Philip D. Murphy, Governor
Sheila Y. Oliver, Lieutenant Governor
Diane Gutierrez-Scaccetti, Commissioner
Kevin S. Corbett, President & CEO

NJTRANSIT
One Penn Plaza East
Newark, NJ 07105-2246
973-491-7000

May 21, 2020

Dear Governor Murphy:

Pursuant to Chapter 150, Laws of 1979, I herein transmit the minutes of actions taken at the open session of the rescheduled meetings of the New Jersey Transit Corporation, NJ TRANSIT Rail Operations, Inc., NJ TRANSIT Bus Operations, Inc., NJ TRANSIT Mercer, Inc., and NJ TRANSIT Morris, Inc., Board of Directors held on Wednesday, May 13, 2020.

Sincerely,

Joyce J. Zuczek

Joyce J. Zuczek
Board Secretary

Enclosures

Honorable Philip D. Murphy
Governor, State of New Jersey
State House
Trenton, NJ 08625

Open Session Minutes of the actions taken at the rescheduled Board of Directors' meetings of the New Jersey Transit Corporation, NJ TRANSIT Rail Operations, Inc., NJ TRANSIT Bus Operations, Inc., NJ TRANSIT Mercer, Inc., and NJ TRANSIT Morris, Inc. conducted virtually by telephone on Wednesday, May 13, 2020.

Board Members

Diane Gutierrez-Scaccetti, Chair
James D. Adams, Board Member
Sangeeta P. Doshi, Board Member
Cedrick T. Fulton, Board Member
Bob Gordon, Board Member (Did Not Vote)
Raymond W. Greaves, Board Member (Non-Voting) (Absent)
Michael Kanef, Treasurer's Representative
Richard A. Maroko, Board Member
David A. Rasmussen, Board Member (Non-Voting)
Brian T. Wilton, Governor's Representative

Staff

Kevin S. Corbett, President & Chief Executive Officer (CEO)
Joyce J. Zuczek, Board Secretary
Eric R. Daleo, Senior Vice President, Capital Programs
Ronald E. Nichols, Chief, Light Rail & Contract Services
Jignasa D. Desai-McCleary, Chief of Procurement
Jeannie Kwon, Senior Vice President & Chief Administrative Officer
Brian A. Lapp, Senior Vice President & Chief Safety Officer
James A. Sincaglia, Acting Senior Vice President & General Manager, Rail Operations
William Viqueira, Senior Vice President, Chief Financial Officer & Treasurer
Joseph E. Snow, Assistant Attorney General, Office of the Attorney General
Caroline Vachier, Deputy Attorney General, Office of the Attorney General

Chair Gutierrez-Scaccetti convened the Open Session at 9:04 a.m. in accordance with the Open Public Meetings Act. She noted today's meeting time was changed from 6:00 p.m. to 9:00 a.m. but in the Annual Notice of Meetings item on today's agenda, they added a night meeting to comply with statutory requirements. Board Secretary Zuczek conducted a roll call and noted Board Member Adams would join shortly.

Board Secretary Zuczek announced that adequate notice of the rescheduled meetings of the Board of Directors of the New Jersey Transit Corporation, NJ TRANSIT Rail Operations Inc., NJ TRANSIT Bus Operations, Inc., NJ TRANSIT Mercer, Inc., and NJ TRANSIT Morris, Inc. was provided in accordance with the Open Public Meetings Act and Public Law 2018, Chapter 162, and the meetings were occurring concurrently. Notices were filed on May 7, 2020 with the Secretary of State. These notices were sent to newspapers of general distribution, posted in the main entrance of NJ TRANSIT headquarters, published on the corporation's website, and sent to each individual,

agency, and organization that requested such notice. The meetings were viewable on the corporation's website in real time and would be recorded, archived, and made available to the public. Minutes will also be archived and published on the website.

Chair Gutierrez-Scaccetti noted they always begin a meeting with the pledge of allegiance but that is difficult to do by phone. At the same time, she wanted to take a moment of silence recognizing all the NJ TRANSIT frontline workers and all of those who are serving so bravely through the COVID-19 pandemic. She asked they take a moment of silence in gratitude to all those serving and in memory of all those lost from NJ TRANSIT.

Approval of Minutes

Chair Gutierrez-Scaccetti asked for a motion to approve the minutes of the April 7, 2020 Board meetings. Board Member Brian T. Wilton made a motion, Board Member Cedrick T. Fulton seconded the motion, and it was adopted.

Roll Call Vote:

Adams	Kanef	Doshi	Fulton	Maroko	Wilton	Gutierrez-Scaccetti
Absent	Yes	Yes	Yes	Yes	Yes	Yes

President & CEO's Monthly Report

President & CEO Corbett began by reiterating his deepest appreciation and gratitude for all the NJ TRANSIT employees who continue to keep the system moving. Since the very beginning when they setup their task force in February, there has been no higher priority for him than the health and safety of their employees.

Toward that end, NJ TRANSIT was now offering Covid-19 testing to all employees at the American Dream Complex in East Rutherford and at the Sewell Campus of Rowan University in South Jersey's Gloucester County. With support from Governor Murphy and Chair Gutierrez-Scaccetti, they were pleased to announce this significant health and safety advancement for NJ TRANSIT employees and the anxiety associated with this. And they are working to expand access to similar testing sites throughout the state.

This also supports Principle Two in Governor Murphy's "Road to Recovery" plan for the State. The ability to facilitate access to testing for employees will lead to quicker identification of cases, quicker treatment for those testing positive, and immediate isolation, to the prevent spread. And of course, it's just another layer of protection they were adding to the many measures they have taken to protect all their nearly 12,000 employees since the onset of this pandemic.

Another way they were working to protect employees was through obtaining PPE, or personal protective equipment. To date, they have ordered more than two million masks, and they have more than 900,000 in stock. They have ordered more than 100,000

reusable cloth masks to be delivered in one to two weeks and distributed to every NJ TRANSIT employee.

They have nearly 50,000 bottles of hand sanitizer in stock. They have ordered more than two million pairs of gloves, with about 650,000 pairs in stock. They have a sufficient inventory of PPE, and a healthy pipeline, which will continue for as long as necessary.

They are also working to maintain appropriate social distancing, to protect both employees and customers. Toward that end, on April 20, 2020, they implemented a special essential service bus schedule. This new schedule is a modified weekday schedule that added nearly 2,500 extra trips compared to the previous schedule, supporting essential travel and adding capacity where needed.

It also supports Governor Murphy's Executive Order 125, which went into effect after the last Board meeting. As many know, this Executive Order requires NJ TRANSIT to limit passenger occupancy to 50 percent of the stated maximum vehicle capacity on all buses, trains, and light rail vehicles, in addition to a requirement for customers and personnel onboard vehicles to wear a face covering.

Another proactive and protective measure NJ TRANSIT took for customers and employees earlier this month was at Newark Penn Station. They started temporary, overnight closure of Newark Penn Station, to allow for a daily deeper cleaning and disinfection. This follows, and is coordinated with their colleagues at Amtrak, MTA, and PATH, the overnight closure of New York Penn Station.

NJ TRANSIT is working closely with Amtrak, PATH, and the MTA to coordinate all their efforts at New York Penn Station and systemwide, so their response to this pandemic is holistic, long-sighted, and takes their entire region into account.

Amtrak and NJ TRANSIT concourses at New York Penn Station are now closed from 1:00 a.m. to 5:00 a.m. each day to allow for deep cleaning. And on Sunday, May 3, 2020, they began closing Newark Penn Station overnight from 11:00 p.m. until 4:30 a.m., to facilitate enhanced cleaning.

All NJ TRANSIT trains, bus, and light rail service operating between 11:00 p.m. and 4:30 a.m. continue to run during these hours. During this time, customers can use the Raymond Plaza East entrance to enter and exit the station.

They show their appreciation to frontline workers, of course, through concrete measures, like enhanced cleaning, testing, PPE, and social distancing measures, but they also show their appreciation in other ways. That's why NJ TRANSIT was a proud member of the "Sound the Horn" campaign, which took place at 3:00 p.m. on April16, 2020. At that time, all trains and buses running across the New York metropolitan region sounded their horns as a tribute to the essential workers on the front lines of this public health crisis.

Other members of the campaign included Amtrak, the MTA, the Port Authority, and other regional bus and ferry operators. It was a small yet significant way to show appreciation for all the dedicated transit workers who continue to show up in the field every day, under some of the most challenging conditions any have ever seen.

While still in the throes of the Covid-19 response, President & CEO Corbett said they have also begun to turn their attention to recovery and ramp-up, post-Covid-19, in terms of service and workforce. They are dubbing the return of regular service as “NJ TRANSIT: Your Ride to Recovery.” They are talking frequently with regional partners such as; the MTA, PATH, SEPTA and Amtrak to ensure they are all coordinated in terms of service restoration.

Earlier this month, Governor Murphy signed an Executive Order creating the “Governor’s Restart and Recovery Commission.” The Commission is comprised of 21 members of senior and experienced business, healthcare, finance, and academic professionals to advise the Administration on the timing and preparation of New Jersey’s recovery from the Covid-19 shutdown. There is currently also a seven-state task force made up of eight working groups with representatives from Connecticut, Delaware, Massachusetts, New Jersey, New York, Pennsylvania, and Rhode Island.

One of the working groups is Transportation, which President & CEO Corbett serves on as the New Jersey representative. One area of significant focus for the Transportation working group will be recovery and what the return to regular service looks like in the region. They have also begun meeting internally to determine what the recovery and return of our office workforce looks like.

There are lots of things to consider, including proper social distancing in already constrained office space, elevator protocols, PPE requirements for employees, etcetera. As part of the Incident Command Structure, guided by NJ TRANSIT’s Comprehensive Emergency Management Plan (or CEMP), they are mobilizing an internal committee, which will be responsible for developing recommendations that will produce a structured and deliberative return-to-work plan for all employees.

President & CEO Corbett said they were also looking at recovery not only as it relates to service, but also how NJ TRANSIT will serve the state’s economic recovery through a robust capital program. For example, today they were seeking Board approval to award the first of three major contracts in the amount of $247 million to remove and replace the Raritan River Bridge, which has a total project cost of approximately $600 million. This project is the largest NJ TRANSIT has undertaken since it started ARC, before that project was killed. This is a very significant project in NJ TRANSIT’s program.

In addition to Raritan River Bridge, they have 18 projects currently underway. To name just a few: Elizabeth Station ($70 million); County Yard / Delco Lead Storage and Inspection Facility; ($246 million); and Long Slip project in Hoboken (more than $195 million).

NJ TRANSIT is advancing a $232 million joint development partnership with PSE&G to build a new Mason Substation. In fact, over the past 12 months, they have authorized more than $60 million in new construction for substations.

Several capital projects are in design or near advertisement, including: The New York Penn Station Waiting Area Expansion and Improvement project and the new Northern Bus Garage, which is also in design.

In 2017, about a year before President & CEO Corbett joined NJ TRANSIT, this organization had less than a $100 million in hard money contracts out on the street. Since 2018, they have $2.3 billion in capital projects that are currently underway or soon to enter the procurement process.

This does not even include their Portal North Bridge project, estimated at $1.8 billion. As many know, pending a full funding grant agreement from the Federal Transit Administration (FTA), they are very close to entering the engineering phase for Portal North, which is the next step to getting shovels in the ground. Those kinds of construction project will mean a lot in terms of jobs and are essential work that are decades overdue but coming at a good time in terms of economic stimulus.

On the bus side of their capital program, two weeks ago, they put into revenue service the first of up to 25 additional new articulated buses, paid for with a $17 million grant awarded by the FTA. Bus Route No. 126, which has one of the highest ridership numbers in their entire system, began using the new articulated bus on April 28, 2020.

The bus increases on-board capacity by more than 65 percent, allowing for greater social distancing, and ultimately more customers when restrictions are lifted. Retiring older buses also increases mechanical reliability and helps better serve customers with improved on-time performance and brings down mean distance between breakdowns with the average age of the fleet being a key target they are aiming to reduce.

The new articulated buses feature low floors, which allow for quicker boarding and exiting, wheelchair ramps, and camera systems to improve safety and security, and greater access for the disabled community. New customer amenities include USB charging ports, bicycle racks, an improved intercom system, and LED lighting. President & CEO Corbett is grateful to the FTA for awarding the grant, and their congressional delegation for their continued support.

President & CEO Corbett noted a couple of brief updates before he wraps up. As they continue to take steps toward recovery, he was pleased to announce that they have resumed service at two Hudson-Bergen Light Rail stations on the West Side Avenue Branch. This follows the completion of required utility work by the Jersey City Municipal Utilities Authority (JCMUA).

On April 25, 2020, the Martin Luther King Drive and Garfield Avenue stations reopened for scheduled light rail service. The West Side Avenue station will maintain shuttle bus

service to allow for continued early-action construction work on the Route 440 Extension project. With proper project planning, they were able to avoid a similar impact to customers in the future by performing the early Route 440 construction work, while the JCMUA completed their required utility work.

President & CEO Corbett noted good news for customers as technology upgrades continue. NJ TRANSIT is installing new and improved ticket vending machines (TVM) at 14 locations systemwide, replacing older machines at bus, light rail, and rail stations. This is the second phase of an expanded pilot program that saw great success in Edison.

The new TVMs are faster, easier to use, and fully ADA accessible. Customers can even pay with a phone and will no longer need to insert debit or credit cards, allowing for a contactless system. The machines also have faster printers and new screens that can display important travel information and advisories. They will assess the performance of these new TVMs before continuing to rollout the full replacement of TVMs systemwide.

To close out today, President & CEO Corbett took a moment to acknowledge and honor all the employees' hard work and those they have lost to this horrible pandemic. To date, there have been nine NJ TRANSIT employees who passed away due to confirmed COVID-19-related complications, including their much loved Senior Vice President and General Manager of Rail Operations, and a good personal friend, Ray Kenny.

President & CEO Corbett said these employees are so much more than mere statistics. They are real people with families, children, and loved ones, and were valued members of the NJ TRANSIT family. In addition to Ray, they received confirmation that the following employees have succumbed to COVID-19 related complications: Lucien Cadeau; Keith Cruz; Philip Dover; Joseph Hansen; Ray Kenny; Gale Neblett; Kendel Nelson; Aulysse Paul; and Shanda Stokes. President & CEO Corbett also asked for a moment of silence, in their honor.

President & CEO Corbett said he can't say it enough. He truly appreciates all the efforts by the men and women of NJ TRANSIT, many of them on the front lines of the pandemic, who continue to keep the region moving for essential travel.

Board Member Adams joined the meeting during the President & CEO's Monthly Report.

Public Comments on Agenda Items

Board Secretary Zuczek announced there were two (2) speakers signed up to speak on agenda items and in order to give everyone an opportunity to be heard, comments would be limited to three minutes. Board Secretary Zuczek said when she calls the speaker's name, please state and spell their name for the record.

Sally Gellert, Communications and Legislative Director of the Lackawanna Coalition, said she appreciates having a longer opportunity to speak, even if it is broken in two. Although more than five or six speakers on a topic can be repetitive, they all want to be

heard, so she hopes they will continue to provide substantial opportunities for real dialogue between the general public, experienced advocates, NJ TRANSIT management and Board members.

Ms. Gellert said this month's agenda document was too large for e-mail systems that limit attachment size, so not everyone got the original notification. As they all learn what works in the virtual world, it seems that sending a summary with a link to the full agenda is best. Ms. Gellert thanked Joseph Clift for raising the alarm and to Board Secretary Zuczek and the team for addressing the issue so promptly. They were glad to see Board Secretary Zuczek reappointed. Ms. Gellert said Board Secretary Zuczek is one of the bright spots when working with NJ TRANSIT. She also thanked Assistant Board Secretary Meghan Umukoro for her help today.

Ms. Gellert discussed Agenda Item 2005-26 New York Penn Station Central Concourse. She said Penn Station's central corridor provides ADA access as well as stairways to all LIRR tracks and Gary Kazin noted that the corridor, which extends from Track 21 to Track 13, just south of the Hilton Corridor to serve Tracks 11 and Track 12, should long ago have been extended south to Track 1. However, they wonder about the timing of this project, being especially concerned with starting a big new project during a COVID-19 dominated time of confusion with limited financial resources and many needs. They wonder why there were no plans to extend the West End Concourse to Tracks 1 through 4, giving NJ TRANSIT passengers access to the $2 billion worth of improvements in Moynihan station and a west-side exit. They believe more elevators and escalators will help alleviate crowding, but their locations must be based on detailed studies of traffic flow and current bottlenecks and optimizing passengers' experience must be the first priority in every facet of this project.

Ms. Gellert said they reserve comment on the idea of a two-story open space; attractive spaces and architecture are definitely appreciated assets, but so is maximization of capacity so they will wait for more specifics. They do hope that NJ TRANSIT priorities include environmentally friendly and lower cost materials, with an eye to durability and ease of maintenance. They note changing commuting patterns, with the likelihood of some 25 percent or more people working from home at least part-time which should lower congestion.

With regard to Agenda Item 2005-31, Ms. Gellert said they were concerned with waiving a competitive bidding process in favor of a sole-source authorization and also requesting a 10 percent increase in the cost of parts contracts included in this year's budget. She said Exhibit A1 shows 91 vendors, a large number some of which must have competitors. Ms. Gellert said in these times of decreased ridership, state credit downgrade, and their state's 12-month fiscal year being stretched to 15-months, every penny counts.

Regarding President & CEO Corbett's report, Ms. Gellert asked why the focus on construction projects instead of focus on running trains and buses.

Joseph Clift noted on pages 27 to 34 relating to Agenda Item 2005-26 Design, Engineering, & Construction Assistance for the Central Concourse at New York Penn Station. He said it should be called the Central Corridor and believes someone forgot to look at the signs that are at New York Penn Station now. Mr. Clift said this was an extension of the LIRR Central Corridor that carries their elevators, and this is a corridor, not a concourse.

Mr. Clift said he felt that the Board was being thrown into the deep end of the pool without a lifesaver, and they have no idea how well this little project fits, and it is not fair. Mr. Clift said his questions to the Board are have any studied New York Penn Station (NYPS) enough to understand how it moves people and are they willing to take his tour of NYPS to better understand NJ TRANSIT customers' needs. He said Sy Syms said "An educated consumer is our best customer." Mr. Clift said in this case an educated Board Member is the New Jersey Taxpayer and New Jersey Rider's best advocate, but they were not there yet.

Mr. Clift's next issue was why NJ TRANSIT was ignoring the primary improvement needed in NYPS, connecting lengthened Tracks 1-4 to the $220 Million West End Concourse and $1.6 Billion Moynihan Train Hall scheduled to open in November. He said this is $2 million dollars' worth of work which is not a single penny of New Jersey money spent. He wonders if it is because this connection would allow NYPS to accommodate more trains without Penn South.

