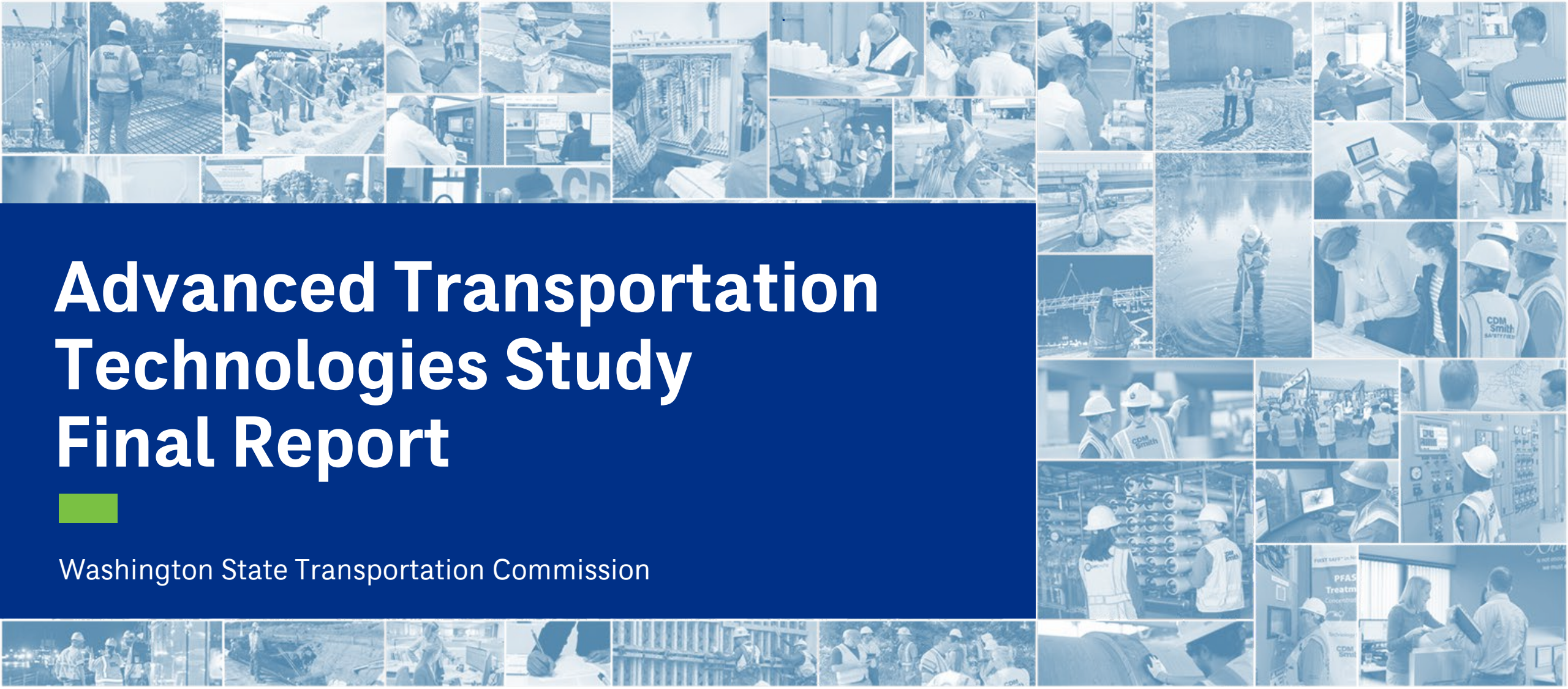


Advanced Transportation Technologies Study Final Report

Washington State Transportation Commission

Evaluation Team

May 15, 2024

Agenda

1. Requirements review
2. Review of solutions that were assessed
3. Conducted one-on-one interviews
4. Legislative and policy review
5. Findings and Recommendations

Study Purpose

The 2023-25 Transportation Budget (ESHB 1125) directed the Washington State Transportation Commission (WSTC) to carry out a study assessing approaches to increasing safety and compliance of HOV lanes, ETLs, tolled facilities, and construction zones, facilitated by advanced technologies.

