

## PROJECT SUMMARY

### Connected Corridor

#### Project Location:

TH-55 between downtown Minneapolis and I-494

#### Start – Finish Date:

August 2017 – August 2020

#### Project Status:

Complete

#### Project Partners:

WSP  
SRF Consulting

#### MnDOT Project Cost:

\$1,373,700

#### Projects with Similar Characteristics:

Centralized SPaT and MAP Data Sharing  
Smart Snelling

#### Project Description:

The Connected Corridor was a foundational Connected Vehicle (CV) project along TH-55 that included planning, design, deployment, and operation of CV technologies to create a better understanding of what is required for planning and preparing for emerging transportation technologies. This initiative showcased technologies to improve the safety and efficiency of the travelers on the roadway including:

- Software systems.
- Roadside infrastructure.
- On-board vehicle equipment.

#### Project Objective:

The objective of the Connected Corridor was to:

- Broadcast signal phasing and timing (SPaT) data from the traffic signal controllers to the connected vehicles.
- Test the impacts of snowplow signal priority (SPSP).
- Test the vehicle-pedestrian intersection conflict warning system.

A secondary objective of the project was to build the communications system infrastructure and data management systems required to support existing and future technologies while maintaining public-private partnerships to grow CV business.



Figure 1: Connected Corridor Location Map

#### Project Accomplishments:

- Establishment of security and networking protocols necessary for CV deployment.
- Development and deployment of infrastructure and systems which will be a foundation for future deployment activities statewide.
- Development of organizational capacity to support future CV deployments.
- Gaining an increased understanding of technology readiness.
- Demonstrating the value of investing in emerging technologies and emphasizing the need for flexibility and adaptability.



## Key Findings:

### Regulatory Uncertainty

The challenges with Federal Communications Commission (FCC) regulations surrounding licensing in the 5.9 GHz band continued to be an impediment for the growth of V2X technology solutions. This uncertainty threatened to slow the growth of technology penetration rates in Minnesota, and elsewhere.

### Workforce Development / Institutional Knowledge

Emerging technology such as V2X solutions was still new in the transportation industry. Pilot opportunities, such as the Connected Corridor, served as an opportunity to build the technical and institutional knowledge around the technology.

### Foundational Projects to Support Future Connectivity

While uncertainty around the FCC regulations around the 5.9 GHz wireless band was thought to suppress widescale adoption of Connected Vehicle / V2X solutions, some actions could be taken by agencies to support a V2X future while having day-one benefits to non-V2X operations. In this project, the traffic signal controllers were upgraded to accommodate V2X equipment; these controller upgrades also immediately benefited day-to-day traffic signal and arterial operations.

## Lessons Learned:

- Projects may need to pivot due to the ever-changing nature of the technology realm which can be seen twice in the Connected Corridor project. Scope revisions needed to be made to reduce the scope to focus on Snowplow Signal Priority (SPSP), which eventually stalled because of industry uncertainty, and to maneuver around signal controller development setbacks.
- Identifying and testing many use case scenarios allowed the project team to understand how the technology functions in many situations, which better prepares for future deployments.
- Elaborate stakeholder engagement allowed the team to determine the needs and prioritize the most pressing ones for the Connected Corridor.

## Potential Next Steps for MnDOT:

- Continue to utilize the infrastructure and software installed as part of this project to continue testing CV technology while the market expands.
- Develop a “foundational project” plan or roadmap, including a planned and measured (and possibly targeted) traffic signal controller update program and extensive fiber optic installation.
- Develop an internal workforce development / knowledge transfer program for MnDOT staff on emerging technologies such as V2X equipment installed and integrated along the Connected Corridor.