ARC-IT v8 Workshop

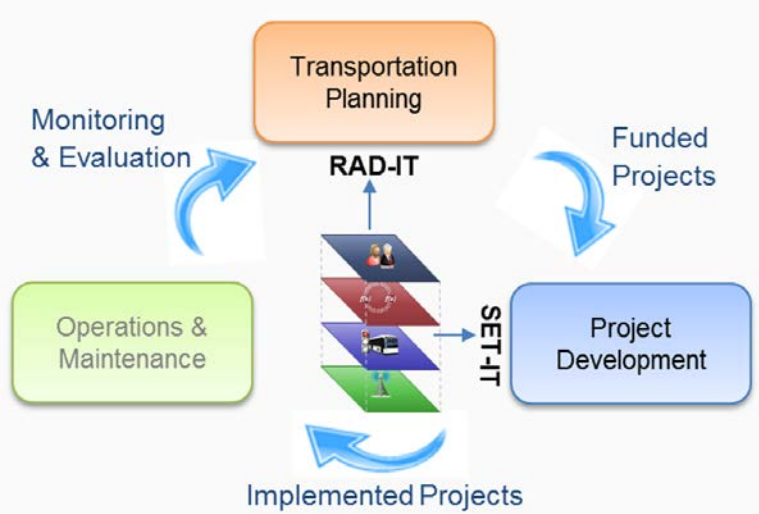
ARC-IT TOOL SET

ARC-IT Tool Suite

- Two free downloadable software tools available to apply ARC-IT to regions and projects
  - Regional Architecture Development for Intelligent Transportation (RAD-IT)
  - Systems Engineering Tool for Intelligent Transportation (SET-IT)

RAD-IT

SET-IT



What is *RAD-IT*?

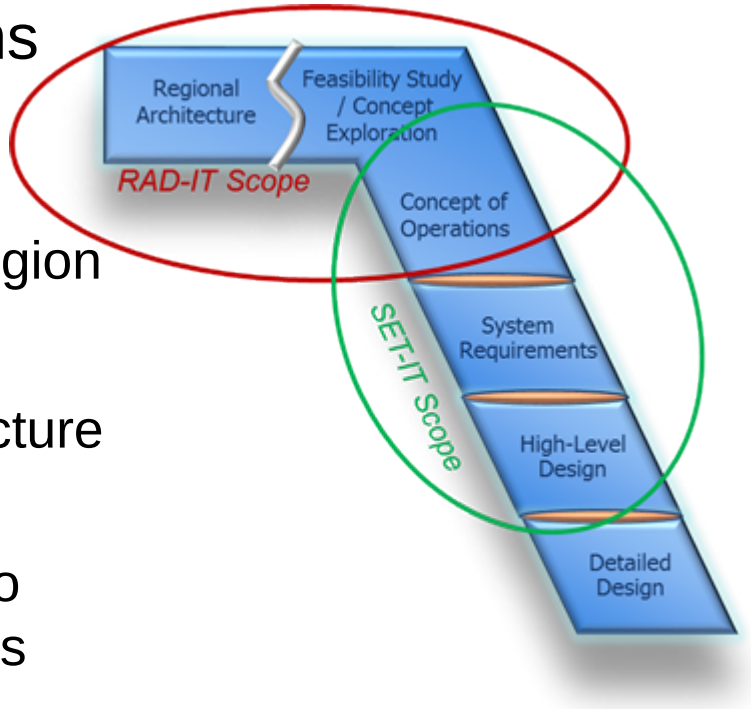
- Formerly known as *Turbo Architecture*
- Supports ARC-IT
- To create and maintain ITS architectures
- Includes conversion utilities for current regional architectures
- Free tool available at www.arc-it.net (select Resources / Tools)
- Training available under Resources / Training

What is SET-IT?

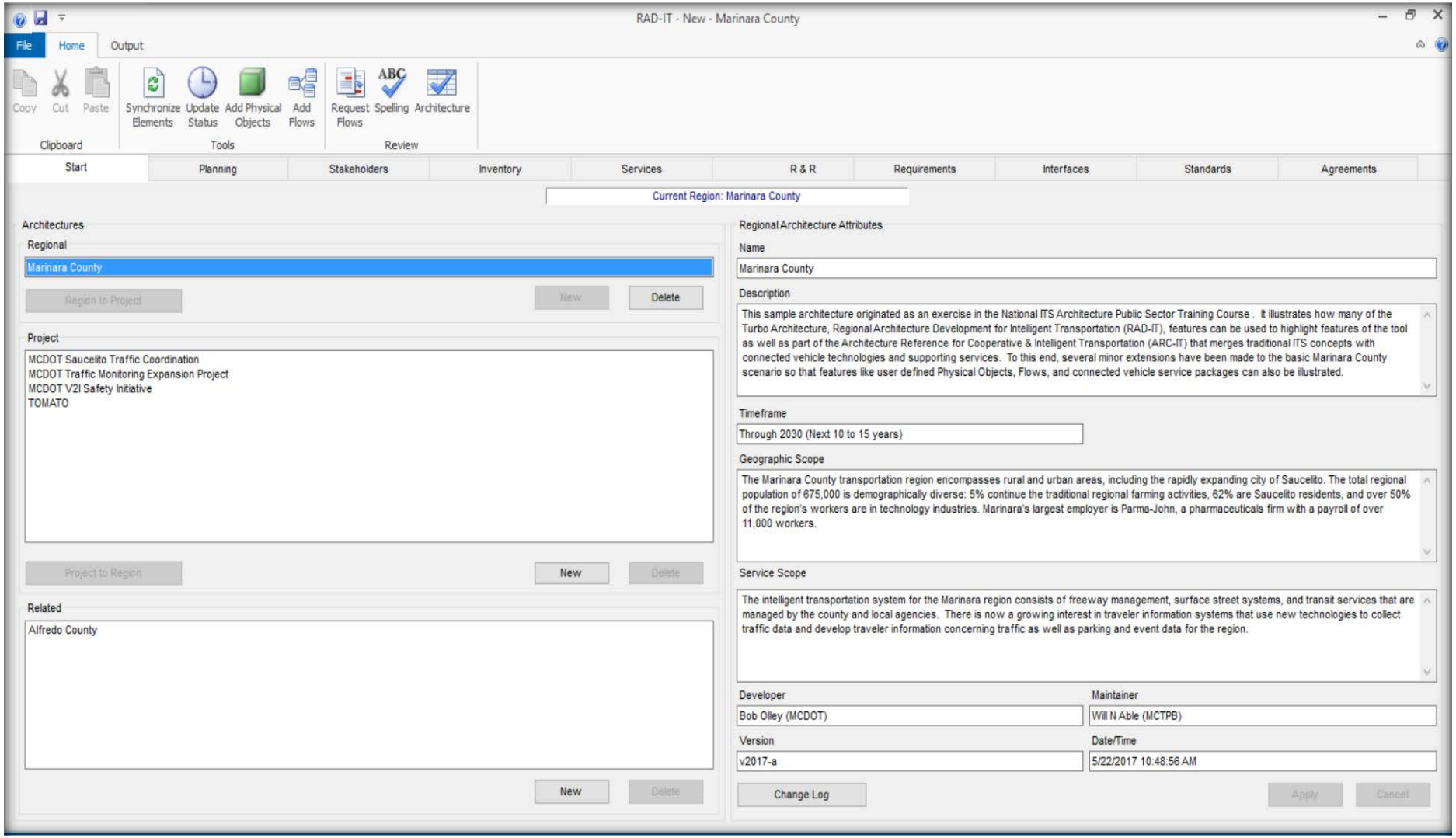
- Systems Engineering Tool for Intelligent Transportation (SET-IT)
- Originally to support tailored CV project architecture development (using CVRIA)
- Expanded to include all ITS
- Creation of diagram based project architectures covering the Physical, Enterprise and Communications Viewpoints
- SET-IT Training at www.arc-it.net (select Resources / Training).