- Key study tasks
  - Assess advanced technology approaches
  - Review current laws
  - Interim report presented January 10th, 2024
  - Produce a final report June 30th, 2024

Task 2 – Technology Assessment

Guiding Requirements & Principles

Technical and Functional

- Embedded power
- Embedded communications
- 95% image capture accuracy
- Speed detection
- Limited footprint
- HOV/VOD capability
- Construction zone capability

Legislative and Policy

- Allowable uses of revenue
- Requirements for future systems

Vendor Solution Types

Software-centric (App)

Hybrid

+

Hardware-centric (Light)

Hardware-centric (Heavy)

HOV Solution Types

- HOV systems are typically systems that are separate from ALPR systems and require additional hardware.

App-based

Camera-based

Combination

+

Evaluation Process

- Vendors Assessed:
  - GoCarma
  - Blissway
  - D2 Traffic
  - Inex
  - TransCore
  - Kapsch
  - GeoToll
  - P3Mobility
  - CerebrumX
  - Verra Mobility
  - Conduent
  - Indra
  - A-to-Be
  - eMovis
  - ETCC
  - RideFlag
  - Neology
  - Sice

- Study Goals
  - Ensure vendor has a workable solution
  - Ensure vendor meets State legislative requirements
- Study Data Sources
  - Website data
  - Personal experience
  - Questionnaire
  - One-on-one interviews
- Study Methodology
  - Choose potential vendor candidates
  - Gather vendor data
  - Cross reference vendor data with WSTC requirements
  - Vendors eliminated for not meeting WSTC requirements
- Update for Final Report
  - Additional vendors came forward to CDM Smith with new product information since the Interim Report was presented
  - These vendors now have products that would meet WSTC's goals

