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# **Welcome**

## **Unified Implementation of the Reference Architecture Orientation Session**

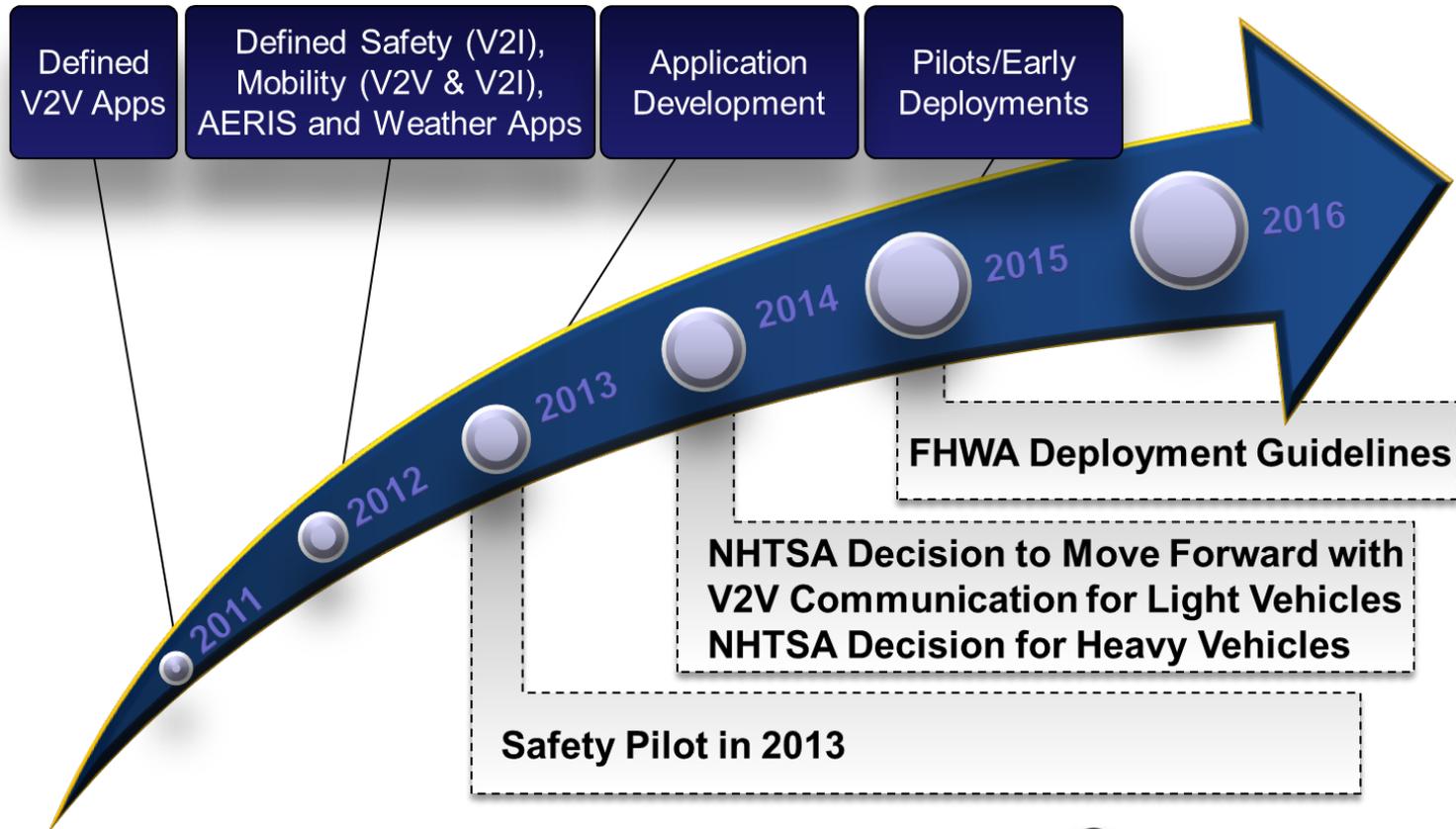
**April, May, 2015**

# Welcome

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- Presenter –
  - Walton Fehr
    - USDOT ITS Joint Program Office
    - [walton.fehr@dot.gov](mailto:walton.fehr@dot.gov)
    - [www.its.dot.gov](http://www.its.dot.gov)
  