Mr. Clift questioned why NJ TRANSIT was advancing a second priority now in the face of financial uncertainty, noting the COVID problem was real, $800 million was at risk in New Jersey, and fuel taxes and tolls directly affects NJ TRANSIT's income. He said the MTA has put a hold on projects and this project should not start now. Mr. Clift questioned why NJ TRANSIT made an architectural firm the prime when the issue is primarily moving people. He thinks it means someone wants looks over moving people and said not to put an architecture in charge if they want to move people. He also asked whether NJ TRANSIT will put its ADA elevators next to the LIRR's allowing more stairway access near 7th Avenue with everyone being able to go to the middle of the platform on track 1-21 to get an elevator. Mr. Clift's last question was why NJ TRANSIT does not have a total project budget and just has a contract. He believes this says they do not know where they are going to get the money, they do this all the time, and it needs to stop. Lastly, Mr. Clift asked the Board to take his tour of New York Penn Station.

Advisory Committee Report

Suzanne Mack provided the Advisory Committee Report. She noted it was a pleasure to be speaking during this virtual meeting. She thanked the two members of the public who took the time to speak before her. Being able to speak after the public, she always finds good questions coming out that she knows go back to the Board, and the Board Office actually goes through them to find answers and solutions. Often after these Board meetings, the Advisory Committees go back to discusses items so that they can find solutions as well. She would agree that Joseph Clift is absolutely right when he said that

everyone should take a tour of New York Penn Station. Ms. Mack said it is a fascinating place to go through and they have gone through it on many occasions. She was glad to hear that in June New York Penn Station will be opening back up, and she encouraged any of the Board Members who have not taken the tour to do so in the future because this is an ongoing project.

Ms. Mack has been in contact with both the North and South Jersey Advisory Board Committee and they wanted her to convey to NJ TRANSIT their gratitude on behalf of the public for everything everyone has been doing at the organization and especially the employees. South Jersey was very happy to see that under the Executive Order, a second testing site at Rowan College is opening, and hopefully there will be a third in Central Jersey, but hopefully it will not be needed if they get through this COVID pandemic.

Ms. Mack said they are all concerned about the safety of the NJ TRANSIT employees and she knows that Governor Murphy is doing everything he can to keep everyone safe and this transit system running. It is always amazing to her when they have a crisis like this, which is the worst that they have seen, and the organization continues to function. Ms. Mack believes the agenda today was well thought out and advances projects because they must be ready to move forward when the pandemic subsides. Her Committee was very interested in the first item on the agenda, the Northern Bus Maintenance Facility which is desperately needed and the Raritan Bridge Replacement project, noting they have all suffered from the killing of the ARC project. Now that they see the Raritan River Bridge project and what the President & CEO discussed on the Portal Bridge these are vital projects that need to continue if they are going to truly recover.

Ms. Mack said she had a comment on the actions on the Access Link program, and while she knows NJ TRANSIT has reduced service on regular route service, perhaps Paul Wyckoff and his staff can get the Advisory Board some information on the impact of the reductions in service on the Access Link contracts. Both Advisory Boards are available to comment on any items before the next meeting.

Board Operations and Customer Service Committee Report

Board Member Wilton presented the report for the Operations and Customer Service Committee. The Operations and Customer Service Committee received an update on trends, analysis, and actions for rail, bus, light rail and Access Link. The Committee also received an update on the Cost of Service.

Board Administration Committee Report

Board Member Maroko presented the report for the Administration Committee. The Administration Committee received a Financial Update. This included an update on ridership and revenue, cost of service key performance indicators, major balance sheet items, attrition and hires, and real estate and economic development highlights. The

Committee also received updates from Human Resources and Equal Opportunity and Affirmative Action.

Capital Planning, Policy, and Privatization Committee Report

Board Member Fulton presented the report for the Capital Planning, Policy and Privatization Committee. The Committee discussed the board item for the Preliminary and Final Design Engineering and Construction Assistance Services for the New Northern Bus Maintenance Facility; NJ TRANSIT Resilience Program – Raritan River Bridge Replacement Project: Award for General Construction Contract GC.01 and Amendment to Consultant Contract Phase III Construction Assistance Services; Execution of Contract 19-064 for the Provision of Access Link Service in Region 6 (Bergen, Hudson, Passaic, and Essex Counties); Execution of Contract 19-063 for the Provision of Access Link Service in Region 3 (Atlantic, Cape May, Cumberland, and Southern Ocean Counties); Design, Engineering, and Construction Assistance for the Central Concourse at New York Pennsylvania Station; and Consulting Services for the In-Depth Inspections, Evaluations, and Ratings of Railroad Undergrade Bridges.

Action Items

2005-22: PRELIMINARY AND FINAL DESIGN ENGINEERING AND CONSTRUCTION ASSISTANCE SERVICES FOR THE NEW NORTHERN BUS MAINTENANCE FACILITY

President & CEO Corbett introduced Eric Daleo, Senior Vice President, Capital Programs, to present Action Item #2005-22. Eric Daleo recommended approval of Action Item #2005-22: Preliminary and Final Design Engineering and Construction Assistance Services for the New Northern Bus Maintenance Facility.

Approval was requested to enter into a contract with Gannett Fleming Inc. of Newark, New Jersey, to provide Conceptual Design for the New Northern Bus Maintenance Facility at a cost not to exceed $1,105,509.23, plus five percent for contingencies, subject to the availability of funds, with options at the sole discretion of NJ TRANSIT for future phase Preliminary and Final Design Engineering And Construction Assistance Services.

Board Member Cedrick T. Fulton made a motion and Board Member Brian T. Wilton seconded the motion. Chair Gutierrez-Scaccetti asked for a roll call vote and the item was adopted.

Roll Call Vote:

Adams	Kanef	Doshi	Fulton	Maroko	Wilton	Gutierrez-Scaccetti
Yes	Yes	Yes	Yes	Yes	Yes	Yes

2005-23: NJ TRANSIT RESILIENCE PROGRAM – RARITAN RIVER BRIDGE REPLACEMENT PROJECT: AWARD FOR GENERAL CONSTRUCTION CONTRACT GC.01 AND AMENDMENT TO CONSULTANT CONTRACT PHASE III CONSTRUCTION ASSISTANCE SERVICES

President & CEO Corbett introduced Eric Daleo, Senior Vice President, Capital Programs, to present Action Item #2005-23. Eric Daleo recommended approval of Action Item #2005-23: NJ TRANSIT Resilience Program – Raritan River Bridge Replacement Project: Award for General Construction Contract GC.01 and Amendment to Consultant Contract Phase III Construction Assistance Services.

Approval was requested to enter into a contract with George Harms Construction Co., Inc. of Farmingdale, New Jersey, for the construction of the Bridge Approach Spans, Lift Bridge and Flanking Span Piers, and Associated Land Work for the Raritan River Bridge Replacement Project - General Construction Contract GC.01 in the amount not to exceed $247,945,055.49, plus five percent for contingencies, subject to the availability of funds.

Further approval was requested to amend a contract with Hardesty & Hanover / Gannett Fleming Joint Venture of Newark, New Jersey, to provide consultant services for the Raritan River Bridge Replacement Project Phase III – Construction Assistance Services in the amount not to exceed $14,878,806, plus five percent for contingencies, subject to the availability of funds.

Board Member James D. Adams made a motion and Board Member Richard A. Maroko seconded the motion.

Chair Gutierrez-Scaccetti thanked and congratulated staff for pushing this forward, noting this was a long time coming and an important improvement.

Chair Gutierrez-Scaccetti asked for a roll call vote and the item was adopted.

Roll Call Vote:

Adams	Kanef	Doshi	Fulton	Maroko	Wilton	Gutierrez-Scaccetti
Yes	Yes	Yes	Yes	Yes	Yes	Yes

2005-24: *{ITEM DEFERRED}* EXECUTION OF CONTRACT 19-064 FOR THE PROVISION OF ACCESS LINK SERVICE IN REGION 6 (BERGEN, HUDSON, PASSAIC, AND ESSEX COUNTIES)

President & CEO Corbett introduced Ronald Nichols, Chief, Light Rail and Contract Services, to present Action Item #2005-24. Ronald Nichols recommended approval of Action Item #2005-24: Execution of Contract 19-064 for the Provision of Access Link Service in Region 6 (Bergen, Hudson, Passaic, and Essex Counties).

Approval was requested to enter into a contract with First Transit Inc. of Cincinnati, Ohio, to operate Access Link service in Region 6 (Bergen, Hudson, Passaic, and Essex Counties) for an initial 36-month base period from July 19, 2020 to June 30, 2023 at a cost of $47,065,332.00, plus five percent contingencies, for a total contract authorization of $49,418,599.00, subject to the availability of funds and Board approval of NJ TRANSIT's operating budget.

Further approval was requested exercise the options to enter into a contract with First Transit Inc. of Cincinnati, Ohio, for two separate 24-month option periods to be exercised at NJ TRANSIT's discretion beginning July 1, 2023 to June 30, 2025 at a cost not to exceed $38,146.669.00 and July 1, 2025 through July 10, 2027 at a cost not to exceed $44,076,394.00, for a combined cost of $82,223,063.00, plus five percent for contingencies, for a total authorization of $86,334,216.00, subject to the availability of funds and Board approval of NJ TRANSIT's operating budget.

Board Member Cedrick T. Fulton made a motion and Board Member Brian T. Wilton seconded the motion.

Board Member Maroko noted there appeared there may be an unresolved labor dispute which involved among other things worker safety. He proposed they defer considering Item 2005-24 until they determined the nature and status of that dispute. In times of this pandemic, they don't want to take any chances when it comes to making sure frontline workers are taken care of, so he moved they defer voting on this contract.

Chair Gutierrez-Scaccetti said she appreciated Board Member Maroko's comments and asked if there were any other comments regarding the item. Board Member Gordon endorsed Board Member Maroko's comment regarding the labor issues and noted this came to their attention about a week ago. Chair Gutierrez-Scaccetti noted it was an open procurement so it may not be appropriate to discuss the details in public and noted she saw the press release the night before. Jignasa Desai-McCleary, Chief of Procurement, agreed they were entitled to discuss the matter but not in an open forum at this time.

Board Member Gordon noted he learned recently of Senate hearings in January regarding the quality of paratransit services. Chair Gutierrez-Scaccetti noted they were aware of the Senate proceedings and they could have a conversation separately, but they wanted to focus on the item. Board Member Gordon noted he hoped they would defer the item.

Board Member Wilton seconded Board Member Maroko's motion to defer the vote on Item 2005-24 until June. Chair Gutierrez-Scaccetti asked for a roll call vote and the amended motion to defer voting on the Item 2005-24 until June was adopted.

Roll Call Vote to Defer Item:

Adams	Kanef	Doshi	Fulton	Maroko	Wilton	Gutierrez-Scaccetti
Yes	Yes	Yes	Yes	Yes	Yes	Yes

2005-25: *{ITEM AMENDED}* EXECUTION OF CONTRACT 19-063 FOR THE PROVISION OF ACCESS LINK SERVICE IN REGION 3 (ATLANTIC, CAPE MAY, CUMBERLAND, AND SOUTHERN OCEAN COUNTIES)

President & CEO Corbett introduced Ronald Nichols, Chief, Light Rail and Contract Services, to present Action Item #2005-25. Ronald Nichols recommended approval of Action Item #2005-25: Execution of Contract 19-063 for the Provision of Access Link Service in Region 3 (Atlantic, Cape May, Cumberland, and Southern Ocean Counties).

Approval was requested to enter into a contract with Easton Coach Company of Easton, Pennsylvania, to operate Access Link service in Region 3 (Atlantic, Cape May, Cumberland, and Southern Ocean Counties) for an initial 36-month base contract period from July 12, 2020 to June 30, 2023 at a cost of $14,235,059.00, plus five percent contingencies for a total contract authorization of $14,946,812.00, subject to the availability of funds and Board approval of NJ TRANSIT's operating budget.

Further approval was requested exercise the options to enter into a contract with Easton Coach Co. of Easton, Pennsylvania, for two separate 24-month option periods to be exercised at NJ TRANSIT's discretion beginning July 1, 2023 through June 30, 2025 at a cost not to exceed $11,013,952.00 and July 1, 2025 through July 17, 2027, at a cost not to exceed $12,644,735.00, for a combined cost of $23,658,687.00, plus five percent for contingencies for a total authorization of $24,841,622.00, subject to the availability of funds and Board approval of NJ TRANSIT's operating budget.

Board Member Cedrick T. Fulton made a motion and Board Member Michael Kanef seconded the motion.

Board Member Maroko wanted confirmation regarding whether NJ TRANSIT could terminate the contract for convenience if they believe the contract is no longer optimal in the event, they find it beneficial to adopt best practices like those pioneered by Arc Mercer subject to the Senate hearings referred to earlier. If so, he would like staff to continue to monitor and report to the Board regarding the same. Additionally, prior to entering the options beyond the base three years, he believes it would be good governance to have the Board approval and involvement in the decision.

Chair Gutierrez-Scaccetti asked Jignasa Desai-McCleary if they could terminate the contract for convenience if they find a better process that is effective and cost efficient. Jignasa Desai-McCleary, Chief of Procurement, said if they enter the contract, they can terminate it for convenience if they find a better opportunity.

Board Member Maroko amended the motion to only approve the base three-year contract, not approve the two options, and require further Board approval prior to executing the options.

Board Member Adams said he agreed with Board Member Maroko and noted he expressed great concern regarding the option years not requiring additional Board approval. Board Member Adams seconded the amended motion to approve only the base three-year contract and not approve the options.

Chair Gutierrez-Scaccetti asked for a roll call vote to approve the amended motion, approving only the base contract and not the options. The amended motion was adopted.

Roll Call Vote for Amended Item:

Adams	Kanef	Doshi	Fulton	Maroko	Wilton	Gutierrez-Scaccetti
Yes	Yes	Yes	Yes	Yes	Yes	Yes

2005-26: DESIGN, ENGINEERING, AND CONSTRUCTION ASSISTANCE FOR THE CENTRAL CONCOURSE AT NEW YORK PENNSYLVANIA STATION

President & CEO Corbett Jeannie Kwon, Senior Vice President and Chief Administrative Officer, to present Action Item #2005-26. Jeannie Kwon recommended approval of Action Item #2005-26: Design, Engineering, and Construction Assistance for the Central Concourse at New York Pennsylvania Station.

Approval was requested to enter into a contract with FX Collaborative Architects LLP, of New York, New York, for preliminary design engineering services of the Central Concourse Project in the amount not to exceed $4,121,887, plus five percent for contingencies, subject to the availability of funds. Funding for this phase, the preliminary design, is by The Port Authority of New York and New Jersey.

Board Member Richard A. Maroko made a motion and Board Member Michael Kanef seconded the motion. Chair Gutierrez-Scaccetti asked for a roll call vote and the item was adopted.

Roll Call Vote:

Adams	Kanef	Doshi	Fulton	Maroko	Wilton	Gutierrez-Scaccetti
Yes	Yes	Yes	Yes	Yes	Yes	Yes

2005-27: APPROVAL OF NJ TRANSIT'S PUBLIC TRANSPORTATION AGENCY SAFETY PLANS

President & CEO Corbett introduced Brian Lapp, Senior Vice President and Chief Safety Officer, to present Action Item #2005-27. Brian Lapp recommended approval of Action Item #2005-27: Approval of NJ TRANSIT'S Public Transportation Agency Safety Plans.

Approval was requested to take all actions necessary for approval of NJ TRANSIT's Public Transportation Agency Safety Plans detailed in the corresponding Exhibits with this Board item.

Board Member James D. Adams made a motion and Board Member Richard A. Maroko seconded the motion. Chair Gutierrez-Scaccetti asked for a roll call vote and the item was adopted.

Roll Call Vote:

Adams	Kanef	Doshi	Fulton	Maroko	Wilton	Gutierrez-Scaccetti
Yes	Yes	Yes	Yes	Yes	Yes	Yes

2005-28: PROCUREMENT BY EXCEPTION: PURCHASE OF 728 MULTILEVEL WHEELS

President & CEO Corbett introduced James Sincaglia, Acting Senior Vice President and General Manager, Rail Operations, to present Action Item #2005-28. James Sincaglia recommended approval of Action Item #2005-28: Procurement by Exception: Purchase of 728 Multilevel Wheels.

Approval was requested to enter into a Procurement by Exception contract with Transit Sourcing Services, Inc. of Concord, North Carolina for the purchase of 728 multilevel wheels in the amount not to exceed $763,672.00, plus five percent contingency, for a total contract authorization of $801,855.60, subject to the availability of funds.

Board Member Brian T. Wilton made a motion and Board Member James D. Adams seconded the motion. Chair Gutierrez-Scaccetti asked for a roll call vote and the item was adopted.

Roll Call Vote:

Adams	Kanef	Doshi	Fulton	Maroko	Wilton	Gutierrez-Scaccetti
Yes	Yes	Yes	Yes	Yes	Yes	Yes

2005-29: TRANS-HUDSON NETWORK PLANNING STRATEGY CONTRACT AWARD

President & CEO Corbett introduced Jeannie Kwon, Senior Vice President and Chief Administrative Officer, to present Action Item #2005-29. Jeannie Kwon recommended approval of Action Item #2005-29: Trans-Hudson Network Planning Strategy Contract Award.

Approval was requested to enter Phase II of a contract with AECOM of New York, New York for professional services over an 18-month period to fund an additional $925,000, plus five percent contingency for Trans-Hudson Network Planning Strategy services, subject to the availability of funds.

Board Member Cedrick T. Fulton made a motion and Board Member Richard A. Maroko seconded the motion.

Board Member Fulton believes this is incredibly smart to do at this moment in time and looks forward to seeing the products produced. He also believes his colleagues and he look forward to the opportunity to working with NJ TRANSIT as they move forward out of this difficult COVID-19 situation. Board Member Fulton believes it is brilliant and looks forward to receiving the product.

Board Member Gordon agreed this is an incredibly important initiative to undertake to understand what the post-pandemic world will look like for mass transit. He hopes the consultant will consider another eventuality, which is failure or reduction of one of the Trans-Hudson Tunnels, in the contingency planning. Chair Gutierrez-Scaccetti added she was sure staff would take the comments under advisement as they continue to refine the role of the consultant.

Chair Gutierrez-Scaccetti asked for a roll call vote and the item was adopted.

Roll Call Vote:

Adams	Kanef	Doshi	Fulton	Maroko	Wilton	Gutierrez-Scaccetti
Yes	Yes	Yes	Yes	Yes	Yes	Yes

2005-30: ANNUAL NOTICE OF MEETINGS AND DESIGNATION OF BOARD SECRETARY

Chair Gutierrez-Scaccetti recommended approval of Action Item #2005-30: Annual Notice of Meetings and Designation of Board Secretary. This action item is to adopt the Annual Notice of Meetings for all Board of Directors' meetings during Fiscal Year 2021 and to designate Joyce J. Zuczek as Board Secretary of NJ TRANSIT and its subsidiaries.