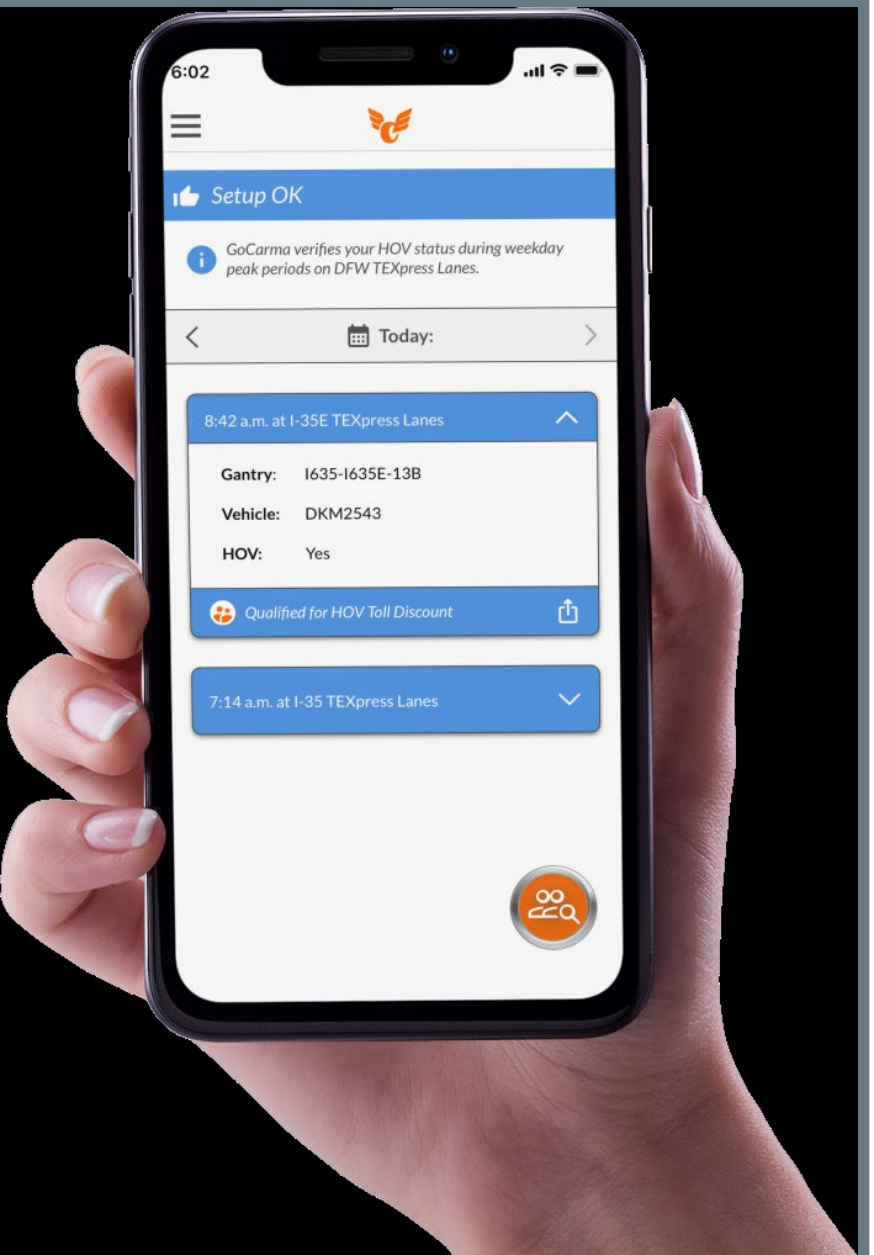
One-on-one Interviews

- Blissway
  - Hybrid solution
- D2 Traffic Technologies
  - Hardware-centric (light) solution
- Carma Technology
  - Hybrid solution
- Inex Technology
  - Hardware-centric (light) solution

Blissway

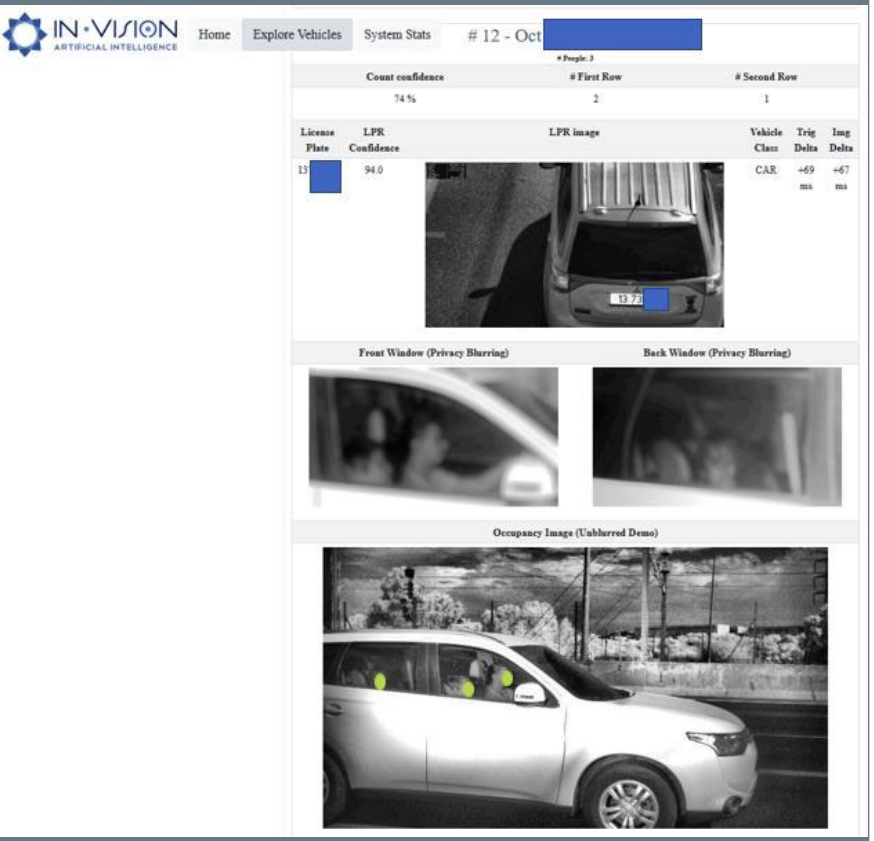
- Self-contained, app-based system combined with small footprint camera solution
  - Embedded power and communications
- Camera and app used for vehicle speed and direction
- Both cameras and app used for occupancy detection and enforcement
- In-house back-office system

