Virginia Railway Express

System Safety Program Plan

For Compliance with:

Federal Railroad Administration

49 CFR Part 270

Virginia Railway Express (VRE)

May 2025

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Revision Record

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1	03/01/2021	All Pages		Revised in entirety to meet new requirements of 49 CFR Part 270.
2	05/07/2021	All Pages		Revised to incorporate all comments from 3/4/2021 submittal to FRA
3	03/15/2022	All Pages		Revised with signatures.
4	05/24/2025	All Pages		Revised with signatures.

Document Revision Policy

This is a controlled document. Anyone referring to a copy of this document should verify they are using the latest revision. Document holders are required to keep their plans up to date by discarding obsolete documents and replacing them with updated documents as explained in the instructions that accompany all updates to the plan.

Document Revision Record

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Revision 4	

Endorsements

This Plan has been developed in good faith and in consultation with VRE's directly affected employees, including those of its operations and maintenance contractors and host railroads.

The VRE Chief Executive Officer and Safety & Security Manager hereby approve and certify the accuracy of this plan and agree to comply with, implement, and enforce the requirements specified herein. In addition, a representative of the Operations and Maintenance contractor acknowledges receipt and agreement to comply with this plan.

March 19, 2025

Rich Dalton **Date**
Chief Executive Officer

March 19, 2025

Charlotte Nourse **Date**
VRE Safety & Security Manager

March 19, 2025

John Kerins **Date**
General Manager, Keolis Rail Services Virginia

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1.0 POLICY STATEMENT

49 CFR § 270.103(a and b) System Safety Program Policy Statement

The Virginia Railway Express (VRE) was established under the terms of the *Master Agreement for the Provision of Commuter Rail Services in Northern Virginia - Establishment of the Virginia Railway Express* on October 27th, 1989. This agreement was created by the Northern Virginia Transportation Commission (NVTC), the Potomac and Rappahannock Transportation Commission (PRTC), and each of the nine member jurisdictions. VRE is committed to providing safe, reliable, efficient and convenient transportation in the region it serves.

VRE and its contractors are committed to and responsible for maintaining and promoting a proactive safety culture where risk(s) is eliminated or mitigated to the lowest practical level. It is expected that everyone that works for VRE or provides services to VRE adopts the responsibility for the daily oversight, identification, and control of operating and workplace hazards to ensure the highest degree of safety for VRE customers, employees, contractor employees, railroad property, and the people and property of the community in which VRE operates. All VRE employees and contractors are therefore charged with the safety of VRE's passengers, employees, property, and the general public.

VRE is mandated to develop, implement, and administer a comprehensive and coordinated System Safety Program (SSP), which includes responsibility for monitoring the compliance of all operations and support activities, and for reinforcing safe work practices aimed at identifying risks and reducing accidents. The SSP is thoroughly described by this written SSP Plan. Throughout this document, references of "SSP" refer to the VRE System Safety Program while "SSP Plan" refers to this written plan that describes the program. The SSP Plan will be used to implement the SSP and has been developed to comply with the FRA regulations found in *49 CFR Part 270.103, System Safety Program Plan.*

VRE's Chief Executive Officer (CEO) is empowered and authorized to design, implement, and administer a comprehensive, integrated, and coordinated SSP that communicates leadership's commitment to VRE's safety culture and philosophies. This includes a specific plan for the identification, prevention, control, and resolution of any unsafe conditions during project planning and development, design, construction, testing, operation, and maintenance of the VRE system.

Where VRE determines an immediate and serious hazard exists, the CEO and/or the CEO's designee has the authority and responsibility to order hazardous conditions corrected or managed/minimized or hazardous practices halted. Accordingly, the CEO or CEO's designee is empowered to order the cessation of unsafe activities or operations which are deemed to be creating an immediate and serious hazard within the system. The CEO or CEO's designee is also empowered to conduct unannounced inspections aimed at identifying and eliminating unsafe practices, operations, and conditions not corrected by immediate management/supervision.

This proactive approach dictates that the organization remains actively engaged in the SSP described in this SSP Plan and is working together to achieve the highest level of safety for all VRE customers and the general public consistent with VRE's operating and management goals. The following policies have been established with this in mind:

- All phases of construction activity under VRE's influence require the highest safety standards and practices for major public works projects. The public shall not be exposed to extraordinary safety hazards.

- Operational systems shall meet all safety-related codes and regulations issued by appropriate Federal, State, and Local authorities.

- Health and safety provisions for VRE passengers and personnel shall be equal to, or exceed those required by Federal, State and Local regulatory authorities.

- Goals and objectives shall be considered throughout all phases of the operation and maintenance of VRE's system.

- Annual internal safety audits shall be conducted to ensure compliance with the SSP Plan. Recommendations shall be implemented following configuration management procedures.

- Managers shall ensure distribution of the SSP Plan to all personnel and entities directly responsible for meeting its goals, carrying out its objectives and enforcing its policies.

The application of VRE SSP Plan is critical to the fulfillment of VRE's commitment to keep safety as its top priority. This program shall receive the full support and compliance of all VRE personnel whose support or participation is required. All directors, managers, and supervisors are responsible and accountable for the implementation of the SSP Plan in their respective areas.

The Authority for preparation and implementation of this Commuter Rail SSP Plan is vested in the CEO and the Safety & Security Manager.

VRE Chief Executive Officer: _____ **Date:** March 19, 2025
(Rich Dalton)

2.0 SYSTEM SAFETY PROGRAM GOALS AND PERFORMANCE TARGETS

49 CFR § 270.103(c) System Safety Program Goals

The term "system safety" is defined by the United States Department of Transportation (DOT) as "the application of operating, technical and management techniques and principles to the safety aspects of a system throughout its life to reduce hazards to the lowest practical level through the most effective use of available resources." VRE maintains a thorough and proactive SSP consistent with this definition, the basis for which is established by this SSP Plan.

The SSP Plan communicates specific system safety goals and objectives, and documents and defines the safety responsibilities, activities, and capabilities established to promote and improve system safety throughout all operations and services of VRE. This includes responsibility for monitoring compliance of transportation operations and support activities, including those of contractors, and for reinforcing safe work practices aimed at identifying risks and reducing accidents and incidents.

The SSP Plan describes how accountability for system safety is integrated and shared throughout the organization and establishes mechanisms for ensuring that the safety implications of system modifications are adequately addressed prior to making changes. It also provides a systematic approach and methodology for identifying and resolving hazards in an expedient and cost-effective manner, while maintaining the safest possible operating environment for VRE's services. Further, the SSP Plan provides the background, organizational structure, management processes, and descriptions of the operational facilities, systems, and the personnel responsible for providing safe and reliable operations and maintenance of VRE. Finally, the SSP Plan identifies the relationship and responsibilities between VRE and the Federal, State, and Local agencies, and organizations that have an impact on the system safety of VRE. The coordination between entities being the primary mechanism through which internal and external safety and regulatory requirements and goals are achieved.

Included within the scope of the SSP Plan is the requirement that all VRE-related activities include hazard and risk identification and control throughout the planning, design, development, acquisition, modification, operation, maintenance and disposition of all systems, equipment, facilities, vehicles and other properties throughout their life cycle. The policy, goals, and objectives of the SSP Plan apply to all personnel, including all contractors. All employees and contractors are therefore required to adhere to safe work practices when in contact with passengers, other employees, private property, and the general public.

2.1 PURPOSE

The primary purpose of the SSP Plan is to establish formal mechanisms to accomplish the following:

- Establish system-wide processes whereby hazards and risks associated with the operation and services of the system are proactively identified and analyzed so that preventive actions may be implemented to eliminate, control, or minimize their impacts.

- Establish SSP responsibilities to ensure that tasks are assigned, understood, documented, and tracked in an organized and useful manner;

- Implement system safety policies and procedures that can be measured, audited, and evaluated to determine the effectiveness of the SSP and hazard and risk management activities and processes; and

- Satisfy the requirements of 49 CFR Part 270 and other State and Local Requirements as applicable.

The SSP, as described in this Plan, is used as a means of proactively preventing injuries, accidents/incidents, environmental damage, and other losses while concurrently demonstrating VRE's commitment to safety. The SSP Plan focuses on a process of identifying hazards, assessing the levels of risk, and developing appropriate resolutions before an incident occurs. This hazard and risk identification and resolution process makes up the core of the SSP. VRE intends to implement this process for every phase of system development, from conception through operation, and finally through disposition. As a result, procedures and policies related to other subordinate and supportive aspects of the SSP will be developed. These will include safety certification of personnel and equipment, document control, configuration management, quality assurance, operations, maintenance, and training.

The effectiveness of this SSP Plan, and the hazard and risk identification and elimination processes described herein will be evaluated through internal reviews of the day-to-day operations and activities, including those of contractors. The internal reviews will be used as a tool to modify safety critical elements and system safety processes on a continuing basis, in turn optimizing operational safety and performance. The reviews will be conducted in accordance with industry standard practices and applicable regulations and requirements.

2.2 SCOPE

The SSP and this SSP Plan apply to VRE in its entirety, including all employees and contractors affecting, or affected by VRE's operations and services throughout all the project planning and development, design, construction, testing, operations, maintenance, and disposition phases. The SSP also:

- Charges each employee, including contractors, with responsibility and accountability for the implementation, enforcement, and success of the SSP;

- Mandates coordination, integration, communication and cooperation among all personnel relative to matters of safety;

- Encompasses all facilities and vehicles used by VRE, all employee and contractor activities associated with VRE, and applies to all who come in contact with the VRE system; and

- Identifies the relationships and responsibilities with Federal, State, and Local agencies and other organizations that have an impact on VRE's operations and services.

It is not possible to address all the specific safety-related responsibilities of personnel and departments in a plan of this type. Relevant documents such as rulebooks, standard operating procedures, plans, and other procedures have therefore been referenced where appropriate and should be reviewed to achieve a complete understanding of VRE's SSP.

2.3 GOALS

VRE is committed to ensuring that its operations, facilities, and equipment are safe, and that its employees and contractors engage in safe work practices at all times. VRE has therefore established a zero-tolerance policy for non-compliance with the SSP and considers safety to be the paramount consideration in all decisions. As such, the following four goals have been established.

Goal #1- Zero Fatalities or Severe Injuries

The ultimate goal of the SSP is to achieve the highest level of safety for all VRE customers, employees, contractors, and the general public. Therefore, Goal #1 shall be to have zero fatalities or severe injuries to VRE passengers, employees and contractors. The following strategies will be utilized in support of attaining this goal:

1. Within the first year after approval of the SSP Plan, the VRE Safety & Security Manager or designee will ensure full utilization of the Risk-Based Hazard Management Program described in Section 15.0, to identify hazards, with a focus on hazards assessed as Risk Priority 1 and 2.

2. Within the first year after approval of the SSP Plan, the VRE Safety & Security Manager shall work with the VRE/KRSV Management Group to eliminate or mitigate identified risks to the lowest practical level.

3. Within the second year after approval of the SSP Plan, VRE's Safety & Security Manager shall work with the VRE/KRSV Management Group to establish a methodology to analyze historical trends of injuries and fatalities that occur, in

order to identify and eliminate the root cause(s), if possible, and to mitigate further risks to the lowest practical level.

Goal #2 – Zero FRA Controllable Accidents or Derailments

FRA reportable accidents can cause injuries, damage rolling stock and infrastructure, and impact operations. Reducing FRA reportable accidents promotes a safe, secure, and reliable service that protects employees and passengers and minimizes property damage to vehicles, facilities, and the environment. Therefore, SSP Goal #2 shall be to have zero FRA controllable accidents or derailments. (To exclude trespasser strikes) The following strategies will be used in support of attaining this goal:

1. In the first year of SSP implementation, the VRE Safety & Security Manager shall work with the VRE/KRSV Management Group to prepare a database of all FRA reportable incidents for the last 10 years, with incidents being sortable by date, location, group, and other criteria as needed. This will also provide information on what effect the current operations contractor has had on the service.

2. In the first year of SSP implementation, the database of FRA reportable incidents will be used to establish a baseline annual rate of FRA reportable incidents.

3. In the second year of SSP implementation, the database of FRA reportable incidents will be analyzed by the VRE/KRSV Management Group to identify trends and potentially undocumented hazards. Any new hazards identified in this analysis will be studied for mitigation in order to drive occurrences to the lowest practical level.

Goal #3 – Reduction of FRA Major Rules Violations by 33% over the next five years

FRA rule violations are seen as indicators of rules compliance. Reducing FRA rule violations promotes a safe, secure, and reliable service that protects employees and passengers and therefore, SSP Goal #3 is to reduce FRA rule violations. The following strategies will be used in support of attaining this goal:

1. In the first year of SSP implementation, the VRE Safety & Security Manager shall work with the VRE/KRSV Management Group to prepare a database of FRA rule violations for the last 10 years, with incidents being sortable by date, location, group, and other criteria as needed. This will also provide information on what effect the current operations contractor has had on the service.

2. In the first year of SSP implementation, the database of FRA rule violations will be used to establish a baseline annual rate of FRA rule violations. This baseline will be used to revise Goal #3 to include a long-term target reduction percentage.

3. In the second year of SSP implementation, the database of FRA rule violations

will be analyzed by VRE/KRSV Management Group to identify trends and potentially undocumented hazards. Any new hazards identified in this analysis will be studied for mitigation in order to drive occurrences to the lowest practical level.

Goal #4 – Analyze KORS Key Performance Indicator (KPI) reports to determine if they support the SSP goals and determine appropriate levels

The following strategies will be utilized in support of attaining this goal:

1. By the second year of SSP implementation, the VRE Safety & Security Manager shall work with the VRE/KRSV Management Group to analyze the current KORS KPI reports to determine if the KPIs are in alignment and at levels that are in keeping with industry best practices and support the goals as outlined in this section and the overall objectives of the SSP. This will determine the baseline.

2. Annually, the VRE Safety & Security Manager shall work with the VRE/KRSV Management Group to determine if the baseline KPIs can be incrementally improved and set new targets.

2.4 OBJECTIVES

Objectives are the quantifiable working elements of the SSP that provide a means of achieving program goals as well as a method of measuring the effectiveness of safety efforts. The objectives of VRE's SSP are to:

- Establish safety policies, procedures, and requirements that integrate safety into VRE's processes, decision-making, and operations;
- Appropriately assign responsibilities related to safety policies, procedures, and requirements;
- Verify adherence to safety policies, procedures, and requirements;
- Thoroughly investigate accidents/incidents including fires, injuries, and near misses involving VRE;
- Identify, analyze, and resolve all hazards involving VRE in a timely manner;
- Meet or exceed safety requirements in all operations, services, and maintenance activities of VRE;
- Thoroughly evaluate and verify the operational readiness of new systems and equipment;

- Introduce final and finished systems to revenue service by establishing and utilizing system safety processes from system inception through procurement;

- Ensure that modifications made to the VRE system do not create new hazards; and

- Consider safety issues as critical elements of all project phases including preliminary engineering, final design, construction, testing, operations, maintenance, and disposition.

The CEO has primary responsibility for monitoring the goals and objectives established by the SSP Plan for VRE. Progress towards meeting stated goals and objectives is continually evaluated through an internal safety review process.

3.0 RAILROAD SYSTEM DESCRIPTION

49 CFR § 270.103(d) Railroad System Description

Figure 1- VRE Cab Car at Leeland Road

VRE was established under the terms of the Master Agreement for the Provision of Commuter Rail Services in Northern Virginia - Establishment of the Virginia Railway Express with service beginning in the summer of 1992. This agreement was created by the Northern Virginia Transportation Commission (NVTC), the Potomac and Rappahannock Transportation Commission (PRTC), and each of the nine member jurisdictions. Members of both commissions sit on the VRE Operations Board, which is responsible for making recommendations to the commissions with respect to VRE's management, financing, and acquisition of property. Member jurisdictions include Spotsylvania County, City of Fredericksburg, Stafford County, Prince William County, City of Manassas, City of Manassas Park, Fairfax County, Arlington County, and City of Alexandria. The Virginia Secretary of Transportation also has a seat on the VRE Operations Board.

VRE is operated under contract by Keolis Rail Services Virginia (KRSV) over tracks owned by the Virginia Passenger Rail Authority (VPRA), Amtrak, CSXT, and Norfolk Southern. The VRE system provides weekday service with most trips timed to bring passengers to Washington, D.C. for work in the morning and from Washington, D.C. back home in the evening. On August 1, 2024, VRE entered into a rail cross honor agreement with the Maryland Transit Administration. This agreement enables MARC passengers to ride VRE using a valid MARC ticket and, conversely, allows VRE passengers to ride MARC with a valid VRE ticket whenever they transfer from one rail service to another during their commute. Passengers utilizing this service transfer at Washington Union Station, the meeting point for VRE and MARC.

The VRE System encompasses approximately 87 miles of track and 19 stations. A list of stations can be found in Appendix A. During fiscal year 2024, VRE operated 32 daily trains in revenue service and carried an average daily ridership of 7000 passengers. VRE's fleet consists of approximately 100 passenger cars and 20 locomotives (photo of VRE Cab Car provided in Figure 1). The maximum authorized track speed on CSXT/VPRA track is 70 mph, and the maximum authorized track speed on Norfolk Southern track is 79 mph.

Trains typically consist of one locomotive and four to eight passenger cars operating in a push-pull configuration. This allows the train to operate with the locomotive in the same position regardless of the direction of travel. The passenger car occupying the end opposite the locomotive will be a cab car (control car) and is equipped with the operating compartment for the train's engineer. When the engineer operates the train from the cab car, the locomotive at the other end of the train will not be occupied but will supply motive and electrical power to the train.

Although VRE owns the rolling stock used for service, the tracks, crews, and most station services are contracted from CSXT, Norfolk Southern, KRSV, VPRA, or Amtrak. Ownership of the stations is divided among Amtrak, CSXT, VRE, and various local jurisdictions and entities. Passengers can purchase tickets at 19 of the stations by ticket machines or using the VRE Mobile application. No tickets are sold on-board at any time. Passengers are required to purchase and validate tickets prior to boarding trains. Train crews consist of an engineer and conductor and one or more assistant conductors depending on the number of cars. The conductor has overall authority on the train for passenger service. Train crews are equipped with portable radios and both the cab car and the locomotive are equipped with mobile radios that provide constant contact with the engineer. Generally, the engineer is the only crew member authorized to communicate directly with the railroad dispatcher under normal operations.

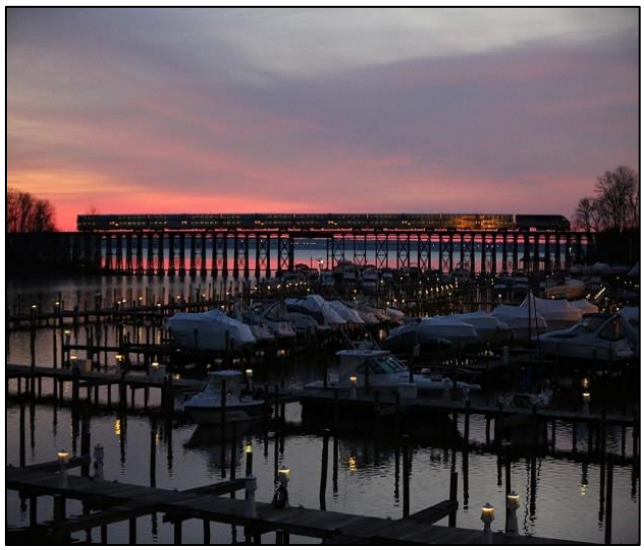
Additionally, VRE maintains a communications center in its main office in Alexandria, VA. At the center, VRE staff monitor train tracking software, dispatch screens, and radio channels for the purpose of providing a variety of internal management alerts and public communications during operating hours. During service delays the VRE Communications Department provides regular updates through use of variable messaging screens, general station announcements, text alerts, emails, the VRE mobile app, social media, and the VRE website.

3.1 SCOPE OF SERVICES

Commuter Service is provided on two lines — the Manassas and Fredericksburg Lines. These lines operate through a variety of environments and conditions including tunnels, bridges, and grade crossings. These rail lines are in the vicinity of electric power lines, pipelines, industrial facilities, and highways.

3.1.1 The Fredericksburg Line

Figure 2 - VRE Train, Neabsco Creek



The VRE Fredericksburg Line Trains (Figure 2) operate along the CSXT RF&P Subdivision Main Line Tracks between Spotsylvania, VA and L'Enfant Station in Washington, D.C. While VPRA has partial ownership of the line, CSXT is responsible for all maintenance and operational activities within the system. This includes maintenance of right-of-way (ROW), bridges and structures, signals and crossings, and PTC equipped train dispatching. As the VRE train moves north of the L'Enfant VRE Station at Control Point (CP) Virginia, the VRE train switches from CSXT dispatch to Amtrak's dispatch. The VRE train then moves through the First Street Tunnel which enters into the Washington Terminal's platform tracks where passengers deboard into Union Station. The CSXT's RF&P Subdivision contains approximately 11 grade crossings along the Fredericksburg Line. VRE operates diesel locomotives on this line and shares the tracks with Amtrak passenger trains and CSXT freight trains.

