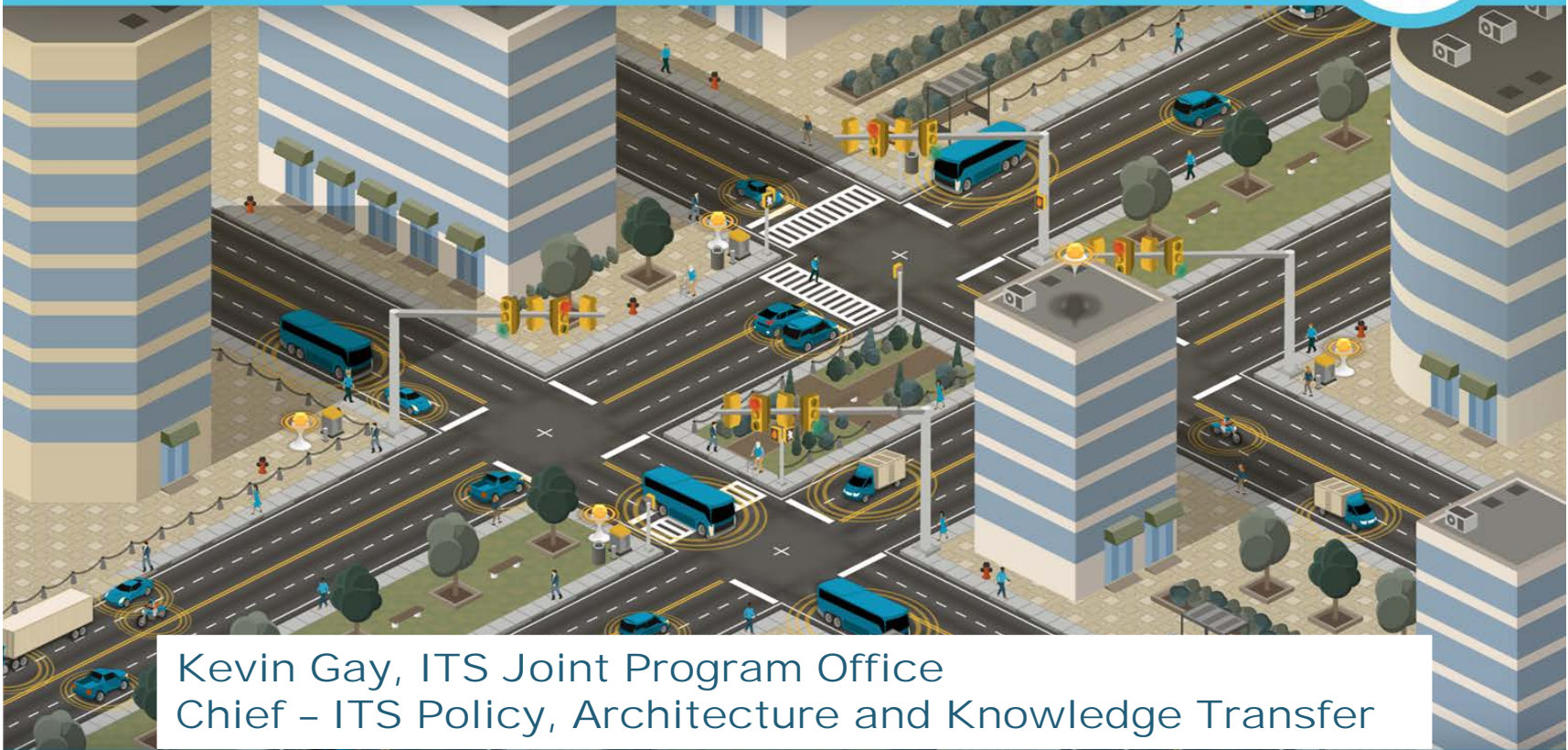# CONNECTED VEHICLE AFFILIATED TEST BED PROGRAM

Kevin Gay, ITS Joint Program Office
Chief – ITS Policy, Architecture and Knowledge Transfer

