Appendix F

Version: 10/1/2021

New Jersey Transit River LINE

Description and Contacts

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River LINE

Formerly known as Southern New Jersey Light Rail Transit System (SNJLRTS)

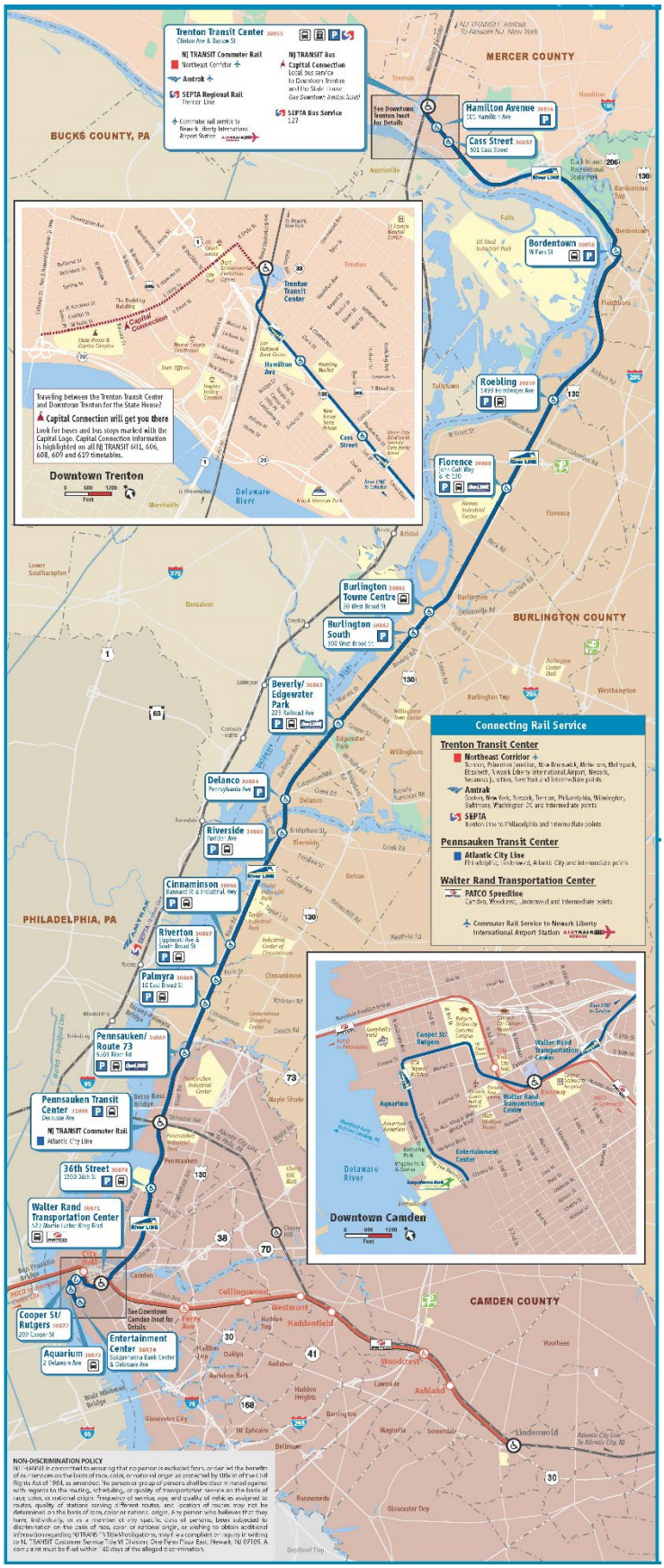
System Description

Overview

The River LINE is a light rail transit system operating for a distance of approximately 34 miles between the cities of Trenton and Camden, New Jersey. The River LINE provides service to major activity centers including the Waterfront Entertainment Center, the Adventure Aquarium, Rutgers University, Cooper Medical Center, and Walter Rand Transportation Center in Camden City, Delaware River waterfront towns in Burlington County; Waterfront Stadium, Sovereign Bank Arena, and the Trenton Transportation Center in Trenton.

The route is a mix of historic and new, urban and suburban, residential and commercial/ industrial corridors. The alignment has 72 grade crossings, 21 station stops, and 23 rail bridges. The River LINE service operates using lightweight diesel-electric railcars, commonly referred to as Light Rail Vehicles (LRVs). Each LRV is configured to provide seating for 90 Customers and space for an additional 94 standees. Individual cars can be connected into trains with all cars being controlled by the operator in the first car. A train length of two or more cars is technically feasible, but in practice, train length is limited to two LRV s because of station platform length limitations, and other operating considerations such as operating in the street in Camden.

