UNITED STATES
DEPARTMENT OF TRANSPORTATION

Connected and Automated Vehicle Activities in the United States

SIP-adus Workshop on Connected and Automated Driving Systems

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Connected Vehicle Deployment Locations

* Planned deployments in 2017

Source: Volpe – The National Transportation Systems Center (USDOT)

Number of Vehicles: 28,193

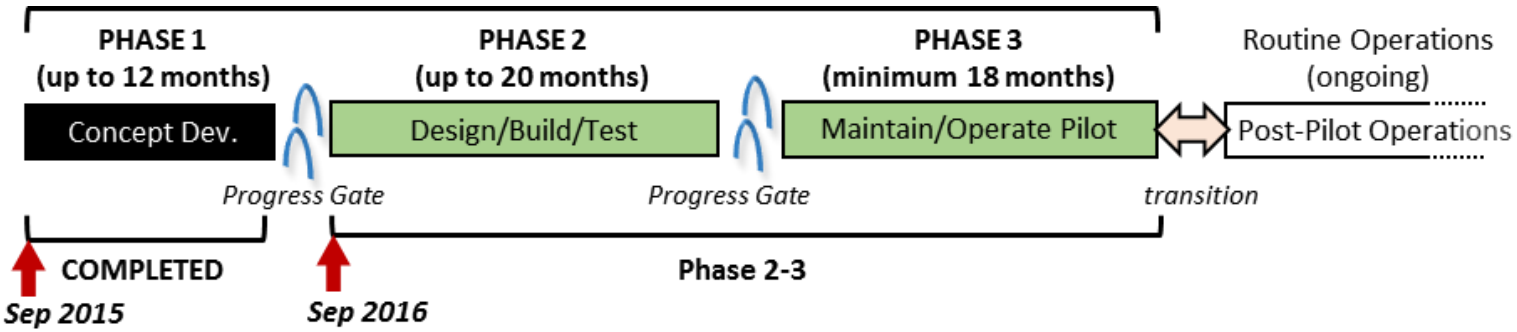
Number of Devices (V2V and V2I): 1,117

Automated Driving Systems 2.0: A Vision for Safety

- Replaces 2016 Federal Automated Vehicles Policy
- Focuses on two sections:
  - Section I: Voluntary Guidance for Automated Driving Systems
  - Section II: Technical Assistance to States
- https://www.nhtsa.gov/technology-innovation/automated-vehicles

Connected Vehicle Pilot Program

Connected Vehicle Pilot Deployment (up to 50 months)



Phase 1: Concept Development (COMPLETE)

Phase 2: Design/Deploy/Test (CURRENT PHASE- began September 1, 2016)

- Detailed design and deployment followed by testing to ensure deployment functions as intended (both technically and institutionally)
- Progress Gate: Does the system function as planned?

Phase 3: Maintain/Operate

- Focus is on assessing the performance of the deployed system

Post Pilot Operations (CV tech integrated into operational practice)

