BUSPATROL

BusPatrol Safety Program
Oxford County Meeting

March 10th, 2021

2014 The idea of BusPatrol was born

2015 1ST live equipment tests
North Bay / Sudbury consortia

2016 BP 1ST pilot program in Ontario
- *Peel, Waterloo, Brantford, Sudbury, North Bay*

2017 Began operations in Montgomery County, MD

2019 2ND generation cameras & AI processing

2020 Awarded 95% of all RFP bids
- 6K buses in Suffolk

2021 50K+ BusPatrol buses
- Including fleets in ON & QC

SCHOOL 1ST PROGRAM APPROACH

Built From Years of Understanding Stakeholder Needs

6 Years Building the most robust school bus safety program

8.6M Hours of live road testing

5x More effective stop-arm enforcement than competitors (AI Assisted)

Trusted by State & Provincial legislators
in NY, PA, MI, MA, VA,MDON, QC to advise on regulation drafting

SCHOOL 1ST PROPOSITION

Because opt-ins are critical to program success

Our 360° Approach That Delivers All Stakeholder Needs

PROGRAM PARTNERS

- Schools
- Consortia

ENABLING STAKEHOLDERS

- Municipalities & Regions
- Law Enforcement
- Operators

PEOPLE FIGHTING FOR CHANGE.

Responsibility to provide communities with access to the best safety solutions.

BUSPATROL

Safety-First Approach

Prioritizing Student Safety

Safety technology as a building block for enforcement, awareness and funding of future safety initiatives

$0

NO CAPITAL OUTLAY

Includes Full Fleet Deployment

Full-Fleet Deployment

THE ONLY SOLUTION EFFECTIVELY REDUCING
STOP-ARM VIOLATIONS AND MAKING COMMUNITIES SAFER.