The River LINE runs mostly along a lightly-used freight railroad line that has been upgraded for passenger service with new track and stations. It uses self-propelled diesel-electric cars built by a partnership of Stadler Rail AG and Bombardier Transportation. Similar cars are used on some European branch lines. Therefore one might at first consider this to be a lighter version of the commuter rail lines that NJT also operates. However, the Stadler/Bombardier cars do not meet U. S. Federal Railroad Administration (FRA) standards for crashworthiness, and are not allowed to run in mixed traffic with normal railroad trains in the U.S. They must be used either on lines that are separated from the normal railroad system, or during completely separate time periods from normal railroad trains. Therefore, on the River LINE, passenger service operates during the day and early evening, while freight service operates only at night (with some variation on weekends). Therefore, the River LINE is considered to be a light-rail operation similar to those that have been built in many U. S. cities since the 1970s. It is the first light rail line in the U. S. to use on-board diesel-electric power instead of electric power from overhead wire or third rail.


Trenton Transit Center
NJ TRANSIT Commuter Rail
Northeast Corridor
Amtrak
SEPTA Regional Rail
Trenton Line
NJ TRANSIT Bus
Capital Connection
SEPTA Bus Service
127
BUCKS COUNTY, PA
MERCER COUNTY
Hamilton Avenue
Cass Street
Bordentown
Roebling
Florence
Burlington Towne Centre
Burlington South
BURLINGTON COUNTY
Beverly/ Edgewater Park
Delanco
Riverside
Cinnaminson
Riverton
Palmyra
Pennsauken/ Route 73
Pennsauken Transit Center
36th Street
Walter Rand Transportation Center
Cooper St/ Rutgers
Entertainment Center
Aquarium
PHILADELPHIA, PA
CAMDEN COUNTY
Downtown Trenton
Capital Connection will get you there
Look for buses and bus stops marked with the Capital Logo. Capital Connection information is highlighted on all NJ TRANSIT 601, 606, 608, 609 and 619 timetables.
Delaware River
Downtown Camden
Connecting Rail Service
Trenton Transit Center
Northeast Corridor
Amtrak
SEPTA
Pennsauken Transit Center
Atlantic City Line
Walter Rand Transportation Center
PATCO Speedline
Commuter Rail Service to Newark Liberty International Airport Station
NON-DISCRIMINATION POLICY

FRA Authority

As the River LINE right-of-way (ROW) is considered part of the General System of Railroads, Federal Railroad Administration (FRA) Regulations are considered of primal importance. 49 CFR parts 200-299 apply to the joint territory on the River LINE ROW, as modified by approved FRA waivers.

Under the terms of the FRA Temporal Separation Waiver, the River LINE is also subject to oversight by the New Jersey Department of Transportation (NJDOT). The waiver places the River LINE under FTA Regulation, 49 CFR, Part 674. This regulation requires each State with rail fixed guideway transit systems to develop and implement standards and procedures for an Agency Safety Plan (ASP).

In compliance with this regulation, NJ TRANSIT, as the Owner of The River LINE, has delegated responsibility for development and implementation of a comprehensive ASP to SNJRG

Physical Plant & Systems

The River LINE's major maintenance, operational control, train storage, and management functions are housed in the Camden Light Rail Complex (CLRC) adjacent to passenger-only right-of-way south of CP 45. Most of the remaining route to Trenton is on joint-use Temporally Separated (passenger and freight) right-of-way consisting of single track with passing sidings.

The River LINE operates on track shared with ConRail freight operations from MP 4.5 in Pennsauken to MP 32.9 in Trenton. Additionally, a section north of Cass St Station on #1 track and #2 track north of CP 329 to Trenton Station is restricted to passenger-only operation.

A facility for overnight layover and minor servicing of two LRVs is located in Burlington (known as the Burlington City Yard), at the former Burlington Generation Siding. A third facility, for storage, overnight layover and minor servicing of eight LRVs (known as the Trenton Layover Facility), is located between the Trenton and Hamilton Avenue stations. Both of these facilities are equipped with trackside power, so vehicles can be stored overnight in cold weather with the diesel engine shut off.

Haines Yard located at MP 6.6 on #1 tract north of Pennsauken/Route 73 station for the storage of maintenance of way (MOW) equipment. The MOW yard includes storage for two Jackson 6500 Tampers, a ballast regulator, and seven ballast hopper cars.

LRV Vehicles

The River LINE diesel-electric rail vehicle is a GTW 2/6 lightweight diesel-electric railcar and is not certified for use in tunnels. The LRV is double articulated being 102 ft. 6 in. long, 9 ft. 10 in. wide, and 12 feet 10 inches high measured from top of rail. The LRV combines low and high level seating areas. The Operator makes use of mirrors for side visibility. There are two (2) doors per side, each vehicle has a customer to Operator communication system, spaces for wheelchairs/strollers, and bicycle racks for a maximum of three (3) bicycles in each vehicle.

The vehicle is configured to provide seating for 90 Customers with room for additional 94 standees (crush load 184 Customers). The vehicle is ADA compliant. Individual cars can be connected into trains with all cars being controlled by the operator in the lead car. Cars and trains can operate bi-directionally. The body of the LRV has three sections (A, B and C car) and three trucks, the center truck being directly mounted to the center body section. The center section (C Car) contains the diesel electric propulsion system.

