Permanent Freight Data Collection Infrastructure and Archive System

TransPORT
April 10, 2013

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METRO

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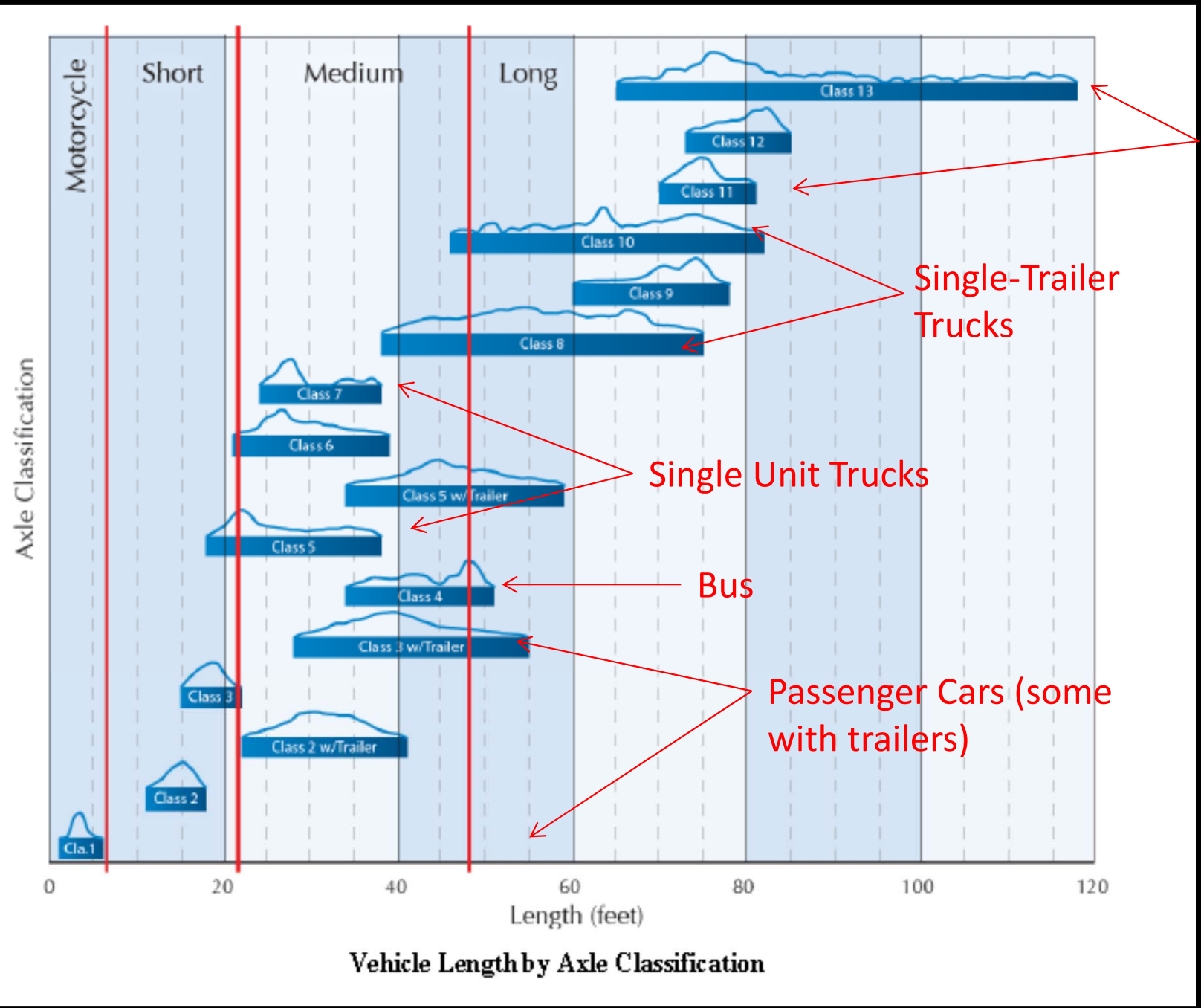
Objective

- Develop system for permanent truck counts for the region's ITS monitoring system
  - Integrate with PORTAL
  - 20-second intervals, 24 hours per day, 365 days per year
  - Explore arterial applications

Revised Work Plan

- Task 0. Form project technical advisory committee (TAC)
- Task 1. Review state of the practice
- Task 2. Identify test locations for sensor validation and deployment
- Task 3. Develop truck-count sensors
- Task 4. Calibrate to ground truth observations, deploy sensors at arterial locations and evaluate single-loop length-based classification accuracy
- ~~Task 5. Integrate test truck-count sensors with the ITS network and ODOT ATMS~~
- Task 6. Identify remaining locations for deployment
- Task 7. Purchase and coordinate installation of truck-count sensors
- Task 8. Modify PORTAL and prepare visualization enhancements
- Task 9. Prepare documentation and manual