20%

PARTIAL FLEET COVERAGE

PROBLEM: CAN'T QUANTIFY REDUCTIONS

100 %

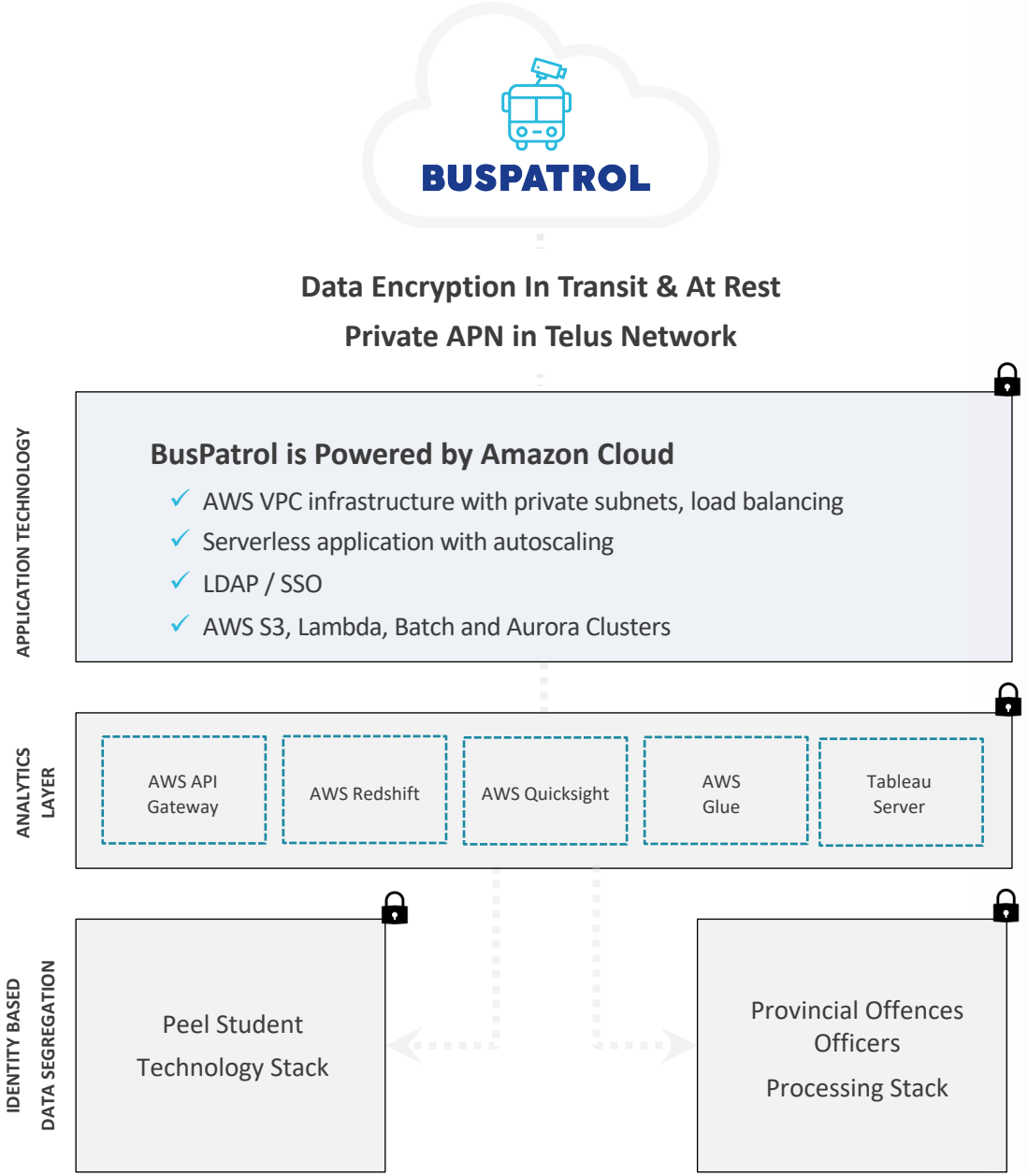
FULL-FLEET COVERAGE

SOLUTION: COMPREHENSIVE, STABLE DATA

Our Architecture

Cloud Based, Secure & Scalable

BUSPATROL



AI-assisted technology

End-to-end encryption in transit and at rest

AWS Canada infrastructure with redundancy and disaster recovery

Accenture-verified cybersecurity

PCI & SOC 2 compliance

IAM based, physical segregation of data & video

Tableau reporting interface and AWS API gateways

Only company certified for Emergency Responder private network

STOP-ARM TECHNOLOGY FEATURES

The stop-arm enforcement camera suite contains 3-5 high resolution cameras, optimized for performance in environments with variable weather and light conditions.

AI Assisted Technology

8 Lanes of Coverage

Variable Weather Conditions

Variable Light Conditions

4K & 180° Coverage

Anti Vibration Technology

HIGHEST STOP-ARM CAPTURING RATE

TRAFFIC GOVERNANCE MANAGEMENT

SECURED AWS CLOUD TECHNOLOGY WITH DATA SEGREGATION

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SCHOOL GOVERNANCE MANAGEMENT

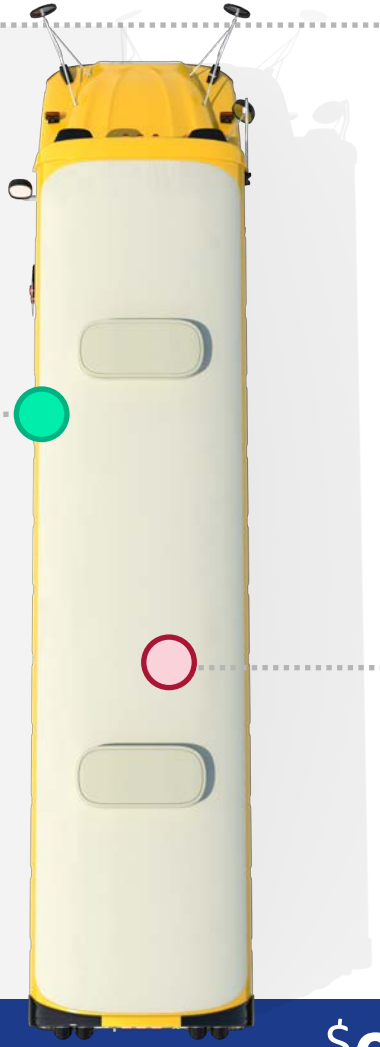
Citation Management Tools

Evidence Processing
Vehicle Page
Citation Issuing

Provincial Offences Officers

Manage Data and Video at Processing Center

External Stop-Arm Cameras Only



Fleet Management & Routing

Parent Apps

BusPlanner
chipmunk School Bus Tracker
SAMSUNG
ZONAR

School & Consortia

Access to Student Safety Data & Application

Internal Cameras Only

Cloud-Connected Safety Cameras

Full-service Fleet Management

$0 Capital Outlay

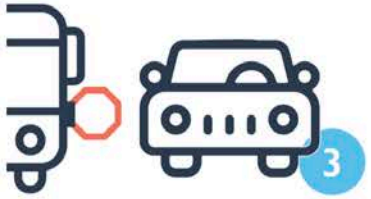
BUSPATROL

LEARN HOW OUR ENFORCEMENT PROGRAM WORKS

BUS ROUTE

Stop-arm camera is activated, while bus is in operation

Overhead lights activated, bus stops
& stop-arm deployed



Stop-arm violations are identified
and recorded

Video, GPS and data are captured by BusPatrol AI

PROCESSING & REVIEW

BusPatrol AVA AI compiles video and evidence package

PEEL REGIONAL PROCESSING CENTRE

Provincial offence officers process stop-arm incidents

Provincial offence officers issue
stop-arm citations

*BusPatrol has already deployed a program with municipal officers overseeing processing / ticketing