The vehicle is equipped with several forms of braking. At higher speeds, braking is achieved by using the resistance of the traction motors, known as dynamic braking. This form of braking, having no frictional contact, produces less wear and heat, and is blended with mechanical disc brakes as lower speeds are reached until all braking effort is applied by the discs as the vehicle comes to a halt.

In the event of an emergency requiring maximum braking effort, the friction and dynamic brakes can be supplemented by the track brake, which is a bar arrangement, magnetically applied to the running rail surface. Additionally, to avoid adhesion problems, sand can be selectively applied beneath the vehicle wheels. Slip slide sensing is also built into the vehicle's systems to mitigate low wheel/rail adhesion problems that can occur under some climatic conditions.

Safety and Security Features of the Light Rail Vehicle

Safety and Security Features of the Light Rail Vehicle include various features that provide for operator and customer safety, including:

- Automatic Train Stop - Activates LRV brakes in response to trackside magnetic train stop devices at Stop signals.
- "Dead Man" Controls -Activates LRV brakes if the operator is incapacitated.
- CCTV with remote monitoring, on-board DVR and download capabilities. Six cameras in each passenger compartment, one observing the LRV operator and one forward-facing.
- Door Circuitry I Sensitive Door Edges - The doors open if two edges do not close due to an obstruction.
- Manual Door Release Controls-The LRV's have manual door releases on the interior and exterior, which enable the doors to open, if required in an emergency.
- Handholds And Stanchions - Provides added stability for Customers while moving about the LRV.
- Anti-Climbers -Increased protection during an LRV to LRV/Stop bumper collision.
- Safety Glazing-To prevent injury to the Customers because of splintering of glass.
- Normal And Emergency Lighting - Automatic switch over from normal lighting to emergency lighting during an emergency.
- Train Radio and Customer Intercom, are ways the operator can communicate with the customers in an emergency from the LRV.
- Materials Selected For Resistance To Flame Spread And Smoke Generation.
- Door interlocks
- Car equipped with turn signals
- Fire extinguisher in each cab
- Coupling capability to tow a disabled train
- Event recorder
- LRV's are operated as a single unit when coupled into a multi car consists.
- Silent Alarm for communicating to the Control Center in an onboard security situation
- Running and railroad lights

Track

The primary purpose of the track system is to provide support and guidance to trains. The guidance also includes train routing at interlockings.

LRT and Joint Use track is constructed of continuous welded rail. Freight only track is constructed of jointed rail.

There are three types of track and appurtenances utilized on the River LINE system. These are:

- Ballasted Track, consisting of Re 115 AREMA rail installed on ties (monoblock concrete or wooden). The rail is fastened to the tie using Pandrol clips. This type of track is utilized in the dedicated right-of-way mainline and sidings.
- Slab (Direct) Fixation Track, consisting of Re 115 AREMA rail fastened directly to cast in place track plinths. The rail rests on resilient plates, which in tum are fastened to the plinths

by the application of bolts. This type of track is used in selected areas including bridge structures.

- Embedded Track, consisting of Re 115 AREMA rail, which is directly supported in concrete and then encased in a second pour. Special effort is made to assure isolation of the rail, through the use of a rubber boot. This type of track is primarily used in the street running section. Slab Track and Embedded Track may appear to be similar; however, they are entirely different in their construction and their methods of bearing trainloads.

Related sub-system elements of the track include special appurtenances within interlockings such as turnouts and derails. Other special elements include guarded curve elements and station slab track segments.

The switches at interlockings and crossovers are dual control. Normally they are power operated by Central Control. In the event of a loss of power, these switches can be manually operated under the direction of Central Control. The switches into freight sidings and freight only track are electrically locked and manually operated.

Stations

The River LINE has 21 station stops, located at grade. There are four station stops located in the street running section in Camden; WEC (Waterfront Entertainment Center), Aquarium, Cooper Street / Rutgers, and Walter Rand Transportation Center (WRTC). WEC and WRTC Stations are set in dedicated LRT only sections. Aquarium and Cooper Street / Rutgers stations are positioned on either side of the street (Delaware A venue and Cooper's Street respectively) with road vehicle and LRT traffic passing between the platforms. The remaining station stops are located on the dedicated railroad right-of-way.

The passenger stations have side or center platforms, not more than 200 feet long, with a height of 23 inches above top of rail. Station stops have simple shelters close to the center of each platform. Minimal platform end ramps provide ADA mandated access to the platforms. All station platforms are at the same height as the floor of the LRV at the LRV door. Station stops are designed to provide ease of access for disabled and elderly customers. In all instances they meet or exceed compliance with both the spirit and the letter of the Americans with Disabilities Act (ADA). Graphics and signs are uniform in placement and presentation, and are well illuminated to maintain safety and security.