Connected Vehicle Pilot Locations

Wyoming Pilot

400 Equipped Trucks:
- 100 WYDOT Fleet
- 150 Integrated Commercial Trucks
- 25 Retrofit Vehicles
- 125 Basic Vehicles

122 VSL Signs

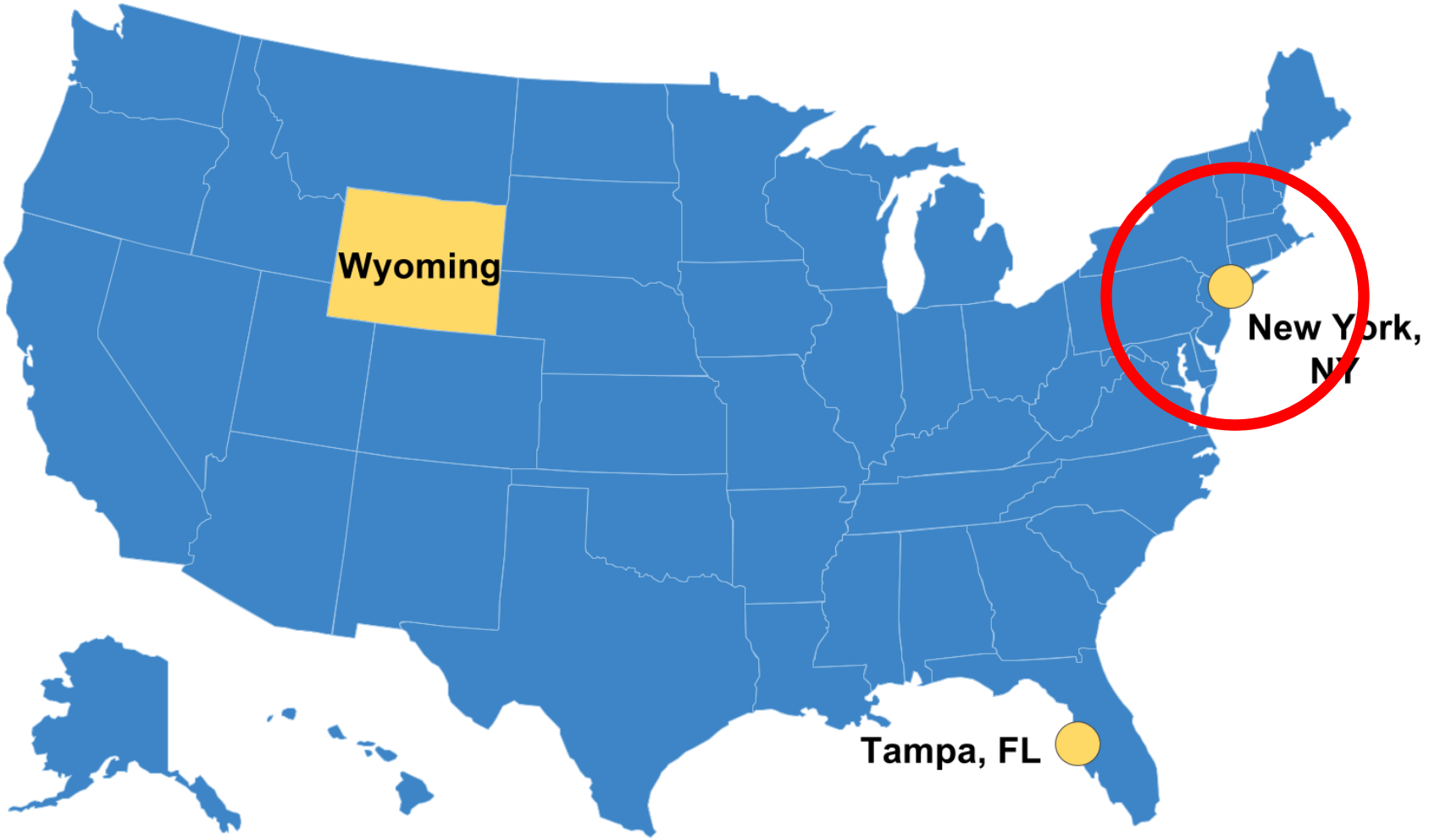
75 RSU

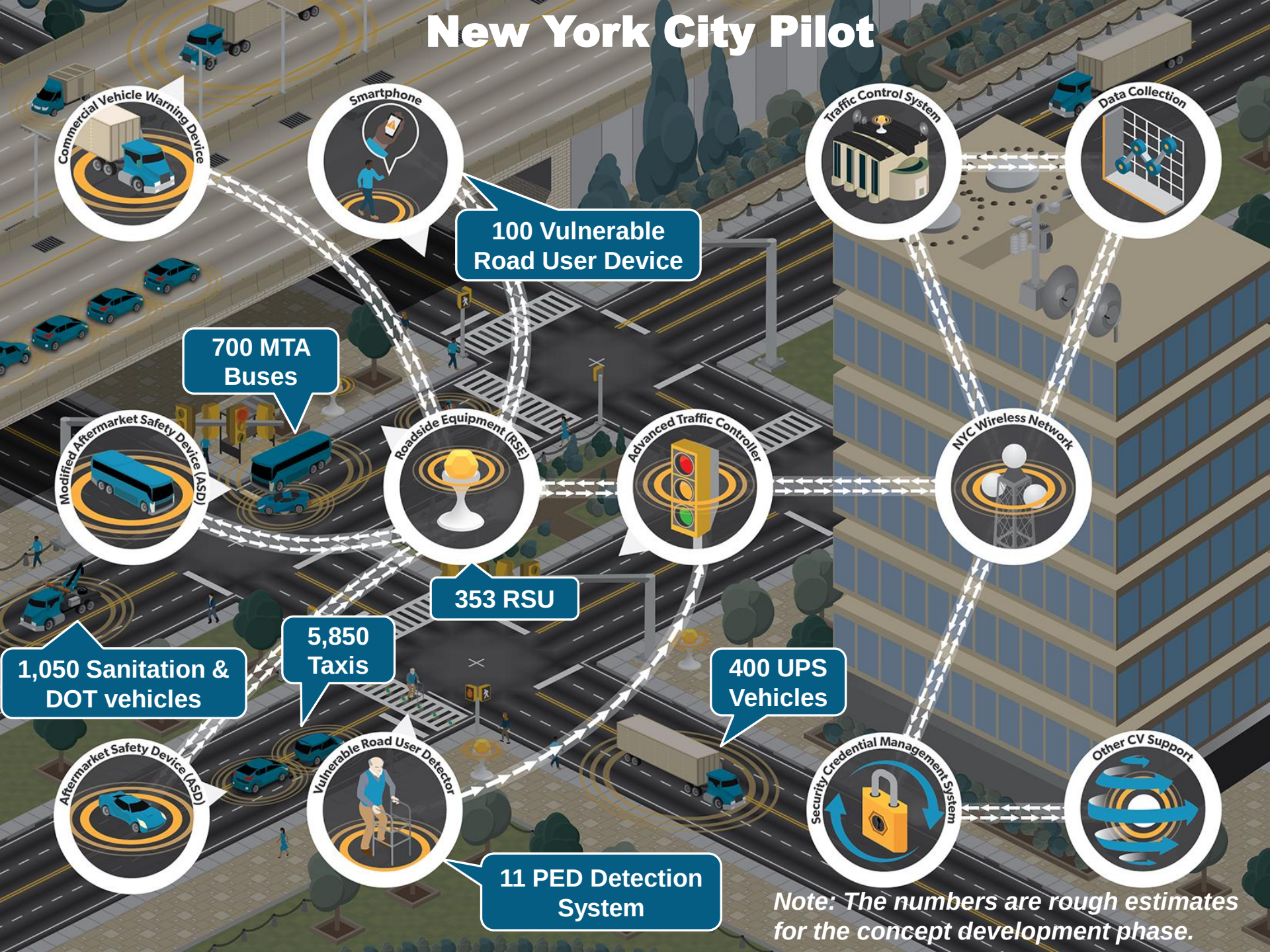
402 Miles of I-80