- Topics –
  - Overview
  - Communications and Data Movement
  - Complete System Architecture
  - Concept of Operation, Reference Implementation
  - Design Elements, Tools, and Support Services

# Path to Deployment



# USDOT Concept Overview

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- **Communication security**
  - Common process for all information flows
  - Preserving “Privacy by Design”
- **Data flow and evolution**
  - Common processes, two types of data
- **Multiple communication media**
  - DSRC on all 7 channels
  - Established wireless media
  - Other IP transport media
- **Tools**
  - *Consistent implementations*

***“The opportunity  
for a common  
experience.”***

***“The ability to  
do more.”***

# A Variety of Communication Media, Data Needs

Resources: wired and wireless, the Internet

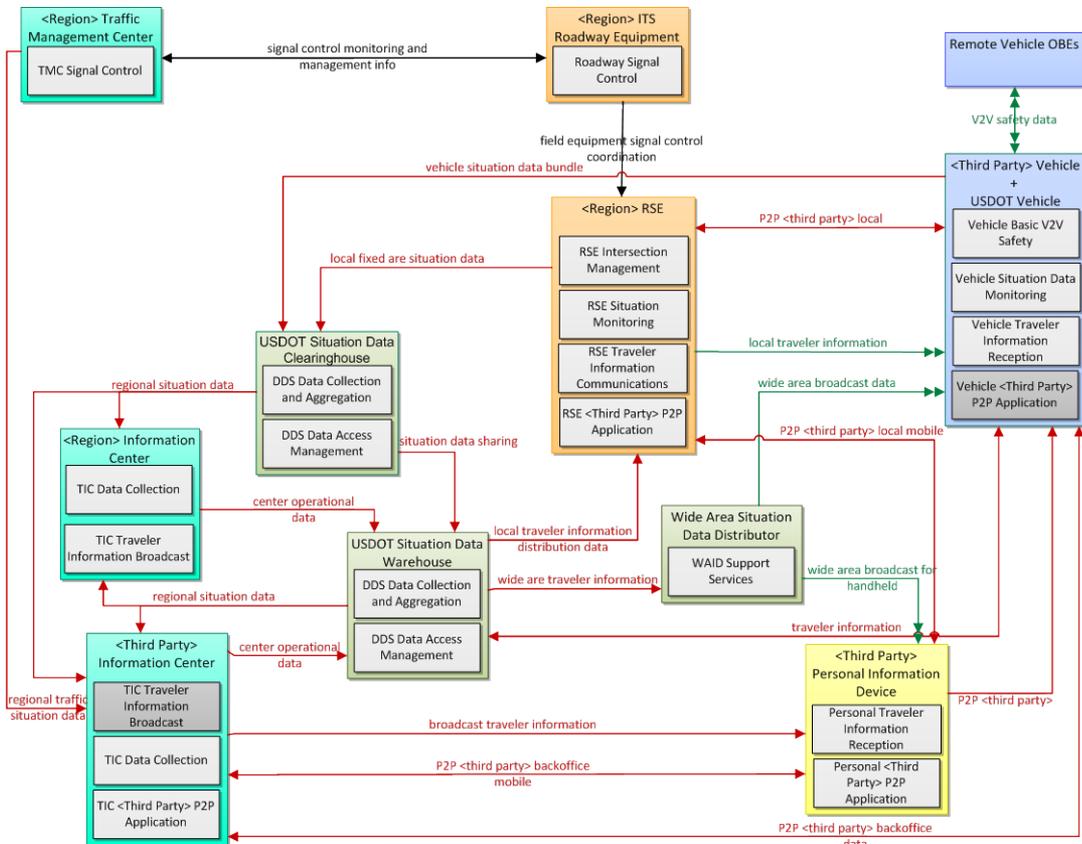
- 3,000 miles, 3,000 meters, 300 meters, 3 meters.



Requirements: Two types of data distribution:

- To all, To one.