Station stops are unattended. Fare collection is handled through a self-service, proof-of-payment system. Local police and NJ TRANSIT Police, in cooperation with SNJ Rail Group, (SNJRG) provide station stop security.

Customer Service telephones with direct access to the NJTPD dispatcher desk, and the control center are located at each platform.

During adverse weather conditions, Stations including platforms, footpaths and SNJRL TS parking lots are kept clear of snow and ice.

Safety and Security Features of Stations and Parking Areas include:

- Adequate lighting
- CCTV on the Station Platforms
- Public address and variable message signs are provided
- Telephones with access to NJTPD dispatch desk
- Customer information telephones are provided at stations
- A tactile warning strip is provided at platform edges, compliant with ADA requirements
- Parking Lots are designed for maximum visibility of all parts of the lot from surrounding areas
- Provisions are made for security of revenue collection equipment.

Operations Control and Maintenance Facilities and Yards

The CLRC is located at 700 Beideman Avenue, Camden, New Jersey south of the 36th Street station. The Operations Control Center is located at the principal maintenance facility and yard, known as the Camden Light Rail Complex (CLRC) near the 36th Street station in Camden, the Haines MOW yard MP 6.6, and two (2) smaller facilities, the "Trenton Layover Facility" MP 32.9 and "Burlington City Yard" MP 17 are located in the center and northern end of the alignment.

The CLRC contains buildings, rail yards, and other facilities to store, fuel, maintain and clean the entire fleet of 20 light rail vehicles. Inspections, preventive and corrective maintenance, painting, and car washing are done at this facility. Three yard tracks located to the north of the shop building are intended for interior cleaning, inspecting and minor repairs. Four tracks located within the shop building are intended for heavy maintenance, painting, washing, fueling, and sanding of the LRV's. The CLRC is also the headquarters for The River LINE. The CLRC contains the headquarters for the maintenance department. The operations and management offices are located at the CLRC.

Safety and Security Features of Maintenance Facilities include:

- Surveillance camera system
- Adequate lighting of all maintenance and yard storage areas
- Water spray and eye wash facilities provided at relevant areas in the shop
- Fuel delivery systems are provided with safeguards and protection against ignition and spillage
- Warning signs, devices and/ or barriers provided at all vehicle maintenance pits
- Positive mechanical exhaust ventilation system is provided in the shop
- Fire hydrants are provided throughout the yard
- Security fencing with deterrent lighting is provided around the perimeter of the yard

Camden Light Rail Complex (CLRC), and Operations Control Center

The Operations Control Center (OCC) is located at the CLRC. Staffed and operated by SNJRG personnel, the OCC provides for direct radio communication with LRV operators, freight

operators, and field personnel. Other capabilities of the control center include control of main line duel control switches, derails, and interlocking signals, identification of LRV location, and automated customer assistance (via a voice response system).

The OCC is the nerve center of the River LINE Operation. It is staffed 24 hours a day, 365 days per year. The Control Center dispatches and controls all train activity in the LRT exclusive use and joint-use (freight I passenger) tracks between WEC and Trenton dispatching both light rail vehicles and freight trains. Among other functions, the OCC assures that freight and LRV operation maintain temporal separation.

The OCC is under the direction of the Supervisors of Train Operations (STO) who report to the Superintendent of Transportation and Service Delivery. The two STOs oversee the controllers. The STOs are qualified as controllers and are available to relieve the controllers, as well as being responsible to manage unusual events and special operations. There is at least one Controller on duty in the control center at all times.

OCC Primary Functions

The primary functions of the control center staff is as follows:

LRT and Freight Train Control and Dispatch

- Monitoring and control of operations
- Identifying and correcting problems
- Activity and performance reporting

Freight Coordination

- Coordinating with daily freight operations
- Freight activity reporting Train Operator Management
- Spare board and cover management
- Record fueling
- Monitor fuel status of all active vehicles

Failure Management

- Design and maintain contingency plans for infrastructure, vehicle, and crew failures execute contingency plans as required.
- Evaluate effectiveness of plans in action and make corrections as required.

Emergency Management

- Maintain contingency plans for fires, customer trouble, trespass, floods, etc., and execute contingency plans as required.
- Evaluate effectiveness of plans in action and make corrections as required. Customer Information
- Maintain Voice Response System data to reflect service conditions.

