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TODAY’S AGENDA

01 | PURPOSE OF THIS WEBINAR
   • Share concept development activities from Smart Columbus with stakeholders

02 | WEBINAR CONTENT
   • Smart Columbus program overview
   • Document purpose and overview
   • High-level program deployment map and issues by project
   • Detailed program deployment site map and installation schedule
   • Infrastructure and installation schedule by project (CVE, SMH and CEAV)
   • How to stay connected
   • Stakeholder Q&A

03 | WEBINAR PROTOCOL
   • All participant lines have been muted during the webinar in order to reduce background noise
   • Questions are welcome via chatbox during the Q&A Section
   • The webinar recording and presentation materials will be posted on the Smart Columbus website
SMART COLUMBUS OVERVIEW
$40 MILLION
78 APPLIED • COLUMBUS WON

VISION:
To empower our residents to live their best lives through responsive, innovative and safe mobility solutions.

MISSION:
To demonstrate how an intelligent transportation system and equitable access to transportation can have positive impacts on every day challenges faced by cities.

OUTCOMES:
- SAFETY
- MOBILITY
- OPPORTUNITY
- ENVIRONMENT
- AGENCY
- EFFICIENCY
- CUSTOMER
- SATISFACTION

THE CITY OF
COLUMBUS
ANDREW J. GINTHER, MAYOR

U.S. Department of Transportation
USDOT PORTFOLIO

ENABLING TECHNOLOGIES
- CONNECTED VEHICLE ENVIRONMENT

ENHANCED HUMAN SERVICES
- MULTIMODAL TRIP PLANNING/COMMON PAYMENT SYSTEM
  - SMART MOBILITY HUBS
  - MOBILITY ASSISTANCE
  - PRENATAL TRIP ASSISTANCE
  - EVENT PARKING MANAGEMENT

EMERGING TECHNOLOGIES
- CONNECTED ELECTRIC AUTONOMOUS VEHICLES
USDOT PORTFOLIO

Connected Vehicle Environment
• 100+ roadside units
• 1,500-1,800 on-board units
• 1,240 light duty vehicles
  o 430 transit vehicles
  o 110 emergency vehicles
  o 12 freight vehicles

Connected Electric Autonomous Vehicles
• Scioto Mile Deployment (May Mobility)
  o December 2018-September 2019
  o 6 vehicles
• Linden Deployment (EasyMile)
  o January 2020-January 2021
  o 2 vehicles

Smart Mobility Hubs
• 6 locations to facilitate first-mile/last-mile connections
• Anchored by an interactive kiosk
USDOT PORTFOLIO

Operating System
• Big data and complex data exchange
• Analytics and visualization
• Data aggregation, fusion and consumption
• Replicable and scalable

Multimodal Trip Planning App
• Publicly available app (Pivot)
• Backed by Common Payment System

Prenatal Trip Assistance
• Research study to improve transportation for moms-to-be
• Up to 500 participants

Mobility Assistance
• Research study with app for turn-by-turn navigation
• Increase independence
• Up to 30 participants

Event Parking Management
• Publicly available app (ParkColumbus)
• Probability of on-street parking
• Reserve private lot/garage spaces
DEMONSTRATION SITE MAP & INSTALLATION SCHEDULE DOCUMENT PURPOSE & OVERVIEW
• Describes specific geographic area by project
• Outlines the physical location for all hardware elements of the various Smart Columbus projects
• Schedule for infrastructure installation
• Key issues by each Smart Columbus project
• Geographic areas/boundaries by project
• Current and proposed technologies
• Physical infrastructure elements by project
• Organizations or individuals with installation responsibilities
• Schedule of infrastructure installation
  o Overall schedule of key milestones by project
  o Detailed schedule of activities
DEMONSTRATION SITE MAP

Components:
1. Overview (City-wide)
2. Residential Area (Linden)
3. Downtown
4. Details:
   a) Linden CEAV route
   b) Scioto Mile CEAV route
   c) OSU
OVERVIEW

1. CVE:
   a) Deployment corridors highlighted

2. MAPCD and MMTPA/CPS:
   a) OSU Campus Area Bus System (CABS) routes

3. PTA:
   a) Recruiting area
1. CVE:
   a) Deployment corridors highlighted
2. SMH:
   a) Hub locations
3. CEAV:
   a) Linden route
1. CVE:
   a) Deployment corridors highlighted
2. EPM Study Area
3. CEAV:
   a) Scioto Mile route
KEY ISSUES BY PROJECT
The issues addressed by the CVE are focused around safety and mobility in the Columbus region.

