



# Chittenden County Advanced Traffic Monitoring System using Bluetooth Technology



Sai Kumar Sarepalli, P.E.

Chittenden County Regional Planning Commission (CCRPC)

## Project Background

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

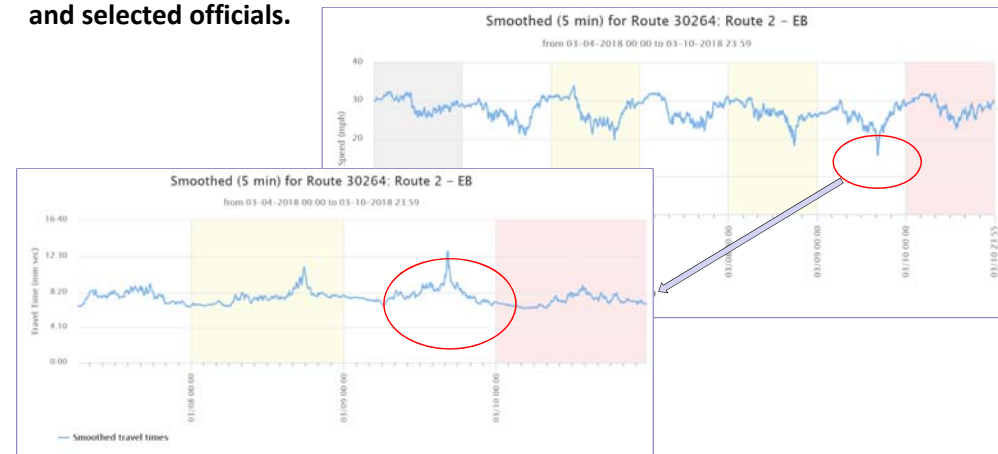
Corridor Number	Municipality	Route	AADT (Vehicles per day)	Commuter / Retail	High Crash Location (s)
1	South Burlington	I-89 Exit 14, US 2	40,500	C/R	Yes
2	Essex	VT 289, Susie Wilson Rd. & VT 15	21,000	C	Yes
3	Williston	I-89 Exit 12, US 2/VT 2A	26,700	C/R	Yes
4	Colchester	I-89 Exit 17	14,400	C	Yes
5	Colchester	I-89 Exit 16, US 2	22,700	C/R	Yes



## Data Analysis and Comparison

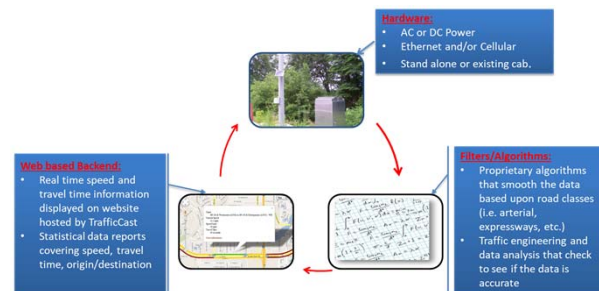
A web-based application will display real time and historical travel data on Google Maps using a user friendly interface.

User can develop customized reports such as Comparison Reports, Historical Reports and download data in various formats for presentations to the public and selected officials.



## Data Collection and Processing

- Bluetooth sensors detect and register Media Access Control (MAC) addresses of hand-held and permanently installed devices in an encrypted format.
- MAC addresses collected by units are not associated with a specific user
- Time stamps with MAC addresses are sent to the central processing center.
- System matches MAC addresses as they pass through different sensors and calculates travel times from the attached time stamps.
- Collected data is then processed through a series of algorithms and procedures, filtering inaccurate data, feeding it into the web-based application.



## Applications and Benefits

Real time and historical travel data can be used for several applications:

- Evaluate Arterial Operations
- Before and after implementation studies, such as Road Diet, Signal upgrades
- Work zone applications
- 511/Traveler Information Systems through VTTrans ATMS
- Planning and Travel demand modelling
- Traffic Incident Detection and Management

Benefits of real-time travel data include:

- Assist agencies and municipalities to improve transportation system efficiency, safety, mobility and reliability.
- Inform transportation planning and design, signal timing updates, early incident detection and management.
- Inform drivers of real time traffic conditions along corridors and manage drivers' expectations.