BUSPATROL

LEARN HOW OUR ENFORCEMENT PROGRAM WORKS

ENFORCEMENT & EDUCATION

PEEL REGIONAL PROCESSING CENTRE

Ticket is mailed to offender with website containing link to access video evidence

Driver makes payment online or at designated municipal office

Citation revenue used to cover program expenses & invest in safety initiatives

Call Centre Available to Educate Drivers on Road Safety and Facilitate Citation Management and Collection

FULL-STOP ENFORCEMENT PROGRAM

MORE THAN TECHNOLOGY

SCHOOL DISTRICTS & CONSORTIA

100% Fleet Deployment Model

- ✓ Critical for consortia opt-in
- ✓ Equitable safety for all constituents

- Next-gen tech for schools that integrates to:
  - ✓ **Parent apps**
  - ✓ **Decision analytics**
  - ✓ **Route planning**
  - ✓ **Safety technology**
- Millions in new safety technology

SCHOOL BUS OPERATORS

- Industry-leading hardware
  - o *100% free to private operators*
- Seamless and automated program
  - o Management & processes
  - o Deployment & maintenance

$0 No Upfront Costs or Capital Outlay

- Integrated with fleet planning software

BusPlannerPro

INTEGRATED FLEET TECH SOLUTIONS

Accessibility to Technology for Schools

- Route Planning Software Solution
- Transportation Information Portal
- Map & Boundary Administration Software
- GPS Tracking & Analysis Module
- Redistricting Analysis Module
- Route Costing Capabilities
- BusPlanner Turns+
- Chipmunk Parent App
- Implementation, User Training & SAAS

BusPlanner® Route Planning

BusPlannerTasks | BusPlannerMaps

BusPlannerGPS | BusPlannerFinance

BusPlannerServer | BusPlannerWeb

chipmunk School Bus Tracker Parent App

BUSPATROL

Community Awareness Program

PSAs and Educational Campaigns for Drivers – 30 Day Warning Period

Data Drivren Behavioral Change

The Best Hardware Demands the Best Software and Bundled Services to Support it.