Safety and Security Features of Operations Control Facility includes:

- Communication with all rail vehicles operating on the River LINE
- Positive train detection for dedicated right-of-way sections

Other Facilities

- HAINES MAINTENANCE OF WAY YARD MP 6.6 PENNSAKEN SIDING - Located in Pennsauken just north of the Route 73 station, the Haines MOW Yard has a facility for storage of maintenance of way equipment and supplies. The yard is not used for storage of any light rail equipment at this time.
- BURLINGTON CITY YARD - Located MP 17 in the center of the alignment, the River LINE has a yard facility (with wayside power), for storage of two LRVs. BURLINGTON BRIDGE OFFICE - This is an office signup location MP 17.6 for operations and maintenance personnel north of the Burlington City Yard.
- TRENTON LAYOVER FACILITY - In addition to the CLRC, the TLF, MP 32.9 near Hamilton Avenue in Trenton, provides capacity for the overnight storage (and limited servicing) of eight vehicles. This capacity is necessary to meet the required operating schedules.
- Safety and Security Features of the Trenton Layover Facility include: • Security fencing with deterrent lighting provided around perimeter of the yard. • Surveillance camera system

Signal and Control System

The RiverLINE utilizes an FRA compliant Automatic Block Signal (ABS) System to operate the trains safely over joint-use track. In areas of street running, Bar Signals are tied into the Vehicular Traffic Signals via a system of traffic preemption, providing trains with a clear signal when motor vehicle traffic lights are in the stop (red) position for oncoming traffic.

The double track and single-track segments of the River LINE are interlocked by control points (CP's). These CP's allow the Rail Traffic Controllers (Controllers) to control the operation of trains on the alignment. The CP' s are identified by their mile post location therefore CP 105 is located at MP 10.5 and CP 05 is located at MP 0.5. In addition, there are 3 named interlocking, CP-Blizz located at MP 3.5, CP-Ross located at MP 5 and CP-Del located at MP 22

Between WRTC and Trenton, operation of all rail vehicles is governed by "automatic block", a railroad traffic control and signal system that enables trains to operate safely in either direction on all segments.

The wayside signal system includes equipment to inform light rail and freight train operators of safe train movements and speeds. This permits parallel running in doubletrack segments.

The street-running segment in the City of Camden operates in mixed traffic. It is controlled by traffic signals supplemented by bar signals per MUTCD standards. Camden and Burlington street running segments have LRV bar signals to control the LR V movement. The traffic lights in these two areas are interconnected with the bar signals and they provide pre-emption for the safe movement of LRVS

Safety and Security Features of the Signal and Control System include:

- Positive route integrity at CP's
- Train stops to arrest LRV's movement when a stop signal has been passed located at all home signals.

Grade Crossing Warning Devices. A grade crossing warning system includes automatic flashing lights; bells and automatic crossing gates (at the majority of crossings) to warn the auto and pedestrian traffic at highway crossings.

Lunar Lights. Lunar white lights are prominently displayed to trains approaching grade crossings on The River LINE. These indicators serve to inform LRV operators of the status of the crossing warning system.

A flashing lunar light indication is initiated by the warning system, (simultaneously with initiation of the grade crossing flashing red lights and bell) and turns to a solidly illuminated state only after the gate is down. The steadily illuminated lunar white indication on either side of the crossing indicates the grade crossing warning system is correctly warning highway traffic, the operator must approach grade crossings and stop short of fouling the crossing, if the crossing is not functioning in accordance with LRT Rule 13 8. The grade crossings in many areas are synchronized with the traffic control signals. Where synchronized, the traffic controls and grade crossing interfaces have been optimized to provide the necessary protection while minimizing impact on traffic on adjacent streets, as well as the street crossing the track. In Burlington City the crossings are preemption synchronized traffic control only with cross bucks on the street approaches to rail crossings.

Safety and Security Features of the Grade Crossing warning devices. Safety and Security Features of the Grade Crossing warning devices include:

- Positive indication to rail vehicle operator of crossing warning device status
- Warning lights/Warning bells
- Crossing gates on public crossings along the dedicated right-of-way with the exception of grade crossings within the confine of the City of Burlington, the Pavilion crossing in Riverside and between Haddon Ave and Harbor Blvd in the city of Camden
- Traffic signals synchronized to assure safety of traffic (e.g. clear out periods to assure traffic not stopped on the track when the gates activate)
- Grade crossings are identified by AAR/DOT numbers to allow identification of the crossing in the event failures are reported.
- The telephone number for reporting failures of grade crossings is located at each grade crossing

Communications

The Communication System provides the infrastructure link between signaling systems, grade crossing protection and traffic control systems; and the indication and control systems available in the Control Center.

It is noted that audio (PA system), video systems (VMS), and communications systems (customer service phone), are maintained by NJ TRANSIT. The River LINE does surveillance on these systems and reports any deficiency to NJ TRANSIT for repair.

The Safety and Security Features of the communications system includes:

- A public address system on the passenger vehicles;
- A customer assistance intercom on the passenger vehicles;
- Smoke detectors and fire alarms in yard, shop, and control center;
- Carbon Monoxide detectors in the shop
- Fixed and/or portable radios for operations, maintenance, yard, security, and management personnel, as well as freight operators.

