Research Utilizing the SHRP2 Safety Data to Support Highway Safety - The Development of New Insights into Driver Behavior to Improve High Visibility Highway Safety Enforcement (HVE) Programs

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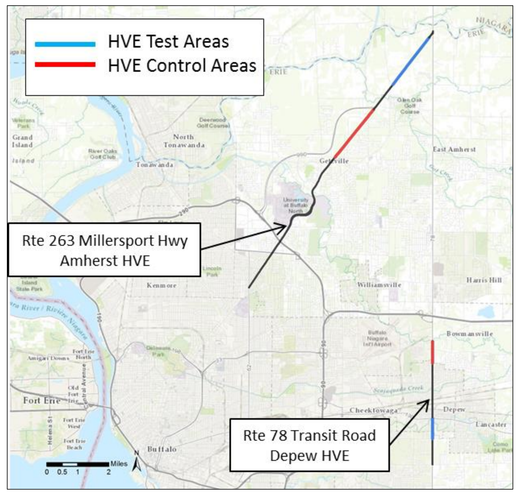
Goals:

- Improve High Visibility Enforcement (HVE) programs to reduce speeding and aggressive driving
- Demonstrate, *in this Phase 1 effort*, the availability and applicability of SHRP2 NDS data to explore factors affecting HVE effectiveness

Objectives:

- Identify HVE aggressive driving programs conducted in Erie County, NY during the SHRP2 data collection program
- Define quantitative aggressive driving observables and metrics consistent with SHRP2 NDS data
- Acquire data and perform statistical analyses to identify significant variables affecting the success of the HVE programs

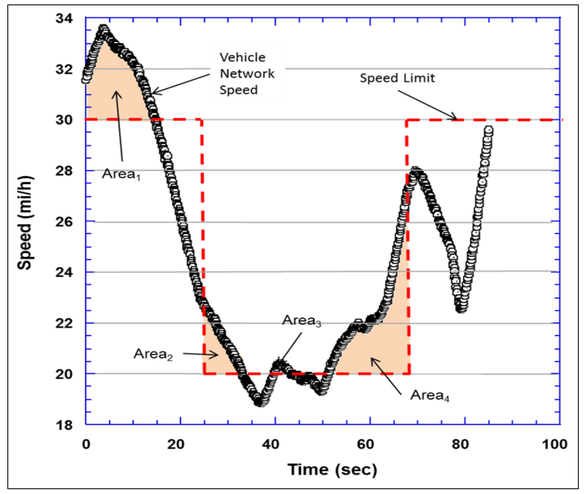


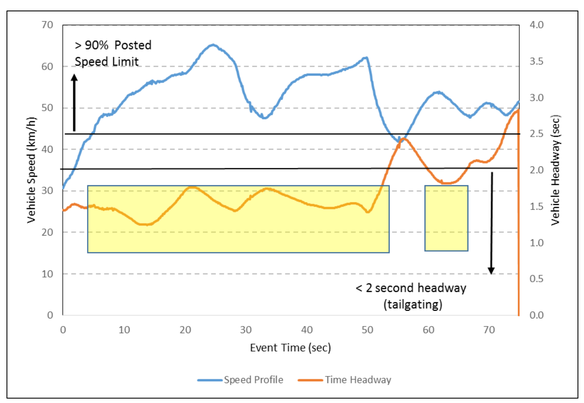
Background:

- HVE programs are one possible approach to improve roadway safety
- Shown to be effective in:
  - Seat Belt use
  - Distracted Driving
  - Pedestrian Right of Way
- Results of HVE long term effectiveness less clear
- Crash data or tickets issued before/after frequently used for evaluation
- Examine driver behavior through enforcement zones before, during, and after HVE

Methods:

- Focused on 5 aggressive driving behaviors:
  - Speeding
  - Tailgating
  - Failure to obey traffic control device
  - Failure to yield right-of-way
  - Failure to signal lane change
- Defined speed and tailgating metrics capturing magnitude and duration





- Random parameters linear regression models were estimated for speeding and tailgating
- Random parameters binary logit models were estimated for 'other' aggressive driving types
- All models were estimated through the use of random effects to account for panel effects

Results:

Speeding behavior affected by:

- Vehicle type and age
  (sedans/compact; newer vehicles = less speeding)
- Driver's age
  (Younger drivers = more speeding)
- Time of day
  (Increased speeding at dawn or dusk)

Tailgating behavior affected by:

- Age of vehicle
  (Older vehicles = less tailgating)
- Driver Gender and Age
  (Older female drivers = more tailgating)

'Other' aggressive driving behavior affected by:

- Age of vehicle (newer vehicles = more aggressive driving behavior incidents)

HVE programs analyzed resulted in reduced speeding and other types of aggressive driving behavior

Tailgating results were not statistically significant

Conclusions:

- Sufficient trips before, during, and after the HVE exist to support analyses
- Methodology successfully established to identify aggressive driving behavior observables
- Unique metrics defined for identifying the magnitude and duration speeding and tailgating behaviors
- Statistical analysis methods support the evaluation of HVE effectiveness

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