# Unified Implementation of the CVRIA All Data Flows



1: Data Movements			
1	Physical View	Jan 23 2015	NAT

## Connected Vehicle Reference Implementation Architecture

- Architecture site  
<http://standards.its.dot.gov/DevelopmentActivities/CVReference>
- SET-IT tool site
  - Version 1.1
  - Sample project  
<http://www.iteris.com/cvria/html/resources/tools.html>

# Upcoming Stakeholder Events

- Plug-Fests: <http://www.its.dot.gov/testbed/plugfests.htm#calendar>
  - Virtual: Ongoing, weekly at 11:00 EST
  - Data Movement Demonstrations: April, Detroit, MI
- Regional CV Pilot Workshops (TBD)
  - <http://www.its.dot.gov/pilots/>
  - [http://www.its.dot.gov/pilots/cv\\_pilot\\_faq.htm](http://www.its.dot.gov/pilots/cv_pilot_faq.htm)



Twitter: @ITSJPODirector

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# Affiliation of Test Beds

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The OST-R has entered into 64 Memorandums of Agreement (MOA) with public, private, and academic organizations involved in the Affiliation of Test Beds. They include:

- Arada Systems
- Southwest Research Institute
- Detroit DPW
- Security Innovation
- Cohda Wireless
- Siemens Industry Inc.
- Dering & Estrada
- University of Michigan/UMTRI
- University of Arizona
- TIEMAC CORPORATION
- Tampa Hillsborough Expressway Authority
- DENSO Corporation
- Marben Products
- NextEnergy
- CETECOM
- Pioneer Advanced Solutions
- La Trobe University (Melbourne)
- OminiAir
- ITRI
- Autotalks LTD
- Connected Vehicle Trade Assc.
- Battelle Memorial Institute
- Rohde & Schwarz USA, Inc.
- MET Laboratories
- 7Layers Inc.
- Green Driver Inc.\ On Time Systems
- Virginia Tech Transportation Institute
- Illinois Tollway
- The Road Commission for Oakland County
- Contra Costa Transportation Authority
- Traffic Technology Solutions
- Savari Inc.
- Global Mobile Alert
- Case Western Reserve University
- University of Wisconsin Madison
- Unex Technology Corporation
- Sirius XM Radio Inc.
- Go-Light
- Pravala Networks
- The Regents of the University of California, Berkeley
- Renesas Electronics America, Inc.
- Vehicle Data Science Corporation
- UL, LLC
- Ericsson
- Commsignia LTD
- Aldis, Inc.
- eTrans2020
- Swiit Apps
- Azimuth Systems
- Paxgrid Telemetric Systems
- AutoTech Technology Development
- Danlaw
- Oakland County Connected Car Task Force
- ALPS Electric North America
- Alpine Electronics Research of America
- R Systems
- STA Group LLC
- iBiquity
- San Francisco Municipal Transportation Agency (SFMTA)
- Hyundai America Technical Center
- peiker acustic, Inc
- Carnegie Mellon University

## Latest

- Hitachi Solutions, Ltd.
- Productivity Apex, Inc.

# Contact Information

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- Test Beds: <http://www.its.dot.gov/testbed.htm>

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1 2 3 4 5 6 7 8 >

Help Develop the Federal Highway Administration (FHWA) 2015 Guidance for Connected Vehicles  
Read more...

Spotlight

- Letter to Stakeholders from ITS JPO Director Ken Leonard 1/27/14
- Kevin Dopart Joins the Intelligent Transportation Systems Joint Program Office (ITS JPO) Team 1/22/14
- Second Public Meeting on the Connected Vehicle Reference Implementation Architecture 1/18/14

More News>>

Our Current Research

Applications Mode-Specific Cross-Cutting

- Vehicle-to-Vehicle Safety
- Vehicle-to-Infrastructure Safety
- Real-Time Data Capture
- Dynamic Mobility Applications
- Environment
- Road Weather
- Connected Vehicle Policy

More >>

CONNECTED VEHICLE TECHNOLOGY

Connected Vehicle Test Beds

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**“Make no little plans. They have no magic to stir men’s blood and probably themselves will not be realized. Make big plans; aim high in hope and work, remembering that a noble, logical diagram once recorded will never die, but long after we are gone will be a living thing, asserting itself with ever-growing insistency.”**

**- Daniel Burnham**

**“I have always believed in planning big, and I have always discovered after the fact that, if anything, we didn’t plan big enough.**

**- Alfred Sloan**