



RESEARCH NEED STATEMENT

Call for Projects 2015

Project Research Title: High Occupancy Vehicle (HOV) Occupancy Detection System Testing

TDOT Sponsor Director: Phillip B. Freeze

List TDOT Research Team Lead: Jason Oldham

List TDOT Research Team Members: Said El Said, Frank Horne, Michelle Powell, Casey Langford

1. Define the problem or research requested. What is the goal/objective of the research?

While the overall person-moving capacity of the HOV lane may be slightly higher than the general purpose lanes, the travel-time incentives for legitimate users have been severely diminished by violators. TDOT is researching occupancy detection technologies to assist in monitoring Tennessee's HOV system and evaluating the performance of strategies to address high violation rates. This research will determine the accuracy of a field tested occupancy detection system.

2. Is this research a continuation of a past or present project?

No Yes

If yes, provide current research project title, RES # and reason for the project continuation.

3. Describe anticipated benefits/expected deliverables.

The expected deliverable of this research will be a report that provides a comprehensive evaluation of a field tested occupancy detection system.

4. What is your timeline for completion of the research?

6 months

5. List the anticipated tasks for this research.

- The field collection of vehicle occupancy counts
- The analysis of recorded images to determine vehicle occupancy rates
- The evaluation of occupancy detection technologies
- Coordination with TDOT project team

6. Describe how the project results will be implemented?

The results of this study will be used to determine if occupancy detection technologies can provide an automated solution for HOV system monitoring.

7. Will this study produce software, web page or other technology that will involve the Information Technology Division?

No Yes, please describe:

8. Will training be provided to employees as a result of this research?

No Yes, please describe:

9. Will this research involve equipment or materials purchase?

No Yes, please describe:

10. Research must support the Long Range Transportation Plan Policy Recommendations **and/or** TDOT Operational Goals and/or Strategic Initiative. (*See attachments for additional information*)

Please indicate which categories the research will support:

Transportation Long Range Plan Policy Recommendations

(A) Accessibility

(B) Safety, Security, and Transportation Resilience

(C) Coordination, Cooperation, and Consultation

(D) Demographic and Employment Changes and Trends

(E) Freight Logistics and Planning

(F) Financial

(G) Mobility

(H) Travel Trends and System Performance

TDOT Operational Goals and/or Strategic Initiative

(A) Deliver transportation projects on schedule and within budget

(B) Maintain the state transportation system to protect the long term investment in our infrastructure assets

(C) Operate and manage Tennessee's transportation system to provide a high level of safety and service to our customers and workers

(D) Expanding mobility choices to maximize access

(E) Dramatically change the paradigm for delivery of transportation products and service to improve the efficiency and effectiveness of Tennessee's transportation network

11. Please explain how the research supports the Long Range Transportation Plan Policy Recommendations **and/or** TDOT Operational Goals and/or Strategic Initiative selected above:

This research supports the TDOT Operational Goal of operating and managing Tennessee's transportation system. The goals of our HOV system include the following:

- Improving mobility by increasing the person-moving capacity of the roadway
- Improving roadway operation efficiency and reliability
- Promoting transit and ride-sharing (Transit programs are key to the success of a HOV system)
- Providing travel options to meet user needs, such as “time-sensitive” travel (Travel time reliability during congested travel periods).
- Improving air quality

The occupancy detection system being tested could support the fulfillment of these goals by providing a performance monitoring system for evaluating improvement strategies.

For additional information, please contact:

Stephanie Vincent

TDOT Research Program Administrator

Telephone: (615) 741-2203

Email: Stephanie.Vincent@tn.gov