT") and the Board of Supervisors.

This Surveillance Impact Report describes the benefits, costs, and potential impacts associated with the Department's use of Driver-Safety Video Analytics, (hereinafter referred to as "surveillance technology").

PURPOSE OF THE TECHNOLOGY

The Department's mission is to connect San Francisco through a safe, equitable, and sustainable transportation system.

The surveillance technology supports the Department's mission and provides important operational value in the following ways:

By enhancing Department's efforts to identify local transit and regional transportation safety issues, compliance with training standards, rules, and vehicle code laws, and assist in the investigation to determine causation for collisions and passenger falls.

The Department shall use the surveillance technology only for the following authorized purposes:

Authorized Use(s):

Review video and audio recordings triggered by events to identify their likely causes, including specific behaviors by transit operators.

To identify collision dynamics, causation, and other factors.

To investigate passenger fall events and explore potential safety improvements.

To identify infrastructure (damaged or vandalized bus stop shelters, downed or hazardous trees, etc.) and signage issues (signs obscured by graffiti or by a low hanging or overgrown tree or shrub, etc.) as they relate to MTA transit service and safety.

To review customer complaints and look for potential ways to improve safety and service.

To identify driver training issues, misconduct, or negligence.

To commend drivers who demonstrate outstanding defensive driving skills

Prohibited use cases include any uses not stated in the Authorized Use Case section.

Surveillance Oversight Review Dates
PSAB Review: 01/27/2023, 2/24/2023. Recommended: 02/24/2023
COIT Review: Recommended: 4/20/2023
Board of Supervisors Approval: TBD

Departments may use information collected from surveillance technology only for legally authorized purposes, and may not use that information to unlawfully discriminate against people based on race, ethnicity, political opinions, religious or philosophical beliefs, trade union membership, gender, gender identity, disability status, sexual orientation or activity, or genetic and/or biometric data. Additionally, departments may not use automated systems to scan footage and identify individuals based on any of the categories listed in the preceding sentence.

Surveillance technology may be deployed in the following locations, based on use case(s):

Inside every revenue vehicle (rubber-tired and rail vehicle) in the department's fleet, including reserve coaches and training coaches.

Description of Technology

This technology uses video and audio event recorders together with proprietary, vendor-owned algorithms to record and identify certain behavior-based safety events, such as operator looking at cell phone while driving.
The event recorders are triggered by excess g-forces (e.g., collision impacts, abrupt braking, excessive turning, etc.) and capture eight seconds of video/audio prior to the trigger, and four seconds after the trigger, for a total of 12 seconds of video and audio. Once recorded, the proprietary algorithm categorizes the event into one of several predefined safety events, which are then reviewed by the vendor for accuracy. If accurate, the vendor notifies and sends the recording to the department for further review.

Third-Party Vendor Access to Data

All data collected or processed by the surveillance technology is handled and stored on an ongoing basis by Lytx, the vendor that furnishes the Department with the surveillance technology. Specifically, Lytx and its sub-contractors handle and store the data to ensure the Department may continue to use the surveillance technology. All video and audio data are stored and encrypted on SD cards for the data stream of the DVR.

An example of such frequency is the following: For the 6-month period of August 2022 thru January 2023, the department's rubber-tire fleet of 845 Drivecam-Equipped busses (includes trolley-coaches) generated a combined total of 8,321 Drivecam events. Of that number:

- 883 (10.6%) were assessed by Lytx and returned to the department for further action.
- 47 (0.57%) were confirmed traffic collisions but were not assessed by Lytx (as per our contract). Lynx provides, to the department, the factual dynamic data associated with each collision, such as location, date/time, speed of the bus, type of trigger, and g-forces of turns.
- 21 (0.25%) were confirmed passenger falls but were not assessed by Lytx. As with collisions, dynamic data was provided.
- 991 (12%) were identified as "Near-Collision Unavoidable" by Lytx, but not assessed. All dynamic data was provided to the department.