3.1.2 The Manassas Line

Figure 3 - VRE Train & Norfolk Southern Train in Van Dorn, VA Source: jimbaux.com

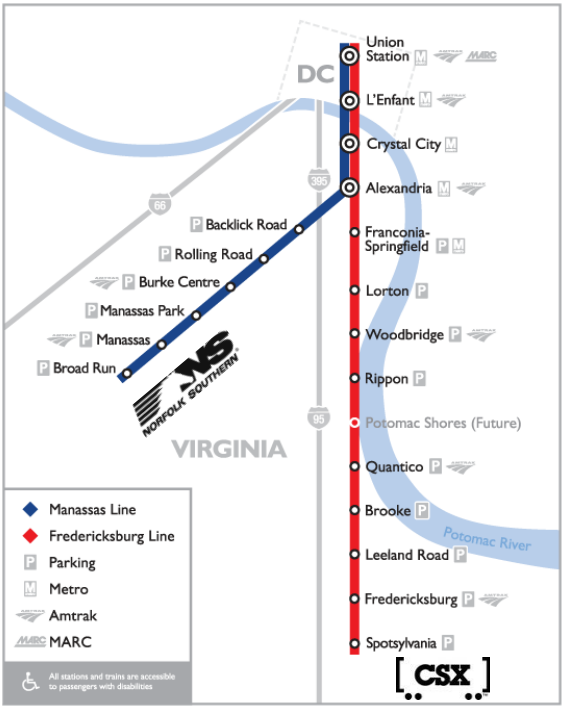
The VRE Manassas Line Trains (Figure 3) operate along the Norfolk Southern Washington District Main Line Tracks between Broad Run, VA and Springfield, VA. At Norfolk Southern CP CR Tower, the VRE train enters the CSXT RF&P Subdivision at CSXT CP Slaters Lane and the VRE train switches from Norfolk Southern dispatch to CSXT dispatch. At this point, the VRE Manassas Line train follows the same route as the Fredericksburg Line trains into Washington's Union Station. The Norfolk Southern Washington District contains approximately 10 public grade crossings along the Manassas Line. VRE operates diesel locomotives on this line and shares the tracks with Amtrak passenger trains and Norfolk Southern freight trains.

3.1.3 Washington Terminal (Washington Union Station)

The territory at Amtrak's Washington Terminal / Union Station (Figure 4) consists of overhead electric catenary lines and various yard, storage, and platform tracks. Washington Terminal also consists of Amtrak Passenger Trains and the Maryland Area Regional Commuter (MARC) trains. VRE will load/unload passengers from the lower-level platforms due to the proximity of the First Street Tunnel. Figure 5 provides a map of the VRE system including the Fredericksburg and Manassas Lines and Union Station.

Figure 4 - Union Station, Washington D.C.

Figure 5 - VRE System Map



3.2 CONTRACTING FOR SERVICES

Amtrak, CSXT, and Norfolk Southern provide maintenance of right-of-way (ROW), bridges and structures, signals and crossings, and PTC equipped train dispatching. Most station services are contracted to various third-party contractors overseen directly by VRE Management.

Amtrak has been contracted to provide personnel to clean the cab/trailer cars, place trainsets on wayside power, perform daily workups before train departure, and start the locomotive prime movers and HEP units. KRSV has been contracted to provide the primary operations and maintenance services for all passenger cars and locomotives.

As part of VRE's contract with Amtrak for operating in Washington Terminal, VRE is responsible for providing Amtrak with the following documents:

- Preliminary Report, Interim Report, and Final Incident/Accident Report for incidents in Washington Terminal
- Quarterly Results of Drug and Alcohol Tests
- Quarterly Fitness for Duty Checks
- SSP Plan and updates
- Emergency Preparedness Plan
- Emergency Response Plan
- Contingency Plan
- Drug-free workplace policy
- Full investigative report, unless privileged, as a result of any applicable incidents in Washington Terminal

As part of VRE's contract with Norfolk Southern and CSXT, the host railroads are responsible for providing VRE with the following documents:

- System Timetables
- Switch Keys
- Operating Rule Books
- Safety Rule Books
- Any related publications or material deemed necessary by Railroad

All contractors of VRE must comply with all applicable Federal, State, and Local regulations. Contractor personnel who violate safety requirements are considered unqualified to perform their contracted services and as such, may have their contract terminated.

3.3 VRE's ROLLING STOCK

3.3.1 Locomotives

VRE's rolling stock inventory consists of twenty MP36PH-3C locomotives (VRE Vehicle Numbers V50 – V69) (Figure 6) manufactured by Motive Power, Incorporated (MPI), which were purchased in 2010-2011 and are equipped with a turbocharged, 645 16-cylinder, Tier II-compliant diesel engine that generates up to 3,600 horsepower. The Main Generator converts this mechanical energy into electrical energy, which is delivered to four traction motors for tractive effort. A secondary engine/generator system, referred to as Head End Power (HEP), produces 600 kilowatts of alternating current power for all systems on the cab/trailer and cab cars. Both the main and HEP engines are certified by MPI and Caterpillar as Tier II, meeting the requirements set forth by the Environmental Protection Agency (EPA).

Figure 6 - VRE's MP36PH -3C Locomotive

3.3.2 Cab and Trailer Cars

Figure 7 - VRE's Nippon Sharyo Cab Car

VRE's rolling stock inventory also consists of 100 cab and trailer cars, supplied by Nippon Sharyo (See Figure 7). VRE operates three different types: Cab Car-T, Trailer Car-T, and Trailer Car. The T designation indicates a car equipped with a toilet.

- **Cab Car-T:** 21 Gallery IV cab car (VRE Vehicle Numbers V710 – V730) entered service between 2006 and 2008. All cab cars are stainless steel construction and equipped with dual axle, fully equalized steel cast trucks, two unitized roof-mounted 10.4-ton Heat Ventilation and Air Conditioning (HVAC) units, and seating for 123 passengers. All cab cars of this type are equipped with restrooms.

- **Trailer Car-T:** 49 Gallery IV bi-level trailer cars (VRE Vehicle Numbers V800 – V848) entered service between 2008 and 2017. All trailer cars are stainless steel construction and equipped with dual axle, fully equalized steel cast trucks, two unitized roof-mounted 10.4-ton HVAC units, and seating for 132 passengers. All trailer cars of this type are equipped with restrooms.

- **Trailer Car:** 30 bi-level Gallery IV trailer cars (VRE Vehicle Numbers V850 – V879) entered service between 2008 and 2010. All trailer cars are stainless steel construction and equipped with dual axle, fully equalized steel cast trucks, two unitized roof-mounted 10.4-ton HVAC units, and seating for 144 passengers. Trailer cars of this type are not equipped with restrooms.

VRE keeps three locomotives as “protects,” one each at Crossroads, Broad Run, and Ivy City. These locomotives are considered part of the revenue fleet and are inspected daily so they may serve in case of a last-minute failure of a locomotive or a cab car.

Standard onboard safety equipment for CAB/Trailer Cars includes:

- Positive Train Control (PTC) equipment
- Camera System (non-passenger areas)
- Emergency Lighting
- Signage and Instructions for Emergencies
- Emergency Windows
- Fire Extinguishers per Passenger Car
- Passenger Emergency Intercom System
- Pry Bar per Passenger Car
- Glow Stick
- Hacksaw
- First Aid Kit
- Step Boxes
- Automated External Defibrillators (AED) (1-2 per train)
- Cab Signal System (equipped but no longer used)
- Train Monitoring System

3.4 SUPPORT FACILITIES

Currently, VRE has two Maintenance and Storage Facilities (MASF) equipped to support its operation and maintenance activities. Information regarding equipment, capacity, usage, and facility needs are outlined in this section. All scheduled and unscheduled maintenance activities for both the Broad Run and Crossroads MASFs are performed during off-peak hours.

3.4.1 Broad Run MASF

Figure 8 - Aerial View of the Broad Run MASF

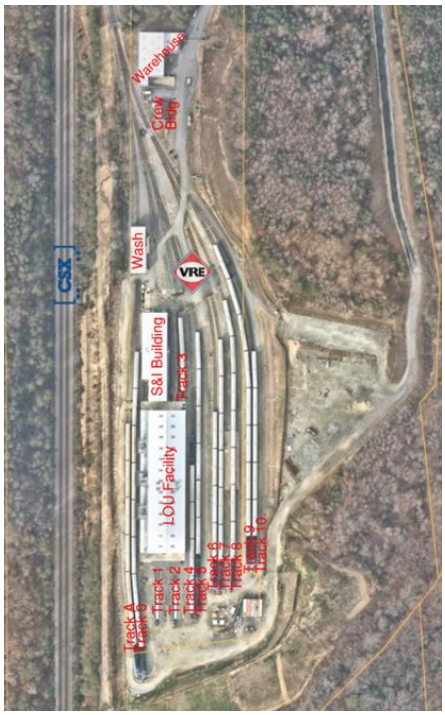
The Broad Run MASF is located in Bristow, Virginia (Figure 8). The facility and layover yard opened in 1991, providing VRE the ability to maintain and store rolling stock at a VRE owned location. This facility includes eight tracks that provide overnight and weekend storage for the five revenue trainsets required to operate the Manassas line as well as storage for coaches and locomotives. The facility includes a crew building and trailer that are used by train crews, security staff, and other personnel.

The Broad Run yard facility currently supports light maintenance, running repairs, inspections, and vehicle cleaning and when possible, maintenance is performed “in consist” without uncoupling joined vehicles. The refueling of locomotives is the responsibility of a third-party contractor and completed with a fuel truck. The Broad Run facility has an 11,000 square foot Service and Inspection (S&I) building that was constructed in 2009.

The S&I building is capable of housing a combination of two locomotives or cab/trailer cars under roof for maintenance. The S&I building allows for the FRA mandated periodic inspections, running repairs, and wheel changes to be performed. This yard is surrounded by fences and access control gates.

3.4.2 Crossroads MASF

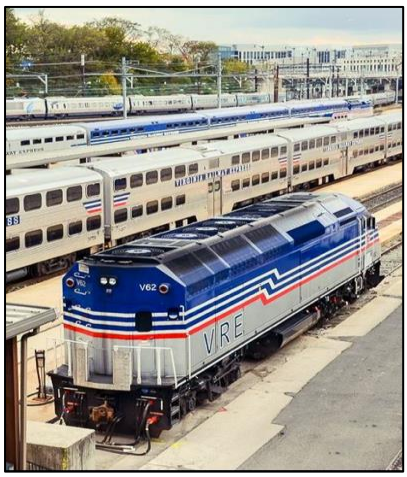
Figure 9 - Aerial View of Crossroads MASF



The Crossroads MASF (Figure 9) is located at the end of the Fredericksburg line in Fredericksburg, Virginia. The facility and layover yard opened in 1992, providing VRE the ability to maintain and store rolling stock at a VRE owned location. The twelve-track layover yard provides overnight and weekend storage for the eight revenue trainsets required to operate the Fredericksburg line. Within Crossroads MASF, S&I and Lifecycle Overhaul and Upgrade (LOU) facilities provide tracks for short-term and long-term maintenance of coaches and locomotives. A materials warehouse, offices, crew building, and vehicle wash are also located at this site. The S&I Facility is an 11,300 square foot building, constructed in 2008 and capable of housing a combination of two locomotives or cab/trailer cars under roof. The LOU Facility is a 33,000 square foot building, constructed in 2023 and capable of housing four locomotives or cab/trailer cars at one time. The LOU facility is equipped with a drop table and wheel truing machine. The Crossroads MASF Facility allows for FRA mandated periodic inspections, running repairs, heavy maintenance, and vehicle cleaning to be performed onsite. When possible, maintenance is performed “in consist.” The refueling of locomotives is the responsibility of a third-party contractor and completed with a fuel truck. This yard is surrounded by fences and access control gates.

3.4.3 Ivy City Layover Facility

Figure 10 - VRE Protect Locomotive at Amtrak's Ivy City Layover Facility.



VRE utilizes Amtrak’s Ivy City Facility (Figure 10) in Washington, D.C. to layover trains during the day. VRE has a five-year agreement with Amtrak to store 12 train consists/90 units at Ivy City. The Ivy City Layover Facility has a Wye Bridge switching center and heavy maintenance and repair building for Amtrak equipment. Currently, VRE does not use the heavy maintenance facilities at Ivy City. If major repair work is needed on VRE equipment, Amtrak personnel will make any repairs needed for the locomotive to be towed back to a VRE facility. There is also a car wash where each VRE unit is cleaned twice a month. This service is performed by Amtrak forces dedicated to the VRE service.

3.4.4 L'Enfant Storage Tracks

Due to the very limited storage space at Amtrak's Ivy City Layover Facility (Figure 11), VRE has an agreement with CSXT to utilize a portion of the railroad ROW near the L'Enfant Station for train storage, currently allowing for the midday layover of one trainset. The L'Enfant North storage track is located immediately east of the VRE L'Enfant Station. The storage track is 900 feet long and stores up to 10 units. There is a security guard present at the site to safeguard equipment.

Figure 11- CSXT's Control Point Virginia Looking North Toward L'Enfant Storage Tracks

4.0 RAILROAD MANAGEMENT AND ORGANIZATIONAL STRUCTURE

49 CFR § 270.103(e) Railroad Management and Organizational Structure

Each department/functional area within VRE has distinct organizational roles and carries out specific safety management responsibilities to ensure overall implementation of the SSP and the safety of passengers, employees, emergency responders, the community served, and VRE's property**.** A description of the top-level roles impacting safety are summarized below. These and other positions that relate to safety are further summarized in Table 1. Appendix B contains Organization Charts for both VRE and KRSV. There are no other parties who provide or utilize significant safety – related services.

4.1 VRE POSITIONS

4.1.1 CEO

The Chief Executive Officer (CEO) reports to the VRE Operations Board and the NVTC and PRTC Transportation Commissions. The CEO is responsible for the overall daily management and development of VRE's service through VRE's operations and maintenance contractors, and a liaison to host railroads, federal agencies, and other related services and entities that support VRE. Safety and security in the performance of these functions is a top priority. The CEO is the accountable executive for ensuring the VRE SSP plan is implemented fully and properly.

4.1.2 Director of Government and Community Affairs

The Director of Government and Community Affairs reports to the CEO. The Director of Government and Community Affairs leads and supports external coordination with regional stakeholders regarding policy and agency-wide objectives. In addition, this position is responsible for leading oversight of FTA, FRA, and other Federal, State, and Local requirements, directives, and initiatives.

4.1.3 Safety & Security Manager

The Safety & Security Manager reports to the CEO. For urgent safety-related issues, this position reports directly to the CEO. This position serves as the agency-wide liaison and senior advisor for all safety and security issues and is responsible for the oversight, administration, and compliance of all responsibilities described in this SSP Plan.

This position also supports and manages insurance issues, policy development, data collection and analysis, and safety and security enforcement and training.

4.1.4 Director of Rail Operations

The Director of Rail Operations directs and oversees all staff, vendors, contractors, and activities of Rail Operations. This position develops and manages the operating and capital budget for assigned areas, delegates responsibilities, conducts performance evaluations, and ensures employees are trained and following policies and procedures. This position also provides oversight for healthy work environment and conditions.

4.1.5 Director of Mechanical Operations

The Director of Mechanical Operations reports to the CEO and directs and oversees all VRE mechanical operations, contractors, and engineering consultants. This includes responsibility for locomotive and passenger car maintenance, repair, overhaul, warehouse, and inventory control. This position develops and manages the operating and capital budget for assigned divisions and manages procurement activities. This position also provides oversight for healthy work environment and conditions.

4.1.6 Mechanical Operations Managers

The two Mechanical Operations Managers report to the Director of Mechanical Operations and are primarily responsible for the safe and reliable operation of VRE's rolling stock fleet. The Mechanical Operations Managers provide oversight and audit of contract personnel, technical assistance, and support to operations and maintenance at maintenance and storage facilities. These roles also evaluate processes to ensure compliance with Federal, State, and Local regulations in addition to Original Equipment Manufacturers (OEM) and industry best practices.

4.1.7 Director of Facilities Maintenance

The Director of Facilities Maintenance reports to the Chief Engineer / Deputy CEO and is responsible for all daily maintenance and operations of VRE facilities. These responsibilities include overseeing contracts and contractors, managing quality assurance, coordinating with jurisdictions, ensuring procurement of essential materials or equipment, and working closely with upper management to develop budgets, set facility standards, and provide support to capital projects as needed.

4.1.8 Director of Information Technology (IT)

The Director of IT reports to the CEO and provides strategic direction, leadership, and functional oversight of information technology. This position will assist with new technology implementation.

4.1.9 Manager of Project Development

The Manager of Project Development is a senior planning and conceptual design management position reporting to the CEO. This position provides management oversight and technical expertise to projects of broad scope and complexity, including short and

long-term planning. This position also plays a role with safety certification planning and implementation.

4.1.10 Chief Engineer / Deputy CEO

The Chief Engineer / Deputy CEO reports to the CEO and directs and manages staff, vendors, contractors, and other activities for engineering and construction of VRE's capital improvement program including facilities maintenance. The Chief Engineer / Deputy CEO has a role in the Safety Certification process for capital projects. In the event that the CEO cannot perform his or her duties, the Deputy CEO takes their place.

4.1.11 Chief Administrative Officer

The Chief Administrative Officer reports to the CEO and directs and manages staff, contractors, and other activities in support of VRE's internal business operations. This position provides oversight of day-to-day administrative operations, including procurement and human resources, as well as legal/regulatory compliance. This position supports initiatives related to Federal, State, and Local regulations as well as employee health, safety, and wellness.

4.2 KRSV POSITIONS

4.2.1 General Manager

KRSV operates the VRE Service under the direction of a dedicated full-time, on-site General Manager. This position is responsible for all duties that include, but are not limited to, the safe, efficient, punctual, cost-effective operation of VRE's commuter rail service. This position is also responsible for complete contract delivery for VRE's operations and maintenance.

4.2.2 Chief Transportation Officer

The Chief Transportation Officer is responsible for managing the daily operation of VRE's commuter rail service. This position is supported by a team of experienced Transportation Managers who are responsible for daily service performance. The Chief Transportation Manager is also responsible for facilitating ongoing communication with nonprofit employee labor organizations.

4.2.3 Transportation Managers (Fredericksburg and Manassas Line)

The Transportation Managers are the frontlines of the KRSV management on VRE trains and work closely with train and engine crews. The Transportation Managers report directly to the Chief Transportation Officer.

4.2.4 Director of Safety & Quality

The Director of Safety and Quality is responsible for overseeing the KORS System and the ISO 9001 Quality Management System. The Director of Safety and Quality reports directly to the KRSV General Manager and works directly with the CEO and Safety & Security Manager.

4.2.5 Manager of Safety, Training, and Operating Practices

The Manager of Safety, Training, and Operating Practices is responsible for the development of all rail safety and training programs for the VRE Service. The Manager of Safety, Training, and Operating Practices reports to the Director of Safety & Quality and works directly with the CEO and Safety & Security Manager.

4.2.6 Chief Mechanical Officer

The Chief Mechanical Officer is responsible for overseeing VRE rolling stock maintenance activities and all other subordinate staff. The Chief Mechanical Officer reports directly to the KRSV General Manager, provides safety leadership, and is responsible for enforcing all safety rules and procedures as they relate to rolling stock.

4.3 HOST RAILROAD POSITIONS

The System Safety Program Plan has been communicated to the following individuals with the Host Railroads listed below:

4.3.1. CSXT Manager of Passenger Operations

The CSXT Manager of Passenger Operations is the senior CSXT representative for safety and acts as the point of contact between VRE and CSXT. The Manager of Passenger Operations reviews hazards addressed to CSXT from VRE, forwards information to the necessary CSXT officials, provides guidance on rules modifications, and interacts with KRSV. This senior representative has the responsibility to inform VRE of hazards that will have an impact on the VRE Service.

4.3.2. Norfolk Southern Senior Director of Interline Services

The Senior Director of Interline Services is the senior Norfolk Southern representative for safety and acts as the point of contact between VRE and Norfolk Southern. The Senior Director of Interline Services reviews hazards addressed to Norfolk Southern from VRE, forwards information to the necessary Norfolk Southern officials, provides guidance on rules modifications, and interacts with KRSV. This senior representative has the responsibility to inform VRE of hazards that will have an impact on the VRE Service.

4.3.3. Amtrak Superintendent of Commuter Operations

The Superintendent of Commuter Operations is the senior Amtrak representative for safety and acts as the point of contact between VRE and Amtrak. The Superintendent of Commuter Operations reviews hazards addressed to Amtrak from VRE, forwards information to the necessary Amtrak officials, provides guidance on rules modifications, and interacts with KRSV. This senior representative has the responsibility to inform VRE of hazards that will have an impact on the VRE Service.

4.4 SAFETY RESPONSIBILITIES

A matrix of positions and their safety responsibilities that impact VRE's SSP in various ways are summarized in Table 1 below.

