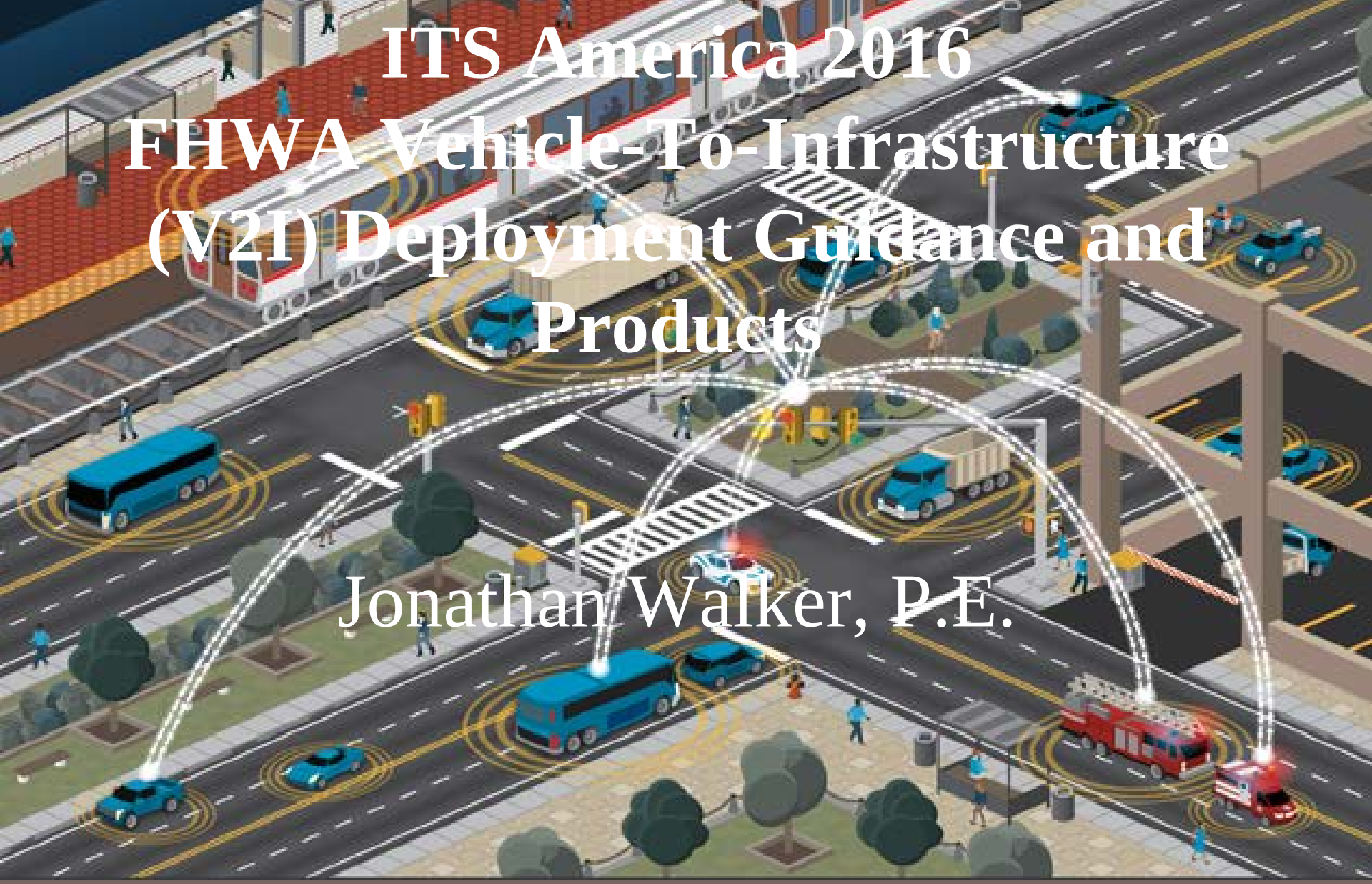

ITS America 2016
FHWA Vehicle-To-Infrastructure (V2I) Deployment Guidance and Products

Jonathan Walker, P.E.