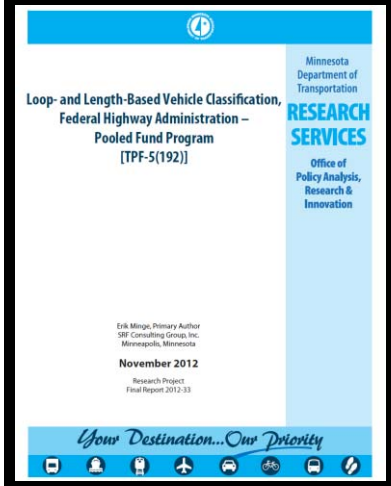
Multi-Trailer Trucks

Single-Trailer Trucks

Single Unit Trucks

Bus

Passenger Cars (some with trailers)



20 ft in urban

43 ft in urban

Source: Minge et al, FHWA Pooled Fund TPF-5(192), 2012.

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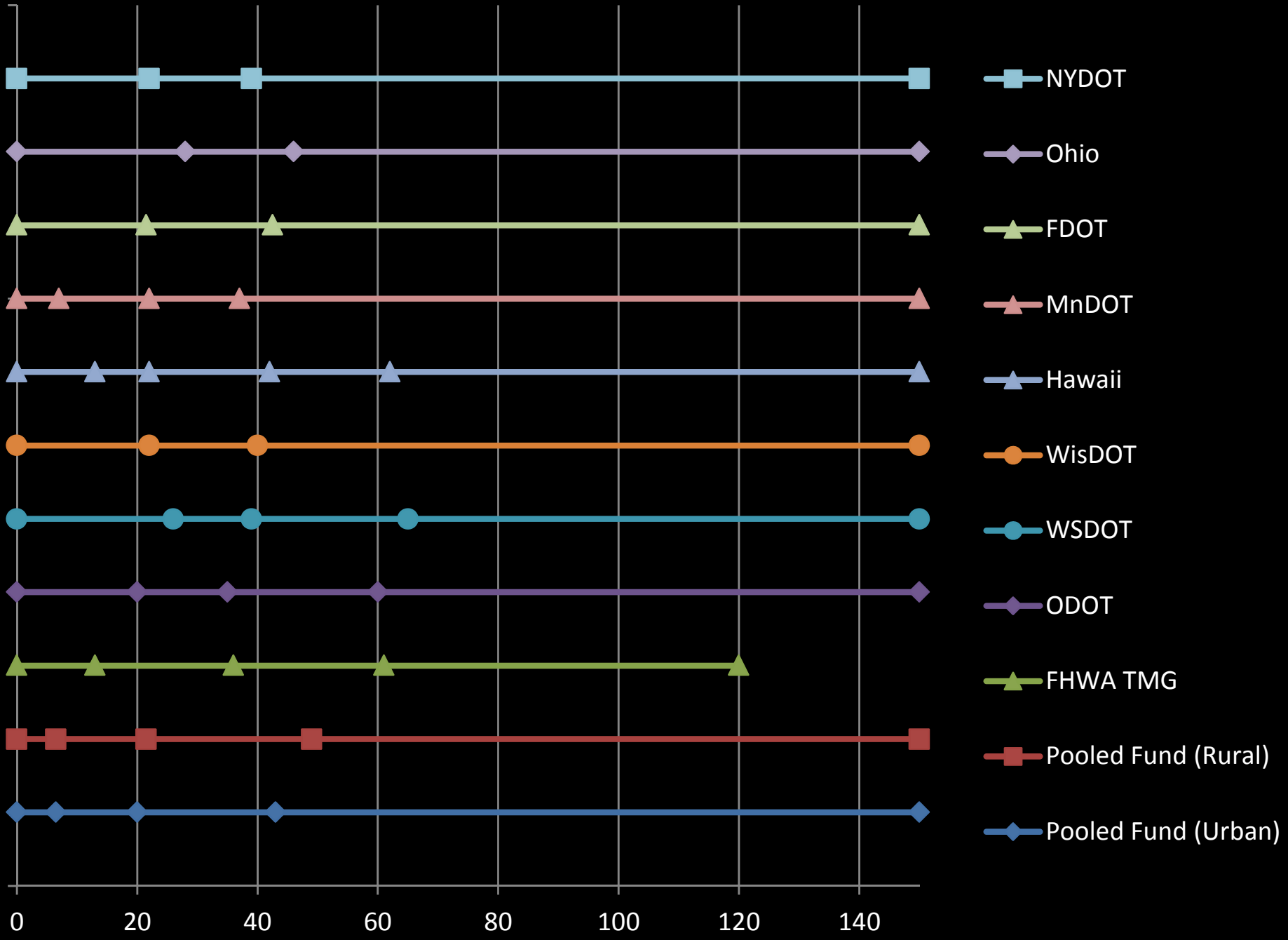

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Medium Class

1.3.4.3 LBVC3.set

2005-06 Dodge Ram pulling UHaul
29.8' Video-Measured Length

PU-2009 Ford F-150 w/Camper
44.4' Video-Measured Length

Truck – Ford E-350 Van (low)
22.9' Video-Measured Length

Truck – Freightliner Van (high)
32.4' Video-Measured Length

Source: Minge et al, FHWA Pooled Fund TPF-5(192), 2012.

