Safety and Security Certification Plan

For the
Central Florida Commuter Rail Transit Project - Phase 2 South

In preparation for

SunRail

Florida Department of Transportation
District 5
## Revision Log

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1.0 INTRODUCTION

The Florida Department of Transportation (FDOT), in cooperation with the Central Florida Regional Transportation Authority (LYNX), MetroPlan Orlando, the City of Orlando, and the Counties of Volusia, Seminole and Orange, introduced commuter rail service in the three-county corridor that extends north and south of Orlando, Florida. The CFCRT Phase 1 Initial Operating Segment (IOS) Project received a Full Funding Grant Agreement on July 18, 2011. Additionally, through a branding exercise, FDOT selected SunRail as the name for the passenger rail service that currently operates on the IOS alignment. SunRail began revenue service on May 1, 2014. The Phase 2 South Project when combined with Phase 1 (IOS) completes the Locally Preferred Alternative (LPA) which was evaluated under the federal National Environmental Policy Act (NEPA) process in the Environmental Assessment.

The regional entities with the addition of Osceola County are proposing to extend regional commuter rail service south from the Central Florida Commuter Rail Transit (SunRail) Phase 1 Project corridor that currently terminates at the Sand Lake Road Station to an additional station in Orange County, as well as to provide service to three additional stations in Osceola County.

The CFCRT Phase 2 South Project provided in Figure 1 on the following page, generally parallels Interstate 4 and US 17-92. The Phase 2 South Project corridor contains some areas of dense residential development in southern Orange County, traverses several large Developments of Regional Impact (DRIs) and includes sections of densely developed land use areas through downtown Kissimmee. The width of the study area generally includes the major north-south arterial roadways serving southern Orange County, Osceola County and the City of Kissimmee, principally US 17-92, US 441, SR 423, CR 527 and Florida’s Turnpike.

The CFCRT Phase 2 Project uses 17.2 miles of active Class IV mixed freight and passenger railroad right of way (ROW) acquired by FDOT from CSXT in November 2011 for passenger rail operations. Phase 2 South SunRail service will extend along the railroad ROW south of Orlando through Kissimmee to unincorporated Osceola County and will utilize property adjacent to the rail corridor for station site parking, kiss-and-ride and bus circulation.

Specifically, the CFCRT Phase 2 South Project would be a southern extension of the completed 32-mile CFCRT Phase 1 Initial Operating Segment (IOS). The IOS is 32 miles with twelve stations between DeBary Station in Volusia County and Sand Lake Road Station in Orange County. The FDOT-owned corridor has received the Federal Railroad Administration (FRA) alpha designation Central Florida Rail Corridor or CFRC which extends from MP A749.61 to A813.82. The SunRail service will operate entirely at grade, sharing tracks owned by FDOT with freight service provided by CSXT, Florida Central Railroad (FCEN) and Amtrak intercity passenger rail service.

On revenue operations date (ROD) of May 1, 2014, the Florida Department of Transportation/CFRC as the owner-operator began operating commuter rail service over the IOS where SunRail commuter trains are operating in conjunction with Amtrak passenger service and CSXT freight trains. The second phase to the south, planned for operations in 2017, is the addition of 17.2 miles with four additional stations from Sand Lake Road to Poinciana in Osceola County. There are approximately 3.7 miles of existing double track with 13.5 miles of additional second track being added and a new railway operations signal system. A 12-mile northern extension from DeBary Station to the DeLand Amtrak Station in Volusia County will be completed at a later date.

Additional improvements include grade crossing enhancements, station platforms, canopies and park and ride lots. The Vehicle Storage and Light Maintenance Facility (VSLMF) will be built in the vicinity of the Poinciana Station for end of line fueling and storage capacity for six trainsets. The Vehicle Storage and Maintenance Facility (VSMF) and an Operations Control Center (OCC) built as part of the Phase 1 (IOS) Project is located at Rand Yard in Sanford, Florida. The Design Consultant will be responsible for the Final Design of the civil, track work, communication systems and structures for the Phase 2 South Project. When construction of Phase 2 – South is completed, the Corridor will consist of seventeen
new commuter train stations and approximately 59 miles of double track mainline.

![Figure 1 – CFCRT (SunRail) System Map with Phase 2 South Stations](image)

A Positive Train Control (PTC) Contractor will be responsible for final design and construction of the PTC System. Locomotives and coach/cab cars were procured from Vehicle Manufacturers in advance of the Phase 1 (IOS) Project. Additional rolling stock procurement will be accomplished through options negotiated during the Phase 1 (IOS) vehicle procurement with MPI (locomotives) and Bombardier (coaches and cab cars). The safety and security documents generated for these vehicles will be updated, if necessary.

A Construction Contractor will be responsible for the construction of the civil, track work, communication systems, and structures for Phase 2 South portion of the CFCRT Project. A Signal Construction Contractor will be responsible for construction of wayside signals and highway-rail grade crossings.

In April 2013, FDOT contracted with O&M Contractors for maintenance of the CFRC track, signals, corridor infrastructure and operation of the future SunRail passenger service. The O&M Contractor is responsible for all maintenance and servicing of Phase 1 (IOS) revenue vehicles including: preventive maintenance, corrective maintenance, cleaning and servicing, and major maintenance campaigns. Car and locomotive daily service and inspections is the responsibility of the O&M Contractor, whereas performance of corrective and preventive maintenance will be split between the O&M Contractor and
Safety and security objectives will be integrated into the Phase 2 South construction by including contract provisions in the procurement documents for safety and security compliance by all contractors working on the Project.

System Integration will be implemented into Safety and Security objectives by including specific contract provisions in the construction contracts for system integration testing, by the development of plans in accordance with FRA regulations and by including safety critical elements in the safety certification process; all of which will be coordinated by the SunRail System Safety Specialist.

Construction site safety will be achieved by close coordination and accurate communication of upcoming construction activities with appropriate corresponding approvals. Construction Contractors will be expected to comply with all applicable FRA regulations. Mandatory safety job briefings will be conducted with all workers in the construction zone to promote safe work practices, increase hazard awareness and provide a consistent means for safety concerns to be communicated between management and workers. These job briefings are mandated by the FRA when on railroad property, and are also required by the CFRC.

The Phase 2 Construction Contractors safety representatives, the Construction Engineering Inspection (CEI) Safety representative and CFRC/SunRail SSM or its designate will provide daily safety oversight to ensure that all roadway workers involved with construction and maintenance activities on the CFRC adhere to all standard work practices established in accordance with the current On-Track Roadway Worker Protection Handbook and current CFRC Operating Rules.

Construction Contractor Safety Manager, the O&M Safety and Security Manager, PTC Contractor Safety Representative and Signal Construction Contractor Representative shall attend all scheduled Safety and Security Committee meetings and any other meetings as directed by the SunRail Director of Operations to discuss recent safety-related incidents and concerns, and contractor compliance with the System Safety Program. In the event that any Phase 2 South Project Contractor becomes aware of an unsafe, non-secure, or potentially unsafe or non-secure condition during construction activities or maintenance activities, the Contractor shall immediately take all actions required to remedy the circumstances.

Safety and security objectives are integrated into the Commissioning Phase of the Phase 2 South Project through a detailed Rail Activation Plan. To have a smooth transition of the south corridor service from testing integration into commissioning and revenue service, FDOT will have the Operations and Maintenance Contractor (O&M Contractor) begin integration of Phase 2 South services in accordance with the Project Master Schedule prior to the start of commuter revenue service. This will allow for a measured handoff of safety and security functions from all Construction Contractors to the O&M Contractor.

1.1 Purpose of Plan

The purpose of this Safety and Security Certification Plan (SSCP) establishes management and control guidelines to ensure safety and security performance of the CFCRT Project and resultant Central Florida Rail Corridor and SunRail passenger system as designed, constructed and procured by Florida Department of Transportation. This effort reflects FDOT's commitment to verify that SunRail operations will be free from unacceptable risk.

This Plan utilizes the application of safety and security certification to promote an informed management decision-making process in project design, construction, testing, and initiation into revenue service and also ensures that the Project is systematically reviewed for compliance with essential safety and security requirements prior to the commencement of revenue service, including regulatory requirements of the FRA. It provides traceable verification that all safety critical and security objectives will be met.
security systems, subsystems, procedures, and training programs have been reviewed for compliance with the FRA regulations. The program culminates in the CFCRT Project – Phase 2 South’s self-certification of the safety and security of the CFRC and SunRail service, as evidenced by a CFCRT Project – Phase 2 South System Safety and Security Certificate and a Final Verification Report.

This Plan is based on the guidance provided in the following Federal Transit Administration (FTA) documents:


The CFCRT SSCP was originally developed to provide an overview of the CFCRT Project – Phase 2 South safety and security certification process prior to the Contractors and Rolling Stock Manufacturers’ Notice-to-Proceed for Construction. The CFCRT – Phase 2 South SSCP is updated as necessary to provide information relevant to the certification process for system integration and pre-revenue acceptance testing.

1.2 Definitions

Acceptance Tests: Procedures designed to evaluate correct performance of that subsystem's components in a static environment. These tests are usually performed prior to integrate testing.

Crime Prevention Through Environmental Design (CPTED): An application of architectural design and space management concepts to protect customers, employees and vendors.

Certifiable Element: A component of a system in its broadest terms, such as Track and Structures, Signals, Rolling Stock, that make up the CFRC/SunRail System. This element will require safety/security certification.

Certifiable Item: One of a group of items that make-up a certifiable element to which one or more safety and security requirements apply. For example, mobility lifts that are installed on each SunRail coach and cab car.

Certificate of Conformance/Certificate of Compliance: A document indicating that a certain level of safety and security was met. The document, which may be referred to as either a conformance or compliance certificate, may apply to a certifiable element (Element Certificate) or to the entire project (Project Certificate). The document is signed by the Safety and Security Certification Committee.

Component: Item, or group of items, in system or sub-system that perform a single function.

Configuration Management: Formal process instituted to control the documentation of the design, evaluation, acceptance, operation and maintenance of the CFCRT Project and CFRC/SunRail System.

Contractor: A private sector enterprise engaged to provide services or products within agreed limits specified by a procuring activity.

Criticality: A relative measure of the consequences of a failure mode or hazard and its frequency of occurrences.
Criteria Conformance Checklist: A checklist of Certifiable Items that identifies the safety and security related CFCRT Project Design Criteria and the verification methods in the Contractor’s final design specifications and drawings necessary to ensure that the as-designed Contractor’s system configuration contains the safety and security related requirement identified in the Project Design Criteria.

Emergency: A situation which is life threatening to passengers, employees, or the general public who come in contact with the commuter rail system, or which causes damage to any commuter rail vehicle or facility or results in the significant loss of services and reduces the ability of the system to fulfill its mission within its service area.

Environment: The conditions, circumstances, influences, stresses and combinations thereof, surrounding and affecting systems or equipment during storage, handling, transportation, testing, installation, and use in operation.

Failure: An inability to perform an intended function within prescribed limits.

Hazard: Any real or potential condition that can cause injury, death, or damage to or loss of equipment or property.

Hazard Analysis: Any analysis performed to identify hazardous conditions for the purpose of their elimination or control.

Hazard Controls: Measures that eliminate a hazard or reduce the severity or probability of its potential effect.

Hazard Resolution: The analysis and subsequent action taken to reduce, to the lowest level practical, the risk associated with an identified hazard.

Integration Test: A test performed to demonstrate that a system or systems function satisfactorily when connected to interfacing systems. Integrated testing involves operational policies and procedures safely working together with facilities and systems

Interface: The junction points within or between systems or subsystems where matching or accommodation must be properly achieved in order to make their operation compatible with the successful operation of all other functional entities.

Life Cycle: All phases of the system's life including design, research, development, test and evaluation, production, deployment (inventory), operations and support, and disposal.

Malfunction: Any anomaly or failure wherein the system, subsystem, or component fails to function as intended.

Resolution: Changes that are made in the system or subsystem design, procedures, or activities which eliminate or control the identified hazard risk to an acceptable level.

Revenue Service: The transportation of fare-paying passengers.

Risk: An expression of possible loss over a specific period of time or number of operational cycles. It may be indicated in terms of hazard severity and probability.

Safety Certification: The process of verifying that safety-related requirements are incorporated into a commuter rail system, thereby demonstrating that it is operationally ready for revenue service and safe for passengers, employees, emergency responders, and the general public.
Safety (and security) Critical Items List (SCIL): The listing of Unacceptable or Undesirable risk level arising from safety hazards, security threats and vulnerabilities. This list is usually compiled from all hazards identified in analysis and hazards identified from sources other than analysis. It is used to track resolution of all identified hazards and open items.

Safety Design Criteria: An organized listing of safety codes, regulations, rules, design procedures, standards, recommended practices, handbooks and manuals prepared to provide guidance to project designers in the development of technical specifications that meet minimum safety parameters.

Safety Requirements: The specification of safety design criteria into the technical documents and drawings that comprise the detailed designs, procedures, plans and processes required to deliver the project.


Security Threat: Any source that may result in a security breach, such as terrorist, vandal or disgruntled employee; or an activity, such as an assault, intrusion, fire, etc.

Severity: The consequences of a failure mode or hazardous event. Assessment of severity during hazard analysis considers the worst potential consequence of a hazardous event, determined by the degree of injury, property damage, or system damage that could ultimately occur.

Specification Conformance Checklist: A checklist of Certifiable Items that identifies the specifications, tests and the verification methods necessary to ensure that the as-built configuration contains the safety-related requirement identified in the applicable CFCRT Project specifications and other contract documents.

Subsystem: An element of a system that, in itself may constitute a system.

System: A composite of people (employees, passengers, others), property (facilities and equipment), environment (physical, social, institutional), and procedures (standard operating, emergency operating, and training) which are integrated to perform a specific operational function in a specific environment.

System Safety: The application of engineering and management principles, criteria, and techniques to optimize safety within the constraints of operational effectiveness, time, and cost throughout all phases of the system life cycle.

System Safety Management: An element of management that defines the system safety program requirements and ensures the planning, implementation and accomplishment of system safety tasks and activities consistent with the overall program requirements.

System Safety Program: The combined tasks and activities of system safety management and system safety engineering that enhance operational effectiveness by satisfying the system safety requirements in a timely, cost-effective manner throughout all phases of the system life cycle.

System Safety Program Plan (SSPP): A description of the planned methods to be used to implement the tailored requirements of this standard, including organizational responsibilities, resources, methods of accomplishment, milestones, depth of effort, and integration with other program engineering and management activities and related systems.

System Security: The application of operating, technical, and management techniques and principles to the security aspects of a system throughout its life to reduce threats and vulnerabilities to the most practical level through the most effective use of available resources.

System Security Management: An element of management that defines the system security
requirements and ensures the planning, implementation, and accomplishments of system security tasks and activities.

**System Security Program**: The combined tasks and activities of system security management and system security analysis that enhance operational effectiveness by satisfying the security requirements in a timely and cost-effective manner through all phases of a system life cycle.

**Threat**: Any real or potential condition that can cause injury or death to passengers or employees or damage to or loss of transit equipment, property, and/or facilities.

**Verification**: Documented conformance, demonstrated through testing, inspection, or other means, that the designed or delivered project, system, subsystem, or item ensuring the accuracy or correctness in comparison with a safety requirement.

**Vulnerability**: Characteristics of passengers, employees, rolling stock, and/or facilities which increase the probability of a security breach.

### 1.3 Acronyms

- **ATR**: Above Top of Rail
- **AW/RW JV**: Archer Western/RailWorks Joint Venture
- **CAD**: Computer Aided Dispatch (System)
- **CCAC**: Configuration Control Advisory Committee
- **CEI**: Construction Engineering Inspection Consultant
- **CEO**: Chief Executive Officer
- **CFCRT**: Central Florida Commuter Rail Transit
- **CFRC**: Central Florida Rail Corridor
- **CIL**: Certifiable Items List
- **CM**: Construction Management
- **COO**: Chief Operating Officer
- **DBM**: Design Build Maintain Contractor
- **DBB**: Design Bid Build (Station Finish Contractor)
- **DHS**: Department of Homeland Security
- **EMS**: Emergency Medical Services
- **EPPs**: Emergency Preparedness Plans
- **FCEN**: Florida Central Railroad
- **FDOT**: Florida Department of Transportation
- **FRA**: Federal Railroad Administration
- **FTA**: Federal Transit Administration
- **IOS**: Initial Operating Segment
- **OCC**: Operations Control Center
- **O&M**: Operations and Maintenance
- **OSHA**: Occupational Safety and Health Administration
- **PMC**: Project Management Consultant
- **PMOC**: Project Management Oversight Consultant
- **PMP**: Project Management Plan
- **PRO**: Pre-Revenue Operations
- **PTEPP**: Passenger Train Emergency Preparedness Plan
- **QA/QC**: Quality Assurance/Quality Control
- **RAC**: Rail Activation Committee
- **RAP**: Rail Activation Plan
- **RMIS**: Rail Management Information System
- **ROD**: Revenue Operation Date
- **ROW**: Railroad Right-of-Way
- **SCIL**: Safety (and Security) Critical Items List
- **SITC**: System Integration Testing Committee
- **SOP**: Standard Operating Procedure
- **SSC**: Safety/Security Certification
- **SSCC**: Safety and Security Certification Committee
- **SSCP**: Safety and Security Certification Plan/Program
- **SSM**: Safety and Security Manager
- **SSMP**: Safety and Security Management Plan
- **SSPP**: Safety and Security Program Plan
- **TSP**: Technical Special Provision
- **TVM**: Ticket Vending Machine
- **VSMF**: Vehicle Storage and Maintenance Facility

### 1.4 Objectives

The objective for FDOT’s CFCRT Project – Phase 2 South is to provide a safe and efficient means of transportation for its passengers. Safety is a priority of SunRail commuter service. Continuous reviews of safe operations and needed improvements will be implemented as needed during the lifecycle of the commuter service.
The Safety and Security Certification (SSC) Program will certify and document that all practical steps have been taken to optimize the operational safety of the SunRail system before it is placed into passenger carrying service. The goal of this certification plan is to ensure that SunRail begins revenue service with:

- A level of safety equivalent to the existing system and other existing commuter rail systems in the United States
- The elimination or control of hazards, to the extent possible, as they affect passengers, employees, users of shared right-of-way, facilities, property and equipment
- A high level of public confidence in the safety of SunRail.

1.5 Safety and Security Design Requirements

The CFCRT SSC process shall address system safety and security elements according to the requirements of the applicable standards listed in the CFCRT Design Criteria, Station Specifications, Maintenance-of-Way Scope of Services, SSMP and this document. Should any standard or requirement conflict, the most stringent standard shall apply. Any deviation from the Project’s Design Criteria and Technical Specifications must be reviewed by the appropriate FDOT representatives (FDOT Construction Management and PMC Consultants) and the CFCRT Configuration Control Advisory Committee (CCAC). If the deviation will impact safety and security, the design change shall also be reviewed by the CFCRT Executive Safety and Security Committee.

Standards, specifications, regulations, design handbooks, safety design checklists and other sources of design guidance will be reviewed for pertinent safety design requirements applicable to the Project system. Some general system safety design requirements to be followed during the SSC process include, but are not limited to:

- Identified hazards shall be eliminated or associated risk shall be reduced through design, including material selection or substitution. When potentially hazardous materials must be used, such materials selected shall pose the least risk throughout the life cycle of the system.
- Hazardous substances, components and operations shall be isolated from other activities, areas, personnel and incompatible materials.
- Equipment shall be located so that access during operations, servicing, maintenance, repair or adjustment minimizes personnel exposure to hazards (e.g. hazardous chemicals, high voltage, electromagnetic radiation, cutting edges or sharp points).
- Risk resulting from excessive environmental conditions (e.g. temperature, pressure, noise, toxicity, acceleration and vibration) shall be minimized.
- Risk resulting from human error in system operation and support shall be minimized as part of the design effort.
- In the case of risk from hazards that cannot be eliminated, alternatives that will minimize such risk shall be considered. (e.g. interlocks, redundancy, fail safe design, system protection, fire suppression and other protective measures, such as clothing, equipment, devices and procedures.)
- Power sources, controls and critical components of redundant subsystems shall be protected by physical separation or shielding, or by other suitable methods mutually agreeable to the design and FDOT.
- Changes to design, configuration, production, or Project requirements (including any resulting system modifications and upgrades, retrofits, insertions of new technologies or materials, or use of new production or test techniques) shall be accomplished in a manner that maintains an acceptable level, as determined by the SSCC, of mishap risk.
- Changes to the environment in which the system operates shall be analyzed to identify and mitigate any resulting hazards or changes in mishap risks.
- Software controlled or monitored functions shall ensure minimal initiation of hazardous events.
or mishaps.

