



Update Regional ITS Architecture & Develop Communications System White Paper

Contract Team:

TranSmart/EJM**AECOM**

Charlie McCarthy, P.E.
Transportation Systems Engineer

Scott Lee, P.E.
Chief Engineer Technology & Innovation
TranSmart/EJM

Advanced Technology Task Force – October 3rd, 2019

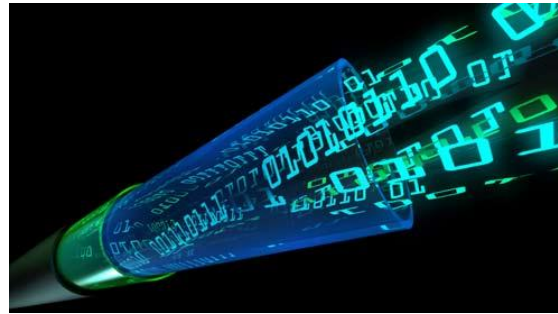
Objectives

- Convert from Turbo to RAD-IT
- Outreach and Facilitate Regional Architecture Update and Discussion
 - » Capture the NEW Service Packages
 - » Remove outdated references
 - » Pre-Interview Materials



Objectives

- Communications Scan and Whitepaper
 - » State-of-Practice and Near-term considerations
- Regional Architecture Revisions
- Maintenance Plan



Status Update


- Interviews are complete – with some follow-up pending
- Communications Whitepaper efforts have resumed
- RAD-IT updates have commenced
- Project Inventories are on-going
- Stakeholders were very engaged going into the interviews

Interview Outcomes and Themes

- TSMO and Data Driven Operations were notable
- Integration of Signal Operations is a focus
- Communications Backbone build-outs are an on-going activity
- ATIS is part of most projects vs. being stand alone projects
- Event/Incident Data is an on-going priority
- Private Sector Data is adding to regional capabilities
- CAV is understood to be coming, but planning for it is a relatively high-level activity at this time

Communications Whitepaper Outline

- Regional State of the Practice
- National Perspectives
- Comm Infrastructure Buildout
- Security
- Throughput
- Public and Private Sector Relationships – Data and Infrastructure
- Connected and Autonomous Vehicle Influence



United States Department of Transportation

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Research Areas

- Accelerating Deployment
- Accessible Transportation Technologies Research Initiative
- Automation
- Connected Vehicles
- Emerging Capabilities
- Enterprise Data
- Interoperability
- National Transportation Library
- ITS Research Archive

**ITS Research 2015-2019
ENTERPRISE DATA**

Enterprise Data White Paper

What is Enterprise Data?

A data revolution is upon us as we now create approximately 2.5 exabytes - that's 2.5 billion gigabytes (GB) - of data every day.¹ So much data is now generated that as much as 90% of all of the data in the world today has been created in the last two years alone. This surge of new data has been accompanied by an increase in connectivity among the vehicles, sensors, people, and infrastructure in the transportation network.

Already we are seeing applications that share, use, and leverage datasets to improve current transportation operations or capabilities, such as Waze and Google Maps. USDOT's Enterprise Data program aims to create value from the data collected from intelligent transportation systems (ITS)-enabled technologies, including connected vehicles (automobiles, transit, and commercial vehicles), mobile devices, and infrastructure to make our transportation system safer, more accessible, efficient, and environmentally sustainable, while also protecting the privacy of its users.

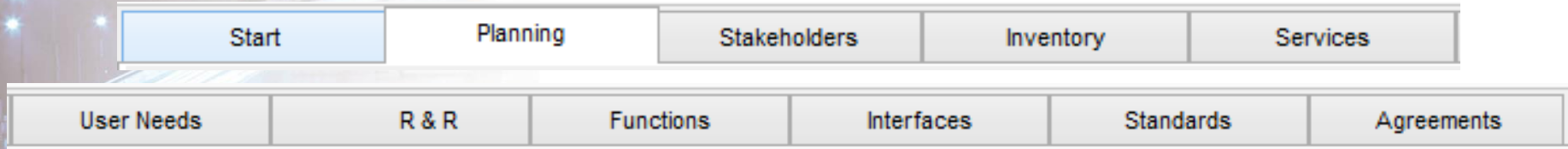
Benefits of Enterprise Data

Enterprise data have several potential benefits including:

- **Providing new revenue opportunities** – New data sources open the door for innovators to develop applications and methods that can support economic vitality.
- **Monitoring performance and enabling more efficient responses** – Increased data from new sources provide a complete, more detailed view of the whole transportation system allowing decision makers to make informed choices on how best to increase system efficiency.
- **Increasing efficiency of information sharing** – Enterprise data will reduce the costs of data management and eliminate technical and institutional barriers to the capture, management, and sharing of data.
- **Improving the accuracy and timeliness of data** – More refined data collection methods will lead to higher quality data, which in turn will support faster data distribution.
- **Stimulating innovation of new research** – The increase in data will spark novel development of software and tools to use the data in new innovative ways.