ITS Joint Program Office

Agenda

- **Vision**

- **Overview of Test Bed Program**

  - **Charter & Membership**

  - **Progression Towards National Deployment**

- **How To Get Involved**

Vision

- **Establishes multiple interoperable locations as part of one connected system**
- **Moves towards a national deployment**
- **Supports the development & testing of a common architecture & standards**
- **Promotes shared resources**
- **Provides for independent operations**

Test Bed Charter & Membership

- **Developed an organizational structure and charter to make membership "official"**

- **Benefits of Membership**
  - Designation of Affiliated Test Bed
  - Access to USDOT support staff and resources
  - Increased access to lessons learned, documentation and other information from peer deploying test beds
  - Test beds serve as a model for future permanent deployments
  - Provides for opportunities for future testing

Test Bed Membership Distribution

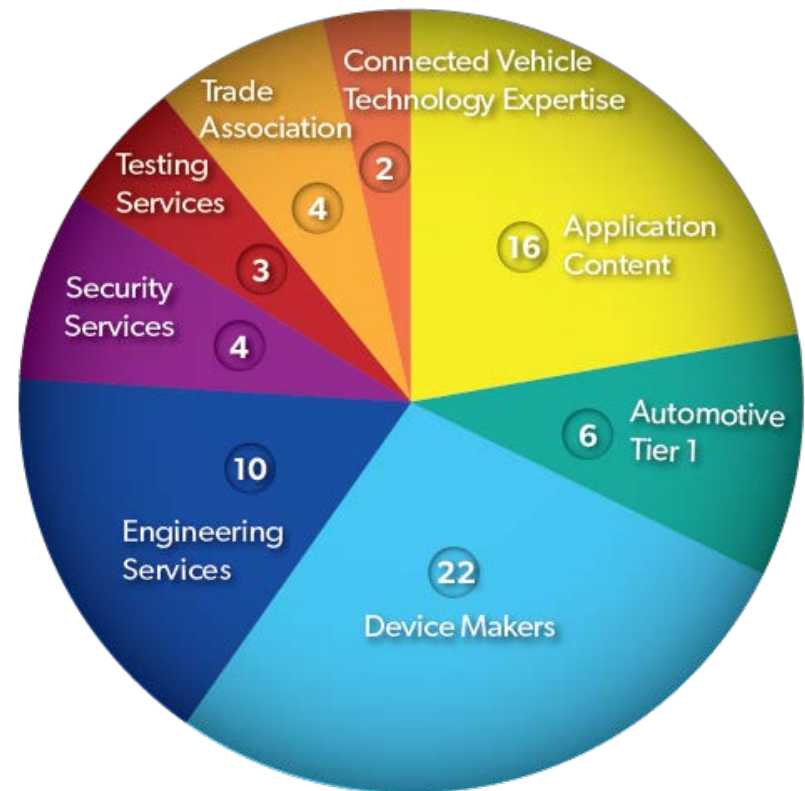- Total Membership
  - 87 Memorandums of Agreement

- Organization Types
  - Private Enterprise (67)
  - Academic (13)
  - Local Agencies (7)
  - State Agencies (3)

- Membership Information:

  http://www.its.dot.gov/research_archives/testbed/testbed_affiliated.htm

Private Enterprise Collaborator Types

Is the Test Bed Right For You?