- When alternate design approaches cannot eliminate the hazard, safety and warning devices and warning and cautionary notes shall be provided in assembly, operations, maintenance and repair instructions, and distinctive markings shall be provided on hazardous components, equipment and facilities to ensure personnel and equipment protection. These shall be standardized in accordance with commonly accepted commercial practice or, if none exists, normal procedures. Where no such common practice exists, the design shall propose the method or methods to be used to FDOT for review and approval. The design shall provide all warnings, cautions and distinctive markings proposed to FDOT for review and comment.
- The severity of personnel injury or damage to equipment as a result of a mishap shall be minimized.
- Design criteria shall not include inadequate or overly restrictive requirements regarding safety. Where there is appropriate supporting information, recommend new safety criteria as required.
- Safety plans, security plans, operating procedures, and rule books are developed (or updated) for operations
- Personnel are trained and qualified to operate equipment, perform duties safely, and respond to emergencies
- Emergency response organizations are familiar with SunRail operations and facilities and its emergency procedures

1.6 Organizational Responsibilities

The CFCRT Project Management is implementing this program under the authority of the FDOT District 5 Secretary as the CFRC/SunRail Chief Executive Officer (CEO). The Project organizational structure, as identified in Figure 9-1 of the CFCRT – Phase 2 South Project Management Plan (PMP), will be responsible for completing the certification activities during the different phases in the life cycle of the Project. In addition to the information provided in this SSCP, the responsibilities for the implementation of the Project are detailed in the CFCRT Project Safety and Security Management Plan (SSMP). Section 2.1 of the SSMP discusses how safety and security activities are integrated into the project development, and Section 3 outlines FDOT’s approach to designating personnel to manage the safety and security activities.

During the Project phases different members of the Project team will have critical responsibilities for the design, construction, testing and integration of the Project systems:

- Planning: Design Consultant
- Preliminary Engineering: Design Consultant
- Final Design (Infrastructure, Railroad ROW, Track and Signals): Contractor and CEI Consultant
- Final Design (Stations): Design Consultant
- Rolling Stock: Locomotive and Coach-Cab Car Manufacturers
- Construction (Infrastructure, Railroad ROW, Track and Signals): Contractor and CEI Consultant
- Construction (Stations): Station Finish Contractor(s) and CEI Consultant
- Integration Testing: Contractor and CEI Consultant
- Pre-Revenue Operations: FDOT Passenger Rail Operations Manager, Contractor, O&M Contractor, and CFRC/SunRail Director of Operations, FRA Inspectors
- Operations (Revenue Service): FDOT Passenger Rail Operations Manager, CFRC/SunRail Director of Operations, General Manager – Bombardier and Manager of Signals - Herzog

As the CFCRT Project entered pre-revenue operations, a CFRC System Safety Program Plan (SSPP) was developed for the operational life cycle that will be revised for Phase 2 South. The SunRail/CFRC Director of Operations and the SunRail Safety and Security Manager are responsible for the daily oversight, identification and control of operating and workplace hazards to ensure the highest degree of safety for SunRail customers, employees, contractor employees, and property. Bombardier, Herzog and other Contractors are also responsible for identification and control of operating and workplace hazards.
hazards to ensure the highest degree of safety for SunRail customers, employees, contractor
employees, etc.

1.7 Scope of SSCP Program

The CFCRT Safety and Security Certification Program for Phase 2 South covers three different but
overlapping functional considerations:

1. System Safety - elimination, minimization of a hazard through design and engineering controls or
control of potential hazards to patrons, the general public, and the protection of property from
damage.

2. Fire/Life Safety - elimination, minimization, or control of potential hazards to patrons, employees,
emergency response personnel, and the general public caused by fire, smoke, explosion, or
resulting panic; and the protection of property from fire or explosion.

3. Occupational Safety - elimination, minimization or control of potential hazards to employees and
emergency response personnel.

The scope of the CFCRT Safety and Security Certification Program for Phase 2 South encompasses:

- System-wide Elements such as rolling stock, train control signal systems, train dispatch and voice
  and data communications
- Fixed Facilities, including station platforms and amenities, fare collection equipment, parking lots
  and closed circuit television system, VSMF facility and yard, and OCC
- Testing such as the System Integration Testing Plan, (SITP), and SunRail start-up and testing
  activities prior to revenue operations
- Plans, Procedures, and Training for Operations, such as the Central Florida Rail Corridor (CFRC)
  Operating Rules and Rail Services Plan (RSP), Operations & Maintenance (O&M) Policies and
  Procedures, System Safety Program Plan (SSPP) and Security Program Plan (SPP)

This CFCRT Safety and Security Certification Plan for Phase 2 South is the tool that will be used by the
CFCRT Management Team to assist in managing safety and security certification. The SSCP provides
the formal basis of understanding and agreement among all members of the Project team regarding
how the program will be executed.

1.8 Methodology

The methodology used for the CFCRT SSCP for Phase 2 South can be summarized in the ten steps
stated below that will be used to obtain certification. More details on how these ten steps are
implemented are provided in the remainder of this Plan.

1. Identify Certifiable Elements and Items

2. Identify Safety and Security Design Criteria, including new or modified design elements
   resulting from Hazard Analysis and Threat and Vulnerability Analysis (TVA).

3. Develop and Complete Design Criteria Conformance Checklist

4. Perform Construction Specification Conformance (using the completed design
   conformance checklist)

5. Identify Additional Safety and Security Test Requirements, as required.
6. Perform Testing and Validation in Support of the Safety and Security Certification Program including testing subject to the provisions of CFR Title 49 and Operational Hazard Analysis.

7. Manage Integrated Tests for the Safety and Security Certification Program in coordination with the CFCRT System Integration Testing Plan.

8. Manage “Open Items” in the Safety and Security Certification Program, including restrictions.


2.0 PROJECT SAFETY AND SECURITY CERTIFICATION MANAGEMENT

The CFRC/SunRail Chief Executive Officer (CEO) is ultimately responsible for safety and security for all aspects of the CFCRT Project, the CFRC and SunRail operations. The CFRC/SunRail CEO has delegated authority to FDOT Executive Management (FDOT Directors of Transportation Operations and Development), the CFCRT Project Manager and the CFRC/SunRail Safety and Security Administrator to act for the CEO in performing or overseeing performance of the tasks for which they are ultimately responsible.

FDOT Executive Management will have overall responsibility for implementation and enforcement of this SSCP for Phase 2 South. FDOT Construction Management for the CFCRT Project, comprised of the Resident Engineer and CEI Consultant and FDOT’s Project Consultants (CFCRT Project Manager, CFRC/SunRail Safety and Security Administrator and CFRC/SunRail Safety and Security Manager, and PMC for Track, Rolling Stock, Signal and Communications) will take on the responsibility to ensure that all required system elements are safety and security certified. As the Project progresses from design through construction and start-up the focus for the program certifications will move from a design focus to a construction focus to end with the overall safety and security certification of the system.

The organizational structure for the CFCRT Project – Phase 2 South safety and security certification process is provided in Figure 2 and the responsibilities for all parties to the SSCP for Phase 2 South are described in detail further in this section. Appendix C identifies the certification responsibilities in matrix form.

Coordination with outside agencies, including the FTA, FRA, Department of Homeland Security (DHS), FDOT Central Office (deemed external for purposes of state safety oversight of the Fixed Guideway Transit System per Florida Statutes), counties and local municipalities having jurisdiction will proceed through all stages of the Project to ensure conformity with existing standards and practices in the safety and security approach. FDOT will also coordinate with tenant railroads to the CFRC, including CSXT, Amtrak and FCEN for emergency preparedness plans and exercises to ensure readiness for revenue operations.
Figure 2 – CFCRT Project SSC Organizational Structure
2.1 Passenger Rail Operations Manager and CFRC Officers

The Passenger Rail Operations Manager representing FDOT is to be responsible for verifying to the CEO that the SunRail commuter service is safe and ready for revenue operations. In the role of Chairman of the Safety and Security Certification Committee (SSCC), the SunRail Safety and Security Manager convenes a multidisciplinary group who represent the major project areas and activities starting in Final Design for the Contractors. The verification process and review by FDOT representatives is described in detail in Sections 3 of this document. To accomplish this task, the CFRC/SunRail Director of Operations and the SunRail Manager of Safety and Security will have continual management review of the Program as it progresses along the Project life cycle phases. Prior to revenue service, the CFRC/SunRail Director of Operations will review and sign off on all contractor safety and security documents required for certification.

All safety certification activities shall be documented in the final CFCRT Safety and Security Certification Verification Report (SSCVR) for Phase 2 South that will be prepared by the SunRail Manager of Safety and Security.

SunRail Safety and Security Manager

The SunRail Safety and Security Manager, as a direct report to the FDOT Passenger Rail Operations Manager, will support all of the Director of Operation’s policies and procedures for the CFRC. The SSM performs periodic field safety reviews with the Construction Contractors’ Safety Officer and other Project personnel as necessary. The SSM also reports to the SSC on maintenance and construction safety and security issues, and seek resolution by the Committee based on established risk acceptance criteria. Security responsibilities include serving as the Rail Security Coordinator and the designated Intelligence Liaison Officer (ILO) for CFRC/SunRail, providing a primary, single point of contact at the corporate level for receiving communications and inquiries from Transportation Security Administration (TSA) and point-of-contact with the local Fusion Center and law enforcement agencies concerning threat information or security procedures, and coordinating responses with appropriate law enforcement and emergency response agencies. The SSM will also review safety and security plans developed by the Contractors and Rolling Stock Manufacturers as part of the SCC process.

The SunRail SSM will develop/update all system safety and security programs and plans in accordance with FTA, FRA and APTA guidelines and regulations and will manage the CIL and SCIL for the SSCC. The CFRC/SunRail SSM assists with all rail safety, security and operations and provides leadership in the related safety and security activities, provides technical support for FRA emergency preparedness rules and regulations with the ability to lead SCC activities, tabletops and field exercises.

2.2 CFCRT Project Manager

The CFCRT Project Manager, a consultant to FDOT, reports directly to the District Secretary and is responsible for establishing and maintaining communication links between FDOT, other members of the CFRC/SunRail Director of Operations’ Office, Program Management Team (PMT), Program Management Consultants (PMCs) and the Construction contractors. The CFCRT Project Manager monitors compliance with FRA, FTA, and FDOT requirements and guides the Project through construction, and Start-up and Testing phases.

2.3 FDOT Construction Management

FDOT Construction Management is comprised of the FDOT District Five Resident Engineer, FDOT support staff, and engineers and inspectors provided by the CEI Consultant, will ensure that the Project is constructed according to the drawings and specifications. The FDOT Construction Management team also provides the interface between the respective staff of the construction contractors, CEI Consultant, FDOT Construction Management and the CFCRT Project
Management Team.

**CFCRT Project Resident Engineer**
The Resident Engineer (RE) oversees all aspects of the construction contractors’ mobilization, startup, schedule and progress for the Project duration, including authority for oversight of construction safety and security, construction quality control and observation of Project start-up and testing.

**Program Management Consultant**
FDOT has also established a Program Management Consultant team comprised of four major firms to assist with the technical oversight and management of this Project, including safety/security certification, quality assurance and quality control. The individual firms, along with the Design Consultant, will provide program management services in the specialized area of Stations, Systems, Signals and Communications, Civil, Structural, Track Work, Rolling Stock, and Operations Planning Support.

**Construction Engineering and Inspection Consultants**
The CEI Consultant performs verification and resolution testing services in accordance with the contract specifications. The CEI testing will be handled as outlined in FDOT documents 675-000-000 Materials Manual and 700-000-000 FDOT Construction Project Administration Manual (CPAM).

The CEI Consultant will assist the Resident Engineer in the construction management of the Contractor Station Finishes contract, administration, safety/security certification and quality assurance oversight of the Project. In addition to fulfilling the standard FDOT scope of services noted above, the CEI team is to provide rail safety and maintenance oversight services as well as support the Director of Operations and the SSM in the daily operations of the CFRC railroad. The CEI will also play a pivotal role in the Safety and Security Certification process for Phase 2 South by supporting the Director of Operations’ Office with all Safety and Security Availability requirements, including performing field verification of the Station Design and Construction Conformance Checklist for the 4 Phase 2 South station sites. The CEI Consultant will perform these duties in accordance with the contract requirements issued for the Project, the CFCRT Quality Assurance Program Plan (QAPP), FDOT CPAM, and the CFCRT Phase 2 South PMP.

With the onset of construction, the CFRC Officers, the PMC and CEI Consultant were responsible for establishing and maintaining communication links between FDOT, CSXT and the Construction Contractors. The PMC and CEI Consultant assisted FDOT in the oversight of the Construction contractors, from mobilization through revenue operation by confirming that work on the Project was properly administered, documented and reported. The PMC and CEI Consultant also assisted FDOT and the Rail Office in monitoring compliance with FRA, FTA, CSXT and FDOT requirements and others as appropriate.

**Construction Quality Assurance Specialist**
The FDOT Construction Quality Assurance Specialist (CQAS) reports directly to the FDOT District Construction Engineer and is responsible for monitoring and enforcing quality assurance during construction. The FDOT CQAS shall be responsible for confirming the effectiveness of the CEI Consultant oversight process for inspection, verification and resolution testing, by auditing the specific criteria previously identified in the applicable Quality Control Inspection Guide list, Critical Items Section, as specified in Section 10 of the CFCRT QAPP for Phase 2 South.

### 2.4 Configuration Control Activation Committee

Configuration management is the systematic control of the Project’s physical, safety, security, operational and aesthetic features and the monitoring and documenting of all design changes to these features. The goal of configuration management is to ensure that the overall configuration of the Project is not changed without a systematic review of the change and that the impact of the change on all other aspects of the system and Project objectives is recognized. To this effect,
Configuration Control Advisory Committee (CCAC) is a vital management tool in evaluating recommended design changes to the Phase 2 South Project.

For the CFCRT Project – Phase 2 South, the Project Bi-weekly FDOT Executive Management Meeting functions as the CCAC. One meeting per month includes Project consultants and contractor representatives; one meeting per month is reserved solely for FDOT Executive Management. The CFCRT Project Manager and PMC provide technical recommendations to the CCAC.

The CCAC provides input on proposed changes to design and construction with regards to compliance with criteria, operations, safety, cost, schedule, and budget impacts. Upon approval of the change, the CFCRT Project Manager and PMC, as applicable, are responsible to implement the change.

There may be situations where the Phase 2 South Design Criteria is further refined by input from oversight agency comments, prospective bidders’ comments and FDOT design directives. If changes or variances are needed to the Design Criteria during Final Design and beyond, those changes or variances will be brought before the CCAC.

Records of the committee meeting minutes as well as the Design Criteria will be processed into FDOT District 5 CFCRT’s document control system, as described in Section 6, Project Control of the current CFCRT Quality Assurance Program Plan (QAPP). Design Criteria that need to be revised during Final Design and beyond that have an impact on safety or security and may adversely affect safety and security risk will be brought to the Safety and Security Committee for review and direction. Such direction will be based on required hazard analyses and TVAs.

The CCAC’s function is to address the need for continuity through the entire life of the CFCRT Project. It is essential that changes to the Project be communicated through the proper channels and that all necessary personnel have been notified. More importantly, the CCAC functions to monitor, evaluate, recommend, and execute any changes in the scope of the Project through all Project stages.

### Table 1 – CACC Committee Membership

<table>
<thead>
<tr>
<th>Committee</th>
<th>Chair</th>
<th>Members</th>
</tr>
</thead>
</table>
| CCAC (Alternates may be assigned) | FDOT Director of Transportation Development | Convenes bi-weekly  
- FDOT District 5 Secretary  
- FDOT D5 Director of Transportation Operations  
- FDOT Transportation Support Manager  
- CFCRT Project Manager  
- FDOT Resident Engineer or RE representative  
- FDOT State Transit Manager  
- FDOT State Rail Office Manager  
- Other FDOT Department Heads and Auditors as required  
- PMC Consultant  
- Design Consultant  
- CFRC/SunRail Director of Operations |

### 2.5 Contractors

The existence of this CFCRT Project SSCP for Phase 2 South does not relieve Project Contractors of their contractual obligations to produce a SSCP under their scope of services nor does it change the
terms and conditions of the Contract. Safety and security must be a primary consideration in all construction related activities to be undertaken on this Project. FDOT reserves the right to add, delete, or modify sections of this CF CRT Project SSCP for Phase 2 South from time to time as it deems necessary. These contractor SSCPs shall serve as appendices to this overall project SSCP.

Contractors
During the construction period of the Project, the Contractor is contractually obligated to develop and implement a System Safety and Security Program, hazard analyses, and a Safety and Security Certification Plan encompassing each system and location covered under the scope of the contract, and are provided to the SunRail Safety and Security Manager for review and acceptance. The Contractor will complete the design, construction and testing for the System-wide Elements and much of the fixed facilities, and as such is responsible for a significant portion of the SSC program. For example, following completion of Final Design, the Contractor will review documentation to ensure that all safety and security requirements have been satisfied and will sign a recommendation for certification of design for that element.

Station Design Consultant
The Station Design Consultant is responsible for 100% CF CRT Project – Phase 2 South station design and design for Civil Installations and Signal Systems. The Station Design Consultant will provide documentation to ensure that all safety and security requirements have been included for the station design. The CEI will certify that the Station Finish Contractor (DBB) completes the installation of station amenities in accordance with the CF CRT specifications and other contract documents, including approved changes since Final Design.

Station Finish Contractors
Construction Contractors are responsible for installation of station amenities and parking lots. Safety certification for these elements will be performed in-house by FDOT’s CEI Consultant.

Fare Collection Vendor
The Project Management Consultant (PMC) will oversee safety and security requirements of the Fare Collection System, including the ticket vending machine (TVM) and validators and the CEI will certify that the Fare Collection Vendor completes the installation of the TVMs and validators on the station platforms and that the Station Finish Contractor integrates the TVMs into the SunRail system.

Rolling Stock Manufacturers
The Manufacturers of the locomotives and coaches and cab cars will be responsible for ensuring that the safety and security requirements are met for the SunRail vehicles. The locomotive and Coach-Cab Car manufacturers’ representatives will be on-site coincident with rolling stock delivery and will participate in integration testing and pre-revenue service activities.

O&M Contractors
The O&M Contractors will begin a Mobilization Period in advance of revenue operations in accordance with the Phase 1 (IOS) Master Project Schedule as part of the transition from Construction to Operations (Attachment A of the CF CRT Phase 1 (IOS) PMP).

The O&M Contractors will assist FDOT to develop policies and procedures to ensure coordination and compliance with existing safety and security standards and practices. The O&M Contractors will assist FDOT to provide the FRA with access to 49 CFR test procedures and results and any other documentation, information, and procedures necessary to satisfy FRA requirements for approval of start of revenue operations.

The SSMP identifies O&M Contractors participation in Project committees that have a safety and security component. These specific assignments are described in Table 3, Safety and Security Responsibility and Authority of the SSMP. At a minimum, the O&M Contractor will provide appropriate management representation on the following committees: Safety and Security, Safety
and Security Certification, and Fire/Life Safety.

During transition of the Phase 1 Project from construction to revenue service, the O&M Contractors will be responsible to develop, execute and/or revise, as required, safety and security plans. To meet FRA/APTA, FTA and SSO safety oversight requirements for new commuter rail operations, these plans and subordinate activities include, at a minimum:

- System Safety Program Plan (SSPP)
- System Security Plan (SSP) and subordinate Safety and Security Emergency Preparedness Plan (SEPP)
- Passenger Train Emergency Preparedness Plan (PTEPP)
- Operations and Support Hazard Analysis (OHA) The O&M Contractor will be responsible for verification of integration testing completed by the Contractor by observing field testing and review of test reports in the certification process. The O&M Contractors will be responsible for certification related to Pre-Revenue Training and Testing activities, as specified in Section 3.7 and 3.8.

2.6 Safety and Security Responsibility and Authority

Safety and security responsibilities and authorities change through the Phase 2 South Project development life cycle phases of design, construction, integration testing, and commissioning. Table 2 shows safety and security authority and responsibility for key personnel for each phase of the Project. FDOT procurement and CEI personnel shall ensure that all Construction Contractors submit their own construction safety and security program documents. A C-SSPP and C-SPP are to be developed by the Construction Contractors during the Construction Mobilization period, as well as a specific CCSP that details how each Contractor will meet the RFP requirements. Proper supervision and training at all tier-levels with employee participation in construction safety and security will be required.

CEI Consultant safety and security professionals will provide daily oversight of the contractor’s application of the Construction Contractor’s approved CCSP. FDOT’s contract documents, including the CFRC Roadway Worker Protection Plan and the SIP state that the FDOT Project Management Team, including the CEI Consultant personnel, as well as CFRC/SunRail Director of Operations and SunRail Safety and Security Manager have the authority to stop any unsafe construction activity and prescribe necessary conditions that must be met for work to resume. In addition, these Project personnel will report all observed unsafe working conditions or security breaches to the Construction Contractors and the Safety and Security Committee, notify the Construction Contractors and the Safety and Security Committee in writing of non-compliance with any of the safety and security requirements, maintain written documentation of communications with the Construction Contractors concerning accident prevention and security breaches, and review Construction Contractors’ Daily Reports, Equipment Maintenance Logs, Accident Report Forms, and other applicable forms. Violations may result in suspension of work until the violations are corrected, or termination of the contract. Repeated violations by an individual may result in FDOT ordering of a Construction Contractor or subcontractor to remove the individual (temporarily or permanently) from the construction site as per Division 1 Specifications Section 8-5.