Table 1- Matrix of Safety Responsibilities

Title/ Position	Safety Responsibility (Areas refer to Departmental responsibilities unless noted as systemwide)
CEO	All Systemwide
Director of Government and Community Affairs	Financial Planning and Resource Allocation
	Regulatory Compliance
	Safety Auditing
	Emergency Response
Director of Rail Operations	Operations and Maintenance
	Performance Targets
	Rules and Procedures
	Facilities and Equipment Safety
	Qualification and Training
	Employee and Contractor Safety
	Financial Planning and Resource Allocation
	Technology Analysis and Implementation
	Accident / Incident Investigation
	Emergency Response
	Regulatory Compliance
Director of Mechanical Operations	Rail Equipment Maintenance
	Performance Targets
	Rules and Procedures
	Facilities and Equipment Safety
	Qualification and Training
	Employee and Contractor Safety
	Financial Planning and Resource Allocation

	Technology Analysis and Implementation
	Accident / Incident Investigation
	Emergency Response
Director of Facilities Maintenance	Regulatory Compliance
	Rules and Procedures
	Equipment and Facilities, Inspection and Testing
	Employee and Contractor Safety
	Record Keeping and Data Analysis
	Regulatory Compliance
Safety & Security Manager	Safety Goals and Objectives
	System Safety Program Implementation
	System Modification
	Safety Qualification
	Safety Data Acquisition and Analysis
	Accident and Incident Investigation, Notification, and Reporting
	Emergency Response
	Rules and Procedures
	Facilities and Equipment Safety
	Qualification and Training
	Employee and Contractor Safety
	Hazardous Materials Management
	Emergency Drills
	Safety Auditing
	Drug and Alcohol Program
	Fitness for Duty / Fatigue Management
	Safety Certification
	Public Safety Awareness
	Safety Performance Targets
	Regulatory Compliance
Director of Information Technology	Technology Analysis and Implementation
Manager of Project Development	Safety Certification
	Record Keeping and Data Analysis
	Regulatory Compliance
Chief Engineer / Deputy CEO	Hazard Management
	Rules and Procedures
	Equipment and Facilities Design
	Equipment and Facilities Inspection and Testing
	Safety Certification
	Record Keeping and Data Analysis
	Regulatory Compliance

	Technology Analysis and Implementation
Mechanical Operations Manager	Rolling Stock Maintenance
	Performance Targets
	Hazard Management
	Rules and Procedures
	Facilities and Equipment Safety
	Employee and Contractor Safety
	Technology Analysis and Implementation
	Accident and Incident Investigation
	Regulatory Compliance
	Record Keeping and Data Analysis
	Safety Certification
	Passenger Car Operation
Marketing Communications and Engagement Manager Manager of Public Relations	Public Safety Awareness
Chief Finance Officer	Rules and Procedures
	Security of Revenue
	Financial Planning and Resource Allocation
Chief Administrative Officer	Rules and Procedures
	Regulatory Compliance
	Health and Wellness Initiatives
	Essential Functions for Position Descriptions
KRSV - General Manager	All Systemwide - KRSV
KRSV - Chief Transportation Officer (and labor relations) KRSV - All Transportation Managers	Operations and Rolling Stock Maintenance
	Performance Targets
	Hazard Management
	Drug and Alcohol Program
	Rules and Procedures
	Facilities and Equipment Safety
	Qualification and Training
	Accident / Incident Investigation
	Regulatory Compliance
	Pre-Employment Testing
	Fitness for Duty / Fatigue Management
	Blood Exposure Control Plan
KRSV- Director of Safety & Quality KRSV - Manager of	Safety Goals and Objectives
	System Safety Program Implementation
	System Modification

Safety, Training, and Operating Practices	Safety Qualification
	Safety Data Acquisition and Analysis
	Accident and Incident Investigation, Notification, and Reporting
	Emergency Management
	Rules and Procedures
	Facilities and Equipment Safety Inspections
	Qualification and Training
	Employee and Contractor Safety
	Hazardous Materials Management
	Emergency Drills
	Safety Auditing
	Safety Certification
	Public Safety Awareness
	Safety Performance Targets
	Drug and Alcohol Program
	Record Keeping and Data Analysis
	Regulatory Compliance
KRSV - Onboard Crewmembers	Railroad Operation
	Hazard Management
	Drug and Alcohol Program Compliance
	Rules and Procedures Compliance
	Qualification and Training
	Employee and Contractor Safety
	Passenger Safety
	Accident / Incident Investigation
	Emergency Response
KRSV - Chief Mechanical Officer	Rolling Stock Maintenance
	Performance Targets
	Hazard Management
	Drug and Alcohol Program
	Rules and Procedures
	Facilities and Equipment Safety
	Qualification and Training
	Employee and Contractor Safety
	Technology Analysis and Implementation
	Accident / Incident Investigation
	Regulatory Compliance
	Record Keeping and Data Analysis
	Safety Certification
	Vehicle Operation

KRSV - Superintendent of Maintenance	Hazard Management
	Rules and Procedures
	Equipment and Facilities, Inspection and Testing
	Employee and Contractor Safety
	Record Keeping and Data Analysis
	Regulatory Compliance
	Drug and Alcohol Program Compliance
All VRE Employees and Contractors	Comply with VRE Rules to Live By, Host Railroad Rules, Policies and Procedures, and all Federal, State, and Local Regulations
	Identify and Report Hazards through the appropriate chain of command and reporting systems
	Assist, as necessary, in the investigation, mitigation, and elimination of hazards and unsafe conditions.
CSXT Norfolk Southern Amtrak	Hazard Management
	Rules and Procedures
	Maintenance of Way Inspections of Mainline Track
	Maintenance of Communications and Signals of Mainline Track
	Facility Management
	Employee and Contractor Safety
	Record Keeping and Data Analysis
	Regulatory Compliance
	Drug and Alcohol Program Compliance

4.5 LINES OF AUTHORITY FOR SYSTEM SAFETY

The Line of Authority for System Safety for VRE and KRSV is shown in Figures 12 & 13. The mitigation of safety issues is not limited to strict lines of authority. Rather, each representative shown in the chart may interact with his or her counterpart to ensure the effective management of risks on the system. Figures 12 & 13 also show the interaction between VRE, KRSV and the host railroads to effectively manage risks throughout VRE.

VRE and KRSV staff actively discuss potential risks and hazards at job safety briefings each day. Formal discussions and analysis of ongoing safety topics occur a minimum of twice a month at Safety Committee and VRE/KRSV Management meetings. VRE also has regularly scheduled meetings with Amtrak, Norfolk Southern and CSXT where both operational and safety concerns are addressed.

Figure 12 - VRE Lines of Authority for System Safety

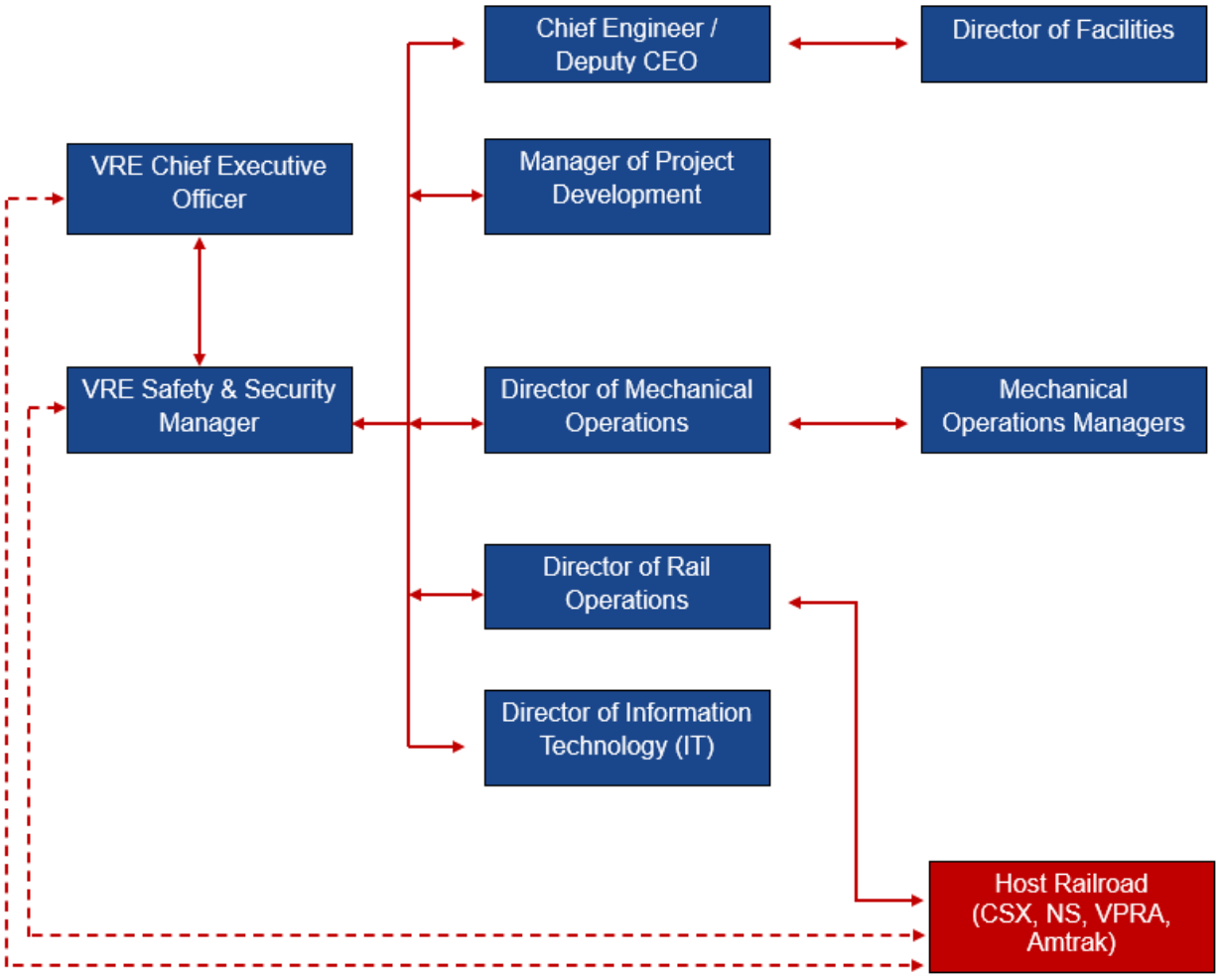
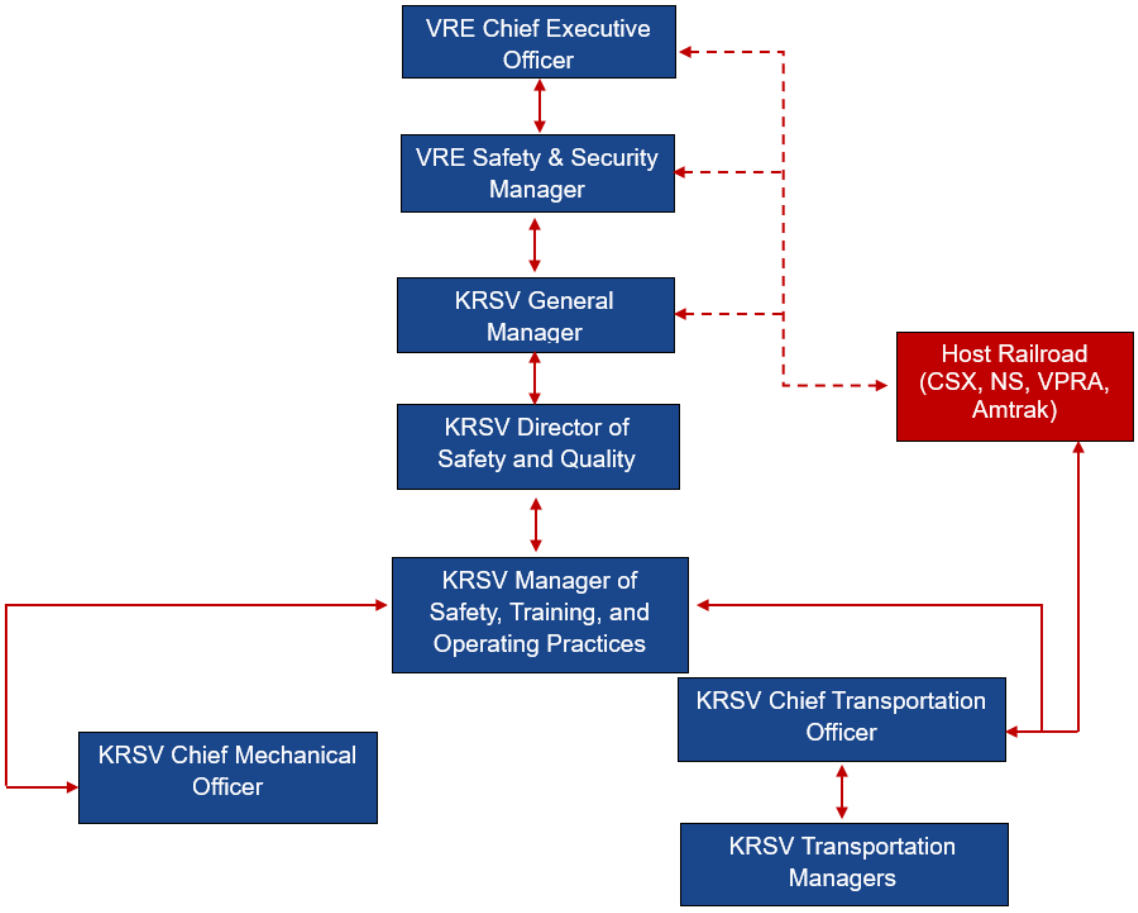


Figure 13 - VRE & KRSV Lines of Authority for System Safety



5.0 SYSTEM SAFETY PROGRAM IMPLEMENTATION

49 CFR § 270.103(f) System Safety Program Implementation Process

The SSP Plan focuses on the activities that are required to provide a high level of safety for VRE's operations and services and includes a long-term approach to implement safety as a systematic process within and throughout the organization, including as an integral part of planning, design, construction, procurement, operation, maintenance, and disposition. The SSP Plan also delineates activities to be performed by VRE and its contractors to ensure the SSP involvement in all relevant areas on a continuing basis.

The Safety & Security Manager has the functional authority, under direction of the CEO, to ensure employees comply with the SSP Plan and to ensure all operations and maintenance-related functions are performed in compliance with safety rules and procedures. This includes the following:

- Analysis of rules, procedures, and practices to ensure adequate hazard controls are identified and implemented;
- Participation in design reviews and planning sessions to ensure that safety concerns and issues are addressed and resolved;
- Collection and dissemination of applicable information/practices from other transit properties;
- Investigation of serious incidents and accidents and assigning responsibility, when applicable, for the purpose of retraining and/or disciplinary action;
- Performing periodic safety inspections;
- Determining the root causes of hazards, accidents, and incidents and recommending corrective actions to prevent recurrence;
- Verifying the implementation and effectiveness of corrective action plans;
- Interfacing with emergency response agencies on safety-related matters;
- Participating in internal management committees; and
- Interfacing with all regulatory agencies as necessary.

When unsafe conditions or practices exist, the CEO or CEO's designee has the authority to order such conditions corrected or unsafe practices halted. This includes the interruption of revenue service if conditions warrant.

The CEO and the Safety & Security Manager will review and evaluate the SSP Plan for program effectiveness. This includes ensuring all departments comply with elements contained herein, adding or deleting work tasks commensurate with the project(s) schedule and budget, and delegating responsibilities, accordingly.

5.1 SAFETY COMMITTEE

VRE participates in the Management Safety Committee with KRSV on a monthly basis. The KRSV Director of Safety & Quality is the chair of the committee. The VRE Safety Team attends the Management Safety Committee along with KRSV upper management. The meetings are used to discuss various operational safety issues and plans of action. Any suggestions requiring budget expenditures are brought before VRE Management.

KRSV holds weekly safety meetings with internal operations staff. In the event of a major safety incident or concern, VRE management may participate in this meeting to supplement incident response activities.

VRE and KRSV also have a Monthly Management Meeting to review safety and operational performance data and metrics. This meeting includes a discussion of the SSPP Goals described in section 2.0 of this plan. This meeting is attended by the VRE/KRSV Management Group.

5.2 PLAN REVIEW AND MODIFICATION

The SSP Plan is reviewed annually and revised as necessary to ensure it:

- Remains current, accurately reflecting VRE's organizational structure, personnel roles and responsibilities;
- Remains consistent with VRE's SSP, management goals, and performance targets;
- Continues to reflect VRE's most current operating and maintenance rules, procedures, and practices; and
- Remains compliant with applicable regulations and industry standards and best practices.

The Safety & Security Manager, as directed by the CEO, is responsible for completing the annual review of the SSP Plan along with VRE and KRSV management staff. All changes to the SSP Plan are completed in good faith and in consultation with VRE's directly affected employees, including those of its operations and maintenance contractors, host railroads and non-profit employee labor organizations. All changes to the SSP Plan must be reviewed and approved by the CEO and re-signed prior to the revised SSP Plan being reissued.

Once revised, a copy of the SSP Plan is provided to all managers for distribution. When changes are made to the SSP document, a memorandum will be sent to all VRE and KRSV departments as well as the host railroads highlighting the changes made to the SSP document. The SSP Plan is also made available to all VRE and KRSV personnel through training programs and VRE's internal document filing and distribution system. The revised SSP Document will also be shared with the Host Railroads.

5.3 MILESTONES FOR IMPLEMENTING THE SSP

VRE will establish the following milestones shown in Tables 2, 3 ,4 and 5 respectively for implementing its SSP.

Table 2 – Pre-Implementation of the VRE SSP

Key Milestones Numbers	Pre – Implementation Key Milestones	Completion Dates
P.1.1	Develop Consultation Statement and Submit SSP Plan electronically to FRA for review and comment	3/4/21
P.2.1	Received comments back from FRA	4/30/21
P.3.1	Submit the Draft SSP Plan to Amtrak, CSXT, Norfolk Southern, VPRA and other stakeholders for review and comments	6/4/21
P.4.1	Incorporate comments all comments and resubmit SSP to FRA	7/29/21
P.5.1	Revised VRE SSP approved by FRA	5/2/22
P.6.1	Issue Finalized SSP Plan to Amtrak, CSXT, Norfolk Southern, KRSV and applicable other stakeholders	6/2/22

Table 3 - VRE First Year Key Milestones for Implementing the System Safety Program

Key Milestones Numbers	First Year Key Milestones
M.1.1	Develop a Risk Register (Hazard Tracking Log) and Corrective Action Log
M.2.1	Train VRE/KRSV Management Group on risk-based hazard analysis to ensure a consistent understanding exists
M.3.1	Implement the Risk and Corrective Action Process
M.4.1	Develop a Technology Analysis and Implementation Plan

Key Milestones Numbers	First Year Key Milestones
M.5.1	Develop a documentation standard for the configuration management process
M.6.1	Develop a Draft Safety Certification Plan
M.7.1	Review SSP Plan. Complete annual revisions when applicable.
M.8.1	When applicable, submit revised VRE SSP Plan to the FRA for review and approval

Table 4 - Second Year Key Milestones for Implementing the System Safety Program

Key Milestones Numbers	Second Year Key Milestones
M.1.2	Develop an OSHA workplace safety program that documents OSHA workplace safety standards have been implemented and followed
M.2.2	Finalize Safety Certification Plan and incorporate information into procurement documents
M.3.2	Develop a formal SSP Training Plan, which addresses the training of key management and staff on elements of the VRE SSP and SSP Plan.
M.4.2	Host training sessions to educate employees on the SSP and SSP Plan to ensure a consistent understanding exists throughout the organization
M.6.2	Schedule first Internal Safety Audit and notify the effected departments and contractors
M.7.2	Complete first Internal Safety Audit
M.8.2	Review SSP Plan. Complete annual revisions when applicable.
M.9.2	When applicable, submit revised VRE SSP Plan to the FRA for review and approval

Table 5 - Third Year Key Milestones for Implementing the System Safety Program

Key Milestones Numbers	Third Year Key Milestones
M.1.3	Establish an annual review of Safety and Emergency SOPs
M.2.3	Schedule second Internal Safety Audit and notify the effected departments and contractors
M.3.3	Complete second Internal Safety Audit
M.4.3	Review SSP Plan. Complete annual revisions when applicable.
M.5.3	When applicable, submit revised VRE SSP Plan to the FRA for review and approval

5.4 RESPONSIBILITIES FOR IMPLEMENTING THE SYSTEM SAFETY PROGAM

As indicated in Table 6, VRE & KRSV management departments have significant responsibility for implementing VRE's SSP.