55 Parking Locations

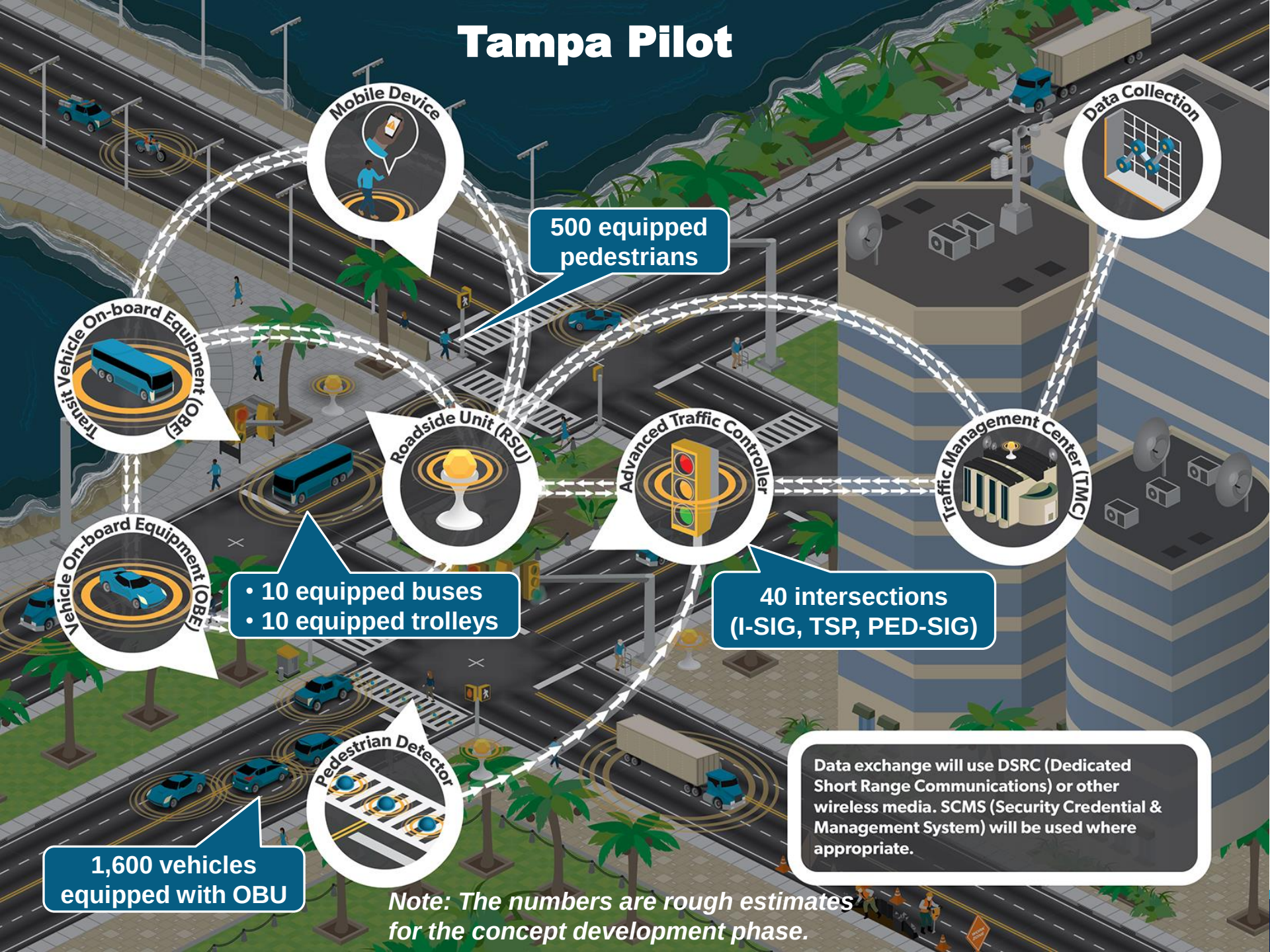
Note: The number is a rough estimate for the concept development phase.

