

2019 Research Showcase

NHDOT's Response to AASHTO's SPaT Challenge – a V2i Connectivity Project

& STIC Annual Meeting

PROJECT TITLE

NHDOT's Response to AASHTO's SPaT Challenge – a V2i Connectivity Project

STUDY TIMELINE

January, 2018 – January, 2019

INVESTIGATORS

Nicholas Kirsch, Ph.D., Director of the Connectivity Research Center, UNH, PI

Curtis Thompson, P.E., Sebago Technics, Investigator

NHDOT CONTACTS

Ann Scholz, PE, Research Engineer, NHDOT

William Boulanger, Deputy Director of Community Services, City of Dover, NH

This fact sheet was prepared for the 2019 VTrans Research Showcase & STIC Annual Meeting held at the Dill Building in Berlin, VT, on September 11, 2019 from 8:30 am– 1:00 pm.

Fact sheets can be found for additional projects featured at the 2019 Symposium at

<http://vtrans.vermont.gov/planning/research/2019showcase>

Additional information about the VTrans Research Program can be found at

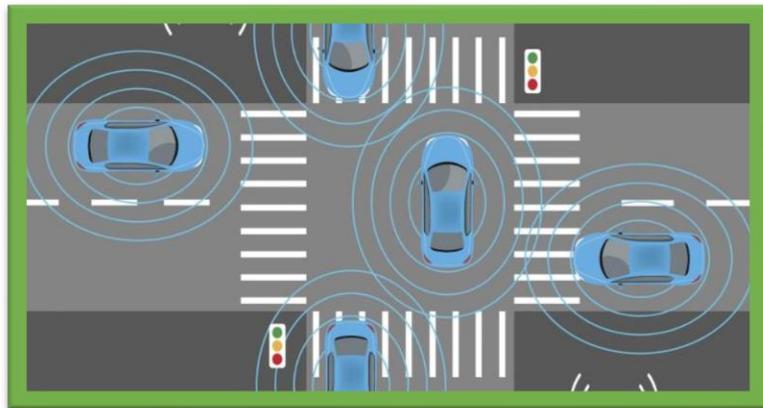
<http://vtrans.vermont.gov/planning/research>

Additional information about the VTrans STIC Program can be found at

<http://vtrans.vermont.gov/boards-councils/stic>

Introduction

Vehicle to Infrastructure (V2i) is a fundamental building block for “connected” or “automated” vehicles on our nation’s highways. AASHTO created the SPaT Challenge in 2017 to encourage infrastructure owners (mainly state DOT’s) to participate in a demonstration program whereby traffic signals would be outfitted with communication devices that would broadcast real time “Signal, Phasing, and Timing” information to an onboard unit in a vehicle as it approached the intersection. This is an important first step in establishing reliable infrastructure information for automated vehicles. NHDOT was the first in New England to accept this challenge and it was successfully demonstrated at three intersections in Dover, NH in 2018.



Methodology

A Research Team comprised of engineers from Sebago Technics and students/faculty working in The Connectivity Research Center at UNH completed the project in cooperation with industry representatives. A lab setting at UNH was used to work out the connectivity bugs among the various devices using DSRC and LTE communication paths prior to going into the field for the final deployment.

Next Steps

The project was completed in 2019 and the results submitted to AASHTO’s working group dealing with this topic. Subsequent discussions are now on-going to expand the field testing across the country as part of an eventual roll-out of AV’s in the marketplace.

Potential VTrans Benefits

VTrans conducted a research project in 2018 entitled, Quick Response: New England Connected Automated Vehicles. Implementing the goals of AASHTO’s SPaT Challenge is an initial step in “implementing” the recommendations from this earlier Report and gaining some real-world experience with V2i technology which would be worthwhile for VTrans and the state of Vermont.