Table 6 - Responsibilities for Implementing the System Safety Program

Position	Key Management Roles & Responsibilities for Implementation
CEO	Has the ultimate responsibility for VRE's System Safety Program
Safety & Security Manager	Provides direct supervision for ensuring VRE meets the Key Milestones for implementing the SSP within 36 months from FRA approval.
Director of Rail Operations	– Assist with the development of the "Technology Analysis and Implementation Plan" – Ensure employees are trained so a consistent understanding of the SSPP exists throughout the railroad – Participate in the Annual Review of Safety & Emergency Management SOP's – Review and revise relevant sections of the SSP annually – Participate in Internal Safety Audits
Director of Mechanical Operations	– Assist with the development of the "Technology Analysis and Implementation Plan" – Ensure employees are trained so a consistent understanding of the SSPP exists throughout the railroad – Participate in the Annual Review of Safety & Emergency Management SOP's – Review and revise relevant sections of the SSP annually – Assist with the development of the Safety Certification and configuration management process. – Participate in Internal Safety Audits – Participate in the development of the OSHA workplace safety standards
Director of Information Technology	– Key for the development of the "Technology Analysis and Implementation Plan" – Participate in Internal Safety Audits – Review and revise relevant sections of the SSP annually
Manager of Project Development	– Key for developing a plan for Safety Certification – Participate in Internal Safety Audits

Position	Key Management Roles & Responsibilities for Implementation
	– Review and revise relevant sections of the SSP annually
Chief Engineer / Deputy CEO	– Key for developing a plan for Safety Certification – Ensure contract language for procurements going forward includes Safety Certification portion – Participate in Internal Safety Audits – Review and revise relevant sections of the SSP annually – Participate in the development of the "Technology Analysis and Implementation Plan"
KRSV - General Manager	Has the ultimate responsibility for ensuring all KRSV staff are following the implementation plan for VRE's System Safety Program
KRSV - Director of Safety & Quality and KRSV Manager of Safety, Training, and Operating Practices	– Ensure KRSV employees are trained so a consistent understanding of the SSPP exists throughout the railroad. – Assist with developing a risk register and corrective action log. – Participate in Internal Safety Audits – Assist with the Annual review of Safety and Emergency Management SOP's – Assist with the development of a formal SSP Training Plan, which addresses the training of key management and staff on elements of the VRE SSP. – Assist with the development of the Safety Certification Plan
KRSV - Chief Transportation Officer	– Ensure KRSV employees are trained so a consistent understanding of the SSPP exists throughout the railroad. – Participate in Internal Safety Audits – Assist with the Annual review of Safety and Emergency Management SOP's – Participate in the development of the OSHA workplace safety standards – Review and revise relevant sections of the SSP annually
KRSV - Chief Mechanical Officer	– Assist with the development of the Safety Certification Plan – Ensure KRSV employees are trained so a consistent understanding of the SSPP exists throughout the railroad. – Participate in Internal Safety Audits – Assist with the Annual review of Safety and Emergency Management SOP's – Participate in the development of the OSHA workplace safety standards – Review and revise relevant sections of the SSP annually

Position	Key Management Roles & Responsibilities for Implementation
All Directly Affected VRE Employees and Contractors	– Support implementation of VRE's SSP by successfully completing necessary training, complying with documented rules and procedures, and reporting identified hazards and risks through the appropriate means – Participate, in good faith, in the development of and revisions and updates to VRE's SSP Plan – Participate in applicable safety committees

6.0 MAINTENANCE, REPAIR, AND INSPECTION PROGRAM

49 CFR § 270.103(g) Maintenance, Repair, and Inspection Program

Routine maintenance and inspection of VRE's passenger equipment is contracted to KRSV at the VRE's Crossroads or Broad Run facilities. The maintenance and inspection schedules are determined by operating agreements and as supplemented by KRSV's Chief Mechanical Officer and meet or exceed all federal and industry standards. In addition to all federally required inspections, all VRE cars and locomotives are inspected for safety and signed off daily by KRSV. Major repairs of VRE passenger cars and locomotives are performed by KRSV or other Qualified Maintenance Personnel (QMP).

6.1 TRACK INFRASTRUCTURE, SIGNALLING AND POWER DISTRIBUTION MAINTENANCE AND INSPECTIONS

Figure 14 - CSXT Maintenance of Way Crew.

All mainline track is maintained and inspected by the primary operating railroads to comply with 49 CFR Part 213 Track Safety Standards. Amtrak, CSXT, and Norfolk Southern inspect and maintain ROW and infrastructure, including track, roadbed, signals and train control systems, within their respective territories used by VRE.

While the VPRA has partial ownership of the CSXT RF&P Subdivision Main line, CSXT is responsible for maintenance and operational activities within the system. This includes maintenance of right-of-way (ROW), bridges and structures, signals and crossings, and PTC equipped train dispatching.

Operational adjustments needing to be made in response to short term deficiencies, ongoing repairs, or reported hazards would be communicated from the host railroads during the daily morning operation coordination calls or through the operations control center which maintains communications with the host railroads dispatch centers.

Notifications of major work, systemic changes, or major planned service disruptions would need to be made officially in writing as per the specific requirements of the individual operations agreements held with the host railroads.

Hazards noted by the train crews would be immediately reported to the host railroads control centers through radio communications.

Although not utilized by VRE equipment, the traction power overhead catenary system at Amtrak's Union Station is separately maintained and operated by Amtrak. Any

deficiencies noted that would affect VRE operations would be communicated during the daily morning operation coordination calls or through the operations control center. Hazards noted by the train crews would be immediately reported to Amtrak dispatch through radio communications.

All maintenance and storage tracks at the Crossroads and Broad Run MASFs are maintained by a third-party contractor managed by the KRSV Maintenance Staff. These records are kept within KORS.

6.2 FACILITIES MAINTENANCE AND INSPECTIONS

VRE's facility maintenance is completed by two primary contractors, U.S. Facilities, Inc. (maintenance services) and Fresh Air, LLC (custodial/seasonal services). U.S. Facilities, Inc.'s work generally includes monthly station inspections, pest control, repairs, and replacements resulting from station inspections and routine preventive maintenance on specific subcomponents. Fresh Air, LLC's work generally includes custodial and seasonal services (landscaping and snow removal), as well as task order services on an as-needed basis. In the event of an unscheduled or unexpected repair need or major system component issue (i.e., elevators), VRE will submit task orders to its primary contractors if applicable or additional contractors if necessary.

6.2.1 Daily Inspections

Daily inspections and custodial duties at the passenger stations are performed by a third-party contractor and include trash and debris removal and public space sanitizing. Custodial services at VRE Stations are performed by zones as summarized in Table 7 in order to have the work completed by peak service times.

Table 7 - Daily Inspections of Stations

ZONE	SERVICING REQUIREMENTS	ASSIGNED STATIONS
1	All servicing to be completed by 5:00 AM on VRE service days, plus a second servicing to be completed by 12:00 PM on VRE service days	Union Station (cleaning of the TVMs, variable message signs, and poster replacement only), L'Enfant, Crystal City, Alexandria, Franconia-Springfield
2	All servicing to be completed by 2:00 PM on VRE service days	Lorton, Woodbridge, Rippon, Quantico, Brooke, Leeland Road, Fredericksburg (cleaning of the TVMs, variable message signs, and poster replacement only), Spotsylvania
3	All servicing to be completed by 5:00 PM on VRE service days	Backlick Road, Rolling Road, Burke Centre, Manassas Park, Manassas, Broad Run

6.2.2 Monthly Safety Inspections

U.S. Facilities, Inc. performs monthly maintenance inspections and maintenance services at VRE's passenger stations. The VRE Director of Facilities is responsible for overseeing U.S. Facilities, Inc. activities. U.S. Facilities, Inc.'s monthly quality control inspections include a review of the parking lot, platform (including platform gap), elevator, general conditions (i.e., fire extinguishers, landscaping, signage, etc.), and generator as applicable to each station. VRE also performs monthly safety inspections at each of the passenger stations (excluding Union Station which is performed by Amtrak), as well as their corresponding passenger parking facilities (VRE owned or not). These inspections are primarily intended to assess the overall safety of the passenger areas (platforms and parking) and note/report any defects or conditions that may constitute a safety concern which may require immediate attention. These defects are reported directly to the Director of Facilities.

6.2.3 Scheduled Inspections/Maintenance

General inspections are performed daily/monthly; however, some subcomponents of VRE's facilities require scheduled inspection and preventative maintenance. These inspections comply with Federal, State, and Local regulations. U.S. Facilities, Inc. performs these inspections/maintenance activities using the following time scale in Table 8:

Table 8 - Scheduled Inspections/Maintenance

Subcomponent	Time scale
Elevator	Weekly & Semi–Annually
HVAC	Semi-Annually
Generator	Semi-Annually
Pest Control	Monthly, as necessary
Fire Extinguisher	Annually
Standpipe	Annually

6.3 ROLLINGSTOCK MAINTENANCE AND INSPECTION

Preventative maintenance activities follow FRA mandated and OEM recommended intervals and are established and scheduled per vehicle, based on its in-service date, also known as the "Blue Card date." VRE's rolling stock is scheduled in groups for regular maintenance activities.

KRSV is responsible for all rolling stock maintenance planning in adherence with the policies and schedules outlined in VRE's Rolling Stock Maintenance Plan. The Rolling Stock Maintenance Plan follows the federal schedules, inspections, servicing, and replacement standards contained in:

- 49 CFR Part 229 (Locomotives)
- 49 CFR Part 238 (Passenger Equipment)

- 49 CFR Part 239 (Passenger Trains)

Planned preventive maintenance at VRE consists of three basic types:

- Daily Inspections and Servicing
- Periodic Inspections and Maintenance
- Lifecycle Maintenance

Corrective maintenance is managed with service requests through the KORS system for components that have failed to meet desired performance standards. These jobs may be generated simultaneously with a preventative maintenance action, or they may be generated independently. Spare equipment is available to ensure service is maintained while rolling stock assets are undergoing corrective maintenance.

6.3.1 Daily inspections and servicing

Locomotives and cab/trailer cars inspections and maintenance take place in accordance with 49 CFR Parts 229 and 238. These activities are performed by KRSV during layover at Broad Run and Crossroads MASFs. Brake tests are performed before leaving any terminal and a general inspection is made of every train each day, inside and out. KRSV provides a thorough cleaning of each cab/trailer interior, and locomotives are fueled at Broad Run and Crossroads each weekday. All rolling stock receive regular exterior washing at the carwash at Crossroads or Ivy City. Power washing and scrubbing of the equipment is performed every quarter. Each cab/ trailer receives a heavy interior cleaning twice per year. Per agreement, Amtrak performs daily inspections on the protect locomotives at the Ivy City facility. Amtrak maintains those inspection records on their internal filing system. These records are available for audit by VRE Staff upon request.

6.3.2 Periodic Inspections and Maintenance

Activities vary with the type of rolling stock; however, all inspection frequencies are based on FRA's minimum interval requirements. Table 9 lists the inspection intervals for rolling stock.

Table 9 - Inspection Intervals of Rolling Stock

Type of Rolling Stock	Inspection Intervals
Locomotives:	Daily, 30-day, 92-day, 184-day, 368-day, and 1,472-day
Cab Cars:	Daily, 30-day, 92-day, 184-day, 368-day, 1,472-day, and 2,208-day for toilet maintenance
Trailer Cars:	Daily, 30-day, 184-day, 368-day, and 1,472-day

Locomotives receive periodic maintenance every 30 days and 92 days, with more comprehensive periodic maintenance tasks completed at the 184-day, 368-day (annual),

and 1,472-day (quadrennial) intervals. Locomotive maintenance activities that are OEM recommended (e.g., oil and filter changes, etc.) are performed at 92-day intervals. The 92-day periodic maintenance requires approximately two working days (3 times per year), and an annual periodic maintenance requires five working days. Consequently, each locomotive is scheduled to be out of service for 11 working days per year. These working days are scheduled Monday through Friday, not including holidays. Cab cars are treated as locomotives under federal statutes and therefore also receive maintenance in daily, 30-day, 92-day, 184-day, 368-day, and 1,472-day intervals. Cab car toilet maintenance occurs every 2,208 days.

Vehicle inspection and maintenance activities are coordinated sequentially among FRA required inspection intervals in “add-on” style, such that the longer intervals typically include all work conducted in preceding intervals. For example, 184-day work would include tasks unique to the 184-day interval, plus all work done during daily, weekly, 30-day and 92-day intervals. All locomotive and cab/trailer periodic maintenance are performed by KRSV. These periodic maintenance tasks are typically performed while the equipment is on layover. Spare equipment is available to ensure service is maintained while revenue cab/trailer cars are undergoing periodic maintenance.

6.4 COORDINATION WITH VRE’S HAZARD MANAGEMENT PROGRAM

Hazards identified during inspections and maintenance activities are resolved and closed as soon as possible. VRE and its contractors use various data management information systems, including KORS, to record all the maintenance and inspections records for rolling stock and facilities. These records are used to examine potential trends, warranty issues, and safety concerns.

In addition to work order management, KORS can generate failure reports, perform root cause analysis of those failures, and perform predictive analysis designed to identify issues worthy of additional monitoring before they develop into more widespread problems. KORS also has a breakdown of VRE’s rolling stock assets by systems and components, derived directly from vehicle parts catalogs. VRE also has a Lifecycle Maintenance team, comprised of VRE, KRSV, and Contractor personnel, which meets regularly to discuss and track rolling stock projects for those components and subcomponents with a useful life of more than four years. VRE uses a software developed by MicroMain Corporation, a subsidiary of JDM Technology Group, Inc., for spare parts inventory control and materials usage.

7.0 RULES COMPLIANCE AND PROCEDURES REVIEW

49 CFR § 270.103(h) Rules Compliance and Procedures Review

As stated above, the train operations and maintenance services of VRE are contracted to KRSV. Therefore, KRSV is responsible for ensuring all Railroad Operating Rules and other applicable rules are followed by employees. Since VRE trains operate over tracks owned by CSXT, Norfolk Southern, and Amtrak, all of the host railroad operating rules are applicable. Depending on specific job requirements, KRSV and VRE employees are distributed the following documents:

Operating Rule Books:

- Northeast Operating Rules Advisory Committee (NORAC) Operating Rules
- Amtrak Operating Rules and Instructions (Washington Terminal District TTSI)
- CSXT Operating Rules & Equipment Handling Rules
- Norfolk Southern Operating Rules
- KRSV/VRE Service Instructions

System Timetables:

- CSXT RF&P Subdivision TTSI
- Norfolk Southern Harrisburg Division TTSI
- Amtrak/Washington Terminal District TTSI

Other Rules and Regulations:

- Safety Rules and Instructions
- Air Brake and Train Handling Rules
- “Human Factors” Regulation, 49 CFR Part 218, Subpart F
- Emergency Preparedness Procedures, 49 CFR Part 239
- Engineer and Conductor Certification, 49 CFR Parts 240 and 242
- All other KRSV directives, as appropriate

All key VRE and KRSV employees receive rulebooks from the host railroad annually. This allows VRE & KRSV employees to stay up to date with the current operating rules affecting passenger and employee safety.

If changes are made to the operating rules between the annual editions, then the updated sections of the operating rules are sent to VRE & KRSV employees through a bulletin from each primary operating railroad.

7.1 COMPLIANCE WITH OPERATING AND MAINTENANCE RULES

7.1.1 KRSV Transportation Employees Compliance with Operating Rules

Rule compliance for Transportation Employees is monitored through KRSV's Program of Operational Tests and Inspections which complies with 49 CFR Part 217. This program is managed by the KRSV Transportation Managers of the Fredericksburg and Manassas Lines. The Program of Operational Tests and Inspections was created to ensure a safe workplace by eliminating or significantly reducing accidents and injuries through periodic monitoring of safety critical tasks and operating rules compliance by employees engaged in railroad operations.

Primarily, KRSV Transportation Managers conduct operational testing to document the performance of Train crews' duties. Other Transportation Officers who have the authority to administer Operational Tests include KRSV's Chief Transportation Officers, Designated Supervisors of Locomotive Engineers (DSLE), and KRSV officers qualified on the rules being tested.

Tests are conducted with or without the employee's knowledge of the testing at the time of evaluation and may also involve observation under prescribed conditions to evaluate the ability of the employee to perform in the absence of supervision. All tests for the Mechanical and Transportation Departments are conducted in a fair and impartial manner and are not used as a means of harassment or entrapment.

At times, Operational Testing could occur on host railroad property with host railroad officers and KRSV Transportation Managers jointly performing the Operational test. If testing occurs on a host railroad property, the appropriate officers and/or dispatching center will be advised and concur with the nature of the testing to be conducted. The KRSV Transportation Managers must conduct a minimum of 40 efficiency tests per month.

Testing Officers must ensure the following for Transportation Employees during each semi-annual review period:

- Every KRSV certified Locomotive Engineer shall be given at least one unannounced operational monitoring observation by a DSLE.
- Every Transportation Employee must receive a minimum of two planned Barricade/ Restricted Speed Tests.
- Every Transportation Employee must receive a minimum of two additional Planned Tests and/or Joint Tests.
- Every Transportation Employee must receive at least two tests involving each of the following: Electronic Devices; 49 CFR 218, Subpart F; and 49 CFR 239 Passenger Train Emergency Preparedness.

7.1.2 KRSV Transportation Managers Compliance with Operating Rules

All Transportation Managers must be qualified as either a locomotive engineer, a conductor or both for Norfolk Southern, CSXT and Amtrak. Transportation Managers that are Certified Locomotive Engineers are given at least one unannounced operational monitoring observation by a DSLE during each annual review period. An event recorder download of the evaluation trip must also be obtained and evaluated. During this evaluation the Transportation Manager will be tested for the following:

- Drug and Alcohol Observations
- Electronic Devices
- Job Briefing
- PPE
- Other tests or observations that are applicable under the circumstances.

In addition to efficiency tests, Transportation Managers are subject to KRSV's annual performance evaluations.

7.1.3 KRSV Mechanical Employees Compliance with Maintenance and Operating Rules

Rule compliance for Mechanical Employees is also monitored through the KRSV's Program of Operational Tests. The Mechanical portion of this program is primarily managed by the KRSV Superintendent of Maintenance. The KRSV Mechanical Managers must conduct a minimum of 10 efficiency tests per month including, but not limited to, mechanical observations, electronic devices, emergency preparedness, yard engineer/conductor tests, and drug and alcohol observations. All KRSV Mechanical Managers are evaluated annually for their performance through yearly performance evaluations.

7.1.4 VRE Employee and Contractor Compliance

All VRE employees, contractors and sub-Contractors are required to read the "Rules to Live By" safety manual and watch the companion video prior to entering VRE Property. All VRE employees, contractors and sub-Contractors must abide by all safety procedures contained within. VRE employees must also complete and sign Rules to Live By Acknowledgement Form and return it to their supervisor.

7.2 COORDINATION WITH VRE'S HAZARD MANAGEMENT PROGRAM

All KRSV Employees Operational Testing Records are kept in the KORS System. Employees who fail an Operational Test are made aware of the test failure and the testing officer will select an appropriate educational or disciplinary alternative based on the

seriousness of the rule's infraction/violation. In cases of Engineers and/or Conductors involved in a violation of operating rules detailed in Locomotive Engineer Certification or Conductor Certification, the KRSV General Manager and KRSV Chief Transportation Officer or KRSV Chief Mechanical Officer are contacted immediately. De-certification procedures are handled by the KRSV Chief Transportation Officer or KRSV Chief Mechanical Officer as appropriate.

The KORS System has the ability to generate a series of pre-formatted reports on weekly, monthly, quarterly, and yearly intervals to provide management with information regarding the types, locations, and times employees have been tested. In addition to the pre-formatted reports, there is also the ability to export KORS information into other formats where information can be sorted and reported for various circumstances.

If a trend of violations is occurring, management has the ability to generate reports that are focused on a particular testing area in order to evaluate a need for rule and/or procedure revisions, retraining, increased supervision, or other corrective actions. KRSV is responsible for reporting the status of employee testing to VRE. VRE reserves the right to audit these records at will.

8.0 EMPLOYEE AND CONTRACTOR TRAINING

§ 270.103(i) System Safety Program Employee/Contractor Training

8.1 SYSTEM SAFETY PROGRAM TRAINING PLAN

VRE staff responsible for implementing and supporting the SSP receive training on VRE's SSP and SSP Plan to understand the goals of the program, familiarize themselves with how the plans are implemented and executed, and identify their responsibilities are under the program.

8.2 IMPLEMENTATION

As stated in section 5.3, VRE will develop a formal SSP Training Plan, which addresses the training of key management and staff on elements of the VRE SSP and SSPP.

The SSP Training Plan will identify each job classification and the associated training program requirements that must be met and retained for each job classification. The SSP Training Plan is intended to help ensure all personnel who are responsible for implementing and supporting VRE's System Safety Program understand the goals of the program, are familiar with the elements of the program, and have the requisite knowledge and skills to fulfill their responsibilities under the program. The SSP Training Plan will describe the frequency and content of the system safety training for each position, as well as the process used to maintain and update the training program and records as necessary. The Training Plan will also set forth the process used by VRE to ensure that it is complying with current training requirements.

After approval, the VRE Safety & Security Manager will coordinate with the KRSV Manager of Safety, Training, and Operating Practices to develop the necessary actions to enable administrators to provide the training to their directly affected employees. Training courses will be developed and delivered as per the target timelines in section 5.3.