The Phase 2 South SSMP incorporates safety and security as a priority for every member of the management team, including FDOT staff and design and quality assurance contracted professionals. All members of the Project Team are responsible for exercising their part of the Safety and Security Management Program. This includes the reporting of unsafe and vulnerable conditions or activities, as well as receiving safety and security awareness and other safety and security training appropriate to the individual’s specific role, under the direction and guidance of the CFRC/SunRail Director of Operations. The CEI Consultant Rail Safety Coordinator evaluates the contractors’ adherence to the contract documents and construction phase safety and security requirements, under the overall direction of the CFRC/SunRail Director of Operations. Assistance in assessing the security requirements will be provided by the SunRail Safety and Security Manager. The need for other full or part-time construction
safety or security professionals during the construction phase will be re-evaluated continually throughout the duration of construction by the CFCRT Project Manager and the CFRC/SunRail Director of Operations. Construction safety personnel assigned to the Project (part or full time) will undertake compliance checking activities (including but not limited to submittal review and field observations) to insure the compliance and quality of the contractor's construction safety and security activities.
### Table 2 – Safety and Security Responsibility and Authority

<table>
<thead>
<tr>
<th>FDOT District 5 Secretary/CFRC/FDOT Chief Operating Officer</th>
<th>FDOT Director of Transportation Development</th>
<th>FDOT Director of Transportation Operations</th>
<th>FDOT CFCRT Design Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Phase PE and FD</td>
<td>Construction Phase</td>
<td>Integration Testing, Pre-Revenue Operation, Commissioning and Start-up Phases</td>
<td></td>
</tr>
<tr>
<td>• Chair of the Safety and Security Executive Committee</td>
<td>• Chair of the Safety and Security Executive Committee</td>
<td>Approves the Safety and Security Certification Verification Report (SSCVR) and provides certification to FDOT SSO and FRA that the system is ready for revenue operations</td>
<td></td>
</tr>
<tr>
<td>FDOT District 5 Secretary/CFRC/FDOT Chief Operating Officer</td>
<td>District Secretary’s Authority for all Transportation development activities</td>
<td>District Secretary’s Authority for all transportation development activities</td>
<td></td>
</tr>
<tr>
<td>FDOT Director of Transportation Development</td>
<td>• Project planning, engineering, management and control; environmental compliance; value engineering; real estate actions, intergovernmental coordination and quality assurance/quality control</td>
<td>• Monitors Project safety compliance, environmental compliance, value engineering, and quality assurance/quality control</td>
<td></td>
</tr>
<tr>
<td>FDOT Director of Transportation Development</td>
<td>• Review and approval of engineering studies, reports, drawings and other design documents produced for the Project</td>
<td>• Chairs the Safety and Security Executive Committee</td>
<td></td>
</tr>
<tr>
<td>FDOT Director of Transportation Operations</td>
<td>• Review and approval of logistical modeling of railroad operations through the phased construction of the Project</td>
<td>Guide the Project through integration testing through start-up and testing phases</td>
<td></td>
</tr>
<tr>
<td>FDOT Director of Transportation Operations</td>
<td>• Executing all capital projects (Construction)</td>
<td>• Member of the Safety and Security Executive Committee</td>
<td></td>
</tr>
<tr>
<td>FDOT Director of Transportation Operations</td>
<td>• Project management and control</td>
<td>Executing all capital projects (Construction)</td>
<td></td>
</tr>
<tr>
<td>FDOT Director of Transportation Operations</td>
<td>• Monitors safety compliance, environmental compliance, value engineering, and quality assurance/quality control</td>
<td>• Project management and control</td>
<td></td>
</tr>
<tr>
<td>FDOT Director of Transportation Operations</td>
<td>• Monitoring the implementation of Quality Assurance</td>
<td>Monitoring safety compliance, environmental compliance, value engineering, and quality assurance/quality control</td>
<td></td>
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<tr>
<td>FDOT Director of Transportation Operations</td>
<td>• Upholding applicable FTA guidelines</td>
<td>Participant in Project design reviews</td>
<td></td>
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<tr>
<td>FDOT Director of Transportation Operations</td>
<td>• Participant in Project design reviews</td>
<td>Leads design quality control process</td>
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<tr>
<td>FDOT CFCRT Design Management</td>
<td>Provides management of the design process</td>
<td>Provides management of the design process</td>
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</tr>
<tr>
<td>FDOT CFCRT Design Management</td>
<td>• Leads the Project design reviews</td>
<td>Responds to Contractor requests for information</td>
<td></td>
</tr>
<tr>
<td>FDOT CFCRT Design Management</td>
<td>• Manages conformance to safety and security design criteria</td>
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<tr>
<td>FDOT CFCRT Design Management</td>
<td>• Leads design quality control process</td>
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<td></td>
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<tr>
<td>Role</td>
<td>Design Phase PE and FD</td>
<td>Construction Phase</td>
<td>Integration Testing, Pre-Revenue Operation, Commissioning and Start-up Phases</td>
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<td>-------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| SunRail Director of Operations | • Member of both Safety and Security Committees  
• Provide Oversight for safety and security Training Programs (Operations, Maintenance and Construction)  
• Participate in Safety and Security Project Plan Reviews  
• Participate in Project Procurement Activities  
• Lead Response Efforts to Reported Incidents and Emergencies  
• Advise FDOT Management regarding Safety and Security Analysis  
• Enforce Applicable FRA Rules and Regulations in Maintenance and Operations Activities | • Member of both Safety and Security Committees  
• Provide Oversight for safety and security Training Programs (Operations, Maintenance and Construction)  
• Participate in Safety and Security Project Plan Reviews  
• Participate in Project Procurement Activities  
• Lead Response Efforts to Reported Incidents and Emergencies  
• Advise FDOT Management regarding Safety and Security Analysis  
• Enforce Applicable FRA Rules and Regulations in Maintenance and Operations Activities  
• Responsible for Maintenance Activities in Corridor | • Member of both Safety and Security Committees  
• Responsible for Maintenance and Operations activities in Corridor  
• Provide Oversight for safety and security Training Programs (Operations, Maintenance and Construction)  
• Participate in Safety and Security Project Plan Reviews  
• Manage Transition of Contractor activities to O&M Responsibilities  
• Enforce Applicable FRA Rules and Regulations in Maintenance and Operations Activities  
• Lead Response Efforts to Reported Incidents and Emergencies |
| CFRC/SunRail Director of Operations | • Participates in design reviews for safety and security requirements in contract documents.  
• Member of the Configuration Control Advisory Committee  
• Member of the Safety and Security Committee and member of Executive Committee  
• Administer the Safety and Security Certification Program  
• Overall responsibility for implementing the Safety and Security Management Plan (SSMP)  
• Oversight of safety and security analyses (PHA, TVA & CHA) and resolution of identified hazards/vulnerabilities  
• Enforce applicable FTA guidelines and FRA regulations in design | • Participates in construction management reviews of Contractors for safety and security requirements in contract documents.  
• Member of the Configuration Control Advisory Committee  
• Member of the Safety and Security Committee and member of Executive Committee  
• Administer the Safety and Security Certification Program  
• Overall responsibility for implementing the SSMP  
• Oversight of implementing safety and security analyses (PHA, TVA & CHA) and resolution of identified hazards/vulnerabilities  
• Enforce applicable FTA guidelines and FRA regulations in design, and construction. | • Member of the Configuration Control Advisory Committee  
• DOrdinates emergency response training drills  
• Member of the Safety and Security Committee and member of Executive Committee  
• Administer the Safety and Security Certification Program and Certifies to the FDOT District Secretary that the Phase 2 Project system is ready for revenue operations  
• Oversight of safety and security analyses (PHA, TVA & CHA) and resolution of identified hazards/vulnerabilities  
• Enforce applicable FTA guidelines and FRA regulations in design, construction, operations, maintenance, and training |
<table>
<thead>
<tr>
<th>Role</th>
<th>Design Phase PE and FD</th>
<th>Construction Phase</th>
<th>Integration Testing, Pre-Revenue Operation, Commissioning and Start-up Phases</th>
</tr>
</thead>
</table>
| CFRC/SunRail Safety and Security Manager | • Support the Safety and Security Administrator’s Plans and Programs, including review of all Project safety and security plans and programs developed and submitted  
• Chair of the Safety and Security Committee  
• Perform Rail Security coordinator/Intelligence Liaison Officer function for all TSA communication | • Support the Safety and Security Administrator’s Plans and Programs, including review of all Project safety and security plans and programs developed and submitted  
• Chair of the Safety and Security Committee  
• Perform Rail Security coordinator/Intelligence Liaison Officer function for all TSA communication  
• Perform Joint Safety and Security Audits | • Support the Safety and Security Administrator’s Plans and Programs, including review of all Project safety and security plans and programs developed and submitted  
• Chair of the Safety and Security Committee  
• Perform Rail Security coordinator/Intelligence Liaison Officer function for all TSA communication  
• Perform Joint Safety and Security Audits |
| CFRC/SunRail System Safety/Security Specialist | • Develop/update all system safety and security programs and plans in accordance with FTA, FRA and APTA guidelines and regulations.  
• Support the Safety and Security Administrator’s Plans and Programs, including review of all Project safety and security plans and programs developed and submitted  
• Assists with all rail safety, security and operations and provide leadership in the related safety and security activities.  
• Provides technical support for FRA emergency preparedness rules and regulations | • Develop/update all system safety and security programs and plans in accordance with FTA, FRA and APTA guidelines and regulations.  
• Support the Safety and Security Administrator’s Plans and Programs, including review of all Project safety and security plans and programs developed and submitted  
• Assists with all rail safety, security and operations and provide leadership in the related safety and security activities.  
• Provides technical support for FRA emergency preparedness rules and regulations | • Develop/update all system safety and security programs and plans in accordance with FTA, FRA and APTA guidelines and regulations.  
• Support the Safety and Security Administrator’s Plans and Programs, including review of all Project safety and security plans and programs developed and submitted  
• Assists with all rail safety, security and operations and provide leadership in the related safety and security activities.  
• Provides technical support for FRA emergency preparedness rules and regulations |
| FDOT District Construction Engineer | • Project management and control  
• Monitor safety compliance, environmental compliance and quality assurance/quality control  
• Monitoring the implementation of Quality Assurance  
• Upholding applicable FTA guidelines  
• Review scope of work and selection criteria for the Construction contracts | • Project management and control  
• Monitor safety compliance, environmental compliance, and quality assurance/quality control  
• Maintain project management and control  
• Participation in Value Engineering Studies  
• Participate in the solicitation process for the Construction Contractors | • Project management and control  
• Monitor safety compliance, environmental compliance, and quality assurance/quality control  
• ... |
<table>
<thead>
<tr>
<th>Role</th>
<th>Design Phase PE and FD</th>
<th>Construction Phase</th>
<th>Integration Testing, Pre-Revenue Operation, Commissioning and Start-up Phases</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDOT Resident Engineer (RE)</td>
<td>• Assures safety and security requirements are included in contract documents</td>
<td>• Authority for oversight of construction safety and security and construction quality control</td>
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<td></td>
<td>• Monitoring safety compliance, environmental compliance, and quality assurance/quality control</td>
<td>• Monitoring safety compliance, environmental compliance, and quality assurance/quality control</td>
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<tr>
<td></td>
<td>• Maintain project management and control</td>
<td>• Provide construction management and oversight</td>
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<tr>
<td></td>
<td>• Monitoring the implementation of Quality Assurance</td>
<td>• Review and approve Contractor Submittals</td>
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<td></td>
<td>• Upholding applicable FTA guidelines</td>
<td>• Monitor construction adherence to Project requirements</td>
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<td></td>
<td>• Participant in Project design reviews</td>
<td>• Observe testing of the Project work</td>
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<td></td>
<td></td>
<td><strong>Authority for oversight of construction safety and security and construction quality control</strong></td>
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<td></td>
<td><strong>Monitoring safety compliance, environmental compliance, and quality assurance/quality control</strong></td>
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<td></td>
<td><strong>Observe testing of the Project work</strong></td>
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<td></td>
<td></td>
<td><strong>Review and approve Contractor Submittals</strong></td>
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<tr>
<td>PMT Project Manager</td>
<td>• Provides project management for all aspects of the Project</td>
<td>• Provides project management for all aspects of the Project</td>
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<tr>
<td></td>
<td>• Provides oversight of the design process</td>
<td>• Provides oversight of the construction activities</td>
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<tr>
<td></td>
<td>• Participates in Project design reviews</td>
<td>• Member of the Safety and Security Executive Committee</td>
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<tr>
<td></td>
<td>• Member of the Safety and Security Executive Committee</td>
<td></td>
<td><strong>Provides project management for all aspects of the Project</strong></td>
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<td></td>
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<td><strong>Provides oversight of the testing, evaluation and commissioning activities</strong></td>
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<td></td>
<td></td>
<td></td>
<td><strong>Member of the Safety and Security Executive Committee</strong></td>
</tr>
<tr>
<td>CFCRT Program Management Team (PMT)</td>
<td>• Provide specific project and consultant management services to FDOT.</td>
<td>• Provide specific project and consultant management services to FDOT.</td>
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<tr>
<td></td>
<td>• Assists the CFCRT Project Manager with general oversight and management of the Program Management Consultant (PMCs), the Design Consultant as well as public involvement activities.</td>
<td>• Assists the CFCRT Project Manager with general oversight and management of the Program Management Consultant (PMCs), the Design Consultant as well as public involvement activities.</td>
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<td></td>
<td>• Review of technical documents, coordination with FTA, FRA, and local jurisdictions</td>
<td>• Review of technical documents, coordination with FTA, FRA, and local jurisdictions</td>
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</tr>
<tr>
<td>FDOT District Safety and Health Manager</td>
<td>• Participates in design reviews and ERP planning</td>
<td>• Member of Project Safety and Security Committee</td>
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<td></td>
<td>• Member of FDOT Safety and Security Committee</td>
<td>• Participate in safety and security audits</td>
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<td>• Participates in safety and security coordination with stakeholders and outside agencies, including DHS and local first responders</td>
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<td><strong>Member of Project Safety and Security Committee</strong></td>
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<td><strong>Participate in Safety Observations</strong></td>
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<td></td>
<td><strong>Participates in safety and security coordination with stakeholders and outside agencies, including DHS and local first responders</strong></td>
</tr>
<tr>
<td>PMT Project Public Information Liaison (PIL)/Public Involvement Consultant</td>
<td>Design Phase PE and FD</td>
<td>Construction Phase</td>
<td>Integration Testing, Pre-Revenue Operation, Commissioning and Start-up Phases</td>
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</table>
| • coordinates with FDOT Public Information Office (PIO) and Construction Contractor on elements of Construction Public Information Program  
• Member of the Safety and Security Committee | • coordinates with PIO to provide Public updates on construction related street closures and other safety related issues  
• Supports development of public safety and security program(s) to provide community outreach and education for railroad crossing safety and safety/security for passengers.  
• Member of the Safety and Security Committee | • Implements the public safety outreach program for revenue service  
• Member of the Safety and Security Committee |

| Program Management Consultants (PMC) | • Review Design Criteria for FDOT  
• Review Preliminary Engineering Documents  
• Review design and contracting packages  
• Recommend Project Delivery Strategy for all elements of the Project  
• Review scope of work and selection criteria for the Construction contracts  
• Review Construction Contractor pre-qualifications package  
• Develop specification for rolling stock  
• Prepare performance specifications  
• Participate in Value Engineering and Risk Assessment  
• Provides oversight of the train control and signal system design development, vehicle specifications  
• Member of the Executive Safety and Security Committee and SSCC, as applicable | • Provide quality assurance and quality control oversight  
• Participate in Value Engineering and Risk Review  
• Provide technical assistance for FDOT  
• Provide on-site review of vehicles during fabrication  
• Review drawings and Supplemental Agreements  
• Provides detailed oversight of the train control and signal system equipment manufacturing and installation, vehicle construction  
• Provides management of vehicle inspectors  
• Member of the Executive Safety and Security Committee and SSCC, as applicable  
• Member of the Configuration Control Advisory Committee | • Provide CRT Operations Assistance  
• Observe testing of the Project work  
• Accept certification of the vehicles, signaling system and train control system  
• Member of the Executive Safety and Security Committee and SSCC, as applicable  
• Member of the Configuration Control Advisory Committee |

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<tr>
<td>Design Phase</td>
<td>Construction Phase</td>
<td>Integration Testing, Pre-Revenue Operation, Commissioning and Start-up Phases</td>
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<tr>
<td><strong>Design Consultant</strong></td>
<td><strong>Support CFRC/SunRail Director of Operations</strong></td>
<td><strong>Support CFRC/SunRail Director of Operations</strong></td>
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<tr>
<td><strong>Prepare Design Criteria for FDOT</strong></td>
<td><strong>Review Contractors’ safety and security submittals and provide comments to CFRC/SunRail Director of Operations</strong></td>
<td><strong>Observe testing of the Project work</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Prepare and finalize the Preliminary Engineering and Final Design documents to assure agreement with Design Criteria</strong></td>
<td><strong>Monitor construction adherence to Project requirements</strong></td>
<td><strong>Provide requisite RWP Training for Phase 2 South Project Design Consultant personnel and subcontractors</strong></td>
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<tr>
<td><strong>Member of the Configuration Control Advisory Committee</strong></td>
<td><strong>Observe testing of the Project work</strong></td>
<td><strong>Member of the Configuration Control Advisory Committee</strong></td>
<td></td>
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<tr>
<td><strong>Member of the Safety and Security Committees</strong></td>
<td><strong>Provide requisite RWP Training for Phase 2 South Project Design Consultant personnel and subcontractors</strong></td>
<td><strong>Member of the Safety and Security Committees</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Participant in project design reviews</strong></td>
<td><strong>Member of the Configuration Control Advisory Committee</strong></td>
<td><strong>Member of the Safety and Security Committees</strong></td>
<td></td>
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<tr>
<td><strong>Support CFRC/SunRail Director of Operations</strong></td>
<td><strong>Member of the Safety and Security Committees</strong></td>
<td><strong>Member of the Safety and Security Committees</strong></td>
<td></td>
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<tr>
<td><strong>Prepare HA, TVA and Trespass Addendum for Stations and System elements</strong></td>
<td><strong>Member of the Configuration Control Advisory Committee</strong></td>
<td><strong>Member of the Safety and Security Committees</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Develop and complete design criteria conformance checklists for Stations and System elements</strong></td>
<td><strong>Provides field inspection of all construction activities</strong></td>
<td><strong>Provides field inspection of all construction activities</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Incorporate safety and security requirements into contract document for the Construction Contractors</strong></td>
<td><strong>Performs construction safety and security audits</strong></td>
<td><strong>Performs construction safety and security audits</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Provide requisite RWP Training for Phase 2 South Project Design Consultant personnel and subcontractors</strong></td>
<td><strong>Provides field inspection of all construction activities</strong></td>
<td><strong>Provides field inspection of all construction activities</strong></td>
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</table>

| **All personnel authorized to enter the Project ROW** | **Ensure all required training is received and current before entering ROW** | **Ensure all required training is received and current before entering ROW** |
| **Follow all applicable safety rules and regulations** | **Follow all applicable safety rules and regulations** | **Follow all applicable safety rules and regulations** |
| **Report all suspicious and trespass activity in accordance with Project security protocols.** | **Report all suspicious and trespass activity in accordance with Project security protocols.** | **Report all suspicious and trespass activity in accordance with Project security protocols.** |