- Vehicle operator safety
- Intersection safety
- School zone speed adherence
- Transit vehicle schedule adherence
- Emergency response times
- Freight related traffic congestion
- Data gaps for:
  - Traffic management
  - Transit management
• High Street
  • Fifth Avenue to Morse Road
• Morse Road
  • High Street to Stygler Road
• Cleveland Avenue
  • Second Avenue to Morse Road
• Alum Creek Drive
  • SR-317 to I-270
Key issues that are identified by the SMH project include:
  - Lack of physical facilities offering accessible trip-planning, multimodal transit options and other amenities at centralized locations
  - Limited FMLM transportation options which make it difficult for transit-dependent residents to access basic services such as healthcare, grocery stores, and banking
  - Trips are not being optimized for ride-sharing
  - Unbanked users and users without smartphones are excluded from travel options
  - Lack of adequate safety features at transit facilities
Linden Area
• Support CMAX
• Bridge first-mile/last-mile gap
• Link to jobs and services

Easton Area
• Provide last link to jobs
• Enable modal transportation in Easton area
CONNECTED ELECTRIC AUTONOMOUS VEHICLES (CEAV) – KEY ISSUES

• Key issues that are identified by the CEAV project include:
  o Have limited access to jobs and services
  o No First-mile/last-mile connections
  o Grow COTA ridership
CEAV – GEOGRAPHIC LOCATION
MULTIMODAL TRIP PLANNING APPLICATION AND COMMON PAYMENT SYSTEM

• Key issues that are identified by the project include:
  o Disintegrated mobile apps
  o Lack of a comprehensive platform to plan, book and pay
  o City agencies do not control the trip data
  o Trips are not being optimized for ride-sharing
  o Unbanked users must rely on cash for transportation options
  o Lack of incentives for Mobility Providers and Travelers
MOBILITY ASSISTANCE FOR PEOPLE WITH COGNITIVE DISABILITIES (MAPCD) - KEY ISSUES

- Limited options for people with cognitive disabilities who wish to independently use public transportation
- Paratransit services are not as flexible as fixed-route
• NEMT trip scheduling only available through call center
• On-demand transportation is limited
• Lack of communication between mobility provider, prenatal traveler, and medical office
• Uncertainty in time of return trip makes providing service difficult and reduces prenatal traveler’s acceptance of the system
• Driver information unavailable to the Prenatal Traveler
• Lack of immediate and reliable feedback
EVENT PARKING MANAGEMENT (EPM) - KEY ISSUES

- No single source of information for parking options, reservations, or payments.
- City personnel and parking operators are unable to access holistic views into current parking facility data and usage.
DETAILED PROGRAM
DEPLOYMENT SITE
MAP AND
INSTALLATION
SCHEDULE
### CVE – RSU INSTALLATION SCHEDULE – BY CORRIDOR

<table>
<thead>
<tr>
<th>Corridor</th>
<th>From</th>
<th>To</th>
<th># of Ints.</th>
<th>Key Infrastructure Elements</th>
<th>Schedule</th>
<th>RSU Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Street</td>
<td>Fifth Ave</td>
<td>Morse Rd</td>
<td>32</td>
<td>P</td>
<td>P</td>
<td>Sept 9, 2019 - Jan 31, 2020</td>
</tr>
<tr>
<td>Morse Road</td>
<td>Indianola Ave</td>
<td>Stygler Rd</td>
<td>25</td>
<td>P</td>
<td>P</td>
<td>Sept 9, 2019 - Dec 19, 1999</td>
</tr>
<tr>
<td>Cleveland Ave</td>
<td>Second Ave</td>
<td>Ferris Rd</td>
<td>20</td>
<td>P</td>
<td>P</td>
<td>Sept 9, 2019 - Jan 10, 2020</td>
</tr>
<tr>
<td>Alum Creek Dr</td>
<td>London Groveport Rd</td>
<td>I-270 WB</td>
<td>8</td>
<td>P</td>
<td>P</td>
<td>Mar 2020 – May 2020</td>
</tr>
</tbody>
</table>