Connected Vehicle Pilot Locations

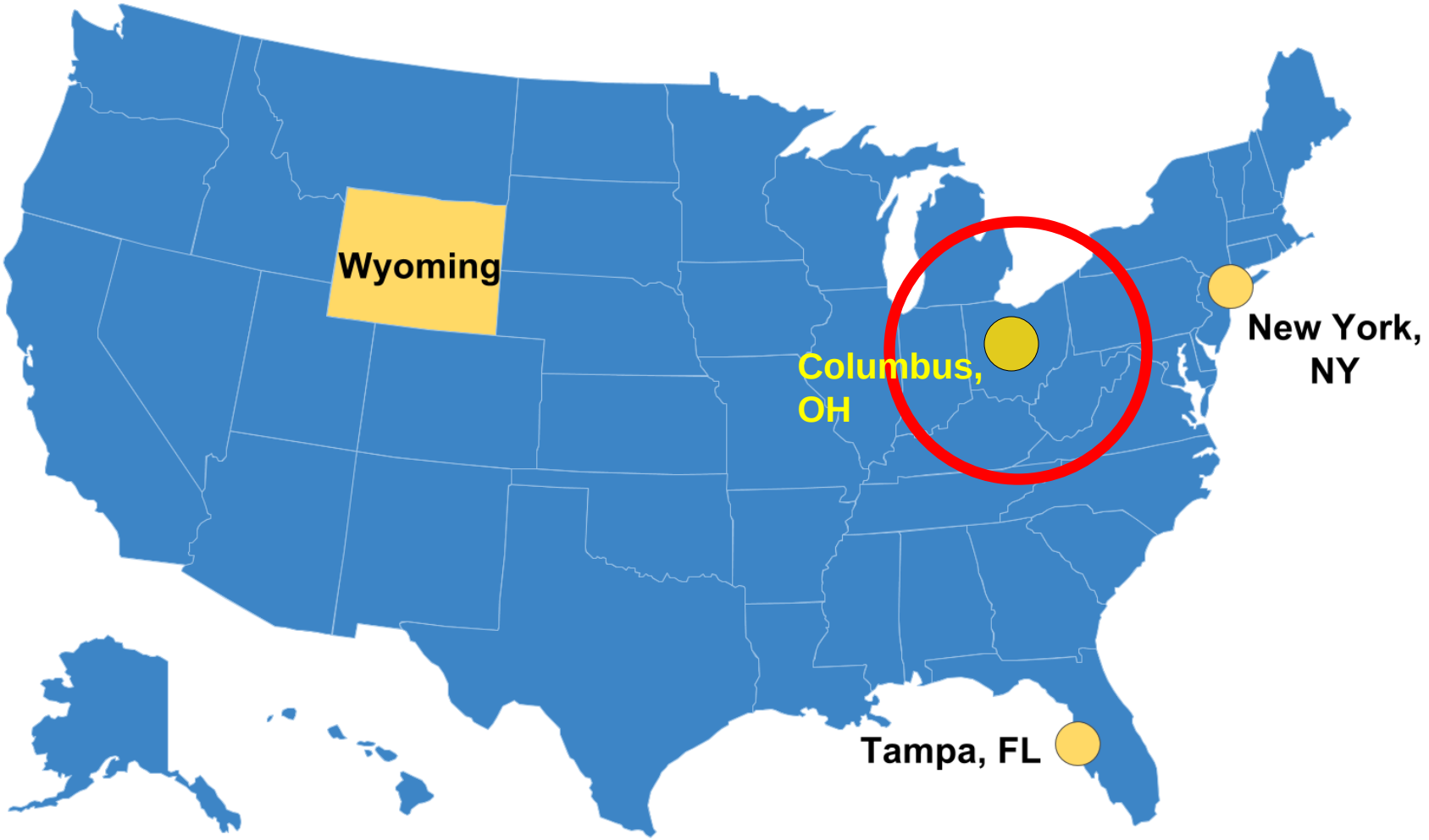



New York City Pilot
Commercial Vehicle Warning Device
Smartphone
100 Vulnerable Road User Device
Traffic Control System
Data Collection
700 MTA Buses
Modified Aftermarket Safety Device (ASD)
Roadside Equipment (RSE)
Advanced Traffic Controller
NYC Wireless Network
353 RSU
1,050 Sanitation & DOT vehicles
5,850 Taxis
400 UPS Vehicles
Aftermarket Safety Device (ASD)
Vulnerable Road User Detector
Security Credential Management System
Other CV Support
11 PED Detection System
Note: The numbers are rough estimates for the concept development phase.