Board Member Richard A. Maroko made a motion and Board Member James D. Adams seconded the motion. Chair Gutierrez-Scaccetti asked for a roll call vote and the item was adopted.

Roll Call Vote:

Adams	Kanef	Doshi	Fulton	Maroko	Wilton	Gutierrez-Scaccetti
Yes	Yes	Yes	Yes	Yes	Yes	Yes

President & CEO Corbett noted he did not get to vote, but he was certainly glad that item went ahead.

2005-31: REQUEST FOR CONTINGENCY AMENDMENT IN CASE OF NEED FOR SOLE SOURCE SPARE PARTS FOR MAY AND JUNE 2020

President & CEO Corbett introduced Jeannie Kwon, Senior Vice President and Chief Administrative Office, to present Action Item #2005-31. Jeannie Kwon recommended approval of Action Item #2005-31: Request for Contingency Amendment in Case of Need for Sole Source Spare Parts for May and June 2020.

Approval was requested to amend Board Item #1906-32 FY2020 Fiscal Year procurement-by-exception Waiver Authorization to enter into sole source contracts for the purchase of materials and services from approved vendors set forth in Exhibit A1 (subject to adjustments) as necessary to support Bus, Rail, and Light Rail operations at an amended cost not to exceed $30,800,000, subject to the availability of funds. The original authorization for this board item was $28,000,000. This increase represents a 10 percent increase to the original board authorization.

Board Member Richard A. Maroko made a motion and Board Member Brian T. Wilton seconded the motion. Chair Gutierrez-Scaccetti asked for a roll call vote and the item was adopted.

Roll Call Vote:

Adams	Kanef	Doshi	Fulton	Maroko	Wilton	Gutierrez-Scaccetti
Yes	Yes	Yes	Yes	Yes	Yes	Yes

Board Secretary Zuczek noted Board Member Rasmussen was recused from the next item 2005-32. Board Member Rasmussen thanked everyone for their good work and disconnected his phone.

2005-32: PERSONAL INJURY CLAIM OF TERRY MAHER

President & CEO Corbett introduced William Viqueira, Senior Vice President, Chief Financial Officer and Treasurer, to present Action Item #2005-32. William Viqueira recommended approval of Action Item #2005-32: Personal Injury Claim of Terry Maher.

Approval was requested to settle the claim of Terry Maher through his attorney, at an amount discussed in executive session. The Attorney General has approved the proposed settlement, subject to the availability of funds.

Board Member Michael Kanef made a motion and Board Member Richard A. Maroko seconded the motion. Chair Gutierrez-Scaccetti asked for a roll call vote and the item was adopted.

Roll Call Vote:

Adams	Kanef	Doshi	Fulton	Maroko	Wilton	Gutierrez-Scaccetti
Yes	Yes	Yes	Yes	Yes	Yes	Yes

Board Secretary Zuczek noted Board Member Adams was recused from the next item 2005-33. Board Member Adams disconnected his phone.

2005-33: CONSULTING SERVICES FOR IN-DEPTH INSPECTIONS, EVALUATIONS, AND RATINGS OF RAILROAD UNDERGRADE BRIDGES

President & CEO Corbett introduced James Sincaglia, Acting Senior Vice President and General Manager, Rail Operations, to present Action Item #2005-33. James Sincaglia recommended approval of Action Item #2005-33: Consulting Services for In-Depth Inspections, Evaluations, and Ratings of Railroad Undergrade Bridges.

Approval was requested to enter into contracts with Michael Baker Inc. of Hamilton, New Jersey, with HDR Inc. of Newark, New Jersey, and with Hardesty & Hanover of West Trenton, New Jersey, to provide in-depth inspections, ratings and evaluations of 130 undergrade railroad bridges at a cost not to exceed $975,228.65, $1,096,281.51, and $757,353.83 for a total cost of $2,828,863.99, plus five percent for contingencies, subject to the availability of funds.

Board Member Cedrick T. Fulton made a motion and Board Member Michael Kanef seconded the motion. Chair Gutierrez-Scaccetti asked for a roll call vote and the item was adopted.

Roll Call Vote:

Adams	Kanef	Doshi	Fulton	Maroko	Wilton	Gutierrez-Scaccetti
Recused	Yes	Yes	Yes	Yes	Yes	Yes

Executive Session Authorization

Chair Gutierrez-Scaccetti noted they would adjourn to Executive Session but wanted to let the public know they would return to hear comments on all other matters.

At approximately 10:13 a.m., Chair Gutierrez-Scaccetti requested a motion to enter Executive Session to discuss personnel matters, contract negotiations, the status of

pending and anticipated litigation, and matters falling within the attorney-client privilege, including, but not limited to, the Lease of Two Hudson Place, Hoboken, New Jersey, for the Relocation of NJ TRANSIT Employees Working in the Hoboken Terminal Long Hall, the Corporate Insurance Program Annual Renewal, and the Modification of Parking Covenant in Dover, New Jersey. Board Member Brian T. Wilton made a motion, Board Member Michael Kanef seconded the motion, and it was adopted.

Roll Call Vote:

Adams	Kanef	Doshi	Fulton	Maroko	Wilton	Gutierrez-Scaccetti
Absent	Yes	Yes	Yes	Yes	Yes	Yes

Chair Gutierrez-Scaccetti asked Board Secretary Zuczek to advise the public on the procedure for the rest of the morning. Board Secretary Zuczek explained when they returned from Executive Session, they would hear public comments on other matters, and everyone will have an opportunity to be heard for three minutes. She noted there were 75 people signed up to speak on other matters, they should stay on the line during Executive Session, and an event call proctor was monitoring the public speakers.

Return to Open Session

Board Secretary Zuczek conducted a Roll Call as Board Members returned to Open Session. All Board Members returned to Open Session at approximately 11:25 a.m.

Public Comments on Other Matters

Board Secretary Zuczek announced there were 75 speakers signed up to speak on other matters and in order to give everyone an opportunity to be heard, comments would be limited to three minutes. Board Secretary Zuczek said when she calls the speaker's name, please state and spell their name for the record.

Sam DiFalco is an organizer with Food & Water Action commenting on behalf of over 60,000 members and supporters in New Jersey. She read a letter sent by over 60 organizations to Governor Murphy on May 13, 2020, in response to NJ TRANSIT's decision to issue the Final Environmental Impact Statement and Record of Decision for the NJ TRANSITGRID and power plant project, during some of the worst days of the pandemic. The letter has been summarized below.

In the letter to Governor Murphy, Ms. DiFalco said the groups pointed out that in this unprecedented crisis, the Murphy Administration has rightly focused on protecting public health and saving lives. Yet late on Friday, April 17, 2020 amidst the very worst days of the COVID-19 pandemic, NJ TRANSIT issued the Final Environmental Impact Statement and Record of Decision for the NJ TRANSITGRID which includes construction of a new 140-megawatt gas-fired power plant proposed in Kearny, New Jersey. This powerplant would create a major new source of toxic air pollution and greenhouse gas emissions at

a time when they urgently need to reduce both to protect public health and combat the climate crisis. The proposal stands in direct contradiction to the Murphy Administration new energy master plan to transition New Jersey to 100 percent clean energy by 2050 or sooner, as well as the Executive Order to reduce greenhouse gas emissions. They urge Governor Murphy to order NJ TRANSIT to immediately cease all work in pursuing this ill-conceived fracked gas power plant and instead move forward with renewable energy and storage alternative for public transit resiliency.

The letter also pointed out that NJ TRANSIT has not conducted sufficient stakeholder engagement for the project, with the last outreach happening nearly three years before environmental impacts of the project were made available to the public. More timely and comprehensive input from communities whose health and environment will be directly impacted by the pollution from this plant must be prioritized. These include low income communities of color in Kearny, Newark, and Jersey City who already suffer from some of the worst air quality and highest rates of lung diseases in this country. Your administrations' lack of meaningful and timely engagement with these communities as a part of the final Environmental Impacts Statement is an abdication of your 2018 commitment to protect public health for New Jersey's most vulnerable populations as enshrined in your Executive Order 23.

Ms. DiFalco said as they have seen through this Coronavirus pandemic, the health of New Jersey comes first. She asked they hold this same approach to all aspects of New Jersey by stopping this dirty, dangerous, and unnecessary fracked gas power plant, and instead move forward with a renewable energy and storage alternative for NJ TRANSIT resiliency.

Paula Rogovin, Chairperson for the Coalition to Ban Unsafe Oil Trains, had a message for Governor Murphy. She pleaded with him to hear them, noting his Executive Order for the shutdown during this COVID-19 pandemic has saved many lives, and she was thankful for this. However, Ms. Rogovin said the NJ TRANSIT fracked gas power plant proposed for the Meadowlands would send pollution into the environmental justice communities Governor Murphy pledged to protect in his 2018 Executive Order 23. She said the Governor talks regularly at his news conferences about his concern about the impact of COVID-19 on communities of color. Ms. Rogovin said pollution from burning fossil fuels at the plant would go directly into people's lungs in environmental justice communities in Kearny, Newark, Jersey City, and beyond.

Ms. Rogovin addressed Governor Murphy, stating the shutdown saves lives but, the proposed NJ TRANSIT fracked gas power plant will harm people's health for decades into the future. She said Governor Murphy talks about the importance of science, the importance of listening to the scientists so the only logical conclusion is for Governor Murphy and the NJ TRANSIT Board of Directors to stop the NJ TRANSIT power plant and support the proposal for renewable energy rail. Ms. Rogovin believes choosing to ignore the science would be negligence. She repeatedly chanted, "fracked gas power plant we say no, renewable rail is the way to go!"

Christian Nowell is an advocate opposed to the NJ TRANSIT fracked gas power plant in Kearny, New Jersey. He said Governor Murphy says all the time he is concerned about the impact the COVID-19 pandemic is having on people in environmental justice communities and environmental communities in general. Mr. Nowell said according to an article on insider.com on April 22, 2018, Governor Murphy is quoted saying "all of our residents regardless of race, color, ethnicity, religion deserve to live in communities free from the effects of pollution and are entitled to participate in decision-making that affects their environment, their communities, their homes and their health good environmental policy is something that must lift all communities."

Mr. Nowell said according to the DEP website at nj.gov, "Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies." Further, "Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies."

Mr. Nowell said he would like to point out that NJ TRANSIT issued the Final Environmental Impact Statement and Record of Decision with no period for public or interagency comment.

Mr. Nowell said according census.gov, as of 2018, Kearny New Jersey was made up of 50 percent Hispanic or Latinos, 4.6 percent Black/African Americans, and 4.7 percent Asians with 11 percent of people in poverty. Also, according to census.gov, as of 2018, he said Jersey City's population consisted of 29 percent Hispanic or Latinos, 24 percent Black/African Americans, and 25 percent Asians with 18 percent of the residents in poverty. Jersey City is located directly across the Hackensack River from the proposed site. Mr. Nowell said Jersey City is clearly an environmental justice community and both towns, Jersey City and Kearny have been hit hard by the novel coronavirus.

Mr. Nowell asked how citing a fracked gas power plant in Kearny, New Jersey is considered fair treatment under environmental justice. Beyond that, he asked if this is not the time to say, "no new fossil fuel infrastructure," then when is.

Joe Basralian is a resident of Chatham opposed to the NJ TRANSITGRID. They value NJ TRANSIT and what the Board is doing because they get them where they want to go. However, he thinks NJ TRANSIT must consider the gas power plant and not stopping society from getting where they all need to go. Mr. Basralian said to build a pollution gas fired power plant rather than clean energy inflicts oppressive air pollution on New Jersey's most vulnerable people.

Mr. Basralian said in Hudson County alone, where the plant would be located, 45,000 residents are diagnosed with asthma, including 10,000 children, amounting to 9.5 percent of the population. He said in 2016, there were over 600 hospitalizations due

to asthma, and over 4,000 emergency room visits from asthma alone, above the New Jersey average.

Mr. Basralian said the nitrogen dioxide smog and ground level ozone that will come out of this plant is exactly what worsens these conditions for people who don't have the ability to fight back and have very limited ability to advocate. He said Hudson County already has the worst air quality in New Jersey on a number of metrics, high rates of poverty, and a higher percentage of children which is readily available on census.gov. Mr. Basralian said Hudson County has a population of 43 percent Hispanics versus 20 percent in the state. He said they all say they want environmental justice, but they are basically putting more pollution in these communities. Although they don't want to hear these words, Mr. Basralian said it amounts to supporting institutional racism and earlier Executive Order 23 calls for environmental justice for historically low-income communities and communities of color.

Mr. Basralian said air pollution is just one of the many factors that will shorten lives, debilitate children, and design oppression into the system for the next 30 years. He asked with all the good they do as people and all the good decisions NJ TRANSIT makes, how can they consider undoing all that with a terrible decision like this deliberately citing pollution here. He questioned putting their hands on their hearts this morning and pray for those lost to COVID-19 including nine of NJ TRANSIT's own. Mr. Basralian thinks it is hypocrisy to pray for victims and then consciously make individual decisions to add to mortality through viral infection in the future because air pollution makes them all more vulnerable to viral infections like COVID-19.

Matt Kamper expressed concern on the transparency regarding Positive Train Control (PTC) installation. He is part of the group called Passengers United which represents riders in the MTA system, Long Island, Westchester County, the Pascack Valley Line, and parts of New Jersey. Mr. Kamper said the MTA has done an amazing job with their Positive Train Control transparency by updating the Board and public on the status of how the Positive Train Control installation is going.

Mr. Kamper said NJ TRANSIT gave an update on PTC last month but asked where it was in the agenda this month, noting the PTC deadline is December 31, 2020. He said the MTA and LIRR gives the public an update every month on PTC whether in a presentation or a committee booklet so the public can comment on it. Mr. Kamper said he is urging the Board, President & CEO Corbett, and Governor Murphy to look into updating the public on a monthly basis whether in a presentation or included in the agenda package. He said the riders are getting very concerned as they near the December 31, 2020 deadline because there will be major consequences to their transit system. Mr. Kamper said he really felt there has not been enough transparency and NJ TRANSIT riders deserve to have an update because safety is the most important priority in all transit systems. He hopes next month they will see an update on PTC in the agenda because they are less than a year out from the deadline.

Tim Sevener said while they appreciate the fact that NJ TRANSIT was willing to meet with their group promoting solar renewable energy to run the NJ TRANSITGRID 14-days

off-grid, NJ TRANSIT still has never seriously considered solar renewables. Instead, he said NJ TRANSIT continues to insist on a huge single point of failure 100-Megawatt natural gas plant running 24x7, 365 days of the year polluting an already polluted area which probably has lost more lives to the COVID-19 pandemic due to existing pollution.

Mr. Sevener said the NJ TRANSITGRID does not require a 24x7 year-round natural gas plant. Its sole requirement acknowledged by NJ TRANSIT is to be able to run train service off-grid for 14 days which requires 100-Megawatts. He said his group has demonstrated and provided very clear documentation that a solar tidal renewable combination with minimal on-demand backup can provide this capability. Mr. Sevener believes solar renewable rail is fully capable of providing the traction power to run the trains as is being done already in the Netherlands, Austria, India, Australia, and other countries throughout the world. He said solar renewables plus energy storage are more compatible with surge demands of rail traction.

Mr. Sevener said NJ TRANSIT acknowledges flywheels are required for this with their natural gas plant. He believes solar renewables are actually more affordable at this point in time. Mr. Sevener said according to the Rocky Mountain Institute, solar renewables cross the line of being cheaper than natural gas plants in 2019. He said the FEIS for NJ TRANSIT uses figures from 2013 which are way outdated today when they can get twice the production out of solar as in 2013. Mr. Sevener said they have surveyed sufficient solar acreage to provide 100-Megawatts, some places identified were the Kopper's Coke site a 40-megawatt solar farm, Standard Chlorine a 10-megawatt site, and others which were identified in his statement that was provided to the board.

Ken Dolsky commented on NJ TRANSIT's lack of willingness to engage in productive dialog with the public, and he is not just referring to today's poor treatment of the public which they clearly made their lowest priority by doing what they could to discourage it. Mr. Dolsky said their Don't Gas the Meadowlands Coalition has had a number of interactions with NJ TRANSIT staff. At each session, he said NJ TRANSIT staff told them how much they valued their input and how they wanted to engage with them.

Mr. Dolsky said their coalition asked NJ TRANSIT to: 1) Stop working on the NJ TRANSITGRID gas plant while unable to work on a renewable energy solution; 2) If NJ TRANSIT has taken this action, please confirm it in writing; and 3) If NJ TRANSIT has not taken this action please confirm and explain the reasons for not stopping work on the gas plant.

Mr. Dolsky said he sent letters in April and in May from the coalition stating their "asks" to Board Secretary Zuczek for forwarding to the Board. He complained he received no response from Board Secretary Zuczek on the receipt of the letters. Mr. Dolsky said he also had been communicating with Mr. Wyckoff of Government Affairs and while Mr. Wyckoff did respond to him on several occasions and let him know that Board Secretary Zuczek had received the letters, he felt his repeated requests for straight answers on his "asks" were totally ignored.

Mr. Dolsky said he went on to say to Mr. Wyckoff, if they can assure them that all work on this project has been halted, and all milestones are being pushed out, they will stop insisting that they devote resources to their requests. He said they clearly understand the seriousness of the issues facing NJ TRANSIT both financially and health wise for passengers and employees. Mr. Dolsky said they don't want to sound insensitive or selfish, but they also don't want to find out in a few months that bids have gone out and no renewable energy providers have been included on the list, and that efforts they would have made to help those vendors navigate issues specific to renewable energy are no longer practical.

Jeff Tittel, Director of the New Jersey Sierra Club, thanked NJ TRANSIT for all the work on dealing with the Pandemic and making sure commuters keep social distancing. He said NJ TRANSIT needs to be social distancing from dirty fossil fuel plants. The Sierra Club believes that the Environmental Impact Statement (EIS) and the rubber stamping of it was a sham and one of the most shameful events in NJ TRANSIT's history. Mr. Tittel said they are supposed to be looking out for the riders and the environment, their job at NJ TRANSIT is to help clean the air and get people out of their cars and onto transit, but instead they went forward with this EIS during this pandemic when it's directly related to environmental health and air pollution.

Mr. Tittel said the Sierra Club is the only group that had a formal interest in the EIS process because they were the only group that testified as well as submitted comments and yet they did not have a chance to comment on the Final EIS. Instead, he said they put out the Final EIS without a 30-day comment which is how it is usually done and gave the environment the shaft. Mr. Tittel said if NJ TRANSIT and the Governor really care about clean air and the environment and are serious about dealing with climate change, they have to pull the plug on this power plant.