<p>| <strong>Construction Engineering &amp; Inspection (CEI) Consultant</strong> | <strong>Reviews contract specifications for construction safety adequacy</strong> | <strong>Reviews contract specifications for construction safety adequacy</strong> |
| <strong>Member of the Safety and Security Committee</strong> | <strong>Member of the Configuration Control Advisory Committee</strong> | <strong>Member of the Safety and Security Committees</strong> |
| <strong>Member of the Configuration Control Advisory Committee</strong> | <strong>Provides RWP Training for CEI personnel</strong> | <strong>Member of the Configuration Control Advisory Committee</strong> |
| <strong>Provides RWP Training for CEI personnel</strong> | <strong>Provides detailed oversight of Contractor’s safety program</strong> | <strong>Provides field inspection of all construction activities</strong> |
| <strong>Performs construction safety and security audits</strong> | <strong>Performs construction safety and security audits</strong> | <strong>Performs field inspection of all construction activities</strong> |
| <strong>Member of the Safety and Security Committees</strong> | <strong>Member of the Safety and Security Committees</strong> | <strong>Member of the Configuration Control Advisory Committee</strong> |
| <strong>Member of the Configuration Control Advisory Committee</strong> | <strong>Member of the Configuration Control Advisory Committee</strong> | <strong>Provides field inspection of all construction activities</strong> |
| <strong>Provides field inspection of all construction activities</strong> | <strong>Member of the Configuration Control Advisory Committee</strong> | <strong>Provides field inspection of all construction activities</strong> |</p>
<table>
<thead>
<tr>
<th>Design Phase PE and FD</th>
<th>Construction Phase</th>
<th>Integration Testing, Pre-Revenue Operation, Commissioning and Start-up Phases</th>
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<tbody>
<tr>
<td>All Construction Contractors</td>
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<tr>
<td>• Comply with all applicable FTA, FRA and FDOT Rules and regulations</td>
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<td>• Develop and implement all identified plans within the SSAR in accordance with applicable guidelines listed within the SSAR</td>
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<tr>
<td>• Ensure Construction personnel are qualified to perform On-Track Protection services before commencement of Corridor activities</td>
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<tr>
<td>• Provide RWP training to all Phase 2 South Project Construction personnel, subcontractors and third-party personnel prior to beginning work within the Project ROW and maintain appropriate training</td>
<td></td>
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<tr>
<td>• Participates in all CFRC/SunRail safety and security committees and audits</td>
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<tr>
<td>• Support CFRC/SunRail ERP, including taking part in Emergency Preparedness Drills</td>
<td></td>
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<tr>
<td>• Comply with all applicable FTA, FRA and FDOT Rules and regulations</td>
<td></td>
<td></td>
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<tr>
<td>• Updates and maintains SSAR deliverables</td>
<td></td>
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<tr>
<td>• Manage the Construction Contractor’s safety and security programs</td>
<td></td>
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<tr>
<td>• Participates in all CFRC/SunRail safety and security committees and audits</td>
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<td></td>
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<tr>
<td>• Provides reporting on safety and security performance</td>
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<tr>
<td>• Develop and complete construction criteria conformance checklists for all items within scope</td>
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<tr>
<td>• Coordinate with local law enforcement and O&amp;M Contractor for construction security issues</td>
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<tr>
<td>• Provide RWP training to all Phase 2 South Project Construction personnel, subcontractors and third-party personnel prior to beginning work within the Project ROW and maintain appropriate training</td>
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<tr>
<td>• Support CFRC/SunRail ERP, including taking part in Emergency Preparedness Drills (perform tabletop, functional and field incident drills)</td>
<td></td>
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<tr>
<td>• Comply with all applicable FTA, FRA and FDOT Rules and regulations</td>
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<tr>
<td>• Updates and maintains SSAR deliverables</td>
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<tr>
<td>• Manages the Contractor’s safety and security program</td>
<td></td>
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<tr>
<td>• Participates in all CFRC/SunRail safety and security committees and audits</td>
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<tr>
<td>• Provides reporting on safety and security performance</td>
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<tr>
<td>• Transition Project safety and security responsibilities to O&amp;M Contractor</td>
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<tr>
<td>• Provide RWP training to all Phase 2 South Project Construction personnel, subcontractors and third-party personnel prior to beginning work within the Project ROW and maintain appropriate training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Support CFRC/SunRail ERP, including taking part in Emergency Preparedness Drills to support pre-revenue service activities (perform tabletop, functional and field incident drills)</td>
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<tr>
<td>Positive Train Control Contractor</td>
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<tr>
<td>• Design the CFRC PTC system</td>
<td></td>
<td></td>
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<tr>
<td>• Develop and complete design criteria conformance checklists for PTC system</td>
<td></td>
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<tr>
<td>• Install the CFRC PTC System</td>
<td></td>
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<tr>
<td>• Develop and complete construction criteria conformance checklists for PTC system</td>
<td></td>
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<tr>
<td>• Create CFRC PTC training curriculum and training manuals</td>
<td></td>
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<tr>
<td>• Support CFRC/SunRail ERP, including taking part in Emergency Preparedness Drills</td>
<td></td>
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<tr>
<td>• Participates in all CFRC/SunRail safety and security committees and audits</td>
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<tr>
<td>• Prepare the PTC Safety Plan for FRA submittal</td>
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<tr>
<td>• Perform training on the PTC System to the O&amp;M Contractor personnel</td>
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<tr>
<td>• Coordinate system interoperability testing with CFRC tenant railroads</td>
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<tr>
<td>• Coordinate system integration and commissioning of the CFRC PTC system for revenue service</td>
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<tr>
<td>• Develop and Coordinate system documentation for FRA certification</td>
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<tr>
<td>• Support CFRC/SunRail ERP, including taking part in Emergency Preparedness Drills to support pre-revenue service activities (perform tabletop, functional and field incident drills)</td>
<td></td>
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<tr>
<td>• Participates in all CFRC/SunRail safety and security committees and audits</td>
<td></td>
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</tr>
<tr>
<td>Tenant Railroad Corridor Operations coordinators (CSXT, Amtrak and FCEN)</td>
<td>Design Phase PE and FD</td>
<td>Construction Phase</td>
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<tr>
<td>• Coordinate Project activities with the CFRC/SunRail Director of Operations, SunRail Director of Operations, CFRC Dispatcher Desk, CSXT CFCRT Project Representative, Amtrak CFCRT Project Representative, other contractors and all other operating railroads on the corridor</td>
<td>• Coordinate Corridor activities with the CFRC/SunRail Director of Operations, CFRC Dispatcher Desk, CSXT CFCRT Project Representative, Amtrak CFCRT Project Representative, other contractors and all other operating railroads on the corridor</td>
<td>• Coordinate Corridor activities with the CFRC/SunRail Director of Operations, CFRC Dispatcher Desk, CSXT CFCRT Project Representative, Amtrak CFCRT Project Representative, other contractors and all other operating railroads on the corridor</td>
</tr>
</tbody>
</table>

| Ticket Vending Machine (TVM) Supplier | • Comply with all applicable FTA and FDOT Rules and regulations | • Comply with all applicable FTA and FDOT Rules and regulations | • Comply with all applicable FTA and FDOT Rules and regulations |

| Operations & Maintenance (O&M) Contractor | • Comply with all applicable FTA, FRA and FDOT Rules and regulations on Project Corridor • Responsible for SunRail Commuter Rail service and maintenance activities within entire CFRC • Participate on all CFRC/SunRail safety and security-related committees • Provide personnel to perform alternate Rail Security coordinator function • Responsible for conducting Incident Investigation in accordance with the SunRail Internal Control Plan. | • Comply with all applicable FTA, FRA and FDOT Rules and regulations on Project Corridor • Responsible for SunRail Commuter Rail service and maintenance activities within CFRC • Participate on all CFRC/SunRail safety and security-related committee • Provide personnel to perform alternate Rail Security Coordinator function • Responsible for configuration management of the Vital PTC software | • Comply with all applicable FTA, FRA and FDOT Rules and regulations on Project Corridor • Responsible for SunRail Commuter Rail service and maintenance activities within CFRC • Assist with Phase 2 South System Integration Testing Program • Perform Operations and Support Hazard (OHA) Analysis • Conduct all pre-revenue testing activities in accordance with the Rail Activation Plan • Perform tabletop, functional and field incident drills • Update the Rail Services Plan to integrate Phase 2 South services • Qualify Train and Engine Crews on Phase 2 South Corridor • Participate on all CFRC/SunRail safety and security-related committees • Provide personnel to perform alternate Rail Security Coordinator function • Responsible for configuration management of the Vital PTC software • Coordinate and participate in integration testing, interoperability testing and commissioning of the entire PTC system/SunRail vehicles |
2.7 Safety and Security Certification Committee

The CFCRT Safety and Security Committee (SSCC), chaired by the SunRail Safety and Security Manager, was formed for the CRCRT Project as described in the SSMP. The SSCC has primary responsibility to ensure that the certification program is implemented through all phases of the Phase 2 South Projects. The SSCC will review safety and security certification documentation provided by the contractors and their oversight representatives and, if satisfied, countersign recommendation for certification, and a Certificate of Conformance will be issued. As necessary, the SSCC will elevate issues to the Executive Safety and Security Committee for review.

Table 3 depicts the structure of the SSCC. The SSCC will meet on no less than a monthly basis and the schedule may be adjusted as the Project progresses to meet any additional needs of the CFRC/SunRail SCC Program.

<table>
<thead>
<tr>
<th>Committee</th>
<th>Chair</th>
<th>Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety and Security Certification Committee (Alternates may be assigned, as applicable)</td>
<td>CFRC/SunRail Safety and Security Manager</td>
<td>Contractor Representative (s), as applicable, DBB Contractor Representative(s), PMC (Rolling Stock) Consultant, CEI Consultant Representative(s), CFRC System Safety Specialist, CFRC/SunRail Safety and Security Manager, CFCRT Project Manager (or alternate), O&amp;M Representative (s) (after mobilization), Design Consultant Representative</td>
</tr>
</tbody>
</table>

As the CFCRT System Integration Test Program proceeds, the SSCC has the responsibility to work with the CFCRT System Integration Testing Committee (SITC) to verify that all safety-related tests are successfully completed. This is accomplished by witnessing tests, independently reviewing tests that affect system safety to ensure that identified hazards have been controlled or eliminated, and verifying that certificates of compliance are issued for each safety- and security-critical element, indicating that it meets established safety and security requirements.

Members of the SITC and SSCC, along with members of the Rail Services Committee (RSC), will form the Rail Activation Committee (RAC) to provide oversight for the transition process from construction to revenue service and to resolve any outstanding issues that affect multiple aspects of the Project or issues that cannot be resolved by a single committee.

The SSCC will also receive the System Integration Test Schedule that is prepared by the Contractor. The System Integration Test Schedule, including the System Readiness Drills, is based on the testing sequence, construction/procurement milestones and the availability of necessary required resources. Requests for changes to the approved SITP schedule must be formally submitted to the CEI Consultant and the SSCC and SITC should be notified of these schedule changes. The CEI Senior Project Engineer will inform the CFRC/SunRail Director of Operations and SSM of the System Integration Test Schedule.

Project contractors will also notify the CEI Consultant, who will inform the CFRC/SunRail Director of
Operations, prior to any testing subject to the provisions of CFR Title 49. The CFRC/SunRail Director of Operations will notify the FRA to provide them an opportunity to observe the testing.

2.8 Fire/Life Safety Committee

The Fire/Life Safety Committee oversees and provides guidance for CFRC/SunRail’s system safety fire/life approach and processes. Committee participation will vary, in response to specific system issues, and will include, as appropriate, stakeholder-designated representatives from local first responders (Fire, Police Departments and Emergency Operation Centers), CFRC Officers, FDOT D5, Construction Contractors for Phase 2 South and the O&M Contractor. The Fire/Life Safety Committee may review components of hazard analyses and safety certifications witness Project testing associated with fire/life safety issues and participate in pre-revenue service emergency planning and testing, such as table-top and field drills. The Fire/Life Safety Committee will meet on an as-needed basis during the construction period and no less frequently than annually during the Operating Period. The chair for this committee is the CFRC/SunRail Director of Operations and Safety and Security Managers. The functions and processes of this committee also parallel emergency preparedness requirements of 49 CFR Part 239, referenced in CFRC Passenger Train Emergency Preparedness Plan (PTEPP).

2.9 Executive Safety and Security Committee

As SunRail moves into revenue operation, the Safety and Security Committee will become the Executive Safety and Security Committee (ESSC).

PURPOSE

The purpose of the ESSC will promote and facilitate the integration and development of policies, processes and behaviors to ensure a formalized, proactive approach to safety management. ESSC embodies committed leadership through active participation of upper management in resolving safety issues and ensures clear roles, responsibilities and accountability, and effective communication. ESSC will further encourage the questioning of latent safety issues to resolve hazards and increase awareness of the vulnerability of SunRail to safety risks. It will also foster a deeper analysis of potential safety issues through data-driven performance management.

GOAL

The goal of the ESSC is to facilitate and promote safety as a core value in the organization and not simply as a priority. Through ESSC’s encouragement, development and promotion of safety management systems, safety will permeate the operations and attitudes of the entire organization and its customers.

OBJECTIVES

- Encourage, develop and promote methods and procedures leading to a robust safety culture.
- Use data-driven performance measurement practices, independent audits and inspections to drive continuous improvement of safety. Leading and lagging indicators of safety performance, safety culture and accident precursors will be defined measures at ESSC, and will be monitored monthly. Corrective action plans are cascaded through the organization to prevent recurrence.
- Identify Safety Improvement Teams to evaluate pertinent safety issues with an emphasis on Root Cause Analysis.
- Identify, assess and prioritize risks and hazards through non-punitive hazard reporting systems, close call reporting and job hazard analysis. Corrective action plans will be developed and tracked to closure. Through the Hazard Reporting System, employees will be encouraged to
understand and communicate weaknesses of the system along with ideas on how to manage them.

- Recognize employees who are Champions of Safety based on the following criteria that are above and beyond their normal work activities:
  - Identifying a safety issue or hazard
  - Assisting in the resolution or mitigation of the safety hazard
  - Assisting in incident investigations that are not part of their everyday work activities
  - Participating in the overall safety effort to reduce collisions, incidents and injuries.
  - Ensure that training programs, drills and toolbox sessions/safety briefings are undertaken for competency of skills and safety throughout all levels of the organization.
  - Facilitate innovation and new technology for accident prevention. Implement pilot programs to test the new technology and new methods.
  - Facilitate the exchange of ideas on accident prevention.
  - Assist in the establishment of safety awareness programs for both customers and employees.

**MEMBERSHIP**

A. Members of the ESSC shall be appointed by the Chair. Members shall serve on the Committee for an indefinite period of time or that period of time so designated by the Chair.

B. The ESSC membership consists of the following positions:

- **Chair** – Passenger Rail Operations Manager, FDOT
- **Vice Chair** – Manager of Safety and Security, SunRail
- **Secretary** of Transportation, D5, FDOT
- **General Manager** – O&M
- **Manager of Safety and Security** – O&M
- **Manager – Signals**
- **Safety Manager - Signals**
- **Program Management, SunRail**
- **Engineering Contractors**

- **Chief Transportation Officer** – O&M
- **Director of Operations, SunRail**
- **Transportation Operations, SunRail**
- **Manager of Rolling Stock, SunRail**
- **Safety Specialist, SunRail**
- **Public Information Officer, SunRail**
- **Track, Communications, OCC as needed**
- **FDOT Representatives**

**SPECIAL SUBCOMMITTEES or SAFETY IMPROVEMENT TEAMS**

The ESSC Chair may appoint special Subcommittees (including the respective Chair) or Safety Improvement Teams as required, to address and resolve special issues. Such Subcommittees will report to the ESSC.

**MEETINGS**

A. The ESSC shall hold a regular meeting each month. The Chair may convene additional meetings as required to address extraordinary issues.

B. All members are expected to make every effort to attend the meetings. In the event a member is unable to attend a meeting, he/she should designate an appropriate representative to attend the meeting in their behalf.

C. The meetings will be conducted at the OCC unless otherwise stipulated by the Chair. The annual schedule of meetings including dates and times shall be published in January of each year.
D. Subcommittee Chairs will be responsible for the respective Subcommittee’s work program, and shall convene the meetings necessary to accomplish that work program. Subcommittee Chairs will provide a status report on the Subcommittees’ activities at the monthly ESSC meeting until the completion of their respective projects/programs.

E. The quorum for the monthly meetings shall consist of the Chair or in his/her absence the Vice Chair, and a minimum of two-thirds of the total membership.

LOGISTICS

All committee meetings and other activities will be coordinated by the Manager of Safety and Security, SunRail who will be responsible for providing logistical support including providing meeting agendas and recording and distribution of meeting minutes.

SUPPORT

Members of the ESC will be responsible for actively supporting and participating in committee activities, consistent with their individual job responsibilities.

2.10 Committee Summary and Functions

Table 4 outlines the all of the committees that are related the CFRCT Project – Phase 2 South. Refer to this table for the membership of each committee.

<table>
<thead>
<tr>
<th>Committee</th>
<th>Chair</th>
<th>Members</th>
</tr>
</thead>
</table>
| CCAC (Alternates may be assigned) | FDOT Director of Transportation Development | Convenes bi-weekly.  
- FDOT District 5 Secretary  
- FDOT Director of Transportation Operations  
- FDOT Transportation Support Manager  
- CFCRT Project Manager  
- FDOT Resident Engineer (RE) or RE representative  
- FDOT State Transit Manager  
- FDOT State Rail Office Manager  
- Other FDOT Department Heads and Auditors as required  
- SunRail Director of Operations/Safety and Security Administrator  
- PMC Consultants, as applicable  
- Design Consultant |
| Executive Safety and Security Committee (Alternates may be assigned) | FDOT District 5 Secretary | Meets quarterly (or as needed).  
- Director of Transportation Operations  
- CFCRT Project Manager  
- SunRail Director of Operations/Safety and Security Administrator  
- CFRC/SunRail Safety & Security Manager/Rail Security Coordinator  
- FDOT District 5 Safety & Health Manager  
- O&M General Manager |
### Safety and Security Committee (Alternates may be assigned)

<table>
<thead>
<tr>
<th>Position</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>SunRail Director of Operations/Safety and Security Manager</td>
<td>Convenes monthly.</td>
</tr>
<tr>
<td>CFRC/SunRail Safety &amp; Security Administrator</td>
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</tr>
<tr>
<td>FDOT District 5 Safety &amp; Health Manager</td>
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</tr>
<tr>
<td>Construction Contractor Safety &amp; Security Managers/Representatives</td>
<td></td>
</tr>
<tr>
<td>O&amp;M Safety Manager (future)</td>
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</tr>
<tr>
<td>FDOT Public Involvement Consultant</td>
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</tr>
<tr>
<td>CEI Consultant Safety Representative</td>
<td></td>
</tr>
<tr>
<td>Design Consultant Safety Representative</td>
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</tr>
<tr>
<td>CSXT Representative</td>
<td></td>
</tr>
<tr>
<td>FCEN Representative</td>
<td></td>
</tr>
<tr>
<td>Amtrak Representative</td>
<td></td>
</tr>
<tr>
<td>Others (as required): FRA, TSA.</td>
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### Safety and Security Certification Committee (SSCC) (Alternates may be assigned, as applicable)

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<tr>
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<tr>
<td>Construction Contractor Representative(s), as applicable</td>
<td></td>
</tr>
<tr>
<td>PMC Consultant (Rolling Stock)</td>
<td></td>
</tr>
<tr>
<td>CEI Consultant Representative(s)</td>
<td></td>
</tr>
<tr>
<td>CFRC System Safety Specialist</td>
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<tr>
<td>CFRC/SunRail Safety and Security Manager</td>
<td></td>
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<tr>
<td>CFCRT Project Manager (or alternate)</td>
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<tr>
<td>O&amp;M Representative(s)</td>
<td></td>
</tr>
<tr>
<td>Design Consultant Representative</td>
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### Fire/Life Safety Committee (Alternates may be assigned, as applicable)

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<tr>
<td>CFRC/SunRail Safety &amp; Security Manager</td>
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<tr>
<td>FDOT District 5 Safety &amp; Health Manager</td>
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<tr>
<td>Construction Contractor Safety &amp; Security Managers/Representatives</td>
<td></td>
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<tr>
<td>O&amp;M Safety Manager</td>
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</tr>
<tr>
<td>Local Emergency Responder Groups (Fire/EMS/ Law Enforcement)</td>
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### Rail Activation Committee (RAC) (Alternates may be assigned, as applicable)

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<td>CFCRT Project Manager</td>
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<tr>
<td>Project Management Team Representatives</td>
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<tr>
<td>O&amp;M General Manager</td>
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</tr>
<tr>
<td>Construction Contractor Project Manager</td>
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</tr>
<tr>
<td>CEI Representative(s)</td>
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### Systems Integration & Testing Committee (SITC) (Alternates may be assigned, as applicable)

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</tr>
<tr>
<td>Project Management Team Representatives</td>
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</tr>
<tr>
<td>Construction Contractor Representative(s), as applicable</td>
<td></td>
</tr>
<tr>
<td>Rolling Stock Representatives</td>
<td></td>
</tr>
<tr>
<td>PMC Consultant (Rolling Stock)</td>
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<tr>
<td>CEI Consultant Representative(s)</td>
<td></td>
</tr>
<tr>
<td>O&amp;M Contractor</td>
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<tr>
<td>Other RR Operator Representatives (CSXT, Amtrak, FCEN)</td>
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<tr>
<td>Local Emergency Responder and Security Groups (Fire/EMS/ Law Enforcement/DHS)</td>
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</tr>
<tr>
<td>Rail Services Committee (RSC) (Alternates may be assigned, as applicable)</td>
<td>SunRail Director of Operations</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>• O&amp;M Representatives</td>
<td></td>
</tr>
<tr>
<td>• FDOT Project Management Team Representatives</td>
<td></td>
</tr>
<tr>
<td>• COO Rail Officer Staff</td>
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3.0 SAFETY AND SECURITY CERTIFICATIONS PROCESS AND PROCEDURES

The CFCRT Safety Certification process was outlined in Section 1.8, Methodology. The following further expands the SSC process for the various phases of the Project.

3.1 Certifiable Elements

The initial CFCRT Safety and Security Certifiable Elements document for Phase 2 South was developed from the system elements listed in the CFCRT Project “Final Draft Engineering and Architectural Design Guidelines Report” dated April 2006. These CFCRT Project Elements were further supplemented, as applicable, by safety and security related system elements and subsystems from among the CFCRT system elements and subsystems specifications developed during the Project Preliminary and Final Design phases.