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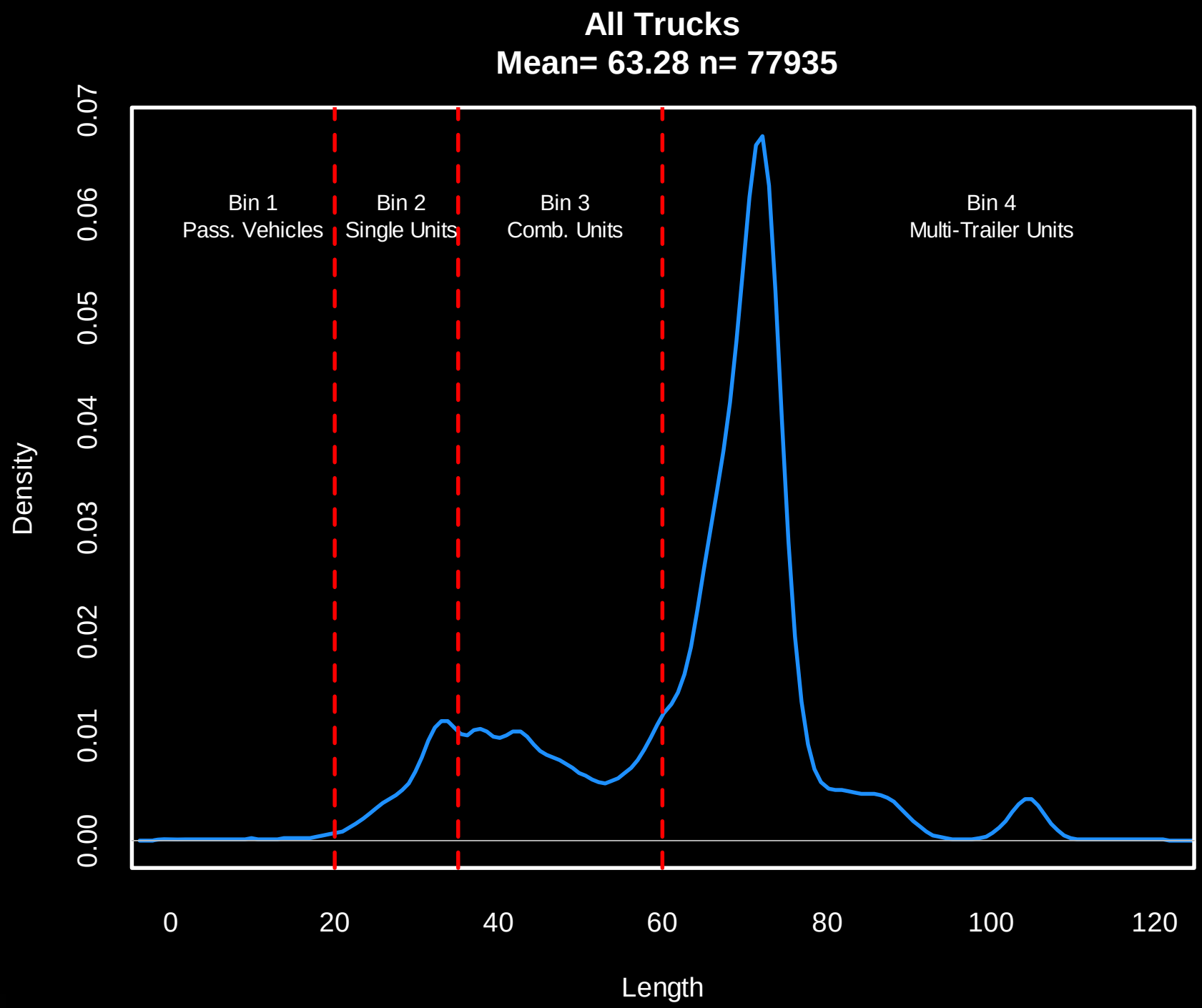