Scope of Tools

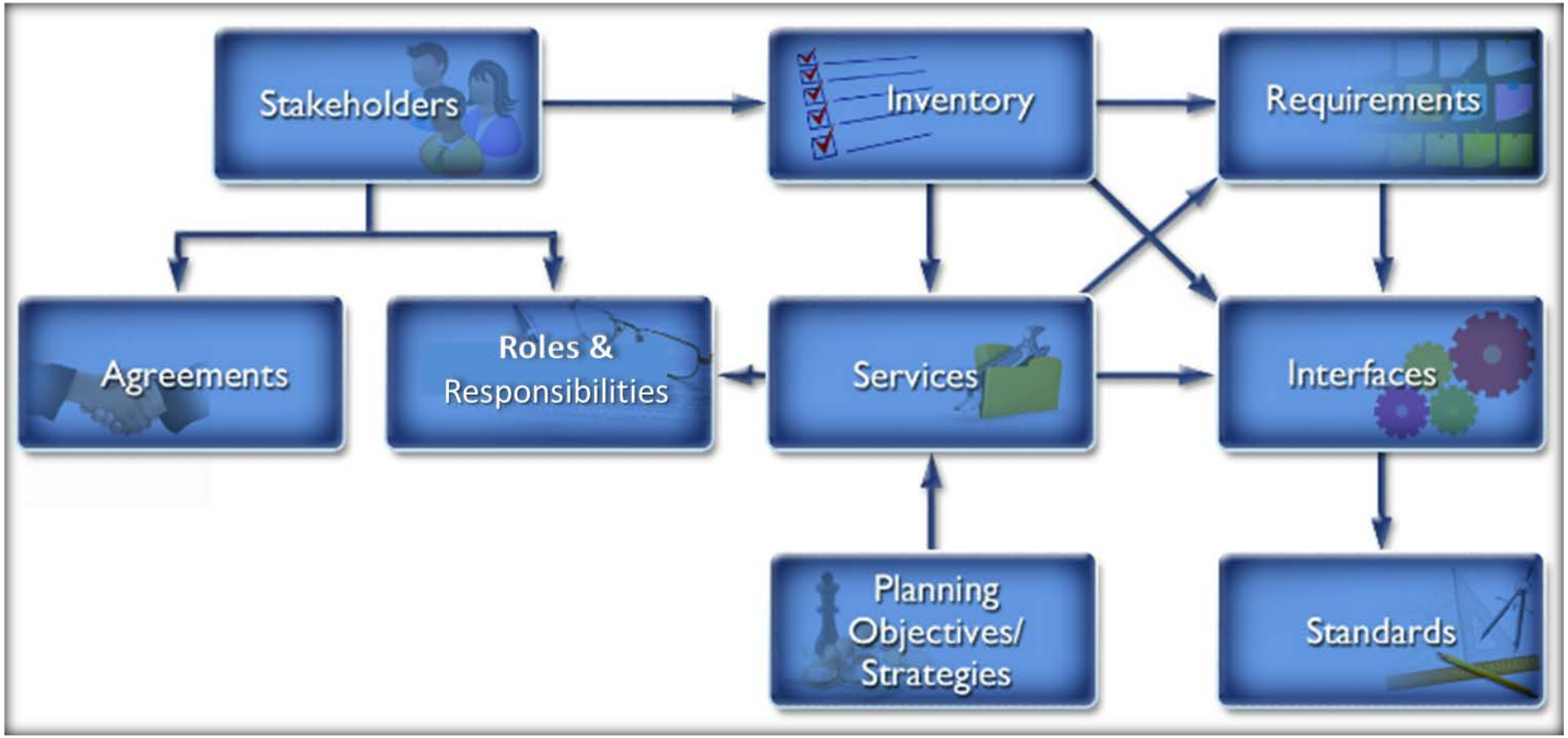
- RAD-IT focuses on regional planning and the development of Operations Concepts,
  - Stakeholders, Physical Objects, Service Packages, Interfaces for the region
- SET-IT is project-focused
  - Scope specified in the regional architecture
  - Graphical tool,
    - providing visual feedback and tools to manipulate service package diagrams
    - develop communications stack templates, specify standards at all protocol layers,
  - Outputs – documents, diagrams, tables