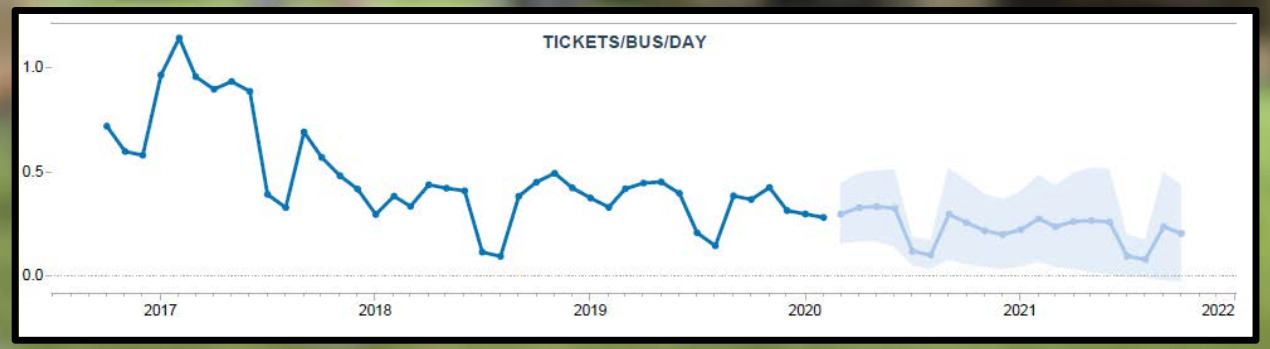
Partner Portal

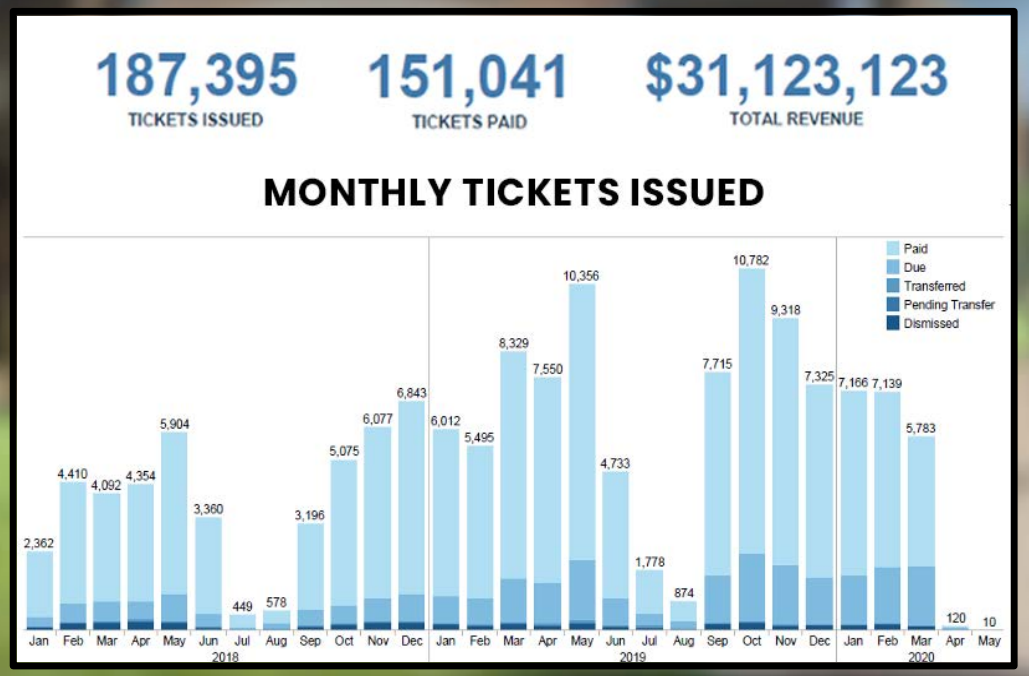
GPS & Reporting Tools

- Real-time GPS
- Historical GPS timestamps

BusPatrol AVL: Automatic vehicle locator GPS and accelerometer system provides real-time telemetry data.

Snail Trail: GPS telemetry data is saved so you can look up the historical location of the bus.





BUSPATROL

Ex. Suffolk Stop-Arm Violation Reduction Estimate

Correcting Motorist Behavior Through Stop-Arm Enforcement Over Time

Suffolk County, NY	Year 1	Year 2	Year 3	Year 4	Year 5
Total Violations	573,937	459,150	367,320	293,856	235,085

Changing Driver Behavior Around School Buses

Estimated 60% Reduction in Violations

STUDENT SAFETY BENEFITS

BEYOND ENFORCEMENT

BUSPATROL

Full-Fleet Safety Benefits

Safer Buses. Safer Kids.

FULL-FLEET MODEL IS INCLUSIVE AND PROVIDES SAFETY BENEFITS TO ALL STUDENTS

100 %

MONTGOMERY COUNTY, MD

FULL-FLEET COVERAGE = 1382 BUSES

350 School Buses Have Not Issued Tickets

2 ROUTES A DAY | AVG. 50 STUDENTS PER BUS

35,000 RIDERS BENEFIT FROM

- ROUTING SYSTEM
- INTERNAL SAFETY CAMERAS
- REMOTE VIDEO ACCESS
- REAL-TIME STREAMING

OPTIONAL SAFETY CAMERA VIEWS

Optional safety cameras available at no cost to school districts and municipalities.

*Our solution is fully-customizable to meet our partners' needs and their school bus make and models.

LIVE STREAMING

Remote Access

Cloud Connectivity

*Locations Customizable

4

ADDITIONAL TECHNOLOGY FEATURES

The same technology that powers our stop-arm enforcement program enables school districts and municipalities to upgrade their fleet with supplementary safety technology:

- Windshield Camera
- Rearview Camera
- Sideload Camera
- Interior Cloud Connected Cameras (4)
- Health Check
- Real-Time GPS & Reporting Tools
- On Demand Video
- Live View Streaming
- Silent Alarm Emergency Alert System