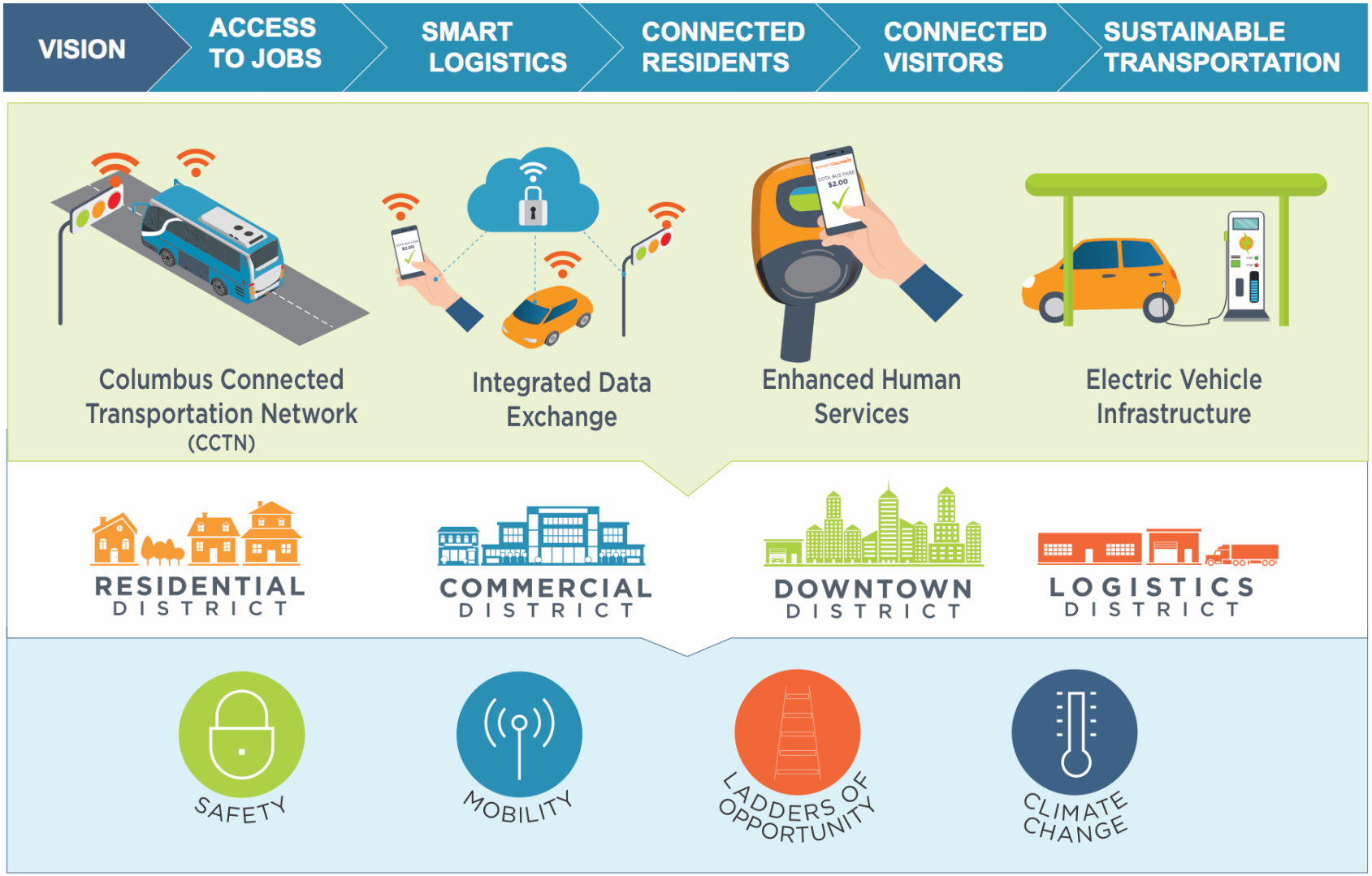
Connected Vehicle Pilot Locations


Tampa Pilot
Mobile Device
500 equipped pedestrians
Data Collection
Transit Vehicle On-board Equipment (OBE)
Roadside Unit (RSU)
Advanced Traffic Controller
Traffic Management Center (TMC)
Vehicle On-board Equipment (OBE)
• 10 equipped buses
• 10 equipped trolleys
40 intersections (I-SIG, TSP, PED-SIG)
Pedestrian Detector
1,600 vehicles equipped with OBU
Data exchange will use DSRC (Dedicated Short Range Communications) or other wireless media. SCMS (Security Credential & Management System) will be used where appropriate.
Note: The numbers are rough estimates for the concept development phase.

Smart City Columbus



SMARTCOLUMBUS



Source: The City of Columbus

Advanced Transportation and Congestion Management Technologies Deployment Initiative (ATCMTD)

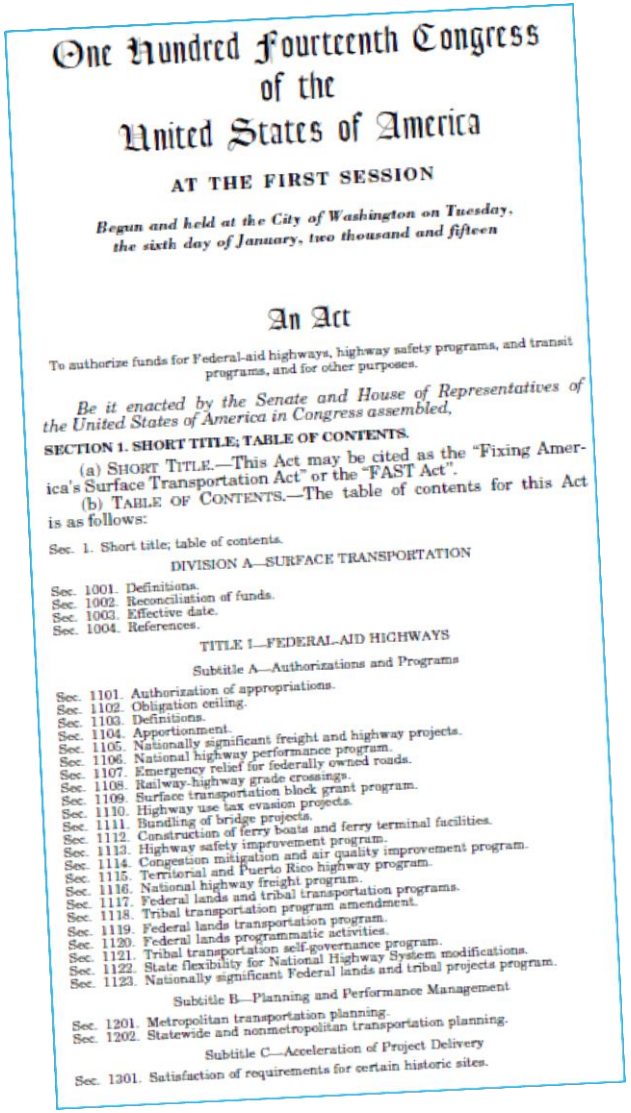
Five year program;

$60 million per year

Eligible technologies include:

- V2V and V2I
- Autonomous vehicles and collision avoidance systems

Awards in 2016 and 2017



One Hundred Fourteenth Congress
of the
United States of America

AT THE FIRST SESSION

Begun and held at the City of Washington on Tuesday, the sixth day of January, two thousand and fifteen

An Act

To authorize funds for Federal-aid highways, highway safety programs, and transit programs, and for other purposes.