- **How Can You Use A Connected Vehicle Test Bed**
  - Test beds provide cutting-edge technology for users to conduct a variety of tests, including:
    - Developing and testing applications using Signal Phase and Timing (SPaT) & Geometric Intersection Description (GID) data
    - Vehicle awareness devices (VADs), aftermarket safety devices (ASDs), in-vehicle safety devices (ISDs), radios & RSUs
    - Security System Operations
    - Other CV applications, concepts, and equipment
  - **Test Beds offer:**
    - Pre-existing agreements with local agencies eliminating the need for complex testing arrangements with roadway operators
    - Highly skilled staff who can help users test a variety of complex scenarios in early deployments
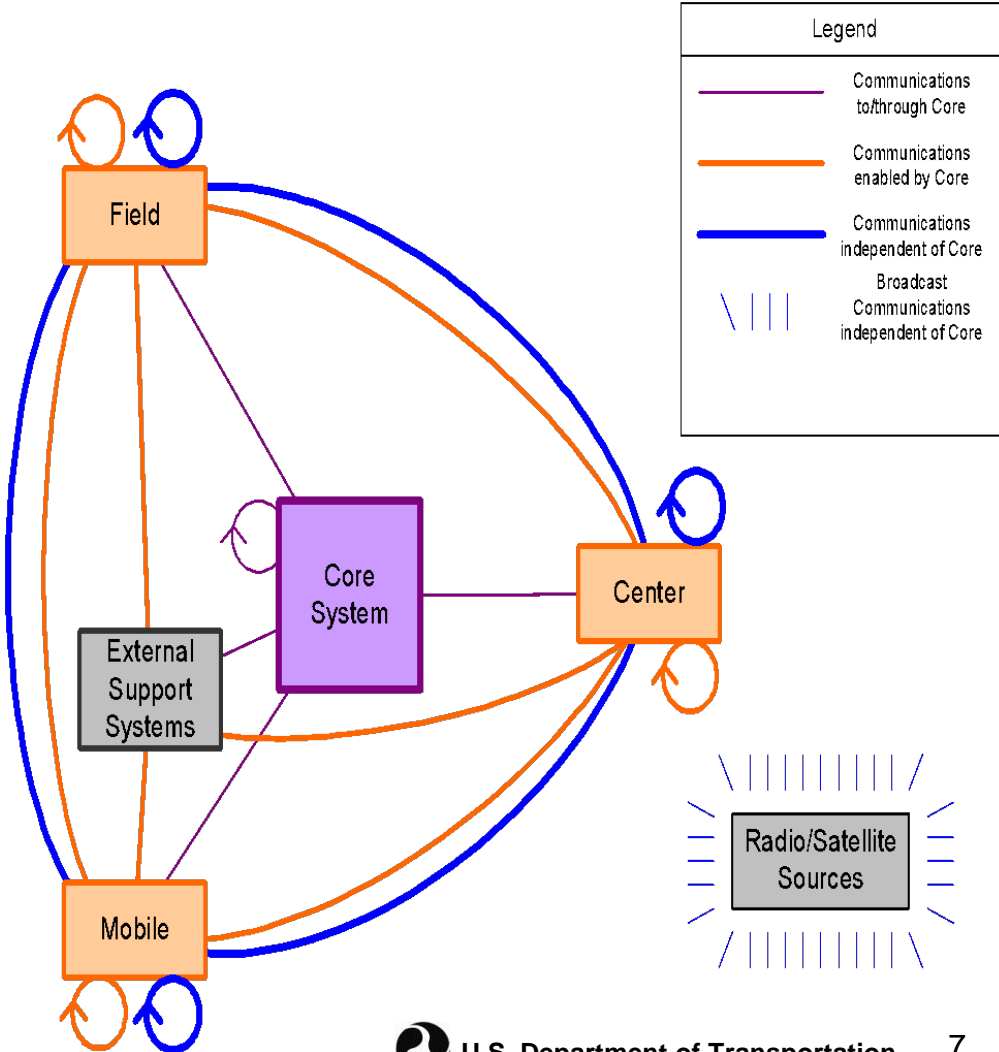
Multiple Locations…One Connected System

- **How to become an Affiliated Test Bed**
  - □ Have connected vehicle infrastructure deployed
  - □ Use (or willingness to use) current standards where appropriate
  - □ Willingness to share information and participate in on-going discussion
- **Developing Common Platform**
  - □ Common 3rd Generation RSEs (Safety Pilot)
  - □ Use of USDOT's Security Credential Management System for Security
  - □ WSMP & IPv6 Connectivity
  - □ Common Data Repository
  - □ Installation, Operations & Maintenance Guidance