RAD-IT's Updated Look-and-Feel

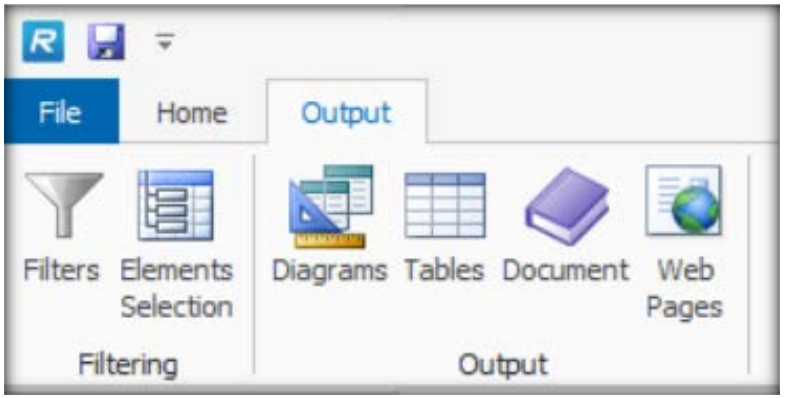


Relationships of Architecture Components in RAD-IT

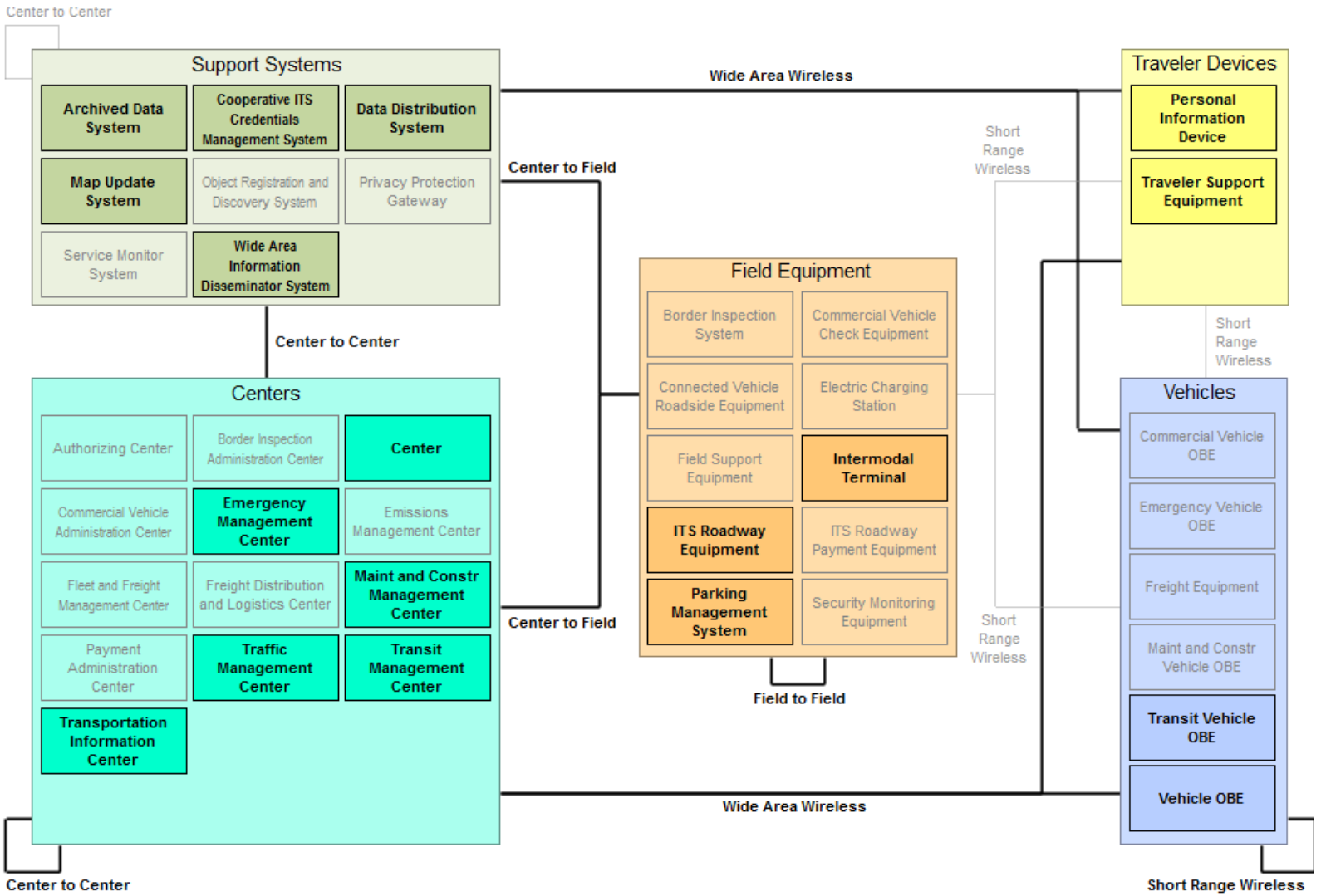


RAD-IT Outputs

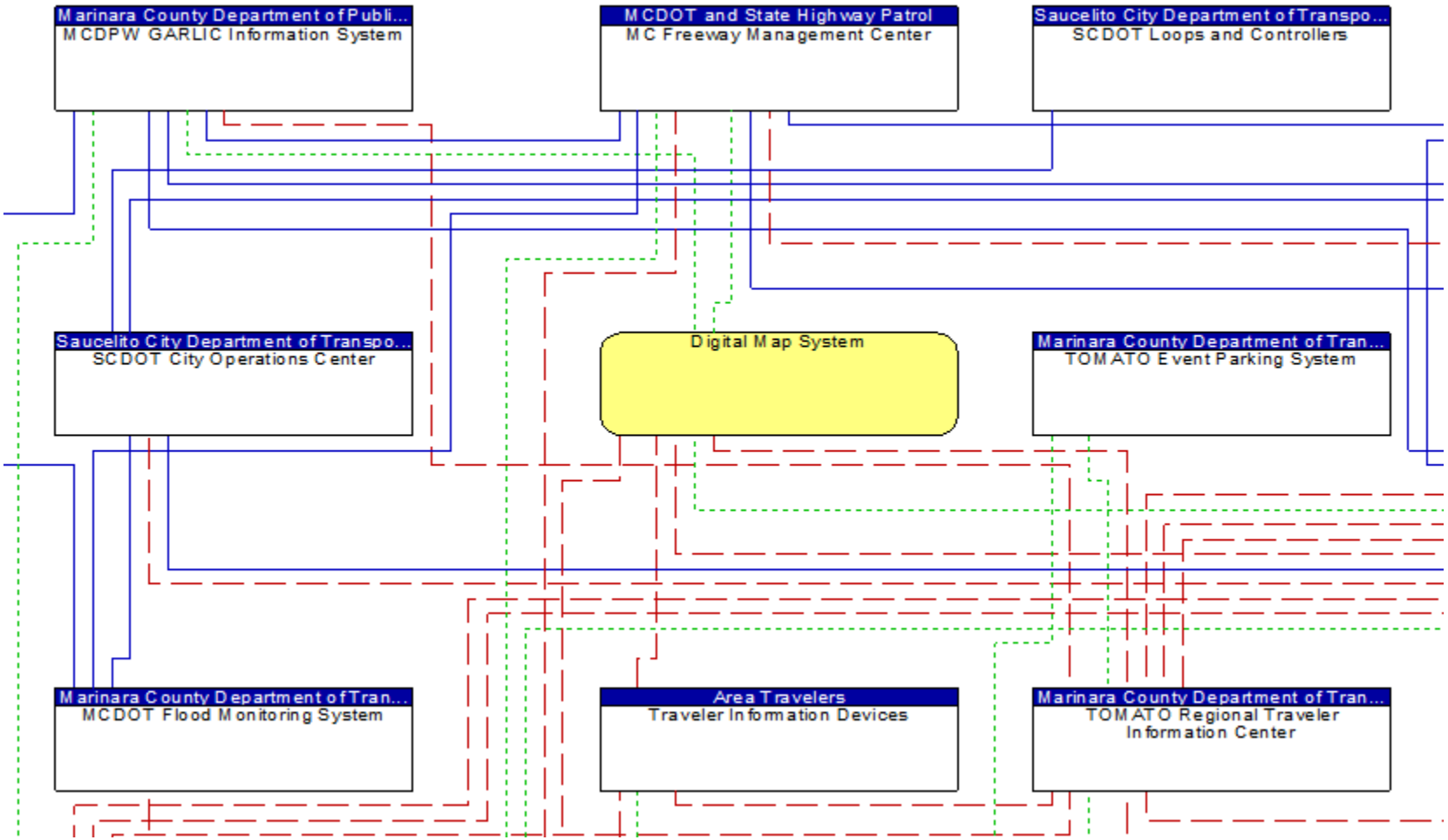
- Diagrams
  - Subsystem Summary
  - Interconnect
  - Flow
  - Plus - Batch capability
- Tables
- Documents – regional and project
- Customized website