Carma Technology



- Self-contained, app-based system combined with small footprint camera solution
- App used for vehicle speed, direction, violation enforcement, occupancy verification and enforcement
- License plate cameras used for occupancy verification and enforcement
- In-app incentives to detour away from work zones
- In-house back-office system

D2 Traffic / InVision



- Small footprint camera-based system
- Fully automated high accuracy occupancy counts
- Sidefire footprint with no gantry equipment
- Single or dual lane support
- Multi-level image encryption with blurring
- HOV uses LiDAR, infrared illuminators & cameras
  - LiDAR detects vehicles, triggers camera to take pictures, infrared illuminators aid in penetration through tinted windows.

Inex Technologies

- Small footprint camera-based system
- Cameras used for vehicle speed and direction
- Camera-based occupancy detection and enforcement currently in testing and demos
  - Demos currently occurring at eight locations
  - Testing complete around June 2024

Comparison of Features and Capabilities

Technology Attributes and Capabilities	GoCarma	Blissway	D2 Traffic	Inex
Embedded Communications	✓	✓	✓	✓
Embedded Power	✓	✓	✓	✓
Limited Footprint	✓	✓	✓	✓
License Plate Reading Accuracy >95%	✓	✓	✓	✓
High Occupancy Vehicle Detection	✓	✓	✓	✓
Construction and Incident Response Zone Speed Reduction and Safety	✓	✓	✓	
Speed Detection	✓	✓		✓
Crash Detection		✓	✓	
Wrong-Way Detection	✓	✓	✓	✓
Emergency Service Assistance		✓	✓	

Task 3 – Legislative and Policy Review

Task 3

Background

- **The legislative proviso requires an assessment of two primary issues:**

1. Can funds generated from advanced technology systems be used to pay for the system's capital or operating costs?
2. Statutory and/or regulatory changes that may be needed to implement a future technology-based traffic safety and compliance program

1. Can funds generated from ATS be used to pay for the system?

Answer: YES.

From penalties, fines, and fees (PFF): if the Legislature specifically designates PFF to be used to pay for the system (capital and operating).
From toll collections and violations: under current law, revenue can already be used to pay for toll system capital and operating costs.

Precedents:

- **Washington**: revenue from automated traffic safety cameras can be used to fund capital (equipment) and operations (service fees and processing). *Examples*: work zones, school zones, red light cameras. *Compensation to technology vendors based on number of infractions is prohibited*.
- **Other states** (ex. Colorado): In Colorado's ATS pilot project, compensation is a combination of monthly service payments to the vendor, plus 50% of all revenue from paid infractions.

***NEW:** *ESHB 2384, effective starting June 6, 2024, allows local governments to retain 100% of proceeds in excess of the ATS camera program's operating costs so long as the funds are used for traffic safety improvements. After three years, if the cameras are not moved to a new location, 25% of proceeds from the cameras must be remitted to the State's traffic safety account.*

1. Can funds generated from ATS be used to pay for the system?

Answer: YES. (continued)...