The elements were structured in accordance with FTA’s “Sample Certifiable Elements and Sub-elements List” shown in Figure 6 of FTA document No. FTA-MA-90-5006-02-01, DOT-VNTSC-FTA-02-01, titled “Federal Transit Administration Handbook for Transit Safety and Security Certification”, dated November 2002. The CFCRT Safety and Security Certifiable Elements are also compliant with Florida Department of Transportation (FDOT) Fixed Guideway Transportation System (FGTS) Safety and Security Oversight (SSO) Program Implementation Guidelines (July 2007), as well as the provisions of Section 341.061, F.S. and the SSO Standards Manual #725-030-014.

The Project Certifiable Elements, provided in Appendix A to this Plan, are composed of numerous certifiable items (CI). Each of these items make up the whole of the certifiable element and require individual safety and security verification before the certifiable element is verified as safe and secure for use. The listing of these certifiable items for a certifiable element is referred to as a specific Certifiable Item List (CIL). For example, Signals, is a Project Certifiable Element that includes Wayside Signals as a sub-element. As part of the SSC Program, Wayside Signals are separated into smaller and smaller sub-elements or certifiable items which must be verified as safe and secure prior to their collective use as part of the whole element. As depicted in Figure 3 the exercise of identifying sub-elements generates these certifiable items lists (CILs) for each certifiable element.

![Figure 3 – Breakdown of CFCRT Elements into CIL Structure](image-url)
Revisions and modifications to the list of CFCRT Project Certifiable Elements provided in this document will occur during the lifecycle of the Project, with review by the CFCRT Safety and Security Certification Committee, to ensure that the CFCRT Project Design Criteria and Specification Conformance Checklists accurately reflect the system elements and sub-elements that impact safety and security.

FDOT will be responsible to oversee that each and every safety and security Certifiable Element is certified and the certification verified to be safe and secure for public use prior to commencement of revenue service.

FDOT’s safety representatives, Design Consultants and Rolling Stock manufacturers will develop new CILs as needed during review of the contract specifications and the relevant standards, codes or regulations that ensure safe design, construction and installation of that item. For example, safety critical certifiable items not part of the contractors’ scopes may be identified by the SSCC and included in the Program. Prior to revenue service for Phase 2 South, uncertified or incomplete items will be analyzed to determine if the item will prevent revenue service of the extension, or if a temporary restriction can be put in place until the item is satisfied. The SSCC will track such items on an Open Items List until they are adequately resolved and closed.

Other source items subject to examination are:

- Elements requiring compliance with contract Quality Control standards
- Elements requiring compliance of safety standards (e.g. OSHA)
- Test requirements and results for acceptance
- Plans, programs and procedures
- Proof-of-design documentation
- Quality control & construction/installation processes
- Critical inspections
- Training
- Contractor provided operating & maintenance manuals
- Other pertinent contract deliverables
- Comparable industry safety standards

Figure 4 illustrates how certifiable elements will be addressed in the CFCRT Project throughout and during all project phases; Designs are certified prior to construction, construction certification occurs prior to system integration, system integration certification occurs prior to pre-revenue service. The Project’s safety and security certification documentation will be maintained for the life of the SunRail system. Security information and other sensitive information will be protected using SOP S190 01 - Security Sensitive Information.
Figure 4 – Flow of Certifiable Elements through the CFCRT Project Safety and Security Certification Process
3.2 Design Criteria Conformance Checklist

Design is an iterative process. Safety and security will be addressed during project design through identification of safety and security design criteria for each certifiable element. The Design Criteria and Technical Specifications are intended to provide guidance to the design teams to support the definition of systems, sub-systems and components, the development of performance requirements, and the final specification of the engineering system. The Design Consultant prepared the CFCRT Station and Corridor Design Criteria and CFCRT Station Specifications for the Project, and these were included in the procurement packages for the contractors involved in the project. CFCRT Vehicle Design Criteria were developed for the Locomotive and Coach/Cab Car Manufacturers.

Figure 5 on the next page displays a sample of a combined Design and Construction Specification Conformance Verification Checklist form that will be used on the CFCRT Project. Guidance for completing this checklist is provided in Appendix B of this CFCRT Project SSCP. This form or an alternative checklist may be incorporated into an electronic format for storage and submission upon review and approval of the CFRC/SunRail Safety and Security Administrator, the FDOT Resident Engineer/CEI Consultant or applicable PMC for other components of certification.

Each contractor is required to complete Design Criteria Conformance Checklists within their scope. The Design Engineer shall identify and define each certifiable item, design requirement(s), requirement source, applicability and provide name and signature of person and Design Engineer responsible for identifying element and defining requirements. The Design Engineer shall separately verify design requirements and provide name and signature of person and Design Engineer responsible for concurrence for design review. For each certifiable item, the Design shall define a basis from which to judge compliance with safety requirements, such as an independent verification by audit of 10% to 25% of each Specification Package and/or Plan Set.

For example, the Design Consultant for stations completed the Design Criteria Conformance Checklists for stations. For this process, one Design Engineer developed the checklist using the CIL and Design Criteria; a second Design Engineer then cross-referenced each item with the Design Criteria, Contract Plan Sets and the applicable Specifications Package (Architectural, Site/Roadway, Drainage, Traffic, Communications, Electrical, Landscape, Mechanical and Structural). Independent verification by audit of 10% to 25% of each Specification Package and/or Plan Set was performed by the Design Consultant Engineer of Record or Sub-Consultant Lead Designer.

All completed station and system checklists are submitted during the Final Design period to the CEI Consultant. For the Rolling Stock manufacturers, after design verification, each item will be formally signed and dated by responsible personnel assigned to the task (e.g., from Engineering, Quality Assurance, and Program Management Departments, etc.) and provided to FDOT’s PMC for rolling stock.

The design criteria conformance checklist for each certifiable element will record requirements generated from safety and security design criteria. These checklists provide a format to verify compliance with identified safety and security requirements. During development of these checklists, if necessary, the responsible parties will reference safety and security requirements for use in design reviews and during inspections or tests. Following initial development, the Design Criteria Conformance Checklist was reviewed by the appropriate FDOT representative to ensure that the checklists reflect the CIL and capture the appropriate information.

Contract specifications, design criteria, applicable codes, and industry standards may constitute design verification. For example, some of the requirements in contract specifications may be used as verification, such as maintenance manuals, subsystem hazard analysis, and factory test reports. Any
### CFCRT Project Specification Conformance Verification Checklist Sample

Contractor submittal used for design verification needs to be reviewed and accepted by the appropriate FDOT representative (CEI for construction, acceptance testing, system integration, commissioning and pre-revenue operations and PMC for rolling stock manufacturing, acceptance testing, system integration, commissioning and pre-revenue operations, as applicable). Other requirements may not take the form of specific deliverable documents, but require verification.

New or modified design elements identified during hazard analyses will also be collected on the conformance checklists for Project safety and security certification. For example, fencing...
implemented at a specific location as a mitigation resulting from trespass analysis will be added to the conformance checklists to ensure that the fence design and resulting construction complies with Project requirements and does not result in other unforeseen safety hazards.

During this phase of the safety and security certification process, “open items” identified on the Design Criteria Checklists will be noted and will be tracked for resolution in the Open Items List by the SSCC. As discussed in Section 3.7, the term “open items” will refer to items that have not been verified for conformance with design requirements, as well as unresolved safety or security issues. As the Project proceeds through design to construction to start-up, reviews will be performed by the SSCC, as a team or by the applicable representative, to verify that change proposals and deviations from the approved baseline design do not degrade the level of safety and security of the system to unacceptable levels.

3.3 Construction Specification Conformance Checklist

The construction specification conformance process will be used to verify that CFCRT Project – Phase 2 South as-built facilities and systems incorporate the safety and security-related requirements identified in the CFCRT specifications and other contract documents, including approved changes since the final design.

The construction/installation/testing verification process is viewed as the “other half” of the CFCRT Design Criteria Conformance Checklist, because it (1) identifies the tests and verification methods necessary to ensure that the as-built configuration contains the safety-related requirements identified in the applicable specifications and other contract documents and (2) provides documentation that the delivered project meets these requirements. The conformed design drawings and specifications are the baseline documentation which contains systems safety requirements. The checklists developed during the design phase serve as the basis of the checklists in the construction phase. The Construction Specifications Conformance Checklist is an extension of the Design Criteria Conformance Checklist and shall document and verify that all safety and security related requirements in the contract documents have been met by each Contractor.

The Design Consultant supplies a signature section on the Design Criteria Conformance Checklist for future verification that construction complies with design through inspection, testing and the provision of documentation to serve as evidence that construction complies with design. Each safety requirement identified during the design phase is checked to determine whether it has actually been constructed to meet the requirements. The Contractors, Rolling Stock manufacturers and CEI Consultant are all responsible for completion of construction/installation/testing conformance checklists within their scope. Figure 5 displays a sample of a combined Design and Construction Specification Conformance Verification Checklist form that may be used on the CFCRT Project. Guidance for completing the conformance form is provided in Appendix B. This form or an alternative checklist may be incorporated into an electronic format for storage and submission upon review and approval of the CFRC/SunRail Safety and Security Administrator, the FDOT Resident Engineer/CEI Consultant or applicable PMC for other components of certification.

Once a checklist is completed, the verified checklist will be forwarded to the appropriate FDOT representative (CEI Consultant/PMC, as applicable) for review and comment. For example, the Contractor will complete the verified and signed specification conformance checklist for “as-built” systems during construction, installation, testing, commissioning and start-up before the beginning of pre-revenue operations. Documentation supporting verification of the safety requirement must be made available for review by FDOT Construction Management. For facilities and systems, certifications, inspector reports, job photos or other evidence may be submitted as documentation. Any contractor submittal used for verification will be approved, typically by FDOT Construction Management.

For Rolling Stock manufacturers, each item’s specification conformance checklist (termed the Design
Construction Completion Checklist or DCCC by Bombardier) will be formally signed and dated by responsible personnel assigned to the task (i.e., from Engineering, Quality Assurance, Program Management, etc.) after final construction verification. Bombardier will use their Quality Assurance Program for review of contractor quality assurance reports, audits and field inspections, and inspections and tests to assure that the certifiable element is built as specified.

Completed forms will be sent by the CEI/PMC to the SSCC and tracked by the CFRC/SunRail SSM. Safety and security requirements not verified by available documentation or demonstration will be tracked to resolution by the SSCC. Management or resolution of open items will result through the use of the CFCRT Specification Conformance Checklist. This checklist provides the SSCC a tool to review the status of open items resulting from deviations to the approved design, workarounds, change orders, and other temporary measures.

3.4 CEI Validation and Verification

The Construction Engineering and Inspection (CEI) team was charged with the responsibility of ensuring that the specifications outlined in the project contract documents were achieved by the established delivery date. The team was required to ensure that a sufficient qualified staff was available to continuously inspect the construction contractor’s operations in accordance with the established policies, procedures and practices of the Florida Department of Transportation.

Moreover, the CEI team was required to provide all construction engineering services that were necessary for the project. The scope of services included, but was not limited to, the review of working drawings, change orders, substitutions or constructability issues. Any other issues that arose were required to have suitable engineering recommendations to address them sufficiently.

The CEI team was also responsible for organizing their staff to provide all of the required administrative functions associated with the construction project. The administrative support must have included, but was not limited to, preparation of correspondence, construction orders, periodic payment estimates, quantity computations, material sampling and testing, EEO and DBE monitoring, final documentation, State and Federal reports, construction surveys, reviews and recommendations of all construction issues, claims analysis support and other project-related functions as directed by the Florida Department of Transportation. For the Safety Certification in the contract, they are required to validate and verify the construction through a comprehensive document review. For the station finishes safety certification, they are required to validate and verify through review of shop drawings and submittals, contract drawings, testing and measurements as well as a document review.

3.5 System Integration Testing

System integration testing and validation, which is also a component of safety and security certification, is described in the CFCRT System Integration and Testing Plan. Whereas contractor testing, as required by the contract specifications, will verify the functionality of the involved system or equipment, integrated testing will demonstrate the ability of Project equipment, subsystems and facilities to work together as a system. Both contractually required acceptance tests and integrated testing will be subject to safety and security certification. The Integrated Test Plan is considered a single certifiable element. The compilation of integrated tests constitutes the CIL’s for such tests. Safety certification of contractor testing will be verified in the Specification Conformance Checklist, or combined with integrated testing in a test program certification or by other acceptable means. Test reports and other documentation will be submitted to the FDOT representatives (CEI/PMC) as a result of Design Qualification Tests (Factory); Production Verification Tests (Factory); Construction Inspection Tests; and Installation Verification Tests (QA/QC). Safety/security-related test results will be documented, as appropriate, in the Specification Conformance Checklist. As previously mentioned, a CFCRT System Integration Testing Committee is overseen by the CFRC/SunRail Director of Operations and is coordinated by a representative of the Contractor. This sub-committee is made up of Construction Contractor(s), O&M and FDOT representatives who will develop and implement integrated
tests, including system tests, emergency tests and tests to verify operational procedures.

Integration tests include any tests or series of tests which require the interface of more than one Certifiable Element and are designed to verify the integration and compatibility between Project Elements. Pre-operations tests are those tests that require acceptance of all CFCRT Project systems and are designed to verify the functional capability and readiness of the Project system as a whole. When integration or pre-operations tests are identified they are placed on the Specification Conformance Verification Checklist. These tests are not necessarily required by contract specification, but may be required as part of a Safety Test and Verification Plan (STVP) developed by the Project contractors within their scope to ensure that all systems are functioning safely prior to the system being placed into operation. Test result reports form the basis for meeting the safety and security requirements.

These tests involve end-point-to-end-point verification of the CFCRT Project system’s functionality. Integration and pre-operations tests will involve numerous contractors, consultants, facilities and systems; and will require significant coordination efforts. Tests involving significant coordination may require the SSCC and/or the CFRC/SunRail Safety and Security Administrator to issue temporary permits and notices prior to allowing the testing to proceed to insure the safety of the participants, equipment and facilities.

All testing subject to the provisions of the CFR Title 49 will be performed according to those standards and test procedures and will comply with the requirements. Project contractors will prepare test result forms for documentation of the results of required testing as required by CFR Title 49 regulations. These forms will be submitted for review and acceptance by FDOT, with assistance from the CFRC/SunRail Director of Operations, PMC, CEI Consultant and the O&M Contractors. All CFR Title 49 testing shall be documented according to the provisions of the applicable requirements. A copy of the test results will be sent to the FRA, upon request.

Project contractors will notify the CEI Senior Project Engineer, who will in turn notify the CFRC/SunRail Director of Operations, prior to any testing subject to the provisions of CFR Title 49. The
Figure 6 on the next page.
3.6 Operating Hazard Analysis (OHA), Preliminary Hazard Analysis (PHA) and Collision Hazard Analysis (CHA)

A hazard analysis will be performed on various aspects of the new rail system. A preliminary hazard analysis will be conducted throughout the conceptual and design phases. Various operating hazard analyses will be conducted throughout the latter part of final design and construction and testing phases. The collision hazard analysis will be conducting during all phases also. All identified hazards will be ranked using the MIL standard 882 – D. The collision analysis will use the ranking agreed upon by the FRA and SunRail contractors.
Hazards that are identified through the PHA process and are not designed out during the design phase will be converted to Operations Hazard Analyses (OHAs) where it is feasible. Rules, plans or procedures will be identified, developed and verified prior to revenue operations.

Corrective actions will be prepared for all hazards identified. Corrective actions for the elimination and control of unacceptable and undesirable hazards will include the following order of precedence:

- Design out the hazard to eliminate it.
- Incorporate safety devices such as protective devices, interlocks, messaging systems.
- Add warning devices such as warning signals
- Lastly, incorporate procedures and training only when specific approval is provided.

The PHA’s focus is on design issues and interfaces between various systems. Other potential failures are examined as the system moves into final design and construction and corrective actions are taken to eliminate those failures. The OHAs focus on human – machine interface issues and tasks and ensure that the procedures and emergency situations are detailed, accurate and understandable. Any procedures or plans requiring improvement are undertaken. Any design improvement issues are also evaluated at this time to reduce and mitigate a hazardous condition.

3.7 “Open Items” in the SSC Program

A Safety (and Security) Critical Items List (SCIL) or “Open Items” List will be used to track the status and/or resolution of those open items that are identified by hazard or threat vulnerability analyses as having the potential to result in harm (Category I & II Hazards), which are at a risk level of Unacceptable and Undesirable. In addition, when a safety certifiable element/item cannot meet design specifications and/or construction conformance prior to the initiation of revenue service, it will be transferred to the SCIL/Open Items List for continued tracking. The SunRail SSM will monitor the status of SCIL/Open items and the CIL sheets.

FDOT Passenger Rail Operations Manager, with assistance of the Project Construction Management representatives and with input from the SSCC, will provide final approval regarding workarounds, restrictions and exceptions to open items. The responsible Contractors shall make recommendations to the CEI and the SSCC for the remedial actions necessary to close items on the SCIL and the SSCC will be the approval authority to determine the acceptability of the remedial actions or will elevate the item status to the CCAC and/or Executive Safety and Security Committee for further review. New SCIL items may require detailed hazard analysis and/or resolution activities to be brought to closure. Figure 7, on the next page, provides an example of an SCIL for the CFCRT System’s element, Stations and Parking Lots, Subsystem Platforms-proposed DeBary Station.

All items on the SCIL must be tracked to closure. When it is determined that an open issue or exception cannot be resolved to meet the safety requirement for issuance of a System Safety and Security Certificate, the SSCC will determine an acceptable alternative, notify the Safety Committee, and formally document the decision as part of the verification for the certifiable element. The Safety Contractor will coordinate the decision by either issuance of a document verifying closure or proposes an acceptable resolution for these exceptions. This will ensure that the safety and security designed into the system are realized in the delivered, tested, and validated project.
**Safety and Security Critical Item List (SCIL)**

<table>
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<tr>
<th>Item No.</th>
<th>Item Source</th>
<th>Item Description</th>
<th>Design Phase</th>
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<td></td>
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</tr>
<tr>
<td>7.1.1</td>
<td>HA</td>
<td>Platform constructed too far from each car's step</td>
<td>Design Criteria</td>
<td>Section 17.2 / 17.3</td>
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<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>7.1.1</td>
<td>HA</td>
<td>Platform level not to Track Service Standards</td>
<td>Design Criteria</td>
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<td>HA</td>
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<td>Section 17.4</td>
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<td>Standing water on platform - Condensation or mold causes surface to become slippery</td>
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**Figure 7 – Sample Safety and Security Critical Items List**
3.8 Temporary Use Permits

A Temporary Use Permit is designated to regulate the activities during Pre-revenue testing and start-up activities. The utilization of Temporary Use Permits is limited to those activities that have been approved and determined by SunRail to be necessitated in the preparation of the system prior to the completion of the Safety and Security Certification including but not limited to System Integration Testing, Public Events, Occupancy and Rolling Stock Operations. The SunRail Safety and Security Manager will only permit temporary uses of applicable assets on CFRC property with the issuance of a Temporary Use Permit.

Each contractor that works on the CFRC in preparation of SunRail – Phase 2 South service or operates a train or equipment on or through the CFRC will be responsible for complying with the Temporary Use Permits that are issued and implemented. Each contractor requesting pre-revenue operations or start-up activities will be required to develop and maintain a schedule with dates and prepare a plan of the operations/activities. Each contractor will also be required to submit all supporting documentation for operation/activity including all maps, hazard analysis, restrictions/open items, and safety certification checklists with verification documents where applicable. All safety critical components, hazards and checklists must be completed or resolved with appropriate restrictions or workarounds prior to issuance of a Temporary Use Permit. The SunRail Safety and Security Manager will review the schedule and plan of operation/activity along with all supporting documentation.

The SunRail Safety and Security Manager will limit the Temporary Use Permits to a maximum number of contiguous days that will be allowed per operations/activities, as well as, the maximum number of occurrences each use is allowed. The Temporary Use Permit is only compliant within the date listed and is signed by the SunRail Safety and Security Manager and is valid through the given expiration date only. Supporting documentation for each Temporary Use Permit will be maintained in the records of the SunRail Safety and Security Office.

3.9 Certificates of Conformance

Approval of CFCRT Certifiable Elements occurs when work has been completed in conformance with specifications, passed testing requirements and potential hazards have been reduced to an acceptable level. Any remaining workarounds or open items affecting a certifiable element requires the certifiable item to be placed on the CFCRT Project SCIL until a final resolution is determined by the SSCC.

If the SSCC determines that the requirements have not been met or the risk is unacceptable, then it has the responsibility and authority to recommend to the CFRC/SunRail Safety and Security Administrator and the CEO that operation of the system be delayed until the issue is resolved.

When a certifiable element is ready for certification, the SSCC will evaluate the evidence, along with any restrictions and recommendations, and a “Certificate of Conformance” package will be prepared. A document control number is assigned to each Certificate of Conformance. The document control number will also contain the contract number and the letters “T” and “O” preceding elements representing “Testing” and “Operations” requirements. The CFRC/SunRail Safety and Security Administrator, in his role as Chairman of the SSCC, will keep a log of certificates issued.