Mr. Tittel said the Sierra Club supports NJ TRANSIT's Capital plan and many of the things they are doing, but this power plant should not be a part of the Capital plan and should not be a part of the federal funds received to keep trains running. He said they need to stop this dirty power plant project from moving forward. They strongly believe that NJ TRANSIT can easily meet their need for electricity through the microgrid using renewable energy, whether it's solar on Koppers Coke or the Meadowlands with a direct line coming down from the Kingston landfill and with back-up battery using hydro and tidal from the river. They need to move NJ TRANSIT into the 21st Century, not backwards to the 1950s. The Sierra Club wants to work with NJ TRANSIT to come with a solution and want to protect the people in South Kearny and Jersey City which one the biggest hotspots for the Coronavirus. They are asking NJ TRANSIT to work with communities in coming up with a viable alternative so NJ TRANSIT can be the first transit system in the United States to run on solar.

Ann Kelly said fracked gas is a dirty extractive process that destroys the air with methane, radiation, and chemicals that harm wildlife and humans and to further damage already destroyed ecosystems is unconscionable. She said their planet has finite resources and yet this plan acts as if infinite growth is sustainable, which clearly is not.

Ms. Kelly said while they must come to the uncomfortable truth that they may face a complete ecosystem collapse within the next decade, NJ TRANSIT continues to do "business as usual" catering to the failing and destructive demands of the fossil fuel industry that has put the world, country, and state on a path of self-destruction. She said this new fracked gas plant is really for "emergency use", but at heart it is about profit over people.

Ms. Kelly believes they should be focused on decreasing demand for fossil fuels as well as their carbon footprint, increasing the use of renewables, and investing in high speed efficient rapid transit as used in Europe and in Japan. Additionally, she said no one is addressing the elephant in the room, the fact that this power plant is near many towns that have already been burdened with greater amounts of industrial pollution and colors the project with environmental racism. Ms. Kelly said they must put all their efforts into researching storage and improving renewable energy and more efficient transit systems, not dinosaur fossil fueled plants that are to be used in redundancy. She said they are fighting a worldwide pandemic that threatens them all and there is no time left to stop the impending global collapse of their planet, so they must stand up and say stop to all further construction.

Jeffrey Rappaport said they heard many points today involving renewable energy and he cannot do any better than one of the previous speakers Mr. Ken Dolsky. He encouraged NJ TRANSIT to have some solar providers and experts look at the economics and how this power plant will affect air pollution, and minority rights as stated in Executive Order 23. They would like the experts to provide current up-to-date estimates because what they saw in the EIS report was very outdated because solar has become very economic, to build a natural gas plant for 14-days usage makes no sense, when solar could provide power to the microgrid all year long.

Mr. Rappaport said almost all of New Jersey is graded (F) by the American Lung Association, so why add to it. He wants them to reduce pollution that is going to kill his grandchildren and said it has affected so many people thus far. Mr. Rappaport said the government talked about how air pollution interacts with COVID-19, and they are both killers. He called on Governor Murphy to stop the NJ TRANSIT fracked gas power plant project and replace it with renewable energy rail alternatives. Mr. Rappaport thanked NJ TRANSIT very much for all that they do.

Bill Beren thanked President & CEO Corbett and the Board for allowing him to speak on the proposed power plant for the Meadowlands**.** He is a resident of Montclair and the Transportation Chair for the New Jersey Sierra Club. Mr. Beren believes the proposed power plant is complete with contradiction. He said it is proposed to serve as a back-up facility in the event the existing commercial grid fails and the plan now is to run the plant 24-7 as a primary source of power for the NJ TRANSIT rail division, located in the Meadowlands area that is prone to flooding and another Sandy level storm, so it is subject to the same liability threats as the grid it's supposed to replace unlike the distributed solar grid.

Mr. Beren said it is being built on the cap's superfund site and will allow dangerous and harmful pollutants to escape into the air and surrounding waterways, threatening not only ecosystems, surrounding residents, construction workers, and full-time employees working at the site. He said the plant will be powered by fracked natural gas which releases climate changing hydrocarbons into the atmosphere at every stage of its production, which is in direct opposition to Governor Murphy's goal in his recently released Energy Master Plan. Mr. Beren said in NJ TRANSIT's own Environmental Impact Statement (EIS) the agency has rejected proposals to build a safe reliable economical solar grid that will provide economic and environmental benefits far into the future.

Mr. Beren said the EIS report only compares the initial capital costs of construction of building the power plant against the solar grid, and instead the agency needs to evaluate the life cycle costs of each option. He said obviously solar has its advantages and has no ongoing costs once the grid is built and maintenance and operational costs for the solar grid versus the power plant is obviously cheaper. Mr. Beren said the EIS does not address who will operate the power plant, NJ TRANSIT doesn't have the in-house knowledge or staff to run a power plant, and they will have to hire an outside company to do so. He said imagine the cost of that and what will be the per kilowatt cost of power to NJ TRANSIT under both scenarios. Mr. Beren believes it is derelict to the Board's fiduciary responsibility to proceed with this project without a full life cycle environmental assessment to the project's proposed alternatives.

Holly Cox has been a New Jersey Resident for 21 years and raised three children there. She asked Governor Murphy and the NJ TRANSIT Board to stop the fracked gas power plant proposal and replace it with a renewable energy and storage alternative to promote public health and environmental resiliency. Ms. Cox believes the fracked gas power plant would be a major new source of toxic pollution and climate destroying greenhouse gas pollution at a time when they urgently need to reduce both in order to protect public health and start to act on the looming climate crisis.

Ms. Cox said the stay-at-home orders from this pandemic have shown that their air quality has drastically improved with the reduction in fossil fuel emissions and they need to be forward-looking and work to make this a long-term reality for their state. She said the world needs leaders now, and she knows Governor Murphy can be that leader, who dares to envision a greener and healthier world and do the hard work of transitioning to renewable and sustainable sources of energy. Ms. Cox said if they don't start transitioning now to a greener future it will be too late. She asked to put people and the environment first and transition to solar, wind, and battery storage options.

Herb Tarbous wished everyone well and continued health and well-being while they continue to weather this pandemic. He lives in Piscataway and regularly travels to Manhattan using NJ TRANSIT rail. Mr. Tarbous is a retired system engineer now engaged in political activism. He believes building a fracked gas power plant in the 21st century makes no sense and the global climate crisis, and the global respiratory pandemic make that excruciatingly clear.

Mr. Tarbous said they know there is incredible income inequality in this world. They know this is a story about the haves versus the have nots. They know that burning fossil fuels damages the health of and kills human beings. They know that this power plant should never be built and would pollute the air of the have nots who are suffering the most extreme effects of climate change and the pandemic, and they are also subject to the predatory result of the political corruption lead by the cronyisms of the haves. He said that cronyism has somehow concluded this power plant makes sense, and it does not.

Mr. Tarbous said they demand fresh, clean, breathable air, and this is non-negotiable. He said moving away from fossil fuels in the direction of renewable energy is the way to go and in fact a reasonable argument could be made that none of them ever has the right to burn fossil fuels over the valid objections and health concerns of others.

Michael Makarski represents more than 7,200 hard working men and woman of the International Union of Operating Engineers, as well as the more than 1,000 signatory contractors who employ them. The NJ TRANSITGRID project is not on the agenda, but he thought it prudent to speak in favor of this project. Mr. Makarski said many of the environmental lobbyists organizations that are trying to paint this project in a negative light should not be taken seriously. He said the proposed NJ TRANSITGRID clean natural gas power plant is an all-around winning project for the State of New Jersey at a time in economic uncertainty, a major job creating investment that will harden the energy backbone of NJ TRANSIT's electrical grid as was recommended by the Obama era department of energy and is the right decision.

Mr. Makarski said natural gas is cleaner burning, will reduce overall greenhouse gas emissions, and is more efficient, so NJ TRANSIT will get more bang for the buck when it is operating and is one of the most reliable energy sources to generate power. He said in fact, natural gas is the choice generation source for the renewable energy sector on the days when the sun is not shining, and the wind is not blowing. On behalf of his members and contractors, they applaud NJ TRANSIT's leadership for this forward-thinking microgrid project.

Richard Grant said Appendix D in the Final Environmental Impact Statement (EIS) for the NJ TRANSITGRID project provides NJ TRANSIT's most detailed explanations for why it rejects renewables and energy storage to power the microgrid and therefore would not be required to provide developers with the data needed to properly bid on the project. He believes the impression it gives is that NJ TRANSIT remains subject to bureaucratic inertia.

Mr. Grant said the NJ TRANSITGRID project was intended to be a game-changing model for America and the world in 2013. He said NJ TRANSIT, in rejecting generation alternatives, advancing a gas-fired power plant that would spew out carbon emissions and other pollutants for 30 or more years. Mr. Grant said now its strongest defense is that the plant is less incrementally dirty than the state's older gas-fired power plants.

Mr. Grant said Appendix D provides no reason for leaving out any discussion of tidal energy, alone and paired with energy storage and arguments signal that their author already has some familiarity with gas-fired power plants but did not research and evaluate the most current data on renewables and energy storage that would square with what is observed and reported in the real world. He found it strange that Appendix D notes that the only U.S. based utility-scale solar plus storage system in the U.S. Department of Energy, Energy Storage Database is a 13-MW solar plus 52-MW storage system in Hawaii, a 2017 project. Mr. Grant said according to an April 2020 post at the Utility Dive website, there are 61 US renewable projects now online of at least one megawatt co-located with batteries that represent 4.6 GW, a Gigawatt being 1,000 Megawatts, and another 88 projects in the immediate development pipeline and in the seven main interconnection queues representing a total of 83.7 GW. He believes that is a big miss.

Mr. Grant said the amount of solar energy system acreage needed is based on a 2013 technical report from data compiled earlier. Given on-going technological improvements made to raise solar energy output, he thinks that is like relying on a medieval illuminated manuscript.

Zoe Baldwin spoke on behalf of the Utility and Transportation Contractors Association in support of NJ TRANSITGRID project. She said rail service is absolutely critical to New Jersey no matter what the crisis and it is essential to their economic health and to the mobility of tens and thousands of residents who depend on it daily. Ms. Baldwin said they must as a state do everything they can to protect transit viability to ensure it can run even under dire circumstances, because without it they hurt commerce and the commuting public.

Ms. Baldwin said the NJ TRANSITGRID project will ensure reliable and resilient public transportation during outages to the commercial grid and other emergencies and minimize destruction to the regional workforce and economy. She said it is essential that they prioritize projects like this in order to protect investments and keep their state moving in the worst of situations. For Government to be effective, she said it must learn from the past and improve. Ms. Baldwin noted during Hurricane Sandy NJ TRANSIT was hobbled by the system outages that this project will prevent, and this is exactly the kind of leadership they expect from an agency in charge of such a massive network state asset. She believes NJ TRANSIT should advance the NJ TRANSITGRID project.

Steve Krinsky is a retired school teacher and has lived in Jersey City for more than 30 years and raised his kids there. He is very concerned about the negative impact of the gas power plant proposed for Kearny on his children and neighbors. Those negatives are not why he asked to speak today. Mr. Krinsky was speaking in favor of a positive solar alternative. He is not an expert on energy sources, but he knows that, as the costs of solar has dropped dramatically in the past few years and efficiency has increased, more and more places are trying it.

Mr. Krinsky said a quick scan of the internet shows that many countries around the world are way ahead. He just learned about a solar farm in Germany designed to power trains

and understands that in Austria, the Federal Railways are now operating a solar power plant for their railway systems. Mr. Krinsky said Belgium has a two-mile long solar tunnel which helps power the Paris bound high-speed rail and the tunnel on the Paris-to-Amsterdam line is topped with 16,000 solar panels to power Antwerp Central Station and Belgian train network. He said the world's first solar-powered railway track was recently introduced in the UK and these were just a few of the many innovative things going on in other countries.

While it might not make sense to NJ TRANSIT to convert its entire energy plan to solar, Mr. Krinsky thinks the fact that this proposal is for back-up power makes it ripe for trying to find an alternative to natural gas. It is his understanding that NJ TRANSIT, in its studies, did not seriously consider the solar alternative. He urged NJ TRANSIT to reconsider that decision and make New Jersey a pioneer in transit and renewable energy fields.

Alan Kratz said he appreciated this virtual meeting and having worked in One Penn Plaza, he hopes they direct their entire office staff to work from home during the rest of this year to prevent further COVID infection and fatalities among his former co-workers and their co-workers as they lead them responsibly through this pandemic. He said another measure of organizational health and civic responsibility is the care that they invest in achieving productive use of their physical assets. He believes they have an opportunity to do so in his hometown of Hoboken by taking a new look at an old building: The Records Building that the Lackawanna Railroad constructed in 1904 to house its paper records.

Mr. Kratz said in recent years, a tree grew in Hoboken, from the roof of the Records Building. He said when a set of bricks fell this past summer, NJ TRANSIT declared that the whole building was unsafe to inspect inside, jeopardized public safety, and required immediate demolition. Mr. Kratz said because the building is historic, NJ TRANSIT was required to study alternatives to demolition. He said to date, their analysis has identified alternatives ranging in cost from $0.8 million to $10 million.

Mr. Kratz said their evaluation does not yet include what is an equally important question: What is the revenue that any of the alternatives can generate? To help answer that question, Mr. Kratz hired a structural engineer, Donald Friedman, of Old Structures Engineering, to offer his professional opinion on multiple questions including: Do cracks in the brick façade indicate failure of the internal bearing wall or only superficial delamination? To answer that key unanswered question, what measures can NJ TRANSIT take to safely inspect the interior rather than declare that full inspection is impossible? How much would it cost to stabilize the building? Can the building be flood-proofed? After stabilization, what would it cost to prepare the building for NJ TRANSIT to lease out for rental income? During rehab, can NJ TRANSIT and the adjacent sewerage authority continue uninterrupted operations? Based on your professional experience, Mr. Friedman, is the Records Building too far gone to save for productive new use?

Mr. Kratz said Donald Friedman's response was: there are no structural or technical reasons to prevent safe interior inspection, floodproofing, stabilization, and rehab for tenant fit-out at

an investment between $1.65 million to $2.3 million. Also, he believes state and matching grants for historic preservation could cover all of that cost.

Mr. Kratz asked they delay the June 30, 2020 date for demolition, seven weeks from today, and take time for further study. He wants them to assure the public that they considered supplemental expertise that includes that of Mr. Friedman and revenue specialists. Mr. Kratz believes they will identify revenue, rather than merely costs. He believes they can adapt the Records Building from a non-performing asset into an example of creativity and fiscal responsibility.

Chris Lalevee is a business representative with the International Union of Operating Engineers Local 825 and they have over 7,200 members in the State of New Jersey and lower five counties in New York. He wanted to start with the obvious following the outages during Superstorm Sandy, NJ TRANSIT, the Obama Administration, Department of Energy, NJBPU, and the FTA all put a plan and funding in place to mitigate future outages by constructing and dedicating a microgrid powered by clean natural gas, which is 100 percent reliable. Additionally, they also supplemented for a solar field to add additional megawatts when conditions were good.

Mr. Lalevee said hundreds of jobs for trades men and woman will be created at a time when they need to be putting people back to work. They have underutilized the industrial area and will finally see quality redevelopment. He believes hardening their energy system will ensure the minimalization of the NJ TRANSIT outages. Mr. Lalevee applauded future consideration and thanked the Board for their continued forethought and leadership.

Ted Glick, President of the group 350 New Jersey, responded to the comments of the speaker before him and the other Union folks. Mr. Glick said whatever the fuel source is or an energy project that generates electricity, there are going to be construction jobs necessary to build the structures necessary. He said there will still be jobs created when putting up solar panels and there is a false notion that it is not going to create jobs. Mr. Glick said that is just not true and the reality is when they get serious about a clean energy revolution which is building and is going to happen, the question is, is it going to happen in time to avoid destructive climate catastrophic events all over the world. He said there are tremendous amounts of living wage jobs that are being created in making that transition.

Mr. Glick said none are against building this project, the question is the fuel source, and it should not be gas. He said fracked gas, natural gas, or methane gas is not a clean energy source however, people say they understand the climate crisis and want to do something about it, and yet they continue to believe that gas is bridge fuel to a future time when they are running on renewable energy. Mr. Glick said fracked gas is not a bridge fuel, it is a gangplank to climate devastation. He said gas is primarily methane and methane is 86 times more powerful as a global warming gas than carbon dioxide, and when it leaks out the ground it has major impact in terms of climate change. Mr. Glick said the Board of NJ TRANSIT and Governor Murphy should be clear on that, and not act as if it were a clean energy source or bridge fuel. Lastly, he said with what is happening with the pandemic and the economy, the oil and gas is in really bad shape.

Melissa Abernathy spoke as a 30-year Hoboken resident and as a member of the Hoboken Quality of Life Coalition Board, on the matter of the Lackawanna Records Building in the Hoboken Rail Yards property. She said it has been subjected to the Federal Transit Administration's Section 106 process after being identified as possibly posing a safety hazard to the adjacent properties. Ms. Abernathy said normally this process would be subject to public input, but due to the pandemic cancelling public meetings there has not been adequate opportunity for the public to provide input.

Ms. Abernathy requested the Board intervene in the deadline imposed by the 106 process and to find a way better than this particular channel they have been using, which has been an abuse of the public patience, to give the public a chance to make their views on the future of the building heard. Second, she would like to join the Hoboken Quality of Life Coalition's voice to those of Allen Kratz, a historic preservation expert, Terry Pranses, who is a leader of a group of concerned citizens of the Responsible Development Taskforce, as well as Claire Lukacs, advocate for historic preservation, and Donald Friedman, a historic preservation and engineering expert who submitted his comments in writing. They are all advocating that the Board consider an approved "Alternative 4 - Adaptive Reuse" to stabilize and preserve the Records Building.

Ms. Abernathy voiced frustration in having to wait for 3.5 hours just to speak.

David Pringle spoke on behalf of Clean Water Action. They have roughly 100,000 members in New Jersey who are very reliant on mass transit. He walks to the Cranford NJ TRANSIT station and they strongly support a healthy forward acting NJ TRANSIT, especially during the pandemic. He knows it has been hard for everyone with these virtual telephone call meetings and he has been on this telephone since 8:25 this morning.

Mr. Pringle asked if they still have a quorum on this line, and active listening by the Board Members before he speaks. The Board Chair asked Board Secretary Zuczek to take a quick roll call and Board Member attendance was confirmed. Mr. Pringle said this was amazing and he was impressed. He said it was not their intention to bash NJ TRANSIT, and they have their back and more on operational and capital fund needs to improve service, capacity and overcrowding.