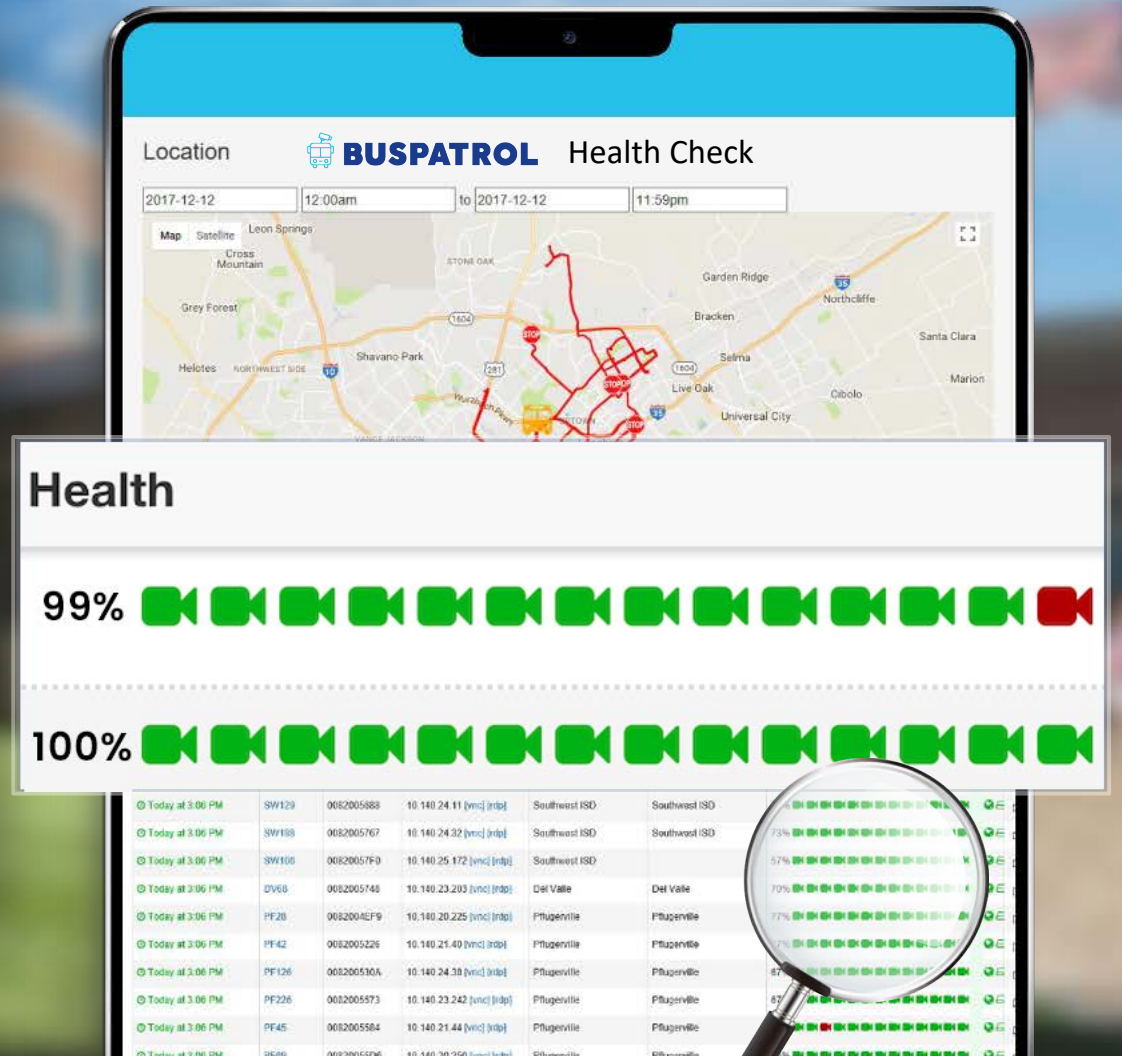
Additional Safety Features

The Best Hardware Demands the Best Software and Bundled Services to Support it.

Partner Portal

Health Check

- Real-time overview of BusPatrol's pupil transportation technology and tools.
- Quickly review the status and functionality of cameras across your entire fleet to ensure optimal citation management.