Topics of Discussion

1. FHWA's V2I Vision & Policy Statement
2. What should States do now?
3. FHWA Initiative No. 1: V2I Deployment Guidance
4. FHWA Initiative No. 2: V2I Deployment Products
5. Sample of Table of Contents For Two V2I Products

FHWA's V2I Vision & Policy Statement

V2I Vision Statement

The Federal Highway Administration (FHWA) will provide national leadership and facilitate a smooth and effective deployment path for transportation owners/operators who are interested in implementing vehicle-to-infrastructure technology for a connected vehicle environment.

V2I Policy Statement

Vehicle-to-infrastructure (V2I) technology will take advantage of and build upon emerging vehicle-based technologies being deployed to support vehicle-to-vehicle (V2V) technology. When leveraged with V2V, a V2I deployment will result in significant safety, mobility, and environmental benefits that will be of significant interest to state, regional, and local transportation agencies. Deployments will be encouraged by FHWA but public agencies will not be required to implement V2I technology. Nevertheless, state, regional, and local agencies will have guidance and products available to ensure efficiency and interoperability.

What should States do now?

- Here are five (5) basic steps for State DOTs and Owners/Operators if they are considering V2I deployments for Connected/Automated Vehicle Technology:
  - **Initiate the Planning Process** – Start to consider how vehicle to infrastructure communications and applications could be used to solve your problems. In the meantime, the AASHTO National Connected Vehicle Field Infrastructure Footprint Analysis provides some information (http://ntl.bts.gov/lib/52000/52600/52602/FHWA-JPO-14-125_v2.pdf);
  - **Update the Regional ITS Architecture** – Regions should start to update their Regional ITS Architecture with connected vehicles in mind. The first step is to create a connected vehicle architecture component. The SET-IT tool (http://www.iteris.com/cvria/html/resources/tools.html) was developed to help with this process.

What should States do now? (cont. 1)

- **Consider the Connected Vehicle Pooled Fund Study** – Virginia DOT leads the connected vehicle pooled fund study (CV PFS). Many States find that this group provides a great opportunity for them to gain hands-on experience dealing with V2I deployment and research issues (http://www.cts.virginia.edu/cvpfs/).
- **Join/Monitor the Affiliated Testbed** – The purpose of the affiliated testbed is to create a non-binding, precompetitive affiliation among those using devices and installations related to V2I communications. The affiliation will facilitate information exchanges, share USDOT tools and resources, and encourage the deployment of infrastructure components. For more information, go to http://www.its.dot.gov/research_archives/testbed/testbed_affiliated.htm

What should States do now? (cont. 2)

- **Vehicle to Infrastructure Deployment Coalition** – AASHTO, in collaboration with ITE and ITSA, have formed a Vehicle-to-Infrastructure Deployment Coalition (V2I-DC) for achieving a comprehensive stakeholder input to accelerate V2I deployment activities. The V2I DC consists of five Technical Working Groups (TWG):
  - TWG 1: Deployment Initiatives;
  - TWG 2: Deployment Research;
  - TWG 3: Infrastructure Operator, OEM and Supplier Partnerships;
  - TWG 4: Deployment Guidance;
  - TWG 5: Deployment Standards.

To become involved with the V2I-DC, please visit http://www.transportationops.org/V2I/V2I-overview or contact AASHTO at 202-624-8913.

FHWA Initiative No. 1: V2I Deployment Guidance

Here are a few selected topics/subtopics from the V2I Deployment Guidance

- ❑ Chapter 1. Introduction

Intent Of This Document	Significance of V2I	Available Connected Vehicle Standards

- ❑ Chapter 2. Federal-aid eligibility for V2I deployments

General Eligibility for V2I activities	Brief Summary of Federal-aid Programs for V2I Activities

- ❑ Chapter 3. Guidance

Hardware and Software Device Certification	Use of Right-of-Way	Use of Public Sector Fleets

2014 draft copy available at
http://www.its.dot.gov/meetings/pdf/V2I_DeploymentGuidanceDraftv9.pdf

FHWA Initiative No. 2: V2I Deployment Products

- The Vehicle-to-Infrastructure (V2I) Deployment Guidance and Products document is targeted for release after the V2I Deployment Guidance at http://www.its.dot.gov/v2i/.
- List of V2I Deployment Products
  - Model Approach to Advanced Technologies Procurement Using Agile System Engineering *(Targeted release in 2017/2018)*
  - Connected Vehicles and the Planning Process
  - Guide to Licensing DSRC
  - Pre-Deployment Guidance for V2I Safety Applications *(Targeted release in 2017/2018)*
  - Estimating Benefits and Economic Impacts of V2I Deployments
  - V2I Message Lexicon
  - Near Term Transition and Phasing for V2I Deployments
  - Connected Vehicle Training Resources