Mr. Pringle said they identified at least 27 unfunded very needed NJ TRANSIT capital projects totaling over $25 billion and creating over a million jobs and ways to pay for it. They are not trying to work against them, but he thinks they are making it needlessly difficult. They support all the comments in opposition to the NJ TRANSITGRID project, and he will do his best not to be repetitive.

Mr. Pringle said he would like to give a shout-out to all of the NJ TRANSIT essential workers on the front-line, in particular the conductors and cleaning staff. For him, it has personally hit home since he lost his mother to COVID-19 last week and she was honored by Governor Murphy. Mr. Pringle said he has seen firsthand what it takes to put on protective gear to protect yourselves and your families from catching the virus and it's not easy, so he thanked

NJ TRANSIT for all that they do. Mr. Pringle said he has been on many virtual Board calls, but this by far was the worst in terms of meaningful comments. He complained that directions were changed at the last minute and some were being told to call in at different times. Mr. Pringle said they need a better process.

Sally Gellert, Legislative and Communications Director of the Lackawanna Coalition, noted two Board seats remain unfilled. She said the Governor's withdrawal of Mike Beson and Janna Chernetz' names givehim an opportunity to do what he should have done originally, consider the applications of transit-dependent individuals as well as those not connected to political machines or the transportation industrial complex. They note especially the interest of Lackawanna Coalition's David Peter Alan, the New Jersey Association of Railroad Passengers' Len Resto, Jeffrey Marinoff of the South Jersey Transportation Advisory Committee, and Nicholas Pittman, also from South Jersey, all of whom were unable to find a way to apply, even though most had alerted their state senators of their interest. Ms. Gellert said there are many bus riders who are interested in being on the board and they should be easy to find if one widens the pool beyond the usual well-connected suspects. Their only surprise was that there was a bump in the road of political appointees. She said maybe there is hope for them after all.

Ms. Gellert said they again stand with the many individuals who last month and again today rise in opposition to NJ TRANSIT using its resources to build a gas-fired power plant in an environmental justice community. She said spending $450 million of transportation money generating energy diverts needed capital funding away from transit projects to auxiliary items.

They would like to thank the frontline NJ TRANSIT employees who keep their essential transportation services running. They hope they have access to all the protective gear and testing they need to stay healthy and confident during this stressful time.

Claire Lukacs is a longtime resident of Hoboken with the knowledge that year after year NJ TRANSIT commissions a report or claims in a report they are interested in preserving the historical buildings on its site in Hoboken. Yet, she said the conditions of the Records Building have deteriorated.

Ms. Lukacs said the extensive Beyer Blinder Belle report from 1998, The Rail Yards Redevelopment plans 2006 and 2008, and updates in 2014 and 2019, all identify the Records Building as a historic property worthy of preservation. She said this building has a rich historical context and legacy for Hoboken, the State of New Jersey, and the railroad industry in general. Ms. Lukacs said it was conceived and built to protect the Delaware, Lackawanna & Western Railroads records and at one time also included the archives of the engineering and law departments of the entire Lackawanna Railroad.

Ms. Lukacs said the building was completed in 1904 making it the earliest surviving structure in the Lackawanna Hoboken Terminal complex. She said architectural drawings were drafted by architect Frank J. Nies and engineer W.K. McTablin in 1901. Ms. Lukacs said the New Jersey State Historic Preservation Office has determined that this building

is eligible for New Jersey and National Registers of Historic Places and is a contributing resource to multiple designated historic districts.

Ms. Lukacs believes they need to save the historical buildings they have left in Hoboken and developers have to understand it is part of their duty to help preserve this rich heritage that enriches their city and actually in the end increases the value of their development.

Jane Califf is from Bloomfield, New Jersey and spoke because she was very disturbed that there has been no period for public, or inter-agency comment, as is typical with projects surrounding environmental impact. She said a new gas-fired power plant makes no sense for their environment, health, or economy. Ms. Califf said the Don't Gas the Meadowlands Coalition has received no response as to the status of the project and asked why their requests have been ignored. She said NJ TRANSIT says it wants dialogue with the public, but if the public asks hard questions they completely stop communicating.

Ms. Califf said Governor Murphy talks regularly at his daily press conferences on how he is extremely concerned about the COVID-19 pandemic on people in environmental justice communities. She said stopping the proposed NJ TRANSITGRID project and considering renewable energy alternatives would be an important first step and prove to the public his commitment. Ms. Califf said this is not a time for New Jersey to build more fossil fuel infrastructure. She believes NJ TRANSIT, under Governor Murphy's Leadership, must transition rapidly to expand its mass transit to renewable energy buses and trains. Ms. Califf said this all can be accomplished with a combination of solar, wind, hydro, and battery storage which will be important for their health, green jobs, and their climate.

Ms. Califf asked NJ TRANSIT to search their conscience and ask themselves if they are on the side of the profit hungry fossil fuel corporations that have no conscience or concern for the communities they destroy or on the side of the public which deserves a stable climate and a safe environment.

Kathy Friedman lives in North Bergen, New Jersey and called on Governor Murphy and the NJ TRANSIT Board to stop the NJ TRANSIT fracked gas power plant project and to replace it with a renewable energy and storage alternative for public transit resiliency. She too has been sitting on the telephone for many hours listening to many of these excellent people speaking on facts and common sense. Ms. Friedman asked what they all have learned today. She said there is always the question that applies to so many disciplines, and they learn from history.

Ms. Friedman said during this COVID-19 pandemic, they have seen that things change rapidly in the way they do everything in their lives, and that has to be considered before they proceed with this proposed fracked gas power plant. She said this power plant would be a major new source of toxic air pollution and climate destroying greenhouse gas pollution at a time when they urgently need to reduce those in order to protect public health and safety. They cannot ignore the link to fossil fuel in generated air pollution and

the increasingly negative health factors that are being highlighted in the Coronavirus pandemic.

Ms. Friedman said as the people have already mentioned today think about the demographics in the towns of Kearny and the surrounding towns. She said there is a disproportionate amount of age, ethnic, low income households who already have limited resources and compromised living situations. Ms. Friedman asked they consider that New Jersey is a densely populated state by population with more toxic sites than any other state. She said there are many, Linden, Newark, Kearny, Orange and more. She wants them to learn from history and don't make the same mistakes

Reverend David Stump spoke to urge NJ TRANSIT to protect the health and lives of New Jersey's people by blocking the current plan for NJ TRANSIT to build a new fracked gas power plant in Kearny. He said such a plant will attack the health of their people, especially their children, by adding yet more air pollution to an area already graded as "F" by the American Lung Association for dangerous levels of ground level ozone caused by fossil fuel pollution and their warming climate. It will endanger the health and lives of all the earth's people by adding yet more greenhouse gasses to the atmosphere at a time when the scientists who have spent their lives studying this problem are telling them they have very little time to make significant reductions to the amount of gasses they put in the atmosphere.

Reverend Stump said the stay at home orders from the Coronavirus pandemic have also shown their air quality will drastically improve with reduction in fossil fuel emissions. He said towns are already breathing cleaner air than they have ever experienced in generations. He believes this can be a long reality for their state, but only if they work to lower emissions, not double down on the polluting fossil fuels. He urged NJ TRANSIT to stop any further work on this plant until they have conducted a thorough study of solar options, issued a comparative analysis of these options, and allowed ample time for public comment on the choice of options.

Mary Walsh, the Conservation Chairwoman of the North New Jersey Group Sierra Club and a Certified Science Teacher in the State of New Jersey, said she listened this morning to the President & CEO speak and saw that he has shown great responsibility in dealing with the COVID-19 pandemic. She said he is very concerned with the health of employees and the riders and she is very thankful for that.

Ms. Walsh has every confidence that NJ TRANSIT can take that same concern to the health of the riders of NJ TRANSIT and not contribute to pollution and exacerbating the problems of climate change by building the proposed power plant. To make sure they don't burn as many fossil fuels, she urged them to use the common sense applied to the Coronavirus pandemic to the generation of clean electricity. Ms. Walsh also urged them to make the best possible use of the funds from the FTA, especially in a time of reduced economic activity. She asked them to consider the combination of solar on the 165 acres of land available for that purpose in conjunction with a small power plant that runs off gas

generated by methane from the two landfills in Kearny. Ms. Walsh said this land was described to NJ TRANSIT in a meeting with Tim Sevener from the Sierra Club.

Josephine Paredes asked Governor Murphy and the NJ TRANSIT Board to discontinue building fracking sites around New Jersey, and instead get on board with using Renewable Energy alternatives for public transit. She said she recently wrote a letter to Governor Murphy and hopes he received it by now. During these unprecedented times of change, she believes it would be a fortuitous time to shift and evolve their energy and transit to renewable resources over fossil fuel and natural gas fracking.

Ms. Paredes said it was time they invest in sustainable energy generation, plus battery storage over the depleting sources of oil and gas. She believes another fracking power plant in New Jersey is a bad investment because it risks the public health and safety of residents' drinking water. Ms. Paredes said this proposed power plant specifically puts Jersey City, Newark, and other towns in Hudson, Essex, and Bergen County at risk of pipe water contamination. She believes they should invest in upgrading their energy sector to the advanced technologies of electric power.

Ms. Paredes said her letter mentioned the government can lead the renewable energy revolution by generating green energy from government state properties. She believes the times are changing, and they must shift and adapt to these changes to mitigate the worst effects of climate change. Ms. Paredes addressed Governor Murphy, stating she knows this can make one nervous, charting through unknown territories, but she believes with his leadership the people of New Jersey can build new ways that ensure their safety, health, and prosperity in the future.

Joseph Clift said all the way up to President & CEO Corbett, NJ TRANSIT Management knows that the Portal North Bridge only qualifies for the $822 million federal grant it needs by deceiving the FTA by omitting information. He said it is $1.6 billion but there is no capacity gain from the bridge, and all of it comes from NJ TRANSIT's rolling stock. Mr. Clift believes Portal North's $1.6 billion cost is a waste of taxpayer dollars and argued there has been no peak period rider delay in over a year. Mr. Clift said he offered Board Member Fulton and Gordon an opportunity to learn the reality of Portal North's mechanics and dollars.

Mr. Clift said on the NJ TRANSITGRID in addition to the carbon footprint pollution problem being the first bad idea, there is a second bad idea, the $450 million to be spent on this plant is transit dollars being spent on electricity, and that's a crime. He believes the electric grid needed can supply power, the issue is reliable distribution and not generation, it is a false narrative that this project is premised on, and the $450 million is needed for the Hudson Tunnels especially with the COVID-19 financial meltdown.

Mr. Clift said this was no time for NJ TRANSIT to go full steam ahead on new capital projects, when the COVID-19 financial impacts on NJ TRANSIT is frightening. He said applying an analysis of Illinois state losses due to COVID-19 to New Jersey results in an $800 million loss in revenue, a little over half in fuel tax losses, and a little less than half

in vehicular tolls, both sources for NJ TRANSIT operating & capital budgets. He believes this should be particularly worrisome to Board Members Wilton and Kanef since they deal with the entire state budget, and they need to get NJ TRANSIT to wake-up to reality.

Mr. Clift hopes Board Member Adams will be interested in weeding out this unprofessional manner of NJ TRANSIT advocating on advancing capital projects with no strategic picture, no project picture, and no performance against budget. He believes the only time they see this in the public is when a contract is lead, this is a problem, and it has gotten worse under the current administration in NJ TRANSIT and in Trenton. Mr. Clift said no one in the industry manages like this, and it needs to be fixed. Lastly, he believes NJ TRANSIT needs to put out a report on Positive Train Control status.

Doug O'Malley, Director of Environment New Jersey representing more than 20,000 citizens and members across the state, said their heart goes out to NJ TRANSIT and the workforce because this agency has been hit harder than any other. He also wanted to extend condolences to the family of Raymond Kenny and all the other frontline workers at NJ TRANSIT who lost their lives while serving on the job. Mr. O'Malley said this also extends to the Union that represents NJ TRANSIT employees and the brothers and sisters of the Amalgamated Union, Ray Greaves, and Orlando Riley. They are also grateful for the recovery of President & CEO Corbett.

Mr. O'Malley said the needs that NJ TRANSIT has outlined for funding is great. They want to encourage NJ TRANSIT to reach out to stakeholders around the state and decision makers to rally in federal government in support of transit. He said the existence of trains and buses in some ways are being called into question.

Mr. O'Malley believes in this time of COVID-19, NJ TRANSIT should not be advancing the NJ TRANSITGRID power plant project because it will only exacerbate the problem of people with COVID-19 by polluting the air. He said NJ TRANSIT has heard a lot of points this morning as to why this is not a good idea and he would like to emphasize some additional points they should be taking into consideration, especially since the Environmental Impact Statement (EIS) did not take this into consideration.

Mr. O'Malley said Septa has been moving forward with a solar farm project totaling 44 megawatts to advance energy sustainability goals and this is a project that was just announced last month, which is exactly the sort of renewable energy alternative NJ TRANSIT should be pursuing. He takes issue with the fact that the site along the Hackensack River that the power plant would sit on is a cap superfund site and this would propose a major pollution issue going into the Hackensack River. Lastly, Mr. O'Malley believes a fracked gas power plant would not be in line with the Governor's Energy Master Plan.

Barbara Stomber said as a native of Jersey City, a lifelong resident of New Jersey, and a mother of three children all of whom grew up and still reside in New Jersey along with her ten grandchildren, she is heavily invested in their state and future. However, she said it is with great sadness that the State of New Jersey fails to end its dependence on fossil

fuel, and the building of yet another fracked gas power plant in the heart of a densely populated city, one that could remain in operation for the next 50-years.

Ms. Stomber asked if anyone has noticed the crystal sky today and its blueness and the clarity of the air during the stay at home shut-down due to COVID-19. She said this is what life could look like in the transition to renewable energy. Ms. Stomber said as Governor Murphy has relied on science during the Coronavirus pandemic, he must take bold action to stem emission of fossil fuel utilizing what science tells them every day. She believes during the time of the Coronavirus, special interests are waiting quietly to snatch their blue from the sky, pollute the improved air, and degrade their water.

Ms. Stomber said one only has to read last Sunday's addition in *The New York Times* and see that there are 98 environmental rules that the current administration is revoking or rolling back. The majority affect air pollution and emissions with 27 rules, 19 affect drilling and extraction and 11 affect water pollution, toxic substances, safety and animal roll back comprise another 22. The bulk of the rules have been carried out by the Environmental Protection Agency, recently headed by Andrew Wheeler a former lobbyist for the coal industry. Ms. Stomber implored them not to rely on 20th century technology to build this plant and have New Jersey lead the charge to energy of the future, clean renewable energy. She believes if Governor Murphy wants to be recognized as a true leader his knowledge and adherence to science must be reflected in his actions of climate change.

Randy Glucksman, Chairman of the Metro North Rail Commuter Council and a Board member of the MTA, expressed his condolences for the loss of Raymond Kenny who was a true railroad professional and the other eight employees mentioned earlier. Mr. Glucksman was also happy that President & CEO Corbett has recovered. He also congratulated Board Secretary Zuczek on being reappointed. Mr. Glucksman noted he was unhappy about having to wait all this time while the Board went into Executive Session.

On behalf of his constituents, Mr. Glucksman was happy to see that service has improved on the Pascack Valley Line over last month's record setting 21 train cancellations. He said it is hard to believe even with a much-reduced schedule and graduating classes of new engineers, NJ TRANSIT still has to keep cancelling trains due to engineer availability. Mr. Glucksman expressed his thanks for the improvement on the Port Jervis Line.

Mr. Glucksman said after his explanation last month on how the MTA provides information on Positive Train Control (PTC) status, it was quite disappointing to find there was still no information on the NJ TRANSIT website about PTC status. Their working group for PTC will have their virtual meeting tomorrow. He said to keep in mind that the clock is ticking towards the deadline of December 31, 2020. Mr. Glucksman thanked the NJ TRANSIT employees who transport customers every day.

Dr. Arati Kreibich is a scientist, a resident, a councilmember in Glen Rock, New Jersey, and part of the Glen Rock Environmental Commission. She offered her condolences for

all of the NJ TRANSIT employees lost during this pandemic and thanked all of the NJ TRANSIT front-line workers for all that that they do. As a past commuter and regular user of NJ TRANSIT, along with members of her family and community, as someone who chose the town to live in because of easy access to transportation, she knows solutions to increase transportation resilience in North Jersey is of utmost importance. However, she believes investing in a gas-fired power plant, particularly in this pandemic-crisis affected world is shortsighted.

Dr. Kreibich said they already know how vulnerable New Jersey is to climate change. Indeed, she said Superstorm Sandy has shown this. She thinks it is ironic then that the grant given for increasing transportation resilience post-Sandy will be used to further fuel the causes contributing to climate change. Dr. Kreibich said as a state, they cannot sustain a new fossil fuel power plant which will spew air pollution and greenhouse gas emissions in already-vulnerable communities with the worst air quality. She said exposure to air pollution leads to significant health concerns including asthma, lung, and cardiovascular diseases. Dr. Kreibich said this exposure would significantly and disproportionately affect low income communities of color, which is environmental racism.

Dr. Kreibich believes they need to build a more resilient future and that future should be focused on 100 percent clean energy, green jobs and green infrastructure. She said they can be the leaders who make the choices necessary to create a safer, better world for commuters, their communities, and their children.

Sid Madison said he has been coming to these meetings since last year and all the comments he has heard today explain why a fracked gas power plant is not a good idea, and nothing has changed much since he was last there. He questioned why the process continues not to take into account the facts and guesses it is because it is more political than science oriented. Mr. Madison suggested they take one rule into account as they move forward: Mother Nature's rules don't change, and the political process does not take this into account. He said he would like them to think about what they will say to their kids and grandkids in five (5) to 15 years, when they ask, what they did about stopping global warming. Mr. Madison said when they answer they stopped a gas power plant from being built, they will be on the right side of history.

Cyndie Williams appreciated the opportunity to speak on behalf of the hardworking members of the Eastern Atlantic States Regional Council of Carpenters. She said transportation is important to their community and they need energy solutions that will protect communities' access to travel when unforeseen circumstances take place. They have seen too many times across this country infrastructure fail, and the need for reliable and safe transportation infrastructure for all New Jersey residents is now.

Ms. Williams said this project will help put hard-working men and women to work, including the skilled workers of the Eastern Atlantic States Reginal Council of Carpenters. She said they need this investment today, and her brothers and sisters of the Eastern Atlantic States Regional Council of Carpenters are ready to do their part to make their state grow and keep their bridges safe and in working condition for their neighbors.

Ms. Williams said their workers are trained to work safely and are already skilled in creating energy plans like the NJ TRANSITGRID.