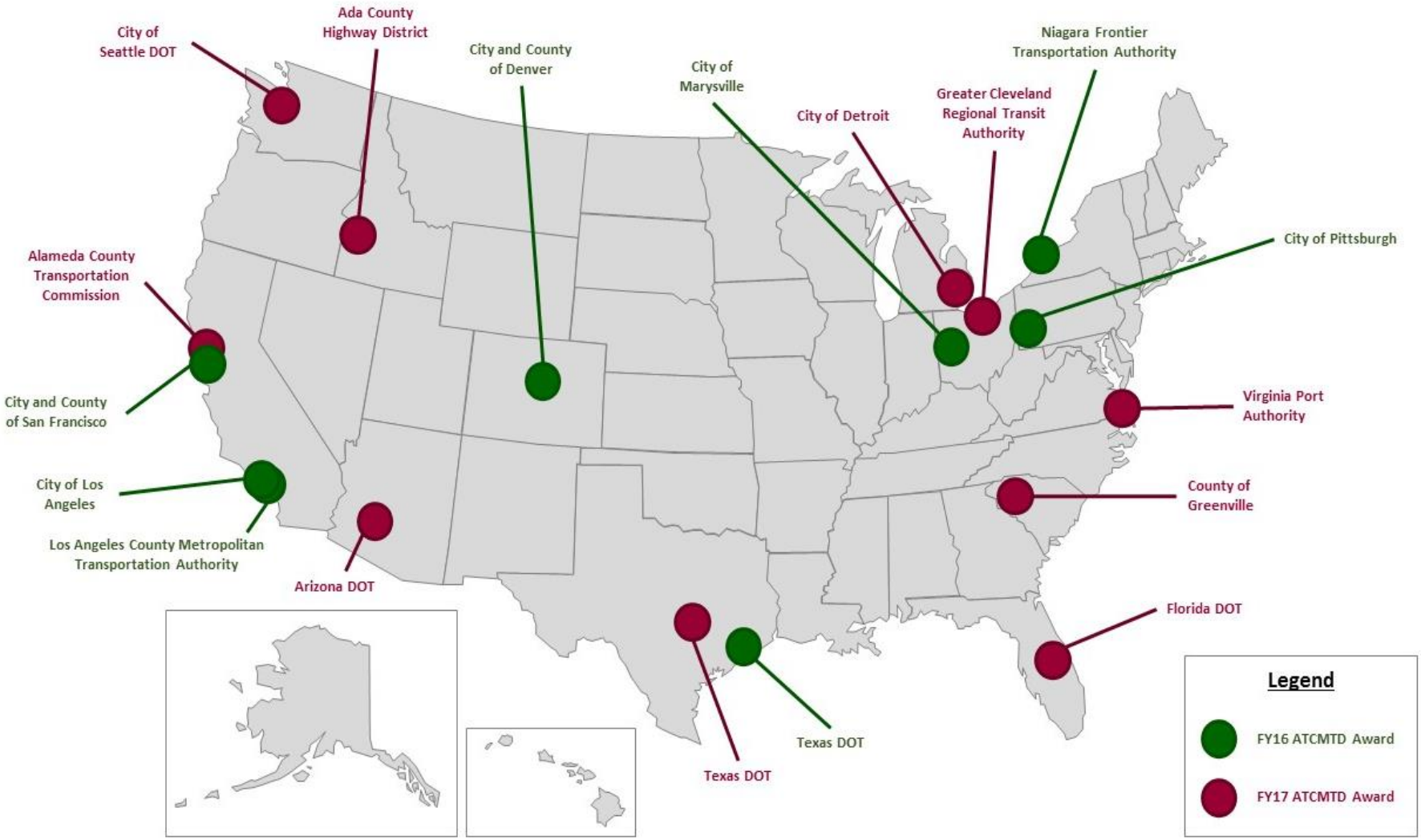
Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "Fixing America's Surface Transportation Act" or the "FAST Act".