FHWA Initiative No. 2: V2I Deployment Products (cont. 1)

- Sample of Table of Contents From A Few Products
- V2I Message Lexicon
  - To help with deployments, a lexicon was developed that explains the concepts and definitions for V2I messages.
  - Table of Contents
    - Introduction
    - What the V2I Message Lexicon Includes
    - How V2I Messages Are Constructed
    - How V2I Messages Relate to Deployments
    - Summary

FHWA Initiative No. 2: V2I Deployment Products (cont. 2)

- Sample of Table of Contents From A Few Products (Cont.)
- Guide to Licensing DSRC
  - The document explains the process by which owners/operators must apply for a license when deploying V2I equipment when utilizing DSRC.
  - Table of Contents
    - Compliance with FCC Service Rules/Regulations
    - Field Deployment Planning
    - Site Selection and Deployment Design
    - Radio Frequency Analysis at Site
    - Process Flow of an RSU Deployment

FHWA Initiative No. 2: V2I Deployment Products (cont. 2)

- Sample of Table of Contents From A Few Products (Cont.)
- Guide to Licensing DSRC
  - The document explains the process by which owners/operators must apply for a license when deploying V2I equipment when utilizing DSRC.
  - Table of Contents
    - Compliance with FCC Service Rules/Regulations
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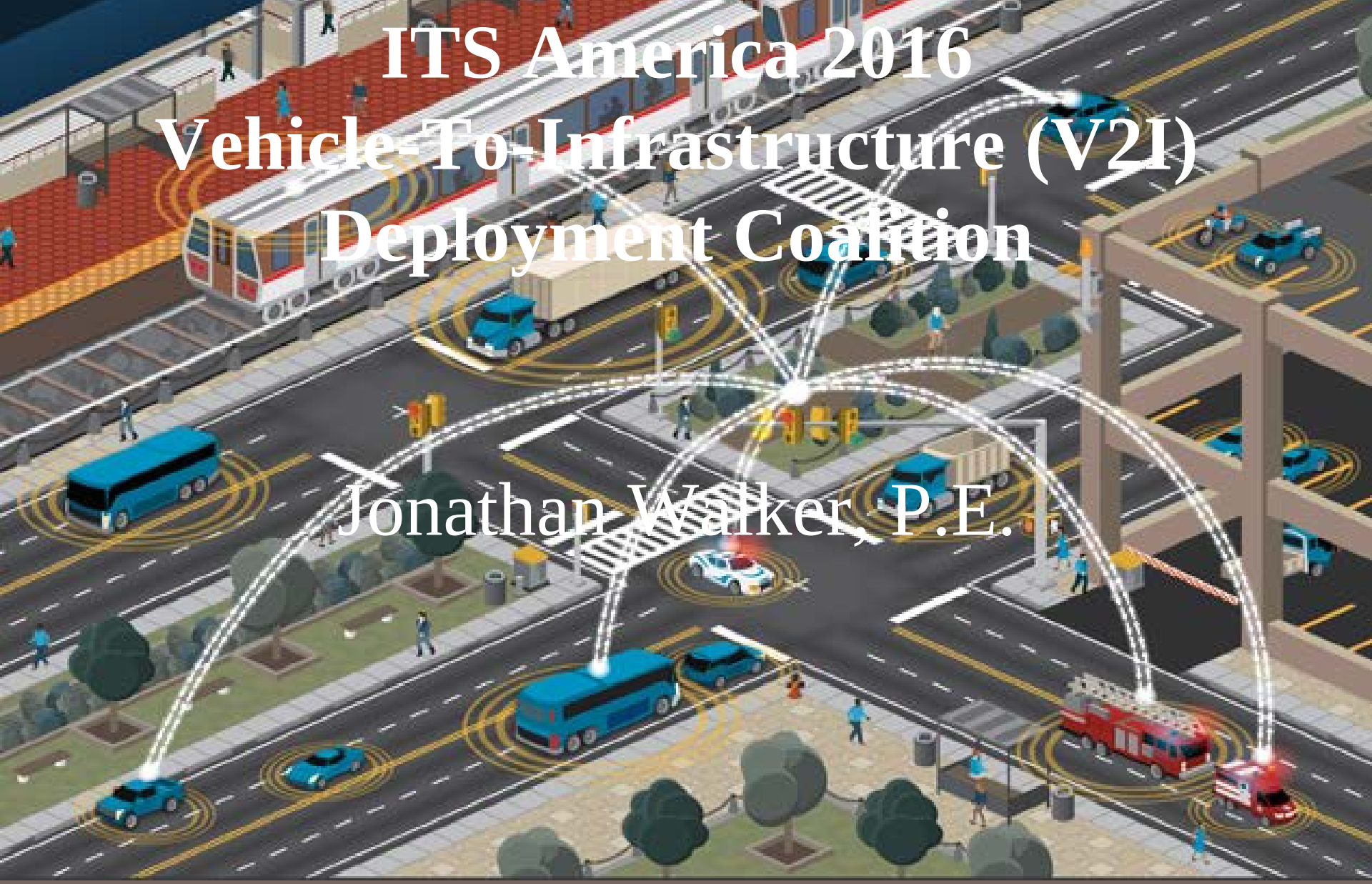
ITS America 2016
Vehicle-To-Infrastructure (V2I) Deployment Coalition