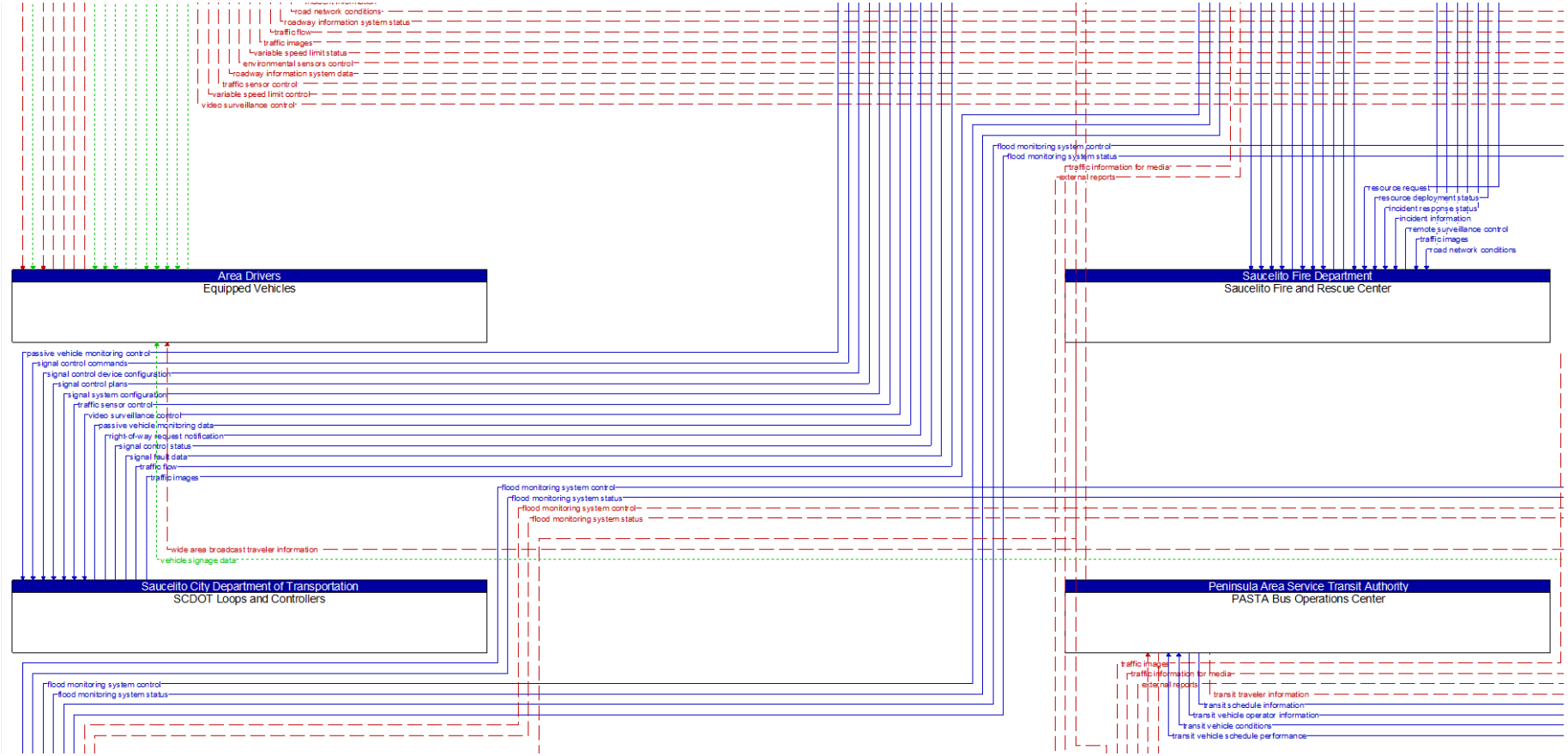
RAD-IT Outputs: Subsystem Diagram



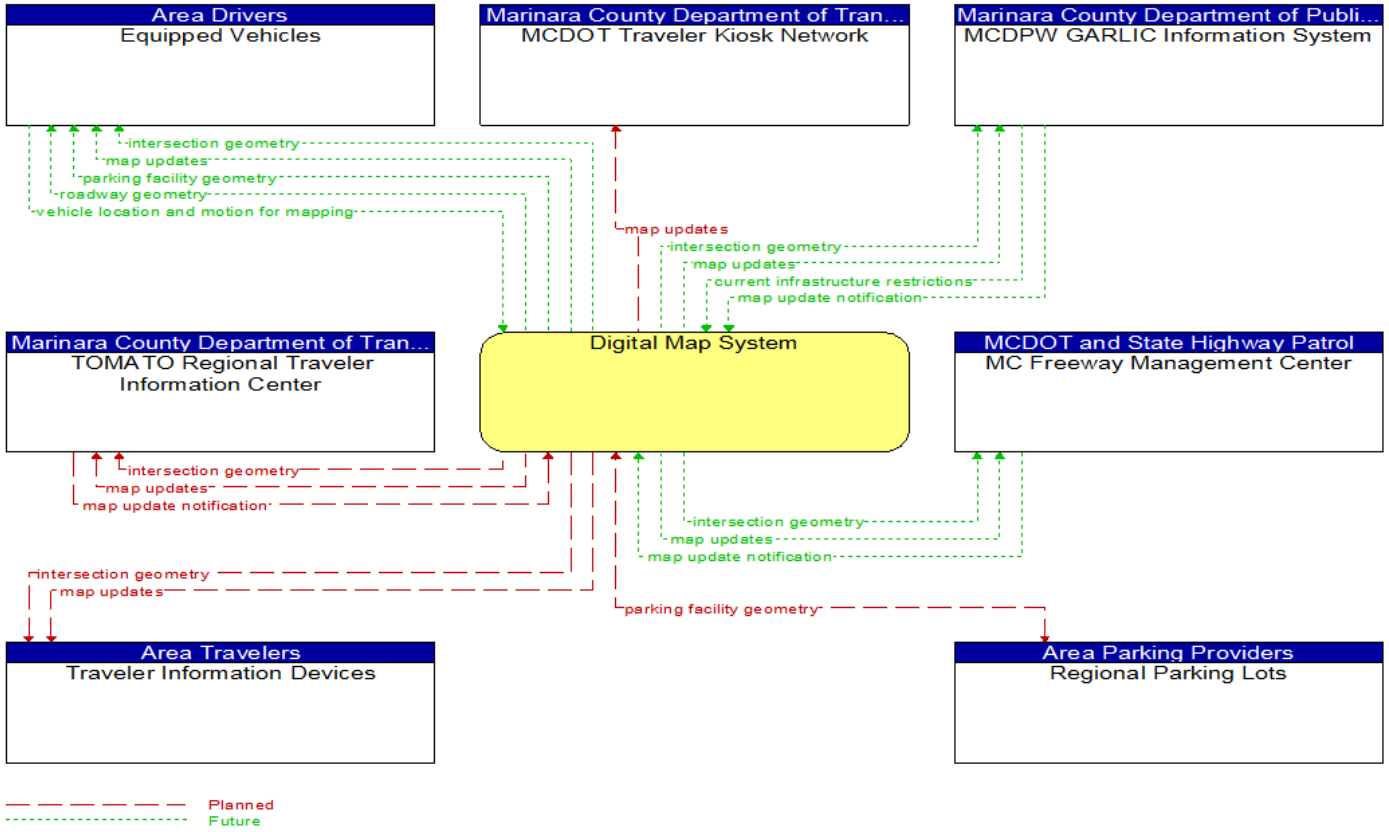
RAD-IT Outputs: Interconnect Diagram



RAD-IT Outputs: Flow Diagram



RAD-IT Outputs: Context Diagrams



RAD-IT Outputs: Tables

Services

Service Package	Service Package Name	Service Package Description	Service Package Status	Service Package Instance	Included Elements	Comment
DM01	ITS Data Warehouse	This service package provides the same broad access to multimodal, multidimensional data from varied data sources as in the ITS Data Warehouse service package, but provides this access using enhanced interoperability between physically distributed ITS archives that are each locally managed. Requests for data that are satisfied by access to a single repository in the ITS Data Warehouse service package are parsed by the local archive and dynamically translated to requests to remote archives which relay the data necessary to satisfy the request.	Planned	No	MC Planning Data Warehouse	
PM04	Regional Parking Management	This service package supports communication and coordination between equipped parking facilities and also supports regional coordination between parking facilities and traffic and transit management systems. This service package also shares information with transit management systems and information service providers to support multimodal travel planning, including parking reservation capabilities. Information including current parking availability, system status, and operating strategies are shared to enable local parking facility management that supports regional transportation strategies.	Future	No	Regional Parking Lots	
PM04	Regional Parking Management	This service package supports communication and coordination between equipped parking facilities and also supports regional coordination between parking facilities and traffic and transit management systems. This service package also shares information with transit management systems and information service providers to support multimodal travel planning, including parking reservation capabilities. Information including current parking availability, system status, and operating strategies are shared to enable local parking facility management that supports regional transportation strategies.	Future	No	TOMATO Event Parking System	
PM04	Regional Parking Management	This service package supports communication and coordination between equipped parking facilities and also supports regional coordination between parking facilities and traffic and transit management systems. This service package also shares information with transit management systems and information service providers to support multimodal travel planning, including parking reservation capabilities. Information including current parking availability, system status, and operating strategies are shared to enable local parking facility management that supports regional transportation strategies.	Future	No	TOMATO Regional Traveler Information Center	