(b) TABLE OF CONTENTS.—The table of contents for this Act is as follows:

ATCMTD Program Awards, 2016 and 2017



2017 Awards	Multimodal ICM	CV at Intersection & Ped	Integrated Fare Collection	Freight Community	Connected Communities	Infrastructure, Main., Monitoring	Rural Tech. Deployments
Alameda County Transp. Commission at the Port of Oakland–Freight ITS				x			
City of Seattle Department of Transp.—Multimodal ICM	x	x					
Virginia Port Authority—Truck Reservation System & Automated Work Flow Model				x			
Texas DOT –Connected Freight Corridors	x	x		x		x	x
Greater Cleveland Regional Transit Authority—Connecting Cleveland	x						
Florida DOT—Connecting the East Orlando Communities	x	x					
County of Greenville—Automated (A—Taxi) Shuttles	x						x
Arizona DOT—Loop 101 Mobility	x						
City of Detroit—Improving Safety and Connectivity in Detroit		x			x	x	
Ada County Highway District—Idaho SMART Arterial Management							x

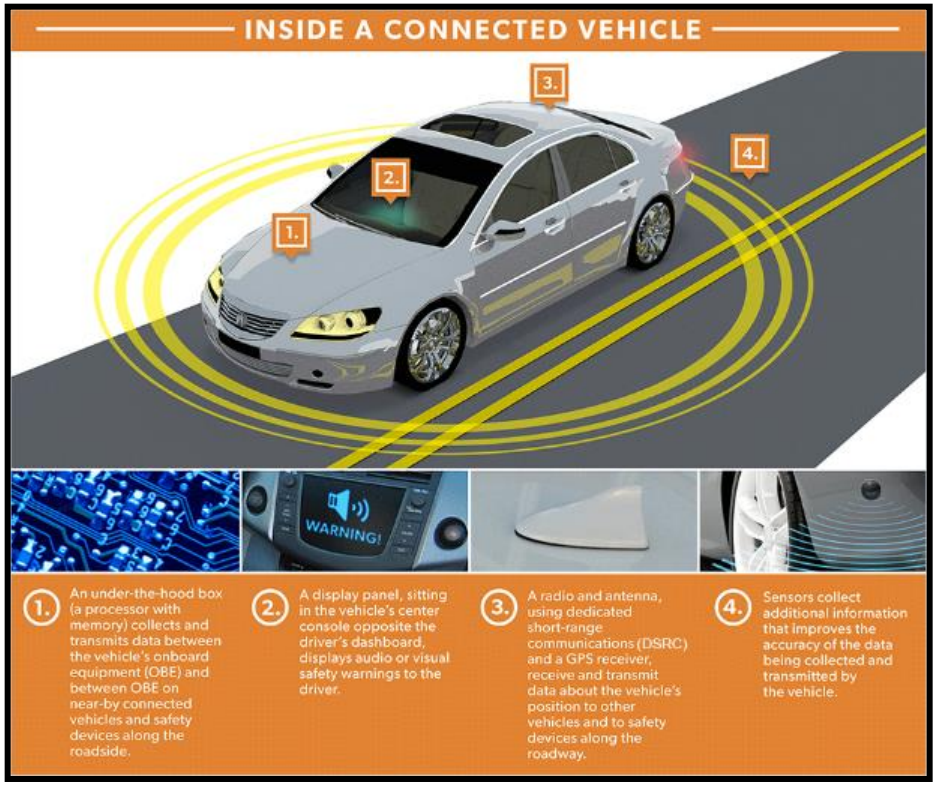
2016 Awards	Transp. Elements of Smart Cities	Pedestrian crossing technology	Multi-modal Integrated Corridor Management	Traffic signal data acquisition, analysis, & management	Unified far collection & payment system	Connected Technology in public sector and first responder fleets	Weigh—in—Motion for data collection	Dynamic ridesharing
Los Angeles County Metro Transp. Authority—Freight Adv. Traveler Information System								
City of Los Angeles—Adv. Technologies to Improve Safety & Mobility w/i Promise Zone	x	x		X		x		
City & County of San Francisco—San Francisco Smart City	x	x		X				x
City & County of Denver—Denver Smart City Program	x	x				x		
Niagara Frontier Transp. Authority —A Connected Region: Moving Technological Innovations Forward in the NITTEC Region			x					
City of Marysville, OH—NW 33 Smart Mobility Corridor		x				x		x
City of Pittsburgh—Smart PGH	x			X		x		
Texas DOT—ConnectSmart: Connecting TSMO and Active Demand Management	x		x	x	x			

Cooperative Automation is Important for Mobility

Connectivity allows vehicles to exchange data with one another and the infrastructure.

Cooperative Automation

- Uses vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) connectivity.
- Enhances the safety and efficiency of Automated Driving Systems.
- Provides greater situational awareness and efficiency.



For more information visit:
https://www.its.dot.gov/cv_basics/index.htm

For More Information

www.its.dot.gov

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