8.3 SSP TRAINING FREQUENCY

All personnel designated as having roles and responsibilities for the SSP will be trained within 90 days of hire or promotion where the roles and responsibilities, regarding the SSP, have changed with the new position. Triannual SSP refresher training will be provided to all safety-sensitive personnel. All safety-sensitive personnel will be notified when changes to the SSPP are made. All safety-sensitive personnel will be provided access to the latest version of the SSPP. If modifications to the SSPP are extensive, separate training may be provided.

8.4 NON-RESPONSIBILE EMPLOYEES

In support of overall safety culture, all VRE full-time employees (FTEs) that do not have significant responsibility to implement or support the SSP will be provided with access to the SSPP via the Microsoft SharePoint system. New VRE FTEs will also be provided with a safety orientation presentation. The presentation introduces basic SSP concepts and the SSPP. Safety orientation presentations are tracked via the Microsoft Outlook calendar function.

8.5 OPERATIONS AND MAINTENANCE TRAINING

All VRE employees and contractors, including all KRSV train crews and maintenance personnel, are required to meet the training and certification requirements of the FRA. Training must be provided initially upon hire and as required by Amtrak, CSXT, Norfolk Southern, KRSV and/or VRE Management to ensure all employees retain an effective understanding of all safety-related matters and procedures.

KRSV is contractually required to provide training records and certifications for all train crews, maintenance personnel, and other staff who work under contract for VRE. This training consists of a combination of classroom and qon-the-job training. These records must be provided to the VRE staff upon request for review and approval. Table 10 below summarizes the frequency of KRSV's Mechanical Training program for employees who work under contract for VRE.

Table 10 - Mechanical Employees Training Frequency

Mechanical and Facility Technician Annual Training	
Name of Training	**Frequency**
Familiarization of KOP's/KMI's	New Hire
Familiarization of "CMO" notices	New Hire
6's Training	New Hire
Yard Familiarization	New Hire
Locomotive/Car Familiarization	New Hire
NIMS	New Hire
VRE Safety Video	Annual
VRE Rules to Live By	Annual
Blue Signal Protection	3-Year
Personal Protective Equipment	3-Year
Cart Safety	3-Year
Fall Protection	Annual
OSHA Training (Grainger)	Annual
PTEP Training	2 Years
Forklift Certification	3 Years
RWP Classes (VRE)	Annual
Storm Water Pollution Protection (VRE)	Annual for Pollution Prevention Teams

Mechanical and Facility Technician Annual Training	
Name of Training	**Frequency**
Harassment	Every Two Years
ACPR/AED/First Aid	Every Two Years (Transportation Team) or Voluntary (Mechanical Team)

Table 11 summarizes KRSV's Transportation Training for employees who work under contract for VRE.

Table 11 - Transportation Employees Training Frequency

Periodic Engineer Training	
Periodic Training for Passenger Conductors and Periodic Assistant Conductors	
Name of Training	**Frequency**
AMT-2	Every 2 Calendar Years
Annual Field Training (Optional based upon Crew Availability)	Every Calendar Year
Annual Operating Rules & Signals Review (CSXT, Norfolk Southern, NORAC)	Every Calendar Year
Certification Class with Knowledge Test	36 Months
CFR 238 QP Training for T&E	36 Months
Passenger Hours of Service	Every 3 Calendar Years
Fatigue and Sleep Apnea	Every 3 Calendar Years
Passenger Train Emergency Preparedness	Every 2 Calendar Years

8.6 RECORDKEEPING

Training records are maintained by each employer for its own employees and are subject to audit by the FRA within regulatory requirements and VRE within contractual requirements. Training records will be maintained for all training on the SSP performed in accordance with 49 CFR § 270.103(i).

KRSV mechanical and transportation training programs are subject to audit by the VRE Safety & Security Manager or their designee at their discretion. In the event of an audit, any deficiencies will be noted and reported to the appropriate party and requests for corrective action will be made when needed. KRSV uses its KORS system to record all training activities of their employees. VRE requires KRSV to perform an annual assessment and report of training compliance. VRE maintains training records of its employees.

9.0 EMERGENCY MANAGEMENT

49 CFR § 270.103(j) Emergency Management

The FRA published 49 CFR Part 238 and 239, Passenger Train Emergency Preparedness Final Rules, which was established to reduce the magnitude and severity of casualties in railroad operations by ensuring that passenger railroads, such as VRE, can effectively and efficiently manage passenger train emergencies. The rule prescribes minimum safety standards for the preparation, adoption, and implementation of emergency preparedness plans and emergency preparedness training. In compliance with these requirements, VRE has written a Passenger Train Emergency Preparedness Plan (PTEPP) for its operations that has been shared with Amtrak, CSXT and Norfolk Southern and the emergency response agencies applicable to VRE's operations.

9.1 EXERCISES AND DRILLS

To ensure optimum preparedness of all parties, notification requirements and procedures have been established with each of the affected railroads and emergency response agencies. VRE periodically conducts full-scale emergency simulations on selected routes and under predetermined simulated emergency conditions, including through the inclusion of passengers with disabilities in the planning and functional aspects of the simulations when possible.

Figure 15 - First Responder Exercise

Emergency simulations are performed in consideration of the variety of emergency scenarios that could reasonably be expected to occur during normal operation. All possible measures are taken to ensure the cooperation, coordination, and participation of those emergency responders who voluntarily agree to participate in the emergency simulation.

Successful simulations depend in large part on the planning effort and the coordination that must occur between VRE and all participating agencies, organizations, and individuals. In this regard, VRE schedules coordination meetings well in advance of any scheduled simulation date and invites all known and potential participants as well as those who may have an expressed interest in such an exercise (e.g., State and Local officials, FRA representatives, etc.).

In the future, VRE intends to reach out to the disability community to either provide input on the scenario planning, debrief, critique and/or participate as a component of the exercises. Simulation emergencies offer an excellent opportunity for subsequent training and lessons learned exercises. As a minimum policy, VRE along with selected emergency response agencies will plan, schedule, conduct, and evaluate one full-scale emergency simulation on a selected route every other year.

9.2 INTERNAL EMERGENCY TRAINING

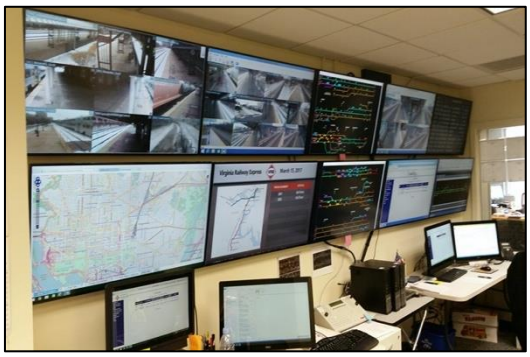
VRE's emergency preparedness program focuses on staff development and training using drills and exercises to assess current practices, procedures, and equipment needed. As stated above, KRSV Transportation and Mechanical Employees are tested on 49 CFR 239 Passenger Train Emergency Preparedness semi-annually. Additionally, all employees are required to take and complete the National Incident Management (NIMS) training. The KRSV VRE Service Instruction Handbook covers specific procedures and instructions for on-board crews and contractor personnel to perform their duties during the occurrence of adverse events.

VRE maintains a communications center in its main office in Alexandria, VA where VRE staff monitor train tracking software, dispatch screens, and radio channels for the purpose of providing a variety of internal management alerts and public communications during operating hours. During service delays the VRE Communications Department provides regular updates through use of variable messaging screens, general station announcements, text alerts, emails, the VRE mobile app, social media, and the VRE website. During emergency situations, VRE Communications staff can connect directly with KRSV and VRE management staff to address urgent issues and acquire resources in real time over a dedicated emergency conference bridge.

Also, VRE and KRSV employees participate frequently in fire/evacuation and shelter in place drills at VRE facilities as required by state and local fire requirements. Before any activity that occurs either on VRE or host railroad property, a job briefing is performed. In the job briefing all attendees are briefed on critical safety topics including the paths to safely evacuate the facility or job site and the location for employees to meet to ensure that everyone evacuated safely. This meeting location is a place of safety away from the worksite and active railroad tracks, power lines, and other hazards.

9.3 EMERGENCY RESPONDER FAMILIARIZATION

Figure 16 - VRE Communications



VRE services are provided across a diverse operating territory with differing state and local jurisdictions including those of Northern Virginia and Washington, D.C. VRE has established working relationships with representatives from these jurisdictions to assure the highest achievable level of safety is provided at all times, including during emergency response activities. In accordance with the VRE PTEPP, VRE offers training to emergency responders in jurisdictions where VRE service is provided. This training addresses emergency access to the passenger cars and the typical location of railroad facilities and equipment. The training also includes full-scale simulations designed to prepare VRE, Norfolk Southern, CSXT, Amtrak, and external emergency responders for emergency situations that may occur involving VRE operations and services. VRE has also retained the services of Kenyon Disaster Management Services to provide support services for passengers and employees in the event of an emergency.

9.4 FIRE PROTECTION

All fire protection systems used by VRE are verified for conformance with fire protection requirements using emergency drills, inspections, incident investigations, and routine testing of fire protection and fire suppression systems.

10.0 WORKPLACE SAFETY

49 CFR § 270.103(k) Workplace Safety

KRSV and VRE have developed employee/contractor safety programs and procedures and provide training on their programs. VRE may review and approve or reject safety programs and procedures developed by KRSV as needed. All safety programs and procedures may be subject to the Internal Safety Audit Program when deemed appropriate.

The KRSV Employee Safety Program encompasses a wide range of occupational safety and health, injury and illness prevention, hazard communication, fire and life safety, emergency preparedness, operational safety, and environmental programs. The programs have been developed in accordance with Federal, State, and Local regulatory requirements.

An employee safety program has been established by KRSV to develop and communicate safety information to employees, to heighten safety awareness, and to encourage the identification and resolution of hazards. KRSV has also developed and implemented an Injury and Illness Prevention Program. Items in Table 12 are examples of the types of classes that may be given. Class curriculums are modified regularly depending on current work objectives and the training needs of employees.

Table 12 - KRSV OSHA Classes

Back Injury Prevention	Hand and Power Tools
Bloodborne Pathogens	Hand, Wrist, and Finger Safety
Compressed Gases	Hazard Communication for General Industry Employers
Confined Space Entry for General Industry	Hearing Conservation for General Industry
Control of Hazardous Energy (Lockout/Tagout)	Heat Stress Management
Taking Care of Your Back	Introduction to OSHA
Driver Safety	Liquefied Petroleum Gas
Ergonomics	Manual Material Handling
Electrical Safe Work Practices for Unqualified Workers	Personal Protective Equipment for General Industry
First Aid	Portable Ladder for General Industry
First Responder Awareness Level	Slips, Trips, and Falls
GHS: Understanding Safety Data Sheets	Spill Prevention, Control, and Countermeasure Plan
GHS: Understanding the New Labels	
Workplace Housekeeping for General Industry	

10.1 ROADWAY WORKER PROTECTION PROGRAM

A roadway worker is any person that is fouling or has the potential to foul the track, including an employee of a railroad or a contractor to a railroad whose duties include inspection, construction, maintenance, or repair of railroad track, bridges, roadway, signal and communication systems, electric traction systems, roadway facilities, or roadway machinery on or near track. Employees, contractors, and other non-railroad employees working closer than four feet of the nearest rail of VRE's host railroads are required to have a valid roadway worker training certification card in addition to a railroad flagman.

VRE retains a third-party contractor approved by the host railroads to yearly certify employees in roadway worker protection (RWP) classes. Requirements related to RWP certifications are outlined in VRE contracts. Contractors' certifications must be presented to VRE management upon request. VRE management reserves the right to audit the RWP certifications of its contractors at will. Any observation of non-compliance of the RWP requirements may result in immediate removal from VRE Property.

10.2 CONTRACTOR SAFETY COORDINATION

All contractor employees working on VRE Property must comply with VRE and host railroad rules. Prior to commencement of work on VRE operational territory, host railroads provide contractors with Contractor Safety Training courses. Qualified personnel conduct this training. VRE holds its host railroads responsible for requesting and reviewing contractor safety plans for compliance with all applicable regulations. Review of contractor safety programs are performed by VRE on all major construction projects managed by VRE. Approval of such programs must be signed off by the CEO or CEO's designee. Acceptable designees include the VRE Safety & Security Manager, Director of Rail Operations, Director of Mechanical Operations, Chief Engineer / Deputy CEO, or designated Project Manager. VRE routinely requests contractor safety programs and plans as part of VRE requests for bids and proposals.

10.3 PERSONAL ELECTRONIC DEVICE USE

All employees working on or around host railroad property must be familiar with and follow the applicable NORAC, FRA, Amtrak, CSXT, and Norfolk Southern Cell Phone and Electronic Device Policies. In addition, the Policy section in the *KRSV VRE Service Instructions, Cell Phone and Electronic Devices* manual outlines in detail the use of cell phones and electronic devices. The use of personal electronic devices (PEDs) is generally prohibited in the operating cab of the locomotives. However, cell phones are permitted in the event of a significant mechanical issue or an emergency after the train is stopped, and an appropriate job briefing is completed. A crew member shall give a railroad-issued cell phone to the Engineer for consultation with supervisors or mechanical personnel to assist in troubleshooting.

10.4 HAZARDOUS MATERIALS PROGRAM

VRE has a Hazardous Materials Management Program that documents regulations regarding hazardous material collection, storage, disposal, reporting and record keeping. This program also collects Safety Data Sheets for new and current materials. KRSV also has a Hazardous Materials Management Program and a Procedure Manual for Reporting. These documents are reviewed annually to ensure compliance with federal and state requirements for hazardous materials.

10.5 DRUG AND ALCOHOL PROGRAMS

The use of drugs and alcohol is strictly prohibited on all VRE properties. Any employee or contractor under the influence of drugs and/or alcohol while on VRE Property grounds is subject to immediate removal from VRE Property and termination of employment with VRE. As required by FRA regulations, KRSV has developed a substance abuse prevention policy in compliance with 49 CFR Part 219, which applies to all KRSV personnel.

Each KRSV employee, as a condition of employment, is required to participate in pre-employment, periodic, random, post-accident drug and alcohol testing, as well as reasonable suspicion, return-to-duty and follow-up drug and/or alcohol testing upon selection or request of management. KRSV Transportation and Mechanical Managers must collectively receive at least four Drug and Alcohol tests annually. Reasonable suspicion or failure of testing will require the removal of the individual from service pending a formal investigation/hearing.

Contractors performing work that is designated as safety and security-sensitive should anticipate random drug and alcohol testing while on VRE Property. Contractors should have the capability to request random drug screenings of all employees performing safety sensitive work on VRE Property. If a contractor is under the influence of drugs and/or alcohol while on VRE Property, the contractor shall be banned from performing work on VRE Property.

10.6 FITNESS FOR DUTY

KRSV ensures that all hours-of-service employees are fully trained in fatigue management and meet all established fitness for duty requirements. Details of these activities are outlined in the VRE Fatigue Risk Management Plan, formally approved by the FRA in August 2024. The KRSV Employee Assistance Program covers many areas of concern and is made available to all employees.

10.7 GOOD FAITH CHALLENGE

As required by 49 CFR Part 218.97, KRSV has developed a Good Faith Challenge Policy. An employee has the right to challenge a directive which, based upon the employee's good faith determination, would violate a railroad operating rule. The supervisor must not

require the challenging employee to comply with the directive until the good faith challenge is resolved. Further details of the Good Faith Challenge Policy can be found in the KRSV VRE Service Instructions.

11.0 PUBLIC SAFETY OUTREACH

49 CFR § 270.103(l) Public Safety Outreach Program

VRE has established a Public Safety Outreach Program to provide safety information to its passengers, the surrounding general public, emergency responders, and the railroads operating in the rail corridor. The Public Safety Outreach Program includes the development and delivery of safety awareness presentations conducted for local schools, community groups, and the media. VRE's website also provides an e-newsletter and Rider's Guide to using VRE. There are also Quick Response (QR) codes (Figure 17) available in each passenger car that provide the following information:

- VRE's Onboard Safety Video
- Electronic Newsletters
- Rider's Guide
- Safety and Security Brochure
- VRE Mobile Application
- FAQ's
- Schedules

Figure 17 - QR Codes

VRE engages in social media applications such as Facebook, Twitter, Instagram and LinkedIn. The Facebook and Twitter accounts allow VRE to communicate safety and operational issues to its passengers in near real time. These programs are designed to increase public awareness of issues related to safety on VRE's system. VRE has a Comment Form available on their website as well as an automated service information number (1-800-RIDE-VRE) for customers to report safety or security concerns.

11.1 HIGHWAY RAILROAD GRADE CROSSINGS

Figure 18 - VRE Train at Manassas, VA Amtrak Station, Source: Patch.com

VRE is an active participant in Operation Lifesaver and cooperates with VDOT's Section 130 Program to eliminate hazards at grade crossings. The Engineering portion of the Operation Lifesaver program has been used to improve crossing safety. All public grade crossings on the revenue passenger portion of the VRE system are equipped with gates. VRE regularly partners with the host railroads and posts personnel at various crossings (Figure 18) along the Fredericksburg and Manassas Lines to remind drivers to exercise caution around grade crossings. Drivers are reminded that if

Figure 19 - ENS Sign
Source: MUTCD

they observe conditions that appear abnormal such as a false activation or damage to the devices, or if a vehicle is stuck on the track, it is important to notify the railroad company immediately by locating the Emergency Notification Sign (ENS) mounted on the crossing signs or signals (See Figure 19).

11.2 TRESPASSER PREVENTION

Figure 20 - Trespassers at VRE Station

Prevention of trespassing (Figure 20) is a portion of VRE's system missions. VRE engages Operation Lifesaver and other organizations to combat this problem through passenger, staff, and community awareness and enforcement programs. VRE uses the 3 E Method: Education, Enforcement, and Engineering to attempt to eliminate trespassing.

The host railroads are responsible for the ROW over which VRE operates. The primary responsibility for signage and control of ROW belongs to these railroads. VRE performs periodic inspections of its own property to ensure that signage, fences, and barriers are in good condition. VRE works with its contractors to identify ROW hazards and security breaches to resolve trespasser issues.

VRE employees, host railroad employees, and T&E crews are instructed to report all acts of trespassing and vandalism so corrective actions can be taken. Signs and fences are installed and maintained by the host railroads at numerous ROW locations where VRE operates train service.

11.3 COMMUNITY OUTREACH

Figure 21 - VRE Santa Train

VRE also participates in the following Northern Virginia Events (Figure 21) to promote railroad safety and receive feedback on how to improve rail service to the Northern Virginia Region. A sample of these events includes the following:

- VRE's Meet the Management
- Manassas Railway Festival
- Clifton Day
- Santa Trains (in partnership with Operation Lifesaver)
- Toys for Tots

12.0 ACCIDENT/INCIDENT REPORTING AND INVESTIGATION

49 CFR § 270.103(m) Accident/Incident Reporting and Investigation

12.1 INCIDENT NOTIFICATION

Figure 22 - VRE First Responder Training

For VRE operations, all accidents/incidents are reported to the dispatcher for the territory in which the train is operating. VRE Train crews will notify emergency personnel and coordinate and monitor all corrective and emergency response action required at the site. Incidents include, but are not limited to, the following:

- All occurrences resulting in employee deaths or occupational injuries while on the job;
- Passenger, trespasser, and/or passerby deaths or reported injuries that occur on VRE vehicles or property;
- Near misses and minor accidents/incidents which had the potential of serious injury or death; and
- All other unusual occurrences, incidents, malfunctions, hazardous conditions, near misses, etc., which may impact the safety of VRE operations and services, personnel, or patrons.

It is the policy of VRE to ensure that all accidents/incidents, regardless of origin, the operator(s) involved, or of the responsible party, be subject to a formal and objective investigation.

In the event a CSXT or Norfolk Southern freight crew is used to handle a VRE train, at least one VRE crew member must remain on-board to assist in the event of an emergency. This employee would then be placed in service, even if doing so would require the crew member to exceed time on duty under the Hours-of-Service Act.

12.1.1 Notification by CSXT

For events that occur on the Fredericksburg Line, the appropriate CSXT Train Dispatcher will receive all initial emergency communications from the crew members by radio, telephone or by whatever means available. The CSXT Dispatching Office (BD) desk is located at 3019 Warrington St. Jacksonville, FL 32254.

The dispatcher may make telephone notification to appropriate agencies and applicable personnel as soon as possible. The CSXT Train Dispatcher will also notify railroad or regional emergency responders.

When applicable, the CSXT Dispatching Center must also notify (as soon as practical), any adjacent rail lines with information on the nature and degree of the emergency situation and what actions may be required on their part to ensure that their properties do not become involved.

12.1.2 Notification by Norfolk Southern Railroad

For events that occur on the Manassas Line, VRE Trains operating over Norfolk Southern Railway are dispatched from NSR's Network Operations Center (NOC) Harrisburg Division (Hagerstown Dispatcher) located at 650 West Peachtree St. NW Atlanta, Georgia 30308. This dispatcher will attempt to determine the exact location of the incident, any condition that would affect safe passage by affected trains or road vehicles, and whether hazardous materials are involved. The Chief Dispatcher of the Harrisburg Division maintains the call list for emergency responders and if conditions warrant, will immediately stop all rail traffic on the affected routes. The dispatcher will then promptly and efficiently notify appropriate personnel, including emergency responders such as fire and police; the passenger service provider; adjacent rail modes (all types of transit operations by rail running parallel to passenger railroad operations and their hosts); and the Norfolk Southern emergency response call list.