Considerations:

- Most infractions include a mandatory fee (totaling $49 per infraction) that cannot be waived, reduced, or suspended by courts. Revenue from the mandatory fee is distributed to several different accounts and purposes, including funding DOL's IT system linkage to the court system.
- There are no instances in Washington where vendors or operators of ATS systems receive compensation based on the number of traffic infractions issued. The original "red light camera" programs piloted in Washington two decades ago allowed this. Based on strong public opposition, the Legislature amended the law to specifically prohibit this practice.

***NEW:** *ESHB 2384, effective starting June 6, 2024, allows infractions to be reduced by 50% for people who receive state assistance and request a reduced penalty.*

2. What statutory and/or regulatory changes might be needed to implement a future technology-based traffic safety and compliance program?

Answer: the following provisions should be included in RCW or WAC to allow for advanced technology systems to be used:

- **Clear definition** of what constitutes an "Advanced Technology System"
- **Authorized uses** of ATS :
  - Detection of a vehicle's location (e.g., in a specific lane of travel)
  - Identification of the subject vehicle (e.g., license plate, transponder or other)
  - Issuance of a Notice of Infraction
  - If used for tolling, charging the applicable toll rate
- **Prohibited uses** of ATS, such as:
  - Non-traffic infraction purposes (e.g., surveillance or investigation unrelated to the traffic infraction)
  - Images capable of identifying personal characteristics (e.g., age, gender, race, etc.)

2. What statutory and/or regulatory changes might be needed to implement a future technology-based traffic safety and compliance program?

Answer, continued…

- **Public notice:** signage visible to the public notifying them of use of ATS within the corridor/zone
- **Legal standards**: ATS data creates a rebuttable presumption of guilt; acceptable forms of evidence to rebut presumption of guilt (e.g., proof of vehicle sale)
- **Exceptions and/or exemptions**: any types of vehicles, drivers, or circumstances (e.g., special permits)
- **Public disclosure**: if ATS data is exempt from public disclosure; other restrictions on use of data and requirements for data destruction.
- **Account distributions**: which funds and accounts receive a distribution of revenue from penalties, fines, and fees
- **Permissible uses of funds**: any restrictions on expenditure of funds, and priority for disbursement among multiple accounts

Findings and Recommendations

Findings

Alternative Technology Exists

- **There are a variety of roadside technologies and numerous vendors that can support the objectives of increasing safety and compliance of HOV lanes, ETLs, tolled facilities, and construction zones. These technologies include:**
    1. HOV detection and verification
    2. ETL entry and exit detection
    3. License plate image capture
    4. Speed detection

- **Further, these technologies can provide these outcomes with the following desired capabilities:**
    1. Small form factor – limited physical footprint, no over-roadway
    2. Operating under its own power
    3. Communicating with back-office systems

Recommendation

Conduct a Pilot

- **The study revealed four vendors who can meet desired objectives and capabilities. Evaluate feasibility by engaging one or more vendors in a pilot that considers the following:**
    1. Potential impacts on current highway operations
    2. Public acceptance
    3. Ease of use
    4. Accuracy
- **Six months to fully assess technology performance, cost & operational impacts, privacy implications, etc.**
- **Obtain feedback from actual drivers**
- **Conduct a robust public education program that includes advance notice of the pilot, its purpose and how data will be collected and used (as well as not used)**

Update: a couple additional vendors came forward after the study period with information illustrating that they too may be able to meet desired objectives.

Pilot Parameters

Evaluation Criteria

- **HOV detection and verification paired with ETL entry and exit detection**
- **Ability to uniquely identify vehicles accurately at various times of day and under varying traffic and weather conditions**
- **Ability to support revenue collection**
- **Potential ability to support citation issuance in the future**
- **Ability to identify speed**
- **Ability for the technology to operate under its own power source**
- **Ability to transfer data consistently and accurately to WSDOT BOS**

Final Report

- Final Report
  - Finalize and deliver on June 28, 2024


CAT
CDM Smith

Q & A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SAFETY FIRST
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PFAS Water Treatment Pilot