**Note:** P = Proposed. *Standard CVE Equipment include DSRCs, Layer 2 Ethernet Switches, CV Application Modules, Interconnect Cable, Termination Panels and Optical Transceivers.*
# CVE – OBU INSTALLATION SCHEDULE

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Partners</th>
<th>Quantity</th>
<th>OBU Components</th>
<th>Schedule</th>
<th>OBU Installation Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Under Dash Module/ OBU</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Light-Duty Vehicles</strong></td>
<td>Public Service City Fleet Vehicles</td>
<td>198</td>
<td>P</td>
<td>Feb 3 2020 – Mar 24, 2020</td>
<td>City</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>P</td>
<td></td>
<td>ProCat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>P</td>
<td></td>
<td>OSU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>P</td>
<td></td>
<td>Columbus State Community College</td>
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<td></td>
<td>P</td>
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<td></td>
<td></td>
<td></td>
<td>P</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Heavy-Duty Vehicles</strong></td>
<td>County Engineer</td>
<td>6</td>
<td>P</td>
<td>Feb 24, 2020 – Feb 25, 2020</td>
<td>TBD</td>
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<tr>
<td></td>
<td>Private Freight</td>
<td>14</td>
<td>P</td>
<td>Feb 26, 2020 – Mar 3, 2020</td>
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<td></td>
<td>Police Cruiser Vehicles</td>
<td>80</td>
<td>P</td>
<td>Apr 15, 2020 – May 11, 2020</td>
<td>City</td>
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<tr>
<td></td>
<td>Fire Truck/ EMS</td>
<td>30</td>
<td>P</td>
<td>Mar 4, 2020 – Apr 14, 2020</td>
<td>City</td>
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<tr>
<td></td>
<td>COTA Paratransit Bus</td>
<td>80</td>
<td>TBD</td>
<td>May 29, 2020 – Sept 23, 2020</td>
<td>COTA</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td>1802</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>SMH Location</td>
<td>Primary Street</td>
<td>Secondary street</td>
<td>Infrastructure to be Installed</td>
<td>Schedule</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>----------------</td>
<td>-----------------</td>
<td>-------------------------------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bike-Share Dock</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dockless Parking Zone</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Smart Mobility Hub Sign</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Car-Share Sign</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dockless Parking Sign</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ride-Hailing Sign</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pavement Markings</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Concrete Installation Signs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Signs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pavement Markings</td>
<td>Install Kiosk</td>
<td>Concrete Installation</td>
</tr>
<tr>
<td>Easton Transit Center</td>
<td>Stelzer Road</td>
<td>Transit Drive</td>
<td>P</td>
<td>P</td>
<td>-</td>
</tr>
</tbody>
</table>
## CEAV – INFRASTRUCTURE INSTALLATION SCHEDULE

<table>
<thead>
<tr>
<th>CEAV Station Location</th>
<th>Primary Street</th>
<th>Secondary street</th>
<th>Key Infrastructure Elements</th>
<th>Schedule</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>CEAV</td>
<td>Storage Location</td>
</tr>
</tbody>
</table>
INFRASTRUCTURE AND INSTALLATION SCHEDULE BY PROJECT
CONNECTED VEHICLE ENVIRONMENT
OVERVIEW OF PROJECT LIMITS
## APPLICATIONS