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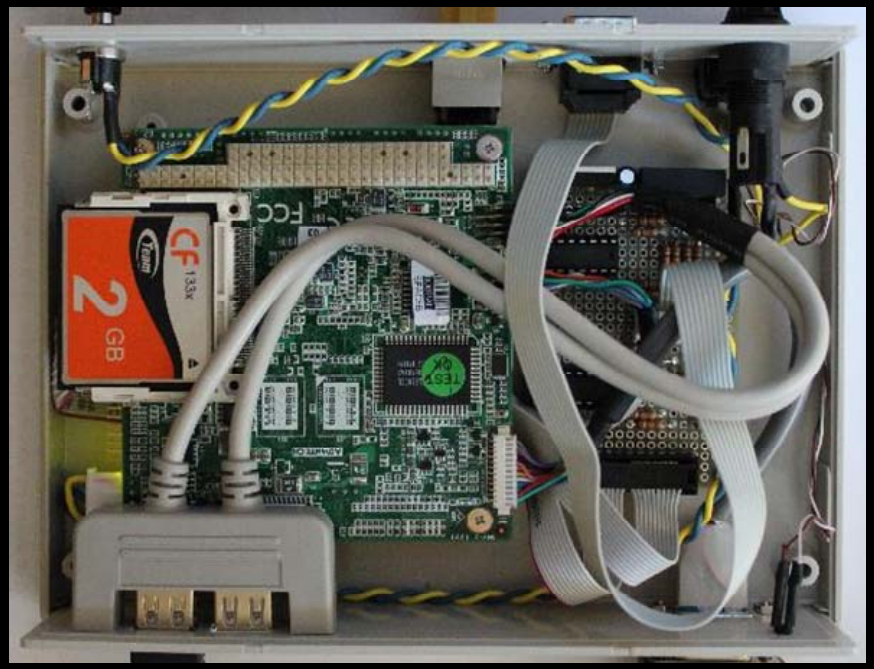
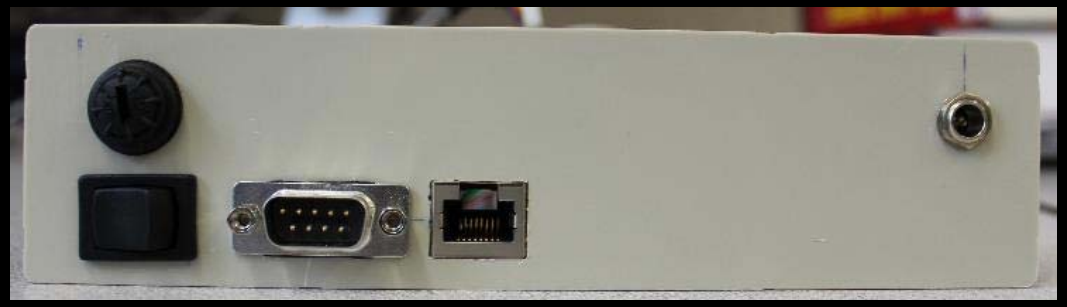
OSU TCU Devices





Rear Panel - Power jack, Ethernet port, serial data port, rocker switch and fuse holder

Front Panel - Power LED, VGA port and USB ports

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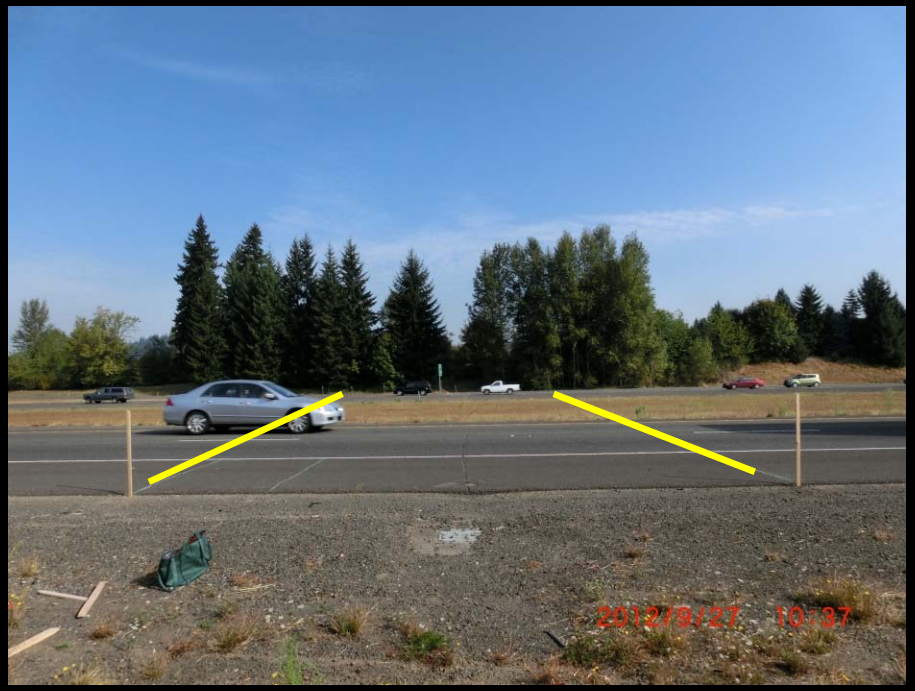
Validation I-205 Stafford NB