Separation of Freight and Passenger Operations

The River LINE light rail transit only trackage is physically separated from freight operations. Passenger and freight operations are temporally separated on the shared trackage. The LRV's do not use freight-only sidings connected to shared trackage and are prevented from entering those sidings by the use of electric lock switches. The electric lock switches are only active during the freight operation. This period of activity is controlled via the Control Center computer system under the direction of Rail Traffic Controllers. The controller must convert the system from passenger mode (where the electric locks are inactive) to freight mode in order to enable the locks. The sliding block and split rail derails are locked during passenger operation at the following locations:

- Conrail's No. 2 Running Track at CP 45,
- Conrail's Minson freight siding,
- Colorite/Rimtec freight siding,
- Conrail's Burlington Yard south lead at CP 184,
- Burlington yard crossover at mile 19.8 (interlocked with CP 196),
- Burlington freight yard lead at CP 211 A,
- Conrail's Robbinsville Industrial Track at mile 27
- Conrail's Port Running Track at CP 329.
- Pioneer Siding,
- Dependable Siding,
- AFG Siding,
- Ball Glass Siding,
- Shea Lumber Siding,
- NVR Siding
- Distributec Siding,
- Burlington Generation Station Siding,
- Land-0-Lakes Siding,

- Church Brick Siding,
- Stephen Chemical Siding
- Haines Yard

Shared trackage includes single and double track sections beginning at MP 4.5 in Pennsauken to MP 32.9 in Trenton. Within shared Trackage, freight is excluded from track one (the East track) between Trenton Station and Cass St. crossover at MP 32.3 North, and on track two (the West track) between Trenton Station and CP 329. Freight trains are prohibited from operating on the LRT only track, South of CP-45.

Logic at the Control Center provides positive separation between LRV traffic and freight operations. During passenger operations, this logic assures that it is not possible to:

- Call a freight route across joint use territory that conflicts with an LRT route already established,
- Call a freight route across LRT territory that does not end in Freight territory,
- Call a route from LRT territory into Freight-only territory,
- Call a route from Freight into LRT-only territory

The standard freight-only operating window is 10:00 p.m. through 5:45 a.m. and the standard LRV operating window is 5:45 a.m. to 10:00 p.m. By agreement, NJ TRANSIT permits Conrail to perform freight operations (after clearing off all LRV's and establishing freight operations per LRT Operating rule 906, Temporal Separation); in the event Conrail's main line becomes blocked.

River LINE Operations

The River LINE alignment - The main features of the alignment (South to North) are described in the following sections.

Track Layout

TRACK TYPE	START MP	MUNICIPALITY	FINISH MP	MUNICIPALITY
Double Track	MPO.O	Camden	MP 3.5	Pennsauken
Single Track	MP3.5	Pennsauken	MP5.0	Pennsauken
Double Track (Pennsauken siding)	MP 5.0	Pennsauken	MP7.0	Palmyra
Single Track	MP7.0	Palmyra	MP8.7	Riverton
Double Track	MP 8.7	Riverton	MP 10.5	Cinnaminson (Riverton siding)
Single Track	MP 10.5	Cinnaminson	MP 11.8	Riverside
Double Track	MP 11.8	Riverside	MP 14.0	Delanco (Rancocas siding)
Single Track	MP 14.0	Delanco	MP 15.0	Edgewater Park
Double Track (South Burlington siding)	MP 15.0	Edgewater Park	MP 17.5	Burlington City
Single Track	MP 17.5	Burlington City	MP 19.6	Burlington Township

TRACK TYPE	START MP	MUNICIPALITY	FINISH MP	MUNICIPALITY
Double Track (Florence siding)	MP 19.6	Burlington Township	MP 21.1	Florence Township
Single Track	MP 21.1	Florence Township	MP 24.2	Mansfield Township
Double Track (Roehling siding)	MP 24.2	Mansfield Township	MP 26.9	Bordentown Township
Single Track	MP 26.9	Bordentown Township	MP 28.9	Bordentown Township
Double Track	MP 28.9	Bordentown Township	MP 33.9	Trenton

Headways

Headways are run at a maximum of 30 minutes in both directions throughout the day with 15-minute headways during weekday peak periods until 9:00 AM and from 4:00 PM to 7:00 PM. Nominal dwell times are 20 seconds at all stations except 120 seconds northbound at WRTC. Service in both directions begins at (just prior to) 6:00 AM each day and continues until the last northbound train departs WEC at 9:00 PM and the last southbound train departs Trenton at 9:30 PM

Camden Street Rail Territory

The southern portion of The River LINE runs along 1.5 miles of double track street railway in downtown Camden, NJ. This portion of the alignment begins at the Waterfront Entertainment Center (WEC), the site of concerts and other events. The WEC station is within walking distance of the restored Battleship New Jersey. The street running alignment in Camden has station stops at the Adventure Aquarium and a campus of Rutgers University. LRV operations on the street railroad alignment are controlled by Bar Signals that are interconnected with the street traffic light system for street vehicles and pedestrians. The LRV operator obeys the Bar Signals in addition to staying visually aware of adjacent vehicle and pedestrian traffic. The River LINE transitions from street rail to a separated right-of-way north of Haddon Ave MP 1.5 located north of the Walter Rand Transportation Center (WRTC).

