The 33 Smart Mobility Corridor is home to more than 66 automotive companies.

April 2018
Approximate Locations. Map not drawn to scale.
Collaborative Group Formed to Explore Development Issues along US-33
Collaborative Group Prioritizes Fiber Connectivity along US-33

Fiber Strategy Consultant
OSU Mobility Concept
Smart Project Introduced
ODOT Commits up to $15 M for Fiber Construction
NW 33 COG Formed
USDOT Awards $5.9 M Grant

Fiber Installation Completed along US-33 (ODOT)
Ohio Announces $45 M for TRC Expansion
**PROJECT GOALS**

**Economic Development**
- Improve Congestion, Safety, and Employment Access
- Installation of Smart Mobility Infrastructure and Systems Management
- AV/CV Testing
  - Contained Testing at TRC
  - On-road Testing on US-33
  - Truck Platooning
  - Urban Testing
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- Research Similar Programs Across USA & World
- Form and Foster Partnerships to Advance Smart Mobility Projects
- Exchange Data and Best Practices with Partners
- Investment in New/ Emerging Technologies
- Smart Mobility Industry Grows up to +$2 Trillion Annually by 2025
- Expansion of TRC and Other Automotive Assets
- Attraction of Businesses to Area Business Parks

**Global Partnerships**
- Data
  - Data Collection and Commercialization
- Public Safety
  - Improve Congestion, Safety, and Employment Access
- Smart Infrastructure
  - Installation of Smart Mobility Infrastructure and Systems Management
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Nearly $100 MILLION has been pledged by public and private partners corridor.

Over $525 M of private automotive related investment has been made since 2015.

Another ~$125 M of private automotive related investment is planned in 2018-19.
Ohio’s 33 Smart Mobility Corridor Project
• 35-mile Smart Mobility Corridor
• 432 strand redundant fiber network
• 94 RSUs
  • 62 RSUs along US 33; 32 RSUs at various intersections
  • 1,200 OBUs
• Closed and open testing in all weather conditions in rural, exurban and urban environments
• Connected Marysville and Connected Dublin
• 540-acre SMART Center at TRC
• Smart Belt Coalition effort to connect OH, PA, and MI
REGIONAL CONNECTED VEHICLE ENVIRONMENT (CVE)

- **179 Intersections:**
  - 147 City of Columbus
  - 27 City of Marysville
  - 5 City of Dublin

- **3,000 cars, trucks, and buses** connected in the Columbus Region by 2020:
  - 1,800 City of Columbus
  - 1,200 Marysville/US-33
Smaller Town, Lower Traffic Volumes
- 10% Penetration Rate with 1,200 vehicles.
- Connected vehicles won’t get lost in the crowd.

Home of Honda’s largest manufacturing and R&D facilities in North America
- End user feedback allows for “right size” design

CONNECTED MARYSVILLE

- 27 Traffic Signals outfitted with RSUs
- 1,200 vehicles outfitted with OBUs
- Online repository for collected data from vehicles
- Future investments:
  - Signage
  - Striping
  - Street Lighting

33 Smart Mobility Corridor Fiber Network
Local Fiber Network
Connected Signals

Pedestrian Crosswalk Warning

Road Weather Sensor System

Curve Speed Warning at Interchange Ramps

Reduce Speed Zone Warning/Lane Closure

Red Light Violation Warning

Ramp Wrong Way Warning

Signal Phasing & Timing

Railroad (potential)
Eras of Vehicle Safety Improvement

1950 – 2000
Safety/Convenience Features
✓ Cruise Control
✓ Seat Belts
✓ Antilock Brakes

2000 – 2010
Advanced Safety Features
✓ Electronic Stability Control
✓ Blind Spot Detection
✓ Forward Collision Warning
✓ Lane Departure Warning

2010 – 2016
Advanced Driver Assistance Features
✓ Rearview Video Systems
✓ Autom Emergency Braking
✓ Ped. Auto Emerg. Braking
✓ Rear Auto Emerg. Braking
✓ Rear Cross Traffic Alert
✓ Lane Centering Assist

○ 94% of serious crashes are due to human error!!!
How do we make Mobility Safer?

- V2V and V2I vehicle technology could address **80%** of the crash scenarios.
- V2I technology alone could reduce **26%** of all target crashes annually.
- Left Turn Assist (LTA) and Intersection Movement Assist (IMA) could prevent 592,000 crashes and **save 1,083 lives** per year.
Connected Automation

Autonomous Vehicle
- Operates in isolation from other vehicles using internal sensors

Connected Automated Vehicle
- Leverages autonomous and connected vehicle capabilities

Connected Vehicle
- Communicates with nearby vehicles and infrastructure
DATA AND APPLICATIONS
Pedestrian in Signalized Crosswalk
Warms the driver if a pedestrian is crossing in a signalized intersection
Weather-Responsive Traffic Management
Connected vehicles provide road weather information to assist in adjusting signal timing intervals at signalized intersections and posted speed limits, including near work zones, when severe weather affects road conditions.

Motorist Advisories and Warnings
Issues alerts and advisories to travelers about deteriorating road and weather conditions on specific roadway segments.

Road Weather Connected Vehicle Applications
Issues alerts and advisories of unsafe road weather conditions.
Curve Speed Warning
Alerts the driver if current speed is too fast for an approaching curve.
Work Zone Warning
Alerts the driver to use caution when traveling through a work zone.
Red Light Violation Warning
Issues warning to the driver if he is about to run a red light
V2I Red Light Violation Warning

Vehicle approaching intersection too fast, signal is turning red

Approaching vehicle receives SPaT message, identifies threat

Driver Vehicle Interface (DVI) alerts driver to brake

Smart signal broadcasting Signal Phase and Timing (SPaT)
FUTURE PROJECT TIMELINE

2018
- Phase II Fiber Installation along Industrial Parkway and Northwest Parkway for Redundant Loop
- System Engineering Completed
- TRC Begins Construction of SMART Center
- Corridor Named as Proving Ground for UAT

2019
- DriveOhio Established by State of Ohio
- NW 33 COG Hires Project Manager
- Executive Order Establishes Statewide AV/CV Testing Protocol
- DSRCs with RSUs are Installed
- OBUs Installed in Vehicles
- Statewide Data Exchange Implemented

2020
- 33 Smart Mobility Ecosystem Operational
- CV Application Fully Operational

2021
- DSRCs are Required in all New Vehicles
THANK YOU / QUESTIONS?

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