I-205 NB Stafford

SE 82nd Ave / Fremont

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Validation – I-205 Stafford NB

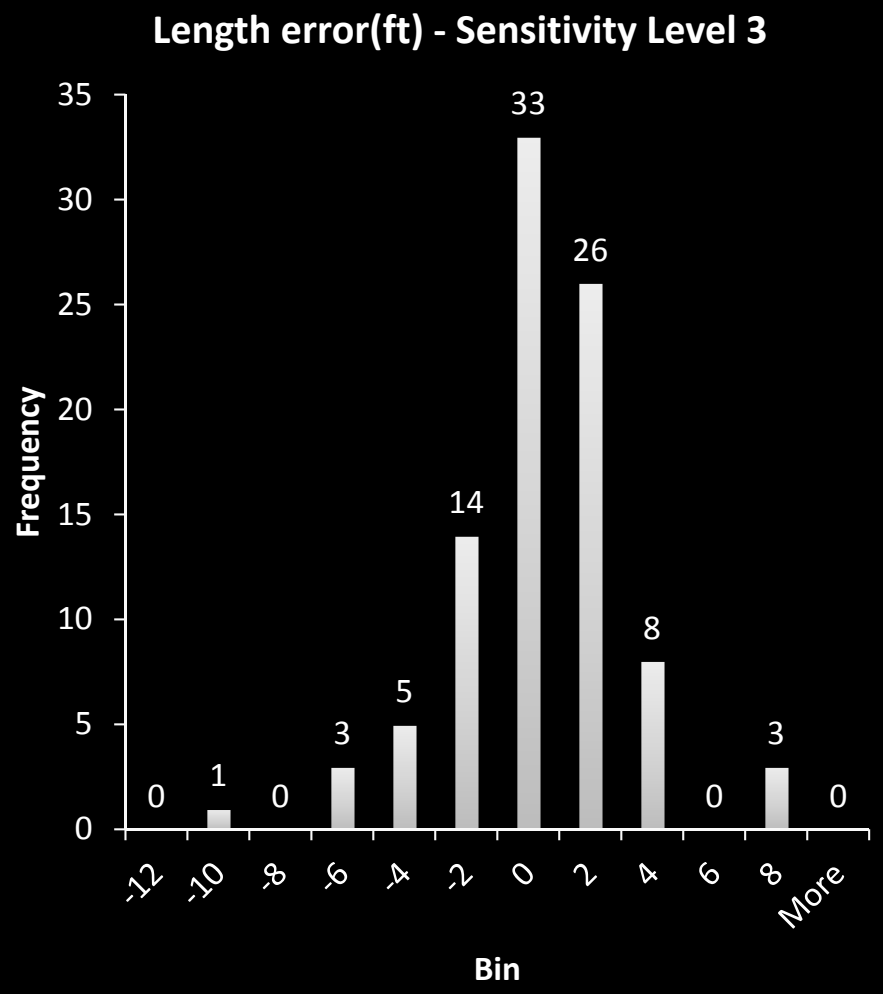
Length errors by sensitivity level

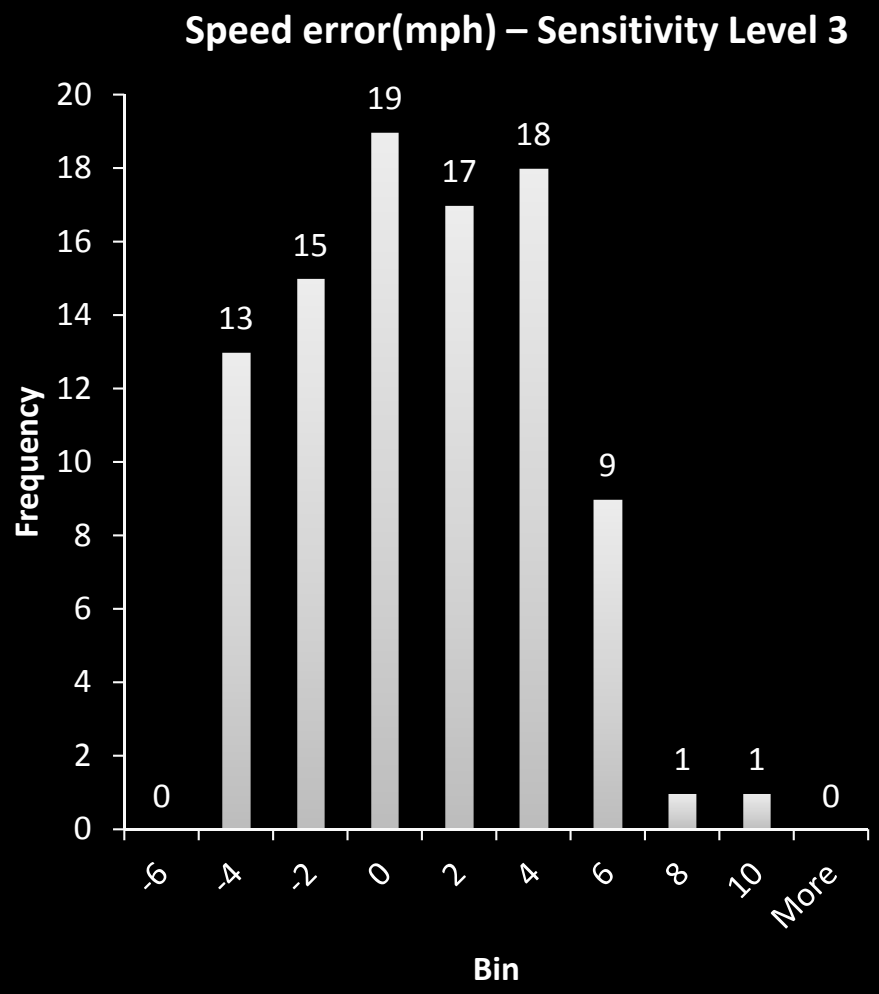
Sensitivity Level	Number of Vehicles in Video	Number of Vehicles Analyzed	Avg. Length Difference (ft.)
3	517	93	-0.69