Dedicated Right-of-Way Territory

The River LINE alignment transitions from street running to dedicated railroad right-of-way (ROW) at MP 1.5. The remaining alignment from MP 1.5 to the north terminus in Trenton runs solely over dedicated ROW. From MP 1.5 to MP 4.5 the ROW is limited to LRV use. This section runs alongside the Conrail Pavonia Yard, with tracks separated by distance, or with intrusion (displaced load, derailed vehicle) detection systems to protect the light rail system. A permanent, active IDS is in service in the "Cooper River Zone" and another in the "36th Street Zone." Each system comprises two detectors, one at each of the two entry points, which will detect the condition of an engine, train, or equipment, including shifted loads, swinging doors, derailed equipment, etc., that may create a fouling hazard for LRT operations.

Joint Freight – Passenger Territory

To the North of the start of single track, at mile post 4.5, is the beginning of the shared access territory with Conrail. Freight and passenger operations are temporally separated. Freight only operation is restricted to between the hours of 1:00 A.M. and 5:30 A.M. (Sunday through Friday nights). The River LINE control center controls this separation. There is one railroad crossings at grade (diamond) located at CP-45 (in Pennsauken) that may be used by Conrail during passenger operation hours to provide access to Conrail customers. Use of these crossings by Conrail is controlled by an automated interlocked system of signals, derails, and magnetic train stop devices, which precludes simultaneous access by freight trains and LRV's. The River LINE tracks are grade-separated from Conrail's Delair overhead bridge that carries freight traffic and NJ TRANSIT's Atlantic City Line.

The alignment continues north through the communities of Palmyra, Riverton, Cinnaminson, Delran, and Riverside. North of Riverside Station a fixed-span bridge that was installed in 2002.

South of the City of Burlington, a signup facility has been created in the former Burlington Bridge Station and a yard facility (Burlington City Yard) has been created on the former PSE&G Generation Siding.

In Burlington City, the alignment travels through the center of town in close proximity to street traffic. LRV bar signals, interconnected with the street traffic lights, are used to inform LRV operators of the status of the street traffic control systems and the condition of the highway warning devices.

Trenton Vicinity

The River LINE is double-tracked for approximately five miles on the northern end from CP-28.9 north of Bordentown to the end-of-track in Trenton immediately across the street from NJ TRANSIT's Trenton Transportation Center that is also served by Amtrak, SEPTA and NJT commuter rail trains, and NJ TRANSIT bus operations. Within the city of Trenton, there are station stops at Cass Street and Hamilton Avenue within walking distance of the Waterfront Stadium and the Sun Bank Arena. Freight service is not permitted at any time on either track between CP Cass and Trenton Station.

Maintenance

This section provides an overview of the maintenance philosophy at SNJRG and the maintenance practices used throughout the life of the operating and maintenance period of the River LINE contract.

Proper maintenance is a key element in creating a safe, secure and reliable operating environment minimizing the possibility of accidents, incidents or other emergencies, throughout the River LINE. SNJRG has developed a series of maintenance plans for each of the five elements of The River LINE infrastructure:

(1) Light Rail Vehicles (M1 – M11)

(2) Track and alignment (MW-4)
(3) Railroad signaling, highway grade crossing & traffic control systems (S-27, S24)
(4) Control room systems (audio/video -NJ TRANSIT Responsibility)
(5) Bridges and Culverts (MW-5)

SNJRG emphasizes the following in its maintenance plans:

- Frequent inspections
- Proactive scheduled (Preventive) maintenance.
- Effective and timely performance of corrective maintenance.
- The ability to make "immediate action" repairs when situations dictate.
- A certification program for the personnel, equipment, and procedures used to perform maintenance.
- Use of data recorders both as proactive predictors of maintenance needs before they occur and as an analytical tool to suggest appropriate design and/or procedure changes.
- An ongoing program of modifications and updates to both equipment and specifications.
- Failure analysis/Hazard analysis.
- Investigations, and
- Record keeping and documentation of maintenance trends.

River LINE Contacts

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River LINE Minimum Standards for Safety