RAD-IT Outputs: Documents

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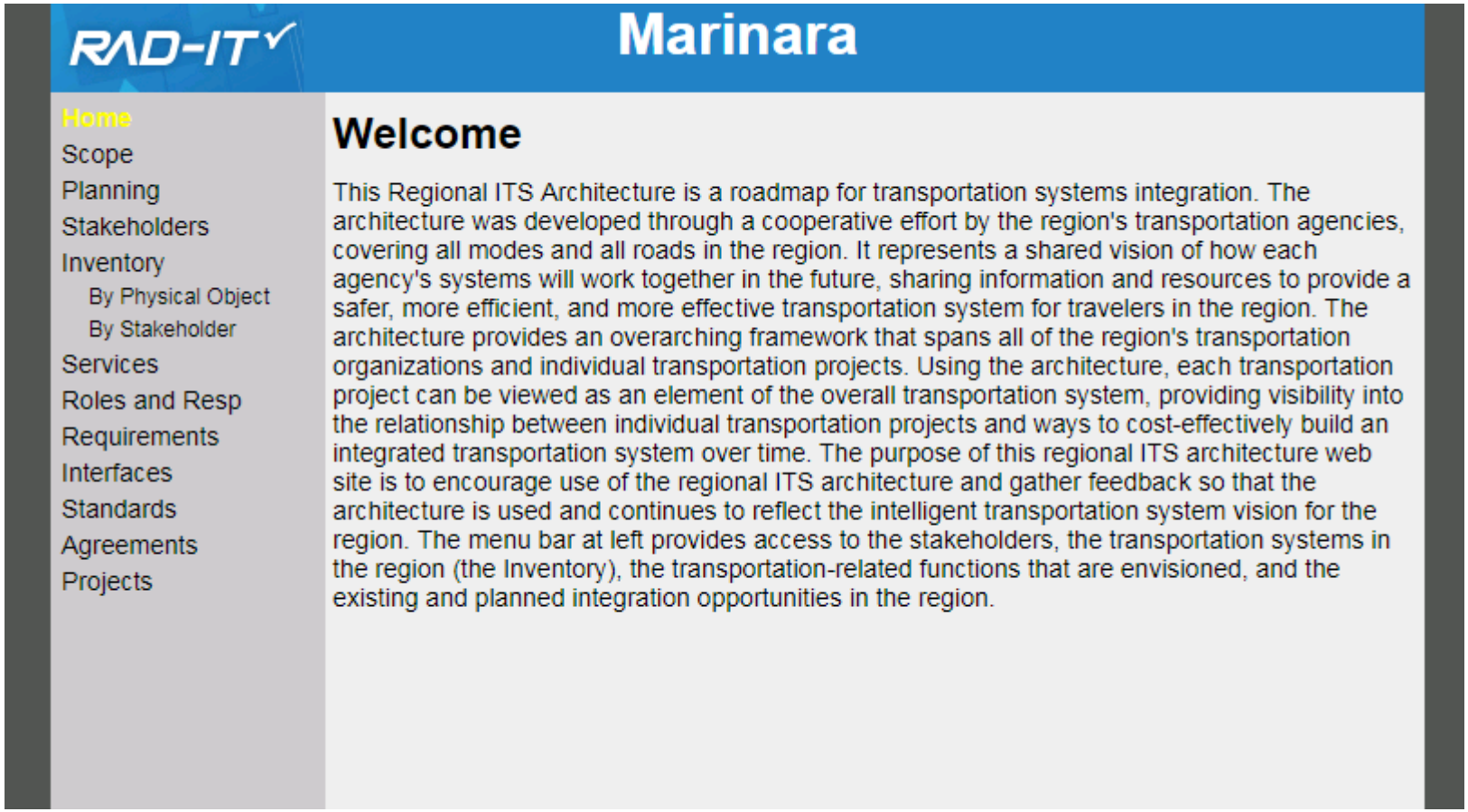
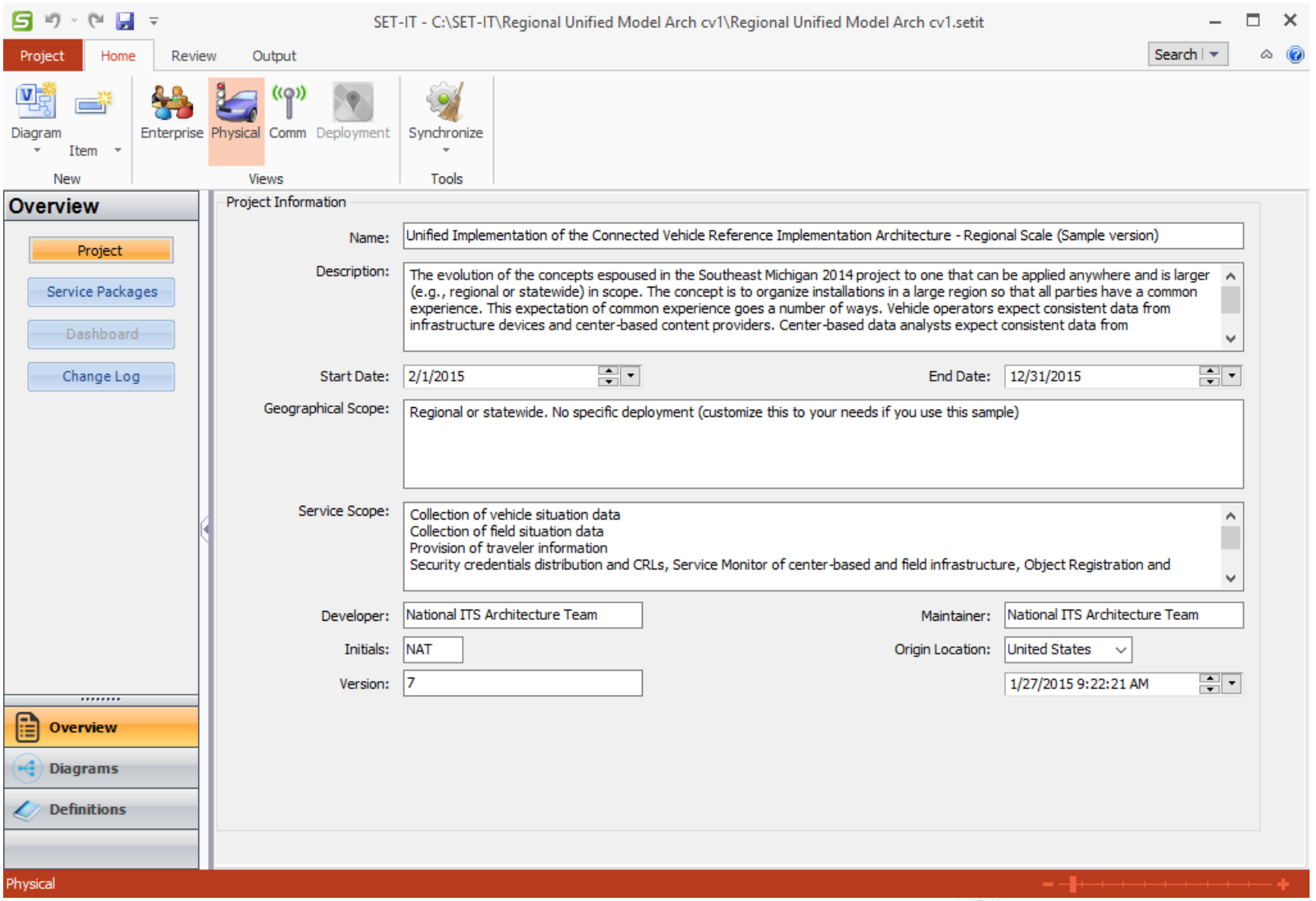
RAD-IT Outputs: Website



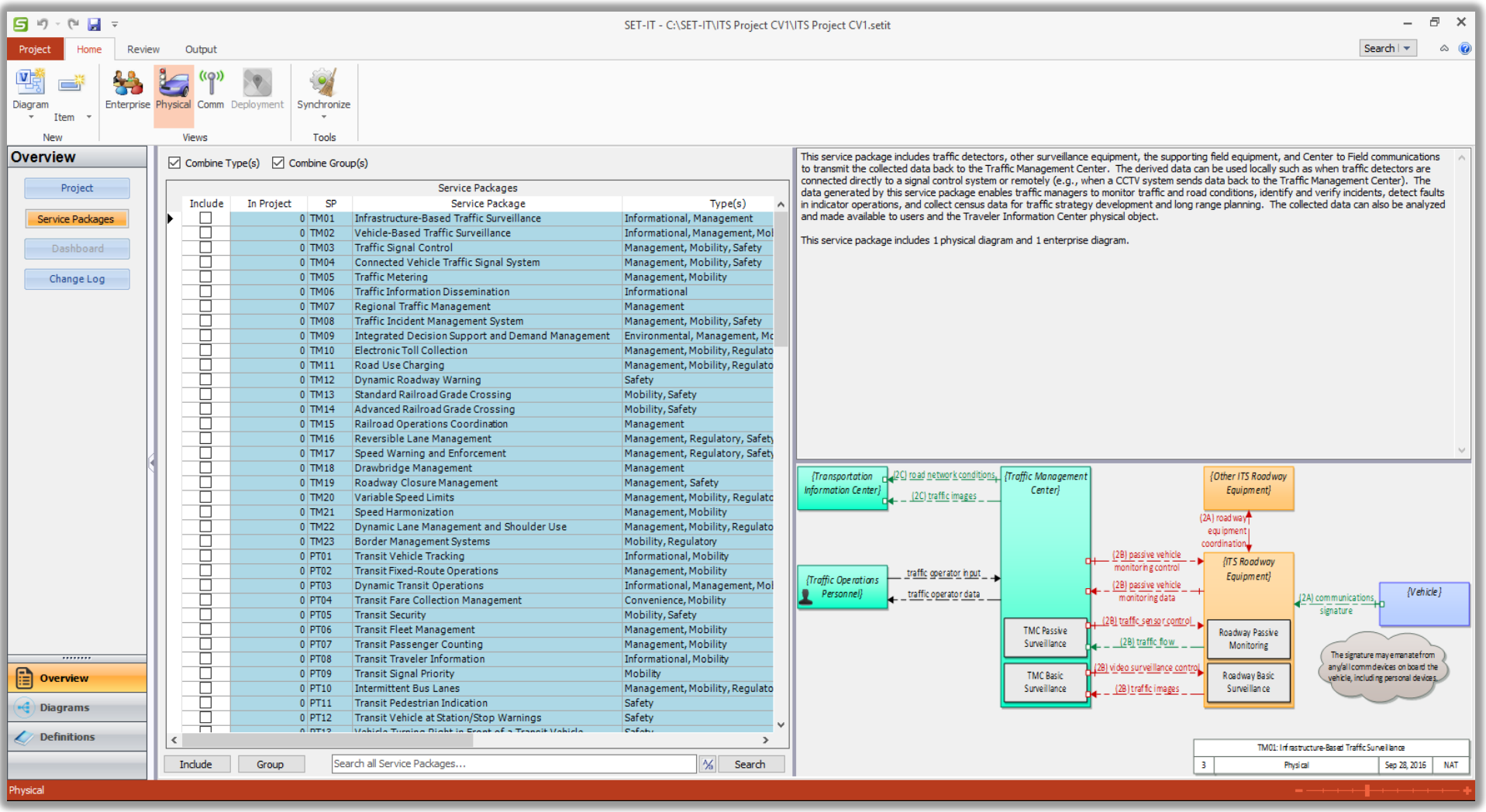
SET-IT Expanded Scope

- SET-IT began with CVRIA applications
- Now includes all ITS service packages
- Supports tailored project architecture development based on ARC-IT
- SET-IT focuses on the Physical, Communications, and Enterprise Views
  - * in version 8.0, the Enterprise View does not specify which relationships and roles are required to support service packages or information flow triples
  - However, SET-IT can still be used to generate enterprise diagram, context diagrams and other enterprise artifacts