Demetria Marshall is a Senior at Seton Hall University and urged the NJ TRANSIT Board and Governor Murphy to stop the frack gas power plant proposal and replace it with renewable energy for a cleaner future for public transit. She said their state has been graded (F) by the American Lung Association and NJ TRANSIT will jeopardize their future if they move ahead with this project.

Ms. Marshall said the cleaner air they are experiencing for the time can become a long-term reality only if they reduce their dependency on fossil fuel. She said the NJ TRANSITGRID is solely for the purpose of supplying energy during storms in times of compromised power for limited areas of operation, such as the Northeast Corridor. Ms. Marshall said the capacity factor of this emergency generator will only represent 87.6 hours within a year and asked even if this energy produced was used for normal operation, why would this be considered more economical as an alternative rather than buying electricity from a large well established and efficient source such as PJM Power Grid.

Ms. Marshall said on top of the inefficiency of this project NJ TRANSIT would be responsible for omitting more PM 2.5 into their existing poor-quality air when residents are already being exposed COPD, chronic lung disease and asthma. She said if NJ TRANSIT continues with this plan, they will be going against New Jersey's Energy Master Plan and derail any progress that they make in the midst of a pandemic. For the safety of everyone on this call, residents of New Jersey, and future generations, she urged Governor Murphy and NJ TRANSIT to invest wisely in renewable energy sources.

Bernadette Maher is a member of Central Jersey Environmental Defenders and several other groups. She called on Governor Murphy and the NJ TRANSIT Board to stop the NJ TRANSIT frack gas power plant proposal and hopefully replace it with a renewable energy alternative for public transit resiliency. Ms. Maher said this power plant would be a major new source of toxic air pollution and climate destroying greenhouse gas pollution at a time when they urgently need to reduce both in order to protect public health and safety.

Ms. Maher said they can't ignore the link between fossil fuel generated air pollution and the increasingly negative effects that are being highlighted by the Coronavirus pandemic. A recent Harvard study demonstrated that populations exposed to air pollution are more susceptible to the worse outcome from the Coronavirus, in addition Dr. Curtis Nordgaard did a study that said methane gas and emissions from these power plants negatively affect children, which is why they are fighting against these power plants. She said almost all counties in New Jersey are graded (F) by the American Lung Association for the dangerous ground levels of ozone caused by these fossil fuel power plants and this pollution is responsible for the high levels of asthma, COPD, and chronic lung disease and have resulted in many deadlier cases of COVID-19 in their community. Ms. Maher implored Governor Murphy and NJ TRANSIT to deny this project.

Kyle England spoke on behalf of the New Jersey Concrete Aggregate Association in support of the NJ TRANSITGRID project. He said they have had a lot of negative input today, but he thinks the economics of the project can be a real benefit for the state, especially considering the times that they are in. During the current pandemic they are seeing the results that a stagnant workforce is having on their economy. Mr. England said having the ability to keep their workforce moving in a time of an emergency, and the amount of jobs that will be generated from this project will be huge for the State.

Adam Reich said under normal circumstances he is an NJ TRANSIT regular rider between Metuchen and Trenton and wanted to speak about state of good repair issues, and customer communication. On the state of good repair side, he hopes that the staircase at New Brunswick Station referenced in his statement gets repaired. The staircase is specifically located at the east end of the platform, near Somerset and George Streets. He hopes they will look at the addendum that was submitted that shows pictures of the repairs needed. Mr. Reich also encouraged NJ TRANSIT to fix the high traffic areas now that they have a significant reduction in traffic, as long as it does not interfere with employee safety. He also encouraged NJ TRANSIT to work with AMTRAK to see if any emergency repairs can be done to the Hudson River Tunnels while there are fewer trains operating.

On the customer communication side, Mr. Reich thinks today exemplifies the need for NJ TRANSIT to put a customer service representative on a virtual town hall format on a periodic basis, once a week, every two-weeks, or monthly, which will be useful in gathering information on various issues. He has heard on the news during this pandemic about essential workers on crowded buses, but what customers have not gotten from NJ TRANSIT is the specific issues customers are raising, and how they have resolved them. He thinks a town hall format will help in gathering feedback from current riders and riders who will be returning to the workforce and this will keep NJ TRANSIT aware of customer concerns so they can solve them and know what their constraints are. Mr. Reich also suggested they work with the riders before announcing a reopening plan because the previous service plan announced on March 19, 2020 had gaps.

Joan Millar is a member of the Sierra Club as well as a Learning Disabilities Specialist speaking as an individual today. She believes what the speaker before her said on the repair of the ARC Tunnel is necessary, and since NJ TRANSIT owns that property, she does not think it should be given up for a power plant. She said if they do need a plant, and it looks like they do, a frack gas power plant is the worst and the environment will be affected. Ms. Millar said the gas emissions from this power plant can cause learning problems and gestation among children. She believes the power plant should be made of solar and wind to power the plant and it should have a smaller footprint. Ms. Millar said the site for the power plant is also no good because two former industrial companies said the environment there was problematic.

Paul Somerville is a fifth generation Hoboken resident and former Chair of the Hoboken Historic Preservation Commission. He thanked them for this opportunity to speak about

the Lackawanna Records building in Hoboken scheduled for demolition next month. He said they have heard from others about many ideas that would save this building and he wanted to remind them of one of the mandates NJ TRANSIT has to maximize revenue of its non-farebox money, that would include the property known as the records building.

Several years back Mr. Somerville wrote a proforma as part of preservation course at Drew University realizing that there might be something that could done with the Lackawanna Records building, and that business proforma attracted the attention of a group of investors in Hoboken who owned many historical commercial properties in this area. Mr. Somerville said these investors have approached NJ TRANSIT on numerous occasions, but to no avail as to lease or buy this property, and as recently as one-month ago they were still interested in talking to NJ TRANSIT. He is hoping NJ TRANSIT will reconsider, and that this historic property will not be lost.

Summary of Written Statements Submitted in Lieu of Speaking

Bruce Bergen is Chairman of the Raritan Valley Line and he expressed concern for prompt and transparent information from NJ TRANSIT on an action plan to ensure rider safety as COVID-19 restrictions are eased. He was pleased to see the Portal North project moving forward because it is a critical part of the Gateway Project. He would like to know what effect COVID-19 has had on PTC and the engineer classes. Mr. Bergen would like to know the status on the release date of the report on the Raritan Valley Line mandated by S-3574, and the status of when the one-seat ride will be reinstated on the Raritan Valley Line.

Elizabeth Ndoye is a 40-year resident of Hoboken who expressed her opposition to the proposed power plant at Koppers Coke in Kearny. She believes NJ TRANSIT should do what is required to create an alternative energy plan and talk to experts regarding the use of solar, wind, and tide energies.

David Case is a Jersey City Heights resident, and Co-Chair of the Hudson County Group of the New Jersey Sierra Club. He is opposed to the building of a gas-fired power plant in Kearny. Mr. Case said this plant would be a mile and a half away from his home and the Jersey City Heights area has been poisoned for the last 114 years by the coal fired Hudson Generating Station and many others.

Alana Horowitz Friedman opposes the NJ TRANSIT gas power plant proposal and would like to call on Governor Murphy and the NJ TRANSIT Board to stop this project, and to replace it with a renewable energy alternative.

Lauren Morse called on Governor Murphy and the NJ TRANSIT Board to stop the NJ TRANSIT frack gas power plant proposal and to replace it with renewable energy plus storage alternative for public transit resiliency.

Ron Bautista has been a resident of Hoboken for 20 years. He came to New Jersey with his parents from Ecuador. He is opposed to the building of NJ TRANSIT's fossil fuel power

plant only three miles away from Jersey City and Hoboken. When he first heard of this proposed power plant being built, he thought of his toddler, 67-year old mother, and many neighbors, seniors, and people with heart and breathing problems. They already have funding set aside for this power plant for resiliency purposes. He asked the board of NJ TRANSIT to use resiliency money to fund renewable energy, not fossil fuel power plants.

Mary Benintende grew up in Little Ferry which is on the Hackensack River and built on reclaimed land from the Meadowlands. Her family has experienced many floods over 30 years and Captain Hugh from the Hackensack Riverkeeper has worked for decades to clean up their corner of the world. She believes this proposed powerplant is an old stagnant idea and should not be built. Ms. Benintende said to fire their engineers and tap some new talent graduating from their wonderful state universities who understand environmental impact.

William McClelland is a North Bergen resident and addressed the unacceptability of siting the NJ TRANSIT fracked gas power plant at Kearny's Koppers Coke site. He said one of the reasons residents in this area have contracted COVID-19 in such high numbers is due to pre-existing health conditions, many of which are a result of decades of poor air quality. Mr. McClelland said if any new power generation is to be sited at Koppers Coke or anywhere near this area, it must use exclusively 100 percent renewable energy sources.

Art Vatsky, P.E. is opposed to the NJ TRANSIT fracked gas power plant. He said the Coronavirus was not a part of the planning process, but it's there now. Mr. Vatsky said New York business/workers are not anxious to return to the 20th Century Pre-Coronavirus life. He argued they should put this power plant project on the shelf because it will only contribute to an already compromised environment.

Anna Sanchez is a lifelong resident of Hoboken and a practicing architect. Her area of concentration is in Historic Preservation with emphasis on the conservation of materials. Ms. Sanchez was disturbed about the Records Building being torn down. She said the question they should be asking is how this building can be saved.

Terry Pranses is a founding member of the Responsible Development Task Force of Hoboken. He urged adaptive reuse for the Records Building. Their group, formed to guarantee broad community input into the City's redevelopment plans for Hoboken Yards, started in 2008.

Donald Friedman submitted a statement regarding the condition of and proposed work at the Records Building. He is an engineer by trade, and starts from the same point as NJ TRANSIT, as was evident in the reports he has read. Based on his 30 plus years of experience advising clients on the structural integrity of old buildings, in his professional opinion there are no structural or technical-feasibility reasons to prevent stabilization and restoration of the records building.

Tina Weishaus said she was on hold for five and half hours waiting to get called to speak on the virtual Board call, no one has time sit on a telephone line waiting to speak, and there has to be a better way. She is opposed to the power plant being built. Ms. Weishaus said the COVID-19 Pandemic is earth's way of telling them that if they don't change the way they do things, they will be in a chronic state of crisis with climate catastrophes and health emergencies going forward.

Jason Friedman is Council Representative for Eastern Atlantic States Regional Council of Carpenters (EASRCC). He noted the EASRCC is in favor of the NJ TRANSITGRID. Their working carpenters can benefit from the job creation that is associated with improvements in infrastructure not to mention the improvement in living standards.

Warren Stella is in favor of the proposed transit grid. They have never needed a reliable transit system more than they need it now in these crazy times.

Ciro Scalera is the Director for the labor-management fund of the New Jersey Laborers Union. They represent 25,000 members and employees of our signatory contractors in New Jersey. They support all types of investment in transportation infrastructure and express their support for the NJ TRANSITGRID Project.

Katherine Foster said this is not the time to continue down the path of destruction with the climate situation being what it currently is. She believes now is the time to start using their position on the planet responsibly and take care of the planet. So rather than pursue more of the same dirty sources of energy, she asked for a cleaner more sustainable alternative.

Lino Santiago is the Business Representative for IUOE Local 825 and President of Essex County Building & Construction Trades Council (ECB&CTC). The ECB&CTC supports the NJ TRANSITGRID Resilience Program. This project will be resilient, secure, energy independent, economic, net-zero ready, and will improve air quality.

Nick Lento strongly suggested they use Zoom or Go to Meeting in the future for Board Meetings because he received reports of people having a hard time accessing the meeting online, with some waiting hours to speak. He would like to add his voice to those that oppose the construction of the NJ TRANSIT power generating station that will be using fossil fuels.

Ronald Waxman called on Governor Murphy and the NJ TRANSIT Board to stop the NJ TRANSIT fracked gas power plant proposal and to replace it with a renewable energy plus storage alternative for public transit resiliency.

Adjournment

Since there was no further business, a motion to adjourn was made by Board Member James D. Adams, seconded by Board Member Brian T. Wilton, and adopted. The meetings were adjourned at approximately 1:30 p.m.

NEW JERSEY TRANSIT CORPORATION
NJ TRANSIT BUS OPERATIONS, INC.
NJ TRANSIT RAIL OPERATIONS, INC.
NJ TRANSIT MERCER, INC.
NJ TRANSIT MORRIS, INC.
RESCHEDULED BOARD OF DIRECTORS' MEETINGS

MAY 13, 2020

MINUTES

	PAGE
➢ **CALL TO ORDER**	-
➢ **APPROVAL OF MINUTES OF PREVIOUS MEETINGS**	56514
➢ **PRESIDENT & CEO'S MONTHLY REPORT**	56515
➢ **PUBLIC COMMENTS**	-
➢ **ADVISORY COMMITTEE REPORT**	-
➢ **BOARD COMMITTEE REPORT**	-

ACTION ITEMS

2005-22 **PRELIMINARY AND FINAL DESIGN ENGINEERING AND CONSTRUCTION ASSISTANCE SERVICES FOR THE NEW NORTHERN BUS MAINTENANCE FACILITY** – Authorization to enter into NJ TRANSIT Contract No. 19-051 with Gannett Fleming Inc. of Newark, New Jersey, to provide Conceptual Design (Phase 1A only) for the New Northern Bus Maintenance Facility at a cost not to exceed $1,105,509.23, plus five percent for contingencies, subject to the availability of funds, with options to continue at sole discretion of NJ TRANSIT for future phase Preliminary and Final Design Engineering And Construction Assistance Services. **56538**

2005-23 **NJ TRANSIT RESILIENCE PROGRAM – RARITAN RIVER BRIDGE REPLACEMENT PROJECT: AWARD FOR GENERAL CONSTRUCTION CONTRACT GC.01 AND AMENDMENT TO CONSULTANT CONTRACT PHASE III CONSTRUCTION ASSISTANCE SERVICES** – Authorization to enter into NJ TRANSIT Contract No. 20-005X with George Harms Construction Co., Inc. of Farmingdale, New Jersey, for the construction of the Bridge Approach Spans, Lift Bridge and Flanking Span Piers, and Associated Land Work for the Raritan River Bridge Replacement Project - General Construction Contract GC.01 in the amount not to exceed $247,945,055.49, plus five percent for contingencies, subject to the availability of funds. **56540**

Authorization to amend NJ TRANSIT Contract No. 15-044 with Hardesty & Hanover/ Gannett Fleming Joint Venture of Newark, New Jersey, to provide consultant services for the Raritan River Bridge Replacement Project Phase III – Construction Assistance Services in the amount not to exceed $14,878,806, plus five percent for contingencies, subject to the availability of funds.

2005-24 **EXECUTION OF CONTRACT 19-064 FOR THE PROVISION OF ACCESS LINK SERVICE IN REGION 6 (BERGEN, HUDSON, PASSAIC, AND ESSEX COUNTIES)** – This item was deferred. **56553**

2005-25 **EXECUTION OF CONTRACT 19-063 FOR THE PROVISION OF ACCESS LINK SERVICE IN REGION 3 (ATLANTIC, CAPE MAY, CUMBERLAND, AND SOUTHERN OCEAN COUNTIES)** – Authorization to enter into NJ TRANSIT Contract No. 19-063 with Easton Coach Company of Easton, Pennsylvania, to operate Access Link service in Region 3 (Atlantic, Cape May, Cumberland, and Southern Ocean Counties) for an initial 36-month base contract period from July 12, 2020 to June 30, 2023 at a cost of $14,235,059.00, plus five percent contingencies for a total contract authorization of $14,946,812.00, subject to the availability of funds and Board approval of NJ TRANSIT's operating budget. – This item was amended to only vote on approval of the initial 36-month based contract period. **56554**

2005-26 **DESIGN, ENGINEERING, AND CONSTRUCTION ASSISTANCE FOR THE CENTRAL CONCOURSE AT NEW YORK PENNSYLVANIA STATION** – Authorization to enter into NJ TRANSIT Contract No. 19-052 with FX Collaborative Architects LLP, of New York, New York, for preliminary design engineering services of the Central Concourse Project in the amount not to exceed $4,121,887, plus five percent for contingencies, subject to the availability of funds. **56555**

2005-27 **APPROVAL OF NJ TRANSIT'S PUBLIC TRANSPORTATION AGENCY SAFETY PLANS** – Authorization to take all actions necessary for approval of NJ TRANSIT's Public Transportation Agency Safety Plans detailed in the corresponding Exhibits with this Board item. **56563**

2005-28 **PROCUREMENT BY EXCEPTION: PURCHASE OF 728 MULTILEVEL WHEELS** – Authorized to enter into a Procurement By Exception NJ TRANSIT Contract No. 20-625 with Transit Sourcing Services, Inc. (TSS, Inc.) Part Number 03293-34-100 a.k.a. NJ TRANSIT Part No. 29990000.NEW) in the amount not to exceed $763,672.00, plus five percent contingency, for a total contract authorization of $801,855.60, subject to the availability of funds. **57012**

2005-29 **TRANS-HUDSON NETWORK PLANNING STRATEGY CONTRACT AWARD** – Authorization to fund an additional $925,000, plus five percent contingency under NJ TRANSIT Contract No. 19-038 with AECOM of New York, New York, for Trans-Hudson Network Planning Strategy services to allow commencement of phase II of the contract, subject to the availability of funds. **57015**

2005-30 **ANNUAL NOTICE OF MEETINGS AND DESIGNATION OF BOARD SECRETARY** – Adopt the Annual Notice of Meetings (Exhibit A) for all of the Board of Directors' meetings during Fiscal Year 2021. Designate Joyce J. Zuczek as Board Secretary of NJ TRANSIT and its subsidiaries. **57023**

2005-31 **REQUEST FOR CONTINGENCY AMENDMENT IN CASE OF NEED FOR SOLE SOURCE SPARE PARTS FOR MAY AND JUNE 2020** – Authorization to amend Board Item #1906-32 FY2020 Fiscal Year procurement-by-exception Waiver Authorization to enter into sole source contracts for the purchase of materials and services from approved vendors set forth in Exhibit A1 (subject to adjustments) as necessary to support Bus, Rail, and Light Rail operations at an amended cost not to exceed $30,800,000, subject to the availability of funds. The original authorization for this board item was $28,000,000. This increase represents a 10 percent increase to the original board authorization. **57025**

2005-32 **PERSONAL INJURY CLAIM OF TERRY MAHER** – Authorization settle the claim of Terry Maher through his attorney, at an amount discussed in executive session. The Attorney General has approved the proposed settlement, subject to the availability of funds. **57029**

2005-33 **CONSULTING SERVICES FOR IN-DEPTH INSPECTIONS, EVALUATIONS, AND RATINGS OF RAILROAD UNDERGRADE BRIDGES** – Authorization to enter into NJ TRANSIT Contract No. 19-040D with Michael Baker Inc. of Hamilton, New Jersey, 19-040E with HDR Inc. of Newark, New Jersey, and 19-040F with Hardesty & Hanover of West Trenton, New Jersey, to provide in-depth inspections, ratings and evaluations of 130 undergrade railroad bridges at a cost not to exceed $975,228.65, $1,096,281.51, and $757,353.83 for a total cost of $2,828,863.99, plus five percent for contingencies, subject to the availability of funds. **57030**

- **EXECUTIVE SESSION AUTHORIZATION** **57032**
- **ADJOURNMENT**

APPROVAL OF MINUTES

WHEREAS, the By-Laws provide that the minutes of actions taken at meetings of the New Jersey Transit Corporation, NJ TRANSIT Rail Operations, Inc., NJ TRANSIT Bus Operations, Inc., NJ TRANSIT Mercer, Inc., and NJ TRANSIT Morris, Inc. Board of Directors be approved by the Board; and

WHEREAS, pursuant to Section 4(f) of the New Jersey Public Transportation Act of 1979, the minutes of actions taken at the April 7, 2020 Board Meetings of the New Jersey Transit Corporation, NJ TRANSIT Bus Operations, Inc., NJ TRANSIT Rail Operations, Inc., NJ TRANSIT Mercer, Inc., and NJ TRANSIT Morris, Inc. were forwarded to the Governor on April 10, 2020;

NOW, THEREFORE, BE IT RESOLVED that the minutes of actions taken at the April 7, 2020 New Jersey Transit Corporation, NJ TRANSIT Rail Operations, Inc., NJ TRANSIT Bus Operations, Inc., NJ TRANSIT Mercer, Inc., and NJ TRANSIT Morris, Inc. Board of Directors' meetings are hereby approved.