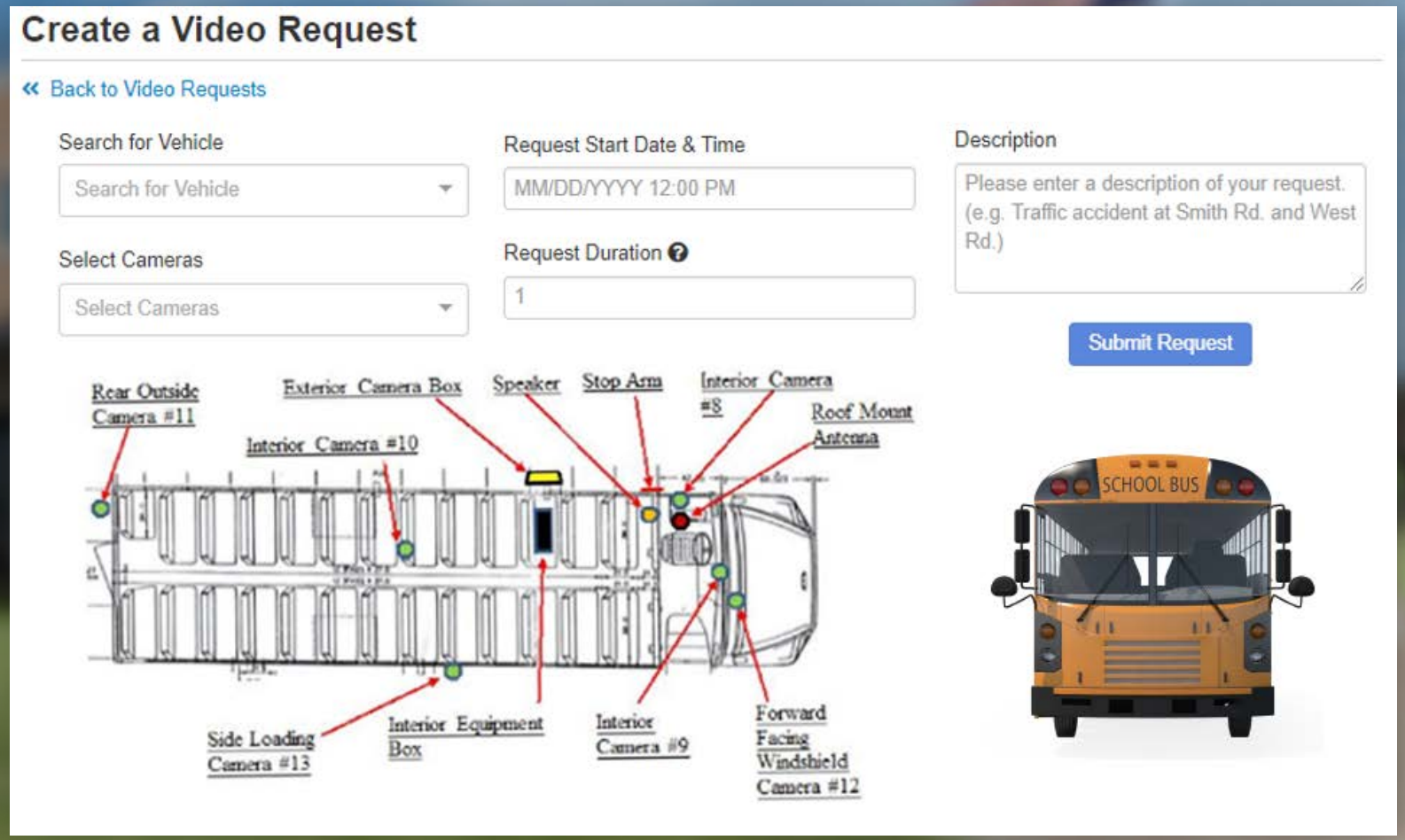
Additional Safety Features

The Best Hardware Demands the Best Software and Bundled Services to Support it.

Partner Portal

On-Demand Retrieval

- Streamline video retrieval process by requesting video via BusPatrol Secure SmartCloud Ecosystem
- Cost saving allowance possible by decreasing man hours spent pulling video
- Security in knowing who has access to your internal video



Additional Safety Features

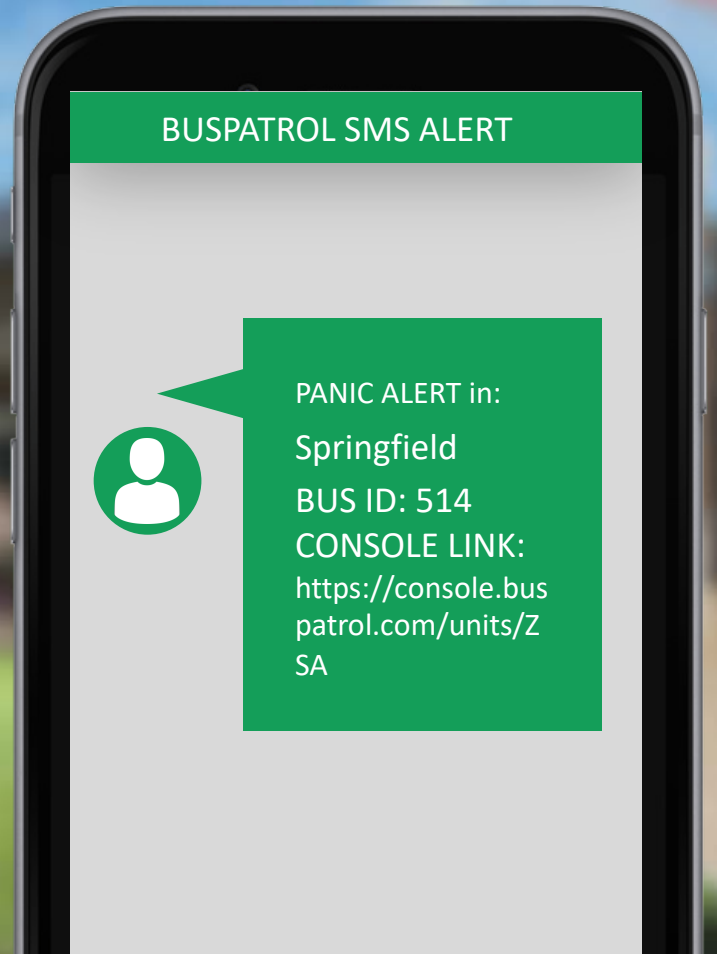
The Best Hardware Demands the Best Software and Bundled Services to Support it.

