|  |
| --- |
| January 2025 |

|  |  |
| --- | --- |
|  | Florida ITS Architecture Support and Maintenance ProjectDistrict 7 Conversion Report(ARC-IT Version 9.3) |

|  |
| --- |
|   |
|  |

Document Version Control

|  |  |  |
| --- | --- | --- |
| Author / Action | Submittal Date | Version No. |
| Natalia Marin / Draft Document | December 31, 2024 | A9.3 01/2025 |
| Cliff Heise/ QA-QC Review | January 10, 2025 | A9.3 01/2025 |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Table of Contents

[1.0 Introduction 4](#_Toc187374090)

[2.0 Description of Changes 4](#_Toc187374091)

[3.0 Architecture Conversion Results 5](#_Toc187374092)

[3.1 Architecture Inventory Elements 5](#_Toc187374093)

[3.2 Architecture Information Flows 5](#_Toc187374094)

[3.3 Architecture Functional Requirements 6](#_Toc187374095)

List of Tables

[Table 1. CONVERSION ANALYSIS OF Information Flows 5](#_Toc187374096)

[Table 2. Conversion Analysis of Functional Requriements 7](#_Toc187374097)

# Introduction

This Architecture Conversion Report records the Florida District 7 Regional Intelligent Transportation System (ITS) ITS Architecture (RITSA) update from its reference in the Architecture Reference for Cooperative and Intelligent Transportation (ARC-IT) Version 9.2 to ARC-IT Version 9.3. There were no updates to the District 7 RITSA, so this report addresses notable results from the conversion process.

# Description of Changes

The architecture conversion process uses the Regional Architecture Development for Intelligent Transportation (RAD-IT) software Version 9.2 to convert the architecture to be compatible with ARC-IT Version 9.3. The process includes the following steps to accomplish the conversion.

* Architecture conversion: Conversion features in RAD-IT Version 9.3 convert the architecture database schema to be compatible with RAD-IT Version 9.3 and aligned to reference ARC-IT Version 9.3 content.
* Conversion analysis: Conversion information is produced by RAD-IT for the architecture conversion noting the changes made. The conversion information notes the schema and content changes, such as service splits or consolidations, element divisions, and information flow adjustments. Analysis is required for each converted item to assess the appropriateness of each change for the architecture.
* Architecture content update: The intent of the conversion process was to maintain the alignment of the converted Architecture content to the greatest extent possible with the pre-conversion Architecture content. Element physical object mapping changes, service package changes, information flow additions and adjustments, and the evolution of the standards mappings in ARC-IT Version 9.2 required changes to be made to the Architecture content. Unless it was necessary, no additional changes beyond those required to align the pre-conversion and converted architecture content were made. During the course of the Annual Architecture Maintenance Update, ARC-IT Version 9.2 features that could be considered as additional information to the Architecture will be assessed.
* Architecture website posting: The converted architecture will be posted to the Florida ITS Architecture website.

# Architecture Conversion Results

The District 7 RITSA was converted to be compatible with ARC-IT Version 9.2. The following sections highlight the changes made to the architecture as a result of the conversion process.

## Architecture Inventory Elements

No architecture inventory elements were impacted by the conversion process.

## Architecture Information Flows

Table 1 provides conversion results for architecture information flows impacted by the conversion process. The table information shows the architecture, source and destination elements, the old flow name, and the results of the flow conversion. As the table notes, the information flow changes resulting from conversion addressed flow renaming.