<table>
<thead>
<tr>
<th>Class</th>
<th>Application</th>
<th>Light-Duty Vehicle</th>
<th>Emergency Vehicle</th>
<th>Heavy-Duty Vehicle</th>
<th>Transit Vehicle</th>
<th>Traffic Manager</th>
<th>Transit Manager</th>
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</thead>
<tbody>
<tr>
<td>V2V Safety</td>
<td>Emergency Electronic Brake Light</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Forward Collision Warning</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intersection Movement Assist</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lane Change Warning/ Blind Spot Warning</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V2I Mobility</td>
<td>Transit Signal Priority</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Freight Signal Priority</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Emergency Vehicle Preemption</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vehicle Data for Traffic Operations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transit Vehicle Interaction Event Recording</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>V2I Safety</td>
<td>Red Light Violation Warning</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reduced Speed School Zone</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>

For more information, please see the [Connected Vehicle Environment Concept of Operations](#)
## CONNECTED VEHICLE ENVIRONMENT INSTALLATION MILESTONES

<table>
<thead>
<tr>
<th>Date</th>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 2019</td>
<td>Installation Plans</td>
<td>• Inspect each RSU location.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Measure the conduit runs for cable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Document location of each device installation location.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Create construction plans.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Test clearance of exiting conduit to accept additional cables.</td>
</tr>
<tr>
<td>February 2020</td>
<td>Begin Installation (RSU)</td>
<td>Installation of RSUs.</td>
</tr>
<tr>
<td>February 2020</td>
<td>Begin Installation (OBU)</td>
<td>Installation of 1,500-1,800 OBUs.</td>
</tr>
<tr>
<td>February 2020</td>
<td>Begin Infrastructure Testing</td>
<td>Begin testing of the equipment installed (RSUs).</td>
</tr>
<tr>
<td>June 2020</td>
<td>End Installation (RSU)</td>
<td>Complete installation of all RSUs.</td>
</tr>
<tr>
<td>July 2020</td>
<td>End Infrastructure Testing</td>
<td>Final acceptance test of all equipment installed (RSUs).</td>
</tr>
<tr>
<td>September 2020</td>
<td>End Vehicle Installation and Testing</td>
<td>Final acceptance test of all equipment installed.</td>
</tr>
<tr>
<td></td>
<td>(OBU)</td>
<td></td>
</tr>
</tbody>
</table>
SYSTEM COMPONENTS

Roadside Unit

Onboard Unit

Traffic Signal Controller with CVCP

HUD

CVE Network

MetroNET

CTSS

CVE Network Roadside Unit

ISS Cert. Auth

Smart Columbus Operating System

Position Correction System

Vendor

OTA Server

Signal Cabinet

Public Internet Communications

RSU Mgmt.

System

City of Columbus

New Internet Provider Link

New CVE FW

Existing Metronet ASA 5515

Layer 3

Layer 3

Layer 2

Signal Controller

Layer 2

PoE

Signal Control System

Private IPv4 Address

Public IPv4 Address

Public IPv6 Address

Private IPv4 Address

Public IPv6 Address

Private IPv4 Address

Public IPv6 Address

Private IPv4 Address

Public IPv6 Address

Private IPv4 Address

Public IPv6 Address

Private IPv4 Address

Public IPv6 Address
INSTALLATION GUIDES

Installation Guide

Light-Duty Vehicles

Figure 1: OBU vehicle system

Figure 4B: Under-dash OBU Installation in a Sample Vehicle

Figure 9: Antenna Secured to the Roof

Figure 14: Wiring
ONBOARD UNIT HMI OUTPUTS

- Emergency Electronic Brake Light
- Lane Change Warning
- Intersection Movement Assist
- Forward Collision Warning
- Blind Spot Warning
- Reduced Speed School Zone
- Red Light Violation
PARTIES INVOLVED IN PROJECT

• City of Columbus
  • Department of Public Service
  • Department of Public Safety
  • Department of Development

• COTA
• ODOT
• Installers RSU, OBU, and equipment
• Franklin County
SMART MOBILITY HUBS
## SMH Amenities by Location