4	513	30	-0.74
5	484	91	5.22

Speed errors by sensitivity level

Sensitivity Level	Number of Vehicles in Video	Number of Vehicles Analyzed	Avg. Speed Error (mph)
3	517	93	-0.038
4	513	30	-1.164
5	484	91	-2.41

Validation I-205 Stafford NB





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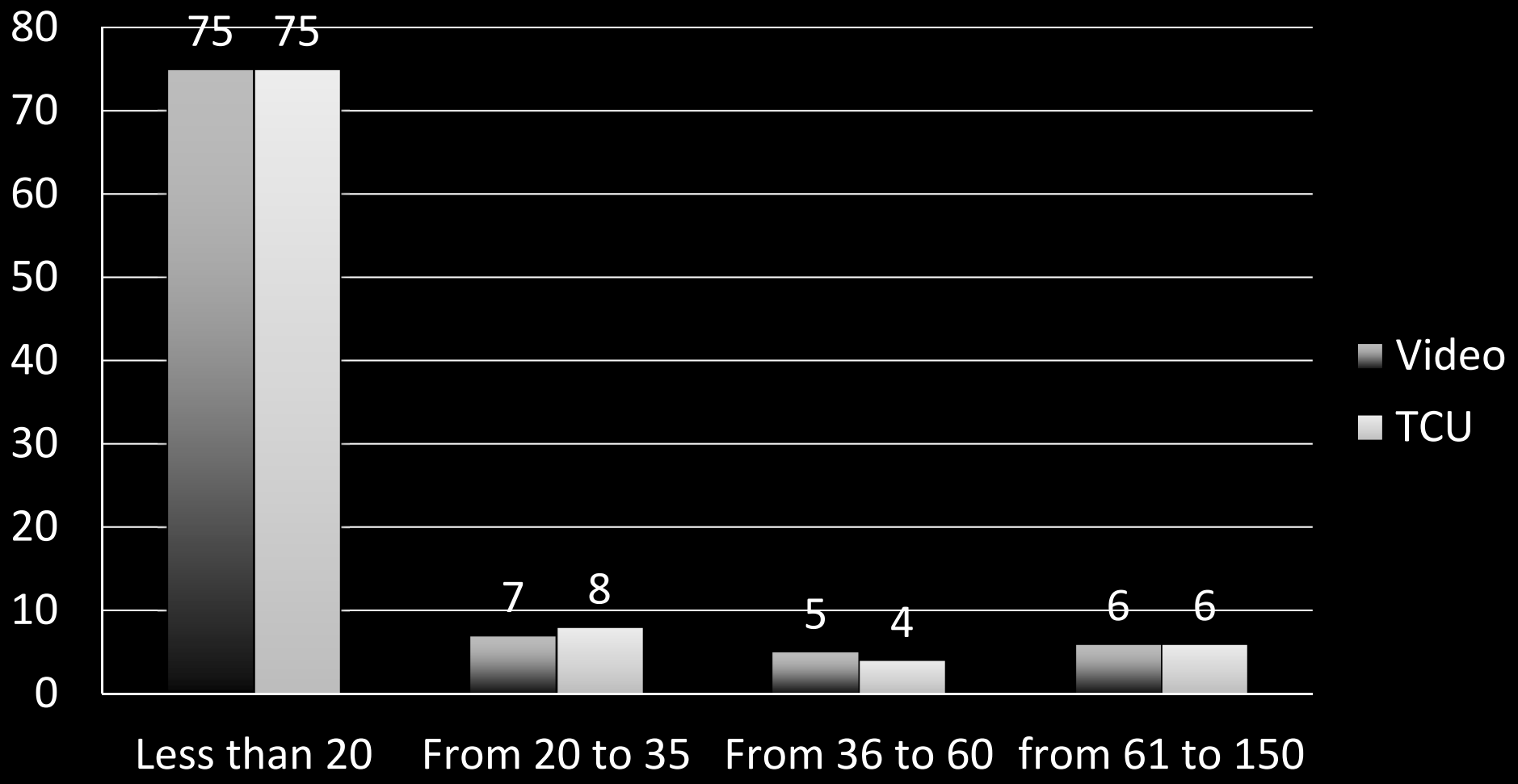
Binned comparison - Sensitivity 3