Table 1. CONVERSION ANALYSIS OF Information Flows

| **Regional** | **Architecture** | **Change** | **Source Element** | **Destination Element** | **Old Flow** | **New Flow** |
| --- | --- | --- | --- | --- | --- | --- |
| In Region | Tampa Bay Regional ITS Architecture - FDOT District 7 | Replaced | City of Plant City CAV Field Equipment | City of Plant City Field Equipment | local priority request coordination | right-of-way request coordination |
| In Region | Tampa Bay Regional ITS Architecture - FDOT District 7 | Replaced | City of Plant City Field Equipment | City of Plant City CAV Field Equipment | local priority request coordination | right-of-way request coordination |
| In Region | Tampa Bay Regional ITS Architecture - FDOT District 7 | Replaced | City of Tampa CAV Field Equipment | City of Tampa Field Equipment | local priority request coordination | right-of-way request coordination |
| In Region | Tampa Bay Regional ITS Architecture - FDOT District 7 | Replaced | City of Tampa Field Equipment | City of Tampa CAV Field Equipment | local priority request coordination | right-of-way request coordination |
| In Region | Tampa Bay Regional ITS Architecture - FDOT District 7 | Replaced | FDOT District 7 CAV Field Equipment | FDOT District 7 Field Equipment | local priority request coordination | right-of-way request coordination |
| In Region | Tampa Bay Regional ITS Architecture - FDOT District 7 | Replaced | FDOT District 7 Field Equipment | FDOT District 7 CAV Field Equipment | local priority request coordination | right-of-way request coordination |
| In Region | Tampa Bay Regional ITS Architecture - FDOT District 7 | Replaced | Hillsborough County CAV Field Equipment | Hillsborough County Field Equipment | local priority request coordination | right-of-way request coordination |
| In Region | Tampa Bay Regional ITS Architecture - FDOT District 7 | Replaced | Hillsborough County Field Equipment | Hillsborough County CAV Field Equipment | local priority request coordination | right-of-way request coordination |
| Project | FDOT District 7 I-4 FRAME | Replaced | City of Plant City CAV Field Equipment | City of Plant City Field Equipment | local priority request coordination | right-of-way request coordination |
| Project | FDOT District 7 I-4 FRAME | Replaced | City of Plant City Field Equipment | City of Plant City CAV Field Equipment | local priority request coordination | right-of-way request coordination |
| Project | FDOT District 7 I-4 FRAME | Replaced | City of Tampa CAV Field Equipment | City of Tampa Field Equipment | local priority request coordination | right-of-way request coordination |
| Project | FDOT District 7 I-4 FRAME | Replaced | City of Tampa Field Equipment | City of Tampa CAV Field Equipment | local priority request coordination | right-of-way request coordination |
| Project | FDOT District 7 I-4 FRAME | Replaced | FDOT District 7 CAV Field Equipment | FDOT District 7 Field Equipment | local priority request coordination | right-of-way request coordination |
| Project | FDOT District 7 I-4 FRAME | Replaced | FDOT District 7 Field Equipment | FDOT District 7 CAV Field Equipment | local priority request coordination | right-of-way request coordination |
| Project | FDOT District 7 I-4 FRAME | Replaced | Hillsborough County CAV Field Equipment | Hillsborough County Field Equipment | local priority request coordination | right-of-way request coordination |
| Project | FDOT District 7 I-4 FRAME | Replaced | Hillsborough County Field Equipment | Hillsborough County CAV Field Equipment | local priority request coordination | right-of-way request coordination |

## Architecture Functional Requirements

Table 2 provides conversion results for architecture functional requirements impacted by the conversion process. The table information shows the element impacted, the type of change made, the old functional object, number, and requirement, along with the new functional object, number, and requirement to display the change made.