Philip D. Murphy, Governor
Sheila Y. Oliver, Lieutenant Governor
Diane Gutierrez-Scaccetti, Commissioner
Kevin S. Corbett, President & CEO

NJTRANSIT
One Penn Plaza East
Newark, NJ 07105-2246
973-491-7000

TO: BOARD OF DIRECTORS
FROM: KEVIN S. CORBETT
DATE: MAY 13, 2020
SUBJECT: **PRESIDENT & CEO'S REPORT – MAY 2020**

Since the very beginning of the COVID-19 pandemic, there has been no higher priority for me than the health and safety of our employees. Toward that end, NJ TRANSIT is now offering COVID-19 testing to all employees – at the American Dream complex in East Rutherford and at Rowan University in South Jersey's Gloucester County. The ability to facilitate access to testing for employees will lead to quicker identification of cases, quicker treatment for those testing positive, and immediate isolation, to prevent spread.

Another way we're working to protect employees is through an unprecedented effort to purchase and distribute personal protective equipment (PPE). To date, we have ordered more than two million masks, and have more than 900,000 masks in stock. We have nearly 50,000 bottles of hand sanitizer, and have ordered more than two million pairs of gloves, with about 650,000 pairs in stock. We are also working to increase social distancing. On April 20th, we implemented a modified weekday bus schedule that added nearly 2,500 extra trips compared to the previous schedule, supporting essential travel and added capacity. And on Sunday, May 3rd, we began closing Newark Penn Station overnight from 11 p.m. until 4:30 a.m., to facilitate enhanced cleaning. This follows – and is coordinated with – the overnight closure of New York Penn Station and the New York City subway system.

While still in the throes of the COVID-19 response, we've begun to turn our attention to recovery and ramp-up post-COVID-19. We're dubbing the return of regular service: "NJ TRANSIT: Your Ride to Recovery." We're working closely with the MTA, PATH, SEPTA, and Amtrak to ensure we're all coordinated in terms of service restoration. The mobilization of an internal committee is underway and will be responsible for developing recommendations to produce a structured and deliberative return-to-work plan for all NJ TRANSIT employees.

We're looking at recovery not only as it relates to service, but also how NJ TRANSIT will serve the state's economic recovery through a robust capital program. For example, today we're seeking Board approval to award the first of three major contracts to remove and replace the Raritan River Bridge, while 18 additional projects are now underway. In addition – pending a Full Funding Grant Agreement from the Federal Transit Administration (FTA) – we are close to entering the engineering phase for our Portal North Bridge project. On the bus side of our capital program, two weeks ago we put into revenue service the first of 25 additional new articulated buses, paid for with a $17 million grant awarded by the FTA. The bus increases on-board capacity by more than 65 percent and allows for greater social distancing. Retiring older buses also increases mechanical reliability and helps better serve customers with improved on-time performance and new customer amenities.

Another step in our march to recovery was the restoration of service at two Hudson-Bergen Light Rail stations on the West Side Avenue Branch, following the completion of required utility work by the Jersey City Municipal Utilities Authority. On April 25th, the MLK Drive and Garfield Avenue stations reopened for scheduled light rail service. We are also installing new and improved ticket vending machines (TVM) at fourteen locations systemwide, replacing older machines at bus, light rail, and rail stations. The new TVMs are faster, easier to use, and fully ADA accessible. Customers can pay with a phone, and will no longer need to insert debit or credit cards. We will assess the performance of these new TVMs before continuing the rollout them out systemwide.

In closing, I want to acknowledge all the employees we've lost to this horrible pandemic. To date, nine NJ TRANSIT employees have passed away due to confirmed COVID-19-related complications. These employees are so much more than statistics. They were real people with families and loved ones, and they were valued members of the NJ TRANSIT family. I can't say it enough – I truly appreciate all the men and women of NJ TRANSIT who continue to keep our region moving for essential travel.

NJTRANSIT
The Way To Go.

PRESIDENT & CEO'S MONTHLY REPORT

MAY 13, 2020

PRESIDENT & CEO'S MONTHLY REPORT
TABLE OF CONTENTS

MAY 13, 2020

1. PERFORMANCE MEASURES

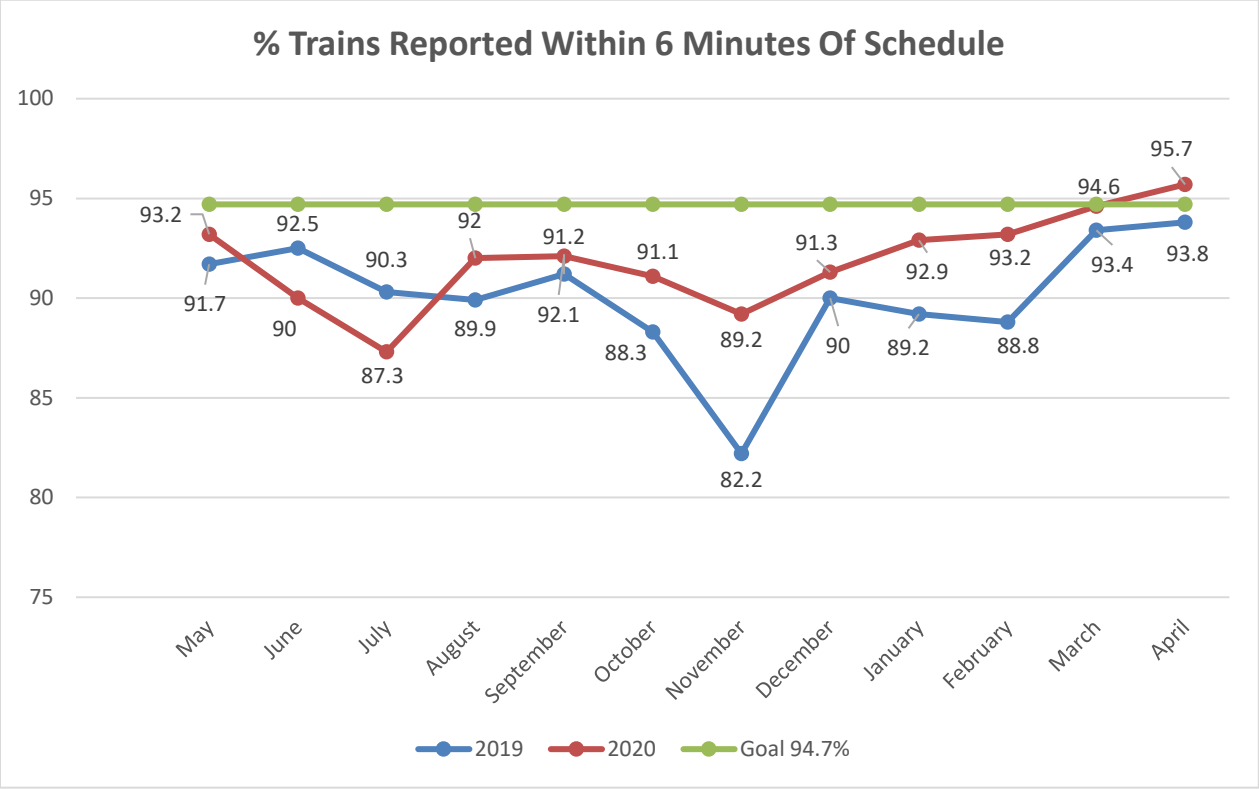
2. MEAN DISTANCE BETWEEN FAILURES

3. DBE/SBE PROGRAM

4. EMPLOYEE RECOGNITION

PERFORMANCE MEASURES

NJ TRANSIT
ON-TIME PERFORMANCE
RAIL
MAY 2018 – APRIL 2020



	2019	2020	%Change
April Comparison	93.8%	95.7%	1.9%
12-Month Average May 2018 – April 2020	90.1%	91.9%	1.8%

Analysis:

Rail on-time performance was 95.7% for April 2020. Of the 12,226 trains scheduled to operate, 11,701 were on time, while 525 trains (or 4.3%) were delayed.

Key Causes included:

- NJT Man Power Shortage contributed to 20 delays on April 5.
- NJT Man Power Shortage contributed to 88 delays on April 12.
- NJT Man Power Shortage contributed to 21 delays on April 19.

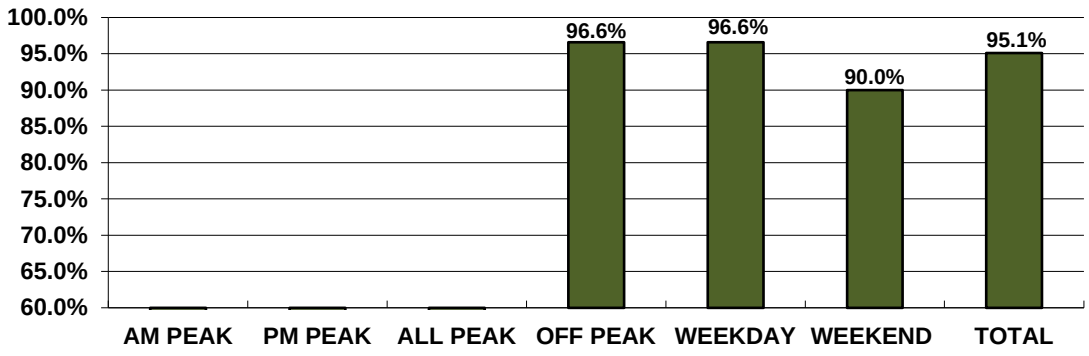
The 12-month average for Rail on-time performance was 91.9%.

ON-TIME PERFORMANCE
RAIL

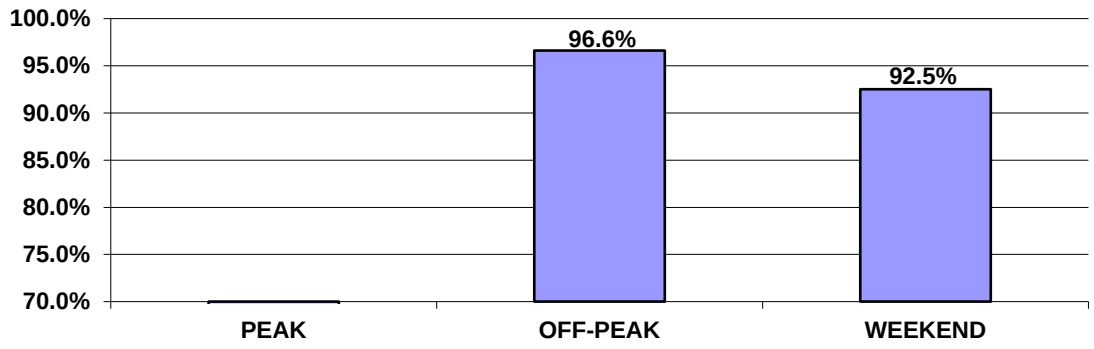
SUMMARY BY TIME PERIOD
APRIL, 2020

*** NOTE: A train is reported late if it arrives at its final station stop more than 5:59 minutes later than the advertised schedule.**

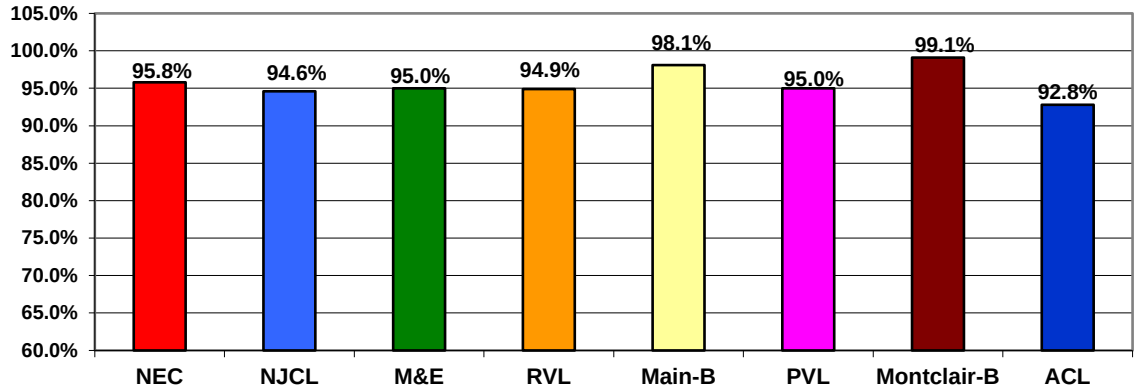
% NEW YORK PENN STATION Trains Reported On Time *



