SunGuide®:

Software Requirements Specification

SunGuide-SRS-8.2

Prepared for:

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Appendix A: Requirements

List of Acronyms

ATMS ....Advanced Traffic Management System
AVL ....Automatic Vehicle Location
C2C ....Center-to-Center
CCTV ....Closed Circuit Television
CVS...........................Connected Vehicle Subsystem
DA.............................Data Archiving
DD.............................Data Distribution
DFS ....Data Fusion System
DMS...........................Dynamic Message Sign
DOT ....Department of Transportation
EG ....Evacuation Guidance
EH ....Executive Handler
EM.............................Event Management
EM/PM.......................Event Management / Performance Measures
EV ....Event Viewer
FDOT ....Florida Department of Transportation
FEAT..........................Feature Requirement
GPIO ....General Purpose Input/Output
HAR ....Highway Advisory Radio
IDS ....Incident Detection System
IM..............................Incident Management
IMS ....Inventory Maintenance System
ITS.............................Intelligent Transportation Systems
ITN............................Invitation to Negotiate
MAS...........................Message Arbitration System
ODS...........................Operational Data Store
PS ....Pricing System
RMF ....Ramp Metering Firmware
RMS ....Ramp Metering System
RPG...........................Response Plan Generator
RR ....Road Ranger
RS..............................Reporting System
RWIS..........................Road Weather Information System
SB..............................Safety Barrier
SPARR.......................Smart Phone Application for Road Rangers

SRS ....Software Requirements Specification
SUB............................Subsystem Requirement
SwRI ....Southwest Research Institute
TCS…………………Traffic Control Subsystem
TMC...........................Traffic Management Center
TPS…………………Truck Parking Subsystem
TSS.............................Transportation Sensor System
TV ....Toll Viewer
TVT............................Travel Times
VSL............................Variable Speed Limit
XML...........................Extensible Markup Language

REVISION HISTORY

Revision	Date	Changes
1.0.0-Draft	December 22, 2003	Initial Release
1.0.1-Draft	January 27, 2004	Updated based on SRR input and discussion with ITS Central Office
1.0.2	April 2, 2004	Incorporated FDOT comments.
2.0.0-Draft	August 27, 2004	Added requirements for systems in release 2 (EG, HAR, WS, C2C and RMS)
2.0.0	May 4, 2005	Finalized with FDOT comments, new enhancements (from ECO 1.1)
2.0.1	August 11, 2005	Finalized with ECO 1 changes
2.1.0	April 12, 2006	Updated with Release 2.1 requirements
2.2.0	November 17, 2006	Updated with Release 2.2 requirements
2.2.1	November 27, 2006	Updated architecture based on naming nomenclature changes in the EM PM design and implementation
2.2.2	December 4, 2006	Added Ramp Metering firmware and CCTV Scheduler requirements
3.0.0-Draft	April 25, 2007	Added Release 3.0 requirements
3.0.0	May 29, 2007	Requirements updated based on SWAM #11. Added software release versioning information and requirements traceability.
4.0.0-Draft	December 16, 2007	Added Release 3.1 and 4.0 requirements.
4.0.0	February 22, 2008	Updated Release 3.1 and 4.0 requirements based on SWAM #15.
4.3	January 25, 2010	Updated Release 4.2 and 4.3 requirements based on SWAM#20, SWAM#21, SWAM#22 and referenced white papers
5.0	March 5, 2010	Added Release 5.0 requirements
5.1	February 16, 2012	Added Release 5.0.4, 5.0.5, and 5.1 requirements
6.0	February 15, 2013	Added Release 6.0 requirements
6.1	October 1, 2014	Added Release 6.1 requirements
6.2	August 5, 2015	Added Release 6.2 requirements
7.0	January 3, 2017	Added Release 7.0 requirements
7.1	September 25, 2017	Added Release 7.1 requirements

7.1.2	November 5, 2018	Added Release 7.1.1 and 7.1.2 requirements
7.2	July 3, 2019	Added Release 7.2 requirements
7.2	July 29, 2019	Release 7.2 requirement changes
8.0	March 10, 2020	Release 8.0 Set 1
8.0	April 20, 2020	Release 8.0 Set 2
8.0	July 1, 2020	Release 8.0 Set 3
8.0	September 22, 2020	Release 8.0 Revisions
8.0HF3	March 19, 2021	Release 8.0 HF3 Revisions
8.0HF4	April 19, 2021	Release 8.0 HF4 Revisions
8.1	July 14, 2021	Release 8.1 Revisions
8.2	July 7, 2022	Release 8.2 Revisions

1. Scope

1.1 Document Identification

The Software Requirements Specification (SRS) details the requirements for the Statewide Transportation Management Center Software Library System.