Table 2. Conversion Analysis of Functional Requriements

| **Element Name** | **Change** | **Old Functional Object** | **Old Num** | **Old Req** | **New Functional Object** | **New Num** | **New Req** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| City of Plant City CAV Field Equipment | Modified | RSE Intersection Management | 4 | The field element shall receive signal prioity requests from commercial vehicles and forward to the traffic signal controller. | RSE Intersection Management | 4 | The field element shall receive signal priority requests from commercial vehicles and forward to the traffic signal controller. |
| City of Plant City Field Equipment | Modified | Roadway Signal Control | 15 | The field element shall receive requests for emergency vehicle signal preemption. | Roadway Signal Control | 17 | The field element shall receive requests for signal preemption. |
| City of Plant City TMC | Modified | TMC Advanced Rail Crossing Management | 6 | The center shall implement control plans to coordinate signalized intersections around highway-rail intersections (HRI), under control of center personnel, based on data from sensors and surveillance monitoring traffic conditions, incidents, equipment faults, pedestrian crossings, etc. | TMC Advanced Rail Crossing Management | 6 | The center shall support control plans to coordinate signalized intersections around highway-rail intersections (HRI), under control of center personnel, based on data from sensors and surveillance monitoring traffic conditions, incidents, equipment faults, pedestrian crossings, etc. |
| City of Plant City TMC | Modified | TMC Signal Control | 10 | The center shall adjust signal timing in respond to a signal prioritization, signal preemption, pedestrian call, multi-modal crossing activation, or other requests for right-of-way. | TMC Signal Control | 10 | The center shall adjust signal timing in response to a signal prioritization, signal preemption, pedestrian call, multi-modal crossing activation, or other requests for right-of-way. |
| City of St. Petersburg Traffic Control Center | Modified | TMC Signal Control | 10 | The center shall adjust signal timing in respond to a signal prioritization, signal preemption, pedestrian call, multi-modal crossing activation, or other requests for right-of-way. | TMC Signal Control | 10 | The center shall adjust signal timing in response to a signal prioritization, signal preemption, pedestrian call, multi-modal crossing activation, or other requests for right-of-way. |
| City of Tampa CAV Field Equipment | Modified | RSE Intersection Management | 4 | The field element shall receive signal prioity requests from commercial vehicles and forward to the traffic signal controller. | RSE Intersection Management | 4 | The field element shall receive signal priority requests from commercial vehicles and forward to the traffic signal controller. |
| City of Tampa Field Equipment | Modified | Roadway Signal Control | 15 | The field element shall receive requests for emergency vehicle signal preemption. | Roadway Signal Control | 17 | The field element shall receive requests for signal preemption. |
| City of Tampa TMC | Modified | TMC Advanced Rail Crossing Management | 6 | The center shall implement control plans to coordinate signalized intersections around highway-rail intersections (HRI), under control of center personnel, based on data from sensors and surveillance monitoring traffic conditions, incidents, equipment faults, pedestrian crossings, etc. | TMC Advanced Rail Crossing Management | 6 | The center shall support control plans to coordinate signalized intersections around highway-rail intersections (HRI), under control of center personnel, based on data from sensors and surveillance monitoring traffic conditions, incidents, equipment faults, pedestrian crossings, etc. |
| City of Tampa TMC | Modified | TMC Signal Control | 10 | The center shall adjust signal timing in respond to a signal prioritization, signal preemption, pedestrian call, multi-modal crossing activation, or other requests for right-of-way. | TMC Signal Control | 10 | The center shall adjust signal timing in response to a signal prioritization, signal preemption, pedestrian call, multi-modal crossing activation, or other requests for right-of-way. |
| Commercial Vehicle | Modified | Vehicle Traveler Information Reception | 1 | The vehicle shall receive traveler information including traffic and road conditions, incident information, maintenance and construction information, event information, transit information, parking information, and weather information. | Vehicle Traveler Information Reception | 1 | The vehicle shall receive traveler information including traffic and road conditions, incident information, maintenance and construction information, event information, transit information, parking information, border crossing information, and weather information. |
| Commercial Vehicle | Modified | Vehicle Traveler Information Reception | 2 | The vehicle shall receive advisory information, such as evacuation information, proximity to a maintenance and construction vehicle, wide-area alerts, work zone intrusion information, variable speed limits, tunnel entrance restrictions, and other special information. | Vehicle Traveler Information Reception | 2 | The vehicle shall receive advisory information, such as evacuation information, proximity to a maintenance and construction vehicle, wide-area alerts, work zone intrusion information, variable speed limits, tunnel entrance restrictions, border crossing advisories, and other special information. |
| County Fire EMS/Rescue Vehicles | Modified | EV On-Board En Route Support | 9 | The emergency vehicle shall send the vehicle’s location, speed and direction to other vehicles in the area. | EV On-Board En Route Support | 9 | The emergency vehicle shall send the vehicle's location, speed and direction to a third party provider for distribution to vehicles in the vicinity. |
| County Fire Vehicles | Modified | EV On-Board En Route Support | 9 | The emergency vehicle shall send the vehicle’s location, speed and direction to other vehicles in the area. | EV On-Board En Route Support | 9 | The emergency vehicle shall send the vehicle's location, speed and direction to a third party provider for distribution to vehicles in the vicinity. |
| County Sheriff Vehicles | Modified | EV On-Board En Route Support | 9 | The emergency vehicle shall send the vehicle’s location, speed and direction to other vehicles in the area. | EV On-Board En Route Support | 9 | The emergency vehicle shall send the vehicle's location, speed and direction to a third party provider for distribution to vehicles in the vicinity. |
| FDOT District 7 CAV Field Equipment | Modified | RSE Intersection Management | 4 | The field element shall receive signal prioity requests from commercial vehicles and forward to the traffic signal controller. | RSE Intersection Management | 4 | The field element shall receive signal priority requests from commercial vehicles and forward to the traffic signal controller. |