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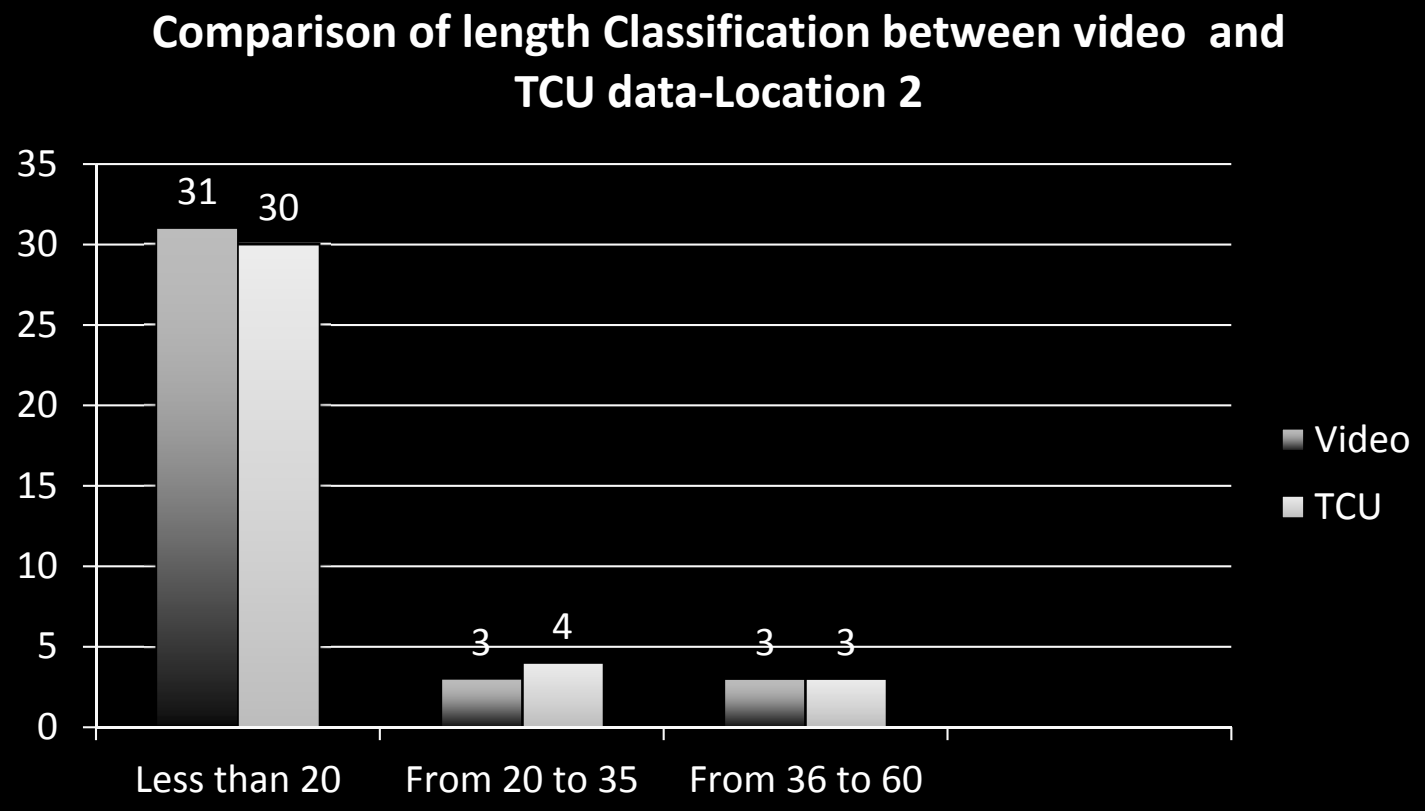
Validation SE 82nd