12.1.3 Notification by Amtrak

For events that occur within the limits of Washington Terminal, the Control/Dispatcher Center will attempt to determine the exact location of the incident, any condition that would affect safe passage by affected trains or road vehicles, and whether hazardous materials are involved. The Assistant Superintendent of Terminal Operations Amtrak in Washington, D.C. maintains the call list for emergency responders. Then if conditions warrant, the Washington Train Operations/Commuter Desk will notify the appropriate first responders.

12.2 INVESTIGATION AND CAUSE ANALYSIS

It is the responsibility of VRE and KRSV to ensure all accidents/incidents and near misses are thoroughly investigated and that all applicable records are maintained, including corrective action plans developed as a result of investigation findings. The investigation may include a detailed engineering analysis to determine accident/incident causes and may be supported by outside contracted expertise.

VRE and KRSV will work with the host railroad or local emergency responders during their investigation of the accident/incident to ensure the investigations adequately address all VRE requirements. The degree of the investigation and the parties involved with the investigation depends on the type and extent of the accident/incident.

In all cases, VRE strives to identify the causes and contributing factors to the accident/incident and to take immediate corrective actions to ensure that the same or similar type of accident/incident does not occur. Accordingly, it is critical that the accident/incident investigation process maintains a strong link to the hazard and risk identification and resolution process. Hazards identified as a result of the investigation are evaluated according to the hazard identification and resolution process which is currently under refinement. Hazard resolutions are incorporated into procedures, designs, construction, modifications, and procurements as necessary to prevent further accidents/incidents of a similar nature.

12.3 REPORTING AND FOLLOW – UP DOCUMENTATION

Accident/incident investigation reports are developed to thoroughly identify and evaluate the cause of the accident/incident and to present recommended corrective actions necessary to prevent future accidents and incidents. Investigation reports include, but are not limited to, descriptions of the following:

- Physical Characteristics of the Scene
- Interview Findings
- Sequence of Events
- Probable Cause(s) and Contributing Factors
- Conclusions
- Recommendations and Corrective Actions
- Document Control Number

A full investigative report complete with root cause and corrective actions (if applicable) shall be submitted to VRE within thirty (30) days of the incident. Corrective actions are monitored to ensure they have been implemented as intended and to measure their effectiveness. All accident/incident investigation findings, including root causes and hazards identified during the investigation are linked to and fully evaluated and managed through the KORS Hazard Management Program.

13.0 SAFETY DATA ACQUISITION AND ANALYSIS

49 CFR § 270.103(n) Safety Data Acquisition

13.1 DATA ACQUISITION

In order for VRE's management and personnel to be held accountable for safety, information must be gathered that will enable management to make informed decisions regarding the allocation of resources necessary to optimize safety. KRSV gathers and analyzes various forms of data related to the System Safety Program including, but not limited to, employee injury and illness data, vehicle accident data, maintenance data, unusual occurrence data, and operator and supervisor reports. KRSV also tracks employee accident/incident trends in order to determine high hazard work areas or job classifications, employee training and retraining needs, and levels of disciplinary action required following an accident/incident. Data is also gathered regarding workers' compensation claims and expenses and used for insurance purposes.

Vehicle maintenance and equipment failure data is gathered to verify that preventive maintenance is being conducted according to schedule, and to evaluate equipment quality and warranty period performance. Information pertaining to equipment that repeatedly fails or that requires high maintenance costs, provides management with appropriate reasoning necessary for discontinuing its use and selecting different equipment or a different equipment manufacturer.

Once gathered, safety data is linked to VRE's hazard management process and used to identify hazardous work areas and job classifications. Areas and job classifications, for instance, which have high accident/incident, injury, and illness rates, will typically contain hazardous conditions that cause or contribute to the accidents/incidents, injuries, and illnesses. These work areas and job classifications are then analyzed to identify and control or eliminate the hazards. In accordance with SSPP Goals, the VRE/KRSV Management Group formally reviews and discusses current accident, injury, and illness rates and trends at the VRE/KRSV Monthly Management Meeting. As needed, additional meetings may be scheduled to discuss these topics further.

13.1.1 External Data Sources

VRE uses a number of external sources to gather safety data. This includes being a member of a variety of professional transportation organizations such as the:

- American Short Line and Regional Railroad Association
- American Public Transportation Association
- Association of American Railroads
- The American Railway Engineering and Maintenance-of-Way Association

Safety data and information is gathered and shared through each of these organizations to support the development of robust SSPs. VRE also reviews safety studies produced by the professional transportation organizations to continue to improve the safety of employees and staff at VRE. VRE and KRSV also review NTSB reports and communicate openly with other passenger rail agencies to learn and adjust safety practices when needed.

13.2 HAZARD MANAGEMENT DATABASE

VRE and KRSV use SharePoint and KORS to store, maintain, and track the status of all identified hazards, internal and external safety review findings, and their corrective actions identified through any source. The platforms serve as a management tool and repository for past and future safety hazards identified by both VRE employees, contractors, and/or outside agencies.

KRSV is contractually required to provide Key Performance Indicator (KPI) reports to VRE Management on a daily, weekly, monthly and annual basis, depending on system needs. KRSV is also required to analyze and identify trends, including both leading and lagging safety indicators. VRE reviews KRSV reports to determine the accuracy of the data and analysis as needed. KRSV data and reports are subject to the Internal Audit Program as well.

Audit findings, responsible departments and individuals, proposed corrective actions, deadlines for closure, hazard management, maintenance elements, training, and incident management and more can be queried using a host of menu options. The databases can be used to generate reports that enable VRE to review all aspects of safety status and management. The databases provide a direct link to VRE's Hazard Management Process, thereby streamlining the prioritization of hazards identified during safety reviews and audits.

14.0 CONTRACT PROCUREMENT REQUIREMENTS

49 CFR § 270.103(o) Contract Procurement Requirements

Safety, as well as technical, financial, operational, and management requirements are considered when planning and executing procurements, from their inception through completion. VRE staff are responsible for planning, soliciting, awarding, administering, and documenting contracts using procurement procedures that meet or exceed applicable Federal, State and Local laws and regulations. SSP components applicable to procurements and safety certification requirements are undertaken by the VRE Chief Engineer / Deputy CEO, the VRE Manager of Project Development, or the responsible contract manager working in conjunction with the VRE Safety & Security Manager.

The Director of Mechanical Operations along with KRSV Management work in conjunction with the VRE Safety & Security Manager to ensure all PPE meets federal, local, and state requirements. All procurements and contracts are approved in accordance with VRE Policies and delegation of authority. All completed documentation concerning procurements and policies is kept on-file at VRE offices.

VRE's procurement process is designed to ensure that services, equipment, and other materials obtained by the respective procurement will not degrade the safety of VRE, its operations and services, or the surrounding environment. These requirements are met by the following activities:

- Analyzing environmental impact, clearances, and documentation that may be needed;
- Utilizing contractors specialized for the respective procurement type;
- Including safety requirements in technical specifications and contracts;
- Including requirements to complete the VRE Safety Certification process(es) for any certifiable project elements;
- Requiring projects to comply with NFPA 130 and other applicable design standards and or regulations;
- Evaluating impacts on VRE operations and services in accordance with the hazard identification and resolution process;
- Requesting Safety Data Sheets (SDS) for new chemicals in accordance with the hazardous materials program;
- Analyzing and dictating insurance requirements;
- Requiring the submittal of certificates of compliance stating that all work has been

performed in compliance with technical specifications;

- Evaluating replacement parts and sub-components; and
- Monitoring contractor performance.

When procuring services, equipment, and other materials, VRE strives to ensure that these elements meet or exceed all applicable Federal, State, and Local requirements throughout all stages of the contract procurement process. Depending on the nature and extent of the procurement, various VRE personnel and departments may be involved in developing and reviewing procurement requirements as well as in selecting the services, equipment, or other materials.

15.0 RISK-BASED HAZARD MANAGEMENT PROGRAM

49 CFR § 270.103(p, q) Risk-Based Hazard Management Program

VRE trains are dispatched, operated, and maintained through contracted services; the majority of hazard management is performed by VRE's contractors. During day-to-day operations, it is the responsibility of all contractors and personnel to identify and report hazards or potential hazards they encounter while performing the duties of their jobs on VRE Property or within the VRE system. It is the responsibility of personnel and contractors to secure the hazard area until it can be properly controlled or eliminated. Hazards or safety concerns identified by passengers or the general public are typically communicated to the contractor train crews. Once received, it is the responsibility of the employee to document the hazard or concern and to notify their direct supervisor.

All employees and contractors within VRE are very intentional with identifying and reporting hazards. Some of these identifications occur through observation while working, and some come through more formal procedures such as audits or manager oversight and observations which occur on a regular basis. These formal measures are scheduled on a rotating basis and results are tracked on KRSV's robust tracking database, KORS. Identified hazards are reported immediately to the appropriate leadership and/or the contract managers or to VRE. It is the responsibility of the employee and their direct supervisor to formally document the hazard or safety concern. All reports are investigated, and hazards and deficiencies are corrected or resolved accordingly. Hazards that may affect daily operations are communicated to VRE on a daily basis. Hazard reports are also given to VRE on a monthly basis.

As mentioned previously, all reported hazards, along with operating and maintenance information, are tracked by KRSV in KORS and managed by a monthly KRSV Management Safety Committee which VRE participates in. VRE also participates in a Monthly Management Meeting which includes KRSV personnel. KRSV uses the KORS database to track extensive data and form reports regarding hazards and other safety related information for management. VRE and KRSV use the safety committees to review these reports to help set goals, track goals, and make joint decisions for hazard mitigation and overall safety. These reports and safety committee meetings facilitate the continuous improvement of safety throughout the VRE system. More information regarding how these safety committees' function can be found in Section 5.0.

KRSV and VRE use a risk-based hazard management system to support continuous safety improvement throughout the life of the rail system. KRSV uses a system for assessing levels of risk and for determining what action(s) must be taken to correct or document a hazard risk. This system was generally based off the U.S. Department of Defense military standard (MIL-STD) 882E.

The goal of VRE's Risk-Based Hazard Management Program is to collectively reduce the risks associated with identified hazards and potential hazards. This is achieved through executing individual mitigation strategies collectively developed by the KRSV/VRE Management Group. Progress towards this goal is formally evaluated on a monthly basis.

VRE defines a hazard as any condition or set of conditions, internal or external to the system or system operation which, when activated, can cause injury, illness, death, or damage, including loss of equipment or property, or severe environmental damage. The VRE Safety & Security Manager, under the direction of VRE Executive Management, is responsible for implementing and managing VRE's Hazard Management Program, and for ensuring that all VRE's personnel and contractors use acceptable hazard identification, analysis, and resolution methods as they pertain to the delivery of VRE's operations and services.

Hazard Management, which includes hazard identification, analysis and resolution, is the formal process used to identify, analyze and mitigate hazards associated with the project planning and development, design, construction, testing, startup and operation of VRE's services. Identified hazards are categorized by severity and probability of occurrence, analyzed for potential impact, and resolved by design, procedures, warning devices or other methods so that they fall within a prescribed level of risk acceptable to VRE.

The hazard management process is designed to proactively identify, eliminate, and control hazards before losses occur, by utilizing the following methodology:

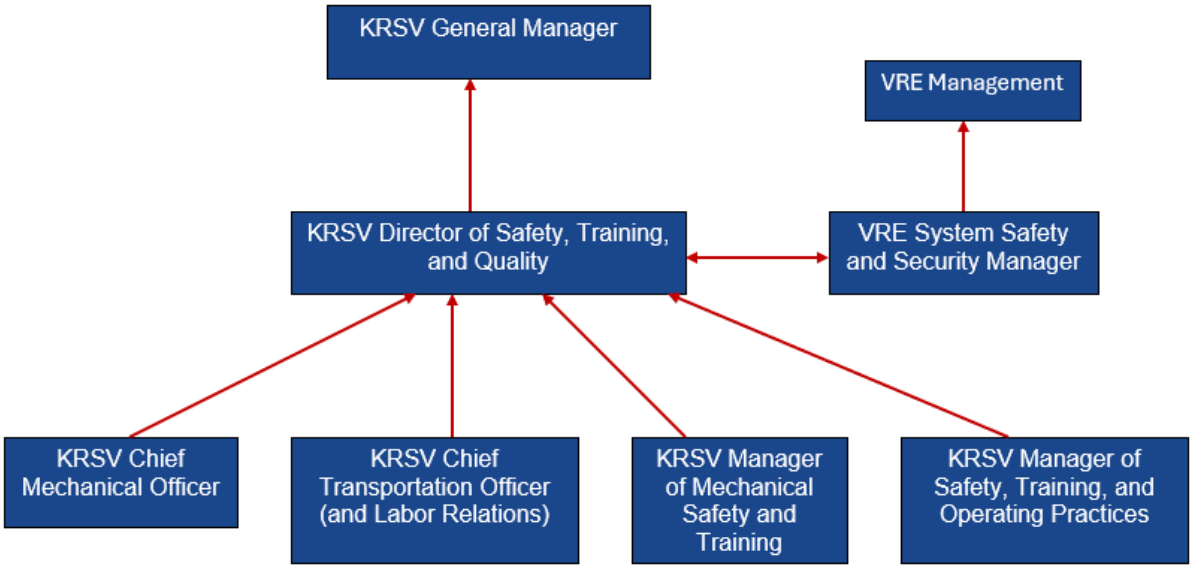
- Describing VRE's systems and primary functions and how these systems and functions relate to and interface with VRE's operations and services;
- Identifying the critical elements and steps (i.e., inspections, modifications, reviews, analyses, tests, etc.) that are necessary to ensure that existing and planned systems achieve the desired level of safety;
- Establishing processes and management controls to ensure identified critical elements and steps are consistently carried out;
- Monitoring compliance with the program by means of safety data analysis, management reports, observations, internal audits, inspections, reviews of documentation, and other means; and
- Improving the processes by reviewing effectiveness of management controls in achieving the desired level of safety (i.e., through analysis of monitoring data) and then modifying safety critical elements and processes on a continuing basis.

15.1 RESPONSIBLE PARTIES FOR HAZARD MANAGEMENT PROCESS

The VRE risk-based hazard management program begins with KRSV Safety Committees. Figure 23 shows the typical organization of the KRSV Management Safety Committee. The KRSV Director of Safety & Quality acts as a chair for the KRSV Management Safety Committee. The VRE Safety & Security Manager attends the KRSV Management Safety Committee Meeting monthly. The VRE Safety & Security Manager provides feedback to

VRE management about the specific hazards discussed when coordination between the organizations is required or the potential hazard poses a significant risk to normal operations.

Figure 23 - KRSV Management Safety Committee and VRE Involvement



15.2 HAZARD IDENTIFICATION AND ANALYSIS

The objective of the hazard identification and resolution process is to identify and define as many credible hazardous conditions as possible and to eliminate or control these hazardous conditions or associated activities prior to their causing or contributing to an accident/incident, injury, death, or other major loss/undesired event. This is a proactive approach, which stresses the thorough evaluation of systems and proposed modifications from a safety perspective before losses occur. The hazard identification and resolution process apply to all operations and services of VRE, with special emphasis placed on the initial stages of the planning and design process for new equipment and new projects. The hazard identification and resolution process also applies to modifications of existing facilities, systems, or rolling stock.

VRE and KRSV will perform a risk-based hazard analysis to determine the resulting risk on:

- Operating Rules and Practices
- Significant Operational Changes
- System Extensions
- System Modifications

- Other circumstances that have a direct impact on passenger rail operator safety
- Infrastructure (VRE Owned)
- Equipment
- Employee Levels & Schedules
- Management Structure
- Employee Training
- Other aspects that have an impact on passenger rail operator safety not covered by passenger rail operator safety regulations or other Federal regulations

Elimination and control of hazards requires a process of analysis in which the cause and consequence of a hazard is evaluated, the hazard is eliminated from the system, or an appropriate control is identified, and the control is implemented and monitored to ensure it effectively mitigates the hazard. All employees are responsible for identifying, reporting, and, when possible, eliminating and controlling hazards that they encounter while performing their daily duties. KRSV works in coordination with the VRE Safety & Security Manager and appropriate managers and other necessary personnel to ensure identified hazards are resolved according to the guidelines provided in this section. Safety hazards related to transportation and mechanical operations are documented on KORS, the system-wide hazard management system. Any safety hazards that fall outside of day-to-day operations are collected and documented by the Safety & Security Manager for incorporation into the risk hazard analysis program. Hazards that require greater coordination between VRE and KRSV or more complex planning and discussion are incorporated into the risk-based hazard analysis program as well.

The hazard analysis process establishes a means of determining the set of causal factors in the hazard generation process, their likely or potential outcomes, and the impacts these outcomes will have on the system. This includes a full evaluation of the risks and priority associated with the hazard. Once these have been determined and fully evaluated, appropriate action can be taken to mitigate, control, or eliminate the hazard and its associated risks. Hazard management solutions can include new or adapted protective devices and equipment, procedures, and/or system modifications all designed to support a safe operational environment.

15.2.1 Methods of Hazard Identification

Many methods can be used to identify hazards. These methods include, but are not limited to:

- Conducting system inspections, audits, and regulatory inspections of VRE Property, equipment or vehicles;

- Evaluating reported hazards received from employees, customers, and contractors;

- Reviewing accidents/incidents and system failure reports and conducting in depth investigations to identify causes; and

- Conducting inductive and deductive hazard identification and analysis.

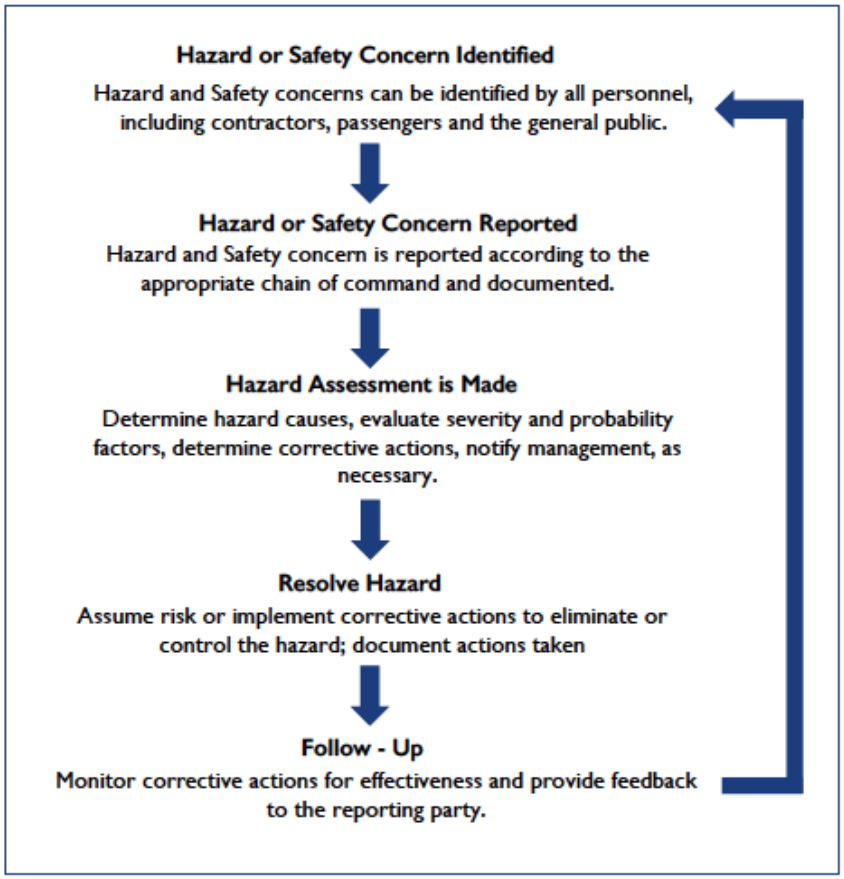
While identifying every hazard within a system is virtually impossible, the implementation of these methods can greatly increase the ability to identify and thereby eliminate or control hazards to acceptable levels of risk. Through the implementation of the VRE SSP, VRE has established a formal process for hazard identification and analysis and will use the following techniques when they are most applicable.

During day-to-day operations, it is the responsibility of all VRE personnel as well as all contractor personnel to identify and report any hazards or potential hazards they encounter while performing work on VRE Property. VRE Property is defined as any location owned or controlled by VRE. It is the responsibility of personnel and departments to secure the hazard area until it can be properly controlled or eliminated. Identified hazards are reported immediately, per the appropriate chain of command continuously (See section 4.5 Lines of Authority for System Safety).

The primary means by which a department will be informed of a hazard is through self-identification. In addition to individual reporting, hazards are identified through formal techniques such as inspections and audits or reviews of daily operating reports to identify trends. Inspections and audits include regular site surveys, system inspections, operational tests, and personnel interviews to evaluate employee work practices and environments. The inspection portion of this method is used daily by all personnel during the performance of their normal job duties and requires little more than an attentive eye or the use of safety checklists.