<table>
<thead>
<tr>
<th>Location</th>
<th>Wi-Fi</th>
<th>Park and Ride</th>
<th>Pick-Up/Drop-Off Zones</th>
<th>Car-Share</th>
<th>Bike-Share</th>
<th>Bike Racks</th>
<th>Dockless Parking</th>
<th>Real-Time Display</th>
<th>Electric Vehicle Charging</th>
<th>AV Shuttle</th>
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<tbody>
<tr>
<td>Columbus State Community College</td>
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<td>P</td>
<td>E</td>
<td>E</td>
<td>P</td>
<td>P</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Linden Transit Center</td>
<td>P</td>
<td>E</td>
<td>-</td>
<td>P</td>
<td>-</td>
<td>P</td>
<td>E</td>
<td>P</td>
<td>P</td>
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<td>Metro Library – Linden Branch</td>
<td>P</td>
<td>P</td>
<td>-</td>
<td>P</td>
<td>P</td>
<td>E</td>
<td>P</td>
<td>P</td>
<td>-</td>
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</tr>
<tr>
<td>Northern Lights Park and Ride</td>
<td>P</td>
<td>P</td>
<td>E</td>
<td>P</td>
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<td>E</td>
<td>P</td>
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<tr>
<td>St. Stephens Community House</td>
<td>P</td>
<td>P</td>
<td>-</td>
<td>P</td>
<td>P</td>
<td>E</td>
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<td>-</td>
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<td>Easton Transit Center</td>
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<td>-</td>
<td>P</td>
<td>E</td>
<td>P</td>
<td>P</td>
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</tr>
</tbody>
</table>
SMH AMENITIES BY LOCATION

Smart Mobility Hub – Site 1 Columbus State Community College

- COTA CMAX BRT Stops
- SMH Service Area
- North Linden
- South Linden
- East Linden
SMH AMENITIES BY LOCATION
SMH AMENITIES BY LOCATION
SMH AMENITIES BY LOCATION
SMH AMENITIES BY LOCATION
SMH AMENITIES BY LOCATION
SMH AMENITIES BY LOCATION
SMH AMENITIES BY LOCATION
SMH AMENITIES BY LOCATION

- Multimodal Trip Planning Application
  - Pivot
- Emergency Call Button
- Wi-Fi
- Traveler Information
- Other Services
PARTIES INVOLVED IN INSTALLATION

- City of Columbus
- COTA
- St. Stephens Community House
- Columbus Metropolitan Library
- Columbus State Community College
- IKE Smart City
- Experience Columbus
- CoGo / Lyft
- Private Contractors
  - Kiosk
  - Creative Campus roadway project
### SMH INSTALLATION MILESTONES

<table>
<thead>
<tr>
<th>Date</th>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 2019</td>
<td>Complete installation plans</td>
<td>• Inspected each SMH location&lt;br&gt;• Documented the location of each installation location&lt;br&gt;• Developed construction plans&lt;br&gt;• Developed signage for the individual SMH facilities</td>
</tr>
<tr>
<td>August 2019</td>
<td>Begin construction (non-IK elements)</td>
<td>Installed non-IK amenities such as signage, pavement markings, and bike racks</td>
</tr>
<tr>
<td>December 2019</td>
<td>Complete construction (non-IK elements)</td>
<td>Performed final component verification of all items installed</td>
</tr>
<tr>
<td>January 2020</td>
<td>Begin installation (IKs)</td>
<td>Install six IKs</td>
</tr>
<tr>
<td>January 2020</td>
<td>Complete installation (IKs)</td>
<td>Perform final acceptance test of all IK functionality, beginning the week of January 20, 2020.</td>
</tr>
</tbody>
</table>
CONNECTED ELECTRIC AUTONOMOUS VEHICLES
ROUTE OVERVIEW

• Access to 2 Smart Mobility Hubs
  o Linden Transit Center
  o St. Stephens

• 12 Minute Headway

• 2.9-mile length
VEHICLE OVERVIEW

- EasyMile
- EZ10 Gen3
- Deployable Ramp
- Wi-Fi
- 12 passengers
- Operator on-board
- Up to 15 mph
VEHICLE OVERVIEW
VEHICLE OVERVIEW
STATION OVERVIEW
STATION OVERVIEW

