VERMONT
AGENCY OF TRANSPORTATION

FACT SHEET

2018 Research Symposium

& STIC Annual Meeting

Chittenden County Advanced Traffic Monitoring System using Bluetooth Technology

INNOVATION TITLE
Chittenden County Advanced Traffic Monitoring System using Bluetooth Technology

STUDY TIMELINE
May 2016 – May 2022

INVESTIGATORS
Sai Sarepalli, P.E.,
Chittenden County Regional Planning Commission (CCRPC)

VTRANS CONTACTS
Robert T. White, ITS Manager
Derek L. Lyman, Traffic Signal Operations Engineer

MORE INFORMATION
Additional information about this project can be found at:

https://www.ccrpcvt.org/our-work/transportation/current-projects/its/advanced-traffic-monitoring-system/

This fact sheet was prepared for the 2018 VTrans Research and Innovation Symposium & STIC Annual Meeting held at the State House in Montpelier, VT, on **September 12, 2018** from **8:00 am– 1:00 pm**.

Fact sheets can be found for additional projects featured at the 2018 Symposium at
http://vtrans.vermont.gov/planning/research/2018symposium

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

In coordination with the Vermont Agency of Transportation (VTrans), the Chittenden County Regional Planning Commission (CCRPC) received federal funding to implement corridor level real-time traffic monitoring and management for five (5) congested corridors in Chittenden County using Bluetooth technology.

Methodology or Action Taken

The Bluetooth sensors detect and register Media Access Control (MAC) addresses of permanently installed or hand-held devices in vehicles, in an encrypted format which is virtually impossible to track. The system matches MAC addresses as they pass through different sensors and calculates travel times from the attached time stamps. The collected data is then processed through a series of algorithms and procedures, filtering inaccurate data, and finally feeding it into the back end of a web application.

The selected contractor (Gannett Fleming/GF) in collaboration with VTrans, FHWA and CCRPC completed a systems engineering analysis and designed, procured sensors and implemented a pilot corridor (Williston Road/US 2) using six (6) Bluetooth sensors, for testing and validation purposes. CCRPC and GF staff have been monitoring and troubleshooting data from the pilot project from June 2017 through winter of 2018. In the spring of 2018, GF finalized the design and procured Bluetooth sensors for the remaining 4 corridors (Exit 16/US 2/7 in Winooski; Exit 12/VT 2A; Exit 17; VT 15 from Winooski to Essex Town).
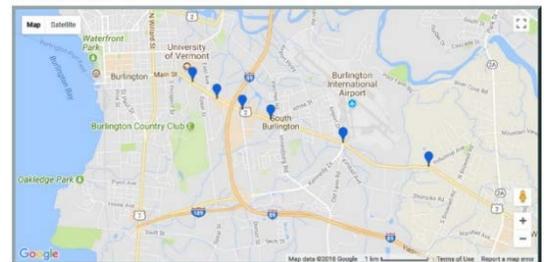
Next Steps

Bluetooth sensors will be installed along the remaining 4 identified corridors in Chittenden County. Travel time data will be reviewed and monitored and ultimately integrated with the VTrans Advanced Transportation Management System (ATMS) and Traveler Information System (TIS) for 511 through the State Transportation Operations Center (TOC).

Potential Impacts and VTrans Benefits

The implementation of real-time traffic monitoring for five of the most congested corridors in the county will assist VTrans, the CCRPC and municipalities to improve the efficiency, safety, mobility, and reliability of the transportation system. Real-time travel data will inform planning and design for safety and capacity improvements, including signal timing updates; assist with early incident detection and management; identify and respond to traffic signal malfunctions; provide delay and alternative route information to drivers through message boards and the 511 TIS; and use the information to develop safe and efficient work zone traffic plans.