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Topics of Discussion

1. What is the V2I Deployment Coalition?
2. Vision and Mission Statement
3. The Objectives and Role
4. V2I Deployment Coalition Goals
5. How Does the V2I-DC Operate
6. Contact Us

What is the V2I Deployment Coalition?

- AASHTO, ITE and ITS America have established the Vehicle-to-Infrastructure Deployment Coalition (V2I-DC) to focus on collaborating with a diverse group entity to accelerate the deployment of infrastructure which support connected vehicle technology.
- Nationwide deployment, operations, and maintenance of V2I applications will require long-term cooperation, partnership, and interdependence between the infrastructure owners and operators (State, County and local level transportation agencies); the automobile industry original equipment manufacturers (OEMs), and aftermarket manufacturers; and a variety of other stakeholders.

Vision and Mission Statement

- The **vision** of the V2I Deployment Coalition
  - *An integrated national infrastructure that provides the country a connected, safe and secure transportation system taking full advantage of the progress being made in the Connected and Autonomous Vehicle arenas.*

- The **mission** of the V2I Deployment Coalition
  - *To work collaboratively with the industry, state and local governments, academia and USDOT to achieve the goal of deploying and operating a functioning V2I infrastructure.*

The Objectives and Role

- The **objectives** of the V2I Deployment Coalition
  - Provide leadership on V2I Deployment efforts
  - Establish V2I Deployment strategies
  - Lead and provide support on continued technical research for V2I Deployments
  - Support V2I Deployment standards

- The specific **Role** of the V2I Deployment Coalition is to:
  - Help accelerate consistent and effective V2I technologies that address passenger vehicles, freight, and transit operations in both urban and rural areas.

V2I Deployment Coalition Goals

- To accomplish this role, the V2I Deployment Coalition has established initial goals:
  - **Goal #1:** Help to accelerate the deployment of V2I technologies at *intersections* where the majority of crashes and/or congestion occur;
  - **Goal #2:** Help to accelerate the deployment of V2I technologies to support *end of queue warnings* in locations with high rates of rear-end collisions;
  - **Goal #3:** Help to accelerate the deployment of V2I technologies for *work zone management;*
  - **Goal #4:** Help to accelerate the deployment of V2I technologies for c*urve warning systems*.

How Does The V2I-DC Operate?

- The V2I DC technical work is accomplished through five Technical Working Groups, identified below:
  - TWG 1: Deployment Initiatives;
  - TWG 2: Deployment Research;
  - TWG 3: Infrastructure Operator, OEM, and Supplier;
  - TWG 4: Deployment Guidance;
  - TWG 5: Deployment Standards.

NOTE: Participation in TWGs is open to anyone.

For More Information on the V2I Deployment Coalition, visit this website: http://www.transportationops.org/V2I/V2I-overview

Contact us

Jonathan B. Walker, P.E.
Connected Vehicle Program Manger
202-366-2199
Jonathan.B.Walker@dot.gov