Other means of identifying hazards is through reviewing accidents/incidents and system failure reports and conducting in depth investigations to identify causes. Although VRE and KRSV strive to prevent accidents/incidents and system failures from occurring, the occurrence of such events can be used to positively improve the work environment and to eliminate hazards. By contract agreement, Amtrak, CSXT, Norfolk Southern and KRSV conduct comprehensive investigations of these types of events to determine their underlying causes, which often leads to the identification of hazards not readily identifiable during daily operations or through inspections, audits, or employee, customer, or contractor reports. Once identified, the hazards are again eliminated or controlled. Figure 24 illustrates the hazard identification and reporting process.

Figure 24 - Hazard Reporting Process



15.2.2 Inductive Hazard Identification and Analysis

A more extensive method of hazard identification is the inductive hazard identification process, which consists of an analysis of system components to identify respective failure modes and the effects they have on the total system. This process assumes the failure of single elements or events and, through analysis, determines the potential consequential effects on the system or subsystem. Methods of inductive hazard identification and analysis are as follows:

- ***Preliminary Hazard Analysis (PHA).*** PHAs are typically the initial hazard analysis technique used during the system or subsystem design phase. A PHA is used to specify safety critical areas within the system, identify and roughly evaluate hazards, and begin to consider safety design criteria. The PHA establishes the basis for the safety criteria in design, equipment, and performance specifications and can also be used for subsequent Subsystem Hazard Analyses.

- ***Subsystem Hazard Analysis (SHA).*** SHA is an expansion of the PHA, identifying design hazards in components and subsystems of a major system. SHA determines the functional relationships between components and equipment

based solely on safety considerations. SHA also identifies all components and equipment in which a functional failure could result in a hazardous condition or accidental loss.

- ***Detailed System Hazard Analysis (DSHA).*** DSHA is generally a combination of two or more inductive analyses. DSHA is used to display the logical or sequential analytic techniques for identifying and correcting hazards from early in the design phase through the integrated equipment or pre-revenue testing phase.

- ***Operating Hazard Analysis (OHA)***. OHA is performed to determine all applicable operational safety requirements for personnel, procedures and equipment throughout all phases of the system life cycle. Engineering data, procedures and instructions developed from other safety analyses, the engineering design and initial test programs, are all used to support this analysis. OHA is used most frequently for investigations of catastrophic and critical accidents that result from human error rather than equipment failure. It involves four major determinations including the cause, effect, risk assessment, and control. This analysis utilizes history and data from other transit properties to define the cause and effect.

The VRE/KRSV Management Group can incorporate some or all of these more intensive methods of analysis when deemed appropriate. These forms of analysis are typically reserved for major capital projects and catastrophic or critical accidents. VRE follows the FTA definition of a major capital project as a capital project costing $300 million or more that receives $100 million or more in Federal financial assistance.

15.2.3 Deductive Hazard Identification and Analysis

The deductive hazard identification process involves defining an undesired effect (i.e., collision, fire, derailment, etc.) and then deducing the possible conditions or system component faults (or combinations thereof) that are necessary to cause the undesired effect. Fault tree analysis is an example of the deductive hazard identification and analysis process. It is used principally for identifying sequential and concurrent states and events, which are casually or conditionally required to support and generate a specific effect. These effects are structured so that they lead to a specific outcome(s). Fault Tree Analysis is more rigorous than inductive methods in terms of the amount of data required and the complexity of causes, conditions, and effects. Fault Tree Analysis permits analysis of all environments, faults, occurrences, and their combinations that could cause and/or contribute to the occurrence of a defined undesired event.

The VRE/KRSV Management Group can incorporate deductive hazard analysis as needed or when deemed appropriate for the given potential hazard.

15.2.4 Hazard Tracking

All hazards are entered into KORS are tracked through resolution. The KORS System is used to maintain records of identified hazards and risks and the mitigation or elimination

of the identified hazards and risks throughout the life of the rail system. The system is also used to perform trend analysis, enabling the identification and resolution of potential system-wide hazards or deficiencies. All hazard tracking is maintained in accordance with FRA standards. Hazards identified by contractors are communicated with VRE or KRSV immediately and then incorporated into the hazard management process.

15.2.5 Hazard Tracking Log

VRE utilizes a Risk-Based Hazard Management Database that is separate from KRSV's KORS System. The database identifies category I or II hazards from the KORS System to be tracked to closure. Hazard reports are to be submitted to the VRE Safety & Security Manager. Any unique safety hazards not captured in the KORS system are collected and documented by the Safety & Security Manager for incorporation into the risk hazard analysis program. All hazards will be assessed and tracked in the database and stored in an electronic document management system. Incidents and hazards are analyzed for leading indicators of potential risk.

15.3 HAZARD CATEGORIZATION AND RISK MANAGEMENT

Risk is a subjective evaluation of the relative failure potential of a system or component and can be defined as the possibility of incurring a physical or personal loss or injury. Once hazards have been identified, they must be evaluated to determine the level of risk or associated impact they may have on the system. Generally, the greater the probability of a hazard causing injury or loss, the greater the risk, and subsequently the greater the need to resolve the hazard. The severity of the consequences the hazard may present must also be taken into consideration when evaluating the level of risk. Like probability, as the severity of the hazard consequences increases so will the level of risk and again, so will the need to resolve the hazard.

VRE and its contractors have adopted a system to assess levels of risk and to determine what action(s) must be taken to assess, correct, and document hazards and their associated risks. This risk assessment system is generally based off the U.S. Department of Defense military standard (MIL-STD) 882E. The system represents a qualitative calculation based on largely subjective judgments used to determine the risk associated with each hazard and thus the urgency for implementing corrective measures to eliminate or reduce risk to a level of acceptability. The risk assessment system meets FRA guidelines and has been incorporated into formal system safety analysis.

Risk assessment has two steps – evaluating hazard severity (categorizing the hazard) and evaluating hazard probability.

15.3.1 Hazard Severity

Hazard severity is a subjective determination of the worst case that could be anticipated to result from human error, design inadequacies, component failure or malfunction. Each level of severity is attributed both a physical description (i.e., fatality, injury, property

damage, etc.) and a monetary value. The categories of hazard severity shown in Table 13 are generally based on the MIL-STD-882E:

Table 13 - Hazard Risk Severity

Hazard Severity	
Category 1 Catastrophic:	Operating conditions are such that human error, design deficiencies, elements, subsystem or component failure or procedural deficiencies may cause death or major system loss and require immediate termination of the unsafe activity or operation.
Category 2 Critical:	Operating conditions are such that human error, subsystem or component failure or procedural deficiencies may cause severe injury, severe occupational illness or major system damage and require immediate corrective action.
Category 3 Marginal:	Operating conditions are such that they may result in minor injury, occupational illness or system damage and are such that human error, subsystem or component failures can be counteracted or controlled.
Category 4 Negligible	Operating conditions are such that human error, subsystem or component failure or procedural deficiencies will result in less than minor injury, occupational illness or system damage.

15.3.2 Hazard Frequency/Probability

Hazard frequency/probability is described quantitatively in potential occurrences per units of time, miles, trips/runs, or passengers carried or qualitatively as shown below. A hazard probability may be derived from transit system analysis, railroad operating experience, evaluation of VRE, VRE safety data, or historical safety data from other transit systems. The hazard frequency/probability levels shown in Table 14, are generally based on the MIL-STD-882E and are as follows:

Table 14- Hazard Probability

Hazard Frequency/Probability	
A Frequent	Likely to occur frequently to an individual item. Continuously experienced in the system.
B Probable	Will occur several times in the life of an item. Will occur frequently in the system.
C Occasional	Likely to occur sometime in the life of an item. Will occur several times in the system.
D Remote	Unlikely, but possible to occur in the lifetime of an item. Unlikely, but can be expected to occur in the system.
E Improbable	So unlikely to occur it can be assumed occurrence may not be experienced. Unlikely, but the possibility exists that it will occur in the system.

15.3.3 Hazard Risk Index

Hazard Risk Index (HRI) values are used in grouping individual hazards into hazard categories. Table 15 shows the hazard severity categories, probability and HRI values for priority for resolution and associated assessment.

Table 15 - Hazard Risk Categories, Frequency, and Index

HAZARD CATEGORIES				
	1	2	3	4
Frequency of Occurrence	Catastrophic	Critical	Marginal	Negligible
(A) Frequent	1A	2A	3A	4A
(B) Probable	1B	2B	3B	4B
(C) Occasional	1C	2C	3C	4C
(D) Remote	1D	2D	3D	4D
(E) Improbable	1E	2E	3E	4E
HAZARD RISK INDEX		CRITERIA BY INDEX		
HIGH: 1A, 1B, 1C, 2A, 2B, 3A		Unacceptable. Risk will be reviewed by VRE's CEO, KRSV's General Manager, and VRE's Safety & Security Manager. Risk must be mitigated. Mitigations to be reviewed and approved by VRE's CEO.		
SERIOUS: 1D, 2C, 2D, 3B, 3C		Unacceptable. Risk will be reviewed by VRE's CEO, KRSV's General Manager, and VRE's Safety & Security Manager. Risk must be mitigated. Mitigations to be reviewed and approved by VRE's CEO.		
MEDIUM: 1E, 2E, 3D, 3E, 4A, 4B		May be acceptable with review by VRE's Safety & Security Manager and an executive authority (KRSV General Manager, VRE Chief Engineer / Deputy CEO, VRE Director of Rail Operations, or VRE Director of Mechanical Operations) in coordination with the applicable SME(s). In some cases, risk reduction strategies may be implemented.		
LOW: 4C, 4D, 4E		Acceptable with review by KRSV's General Manager and VRE's Safety & Security Manager or named designee(s) in coordination with the applicable SME(s).		

15.4 HAZARD AND RISK RESOLUTION

Hazard and risk resolution are the corrective actions taken in response to the hazard identification and risk assessment process. Both time and resource restrictions determine the level of resolution that can be accomplished. VRE works with KRSV and other contractors to mitigate or eliminate the hazard. In all cases, VRE and their contractors

strive to first eliminate the hazard (if possible), and to then reduce its risks if it cannot be eliminated. If the risk cannot be eliminated or reduced, or if it is impossible or impractical to further mitigate the hazard, VRE management representatives may choose to accept the risk. In these cases, care is taken to ensure compliance with all applicable rules, procedures, policies, and regulatory requirements. Potential hazards that are accepted are discussed formally in the KRSV Management Safety Committee or Risk-Based Hazard Management Committee to ensure ample communication and consensus.

The primary methods of resolving a hazard can be categorized as either engineering or management controls. Engineering controls are changes that are made to the system to eliminate hazards or mitigate their risks. An example of an engineering control may be building a separate storage facility for hazardous chemicals, installing a protective barrier around rotating machinery or adding warning devices to a grade crossing. Management controls are changes made to the organization itself. An example of a management control may be posting signs or changing procedures to limit employee exposure to the hazard.

When possible, the following order of precedence is used by VRE to eliminate or control hazards and their associated risks. It is important to note, however, that a combination of several or all of the following may be used depending on the nature and extent of the hazard:

- ***Design for Minimum Risk*.** Design will attempt to eliminate hazards. If an identified hazard cannot be eliminated, its associated risk will be reduced to an acceptable level through design selection. This may be constrained by time, money, manpower, or other limitations.

- ***Incorporate Safety Devices*.** If the hazard cannot be eliminated or its risk controlled to an acceptable level, safety design features or devices will be used to reduce risk to an acceptable level.

- ***Provide Warning Devices*.** If neither design nor safety features nor devices can reduce the risk to an acceptable level, warning devices shall be used to detect the condition and to produce an adequate warning signal to alert individuals to the hazard. Warning signals and their operation shall be designed to minimize the probability of individuals reacting incorrectly to the signals and shall be standardized and similar.

- ***Develop Special Procedures and Training*.** If the hazard cannot be eliminated through design, or its associated risk adequately controlled through the implementation of safety features/devices or warning devices, special procedures and training shall be developed and implemented. The procedures shall be formally approved, and training provided to all affected staff. This is the least effective method of hazard resolution.

Regardless of the type of control used to eliminate the hazard or reduce its risk, VRE reevaluates the control method after its implementation to determine and verify its effectiveness.

16.0 TECHNOLOGY ANALYSIS AND IMPLEMENTATION PLAN

49 CFR § 270.103(r) Technology Analysis and Implementation Plan

VRE is developing and will implement a Technology Analysis and Implementation Plan in accordance with the requirements of 49 CFR Part 270.103(r). The Plan will establish procedures and processes designed to assist in identifying and analyzing current, new, and novel technologies to be considered for use in VRE's system. The Plan will highlight VRE's decision-making process with regards to analyzing the safety impacts, feasibility, costs, and benefits of implementing technologies. This includes following VRE's prescribed Risk-Based Hazard Management Program to perform hazard analyses to categorize potential items in terms of severity and probability and their associated risks. In this manner, VRE can better understand the implications of implementing new technologies and can prioritize and make better decisions with regard to technology procurements and implementation.

The technologies VRE will consider for review using the Technology Analysis and Implementation Plan include, but are not limited to, the following:

- Enterprise Resource Planning (ERP) systems
- Camera systems
- Processor-based technologies
- Electronically controlled pneumatic brakes,
- Positive Train Control (PTC) systems
- Sensitive document control systems

VRE will support its hosts, CSXT, Norfolk Southern, Amtrak, and VPRA, in considering technology that promotes safety around mainline track, signals, and train control systems. Technologies include, but are not limited to, the following:

- Rail integrity inspection systems
- Rail integrity warning systems
- Trespasser prevention technology
- Highway-rail grade crossing warning technology (highway-rail grade crossing are primarily handed through the VDOT's Railway-Highway Crossings (Section 130) Program)
- Switch position monitors and indicators

16.1 Technology Implementation Plan

The implementation plan and schedule for adoption of technologies can be found in Section 5.3 Milestones for Implementing the SSP. The Technology and Implementation Plan will consist of the following key stages shown in Table 16.

Table 16 - Technology Implementation Key Stages

Stage Number	Key Stage	Description of Key Technology Stages
1	Identify	Identify current or new technologies that will mitigate or eliminate the hazards and resulting risks identified by the Risk-Based Hazard Management program.
2	Analyze	Analyze the safety impact, feasibility, and costs and benefits of implementing the technologies identified during Stage 1.
3	Implement	Implement technologies identified during Stage 2 as appropriate

The Key Technology Stages will be developed further within the 36-months implementation of the VRE SSP and will be updated in the annual revision of the VRE SSP.

16.2 Positive Train Control (PTC)

VRE has implemented a fully operational, signals-based PTC system consistent with the requirements of its Technology Analysis and Implementation Plan and the Positive Train Control Enforcement and Implementation Act of 2015, Public Law 114-73, 129 Stat. 576-82 (Oct. 29, 2015), and 49 CFR 236.1005(b)(7). The PTC system was installed by Wabtec Railway Electronics (WRE).

17.0 SAFETY ASSURANCE

49 CFR § 270.103(s) Safety Assurance

Safety assurance involves the development and implementation of processes to monitor safety performance. This entails identifying and determining the causes and implications of sub-standard performance and eliminating or mitigating these causes. Safety Assurance activities include:

- Investigating accidents and incidents to identify root causes and to determine why they occurred;
- Developing and maintaining formal activities to assess and control safety risks in operations;
- Monitoring and auditing operational and maintenance processes, including those of contractors;
- Monitoring the effectiveness of corrective action plans;
- Managing processes that enable employees to report hazards;
- Developing and maintaining formal activities to identify changes within the organization that may affect the provision of services; and
- Following processes to ensure safety performance is maintained before implementing changes

17.1 MANAGEMENT OF CHANGE

Effectively evaluating and managing the impacts of changes on the system is essential to ensuring ongoing safety performance. Formal processes have therefore been developed for identifying and evaluating changes within the organization before they occur to ensure system safety is maintained. This includes ensuring that all changes and modifications made to VRE's systems, operations, services, facilities, equipment, vehicles, and other properties that may impact or be affected by the SSP are systematically planned for, evaluated, approved by appropriate parties, and documented. A similar methodology would be applied to changes made to policies, plans, rules, procedures and other documentation.

17.2 CONFIGURATION MANAGEMENT

VRE's configuration management process establishes a method for formally reviewing and approving proposed modifications and changes to ensure the modification (1) is compliant with applicable Federal, State, and Local regulations; (2) is compatible with and consistent throughout all existing policies, procedures, and rules; (3) will not reduce the safety and hazard controls already in place on the system; and (4) will not introduce new hazards to the system. This includes creating and maintaining operating, maintenance, and training materials used to support the operations and maintenance of VRE.

Should a change be made, the configuration management process is designed to effectively control the arrangement of VRE's operations and services to ensure

compliance with approved technical criteria and requirements, as well as evaluate and control safety risks. The process establishes and documents the authority needed to make configuration changes, the means for incorporating these changes in all appropriate documentation, and the procedure for ensuring that all necessary business units are aware of such changes. It also assures a systematic and comprehensive review and approval process occurs before changes are made.

Configuration management of facilities, systems, vehicles and equipment begins during the initial project development and design phases and extends through final design, construction, start-up, and operations, concluding with deactivation of the facility, system, vehicle or equipment. This includes creating construction plans and specifications, planning for procurements of vehicles, systems, equipment, components and services, and managing contract change orders.

Configuration management activities as they pertain to VRE, and its contractor operations are carried out by each of the individual departments within the organization and by the applicable managers of those departments. VRE shall maintain a central electronic and/or hardcopy library of documentation for the organization.

The Chief Executive Officer or his/her designee is primarily responsible for configuring and disseminating modifications made to the SSP. They also must determine, based on the extent of the change or modification, whether individual or group training may be required to ensure all personnel fully understand the change or modification as well as their responsibilities as they relate to the change or modification.

17.3 MANAGING SAFETY IN SYSTEM MODIFICATIONS

Due to the contractual and operational relationships between VRE, Amtrak, CSXT, and Norfolk Southern, the host railroads are responsible for assuring that all system modifications and changes to the rail system are reviewed according to their own approval processes and lease agreements.

VRE's systems and operations are regularly modified to maintain compliance with Federal, State, and Local regulations and ensure customers are continually provided with a high level of service. System changes and modifications may also result from inspections, employee observations, post-accident/incident investigations, internal and external audits, and/or safety data analysis. Changes and/or modifications that do not require formal safety certification, including temporary changes, that have the potential to adversely impact customer, employee, public, and/or system safety, may still be subject to the hazard management program. Such changes and modifications must be accomplished in a controlled manner to ensure that safety is incorporated into the project designs, plans, and procedures developed to implement the system change or modification.

The process begins as early as possible in the project life cycle. For each proposed change or system modification, the appropriate VRE and/or KRSV managers review the

scope of the work to be completed and establish the requirements for design reviews and project tracking and reporting. The project team also determines the resources required to perform the work, including funding, equipment, consultants, contractors, and other departments and personnel. The performance of these types of analyses may require the joint efforts of multiple disciplines and personnel, or the outside support and expertise of contracted personnel.

Design safety requirements must be accurately identified and included in project specifications and work plans prior to the start of the project, or the procurement of services, materials, or equipment. Examples of safety requirements include:

- Inclusion of safety related engineering controls within the design
- Hazardous materials and chemical storage, handling, and use
- Materials compatibility
- Equipment and systems compatibility
- Vehicle and equipment safety
- Fire protection and life safety
- Occupational safety and health

In establishing a safety specification review for each system modification, the appropriate managers for that project ensure adherence to the applicable safety requirements of all relevant outside agencies and organizations. The specification also provides for the appropriate participation of all other relevant disciplines within VRE and the participation of its contractors where appropriate. The safety specification review process applies to the following:

- Changes to safety-critical processes or functions
- Major construction projects
- Large equipment purchases
- New capital acquisitions and changes or modifications to major equipment or infrastructure

17.3.1 Approval Process

The applicable VRE and/or KRSV department is responsible for overseeing the review of a particular System Modification. The VRE CEO and Safety & Security Manager along with other VRE/KRSV Management are responsible for the approval of a particular System Modification throughout each phase of the System Modification project, beginning with the preliminary design review process. This requires:

- Reviewing applicable regulations
- Conducting site visits as required
- Reviewing technical specifications
- Performing various types of engineering analyses as required

- Completing Safety Risk Assessments and mitigation as required

The approval for low-level system modifications that do not have any safety implications can be made at the VRE and/or KRSV management level. However, for larger scale system modifications, representatives from all affected departments must be involved in the review process. Affected departments may include but are not limited to Project Implementation, Information Technology, Operations, Safety/Security, Transportation, Mechanical, and Facilities.

17.3.2 Notification of the Change

Once the proposed change or modification has been thoroughly evaluated and approved, work may begin. All parties, departments and personnel that are affected by the modification are notified through the following methods:

- Email
- Formal meetings
- Rule book revisions
- Bulletins posted in common areas
- Contracts
- New and refresher training classes
- Applicable manuals
- Other means deemed necessary

All parties, departments, and personnel affected by the configuration change are notified of the modification prior to the start of work and are kept apprised of the implementation progress throughout the course of the project. Depending on the extent of the modification, an inspection and testing program may be established to verify that work has been done and modifications have been made in accordance with the technical specifications. Tests may include field testing of vehicles or structural evaluations. Once the modifications are complete, the responsible department is tasked with monitoring and evaluating the effects the modification has had on the system or operation. All system modifications must be thoroughly documented.