The requirements for the system are maintained in a database using SynapseRT. This document serves as a starting point for the requirements.

1.2 System Overview

The Florida Department of Transportation (FDOT) is conducting a program that is developing SunGuide software. The SunGuide software is a set of Intelligent Transportation System (ITS) software that allows the control of roadway devices as well as information exchange across a variety of transportation agencies. The goal of the SunGuide software is to have a common software base that can be deployed throughout the state of Florida. The SunGuide software development effort is based on ITS software available from the state of Texas; significant customization of the software is being performed as well as the development of new software modules. The following figure provides a graphical view of the software to be developed:
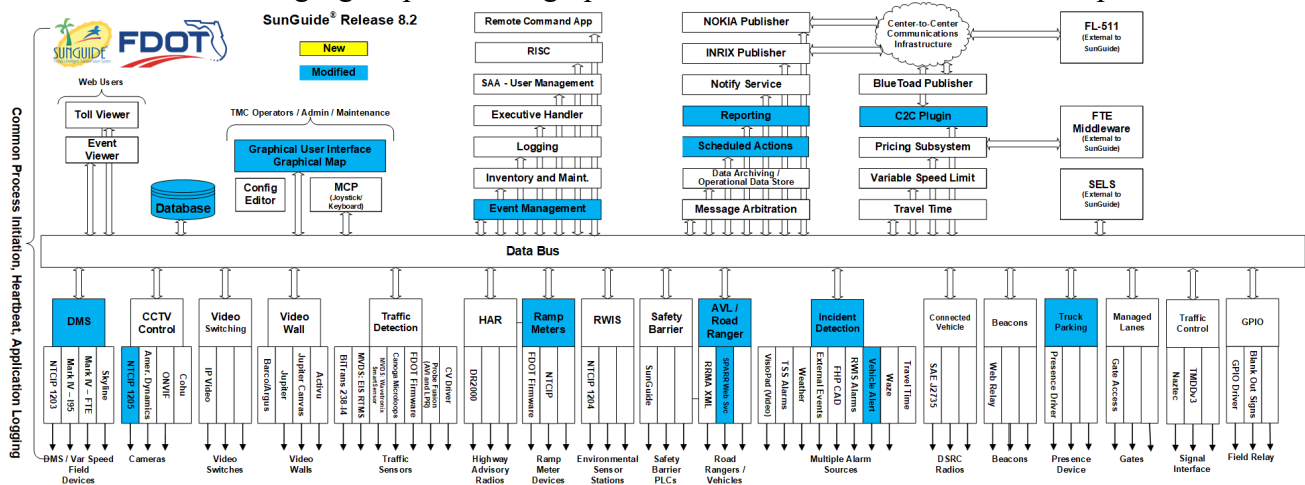

Figure 1-1 - High-Level Architectural Concept

1.3 Related Documents

The following documents were used to develop this document:

- FDOT Scope of Services: *BE492, Standard Written Agreement for SunGuide Software Support, Maintenance, and Development, Exhibit A: Scope of Services.* December 14, 2017.

- Notice to Proceed: Letter to Southwest Research Institute® (SwRI®) for BE492, December 14, 2017

- Letter of Authorization 013: Letter to SwRI for BE492, March 4, 2022.
- SunGuide Project website: http://sunguide.datasys.swri.edu.

1.4 Contacts

The following are contact persons for the SunGuide software project:

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For current contact information please refer to this link: http://sunguidesoftware.com/contact-us

Appendix A:

REQUIREMENTS

Key	Description	Component/s	Fix Version/s
SRT-781	When an operator is using a configuration dialog and an added or modified item does not have a validation error, the software will allow the user to initiate the save action.	Operator Map	SG 8.2
SRT-782	If there is a validation error on an added or modified item, the validation error will take precedence, prevent the save action, and be shown to the user over validation errors for other items in the dialog.	Operator Map	SG 8.2
SRT-783	Validation errors unrelated to the item being added or modified will be displayed to the user.	Operator Map	SG 8.2
SRT-784	When an availability status is deleted, it will be removed from the running system but remain in the database.	AVL	SG 8.2
SRT-785	When a beat is deleted, it will be removed from the running system but remain in the database.	AVL	SG 8.2
SRT-786	When a geofence is deleted, it will be removed from the running system but remain in the database.	AVL	SG 8.2
SRT-787	When an operator is deleted, it will be removed from the running system but remain in the database.	AVL	SG 8.2
SRT-788	When a radio is deleted, it will be removed from the running system but remain in the database.	AVL	SG 8.2
SRT-789	When a telephone is deleted, it will be removed from the running system but remain in the database.	AVL	SG 8.2
SRT-790	When a vehicle is deleted, it will be removed from the running system but remain in the database.	AVL	SG 8.2
SRT-791	When an abbreviation is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-792	When an activity is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-793	When an agency is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-794	When an attribute type is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-795	When a comment type is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-796	When an event status is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-797	When an injury type is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-798	When an organization is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-799	When a procedural error is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2