Print this White Paper

RAD-IT: 'Planning' Support



- Planning tab supports tiered objectives
- Tied to Service Packages and Projects in database
- Preloaded examples available
 - » Eases SP selection process
 - » <https://local.iteris.com/arc-it/html/archuse/goals.html>
- Previous NE IL Architecture left this section blank
- Mobility Implementation Matrix
 - » 'Strategy' and 'Action'

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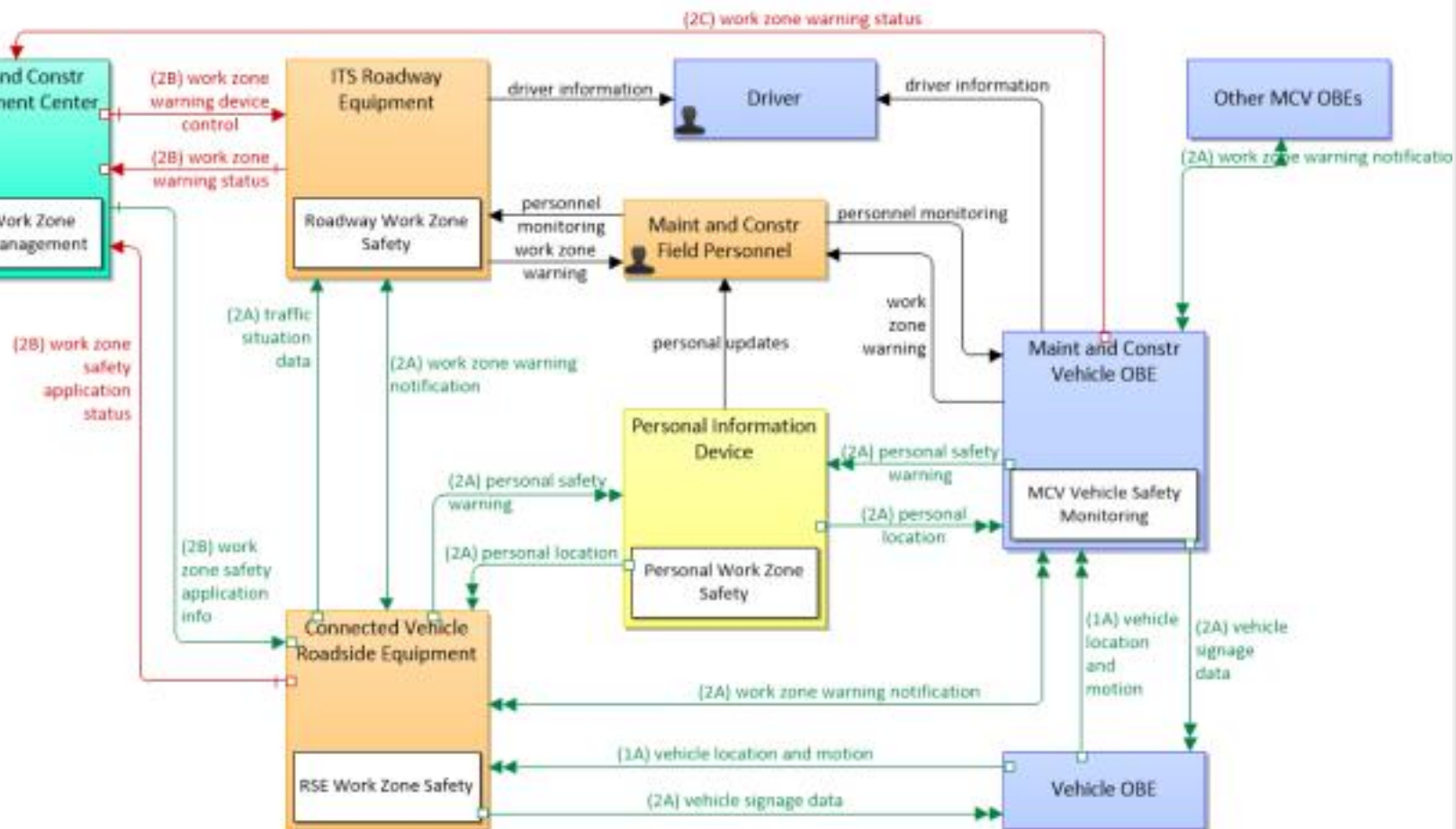
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MC07: Work Zone Safety Monitoring			
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RAD-IT SPs: Traffic Management