When removal of restrictions attached to a certificate is appropriate, an addendum will reflect the date and by what authority it has been lifted. To become effective, the addenda require review, verification and signatures of the SSCC and FDOT Executive Management, if appropriate.

At each stage of the process, for each certifiable element, conformance with Project safety and security requirements will be verified; certified through issuance of Certificates of Conformance prior to revenue service; and documented in the CFCRT Project – Phase 2 South Final Verification Report. Figure 8 below is a flow chart of the SSC process for a Certifiable Element/Item. On the next page, is
an example of a CFCRT Safety and Security Certificate of Conformance for Certifiable Element/Item shown in Figure 9.

Figure 8 – SSC Process for Certification

In summary, all Project contractors (construction of civil, signals and communication and PTC components for Phase 2 South) will be responsible for submitting to the CEI Consultant and applicable PMCs the documentation required to verify the safety and security requirements are met. The SSCC will review each checklist and, if satisfied, countersign recommendation for certification, and a Certificate of Conformance will be issued. If satisfied, the CFRC/SunRail Safety and Security Administrator will accept the certification and it will be cataloged for the Final CFCRT Project – Phase 2 South Safety and Security Certificate and Safety and Security Certification Verification Report (SSCVR).

Safety and security verification includes signatures by the appropriate CFCRT Project personnel on all conformance checklists, procedures, rulebooks, and training necessary to support operation and maintenance of the system, including, but not limited to the Station Design Engineer, Contractors, CEI Consultant, Rolling Stock Manufacturers’ Representatives, Rolling Stock PMC, SSCC, Fire/Life Safety Committee and CFRC/SunRail Safety and Security Administrator, as applicable.
3.10 Plans and Procedures

The safety and security-related plans and procedures are certified to ensure that the major operations, maintenance, security, and safety programs, procedures and plans have been modified as necessary to meet the system safety and security program requirements, and are in place prior to operation. In addition, the personnel who operate, maintain, provide security, and respond to emergency situations must have an in-depth knowledge of these plans, procedures, and programs prior to beginning operation.

The Safety and Security Certification process provides verification that these plans and procedures are controlled documents and have been:

- Reviewed and approved by SunRail management.
- Evaluated under simulated operational conditions for normal, abnormal and emergency conditions.
- Meet code and regulatory requirements.
3.11 Training Programs

As part of the verification process, the training programs and documents that support the applicable certifiable elements are evaluated to determine their adequacy. The certification process verifies that:

- Training is adequate and incorporates information regarding safety features of the system for normal, abnormal and emergency conditions.
- Caution and warning notes have been incorporated into the O&M manuals.

3.12 Training Verification

Safety and security operational readiness will include training, and includes, but is not limited to verification of the following:

- Applicable operations, maintenance, and emergency rules, procedures, and plans have been developed, reviewed and implemented;
- Manuals and Standard Operating Procedures (SOP), showing how to operate and maintain systems equipment and facilities (e.g., the station cameras, the car-borne lifts on each trainset) have been developed, reviewed, approved, and accepted;
- Safety/security-related training for operations and maintenance personnel has been developed, performed and successfully completed by all personnel as required (e.g., bomb-threats, grade-crossing accidents, severe-weather events);
- Emergency training has been developed, performed, and successfully completed by all personnel as required, including public safety personnel (e.g., responsibilities for CFRC officials and O&M Contractor Management during a security incident);
- Emergency drills and training have been conducted with outside agencies, including local emergency medical services (EMS), fire services, law enforcement and Department of Homeland Security (DHS);
- Response procedures have been evaluated and improvements identified before a real emergency occurs.

Training Manuals: During the O&M Mobilization period, the O&M Contractor will coordinate with the all Project Contractors to ensure that all required operations and maintenance manuals and other related data items listed on the Master certifiable elements list are received and in accordance with contract schedules. The Rolling Stock Manufacturer Representatives, the PMC for Rolling Stock and the SSCC will ensure that these documents are certified in accordance with this SSCP. In turn, the O&M Contractor will provide Operations and Maintenance (O&M) procedures and manuals for all fixed facilities and systems for FDOT and O&M personnel.

CFRC Training Program: The O&M Contractor is responsible to develop the CFRC Training Program during the Mobilization Period. For example, all employees who perform safety-related inspections and tests of SunRail passenger equipment must be trained, tested and certified in accordance with programs which comply with both 49CFR238.109 and current APTA requirements and guidelines. A formal course of training is being provided as part of the Cab Car/Coach and Locomotive deliverables, and the O&M Contractor will participate in review of the Rolling Stock Manufacturers’ training plans submitted under the two contracts as part of the safety certification process.

New Equipment: When new equipment is installed, the O&M Contractor will ensure that personnel responsible for operating this new equipment complete an orientation by the applicable equipment suppliers or in-house training to familiarize themselves with the new installations. This orientation will include instruction, on-the-job-training, and testing and will be reviewed by the SSCC and certified compliant with this SSCP.
RWP: The O&M Contractor shall require all personnel maintain their qualifications as detailed within FDOT’s RWP Safety Plan.

Operating Rules and CFRC Timetable: The O&M Contractor shall convene jointly with the CFRC Officers a railroad operating practices and rules committee that will include designated O&M personnel and others as determined by FDOT. In advance of providing dispatching services for the CFRC, the O&M Contractor shall prepare a CFRC Timetable and special instructions during their mobilization period that shall be consistent with, to the extent possible, the CSXT Timetable. The committee will produce a CFRC Operating Rule Book, an updated Railroad Operating Timetable and Special Instructions, as necessary.

The CFRC Operating Rule Book and resultant operating procedures and CFRC Timetable will be tested and certified for day-to-day operations during pre-revenue operations. It is during this period that the O&M personnel will simulate operations to test the effectiveness of the rules and procedures under simulated operating conditions. Simulated testing will be conducted for normal, unusual, and emergency situations. During such tests, representatives of the SSCC will have the opportunity to witness the execution of the operating rules and procedures under these simulations and to judge them as certifiably safe and to institute any changes where needed.

The Director of Operations will notify the SSCC when requirements for training programs and maintenance have been met and subject to the SSCC’s review, the training plans will be certified as safe and secure.

3.13 Public Outreach

The public outreach program is important in ensuring that the public is aware of the safety issues on the system and how to act accordingly to reduce the risk. Various marketing and Operation Lifesaver sessions will continue to take place to reach all ages of the public, including schools, businesses and various events. Public officials will also be informed about SunRail safety and will include such issues in any of their public speaking events about SunRail.

3.14 Pre-Revenue Testing

At the completion of Systems Integration Testing, the CFRC will commence Pre-Revenue Testing. The CFRC/SunRail Director of Operations is responsible for overseeing these series of tests. A detailed description of the pre-revenue testing process required for certification of operating rules and procedures will be provided in the CFCRT Rail Activation Plan, which is also the responsibility of the O&M Contractor to develop during the mobilization period. The Rail Activation Plan (RAP) will detail the transition of the Project from construction to revenue operation of the Phase 2 South – SunRail Commuter System. Participants in rail activation come from FDOT’s Construction Management representatives, contractors, the Rail Office personnel, Project Management Consultants and the O&M Contractor.

The FDOT District Construction Engineer, with assistance of the Project Construction Management representatives and with input from the SSCC, will provide final approval regarding workarounds, restrictions and exceptions to open items remaining during pre-revenue testing. The responsible Contractors shall make recommendations to the CEI and the SSCC for the remedial actions necessary to close items on the SCIL and the SSCC will be the approval authority to determine the acceptability of the remedial actions or will elevate the item status to the CCAC and/or Executive Safety and Security Committee for further review. Depending on the completion of CFCRT Project – Phase 2 South Certifiable Elements, the SSCC, or other authority designated by FDOT) may prepare Certificates of Conformance, Temporary Use Permits or notices or other authorizations to ensure the safety and security of the testing and use of delivered Project elements. These documents will be reviewed by the CFRC/SunRail Safety and Security Administrator and the Executive Safety and Security Committee, as applicable.
For operating and maintenance requirements that have safety and security implications, operating and maintenance plans and procedures provide the basis for the requirements. During pre-revenue testing the O&M procedures and plans are tested for effectiveness under simulated operating conditions for normal, abnormal, and emergency situations. Members of the SSCC will be responsible to assist the Safety and Security Administrator with review and verification of the O&M Contractor’s SSPP, SSP, SEPP, Rail Services Plan (RSP) and RAP developed during the Mobilization Period, as well as any updates to the Public Involvement Consultant’s public outreach plans.

Pre-revenue testing simulates service to test whether all system elements are functional and perform as designed. Pre-revenue testing shall also verify, through documented demonstrations of operations and emergency drills and exercises the ability of the O&M Contractor to provide safe and reliable SunRail revenue service in conjunction with CSXT, FCEN and Amtrak operations on the CFRC corridor and to perform satisfactorily under abnormal (failure recovery) and emergency conditions.

If there is an extensive list of non-contract specific integrated tests to be performed, they may be entered on a checklist for tracking purposes.

The tests are developed to verify the integration and compatibility of equipment, facilities, and operation/maintenance procedures to function together under normal, abnormal and emergency situations. This includes verifying the coordination, response, environmental constraints and capabilities of SunRail and outside agencies.

The Program Manager or a designated party is responsible for the development and implementation of the pre-revenue test demonstration procedures along with documenting and logging of all safety-related tests performed. Testing of fire/life safety and other safety-related test procedures are coordinated with the jurisdictional fire marshal.

The test plan and test results and resulting certificates will become part of the Safety and Security Documentation package.

During the pre-operations phase of the system, the procedures and plans are tested for effectiveness under simulated operating conditions for normal, abnormal, and emergency situations. Verification for these activities will be established by signatures of the appropriate officials or employees on all procedures, rulebooks, and training necessary to support operation and maintenance of the system. The operating and maintenance procedures and plans will be judged as meeting the verification requirements or are recommended for modification.

3.15 Walk-Through Inspections

Walk-Through inspections are conducted as part of the Preliminary Hazard Analysis and Operating Hazard Analysis to ensure that all unacceptable and undesirable hazards for both safety and security are mitigated prior to revenue operations. Open Items identified during this step are added to the Open Items List and categorized by Safety Critical and Safety Non-Critical Items. All items are tracked to closure with anticipated completion dates.

The walk-through inspections of completed facilities, stations, and vehicles are also performed to determine that fire/life safety requirements have been appropriately addressed in accordance with the design.

3.16 Safety and Security Certification Verification Report

Upon completion of all Project Certificates of Conformance (with specific restrictions as applicable) and review of the Certificate tracking log, a Final CFCRT Project – Phase 2 South Safety and Security
Certificate is prepared and signed by the CFRC/SunRail Passenger Rail Operations Manager, CFRC Safety and Security Manager, the CFCRT Project Manager and the Contractor General Manager and transmitted to the District 5, Secretary of the Florida Department of Transportation for formal approval. Restrictions not affecting the safety of the system may remain on certain systems or subsystems allowing SunRail to operate in a restricted mode. Such restrictions will be well documented and communicated in writing to all affected parties. No revenue service will begin until this certificate is signed. A sample of this certificate is provided in Figure 10 below.

CFCRT PROJECT SAFETY AND SECURITY CERTIFICATION

RESTRICTIONS:

The PROJECT SAFETY AND SECURITY CERTIFICATE indicates that all safety and security requirements have been successfully completed and the project is certified for revenue service, but with any noted restrictions.

Prepared by and Date

Approved by and Date

Figure 10 – CFCRT Project Safety and Security Certificate

Two weeks prior to the Revenue Service Date, as determined by the CFCRT Phase 2 South Master Project Schedule, the CFRC/SunRail Safety and Security Manager will prepare the Safety and Security Certification Verification Report (SSCVR). Included within the report will be a summary statement from the Fire/Life Safety Committee and an executive summary regarding status of SSCP and any restrictions. After the SSCVR is accepted by the SSCC it is presented to the CFCRT Project Executive Safety and Security Committee for acceptance and transmission to oversight agencies. This report will describe the activities performed for Project safety and security certification for revenue service by addressing the following:

- Criteria Conformance Verification Checklist
- Specification Conformance Verification Checklist
- Integrated Testing
- Fire/Life Safety Training and Emergency Drills, if any
- Contractual Operations and Maintenance Manuals
- Operations and Maintenance Training
- Safety Audits Performed
- Description of Current Certification Status
- Signed Certificates of Conformance
- Final Project Safety and Security Certificate
- Recommendation of Actions required to mitigate the hazards permanently and scheduled completion dates.
- Schedule for Elimination of Restrictions
3.17 Follow-Up and Close-Out

Typically there will be workarounds in place when the system enters into operation. It is the responsibility of the Safety Contractor and the SSCC to track these items and any others to closure to ensure that the documentation is complete and accurate. The SCIL/ Open Items List will continue to be the primary tracking document. The corrective actions to mitigate the original hazard will also be tracked to completion.

3.18 Safety and Security Activities Matrix

The following is a summary of the activities that the Safety and Security Team for CFRCT Project – Phase 2 South has a role and responsibility for participating in. See Table 5 on the next page for a detailed summary of the functions.
### Table 5 – Safety and Security Activities Matrix

<table>
<thead>
<tr>
<th>Safety &amp; Security Activities</th>
<th>Preliminary Engineering</th>
<th>Final Design and Construction Mobilization</th>
<th>Life-Cycle Phases</th>
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<tr>
<td>Civil Work</td>
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<tr>
<td>1. Stations</td>
<td>Preliminary design reviewed to ensure civil and parking lot safety and security requirements are included in design. Design Consultant performs HA (including CHA component) and TVA for these items. Certifiable Items Lists (CILs) for Civil components developed.</td>
<td>Perform final design review (including HA (including CHA component) to identify new hazards/changing conditions. Certifiable Items List (CILs) is revised to identify additional Civil safety and security components. Civil Design Criteria Conformance Checklists completed. Review plans with local jurisdictions and agencies (including DHS, police and fire departments).</td>
<td>Review Contractor Civil RFIs for safety and security considerations. Construction Contractor provides Quality Control/ Quality Assurance for the Project and FDOT provides oversight of the Contractor’s Quality Assurance process and independent Quality Assurance. Revise/Complete CIL for civil elements. Civil Construction Conformance Checklists completed. Finalize Integrated Test requirements.</td>
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<td>2. Park and Ride Lots</td>
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</table>

Construction Contractor completes final as-built drawings. Construction Contractor submits applicable Certificates of Conformance for all Certifiable Elements. FDOT accepts Construction Contractor certification.
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<tr>
<th>Safety &amp; Security Activities</th>
<th>Preliminary Engineering</th>
<th>Final Design and Construction Mobilization</th>
<th>Life-Cycle Phases</th>
<th>Integration Testing</th>
<th>Commissioning</th>
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<tr>
<td><strong>Signal and Communications</strong></td>
<td>Preliminary design reviewed to ensure Signal and Communications safety and security requirements are included in design. Design Consultant performs HA (including CHA component) and TVA for these items. Signal and Communications items on Certifiable Items List (CILs) developed. Crossing diagnostics performed with FRA, FDOT and local agencies, as required.</td>
<td>Perform final design review (including HA (including CHA component) to identify new hazards/condition and ensure Signal and Communications safety and security requirements are included based on FRA standards. Certifiable Items List (CILs) is revised to identify additional Signal and Communications safety and security components. Signal and Communications Design Criteria Conformance Checklists completed.</td>
<td>Signal Construction Contractors develop construction phasing plan and coordinate with Public Involvement Consultant to convey crossing construction schedule to local jurisdictions. Review Signal Construction Contractors’ grade crossing RFIs for safety and security considerations. Signal Construction Contractor provides Quality Control/Quality Assurance for the Project and FDOT provides oversight of the Contractor’s Quality Assurance process and independent Quality Assurance. Revise/Complete CIL for Signal and Communications elements. Signal and Communications Construction Conformance Checklists completed. Finalize Integrated Test requirements.</td>
<td>Signal Construction Contractor ‘redlines’ as-built changes to plans and submits to FDOT. Signal Construction Contractor documents completion of the construction in compliance with the specification. Phase 2 South certifications will be reviewed by the SSCC. Signal Construction Contractors conduct System Integration Tests. FDOT documents acceptance of the Project for testing.</td>
<td>FDOT/CM staff inspect and accept Signal and Communications elements. Signal Construction Contractor submits applicable Certificates of Conformance for all Certifiable Elements. FDOT accepts Signal Construction Contractor certification.</td>
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<td><strong>Positive Train Control (PTC)</strong></td>
<td>Certifiable Items List (CILs) is revised to identify additional PTC safety and security components. PTC Design Criteria Conformance Checklists completed.</td>
<td>PMC Consultant participates in equipment inspections at the manufacturing facility, as applicable, and at installation. PTC Contractor provides Quality Control/Quality Assurance for the Project and FDOT provides oversight of the Contractor’s Quality Assurance process and independent Quality Assurance. Revise/Complete Complete CIL for PTC elements. PTC Construction Conformance Checklists completed. Finalize Integrated Test requirements.</td>
<td>PTC Contractor ‘redlines’ as-built changes to plans and submits to FDOT. PTC Contractor documents completion of the construction in compliance with the specification. Phase 2 South PTC certifications will be reviewed by the SSCC. PTC Contractors conduct System Integration Tests. FDOT documents acceptance of the Project for testing.</td>
<td>FDOT/CM staff inspects and accepts PTC elements. PTC Contractor submits applicable Certificates of Conformance for all Certifiable Elements. FDOT accepts PTC Contractor certification.</td>
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<td>Safety &amp; Security Activities</td>
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<td>Project Emergency Response Plans (ERP)</td>
<td>CFRCC will monitor emergency hotline and respond to safety and security concerns as required. CFRCC Safety and Security Administrator conducts regular coordination meetings with TSA/local law enforcement</td>
<td>All Construction Contractors will provide a C-ERP. All Construction Contractors for Phase 2 South will be required to comply with the CFRCC’s current PTEPP and the CFRCC SEPP. CFRCC will monitor emergency hotline and respond to safety and security concerns as required. CFRCC Safety and Security Administrator conducts regular coordination meetings with TSA/local law enforcement.</td>
<td>Project ERP document will be reviewed and updated during construction. CFRCC will monitor emergency hotline and respond to safety and security concerns as required. CFRCC Safety and Security Administrator conducts regular coordination meetings with TSA/local law enforcement. Construction Contractors to participate in CFRCC tabletop drills or field exercises readiness.</td>
<td>CFRCC’s PTEPP and SEPP updated to include Phase 2 South by O&amp;M. Plans reviewed by the SSCC for safety certification. CFRCC will monitor emergency hotline and respond to safety and security concerns as required. Revised PTEPP submitted to FRA. Training of emergency response support, CFRCC staff and O&amp;M personnel completed. CFRCC Safety and Security Administrator conducts regular coordination meetings with TSA/local law enforcement.</td>
<td>CFRCC will monitor emergency hotline and respond to safety and security concerns as required. Training of emergency response support, CFRCC staff and O&amp;M personnel completed. CFRCC Safety and Security Administrator conducts regular coordination meetings with TSA/local law enforcement.</td>
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<td>1. CFRC Security and Emergency Preparedness Plan (SEPP)</td>
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<td>2. Contractor Emergency Response Plan (C-ERP)</td>
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<td>3. Passenger Train Emergency Preparedness Plan (PTEPP)</td>
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<td>Emergency Responder Training</td>
<td>Provide emergency responders with applicable Project design information for their review and comment. Meet with the Local Emergency Planning Committees to provide updates, determine emergency response training needs and solicit their assistance in response training.</td>
<td>Communicate updated corridor information to emergency service providers. Participate in safety and security tabletop exercises with local stakeholders and emergency response drills.</td>
<td>Provide training to emergency service providers required for PTEPP training (including SunRail equipment familiarization). Conduct tabletop exercises and emergency response drills and safety certification in accordance with the SSCP requirements.</td>
<td>Provide on-going training to emergency service providers and conduct additional emergency response drills for operations and responder training, as required.</td>
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<td>Safety &amp; Security Activities</td>
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<td>Railroad Workplace Safety (49 CFR 214): Roadway Worker Protection training (Subpart C)</td>
<td>Project Personnel who require RWP Training are trained in accordance with applicable regulations.</td>
<td>All Phase 2 South personnel comply with CFRC RWP plan during mobilization. Construction Contractors’ Trainers are qualified by CFRC. Construction Contractors’ On-Track Worker training program and documentation is accepted by FDOT. Construction Contractors’ train and qualify applicable maintenance personnel in accordance with FRA regulations.</td>
<td>Construction Contractors’ comply with all regulatory requirements, including training, as specified by FRA, are implemented by the DBM and audited by FDOT.</td>
<td>CFRC and O&amp;M Contractor update the CFRC RWP plan for revenue operations. FDOT monitors Construction Contractors’ training program to ensure compliance with FRA regulations. O&amp;M Trainer’s train and qualify O&amp;M required personnel to address Phase 2 South revenue service in accordance with FRA regulations.</td>
<td>FDOT monitors O&amp;M training programs to ensure compliance with FRA regulations.</td>
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<tr>
<td>Phase 2 South Safety and Security Management Plan (SSMP)</td>
<td>FDOT prepared Phase 2 South SSMP and submits to FTA/PMOC. Design Consultant performs analyses in accordance with SSMP: HA (including CHA component) and TVA for Stations and Corridor Design Consultant performs Trespass Analysis of Phase 2 Corridor</td>
<td>FDOT revises Phase 2 South SSMP for submission with application for FFGA. Design Consultant updates analyses in accordance with SSMP: HA (including CHA component) and TVA for Stations and Corridor O&amp;M Contractor and Construction Contractors will comply with current CFRC SSMP.</td>
<td>Revise Phase 2 South Plan as required by events/changes or if requested by FTA. O&amp;M Contractor and Construction Contractors will comply with current CFRC SSMP.</td>
<td>Revise Phase 2 South Plan as required by events/changes or if requested by FTA. O&amp;M Contractor and Construction Contractors will comply with current CFRC SSMP.</td>
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<td>Contractor Construction Safety Plan (CCSP)</td>
<td>All Phase 2 South Project Construction Contractors are required to submit a site-specific Contractor CCSP</td>
<td>Construction Contractors to revise CSSP as required.</td>
<td>Construction Contractors to revise CSSP as required.</td>
<td>Construction Contractors</td>
<td>Construction Contractors</td>
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<td>System Safety Program Plan (SSPP)</td>
<td>O&amp;M Contractor developed and implemented CFRC SSPP.</td>
<td>O&amp;M Contractor and Construction Contractors will comply with current CFRC SSPP during mobilization.</td>
<td>O&amp;M Contractor to revise C-SSPP as required. O&amp;M Contractor and Construction Contractors will comply with current CFRC SSPP.</td>
<td>Construction Contractors to revise System Safety Program Plan as required. O&amp;M Contractor to revise the current CFRC/SunRail SPP for Phase 2 South revenue operations with oversight of CFRC/SunRail Safety and Security Administrator. O&amp;M Contractor and Construction Contractors will comply with current CFRC SSPP.</td>
<td>The revised CFRC SSPP will be provided to the FDOT Central Office, FTA and FRA 180 days before SunRail revenue service begins.</td>
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<tr>
<td>System Security Plan (SSP)</td>
<td>O&amp;M Contractor developed and implemented CFRC SSP.</td>
<td>O&amp;M Contractor and Construction Contractors will comply with current CFRC SSP during mobilization.</td>
<td>O &amp; M Contractor to revise the CFRC/SunRail SSP for revenue operations with oversight of the CFRC/SunRail Safety and Security Administrator. O&amp;M Contractor and Construction Contractors will comply with current CFRC SSP.</td>
<td>The CFRC/SunRail SSP will be completed by the O&amp;M Contractor 180 days before SunRail revenue service begins. Non-SSI elements of the SSP may be available for review by the FTA and FRA 180 days before SunRail revenue service begins.</td>
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<tr>
<td>Rail Activation Plan</td>
<td>Phase 2 South Rail Activation Committee commence meetings</td>
<td>Provide oversight of SITP, SSCP and RSP</td>
<td>Provide oversight of SITP, SSCP and RSP</td>
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<tr>
<td>Project Safety and Security Certification Plan (SSCP)</td>
<td>FDOT developed CFRC SSCP Safety and Security Certification Committee (SSCC) for CFVRT Project. All Project Consultants and Contractors to support CFRTC Project SSCP program and participate on SCC. Design Consultant to develop CIL.</td>
<td>CFRC and O&amp;M Contractor to revise SSCP (update as needed throughout project). Master Certifiable Items List (CILs) is revised to identify additional safety and security components. Design Consultant, Signal Construction Contractor and PTC Contractor to complete and sign Design Criteria Conformance Checklist. SSCC to implement Safety and Security Critical Items (SCIL) tracking log for Phase 2 South.</td>
<td>Revise/Complete CIL. SCILs will be identified by Project Contractors and reported on the SCIL tracking log for Phase 2 South maintained by the CFRC/SunRail System Safety Administrator and SCC and/or/SSCC, as applicable. All Project Contractors to complete and sign Construction Conformance checklists, as applicable. Identify any restrictions and workarounds.</td>
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<td>System Integration Test Plan (SITP) and Contractor – System Integration Testing Plan (C-SITP)</td>
<td>All Project Contractors are required to develop a draft SITP, as applicable for their scope that recognizes requirement to contribute to overall plan.</td>
<td>FDOT develops overarching SITP for Construction phase. Develop System Integration Testing Committee (SITC) early in the Construction Phase. All Project Contractors to submit the final document to the SITC.</td>
<td>Contractors to conduct Integration Tests per SITP, including system readiness/emergency drills.</td>
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<td>Rail Services Plan (RSP)</td>
<td>The O&amp;M Contractor will begin development of the Phase 2 South RSP with the oversight of the CFRC Officers. Develop training modules for O&amp;M personnel. Rail Services Committee (RSC) initiated. Identify workarounds during construction.</td>
<td>Finalize O&amp;M Plans and Procedures. Emergency drills and field tests coordinated.</td>
<td>Complete Operational Readiness Review (including work-arounds). Complete O&amp;M personnel training for additional Phase 2 South service. Performance testing occurs.</td>
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<td>Safety &amp; Security Activities</td>
<td>Preliminary Engineering</td>
<td>Final Design and Construction Mobilization</td>
<td>Life-Cycle Phases</td>
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<td>Public Safety and Security Program(s)</td>
<td>CFCRT Project Public Involvement Plan initiated</td>
<td>Public Involvement Consultant and Construction Contractors coordinate on elements of Construction Public Information Program to develop a schedule for public safety and security information in and around construction areas.</td>
<td>Implement Construction Public Information Program. FDOT issues press releases notifying the public about safety issues during construction and traffic detours caused by construction. Public Involvement Consultant provides public safety and security program(s) to provide education about rail crossing safety, trespassing and safety/security for passengers in coordination with Operation Lifesaver.</td>
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<td>FDOT establishes Public Information Office (PIO) telephone information line to respond to inquiries from the public. Public Involvement Consultant develops a public safety and security program(s) to provide education about rail crossing safety, trespassing and safety/security for passengers in coordination with Operation Lifesaver.</td>
<td></td>
<td>Public Involvement Consultant implements public safety and security program(s) to educate public of opening of commuter rail service. Public Involvement Consultant issues press releases notifying the public about safety and security issues during testing, initial pre-revenue operations, and traffic detours caused by testing. FDOT monitors PIO telephone information line and feedback from CFCC to respond to inquiries from the public.</td>
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Public Involvement Consultant continues implementation of public safety and security program(s) through commissioning and early revenue operations. Implement the public safety/security program(s) through media and information at the Phase 2 South stations and on the SunRail vehicles. FDOT monitors PIO telephone information line and feedback from CFCC to respond to inquiries from the public.
4.0 SECURITY