SRT-800	When a county is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-801	When a lane map is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-802	When a lane type is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-803	When a location is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-804	When a reference point is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-805	When a roadway is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-806	When a message template is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-807	When a color is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-808	When a state is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-809	When a vehicle make is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-810	When a vehicle model is deleted, it will be removed from the running system but remain in the database.	EM	SG 8.2
SRT-811	The software will allow the user to retrieve the list of responder agencies, vehicles, vehicle statuses, drivers, beats, radios, and phone numbers and use the ceased items as parameters when running reports.	RS	SG 8.2
SRT-812	The software will allow the user to retrieve the list of organizations, counties, roadways, directions, reference points, locations, event types, event attributes, event statuses, agencies, vehicle types, and injuries and use the ceased items as parameters when running reports	RS	SG 8.2
SRT-813	The software configuration file will contain connection information to a JIRA project for the software to automatically report issues.	System	SG 8.2
SRT-814	When an Operator Map crashes, the system will attempt to get the error message for the crash, and automatically open a JIRA issue for a configured JIRA project.	System	SG 8.2
SRT-815	When the "Notified by TMC?" checkbox in the Responders section of the Event Details dialog is checked, and the Notified time for a Responder is changed, the software will add an Event Chronology entry indicating the TMC Notified the Agency with a unique Chronology Type.	EM	SG 8.2

SRT-816	When the "Notified by TMC?" checkbox in the Responders section of the Event Details dialog is not checked, and the Notified time for a Responder is changed, the software will add an Event Chronology entry indicating the Agency Notified the TMC with a unique Chronology Type.	EM	SG 8.2
SRT-817	The system will allow the operator to select a Scheduled Item and make a copy of the item in the same schedule including the start and end dates, reoccurrence pattern, scheduled action(s), and any selected devices.	SAS	SG 8.2
SRT-818	The new scheduled item will have a unique name among scheduled items and allow the user to modify the name of the item after creation.	SAS	SG 8.2
SRT-819	The system will allow the operator to select a Schedule and make a copy of the schedule.	SAS	SG 8.2
SRT-820	The new schedule will have a unique name among schedules and allow the user to modify the name of the item after creation.	SAS	SG 8.2
SRT-821	The software will make a copy of each Scheduled Item in the original schedule including the start and end dates, reoccurrence pattern, scheduled action(s), and any selected devices.	SAS	SG 8.2
SRT-822	The new scheduled items will have a unique name among scheduled items and allow the user to modify the name of the item after creation.	SAS	SG 8.2
SRT-823	The software will have a reporting filter containing a list of all event chronology types known to the system at the last restart of Event Management.	RS	SG 8.2
SRT-824	The software will allow a user to choose a whitelist or a blacklist for use when using the event chronology types filter.	RS	SG 8.2
SRT-825	The software will update the Event Chronology report to filter chronology entries by the chronology type filter.	RS	SG 8.2
SRT-826	If a whitelist is chosen, only event chronology types matching the selected types will be shown in the event chronology portion of the report.	RS	SG 8.2
SRT-827	If a blacklist is chosen, only event chronology types NOT matching the selected types will be shown in the event chronology portion of the report.	RS	SG 8.2
SRT-828	The software will allow users to return all parameters to their default selection state.	RS	SG 8.2
SRT-829	The software will allow a user to configure an optional camera and optional preset for a DMS sign of any Sign Type.	DMS	SG 8.2
SRT-830	The software will allow a user to configure an optional camera and optional preset for a Ramp Meter device.	RMS	SG 8.2
SRT-831	The list of cameras available to associate with a DMS sign or Ramp Meter will include the list of local cameras, C2C cameras, and RCA cameras that have an available video stream to view in Video on Desktop.	Operator Map	SG 8.2
SRT-832	If a C2C camera is selected, the software will not allow the user to save an associated preset.	Operator Map	SG 8.2
SRT-833	When viewing DMS in the DMS Status Dialog, the software will allow the user to select a DMS and launch the associated camera in a new or existing Video on Desktop dialog.	Operator Map	SG 8.2
SRT-834	If a preset is configured, the software will send a request to the camera to move to the configured preset.	Operator Map	SG 8.2