MINIMUM STANDARD	DOCUMENT DESCRIPTION	DOCUMENT DATE	DOCUMENT VERSION NO	SSI
SSOPS	**NJDOT Fixed Guideway SSO Program Standard**	**10/2021**	**Version 2.0**	**FALSE**
ASP	Agency Safety Plan (ASP) – The ASP contains the requirements for the safety program and related activities at the RTA/RFGPTS.	8/3/2020	Revision 0	FALSE
CMP	Configuration Management Plan (CMP) – the Configuration Management Committee and processes are a required element/function within the RTA/RFGPTS safety program, along with safety and security certification and system modifications.			FALSE
EOP	Emergency Operations Plan (EOP) – this document provides the coordination and preparedness activities inside and outside of the RTA/RFGPTS.	5/5/2017	TN-SNJ-10 – River LINE Incident Handling Plan	FALSE
I&M	Inspection and Maintenance (I&M) Manuals, SOPs, and Standards – these documents provide the requirements for inspection and maintenance of the rail system, including facilities, infrastructure, and related vehicles. These documents should have the customized safety standards integrated.		There are far too many manuals, inspections, procedures, plans, etc. to list throughout the departments.	FALSE
Investigation Procedures	Investigation Procedures at the RTA/RFGPTS – this procedure includes a description of the types of events that need notification and investigation, who will perform those requirements, causal factor analysis, hazard analysis, and development of recommendation.	2019	Revision 7	FALSE
RORB	Rail Operating Rule Book (RORB) – these are the rules that operators and others working around the rail system must follow.	9/2018	LRT Rules 6th Edition	FALSE
RWP	Right-of-Way or Roadway Worker Protection (RWP) Plan – this document is related to the RORB from the perspective of the protections and procedures for workers on the rail right of way.	9/2018	River LINE RWP Rules	FALSE

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SOPs - Command and Control	Command and Control/Train Control Standard Operating Procedures (SOPs) – these SOPs are used by the command and control staff/supervision to manage operations on the rail system for both usual and unusual operations, as well as managing maintenance and workers on the right of way. These SOPs should include troubleshooting information for frequent problems and managing emergencies on the rail system. These SOPs include the function of load control/management.	11/20/2015	River LINE Operating Procedures 11-20-2015	FALSE
SOPs - Command and Control	Command and Control/Train Control Standard Operating Procedures (SOPs) – these SOPs are used by the command and control staff/supervision to manage operations on the rail system for both usual and unusual operations, as well as managing maintenance and workers on the right of way. These SOPs should include troubleshooting information for frequent problems and managing emergencies on the rail system. These SOPs include the function of load control/management.		TN-SNJ-04 – Customer Service Plan (current revision 11-21-17) TN-SNJ-05 – Continuity of Service Plan (current revision 11-21-17) TN-SNJ-06 – River LINE 49 CFR Part 217.9 Program (current revision 12-4-17) TN-SNJ-09 – LRV Handling & Troubleshooting Procedure	FALSE
SOPs - Field Supervision	Field Supervision SOPs – these SOPs are for supervision out on the rail system for support of service delivery, responsiveness to passengers, and safety. The field supervisors will often be the first supervision to arrive at the scene of a safety event on the rail system and provide at least initial investigation of events on the rail system.		TN-SNJ-04 – Customer Service Plan (current revision 11-21-17) TN-SNJ-05 – Continuity of Service Plan (current revision 11-21-17) TN-SNJ-06 – River LINE 49 CFR Part 217.9 Program (current revision 12-4-17) TN-SNJ-09 – LRV Handling &	FALSE

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			Troubleshooting Procedure	
SOPs - Safety	Procedure requiring review of SOPs related to Safety – this procedure requires that the minimum safety standards at the RTA/RFGPTS are also required to be reviewed, agreed to, and approved by the Safety Department.	11/20/2015	River LINE Safety Rules 11-20-2015	FALSE
SSCP	Safety and Security Certification Plan (SSCP) – this plan provides the required activities from the RTA/RFGPTS safety program for assuring that safety and security certification is completed for certain capital projects for new equipment/infrastructure or refurbishment of existing equipment/infrastructure. The main topics for safety and security certification are related design criteria, participation of the Safety Department, and a process of the RTA/RFGPTS assuring that all safety and security design criteria exist, were comprehensive, and were properly addressed including integrated testing of the final products.			FALSE
SSP/SEPP	System Security Plan (SSP)/Security and Emergency Preparedness Plan (SEPP) – this security program document describes the requirements for system security and emergency preparedness at the RTA/RFGPTS. Note that the new SSO Rule no longer defines the content of the SSP/SEPP and its processes and procedures. However, the NJDOT SSO program will now consider this security program document as a minimum safety standard in terms of its overlap with the safety program at the RTA/RFGPTS (risk assessment and management, and emergency preparedness). The NJDOT SSO program no longer has requirements for the content of the SSP/SEPP, but does require that the RTA/RFGPTS develop an appropriate security program document and the NJDOT SSO program will provide oversight of that document and the processes that it represents, but only from	4/6/2017	River LINE SSP Part 1 (2)	TRUE

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	the safety program (all-hazards) perspective.			
TAM	Transit Asset Management (TAM) Plan – this is a new plan now required for RTAs/RTSs and it is related to the CMP, but with a larger context.	October 2020	Revision 0	FALSE

Update:

- March 5, 2018 – Initial release
- July 6, 2020 – minor word choice changes
- September 22, 2020 – minor updates from the RFGPTS and NJDOT
- December 2, 2020 – minor updates for typos and updating minimum standards for safety in the table
- May 26, 2021 – minimum standard updates
- October 1, 2021 –NJDOT SSOPS date updated to 10/2021.