The CFCRT Project – Phase 2 South safety and security process shall address system safety and security elements according to the requirements of the applicable standards listed in this SSCP, Phase 2 South SSMP, Specifications, FTA's guidance on Crime Prevention through Environmental Design (CPTED) Concepts\(^1\) and Phase 2 South Design Criteria. Should any standard or requirement conflict, the most stringent standard shall apply. Any deviation from the Project's Design Criteria and Specifications must be reviewed by the appropriate FDOT representatives and the CFCRT Project – Phase 2 South CCAC. If the deviation will impact security, the design change shall also be reviewed by the CFCRT Executive SSC and SSCC, as applicable. Threat and Vulnerability Analysis (TVA) recommendations are incorporated into the security criteria/design such that design reviews are conducted on the TVA to ensure implementation.

The Phase 2 South SSMP incorporates safety and security as a priority for every member of the management team, including FDOT staff and design and quality assurance contracted professionals. All members of the Project Team are responsible for exercising their part of the Safety and Security Management Program. This includes the reporting of potential threat and identification of vulnerable conditions or activities, as well as receiving safety and security awareness and other security training appropriate to the individual's specific role, under the direction and guidance of the CFRC/SunRail Director of Operations and the SunRail Safety and Security Manager.

The SunRail Safety and Security Manager assumed the primary role of RSC in October 2011. The Alternate RSC is currently filled by the Contractor's designated Safety Manager and will be filled by an O&M Contractor representative at revenue service. Construction Contractors are responsible for reporting all security issues either directly to the RSC or RSC Alternate, and/or by notifying the CFRCC of the security issue. In accordance with CFRC/SunRail incident management procedures, the CFRCC is responsible to convey all security issues to the SunRail Safety and Security Manager.

5.0 DOCUMENTATION

Certifiable Item verification requires that all documentation used and produced during the Safety and Security Certification Program will be maintained and stored at the conclusion of the Project in a Safety and Security Certification file under the control of FDOT. The documentation may consist of approved contract submittals, field inspection records, test reports, photographs or statements by proper authority verifying that the certifiable item complies with the requirements.

Certifiable Element files will be created for each major certifiable element. These files will contain all documents pertaining to the certification of each element and will reference other materials not suitable for inclusion into the file itself. FDOT Construction Management, PMC Consultant and other FDOT representatives authorized with the SSC process will ensure that these certification documents are forwarded to the FDOT CFCRT Project Controls Representative located in the FDOT Urban Office, where they will be stored in digital and/or physical format. A copy of all Certificates of Conformance will be made available to the SunRail Safety and Security Manager, as chair of the SSCC, for inclusion in the SSC Tracking Log. The Certifiable Elements documents may contain documents or references to locations of controlled documents pertaining to the safety certification process, plans, reports, committee minutes, open items lists, certificates, and documentation that support all resolutions to hazards, exceptions, and open items. The filing system also establishes a document trail of safety and security certification and CFCRT Project activities that can be easily audited and reviewed during the SunRail lifecycle.
6.0 REPORTING REQUIREMENTS

Each month the SunRail Safety and Security Manager will prepare a report providing the latest status of the Certifiable Items Lists, Conformance Checklists, SCIL and safety related issues. The status report will be presented at the SSCC meetings with special attention given to any item with the potential to disrupt scheduled project activities or creating an unacceptable hazard. If necessary, the information will be transmitted to the Executive Safety and Security Committee, the SITC and the RAC, as required, for further review and resolution of open issues.
7.0 SAFETY AND SECURITY CERTIFICATION PLAN REVISION

As the CFCRT Project – Phase 2 South progresses through Final Design, and Construction Phases towards the Revenue Service Phase, there may be opportunities to redefine the roles and responsibilities that the Project support staff and CFCRT personnel play in support of the project. As changes and events dictate, the SSCP will be revised at each major project phase to incorporate the most current status of the Project, the organizational structure and management decisions regarding the project. This plan will be a “living” document with all proposed changes presented to the Safety and Security Certification Sub-Committee for comment and to the CFRC/SunRail Safety and Security Administrator for approval.

The SunRail Safety and Security Manager is also the designated Intelligence Liaison Officer (ILO) for SunRail. An ILO is an identified person (sworn or non-sworn) within a law enforcement, emergency services, or other entity, such as a rail transit agency, who is responsible for reporting and disseminating suspicious activity and other criminal intelligence information to their local agency and to the local Fusion Center (CFIX).

Specialty training is provided by a company contracted by the DHS and the Regional Domestic Security Task Force (RDSTF) Region 5, comprised of nine Central Florida Counties including the four counties that are local partners for the CFCRT Project. ILO training includes:

- Recognizing Terrorism Indicators
- Recognizing Organized Group and Gang Activities
- Intelligence Gathering Rules and Regulations
- Critical Infrastructure Protection
- Reporting Information
- Sharing Information
- Intelligence Cycle

The ILO program, while not intended to replace a current intelligence unit, provides SunRail with a baseline capability for gathering intelligence, recognizing local threats and trends and providing community based contact to gather street level information. Cooperation with regional and state intelligence fusion centers completes the circle of information gathering and sharing of obtaining timely, accurate and actionable intelligence to protect the public, CFRC tenant railroads and SunRail patrons.
APPENDIX A: CFCRT Project – Phase 2 South Safety and Security Certifiable Elements List

The major CFCRT Project - Phase 2 South Safety and Security Certifiable Elements and their sub-elements, which will continue to expand over the life cycle of the Project, are as follows:

1. SYSTEMS

1.0 Rolling Stock
   1.1 Push-Pull Vehicles (modified by Bombardier for Coach and Cab Cars)
   1.2 Locomotives (by Motive Power, Inc., Locomotive Manufacturer)

2.0 Signals
   2.1 Interlocking Equipment/Circuits
      2.1.1 Absolute Signals
      2.1.2 Crossover
      2.1.3 Turnout
      2.1.4 Exterior Maintainer Call Lights
      2.1.5 Wayside Control and Indications
      2.1.6 Interlocking Logic
      2.1.7 Switch Control/Indication Circuits
      2.1.8 Signal Control/Indication Circuits
      2.1.9 Track Circuits
      2.1.10 House
   2.2 Wayside Signals
      2.2.1 Signal Lighting Circuits
      2.2.2 Signal Control Logic
      2.2.3 Track Circuits
      2.2.4 Signal Voltage/Alignment
      2.2.5 Signal Operations
      2.2.6 House
   2.3 Quiet Zone
      2.3.1 Four-Quadrant Gates
      2.3.2 Low-Volume Bells
      2.3.3 Pedestrian Pathway Warning
      2.3.4 Pathway Swing Gate
   2.4 Grade Crossings Warning Systems
      2.4.1 Train Detection
      2.4.2 Gate Mechanism
      2.4.3 Cantilevers
      2.4.4 Flashing Lights
      2.4.5 Electronic Bell
      2.4.6 Gate Arm
      2.4.7 Operation
      2.4.8 House
   2.5 Pedestrian Crossings Warning Systems
      2.5.1 Active Warning at Station Pedestrian Pathways
      2.5.2 Active Warning at Sidewalks (outside station areas)
      2.5.3 Train Detection
      2.5.4 Second Train Warning Signs
      2.5.5 Operation
      2.5.6 House
2.6 Electric Locks
   2.6.1 Control Logic
   2.6.2 Operations
   2.6.3 House

2.7 Defect Detectors
   2.7.1 Control Logic
   2.7.2 Operations
   2.7.3 House

2.8 PTC (To be expanded by PTC Contractor)

3.0 Communications

3.1 Radio System (To be expanded)

3.2 Operations Control System / Center
   3.2.1 CTC Control System
   3.2.2 Server and Workstation Hardware
   3.2.3 Communications Transmission System (Office Interface)
      3.2.3.1 OCC CAD Software Enhancements
   3.2.4 Radio System - Data (Office Interface)
   3.2.5 Radio System - Voice (Office Interface)
   3.2.6 Reserved for Future Use
   3.2.7 Reserved for Future Use
   3.2.8 Reserved for Future Use
   3.2.9 Reserved for Future Use
   3.2.10 Variable Message Signs (Office Interface)
   3.2.11 PA System (Office Interface)
   3.2.12 CCTV System (Office Interface)
   3.2.13 Passenger Assist Telephones/Emergency Call Boxes (Office Interface)

3.3 Public Address System
   3.3.1 PA System Function
   3.3.2 PA System Training
   3.3.3 PA System Maintenance Procedures
   3.3.4 PA System Battery Backup
   3.3.5 PA System Grounding
   3.3.6 PA System Mounting

3.4 General
   3.4.1 Control Transmission System (CTC)
   3.4.2 Fiber Optic
      3.4.2.1 ITS
      3.4.2.2 Cable
      3.4.2.3 Fiber to Radio Sites
      3.4.2.4 Redundant Loop
   3.4.3 Voice
   3.4.4 ATCS Data
   3.4.5 Control Center
   3.4.6 Grounding and Bonding
   3.4.7 Cabling and Conduit
   3.4.8 Ethernet Equipment
   3.4.9 MFES

3.5 Variable Message Signs (VMS/DMS) – Field
   3.5.1 VMS System Function
3.5.2 VMS Software Testing
3.5.3 VMS System Training
3.5.4 VMS System Maintenance Procedures
3.5.5 VMS System Battery Backup
3.5.6 VMS System Grounding
3.5.7 VMS System
3.5.8 VMS Cabinet Mounting to Canopy
3.5.9 VMS Security Features

3.6 CCTV
3.6.1 CCTV System Function
3.6.2 CCTV Software Testing
3.6.3 CCTV System Training
3.6.4 CCTV System Maintenance Procedures
3.6.5 CCTV System Battery Backup
3.6.6 CCTV System Grounding
3.6.7 CCTV Equipment Mounting to Canopy
3.6.8 CCTV Camera Angles
3.6.9 ECB / Camera Interface
3.6.10 CCTV Security Features

3.7 Passenger Assist Telephones (PAT)
3.7.1 PAT System Function
3.7.2 PAT System Testing
3.7.3 PAT System Training
3.7.4 PAT System Maintenance Procedures
3.7.5 PAT System Battery Backup
3.7.6 PAT System Grounding
3.7.7 PAT Equipment Mounting to Platform
3.7.8 PAT System - ADA Requirements
3.7.9 PAT Equipment - Platform Placement
3.7.10 PAT Security Features

3.8 Emergency Call Box (ECB)
3.8.1 ECB System Function
3.8.2 ECB System Testing
3.8.3 ECB System Training
3.8.4 ECB System Maintenance Procedures
3.8.5 ECB System Battery Backup
3.8.6 ECB System Grounding
3.8.7 ECB System Mounting to Platform
3.8.8 ECB System - ADA Requirements
3.8.9 ECB System - Platform Placement
3.8.10 ECB – Security Features

3.9 Communications Control Cabinet
3.9.1 Cabinet Construction (Security Features)
3.9.2 Remote Processing Unit (RPU)
3.9.3 Mounting to Platform

3.10 Communications Training
3.10.1 Training Manuals and Materials
3.10.2 Equipment

3.11 Grounding and TVSS System Testing
3.11.1 Air Terminals
3.11.2 TVSS Devices

4.0 Fare Collection Equipment
   4.1 Ticket Vending Machine (TVM)
      4.1.1 TVM System Function
      4.1.2 TVM System Testing and Training
      4.1.3 TVM System Maintenance Procedures
      4.1.4 TVM System Electrical/Grounding
      4.1.5 TVM Equipment Mounting
      4.1.6 TVM - Platform Placement
      4.1.7 TVM – Installation
      4.1.8 TVM Security Features
      4.1.9 Reserved for Future Use
   4.2 Ticket Validating Machine (Stand-Alone Validator)
      4.2.1 Validator System Function
      4.2.2 Validator System Testing and Training
      4.2.3 Validator System Maintenance Procedures
      4.2.4 Validator System Electrical/Grounding
      4.2.5 Validator Equipment Mounting
      4.2.6 Validator Platform Placement
      4.2.7 Validator - Installation
      4.2.8 Validator Security Features
      4.2.9 Reserved for Future Use
   4.3 Fare Collection Equipment – Management Program

2. CIVIL INSTALLATIONS

5.0 Track and Structures
   5.1 Right of Way
      5.1.1 Tracks other than Main (Yard, siding, etc.)
      5.1.2 Right of Way Fencing
   5.2 Track and Appliances
      5.2.1 New Track Construction
         5.2.1.1 Horizontal Alignment within established standards
         5.2.1.2 Vertical Alignment within established standards for each
         5.2.1.3 Superelevation
         5.2.1.4 Track Gauge
         5.2.1.5 Track centers
         5.2.1.6 Clearance dimensions to ROW line
         5.2.1.7 Welded rail string number designation
         5.2.1.8 Welded rail destressing & anchoring temperature and date
           performed records for each string
         5.2.1.9 Field weld certification including ultrasonic weld test results
         5.2.1.10 Close clearance to obstructions
      5.2.2 Rail
         5.2.2.1 Welded Rail, New
            5.2.2.1.1 Material certification – including chemical and physical
               report compliance with AREMA standards/TSP, including
               Brinnell Hardness
5.2.2.1.2 Ultrasonic test results compliance with AREMA standards/TSP
5.2.2.1.3 Weld inspection certification
5.2.2.1.4 Temperature control
5.2.2.1.5 Material handling
5.2.2.2 Welded Rail, Second Hand
5.2.2.2.1 Track rehab certification in accordance with approved site specific work plans/Material certification
5.2.2.2.2 Weld inspection certification
5.2.2.2.3 Rail inspection certification, tolerances
5.2.2.2.4 Temperature control
5.2.2.2.5 Material handling
5.2.2.3 Jointed Rail, New
5.2.2.3.1 Material certification
5.2.2.3.2 Size verification
5.2.2.3.3 Installation gap conformance
5.2.2.4 Joint Bars
5.2.2.4.1 Material certification
5.2.2.4.2 Size verification
5.2.2.5 Joint Bar Bolt, Nuts and Washers
5.2.2.5.1 Material certification
5.2.2.5.2 Installation pattern
5.2.2.6 Flash Butt Field Welds
5.2.2.6.1 Field testing
5.2.2.6.2 Field testing/Ultrasonic Test Results
5.2.2.6.3 Magnetic particle test results
5.2.2.6.4 Etch test results
5.2.2.6.5 Compliance with all AREMA rail welding standards
5.2.2.6.6 Alignment
5.2.2.7 Thermite Field Welds
5.2.2.7.1 Material certification
5.2.2.7.2 Field testing/Ultrasonic Test Results
5.2.2.7.3 Magnetic particle test results
5.2.2.7.4 Etch test results
5.2.2.7.5 Compliance with all AREMA rail welding standards
5.2.3 Ties
5.2.3.1 Tie Plates
5.2.3.1.1 Material certification
5.2.3.1.2 Tie plate orientation
5.2.3.1.3 Pre-plated ties, gauge
5.2.3.2 Rail Anchors
5.2.3.2.1 Material certification
5.2.3.2.2 Anchor pattern
5.2.3.3 Spikes
5.2.3.3.1 Material certification
5.2.3.3.2 Spike pattern
5.2.3.4 7”x9” Ties
5.2.3.4.1 Material certification
5.2.3.4.2 Material handling
5.2.3.5 6”x8” Ties
5.2.3.5.1 Material certification
5.2.3.5.2 Material handling
5.2.3.6 7”x9” Turnout Ties
5.2.3.6.1 Material certification
5.2.3.6.2 Material handling