SRT-835	When viewing a DMS in the Response Plan Dialog, the software will allow the user to select a DMS and launch the associated camera in a new or existing Video on Desktop dialog.	Operator Map	SG 8.2
SRT-836	If a preset is configured, the software will send a request to the camera to move to the configured preset.	Operator Map	SG 8.2
SRT-837	When viewing a ramp meter device in the RMS Status Dialog, the software will allow the user to select a ramp meter and launch the associated camera in a new or existing Video on Desktop dialog.	Operator Map	SG 8.2
SRT-838	If a preset is configured, the software will send a request to the camera to move to the configured preset.	Operator Map	SG 8.2
SRT-839	The software will have a configuration dialog to configure a schedule for performing Truck Parking verification counts.	TPS	SG 8.2
SRT-840	The software will allow the user to select a verification time period including the day of week, time of day, and an interval to run the Truck Parking verification counts for each facility individually.	TPS	SG 8.2
SRT-841	The software will allow the user to specify multiple verifications time periods for each facility.	TPS	SG 8.2
SRT-842	At the configured interval, the software will pop up a dialog to users with permission to handle Truck Parking verifications.	TPS	SG 8.2
SRT-843	A single Truck Parking verification should contain a view of the associated cameras and current availability count for a Truck Parking area.	TPS	SG 8.2
SRT-844	The dialog will allow the user to select an option indicating the current count is correct or input the correct count, and select an option indicating they have manually verified the count on FL511 matches the current Truck Parking area availability count in SunGuide only for the default area.	TPS	SG 8.2
SRT-845	The dialog will have an option to skip the verification for a Truck Parking area.	TPS	SG 8.2
SRT-846	If the option to skip a verification is selected, a popup will confirm the operator intended to select this option and require a comment to indicate why this option was selected.	TPS	SG 8.2
SRT-847	When a facility is out of service, the verification will be automatically skipped and the comment shall indicate that it was skipped because of the facility status.	TPS	SG 8.2
SRT-848	When an operator responds to a verification for a Truck Parking area, the verification for the Truck Parking area will be removed from all other Operator Maps.	TPS	SG 8.2
SRT-849	The software will allow a user with permission to manually trigger the verification of all facilities to appear for all users with permission to handle Truck Parking verifications.	TPS	SG 8.2
SRT-850	For each response to a Truck Parking area, the system will log the responding operator, time of response, facility, area, reported number of spaces, corrected number of spaces (if available), if the count was accurate, if the operator selected to skip the verification and the reason, and the result of the manual FL511 verification.	TPS	SG 8.2
SRT-851	The verification dialog will have the option to snooze one or more Truck Parking verifications and dismiss the verification dialog for all users.	TPS	SG 8.2
SRT-852	The system will allow the user to enter to amount of time to snooze.	TPS	SG 8.2

SRT-853	When the snooze interval has elapsed, the verification dialog will reappear with the snoozed verifications.	TPS	SG 8.2
SRT-854	If a verification is pending operator input at the time another verification is triggered, all pending verification will be skipped, and a comment will be entered that they were skipped due to no action from the operator.	TPS	SG 8.2
SRT-855	When adding activities for a Road Ranger in the Event Details dialog, the software will allow a user to select one or more activities to add to the event.	EM	SG 8.2
SRT-856	When adding activities for a Road Ranger in the SPARR app, the software will allow a user to select one or more activities to add to the event.	SPARR	SG 8.2
SRT-857	When an operator sends an Executive Notification, the software will log an Event Chronology message indicating an Executive Notification was sent and the user who sent the message.	EM	SG 8.2
SRT-858	The software will have an option to set a vehicle alert device to maintenance mode.	IDS	SG 8.2
SRT-859	If the device is in maintenance mode, the time the device is supposed to come out of maintenance mode will be displayed to the user.	IDS	SG 8.2
SRT-860	When a device is in maintenance mode, the device will continue to be polled by the software.	IDS	SG 8.2
SRT-861	When the device is in maintenance mode, any alerts from the device will be logged, but immediately resolved by the system.	IDS	SG 8.2
SRT-862	When a device is placed in maintenance mode, the software will allow the user to set a duration in either hours or the date and time to set the device out of maintenance mode.	IDS	SG 8.2
SRT-863	When the duration of maintenance mode expires, users with permission will receive a popup to either change the device out of maintenance mode or give a new duration for how long the device should remain in maintenance mode.	IDS	SG 8.2
SRT-864	When a device is in maintenance mode, the icon for the device will visually indicate the device is in maintenance mode.	IDS	SG 8.2