17.4 SAFETY CERTIFICATION

The safety certification process as outlined in the FTA Handbook will be conducted for new VRE projects and subsequent FTA funded major projects. The certification process ensures that safety concerns & hazards are addressed prior to the initiation of major extensions/rehabilitation projects, modifications of the existing system, or vehicle/equipment replacements. VRE follows the FTA definition of a major capital project as a capital project costing $300 million or more that receives $100 million or more in Federal financial assistance. However, non-FTA projects will be certified through VRE

established procedures that incorporate components of the FTA process but consider other factors specific to those projects.

Safety certification is a multiphase process designed to verify that all planned safety activities are completed and properly documented prior to revenue operations or the start of services related to an acquisition or system modification; safety requirements included in contract specifications are properly interpreted, designed, and incorporated into the project; safety-related plans, procedures, and training materials related to the project are reviewed for consistency and compatibility with upgrades, changes, or modifications made throughout the project; and, new documentation is developed, if necessary, and approved prior to the start of revenue service.

VRE's safety certification process includes hazard identification, analysis, and mitigation across the functions of System Safety, Fire/Life Safety, Occupational Safety, and Public Safety. The process is used to ensure that safety concerns and hazards are adequately addressed prior to the initiation of passenger operations for new start projects and subsequent major projects to extend, rehabilitate, or modify the existing system, and to replace vehicles and equipment. The process also applies to all other projects determined by VRE and KRSV Management to be of sufficient significance to require formal safety certification.

Safety Certification requires the coordination of many participants including representatives from a variety of departments such as Project Implementation, Facilities, Operations/Communications, Information Technology, Safety/Security, Transportation, and Mechanical Operations. Additional participants often include engineering contractors, construction contractors, equipment vendors, suppliers, local government representatives, and other applicable stakeholders. In some cases, qualified consulting services may be retained to perform and administer the Safety Certification Program.

VRE is developing and will implement a Safety Certification Plan. The Plan will outline the specific processes designed to eliminate or reduce project risks to the lowest possible level. Because VRE often utilizes contractors in the planning, design, and construction process, a strong emphasis is placed on selecting the best qualified service providers through a formal solicitation process. VRE contractors are required to comply with all regulations applicable to the service that they provide. Safety certification activities are project-specific and tailored to the risks associated with a given project.

17.5 INTERNAL SAFETY AUDITING AND PERFORMANCE MONITORING

VRE's process for monitoring the performance of its SSP begins with regularly monitoring progress toward achieving performance targets and indicators as identified in Section 2.0 of this Plan. On a monthly basis, VRE collects and analyzes program data to determine if performance targets are being met. Progress is discussed with VRE and KRSV's management team, highlighting areas of concern where targets may have been missed, as well as areas where targets are being surpassed. All instances in which targets are

not being met are discussed to determine probable causes and develop and implement corrective actions as necessary to improve performance. These informal discussions take place at the VRE/KRSV Monthly Management Meeting.

VRE is currently implementing an Internal Safety Audit Program designed to measure the on-going effectiveness of the SSP and determine the extent to which departments, personnel and contractors are fulfilling their responsibilities under the Plan. The ISA program is intended to:

- Verify on an on-going basis that safety processes have been developed and implemented in accordance with the SSP Plan;
- Assess the effectiveness of the safety processes;
- Identify process deficiencies, potential hazards and system risks;
- Verify that prior corrective actions are being tracked for closure;
- Evaluate their effectiveness; and
- Recommend system safety improvements.

The auditing program is administered through formal internal safety reviews and informal operational reviews conducted as a part of day-to-day activities. Internal safety reviews entail an annual review of at least one-third of the SSP elements, executed each year, for three years. At the end of the three-year cycle, after all SSP elements have been reviewed, the process is completed, and the cycle begins anew the following year.

The CEO or his/her designee creates formal auditing program schedules and the actual review dates are coordinated with the department under review. Formal checklists are created to support the review process. The reviews may incorporate preventive maintenance inspections, general inspections, industrial hygiene surveys, environmental surveys, safety inspections, and reviews of the safety policies and procedures.

The results of each internal review/audit will be provided in an audit report that lists a summary of the findings, and details recommendations to correct open items. Open findings will be documented in KORS and VRE's SharePoint system, where all findings, recommendations, corrective actions, responsible departments and personnel, estimated closure dates and status information are also maintained.

The CEO and his/her designee will issue the Internal Safety Audit schedule each year to those departments scheduled for a review during that year. At least 30 days' notice is given to each department detailing the specific dates and times of the Internal Safety Audit along with a request for specific documentation to be evaluated during the review. Nonprofit employee labor organization representatives are also provided with this information at least 30 days prior to the audit.

Results from the annual Internal Safety Audit Program will be documented in a report submitted to the CEO. The report summarizes the results of the audits performed over the preceding year, identifies deficiencies or instances of noncompliance identified during the audits, and outlines the corrective actions being taken to address the deficiencies.

The CEO or his/her designee is responsible for tracking all corrective actions to completion.

VRE also completes an SSPP Annual Assessment in accordance with 49 CFR Part 270.303. This assessment seeks to evaluate the program from a higher level than the Internal Safety Audit program. The purpose of this assessment is to determine the extent to which:

(1) The safety system program is fully implemented;
(2) The operation is in compliance with the implemented elements of the approved system safety program; and
(3) The operation has achieved the goals set forth in 49 CFR Part 270.103(c)

Within 60 days of completing the SSPP Annual Assessment a copy will be submitted to the FRA along with specific improvement plans. VRE's CEO and Safety & Security Manager will certify the results.

18.0 SAFETY CULTURE

49 CFR § 270.103(t) Safety Culture

Safety culture is the product of individual and group values, attitudes, competencies, and patterns of behavior that determine commitment to safety management. In addition, the four key attributes of a positive safety (based on James Reason's work on safety culture) culture are:

- Reporting - encouraging employees to divulge information about hazards that they encounter
- Just - rewarding employees for providing essential safety-related information, but holding employees accountable for deliberate violations of the rules
- Flexible - adapting to changing demands and reacting to events
- Learning - willing to change based on safety indicators and hazards uncovered through assessments, audits, data, and incidents.

18.1 Measure of Safety Culture

VRE measures the success of its safety culture through several means including:

- Regular reviews of procedures, programs, plans, inspections, and other documentation. VRE and KRSV believe that close oversight and assessment of documentation can provide insight into and understanding of the safety process, and the effectiveness of communications, safety committees, investigations, and recognition programs.

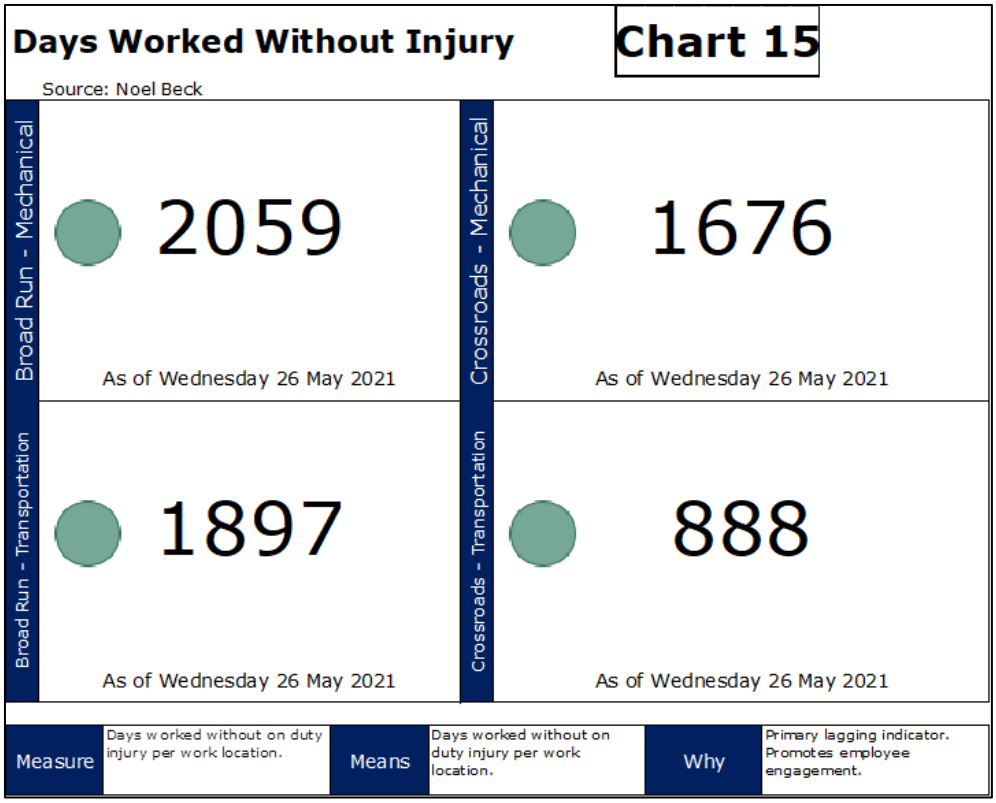
- Regular and robust employee safety communications. Employee messaging is a primary way of setting a positive path for safety culture. Communication ensures that employees know and understand their vital role in safety, are knowledgeable and aware of the requirements of the SSP, and promote a positive safety culture. KRSV employees are trained to have job briefings to discuss operational changes and the potential for any new hazards related to changing work activities and conditions.

- On-site face-to-face interactions. VRE and KRSV staff will play a visible and positive role in ensuring that its employees, contractors, and the public see the commitment to safety on a daily basis. Employees and the public will be given the opportunity to talk about their safety experiences, concerns, and outlook. If needed, special safety committees and/or working groups will be formed to addresses any specific safety concerns.

- Safety Data Analysis. VRE and KRSV will ensure the robust collection and analysis of data on a continuous basis to establish reasonable performance measures related to its goal of achieving a positive safety culture. An example of key safety

data is shown in Figure 25. This also includes meeting the outlined four goals identified in section 2.3 of this Plan.

Figure 25 - Example of the Days Worked Without Injury Chart



18.2 Employee Awards and Recognition

VRE & KRSV encourage employee participation in safety management by rewarding actions and ideas that improve employee and customer safety and health. KRSV has three levels of recognition for safety which consist of:

- Safety events for all employees (Quarterly)
- Work group recognition for no injuries or rule violations (365-day period)
- Individual recognitions for no injury or rule violations

KRSV individually recognizes employees for safety at quarterly safety events. KRSV recognizes all employees with safety dinners during the quarterly safety events. KRSV also has a corporate safety week which is celebrated with employees throughout the organization.

GLOSSARY

Accountability: What an individual is required to achieve, directly or through those to whom the individual has delegated responsibility, with regard to the operation of the Safety Management System.

Amtrak: The National Railroad Passenger Corporation, doing business as Amtrak, is a passenger railroad service that provides medium and long-distance intercity service in the contiguous United States and to nine Canadian cities.

Consequence: The potential outcome(s) of a hazard.

Corrective Action Plan: A plan developed to describe the actions to be taken to minimize, control, correct, or eliminate hazards, identifying the schedule and responsible parties for implementing these actions.

CSXT: A Class I railroad operating in the eastern United States and the Canadian provinces of Ontario and Quebec. Headquartered in Jacksonville, Florida, the railroad operates approximately 21,000 route miles (34,000 km) of track. The C stands for Chessie Railroad; S stands for Seaboard Railroad, and X is for merger.

Hazard: Any condition or set of conditions, internal or external to the system or system operation which, when activated, can cause injury, illness, death, or damage including loss of equipment or property, or severe environmental damage.

Hazard Analysis: Formal activities performed to analyze potential consequence(s) of hazards during operations related to provision of services.

Hazard Identification: Formal activities performed to identify hazards during operations related to provision of services.

Keolis (KRSV): A multinational transportation company that operates public transport systems. The company manages bus, rapid transit, Tram, coach networks, rental bikes, car parks, water taxi, cable car and trolleybus services.

Management System: An organizational structure and its resources that support data-based, strategic decision making by an organization's senior management.

Manual of Uniform Traffic Control Devices (MUTCD): Defines the standards used by road managers nationwide to install and maintain traffic control devices on all public streets, highways, bikeways, and private roads open to public travel

Maryland Area Regional Commuter Train Service (MARC): A commuter rail system comprising three lines in the Baltimore–Washington metropolitan area. MARC is administered by the Maryland Transit Administration (MTA), a Maryland Department of

Transportation (MDOT) transportation business unit and is operated under contract by Bombardier Transportation Services USA Corporation and Amtrak over tracks owned by CSX Transportation (CSXT) and Amtrak.

Norfolk Southern: A Class I freight railroad in the United States, and is the current name of the former Southern, Norfolk & Western and Conrail Railroads. Headquartered in Atlanta, Georgia. The company operates 19,420 route miles (31,250 km) in 22 eastern states, the District of Columbia, (and has rights in Canada over the Albany to Montréal route of the Canadian Pacific Railway). The most common commodity hauled on the railway is coal from mines in Indiana, Kentucky, Pennsylvania, Tennessee, Virginia, and West Virginia. The railway also offers the largest intermodal network in eastern North America.

Northern Virginia Transportation Commission (NVTC): An independent agency in the Commonwealth of Virginia formed to promote and improve transportation. It covers the Counties of Arlington, Fairfax, Loudoun, and the Cities of Alexandria, Falls Church, and Fairfax.

Passenger: A person who is on board, boarding, or alighting from a transit vehicle for the purpose of travel.

Potomac and Rappahannock Transportation Commission (PRTC): An American public transportation system in Prince William County, Virginia, Stafford County, Virginia, and Spotsylvania County, Virginia, plus two adjacent independent cities, Manassas and Manassas Park. Services provided by PRTC include OmniRide, OmniRide Local, and OmniRide Ridesharing Service operating in Prince William County, Manassas, Manassas Park, and Stafford County. Spotsylvania County's membership is solely based on a membership requirement due to VRE operations in the county and the state aid that comes with VRE.

Process: A systemic and principled series of activities directed to some end.

Responsibility: Functions and duties that describe the purpose of what an individual is required to do, with regard to the operation of the Safety Management System**.**

Risk Control: Activities and resources to reduce or eliminate the effects of hazards.

Safety: The state in which the potential of harm to persons or property damage during operations related to provision of services is reduced to and maintained at an acceptable level through a continuing process of hazard identification and safety risk management.

Safety Assurance: Processes within the SSP that function systematically to ensure the performance and effectiveness of safety risk controls and that the organization meets or exceeds its safety objectives through the collection, analysis, and assessment of information.

Safety Deficiency: A condition that is a source of hazards and/or allows the perpetuation of hazards in time.

Safety Management System (SMS): The formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of safety risk controls. It includes systematic procedures, practices, and policies for the management of safety risk.

Safety Objective: A high-level, global, generic and non-quantifiable statement regarding conceptual safety achievements sought to be accomplished by an organization regarding its safety performance.

Safety Performance: An organization's safety effectiveness and efficiency, as defined by safety indicators performance and safety performance targets, measured against the organization's safety objectives.

Safety Performance Indicator: A data-based, quantifiable parameter used for monitoring and assessing safety performance.

Safety Performance Monitoring: Activities aimed at the quantification of an organization's safety effectiveness and efficiency during service delivery operations, through a combination of safety performance indicators and safety performance targets.

Safety Performance Target: A planned or intended, quantifiable improvement for safety performance indicator over a given period.

Safety Policy: The public transportation system's documented commitment to safety, which defines its safety objectives and the accountabilities and responsibilities of its employees in regard to safety.

Safety Promotion: A combination of training and communication of safety information to support the implementation and operation of the SSP in the organization.

Safety Risk: The assessment, expressed in terms of predicted probability and severity, of the consequence(s) of a hazard taking as reference the worst foreseeable – but credible – situation.

Safety Risk Evaluation: Refers to formal activities performed to determine safety risk probability and severity characteristics, such as the probability and severity of potential consequence(s) of hazards, and to assess the tolerability of such consequence(s).

Safety Risk Management: A process within the Safety Program composed of describing the system, identifying the hazards, and analyzing, assessing and controlling risk.

Safety Risk Mitigation: Formal activities to control the probability and/or severity of the potential consequence(s) of hazards during operations related to provision of services.

Safety Risk Probability: The likelihood that a consequence might occur, taking as reference the worst foreseeable – but credible – condition.

Safety Risk Severity: The anticipated effects of a consequence, should it materialize, taking as reference the worst foreseeable – but credible – condition.

System Safety: The application of operating, technical and management techniques and principles to the safety aspects of a system throughout its life to reduce hazards to the lowest practical level through the most effective use of available resources.

Tool: An instrument or contrivance used in support of an activity, in doing a certain work, or in producing a certain result.

Virginia Department of Rail and Public Transportation: A state agency of the Commonwealth of Virginia with a mission to improve the mobility of people and goods while expanding transportation choices in the Commonwealth. The three primary areas of VDRPT activity are the state's railroads, public transportation, and commuter services. The Department of Rail and Public Transportation is a state agency reporting to the Virginia Secretary of Transportation and the Commonwealth Transportation Board.

Virginia Department of Transportation: A state agency of the Commonwealth of Virginia. The agency is responsible for building, maintaining, and operating the roads, bridges, and tunnels in the commonwealth. It is overseen by the Commonwealth Transportation Board, which has the power to fund airports, seaports, rail, and public transportation.

Virginia Passenger Rail Authority: A new state agency of the Commonwealth of Virginia. The agency is responsible for promoting, sustaining, and expanding the availability of passenger and commuter rail service in the Commonwealth. The agency is responsible for all administrative and fiduciary responsibilities for Virginia's state-supported passenger rail services, including providing funding to VRE, and administering all capital expansion projects, infrastructure, and land acquisitions related to the Transforming Rail in Virginia initiative.

VRE Property: Any location owned or controlled by VRE

APPENDIX A – LIST OF STATIONS

#	Station Name	VRE Line Name	Address	Operating Railroad	Railroad Milepost
1	Union Station	Manassas & Fredericksburg	50 Massachusetts Ave., N.E. Washington, D.C. 20002 - 4285	Amtrak	137.1
2	L 'Enfant	Manassas & Fredericksburg	6th and 7th Street at C Street, SW Washington, DC 20024	CSX/VPRA	CFP 111.9
3	Crystal City	Manassas & Fredericksburg	1503 Crystal Drive Arlington, VA 22202	CSX/VPRA	CFP 109.1
4	Alexandria	Manassas & Fredericksburg	110 Callahan Drive Alexandria, VA 22301	CSX/VPRA	CFP 105.2
5	Franconia-Springfield	Fredericksburg	6880 Frontier Drive Springfield, VA 22150	CSX/VPRA	CFP 97.9
6	Lorton	Fredericksburg	8990 Lorton Station Boulevard Lorton, VA 22079	CSX/VPRA	CFP 93.3
7	Woodbridge	Fredericksburg	1040 Express Way Woodbridge, VA 22191	CSX/VPRA	CFP 88.9
8	Rippon	Fredericksburg	15511 Farm Creek Drive Woodbridge, VA 22191	CSX/VPRA	CFP 85.7
9	*Potomac Shores (Future)*	*Fredericksburg*	*TBD*	*CSX*/VPRA	*TBD*
10	Quantico	Fredericksburg	550 Railroad Avenue Quantico, VA 22134	CSX/VPRA	CFP 78.7
11	Brooke	Fredericksburg	1721 Brooke Road Stafford, VA 22554	CSX/VPRA	CFP 68.0
12	Leeland Road	Fredericksburg	275 Leeland Road Falmouth, VA 22405	CSX/VPRA	CFP 63.4
13	Fredericksburg	Fredericksburg	200 Lafayette Boulevard Fredericksburg, VA 22401	CSX/VPRA	CFP 58.8

#	Station Name	VRE Line Name	Address	Operating Railroad	Railroad Milepost
14	Spotsylvania	Fredericksburg	9442 Crossroads Parkway Fredericksburg, VA 22408	CSX/VPRA	CFP 53.2
15	Backlick Road	Manassas	6900 Hechinger Drive Springfield, Virginia 22151	Norfolk Southern	15.00
16	Rolling Road	Manassas	9016 Burke Rd. Burke, Virginia 22015	Norfolk Southern	19.17
17	Burke Centre	Manassas	10399 Premier Court Burke, Virginia 22015	Norfolk Southern	21.41
18	Manassas Park	Manassas	9300 Manassas Dr. Manassas Park, Virginia 20111	Norfolk Southern	30.48
19	Manassas	Manassas	9451 West St. Manassas, Virginia 20110	Norfolk Southern	32.65
20	Broad Run	Manassas	10637 Piper Lane Bristow, Virginia 20136	Maintained by VRE Forces	N/A

APPENDIX B – ORGANIZATIONAL CHART

APPENDIX C – SENIOR RAILROAD OFFICIALS