

THE U.S. 33 SMART MOBILITY CORRIDOR PROJECT EXECUTIVE SUMMARY

The ATCMTD Program awarded a grant to the Northwest 33 Innovation Corridor Council of Governments (NW 33 COG) in fiscal year 2016.

Project Goals

With this project, the NW 33 COG created the U.S. 33 Smart Mobility Corridor (SMC) Program and initiated one of the first deployments of connected vehicles (CV) technologies in Ohio. From 2018 through 2023, this project developed and evaluated a robust network of CV infrastructure in Union County, the City of Marysville, and the City of Dublin with support from the Ohio Department of Transportation and its initiative DriveOhio. The project map shows the 33-mile project area as a red line.

Through this project, the NW 33 COG measured how the SMC could serve future CV or other smart mobility tests and deployments.

The Fixing America's Surface Transportation Act (FAST) Act (Pub. L. No. 114-94) (2015) set goals for the ATCMTD Program. The NW 33 COG set the following goals:



Improved Mobility



Improved Safety

Figure 1. Map. Project map.



Source: Northwest 33 Innovation Corridor Council of Governments.

Program Deployments

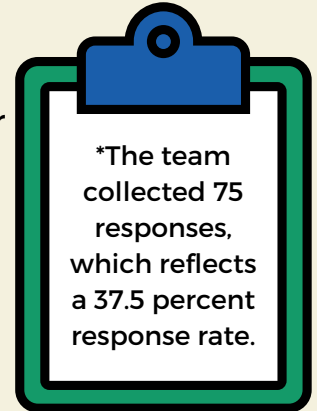
The U.S. 33 SMC Program deployed the following technologies:

- Two hundred onboard units (OBU) on multiple vehicle types from the cities of Marysville and Dublin and in Union County
- One hundred roadside units (RSU) through the project corridor
- Dynamic traffic signal phase and timing through the cities of Dublin and Marysville
- Pedestrian in crosswalk warning systems at high-traffic locations
- Five applications (apps): lane closure warning, curve speed warning (CSW), reduced speed zone warning, pedestrian conflict warning, and red-light violation warning
- Fiber communication to connect the Dublin Metro and Honda Motor Co.® Data Centers

Improved Safety From Recorded Events

The researchers evaluated safety improvements by measuring the number of recorded safety-related OBU app events, which represent near misses and warn the driver of an unsafe condition. Over 1 year, the team recorded 13,930 app notifications related to the project. Most of the recorded events were red-light violation warnings (58 percent) followed by CSWs (40 percent).

In a survey of 200* drivers, 41 percent of respondents reported safety enhancements through increased driver awareness (28 percent), fewer crashes (8 percent), and fewer near misses (5 percent). Nevertheless, respondents had a negative view of the technology, as most indicated it was unreliable. The survey results suggest that a lack of training was an underlying issue. The research team found drivers' satisfaction with the technology was correlated with the ease of learning to use that technology. The users who reported that the technology was easy to learn also reported higher-than-average satisfaction.



Accelerated Deployment



The researchers measured RSU uptime, the number of OBUs using the system, and the number of other deployments leveraging the SMC infrastructure. Over 3 months, the team monitored 65 RSUs, revealing an average uptime of 93 percent, with 72 percent of RSUs operating at a 99 percent uptime or better. Instances of lower uptimes suggest potential issues or areas for improving reliability.

For 5 project apps, the NW 33 COG team recorded 189 unique OBUs, 58 percent of which were third party, indicating significant activity in the SMC. In addition to OBUs deployed for this project, other entities installed 366 OBUs in third-party vehicles. Over 1 year, other entities tested 16 CV apps within the SMC environment.

A Test Bed for Deployments

The SMC Program unites industry, government, and academic institutions to expand the region's deployment of new technologies and contribute to the testing and development of technology standards. Overall, NW 33 COG identified at least 13 initiatives leveraging the smart infrastructure within the corridor, a CV test bed.

From this project, the NW 33 COG learned valuable lessons that have and will continue to shape the development of CV technology.



For NW 33 COG's final report, please go to: https://ops.fhwa.dot.gov/fastact/atcmttd/fy16awards/FY16_Marysville_Final_Report_FHWA-5.pdf.