SET-IT

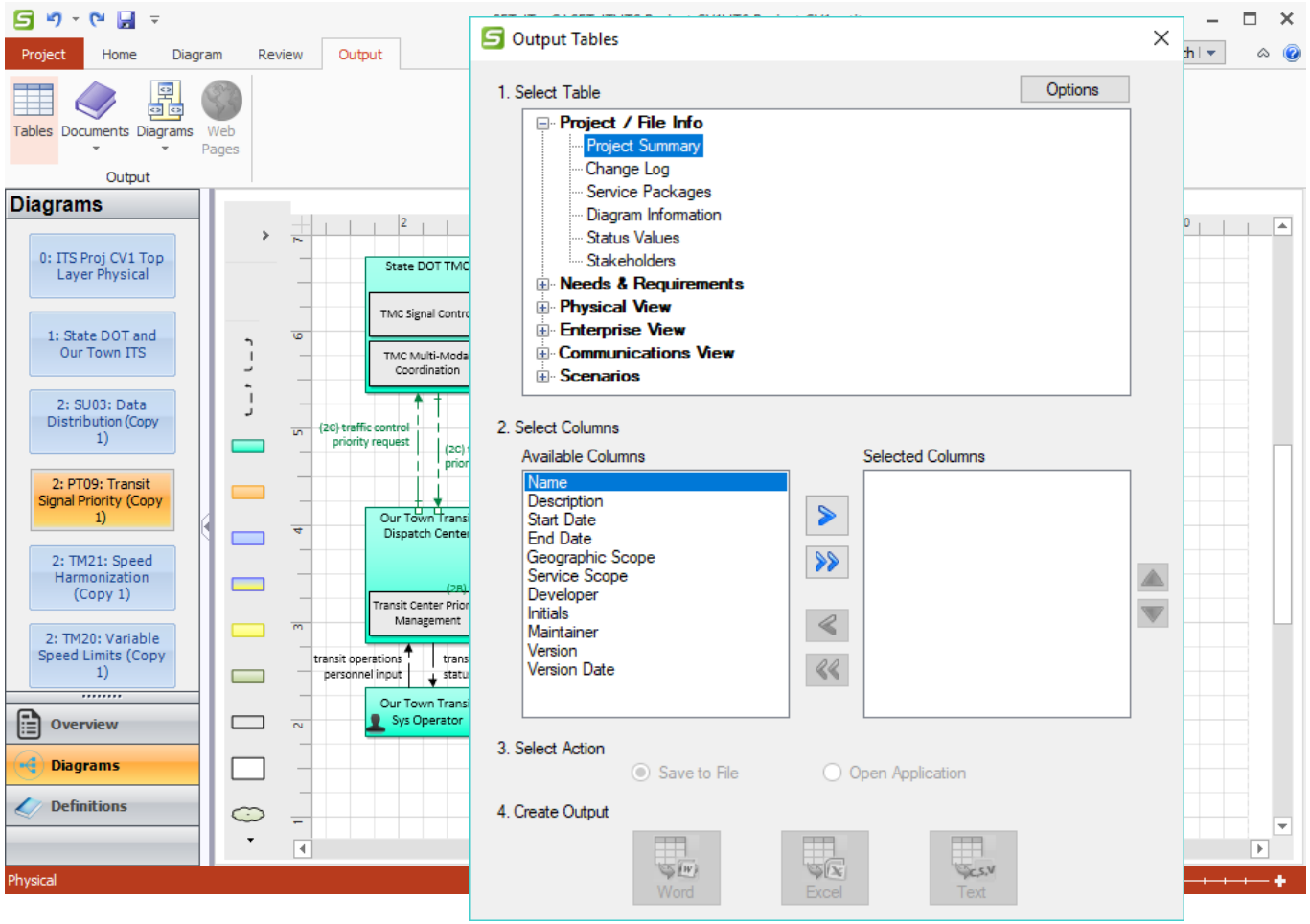

SET-IT - C:\SET-IT\Regional Unified Model Arch cv1\Regional Unified Model Arch cv1.setit
Project
Home
Review
Output
Search
Diagram
Item
New
Enterprise
Physical
Comm
Deployment
Views
Synchronize
Tools
Overview
Project
Service Packages
Dashboard
Change Log
Overview
Diagrams
Definitions
Project Information
Name:
Unified Implementation of the Connected Vehicle Reference Implementation Architecture - Regional Scale (Sample version)
Description:
The evolution of the concepts espoused in the Southeast Michigan 2014 project to one that can be applied anywhere and is larger (e.g., regional or statewide) in scope. The concept is to organize installations in a large region so that all parties have a common experience. This expectation of common experience goes a number of ways. Vehicle operators expect consistent data from infrastructure devices and center-based content providers. Center-based data analysts expect consistent data from
Start Date:
2/1/2015
End Date:
12/31/2015
Geographical Scope:
Regional or statewide. No specific deployment (customize this to your needs if you use this sample)
Service Scope:
Collection of vehicle situation data
Collection of field situation data
Provision of traveler information
Security credentials distribution and CRLs, Service Monitor of center-based and field infrastructure, Object Registration and
Developer:
National ITS Architecture Team
Maintainer:
National ITS Architecture Team
Initials:
NAT
Origin Location:
United States
Version:
7
1/27/2015 9:22:21 AM
Physical