U.S. Department of Transportation

The Evolution Continues…

- **Progression towards national deployment**
  - Growing Number of Test Beds & Users
- **Upgrades & Enhancements Support for:**
  - Security Certificate Management System (SCMS)
  - Local Certificate Distribution System (LCDS)
  - Improved IPv6 Functionality & Capabilities
  - RSU data logging
  - New RSUs supporting improved messaging, logging
  - Future upgrades to support mobility applications
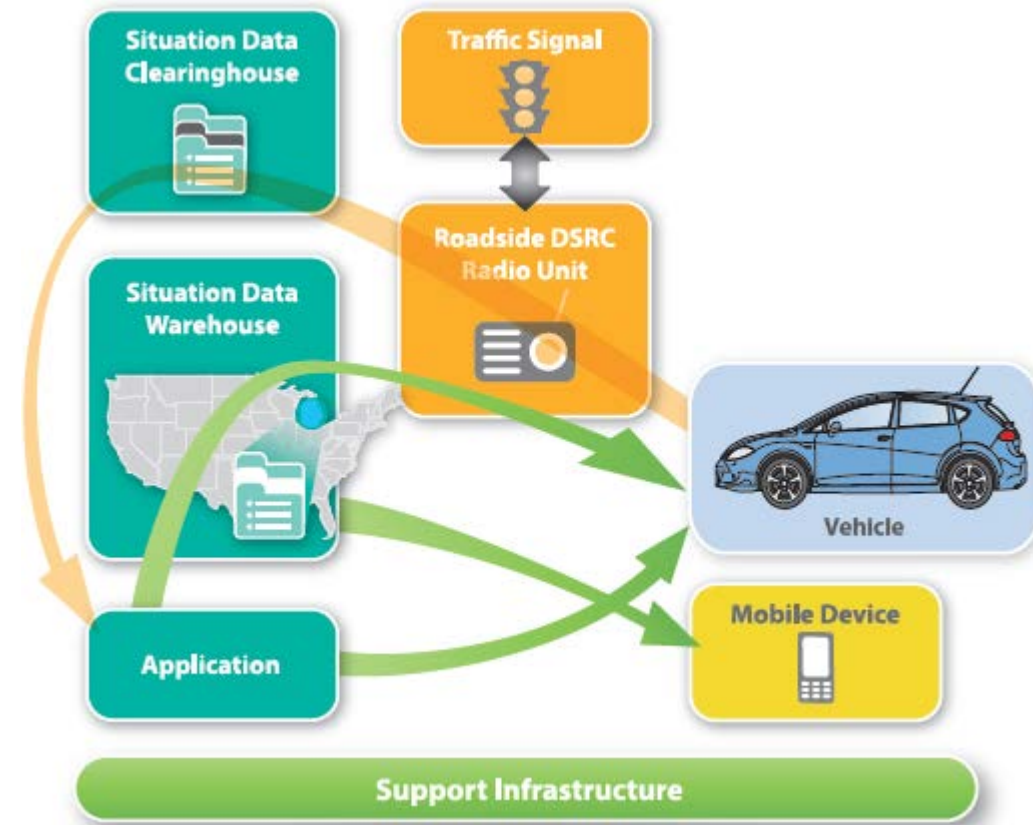 - Upgrades and Enhancements to Support Evolving User Needs

TEST BED PROGRESSION:
TECHNOLOGICALLY DRIVE

Southeast Michigan Test Bed

- Test Bed Resources
  - 50 locations broadcasting SPaT, MAP, and TIM
  - 3 portable RSUs and trailers that allow for private testing
  - Data Center running 24-7 and on 99% uptime.
  - Test vehicles and drivers, upon request.
  - On-site experts with years of experience in intelligent transportation systems and connected vehicle systems.

Affiliated Test Bed Information Repository

- Affiliated Test Bed
  - Project Documents
  - Meeting Information

- SE Michigan Projects
  - Architecture
  - ConOps
  - Design
  - Certification

- Limited Access
  - Affiliated Test Bed Members
  - USDOT contract and grant recipients

http://cps-vo.org/SE-Michigan-2014-Project

Connected Vehicle Core Systems Service Desk

- All requests for support come through a single service desk

- Sign-up for an account at:
  - https://cvcs.samanage.com

- Typical requests
  - Equipment loans
  - In-facility testing support
  - RSU/OBU configuration
  - Schedule a facility tour

- Articles / FAQs

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