Real-Time

Emergency Alerts

BusPatrol Silent Alarm triggers a notification link that provides important information including still images, GPS info, and live view.

SILENT ALARM
SAFETY FEATURE



Additional Safety Features

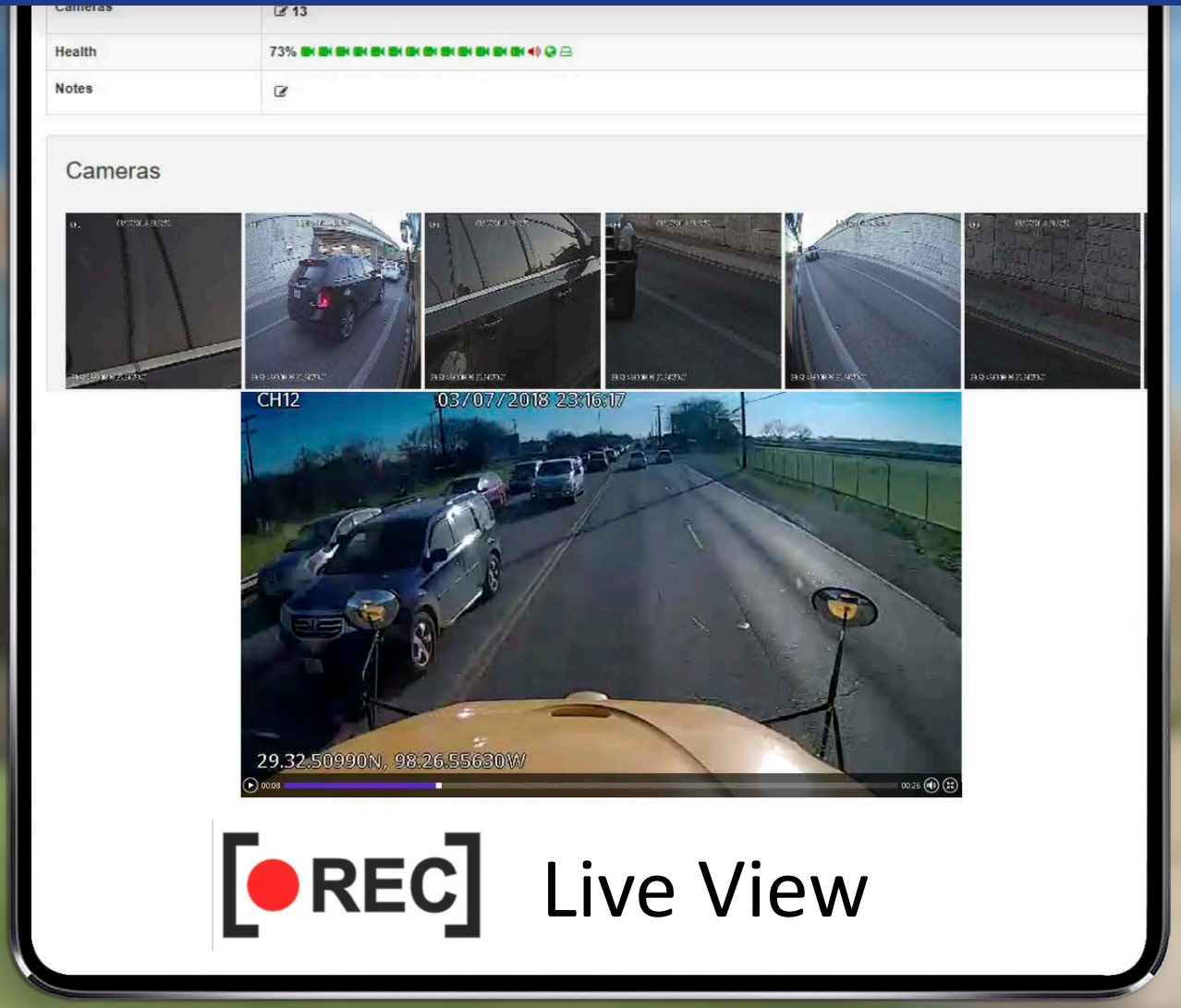
The Best Hardware Demands the Best Software and Bundled Services to Support it.