5.2.3.7

5.2.4 Insulated Joints
5.2.4.1 Insulated Joint Plugs
5.2.4.1.1 Material certification
5.2.4.1.2 Manufacturers inspection certification
5.2.4.1.3 Compliance with AREMA Standards/TSP

5.2.5 Ballast
5.2.5.1 Ballast source inspection
5.2.5.2 Ballast gradation test results/Material certification
5.2.5.3 Approved source

5.2.6 Sub-ballast
5.2.6.1 Subballast gradation/Material certification
5.2.6.2 Approved source
5.2.6.3 Compaction
5.2.6.4 Grade conformance

5.2.7 Surfacing and Lining Track
5.2.7.1 Gauge
5.2.7.2 Surface
5.2.7.3 Line
5.2.7.4 Superelevation
5.2.7.5 Ballast section conformance, shoulders
5.2.7.6 Clearance diagram, close clearance, platforms, bridges
5.2.7.7 Minimum track centers

5.2.8 Turnouts and Crossovers
5.2.8.1 Crossovers
5.2.8.1.1 #15
5.2.8.1.2 #20
5.2.8.1.3 #30
5.2.8.2 Turnouts
5.2.8.2.1 #8
5.2.8.2.2 #10
5.2.8.2.3 #15
5.2.8.2.4 Selection/Operating Speed
5.2.8.2.5 Helper Rod Assemblies
5.2.8.2.6 Heel Booster Rod
5.2.8.2.7 Switch shunt fouling
5.2.8.3 Manufacturer Material Certification

5.2.9 Derails
5.2.9.1 Tangent track
5.2.9.2 Curves
5.2.9.3 Freight sidings
5.2.9.4 Yard lead tracks
5.2.9.5 Security Features

5.2.10 Horizontal Clearances
5.2.10.1 8” ATR platform
5.2.10.2 22’ ATR mini high platform
5.2.10.3 Obstructions along the corridor.
5.2.11 Superelevation – in accordance with Design Criteria with preferred unbalanced of 3”
5.2.12 Grades – in accordance with Design Criteria
5.2.13 Vertical Curves - – in accordance with Design Criteria
5.2.14 Track Appurtenances
   5.2.14.1 Certificates of compliance for all OTM in accordance with AREMA standards
5.2.15 Bumping Posts
5.2.16 Corridor Drainage

5.3 Grade Crossings (Reflecting all ~24 crossings)
5.3.1 Crossings Approaches
   5.3.1.1 Signing and Pavement Markings
   5.3.1.2 Sidewalks
      5.3.1.2.1 Detectable Warning Device
   5.3.1.3 SSM
      5.3.1.3.1 Fences
      5.3.1.3.2 Bollards
      5.3.1.3.3 Guardrails
      5.3.1.3.4 Raised Medians/Kwik Curb
   5.3.1.4 Horizontal Geometry
      5.3.1.4.1 Max Deflection W/O Horiz Curve
      5.3.1.4.2 Length of Curve
      5.3.1.4.3 Rate of Superelevation
         5.3.1.4.3.1 SE Transition Rate
   5.3.1.5 Vertical Geometry
      5.3.1.5.1 Max Deflection W/O VC
      5.3.1.5.2 K Value (Sag or Crest)
      5.3.1.5.3 Max/Min Grade
5.3.2 Typical Section
   5.3.2.1 Number of Lanes
   5.3.2.2 Median Treatment
   5.3.2.3 Cross Slope
   5.3.2.4 Horizontal Clearance
   5.3.2.5 Front Slopes
   5.3.2.6 Right-of Way
   5.3.2.7 Pedestrian Access
   5.3.2.8 Design Speed
   5.3.2.9 Shldr Treatment
5.3.3 Private Road Crossings (list them?)
5.3.4 Road Crossing Surface
   5.3.4.1 Drainage
   5.3.4.2 Material
   5.3.4.3 Pedestrian Crossing Surface
   5.3.4.4 Bike Lane Crossings
5.4 Retaining Walls, Crashwalls and Bridge Piers (To be expanded)
   5.4.1 Retaining Walls
   5.4.2 Reserved for Future Use
5.4.3 Reserved for Future Use
5.4.4 Reserved for Future Use
5.4.51 Crashwalls at MP A808.98 US 17/92

5.5 Bridges

- MP A800.6 (new 2nd track bridge)
- MP A803.9 (new 2nd track bridge & replacement of existing)
- MP A805.9 (new 2nd track bridge)
- MP A811.3 (new 2nd track bridge & replacement of existing)
- MP A813.1 (new 2nd track bridge & replacement of existing)

5.5.1 Survey – confirm bridge pier and bridge abutment locations
5.5.2 Permits – confirm compliance with requirements
5.5.3 Geotechnical – confirm pile vertical and horizontal pile capacity
5.5.4 Hydrology and hydraulics – confirm compliance with requirements
5.5.5 Substructure Fabrication & Installation – Piles (all piles in all pier & abutment bents)
5.5.6 Substructure Fabrication & Installation – Cap (all Bents)
5.5.7 Superstructure
  5.5.7.1 Fabrication & Installation Precast Concrete Girders
  5.5.7.2 Backwalls
5.5.8 Bearings – reinforced rubber bearing pads
5.5.9 Walkways
  5.5.9.1 Support brackets
  5.5.9.2 Grating
  5.5.9.3 Handrail
  5.5.9.4 Refuge bay
5.5.10 Demolition of existing trestle bridges
5.5.11 Inner Guard Rails (track)
5.5.12 Approaches

5.6 Culverts
5.6.1 Concrete Box Culverts
  5.6.1.1 MP A810.8 (new 2nd track culvert & replacement of existing)
  5.6.1.2 MP A810.9 (new 2nd track culvert & replacement of existing)
5.6.2 CSP Culverts

6.0 Maintenance Yard and Shop
6.1 Poinciana Vehicle Storage & Light Maintenance Facility (VSLMF)
6.1.1 Service Track
  6.1.1.1 Fuelling/lubrication spill containment system
  6.1.1.2 Grading
  6.1.1.3 Drainage
  6.1.1.4 Oil/water separator
  6.1.1.5 Environmental permit requirements
6.1.2 Crew Building
  6.1.2.1 Alternate Control Center
    6.1.2.1.1 UPS for critical systems
  6.1.2.2 Restrooms and showers
  6.1.2.3 ADA Requirements
    6.1.2.3.1 Door hardware
    6.1.2.3.2 Grab Bars
    6.1.2.3.3 Egress widths and turning radius
6.1.2.3.4 Floor drains
6.1.2.3.5 Slip-resistant flooring
6.1.2.3.6 Sink height
6.1.2.4 Locker Room
6.1.2.5 Offices
6.1.2.6 Kitchen and rest area
6.1.2.7 Exterior lighting
6.1.2.8 Back-up generator
6.1.2.9 Fire Suppression System
6.1.2.10 Security features/Vandal-resistance
   6.1.2.10.1 Card readers
   6.1.2.10.2 Entrance door security camera

6.1.3 Parking Lot and Access Roads
   6.1.3.1 Surface
   6.1.3.2 Pavement Markings
   6.1.3.3 Signage
   6.1.3.4 Bollards
   6.1.3.5 Curbs
   6.1.3.6 Drainage
   6.1.3.7 Entrances/Exits
   6.1.3.8 Pedestrian Crossing Surface
   6.1.3.9 Pedestrian Walkways
   6.1.3.10 Lighting
   6.1.3.11 Security Camera coverage

6.1.4 Train Wash
   6.1.4.1 Canopy
   6.1.4.2 Flooring
      6.1.4.2.1 Non-skid/slip surface
   6.1.4.3 Supply Tanks
      6.1.4.3.1 Security features
   6.1.4.4 Lighting
   6.1.4.5 Railing
   6.1.4.6 Warning signage/graphics
   6.1.4.7 Fire Suppression System
   6.1.4.8 Eyewash
   6.1.4.9 Security Camera coverage
   6.1.4.10 Train Approach features

6.1.5 Service & Inspection (S&I) Building
   6.1.5.1 Canopy
      6.1.5.1.1 Wind loading
      6.1.5.1.2 Weather Intrusion
      6.1.5.1.3 Lightning Protection
   6.1.5.2 Office
   6.1.5.3 Fire Suppression System
   6.1.5.4 Restroom
   6.1.5.5 ADA Requirements
   6.1.5.6 Eyewash
   6.1.5.7 Water Fountain
   6.1.5.8 CCTV coverage
   6.1.5.9 Lighting
6.1.5.9.1 Interior
6.1.5.9.2 Exterior

6.1.6 S&I Pit
   6.1.6.1 Water/Sanitary Sewer
   6.1.6.2 Electrical
   6.1.6.3 Compressed Air
   6.1.6.4 Ventilation
   6.1.6.5 Emergency Generator
   6.1.6.6 Lighting
   6.1.6.7 Fire Suppression System
   6.1.6.8 Steps and other forms of Ingress/Egress
   6.1.6.9 Warning signage/markings
      6.1.6.9.1 Top Riser
      6.1.6.9.2 Roll-up Bay Location Identification
      6.1.6.9.3 Hazmat
   6.1.6.10 Railing
   6.1.6.11 Fall-restraint Devices
   6.1.6.12 Lubrication equipment
   6.1.6.13 Pit Rail
   6.1.6.14 Oil/Water Separator
   6.1.6.15 Welding Connections
   6.1.6.16 Train Approach features

6.1.7 Yard Utilities
   6.1.7.1 Compressed Air supply
   6.1.7.2 Water
   6.1.7.3 Electrical (Wayside Power)
   6.1.7.4 Communications

6.1.8 Yard
   6.1.8.1 Storage track
   6.1.8.2 Run-Around track
   6.1.8.3 Yard Entrances
   6.1.8.4 Turnouts and Crossovers
   6.1.8.5 Signals
   6.1.8.6 Lighting
   6.1.8.7 Secure MOW Laydown Area
   6.1.8.8 Fencing or other barriers
   6.1.8.9 CCTV
   6.1.8.10 Intrusion Deterrents
   6.1.8.11 Water/Drainage
   6.1.8.12 Fire Suppression Systems

7.0 Station Platforms (including Mini-Highs)
  7.1 Platform Geometry
     7.1.1 Platform Geometry - C/L Track to edge of platform
     7.1.2 Platform Geometry - ATR to edge of platform
     7.1.3 Ramps
        7.1.3.1 Ramp slope
     7.1.4 Handrails
     7.1.5 Platform Width and Circulation
     7.1.6 ADA Requirements
7.1.7 Platform Dimensional Requirements (NFPA 101A)

7.2 Mini-High Geometry
   7.2.1 Platform Geometry - C/L Track to edge of platform
   7.2.2 Platform Geometry - ATR to edge of platform
   7.2.3 Mini-high Ramp
      7.2.3.1 Ramp slope
   7.2.4 Handrails

7.3 Platform Materials
   7.3.1 Non-skid Platform Surface (Concrete Surface)
   7.3.2 Concrete reinforcing, anchor bolts and embedments
   7.3.3 Tactile Warning Strip
      7.3.3.1 Fastening
      7.3.3.2 ADA requirement
   7.3.4 Mini-High Marking
   7.3.5 Platform Marking

8.0 Station Platform Amenities

8.1 Canopies
   8.1.1 Canopy clearances – Horizontal and Vertical
   8.1.2 Rain Protection
   8.1.3 Wind loading
   8.1.4 Canopy structural steel, base plates and connections
   8.1.5 Concrete Work

8.2 Signage and Graphics
   8.2.1 Line of Sight (include CPTED)
   8.2.2 Information Conveyed
   8.2.3 Foundations
   8.2.4 Installation and Location
   8.2.5 Wind loading
   8.2.6 Impact to pedestrian circulation

8.3 Electrical
   8.3.1 Lightning protection
   8.3.2 Emergency lighting connections
   8.3.3 Edging and Flooring (Electrically Insulated)
   8.3.4 Signage connections
   8.3.5 CCTV connections
   8.3.6 Electrical Grounding

8.4 Lighting
   8.4.1 Light pole placement
   8.4.2 Required Coverage
   8.4.3 Emergency Lighting

8.5 Plumbing/Drainage
   8.5.1 Water Fountain
   8.5.2 Canopy Drainage

8.6 Other Specifications
   8.6.1 Intertrack fence
   8.6.2 Bench Seating Configuration (Security)
   8.6.3 Bench Anti-graffiti materials
   8.6.4 Shelter Area and Circulation
   8.6.5 Non-skid Platform Surface (Pavers)
8.6.6 Guard Rails and Hand Rails
8.6.7 Art-in-Transit - CPTED
8.6.8 Trash Receptacles
8.6.9 Trespass Deterrent
  8.6.9.1 Hazard Rock
  8.6.9.2 Wayside Fence
  8.6.9.3 Gate
  8.6.9.4 Channelization (outside of platform area)
8.6.10 Emergency Vehicle Access to platform

9.0 Station Parking Lots
  9.1 Parking Area
    9.1.1 Parking Surface
    9.1.2 Pavement Marking
    9.1.3 Bollards
    9.1.4 Pedestrian Walkways
    9.1.5 Curbs (prevent collisions)
    9.1.6 Drainage
    9.1.7 Parking Entrance/Exits
    9.1.8 Pedestrian Crossing Surface
    9.1.9 Perimeter Fencing
    9.1.10 Bicycle Racks
    9.1.11 Parking Spaces
      9.1.11.1 ADAAG Section 208.3
  9.2 Signage
    9.2.1 Signage - Line of Sight– CPTED
    9.2.2 Signage - Visibility
    9.2.3 Signage – Foundations
    9.2.4 Signage - Regulatory
  9.3 Electrical
    9.3.1 Lighting
    9.3.2 Grounding
    9.3.3 Lighting Devices
    9.3.4 Light Placement
    9.3.5 CCTV
  9.4 Landscape/Hardscape
    9.4.1 Landscaping - Line of Sight (Distance)
    9.4.2 Landscaping - Line of Sight (Security)
    9.4.3 Hardscaping - Line of Sight (Distance)
    9.4.4 Hardscaping - Line of Sight (Security)
    9.4.5 Landscape Planters
    9.4.6 Tree grates
    9.4.7 Leaning Rails
    9.4.8 Bench Seating Configuration (Security)
    9.4.9 Pre-cast Concrete Wall
    9.4.10 Landscape Maintenance
    9.4.11 Irrigation
      9.4.11.1 Reclaim water identifiers
  9.5 Other Specifications
    9.5.1 Bicycle Storage
9.5.2 Stairways
9.5.3 Art-in-Transit
  9.5.3.1 Foundation
  9.5.3.2 Line of Sight

10.0 Station Utility Yard
  10.1 General Station Utility Yard Design
    10.1.1 Utility Yard Placement
    10.1.2 Electrical Transformer
    10.1.3 Communications Control Cabinet
    10.1.4 Signal Control Cabinet
    10.1.5 Lighting Control
    10.1.6 Electrical Panel Box
    10.1.7 Sprinkler Controller
    10.1.8 Water bibs
    10.1.9 Emergency Generator Connection
    10.1.10 Utility Yard Security
    10.1.11 Uninterrupted Power Supply
      10.1.11.1 UPS Function
      10.1.11.2 UPS Training
      10.1.11.3 UPS System Maintenance Procedures
      10.1.11.4 UPS System Grounding
      10.1.11.5 UPS System Placement

11.0 Station Drainage
  11.1 General Drainage Design
    11.1.1 Control Structures (Weirs)
    11.1.2 Pump
    11.1.3 Fountain Structure
    11.1.4 Fence
    11.1.5 Gravity Wall (5’)
    11.1.6 Storm Chambers

3. TESTING (Completed By Others During Construction)

12.0 Test Plans (To be expanded by CFRC Operations)
  12.1 Acceptance (Functional) Test (To be expanded)
  12.2 Readiness Review Planning (Rail Activation Plan)
  12.3 Reserved for Future Use
  12.4 Reserved for Future Use
  12.5 System Integrated Test (To be expanded)
    12.5.1 Pre-Cut-over
    12.5.2 Test Plan
    12.5.3 Test Procedures
  12.6 FRA 238.111 Pre-Revenue Service Acceptance Test Plan (To be expanded)
    12.6.1 Emergency Preparedness Testing
4. PLANS, PROCEDURES AND TRAINING – (Completed By Others)

To be determined

5. OTHER ITEMS

13.0 Bus Shelter
   13.1 Lightning Protection
   13.2 Horizontal and Vertical Clearance
   13.3 ADA Accommodation
   13.4 Shelter foundation

14.0 Interface of Stations with Adjacent Structures and Roadways
   14.1 Parking Areas - Entrances
   14.2 Businesses
      14.2.1 Horizontal clearance
   14.3 Adjacent Roadways

15.0 Overhead Roadway Bridges
   15.1.1 Clearance

16.0 Utility in ROW
   16.1 10" Kinder Morgan Jet Fuel Pipeline
      16.1.1 Offset
      16.1.2 Protection
   16.2 Fiber Optic Cable
      16.2.1 Offset
      16.2.2 Protection
   16.3 Other
APPENDIX B - Guidance for completing the Design Criteria Conformance and Construction Technical Specification Checklists

Contains consecutive identification numbers for each safety and security requirement.

Identifies the source, code, or standard which forms the basis of the design criteria.

Identifies the method used to verify the design criteria cross-reference, includes submission and design review.

Identifies the method used to verify the incorporation of specified safety and security requirements into the delivered item, includes measurement, test, and visual inspection.

- Item No.
- Safety Design Criteria
- Source/Reference
- Design Cross Reference
- Design
- Means of Verification
- Construction
- Means of Verification

- Status
- Initial
- Date

- Identifies or references the requirements specified by the transit agency for the particular item number.

- Identifies the specification section, drawing number, or file location within the agency's document control system and/or contracts where the safety (or security) requirement has been incorporated.

- Initials/name of the design engineer or other person who verified that the requirement has been incorporated in the contract documents, the status of the item, and the date.

- NOTE: For all partially compliant and non-compliant indications, additional information must be provided in the "Notes or Restrictions" Section.

- Initials/name of the person who verified that the requirement has been incorporated in the delivered/as-built/installed or received item, the status of the item, and the date.

- NOTE: For all partially compliant and non-compliant indications, additional information must be provided in the "Notes or Restrictions" Section.
APPENDIX C: CFCRT Project SSC - Construction/ Test Phase Responsibilities Matrix

<table>
<thead>
<tr>
<th>SAFETY CERTIFICATION STEPS</th>
<th>Construction/ Test Phase (Design Phase for Steps 1, 2 &amp; 3 Only)</th>
<th>Pre-Revenue Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ENG</td>
<td>CTR</td>
</tr>
<tr>
<td>1. Identify Certifiable Items (during PE)</td>
<td>P (-)</td>
<td>S</td>
</tr>
<tr>
<td>2. Develop Safety &amp; Security Design Criteria (during PE)</td>
<td>P (-)</td>
<td>S</td>
</tr>
<tr>
<td>3. Develop &amp; Complete Design Criteria Conformance Checklist (during Final Design)</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>5. Identify Additional Safety &amp; Security Test Requirements</td>
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<td>P</td>
</tr>
<tr>
<td>7. Manage Integrated Tests for the SSC Program</td>
<td>S</td>
<td>P</td>
</tr>
<tr>
<td>8. Manage “Open Items” in the SSC Program *</td>
<td>N/A</td>
<td>P</td>
</tr>
<tr>
<td>9. Verify Operational Readiness</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>10. Conduct Final Determination of Project * Readiness &amp; Issue Safety &amp; Security Certification</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

P = PRIME RESPONSIBILITY, S = SUPPORT RESPONSIBILITY, (-) = NO RESPONSIBILITY, N/A = NOT IN THIS PhASE, ADM = ADMINISTRATION
ENG = ENGINEERING/PROJECT MANAGEMENT, CTR = CONTRACTORS, SAF = CFRC Officers, SSCC and CONSULTANTS
(-) = NO RESPONSIBILITY, ADM = ADMINISTRATION
RC = REVIEW & COMMENT, OPS = Operation and Maintenance (O&M) Contractors
*CONTINUES INTO REVENUE PHASE, FDOT = FDOT Construction Management and CEI Staff