CEAV Station 3: Douglas Community Recreation Center
STATION OVERVIEW

CEAV Station 4: St. Stephens Community House

Storage and Charging of CEAVs

ST. STEPHEN’S COMMUNITY HOUSE

Linden LEAP
FREE SELF-DRIVING SHUTTLE
EVERY 12 MINUTES LINDENLEAP.COM

MONDAY – FRIDAY
6:00 AM – 8:00 AM
9:30 AM – 2:00 PM
3:30 PM – 8:00 PM
SATURDAY – SUNDAY
6:00 AM – 8:00 PM
STORAGE OVERVIEW
STORAGE OVERVIEW
PARTIES INVOLVED IN INSTALLATION

- EasyMile
- City of Columbus
- COTA
- St. Stephens Community House
- Private Contractor
## SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2019</td>
<td>Vendor Notice to Proceed</td>
<td>Vendor NTP will allow the vendor to begin a detailed assessment of the proposed route and stop locations</td>
</tr>
<tr>
<td>July - October 2019</td>
<td>Complete Factory Testing</td>
<td>Component and vehicle verification on-site with vendor</td>
</tr>
<tr>
<td>December 2019</td>
<td>Vehicle Delivery</td>
<td>Vehicle on-site in Columbus and installation of non-vehicle amenities: storage, charging, and maintenance infrastructure</td>
</tr>
<tr>
<td>January 9, 2020</td>
<td>Station Installations</td>
<td>Installation of concrete landing pads and signage for CEAV stations</td>
</tr>
<tr>
<td>January 16-23, 2020</td>
<td>On-Site Acceptance Testing</td>
<td>Preliminary on-site acceptance testing of the CEAV vehicle and route operations will be held in December 2019 and final testing will be conducted in January 2020.</td>
</tr>
<tr>
<td>January 27, 2020</td>
<td>Standard Operating Procedures</td>
<td>Standard operating procedures for the vehicles, stops and routes, to be reviewed and approved by the City prior to launch of service.</td>
</tr>
<tr>
<td>February 5, 2020</td>
<td>Service Start</td>
<td>Passenger service launches with partner preview and media days, followed by public service start.</td>
</tr>
</tbody>
</table>
• Upcoming webinar on the Linden LEAP deployment

• Route development, NHTSA exemption, vehicle testing, and more!!!

• February 11, 2020 at 1:30 PM

• Go to https://www.ite.org/professional-and-career-development/learning-hub/educational-offerings/ to sign up!
Public comment period open for the Demonstration Site Map & Installation Schedule:

- January 30 – February 13

Where to find it:

1. View the Demonstration Site Map & Installation Schedule at: https://smart.columbus.gov/programs/smart-city-demonstration
2. Scroll to Program Plans
3. Click Smart Columbus Demonstration Site Map and Installation Schedule

How to comment:

1. Please email comments to: kdepenhart@columbus.gov
2. Subject line: DSM&IS Comments
3. Include your contact information
4. State whether or not you represent a vendor interest
### HOW TO STAY CONNECTED

**SMART COLUMBUS INQUIRIES:**
Alyssa Chenault, Communications Project Manager
anchenault@columbus.gov

<table>
<thead>
<tr>
<th>Upcoming Smart Columbus Webinars:</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEAV – Presentation of Linden Deployment</td>
<td>2/11/20</td>
</tr>
<tr>
<td>System Architecture and Standards Plan</td>
<td>3/3/20</td>
</tr>
<tr>
<td>CVE Test Plan &amp; Recruiting and Operational Readiness</td>
<td>3/24/20</td>
</tr>
<tr>
<td>Draft Human Use Approval Summary</td>
<td>4/2/20</td>
</tr>
<tr>
<td>SMH Test Results and Launch</td>
<td>4/14/20</td>
</tr>
<tr>
<td>MMTPA/CPS Test Results and Launch</td>
<td>4/22/20</td>
</tr>
</tbody>
</table>

Webinar recording and materials will be available at ite.org and smart.columbus.gov
QUESTIONS?
SIGN UP FOR OUR E-NEWSLETTER

Contact:
SmartColumbus@columbus.gov

LEARN MORE

Smart.Columbus.gov

@SmartCbus
This material is based upon work supported by the U.S. Department of Transportation under Agreement No. DTFH6116H00013.

Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the Author(s) and do not necessarily reflect the view of the U.S. Department of Transportation.