| FDOT District 7 Field Equipment | Modified | Roadway Signal Control | 15 | The field element shall receive requests for emergency vehicle signal preemption. | Roadway Signal Control | 17 | The field element shall receive requests for signal preemption. |
| FHP Vehicles | Modified | EV On-Board En Route Support | 9 | The emergency vehicle shall send the vehicle’s location, speed and direction to other vehicles in the area. | EV On-Board En Route Support | 9 | The emergency vehicle shall send the vehicle's location, speed and direction to a third party provider for distribution to vehicles in the vicinity. |
| Hernando County Field Equipment | Modified | Roadway Signal Control | 15 | The field element shall receive requests for emergency vehicle signal preemption. | Roadway Signal Control | 17 | The field element shall receive requests for signal preemption. |
| Hillsborough County CAV Field Equipment | Modified | Roadway Signal Control | 15 | The field element shall receive requests for emergency vehicle signal preemption. | Roadway Signal Control | 17 | The field element shall receive requests for signal preemption. |
| Hillsborough County Field Equipment | Modified | Roadway Signal Control | 15 | The field element shall receive requests for emergency vehicle signal preemption. | Roadway Signal Control | 17 | The field element shall receive requests for signal preemption. |
| Hillsborough County Traffic Management Center | Modified | TMC Signal Control | 10 | The center shall adjust signal timing in respond to a signal prioritization, signal preemption, pedestrian call, multi-modal crossing activation, or other requests for right-of-way. | TMC Signal Control | 10 | The center shall adjust signal timing in response to a signal prioritization, signal preemption, pedestrian call, multi-modal crossing activation, or other requests for right-of-way. |
| Local Fire/EMS Vehicles | Modified | EV On-Board En Route Support | 9 | The emergency vehicle shall send the vehicle’s location, speed and direction to other vehicles in the area. | EV On-Board En Route Support | 9 | The emergency vehicle shall send the vehicle's location, speed and direction to a third party provider for distribution to vehicles in the vicinity. |
| Pinellas County Field Equipment | Modified | Roadway Signal Control | 15 | The field element shall receive requests for emergency vehicle signal preemption. | Roadway Signal Control | 17 | The field element shall receive requests for signal preemption. |
| Pinellas County Maintenance Vehicles | Modified | Vehicle Control Automation | 16 | The vehicle shall be capable of performing control actions based upon information received from other vehicles regarding their status approaching the intersection the vehicle is approaching. | Vehicle Control Automation | 16 | The vehicle shall be capable of performing control actions based upon information received from other vehicles regarding their status. This includes intersection-related status, maneuver coordination, and other status information received from vehicles in the vicinity. |
| Pinellas County Maintenance Vehicles | Modified | Vehicle Control Warning | 5 | The vehicle shall provide warnings to the driver based on information received from other vehicles regarding potentially hazardous road conditions or road hazards. | Vehicle Control Warning | 5 | The vehicle shall provide warnings to the driver based on information received from other vehicles regarding potentially hazardous road conditions, road hazards, or pending/in-progress vehicle maneuvers. |
| Pinellas County Maintenance Vehicles | Modified | Vehicle Traveler Information Reception | 1 | The vehicle shall receive traveler information including traffic and road conditions, incident information, maintenance and construction information, event information, transit information, parking information, and weather information. | Vehicle Traveler Information Reception | 1 | The vehicle shall receive traveler information including traffic and road conditions, incident information, maintenance and construction information, event information, transit information, parking information, border crossing information, and weather information. |
| Pinellas County Traffic Management Center | Modified | TMC Signal Control | 10 | The center shall adjust signal timing in respond to a signal prioritization, signal preemption, pedestrian call, multi-modal crossing activation, or other requests for right-of-way. | TMC Signal Control | 10 | The center shall adjust signal timing in response to a signal prioritization, signal preemption, pedestrian call, multi-modal crossing activation, or other requests for right-of-way. |
| PSTA Transit Vehicles | Modified | Vehicle Traveler Information Reception | 1 | The vehicle shall receive traveler information including traffic and road conditions, incident information, maintenance and construction information, event information, transit information, parking information, and weather information. | Vehicle Traveler Information Reception | 1 | The vehicle shall receive traveler information including traffic and road conditions, incident information, maintenance and construction information, event information, transit information, parking information, border crossing information, and weather information. |
| PSTA Transit Vehicles | Modified | Vehicle Traveler Information Reception | 2 | The vehicle shall receive advisory information, such as evacuation information, proximity to a maintenance and construction vehicle, wide-area alerts, work zone intrusion information, variable speed limits, tunnel entrance restrictions, and other special information. | Vehicle Traveler Information Reception | 2 | The vehicle shall receive advisory information, such as evacuation information, proximity to a maintenance and construction vehicle, wide-area alerts, work zone intrusion information, variable speed limits, tunnel entrance restrictions, border crossing advisories, and other special information. |
| Vehicles | Modified | Vehicle Traveler Information Reception | 1 | The vehicle shall receive traveler information including traffic and road conditions, incident information, maintenance and construction information, event information, transit information, parking information, and weather information. | Vehicle Traveler Information Reception | 1 | The vehicle shall receive traveler information including traffic and road conditions, incident information, maintenance and construction information, event information, transit information, parking information, border crossing information, and weather information. |
| Vehicles | Modified | Vehicle Traveler Information Reception | 2 | The vehicle shall receive advisory information, such as evacuation information, proximity to a maintenance and construction vehicle, wide-area alerts, work zone intrusion information, variable speed limits, tunnel entrance restrictions, and other special information. | Vehicle Traveler Information Reception | 2 | The vehicle shall receive advisory information, such as evacuation information, proximity to a maintenance and construction vehicle, wide-area alerts, work zone intrusion information, variable speed limits, tunnel entrance restrictions, border crossing advisories, and other special information. |