Partner Portal

Live View Streaming

Our exclusive capability allows school officials to remotely access live audio & video feeds from the school bus when incidents occur.

SAFETY FEATURE



SAFEGUARD YOUR ENTIRE FLEET AT NO COST

$0

INTEGRATED SAFETY TECHNOLOGY SOLUTIONS

Giving Municipalities the Freedom to Develop their own Programs

- BusPatrol's complies with all provincial regulations
  - Developing processing centres to comply with regs and guidelines
- **Oxford County can choose from three models to process stop-arm violations**
  - including joining BusPatrol's existing Peel processing centre

Provincial Guidelines

With this new program, municipalities will continue to have the choice as to whether they would like to set up a school bus stop arm camera program in their municipality. Some examples of other evidentiary requirements include:

- State that the system used to take the photograph was an automated school bus stop arm camera system as per the regulation;
- Set out the manufacturer's name and the model number of the automated school bus stop arm camera system used to take the photograph; and
- State the name of the municipality in which the school bus was located when the photograph was taken.

For a full list of evidentiary requirements, please consult the HTA and its relevant school bus stop arm camera regulations, along with the Part 1 *Provincial Offences Act* forms.

General Operating Considerations

Privacy

Municipalities should comply with existing privacy rules in the *Municipal Freedom of Information and Protection of Privacy Act* for storing and transferring sensitive information. MTO recommends that municipalities undertake a privacy assessment before launching a school bus stop arm camera program.

Procurement

The camera technology chosen will need to be able to capture all elements of the offence – such as the stop arm being actuated while the bus is passed by a motor vehicle that has a clearly visible number plate, etc. – and comply with all requirements set out in the future school bus stop arm camera regulation. Video at a minimum of 10fps, or an equivalent for a series of photographs that are taken in very quick succession, is a requirement. Please consult the HTA and its relevant school bus stop arm camera regulations, along with the Part 1 *Provincial Offences Act* forms, prior to setting up your school bus stop arm camera program.

Penalties

Sections 175 (19) and 175 (20) of the HTA set out the penalties for the owner-based offences for passing/overtaking a school bus. Under a school bus stop arm camera program, the penalties for these owner liability offences remain unchanged. The set fine for these offence(s) is $400 with a maximum penalty of $2,000.

Also, being that these are owner-based offences, demerit points and licence suspensions are not imposed upon conviction. Those drivers convicted of a school bus passing offence may be subject to licence plate denial if they default on the fines.

Signage

Signage will be uniform across the province, signage requirements will be outlined as part of the plate registrant data access agreement.

Peel Processing Centre

STOPR
STUDENT TRANSPORTATION OF PEEL REGION

- Deployed using:
  - City infrastructure
  - City employees
  - Regional authorities
  - Centralized provincial offences officers
- Who can join and what are the payment obligations?
  - Any municipality can join Peel's processing centre for seamless deployment of a BusPatrol safety program
  - Payment obligations are limited to and paid exclusively from stop-arm enforcement revenues including the required provincial offences officers.

BENEFICIAL TO MUNICIPALITIES WITH LIMITED FLEET SIZE (COSTS VS. TICKET REVENUE)

STOPR
STUDENT TRANSPORTATION OF PEEL REGION

1. JOIN PEEL PROCESSING CENTRE

Streamlined and Seamless Enforcement

- ✓ Centralized management and implementation of processing centre including required provincial offences officers
- – MOU and negotiations required with Peel on fine revenue distribution

2. DEVELOP REGIONAL PROCESSING CENTRE

- ✓ Existing policies already in place for fine revenue sharing and distribution
- – Time required to coordinate with municipalities, region and BusPatrol to implement the regional processing centre

3. DEVELOP OXFORD COUNTY PROCESSING CENTRE

- ✓ Increased independence from region and other processing centres
- – Limited revenues vs. costs for provincial offenses officers
- – Time and resources required to coordinate BusPatrol to implement
- – Coordination required with MTO to implement local processing centre

TOWN OF MATTAWA

98% OF THE VIOLATORS WHO GET A TICKET VIA THE STOP-ARM CAMERA PROGRAM DON’T ILLEGALLY PASS A SCHOOL BUS A SECOND TIME.

ONCE THEY KNOW THE LAW IS BEING ENFORCED, THEY STOP.

BUSPATROL

Thank You!

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BUSPATROL.COM

FOLLOW OUR MISSION: