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|  | Florida ITS Architecture Support and Maintenance ProjectDistrict 5 Conversion Report(ARC-IT Version 9.3) |

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# Introduction

This Architecture Conversion Report records the Florida District 5 Regional 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 5 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 9.3 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 5 RITSA was converted to be compatible with ARC-IT Version 9.3. The following sections highlight the changes made to the architecture as a result of the conversion process.

## Architecture Inventory Elements

Table 1 provides conversion results for architecture inventory elements impacted by the conversion process. The table information shows the element impacted, the results of the element conversion, the analysis disposition which may indicate a revision to the conversion results depending on the architecture content, and the notes of the conversion implementation. The changes identified in the table as “added” reflect that an additional mapping has been made to the specific element. For the majority of the elements identified, the vehicle subsystem mapping was added to reflect the general vehicle functionality adjustments in ARC-IT Version 9.3 and to properly align with the selected services involving the element.

Table 1. Conversion Analysis of Inventory Elements

| **Element Name** | **Change** | **Old Mapping** | **New Mapping** | **Old Kind** | **New Kind** |
| --- | --- | --- | --- | --- | --- |
| Ambulance Vehicles | Added |  | Vehicle |  | Subsystem |
| CFX Maintenance Vehicles | Added |  | Vehicle |  | Subsystem |
| CFX Road Ranger Service Patrol Vehicles | Added |  | Vehicle |  | Subsystem |
| City of Orlando Fire Vehicles | Added |  | Vehicle |  | Subsystem |
| County and City PWD Vehicles | Added |  | Vehicle |  | Subsystem |
| County Fire EMS/Rescue Vehicles | Added |  | Vehicle |  | Subsystem |
| County Fire Vehicles | Added |  | Vehicle |  | Subsystem |
| County Sheriffs Vehicles | Added |  | Vehicle |  | Subsystem |
| E-PASS Tag | Added |  | Personal |  | Subsystem |
| FDOT District 5 Maintenance Vehicles | Added |  | Vehicle |  | Subsystem |
| FDOT District 5 Road Ranger Service Patrol Vehicles | Added |  | Vehicle |  | Subsystem |
| FHP Vehicles | Added |  | Vehicle |  | Subsystem |
| I-RIDE Tourist Shuttles | Added |  | Vehicle |  | Subsystem |
| LakeXpress Vehicles | Added |  | Vehicle |  | Subsystem |
| Local Fire/EMS Vehicles | Added |  | Vehicle |  | Subsystem |
| Local Police Vehicles | Added |  | Vehicle |  | Subsystem |
| LYNX Road Ranger Vehicles | Added |  | Vehicle |  | Subsystem |
| LYNX Van Pool | Added |  | Vehicle |  | Subsystem |
| Maintenance and Construction Personnel Device | Added |  | Personal |  | Subsystem |
| Marion Transit Vehicles | Added |  | Vehicle |  | Subsystem |
| Orange County Fire Vehicles | Added |  | Vehicle |  | Subsystem |
| Other Vehicle | Added |  | Vehicle |  | Subsystem |
| Private Travelers Personal Computing Devices | Added |  | Personal |  | Subsystem |
| SCAT Transit Vehicles | Added |  | Vehicle |  | Subsystem |
| Sumter County Transit Vehicles | Added |  | Vehicle |  | Subsystem |
| SunPass Tag | Added |  | Personal |  | Subsystem |
| SunRail Rail Vehicles | Added |  | Vehicle |  | Subsystem |
| SunRail Transit Vehicles | Added |  | Vehicle |  | Subsystem |
| SUNTRAN Transit Vehicles | Added |  | Vehicle |  | Subsystem |
| Volusia County Fire Vehicles | Added |  | Vehicle |  | Subsystem |
| Votran Transit Vehicles | Added |  | Vehicle |  | Subsystem |
| VTRACS Transit Vehicle | Added |  | Vehicle |  | Subsystem |

## Architecture Information Flows

Table 2 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 2. Conversion Analysis of INFORMATION FLOWs

| **Regional** | **Architecture** | **Change** | **Source Element** | **Destination Element** | **Old Flow** | **New Flow** |
| --- | --- | --- | --- | --- | --- | --- |
| In Region | FDOT District 5 - Central Florida Regional ITS Architecture | Replaced | City of Orlando Field Equipment | FDOT District 5 Field Equipment | local priority request coordination | right-of-way request coordination |
| In Region | FDOT District 5 - Central Florida Regional ITS Architecture | Replaced | City of Orlando Field Equipment | SunRail Field and Wayside Equipment | local priority request coordination | right-of-way request coordination |
| In Region | FDOT District 5 - Central Florida Regional ITS Architecture | Replaced | FDOT District 5 Field Equipment | City of Orlando Field Equipment | local priority request coordination | right-of-way request coordination |
| In Region | FDOT District 5 - Central Florida Regional ITS Architecture | Replaced | FDOT District 5 Field Equipment | Orange County Field Equipment | local priority request coordination | right-of-way request coordination |
| In Region | FDOT District 5 - Central Florida Regional ITS Architecture | Replaced | FDOT District 5 Field Equipment | SunRail Field and Wayside Equipment | local priority request coordination | right-of-way request coordination |
| In Region | FDOT District 5 - Central Florida Regional ITS Architecture | Replaced | Orange County Field Equipment | FDOT District 5 Field Equipment | local priority request coordination | right-of-way request coordination |
| In Region | FDOT District 5 - Central Florida Regional ITS Architecture | Replaced | Orange County Field Equipment | SunRail Field and Wayside Equipment | local priority request coordination | right-of-way request coordination |
| In Region | FDOT District 5 - Central Florida Regional ITS Architecture | Replaced | SunRail Field and Wayside Equipment | FDOT District 5 Field Equipment | local priority request coordination | right-of-way request coordination |

## Architecture Functional Requirements

Table 3 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 3. Conversion Analysis of Functional Requirements

| **Element Name** | **Change** | **Old Functional Object** | **Old Num** | **Old Req** | **New Functional Object** | **New Num** | **New Req** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| City of Altamonte Springs AV Shuttle | Modified | Transit Vehicle Passenger Counting | 2 | The passenger counts shall be related to location to support association of passenger counts with routes, route segments, or bus stops. | Transit Vehicle Passenger Counting | 2 | The passenger counts shall be related to location to support association of passenger counts with routes, route segments, or transit stations/stops. |
| City of Ocala 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 Ocala 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 Ocala 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 Orlando 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 Orlando 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 Orlando 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 Palm Coast 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. |
| 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 and City TMCs | 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. |
| County and City TMCs | 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. |
| FDOT District 5 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. |
| FDOT District 5 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 5 RTMC | 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. |
| FDOT District 5 RTMC | 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. |
| LYNX CAV Field Equipment | Modified | RSE Transit User Guidance | 1 | The field element shall provide stop-specific bus schedules and routes information to personal traveler devices. | RSE Transit User Guidance | 1 | The field element shall provide stop-specific transit schedules and routes information to personal traveler devices. |
| LYNX Transit Vehicles | Modified | Transit Vehicle On-Board Information Services | 2 | The transit vehicle shall broadcast advisories about the imminent arrival of the transit vehicle at the next stop via an on-board automated annunciation system. | Transit Vehicle On-Board Information Services | 2 | The transit vehicle shall broadcast advisories about the imminent arrival of the transit vehicle at the next station/stop via an on-board automated annunciation system. |
| Orange County 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. |
| Orange County 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. |
| Orange County 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. |
| Osceola 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. |
| Osceola County Traffic Operations Center | 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. |
| Osceola County Traffic Operations 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. |
| Private Travelers Personal Computing Devices | Modified | Personal Trip Planning and Route Guidance | 20 | The personal traveler interace shall be able to associate their journey with an existing payment account | Personal Trip Planning and Route Guidance | 20 | The personal traveler interface shall be able to associate their journey with an existing payment account |
| Private Travelers Personal Computing Devices | Modified | Personal Trip Planning and Route Guidance | 21 | The personal travler interface shall be able to associate their journey with a payment method (e.g., credit or debit card) | Personal Trip Planning and Route Guidance | 21 | The personal traveler interface shall be able to associate their journey with a payment method (e.g., credit or debit card) |
| SCAT Transit Vehicles | Modified | Transit Vehicle On-Board Information Services | 2 | The transit vehicle shall broadcast advisories about the imminent arrival of the transit vehicle at the next stop via an on-board automated annunciation system. | Transit Vehicle On-Board Information Services | 2 | The transit vehicle shall broadcast advisories about the imminent arrival of the transit vehicle at the next station/stop via an on-board automated annunciation system. |
| Seminole 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. |
| Seminole County 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. |
| Sumter County Transit Vehicles | Modified | Transit Vehicle On-Board Information Services | 2 | The transit vehicle shall broadcast advisories about the imminent arrival of the transit vehicle at the next stop via an on-board automated annunciation system. | Transit Vehicle On-Board Information Services | 2 | The transit vehicle shall broadcast advisories about the imminent arrival of the transit vehicle at the next station/stop via an on-board automated annunciation system. |
| SunRail Rail Vehicles | Modified | Transit Vehicle On-Board Information Services | 2 | The transit vehicle shall broadcast advisories about the imminent arrival of the transit vehicle at the next stop via an on-board automated annunciation system. | Transit Vehicle On-Board Information Services | 2 | The transit vehicle shall broadcast advisories about the imminent arrival of the transit vehicle at the next station/stop via an on-board automated annunciation system. |
| SunRail Transit Vehicles | Modified | Transit Vehicle On-Board Information Services | 2 | The transit vehicle shall broadcast advisories about the imminent arrival of the transit vehicle at the next stop via an on-board automated annunciation system. | Transit Vehicle On-Board Information Services | 2 | The transit vehicle shall broadcast advisories about the imminent arrival of the transit vehicle at the next station/stop via an on-board automated annunciation system. |
| SUNTRAN Transit Vehicles | Modified | Transit Vehicle On-Board Information Services | 2 | The transit vehicle shall broadcast advisories about the imminent arrival of the transit vehicle at the next stop via an on-board automated annunciation system. | Transit Vehicle On-Board Information Services | 2 | The transit vehicle shall broadcast advisories about the imminent arrival of the transit vehicle at the next station/stop via an on-board automated annunciation system. |
| Vehicle | 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. |
| 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. |
| 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. |
| Volusia 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. |
| Votran Transit Vehicles | Modified | Transit Vehicle On-Board Information Services | 2 | The transit vehicle shall broadcast advisories about the imminent arrival of the transit vehicle at the next stop via an on-board automated annunciation system. | Transit Vehicle On-Board Information Services | 2 | The transit vehicle shall broadcast advisories about the imminent arrival of the transit vehicle at the next station/stop via an on-board automated annunciation system. |
| Votran Transit Vehicles | Modified | Transit Vehicle Passenger Counting | 2 | The passenger counts shall be related to location to support association of passenger counts with routes, route segments, or bus stops. | Transit Vehicle Passenger Counting | 2 | The passenger counts shall be related to location to support association of passenger counts with routes, route segments, or transit stations/stops. |
| VTRACS Transit Vehicle | Modified | Transit Vehicle On-Board Information Services | 2 | The transit vehicle shall broadcast advisories about the imminent arrival of the transit vehicle at the next stop via an on-board automated annunciation system. | Transit Vehicle On-Board Information Services | 2 | The transit vehicle shall broadcast advisories about the imminent arrival of the transit vehicle at the next station/stop via an on-board automated annunciation system. |