Number of Vehicles in Video	Number of Vehicles Analyzed	Avg. Length Difference (ft.)	Avg. Speed Error (mph)
885	37	2.94	3.28



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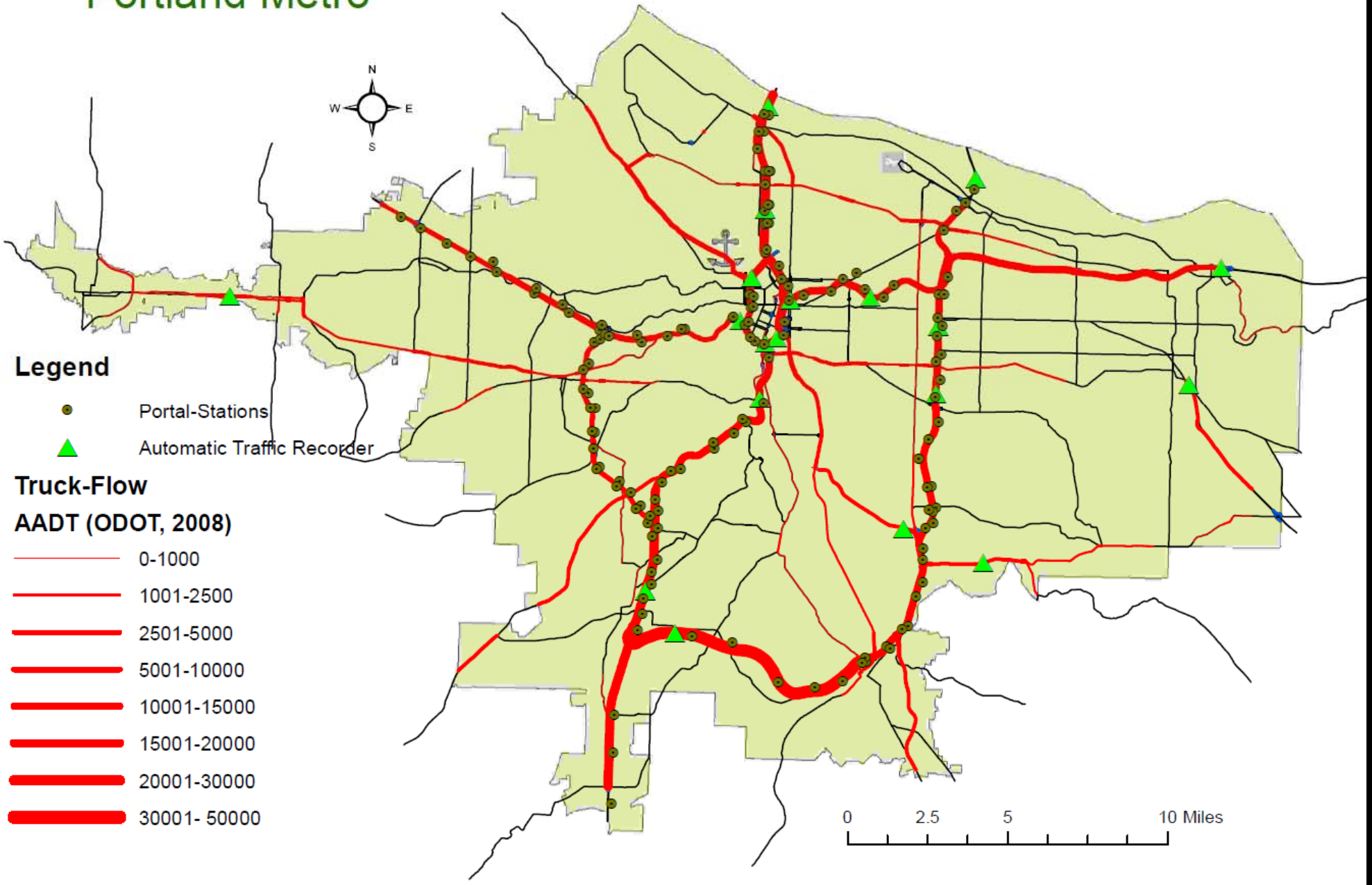
Next Steps

- Select and install additional arterial locations if can identify willing jurisdictions
- Finish validation of the arterial lengths
- Prepare visualizations of using existing data
- Develop/confirm factors to remove non-freight vehicles from medium classification
- Validate new ODOT ramp meter length bins
- Integrate with PORTAL

TRAFFIC FLOW MAP
Portland Metro



Questions?

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