Included in NE IL

- ✓  TM01: Infrastructure-Based Traffic Surveillance
- ✓  TM02: Vehicle-Based Traffic Surveillance
- ✓  TM03: Traffic Signal Control
- ✓  TM05: Traffic Metering
- ✓  TM06: Traffic Information Dissemination
- ✓  TM07: Regional Traffic Management
- ✓  TM08: Traffic Incident Management System
- ✓  TM09: Integrated Decision Support and Demand Management
- ✓  TM10: Electronic Toll Collection
- ✓  TM11: Road Use Charging
- ✓  TM12: Dynamic Roadway Warning
- ✓  TM13: Standard Railroad Grade Crossing
- ✓  TM14: Advanced Railroad Grade Crossing
- ✓  TM15: Railroad Operations Coordination
- ✓  TM16: Reversible Lane Management
- ✓  TM17: Speed Warning and Enforcement
- ✓  TM18: Drawbridge Management
- ✓  TM19: Roadway Closure Management
- ✓  TM20: Variable Speed Limits
- ✓  TM22: Dynamic Lane Management and Shoulder Use

All Available in ARC-IT

TM01	Infrastructure-Based Traffic Surveillance
TM02	Vehicle-Based Traffic Surveillance
TM03	Traffic Signal Control
TM04	Connected Vehicle Traffic Signal System
TM05	Traffic Metering
TM06	Traffic Information Dissemination
TM07	Regional Traffic Management
TM08	Traffic Incident Management System
TM09	Integrated Decision Support and Demand Management
TM10	Electronic Toll Collection
TM11	Road Use Charging
TM12	Dynamic Roadway Warning
TM13	Standard Railroad Grade Crossing
TM14	Advanced Railroad Grade Crossing
TM15	Railroad Operations Coordination
TM16	Reversible Lane Management
TM17	Speed Warning and Enforcement
TM18	Drawbridge Management
TM19	Roadway Closure Management
TM20	Variable Speed Limits
TM21	Speed Harmonization
TM22	Dynamic Lane Management and Shoulder Use
TM23	Border Management Systems

RAD-IT SPs: Vehicle Safety

Included in NE IL

Service Package Attributes

ID

Status (Region)

VS13

Planned

Name

Intersection Safety Warning and Collision Avoidance

Description

This service package enables a connected vehicle approaching an instrumented signalized intersection to receive information from

All Available in ARC-IT

VS01	Autonomous Vehicle Safety Systems	VS10	Restricted Lane Warnings
VS02	V2V Basic Safety	VS11	Oversize Vehicle Warning
VS03	Situational Awareness	VS12	Pedestrian and Cyclist Safety
VS04	V2V Special Vehicle Alert	VS13	Intersection Safety Warning and Collision Avoidance
VS05	Curve Speed Warning	VS14	Cooperative Adaptive Cruise Control
VS06	Stop Sign Gap Assist	VS15	Infrastructure Enhanced Cooperative Adaptive Cruise Control
VS07	Road Weather Motorist Alert and Warning	VS16	Automated Vehicle Operations
VS08	Queue Warning	VS17	Traffic Code Dissemination
VS09	Reduced Speed Zone Warning / Lane Closure		

Next Steps

- Updates to RAD-IT will be on-going
 - » We will be asking the Stakeholders to review projects in the update for accuracy
- Reminder to provide new projects to the team
- Complete the Comm White Paper
- I-290 Con Ops Coordination with IDOT
- Update Architecture Maintenance Plan

Overarching Reference

<https://local.iteris.com/arc-it/index.html>

Contact Information

Claire Bozic

Senior Analyst



Chicago Metropolitan Agency for Planning (CMAP)

233 South Wacker Drive, suite 800

Chicago IL 60606

www.cmap.illinois.gov

cbozic@cmap.illinois.gov

Charlie McCarthy, P.E.

Transportation Systems
Engineer

Scott Lee, P.E.

Chief Engineer
Innovation and Technology

TranSmart/EJM

TranSmart/EJM Corporation

1431 Opus Place, Suite 110

Downers Grove, IL 60515

www.transmartinc.com

cmccarthy@transmartinc.com

slee@transmartinc.com