SET-IT's Access to All ARC-IT Service Packages

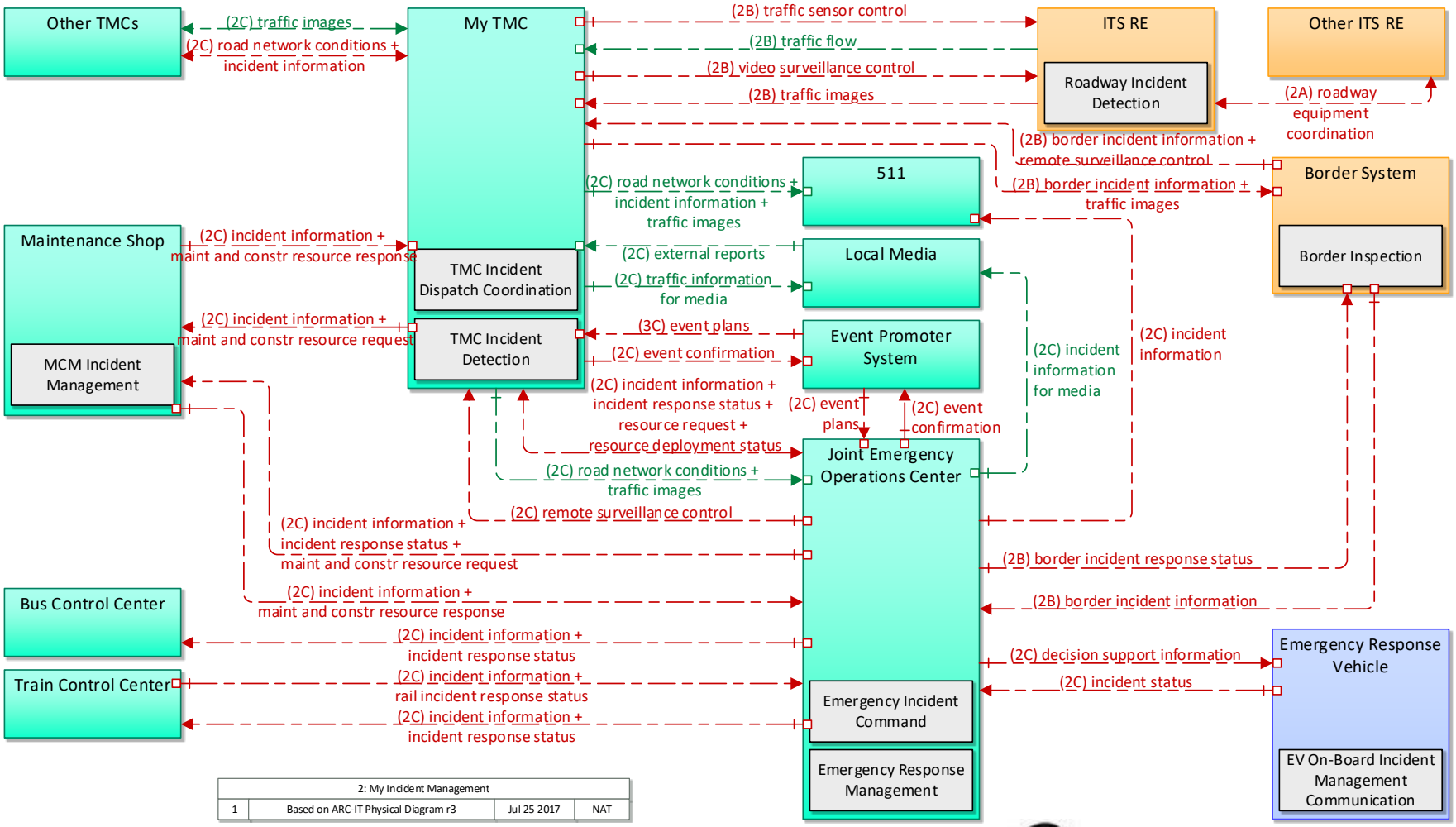


SET-IT Outputs

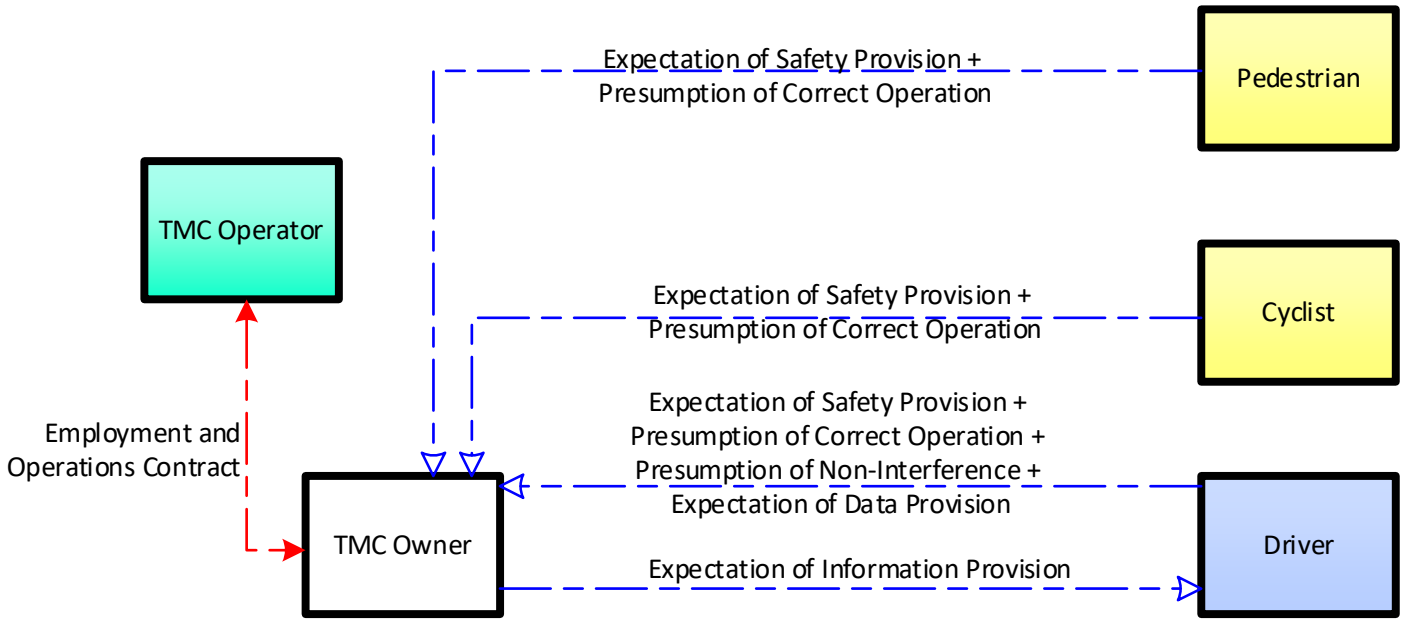
- Tables
- Diagrams
- Documents



SET-IT Outputs: Customized Physical Diagrams

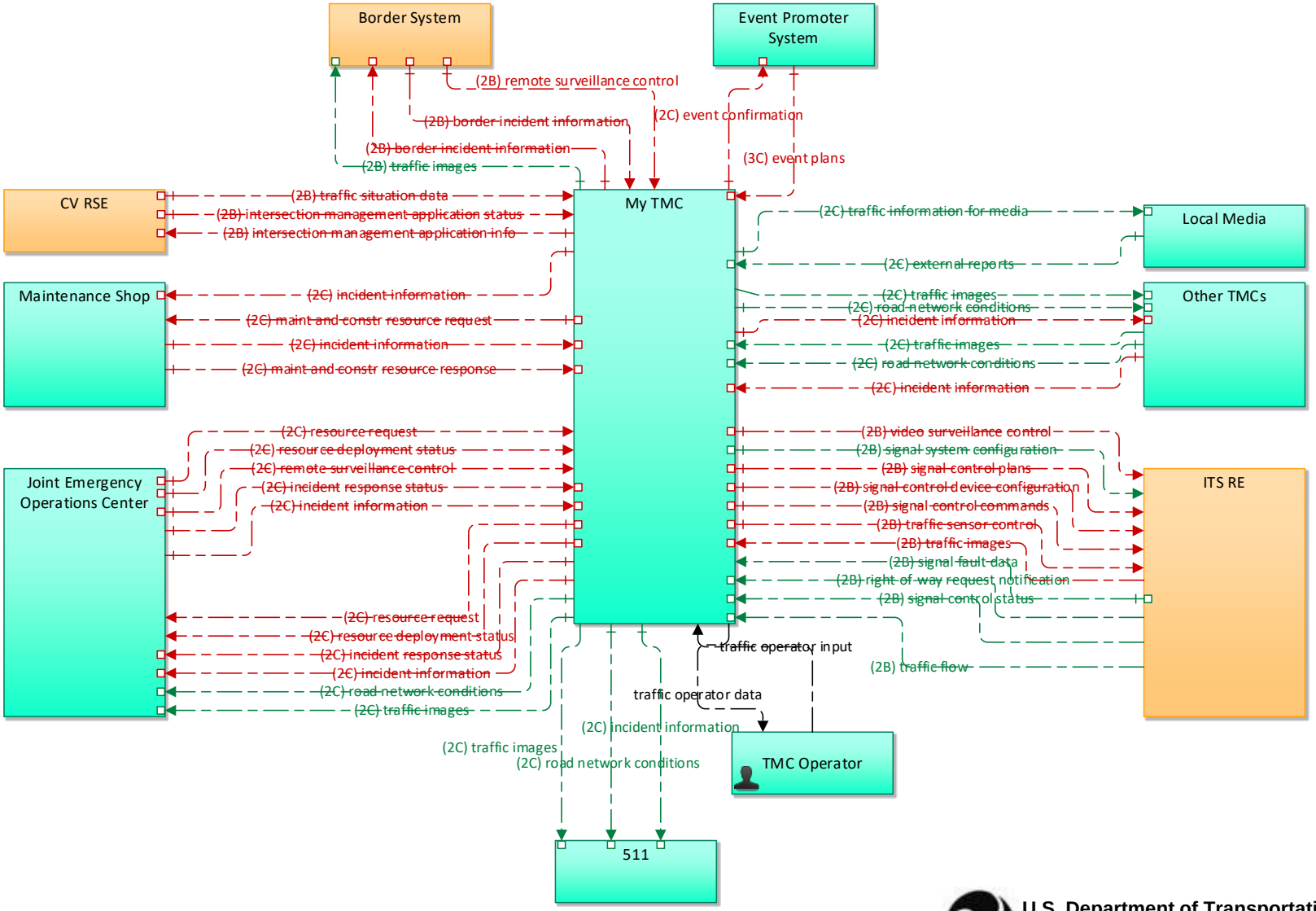


SET-IT Outputs: Enterprise Diagrams

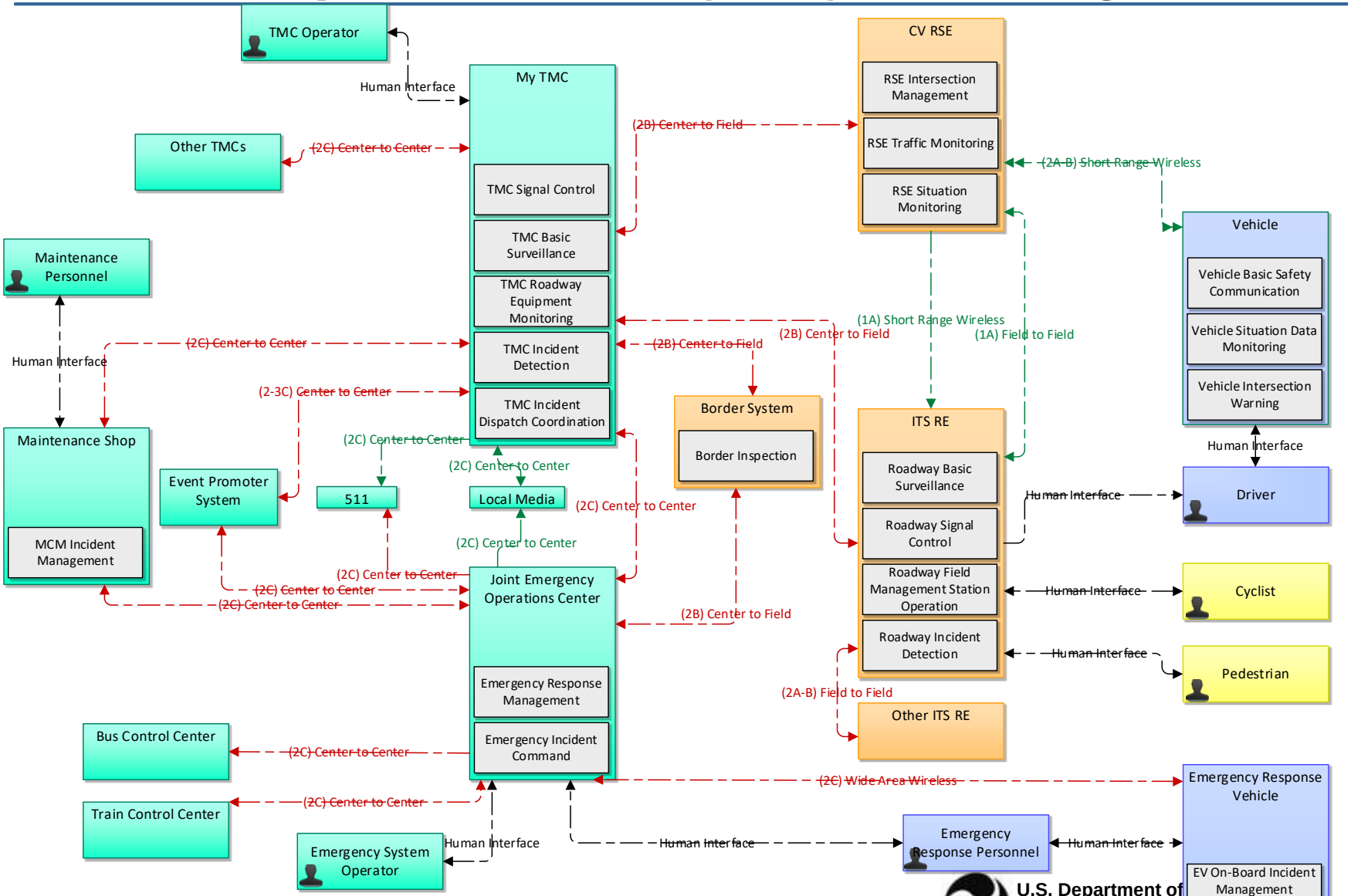


CV Traffic Signal System			
1	Enterprise View	DATE	NAT

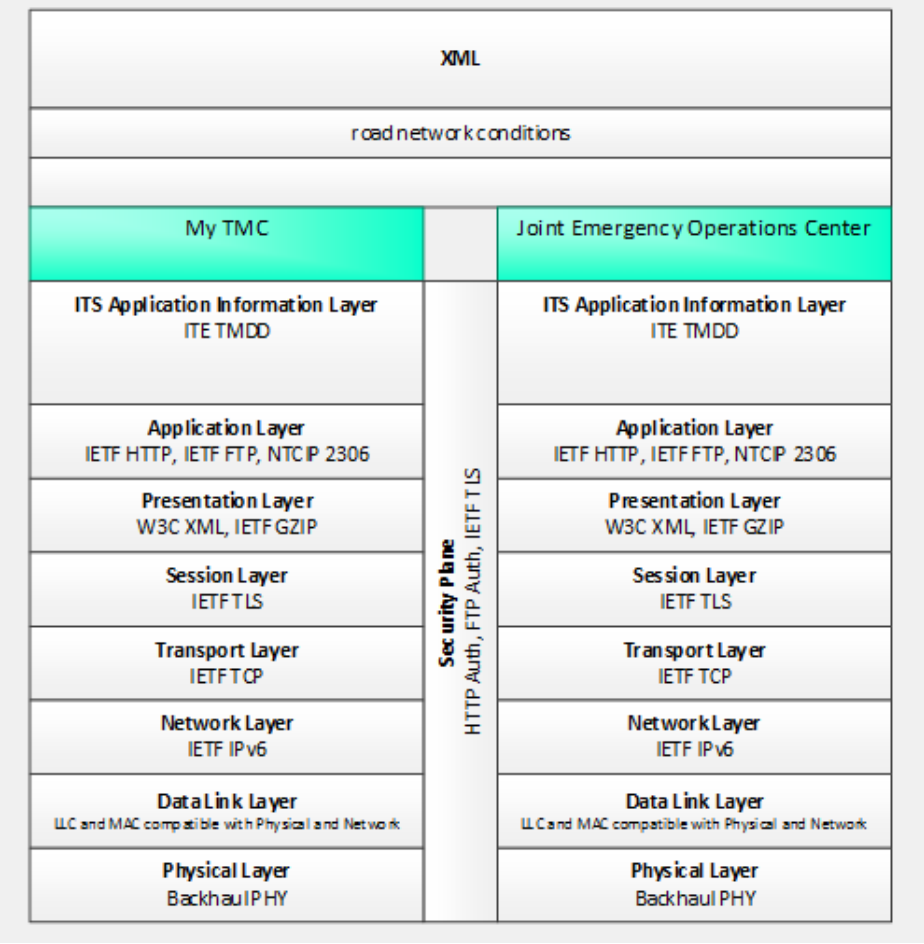
SET-IT Outputs: Context Diagrams



SET-IT Outputs: Summary Physical Diagrams



SET-IT Output: Communications Diagrams



SET-IT Outputs: Tables

Elements

Name	Abbreviation	Description	Status	Class	Parent	Physical Object(s)	Stakeholder(s)	Role	Diagram
511	5		Project	Center	No	Center, Transportation Information Center	511 Contractor	Operates, Owns	High Level Summary, My Incident Management, System with Functionality
511 Contractor	5C		Project	Center	No	TIC Operator	511 Contractor		
Border System	BS		Project	Field	No	Border Inspection System	US Customs and Border Protection	Operates, Owns	High Level Summary, My Incident Management, System with Functionality
Bus Control Center	BCC		Project	Center	No	Center, Transit Management Center	Bus Company, Bus Control Operator	Owns, Operates	High Level Summary, My Incident Management, System with Functionality
Bus Control Operator	BCO		Project	Center	No	Transit Operations Personnel	Bus Control Operator		
CV RSE	CR		Project	Field	No	Connected Vehicle Roadside Equipment	TMC Operator, TMC Owner	Operates, Owns	High Level Summary, My Connected Vehicle-enabled Signal System, System with Functionality
Cyclist	C		Project	Traveler	No	Cyclist	Cyclist		High Level Summary, My Connected Vehicle-enabled Signal System, System with Functionality

SET-IT Outputs: Documents

Concept of Operations

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ARC-IT Tools Integration

- FUTURE Capability
  - Take the Regional Architecture content as an input for a project in SET-IT
  - Drive more SE analysis using tools → Requirements, ICDs, regional standards

ARC-IT Tool Set Supports Application & Usage of Architecture