Of the total 8,321 Drivecam events, only 1,942 (24%) events required a follow up action by the department (i.e., training, discipline, safety analysis, infrastructure analysis, driver commendation).

IMPACT ASSESSMENT

The impact assessment addresses the conditions for surveillance technology approval, as outlined by the Standards of Approval in San Francisco Administrative Code, Section 19B:

1. The benefits of the surveillance technology outweigh the costs.
2. The Department's Policy safeguards civil liberties and civil rights.
3. The uses and deployments of the surveillance technology are not based upon discriminatory or viewpoint-based factors and do not have a disparate impact on any community or Protected Class.

The Department's use of the surveillance technology is intended to support and benefit the residents of San Francisco while minimizing and mitigating all costs and potential civil rights and liberties impacts of residents.

A. Benefits

The Department's use of the surveillance technology has the following benefits for the residents of the City and County of San Francisco:

	Benefit	Description
¨	Education	
¨	Community Development	
¨	Health	
¨	Environment	
¨	Criminal Justice	
¨	Jobs	
¨	Housing	
X	Other: Public Safety	The technology allows the department to identify and target for training opportunities specific driver behaviors that trigger safety events so it can minimize these behaviors in the future and improve public safety.

B. Civil Rights Impacts and Safeguards

The Department has considered the potential impacts and has identified the technical, administrative, and physical protections as mitigating measures:

All persons within the department strive to comply with the policy, or defer to more knowledgeable managers for instruction. The Department has considered the potential impacts and has identified the following technical, administrative, and physical protections as mitigating measures:

- Dignity Loss (e.g., embarrassment and emotional distress). Vehicle Operator(s) and riders may experience dignity loss if the surveillance technology records videos of them committing acts

or experiencing situations that are embarrassing or distressing for them (e.g., altercations between Operator(s) and riders, criminal acts).
    - Administrative safeguards make this impact minimal because only designated Department and vendor staff have access to view video files, which occurs only under an authorized business case. Video files retained by the Department and vendor are generally not available to the public.
- Loss of Autonomy (e.g., loss of control over decisions on how personal information is used or processed). Vehicle Operators and riders may experience loss of autonomy if video recordings of their likeness are used for purposes other than authorized use cases or made generally available to the public.
    - Administrative safeguards make this impact minimal because only designated Department and vendor staff have access to view video files, which occurs only under an authorized business case. Video files retained by the Department and vendor are generally not available to the public.
- Loss of Liberty (i.e., improper exposure to arrest or detainment due to incomplete or inaccurate data). Vehicle Operators and riders may experience loss of liberty if law enforcement misidentifies them in connection with a crime recorded by the surveillance technology.
    - Administrative safeguards make this impact unlikely because law enforcement verify the identities of drivers and riders using data from other sources (e.g., company records, state data bases, etc.) before they take probable cause action.
- Physical Harm (e.g., physical harm or death). Vehicle Operators and riders may experience physical if they are identified, tracked, and physically attacked based on data collected by the surveillance technology.
    - Technical measures make this impact unlikely because the surveillance technology does not record personally identifiable information from Operator or passengers that (other than law enforcement) could reasonably be used to identity individuals or their locations (e.g., names, addresses, etc.).
- Loss of Trust (e.g., breach of implicit or explicit expectations or agreements about the processing of data, or failure to meet subjects' expectation of privacy for information collected). Vehicle Operators and riders may experience loss of autonomy if video recordings of their likeness are used for purposed other than authorized use cases or made generally available to the public.
    - Administrative safeguards make this impact minimal because only designated Department staff and vendor have access to view video files, which occurs only under an authorized business case. Video files retained by the Department and vendor are generally not available to the public.
- Overall
    - Administrative Safeguards: the Department provides access to password protected video and audio data from the surveillance technology only to authorized staff.

- Technical Safeguards: only authorized staff has access to video and is password protected.
- Physical Safeguards: Department facilities and offices where Driver-Safety Video Analytics is accessed are closed to public access. Entry to these areas requires coded swipe cards, and all digital devices require the authorized user's name and passwords.
- The technology provider for the rubber tires, Lytx, receives recorded transmitted video from the Video Event Recorder (VER) to Lytx's backend over an encrypted connection, and upon arrival to their Lytx cloud, video clips are encrypted at rest. Encryption at rest is a way to prevent the attacker from accessing data when it is saved in the disk/hard-drive. Moreover, Lytx has been asked not to view the live video feed from the DriveCam cameras, if system allows live viewing. The on-board recorder stores audio/video data on the SD card which is encrypted with 128-bit AES at rest. Lytx's primary production servers are located in two geographically separated N-tier (redundancy). Each datacenter is SSAE-18 (Statement on Standards for Attestation Engagements 18 – based on industry standards) certified, and provide 24/7 physical security monitoring, including biometric access controls. These datacenters are SOC2 Type 2 (Organization Control) attestation related to security, availability, and confidentiality. A SOC 2 Type 2 report is an internal controls report capturing how a company safeguards customer data and how well those controls are operating. Companies that use cloud service providers use SOC 2 reports to assess and address the risks associated with third party technology services.

C. Fiscal Analysis of Costs and Benefits

The Department's use of the surveillance technology yields the following business and operations benefits:

	Benefit	Description
..	Financial Savings	
..	Time Savings	
X	Staff Safety	Video enhances the safety and training procedures, identifies engineering needs, and identifies exemplary employees without the need for hundreds of additional personnel that it would require to gain the same insights that the technology provides
X	Data Quality	It enhances the safety and training procedures\, identifies engineering needs\, and identifies exemplary employees without the need for hundreds of additional personnel that it would require to gain the same insights that the technology provides.

X	Other	The technology allows the department to identify and target for training opportunities specific driver behaviors that trigger safety events so it can minimize these behaviors in the future and improve operator performance.

The fiscal cost, such as initial purchase, personnel and other ongoing costs, include:

Number of Budgeted FTE (new & existing) & Classification	1 FTE 9172 Manager	
	Annual Cost	***One-Time Cost***
Total Salary & Fringe	$86,200/year	FY23 loaded salary for 9172: $86,200/year
Software	Included in monthly cost for Rubber Tire. Unknown for LRVs as the Department is currently negotiating contract for LRV.	Software service solution. Department uses Lytx portal.
Hardware/Equipment	Department does not pay annual cost. Hardware is covered by warranty.	Hardware was waived. Extended wiring harnesses and one time install cost. $34,560. LRV cost not yet determined.
Professional Services	This is included in monthly cost and LRV are unknown.	This is a SaaS set up and there in no one time cost.
Training	$0 for Lytx and LRV is unknown.	There is no cost. LRV as well.
Other	N/A	N/A
Total Cost	***$86,200.00***	***$86,200.00***

The Department funds its use and maintenance of the surveillance technology through General Budget.

COMPARISON TO OTHER JURISDICTIONS

The surveillance technology is currently utilized by other governmental entities for similar purposes.

Other government entities have used the surveillance technology in the following way: Several state and local governments across the country use DriveCam technology. The City of Mobile of Alabama uses it on transit, public works, and fire truck fleets. The Orange County, Florida, government has a fleet of 2,200 vehicles (transit buses, shuttles, and fire trucks) with Drivecam installed and in West Texas, the Concho Valley Transit District serves a 12-county area with a fleet of buses and shuttles - all with Drivecam installed. All 3 of these government entities use Drivecam to conduct research into accident and other related incidents with their fleets. From such studies, driver safety programs were implemented which greatly reduced the number of accidents, near collisions and risky driver habits (example: speaking on cell phone).

The effectiveness of the surveillance technology while used by government entities is determined to be the following: By using the surveillance technology and the driver safety programs, the City of Mobile Alabama reported a 62% reduction of collisions, 39% reduction in risky driver behavior and a 50% reduction in near collisions. Orange County Florida reported a 40% reduction in collisions and the Texas Concho Valley Transit district saw a 58% decrease in traffic collisions.

There have not been adverse effects of the surveillance technology while it has been used by other government entities.