% SYSTEMWIDE Trains Reported On Time

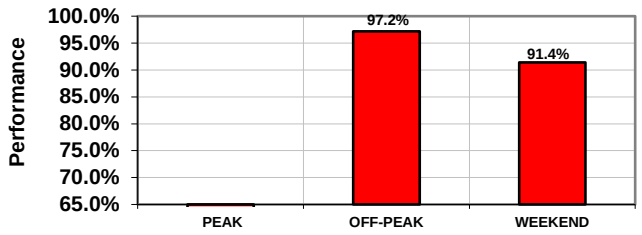


% BY LINE Trains Reported On Time

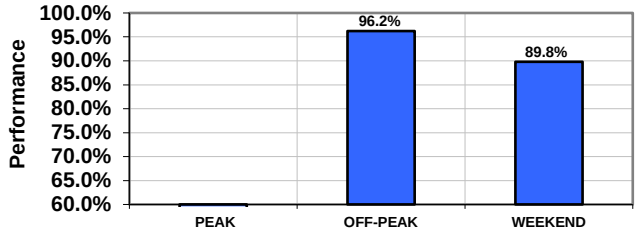


ON-TIME PERFORMANCE
BY RAIL LINE & TIME PERIOD
APRIL, 2020

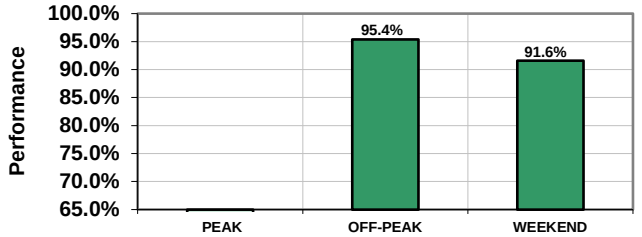
NORTHEAST CORRIDOR



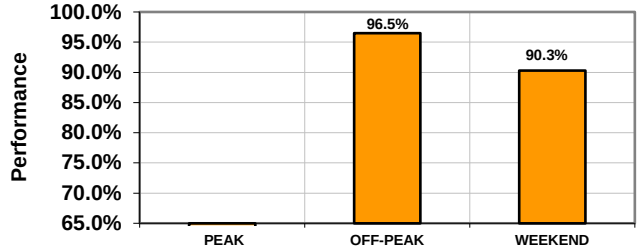
NORTH JERSEY COAST LINE



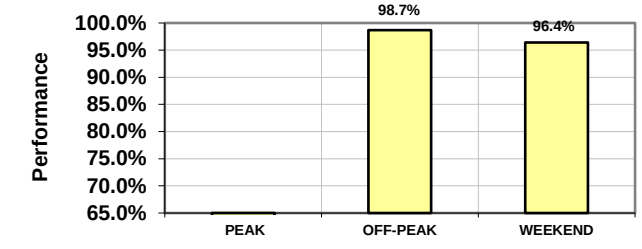
MORRIS & ESSEX



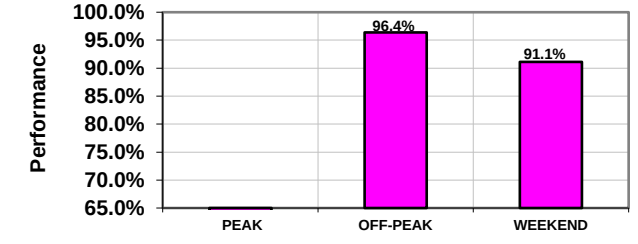
RARITAN VALLEY LINE



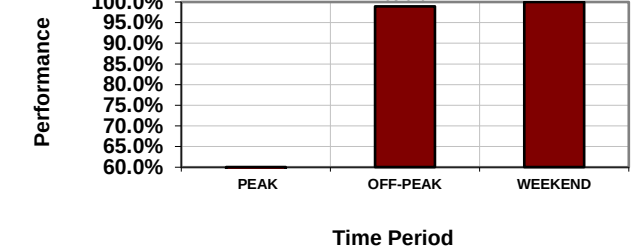
MAIN-BERGEN



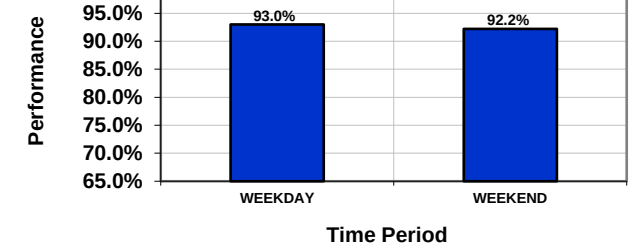
PASCACK VALLEY



MONTCLAIR-BOONTON



ATLANTIC CITY

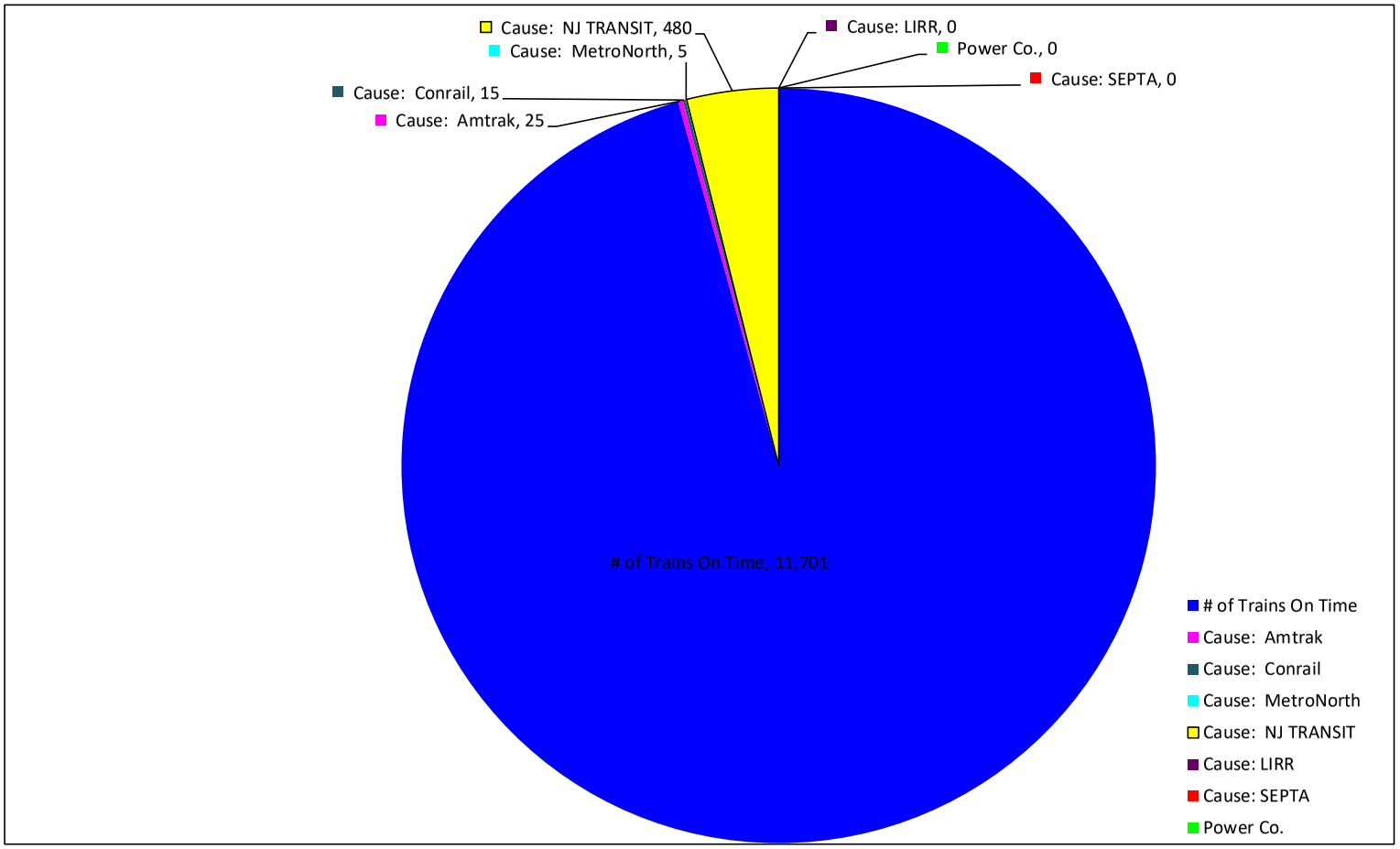


56522

NJ TRANSIT Performance - APRIL, 2020

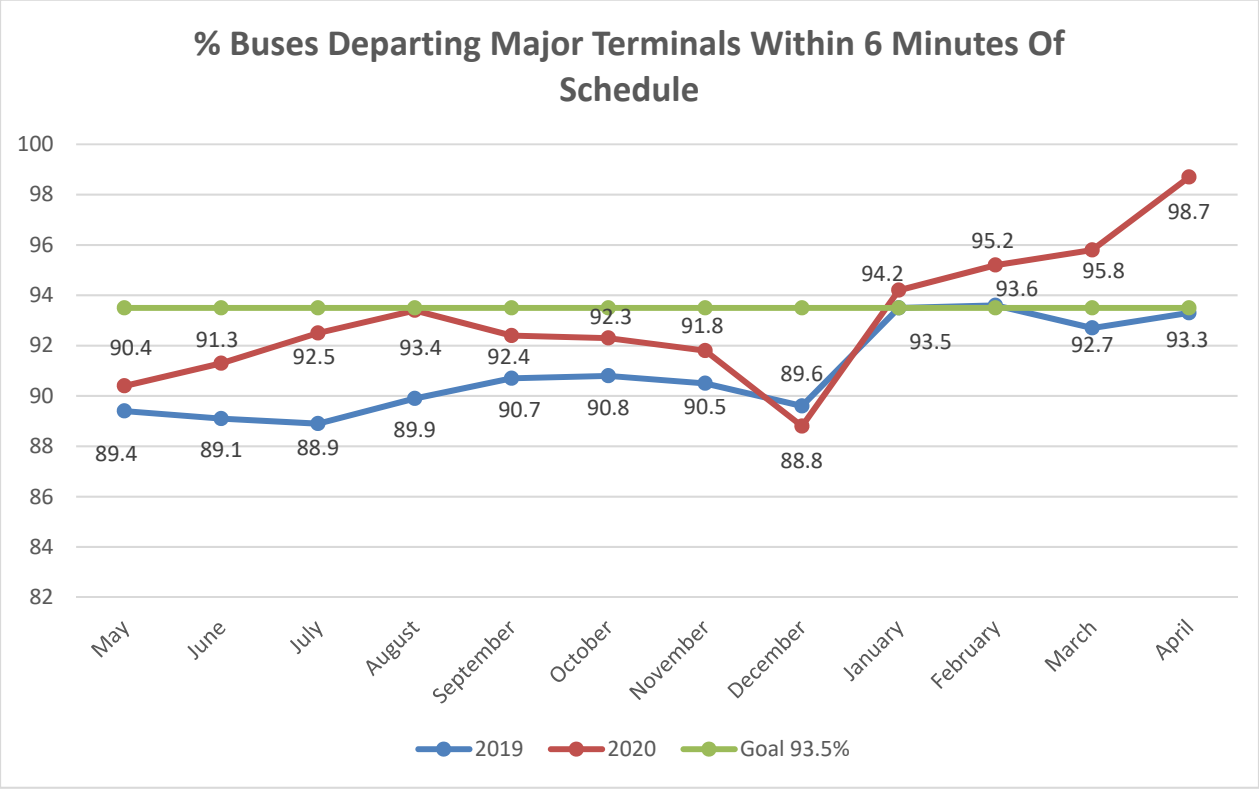
Late NJ TRANSIT Trains

	# of Trains On	Cause: Amtrak	Cause: Conrail	Cause: MetroNorth	Cause: NJ TRANSIT	Cause: LIRR	Cause: SEPTA	Power Co.
# of Trains On Time	11,701	25	15	5	480	0	0	0
# of Late Trains	525	0.20%	0.12%	0.04%	3.93%	0.00%	0.00%	0.00%
Total # of Trains	12,226							
Percentage On Time	95.7%							



(NJT Board - 05/13/2020)

NJ TRANSIT
ON-TIME PERFORMANCE
BUS
May 2018 – April 2020



	2019	2020	%Change
April Comparison	93.3%	98.7%	5.4%
12-Month Average May 2018 – April 2020	91.0%	93.1%	2.1%

Analysis:

Bus on-time performance systemwide was 98.7% for the month of April 2020. Of the 22,051 scheduled departures, 282 experienced delays.

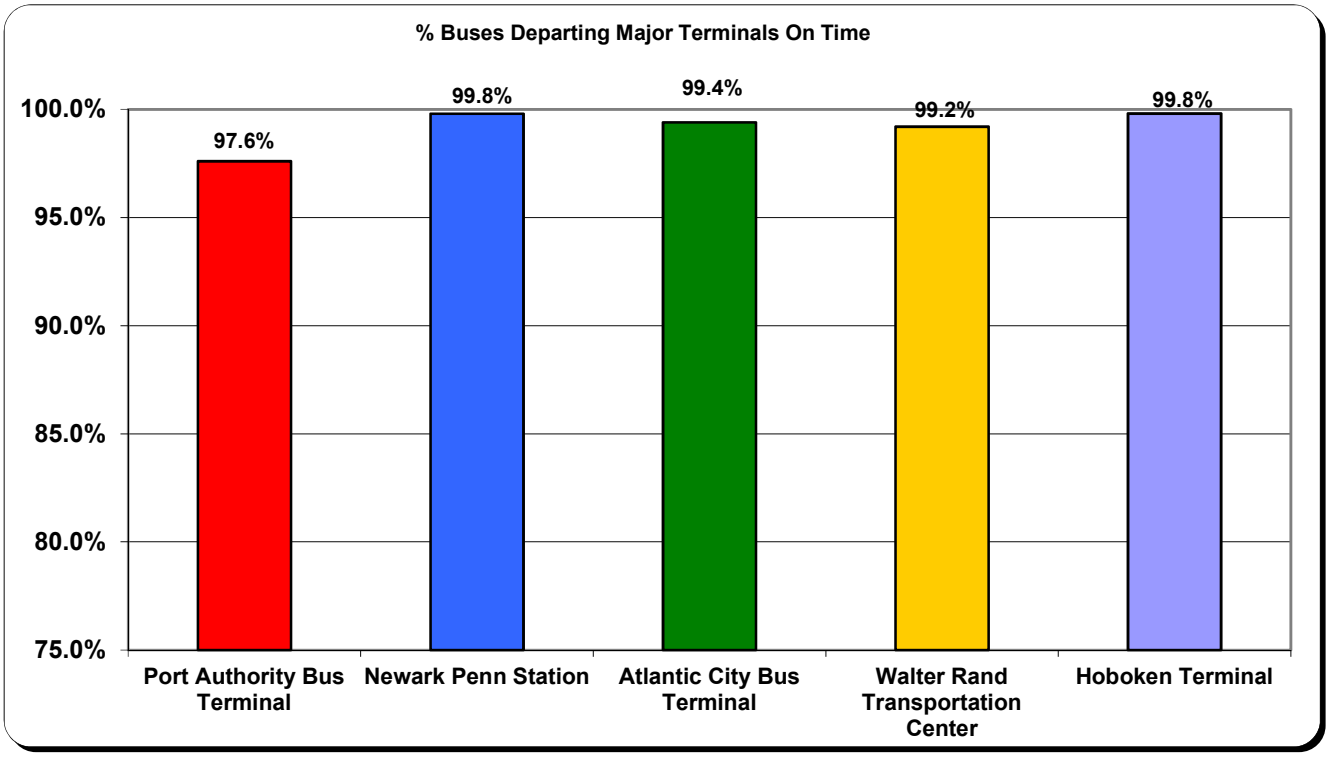
Key Causes included:

- Minor delays were caused at Port Authority Bus Terminal due to weather, detours, traffic and road construction on various days.
- Road closure due to construction impacted service at Newark Penn on April 7. Routes were detoured and caused minor delays in service.
- For various other locations, minor delays were caused due to weather, detours, traffic and road construction on various days.

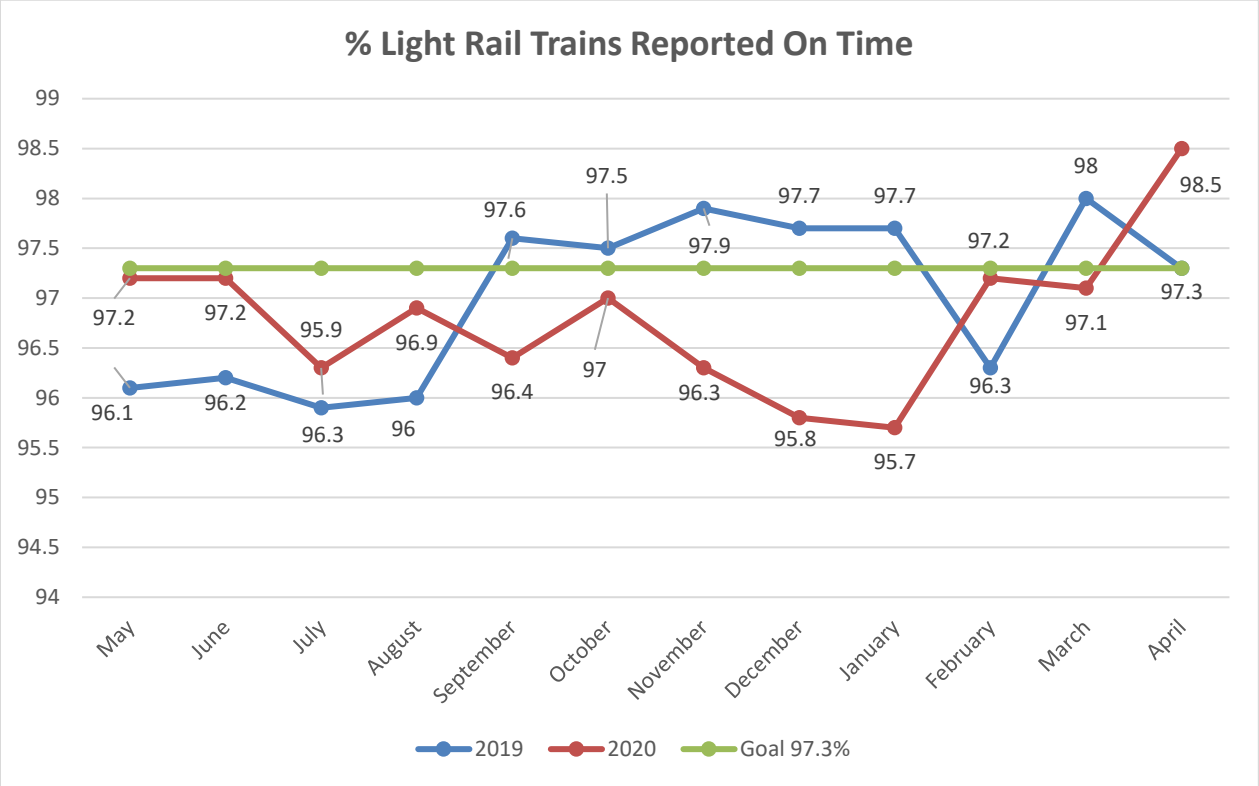
The 12-month average for Bus on-time performance was 93.1%.

ON-TIME PERFORMANCE
BUS

SUMMARY BY TERMINAL



NJ TRANSIT
ON-TIME PERFORMANCE
LIGHT RAIL
May 2018 – April 2020



	2019	2020	%Change
April Comparison	97.3%	98.5%	1.2%
12-Month Average May 2019 – April 2020	96.7%	97.1%	0.4%

Analysis:

Light Rail on-time performance system wide was 98.5 % for the month of April 2020. Of the 16,778 scheduled departures, 304 experienced delays.

Key Causes included:

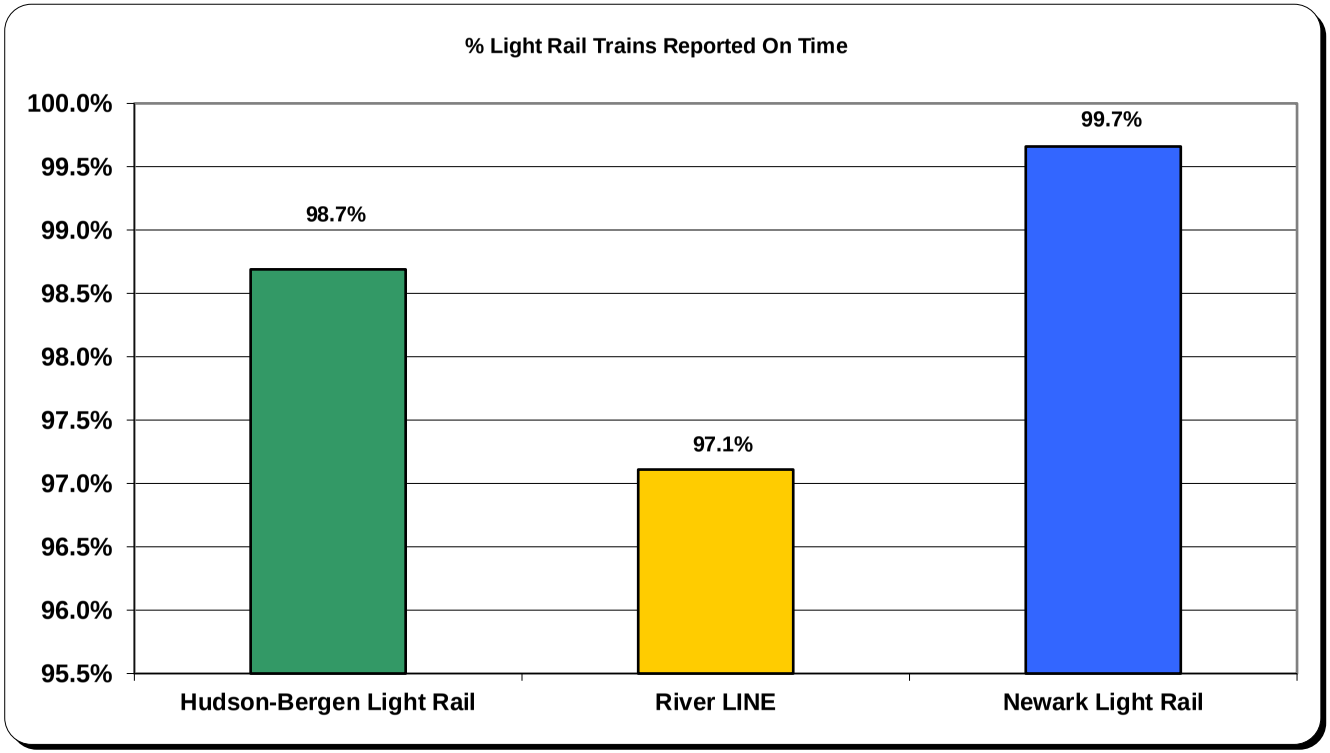
- A pedestrian accident caused multiple delays on the Newark Light Rail on April 17.
- Track obstruction due to a downed pole, a downed tree, an auto blocking the tracks and an automobile strike at Hamilton station caused delays on various days on the River LINE.
- Personnel issues, additional duties, and police activity caused delays on various days on the Hudson-Bergen Light Rail system.

The 12-month Average for Light Rail On-Time Performance was 97.1%.

56526

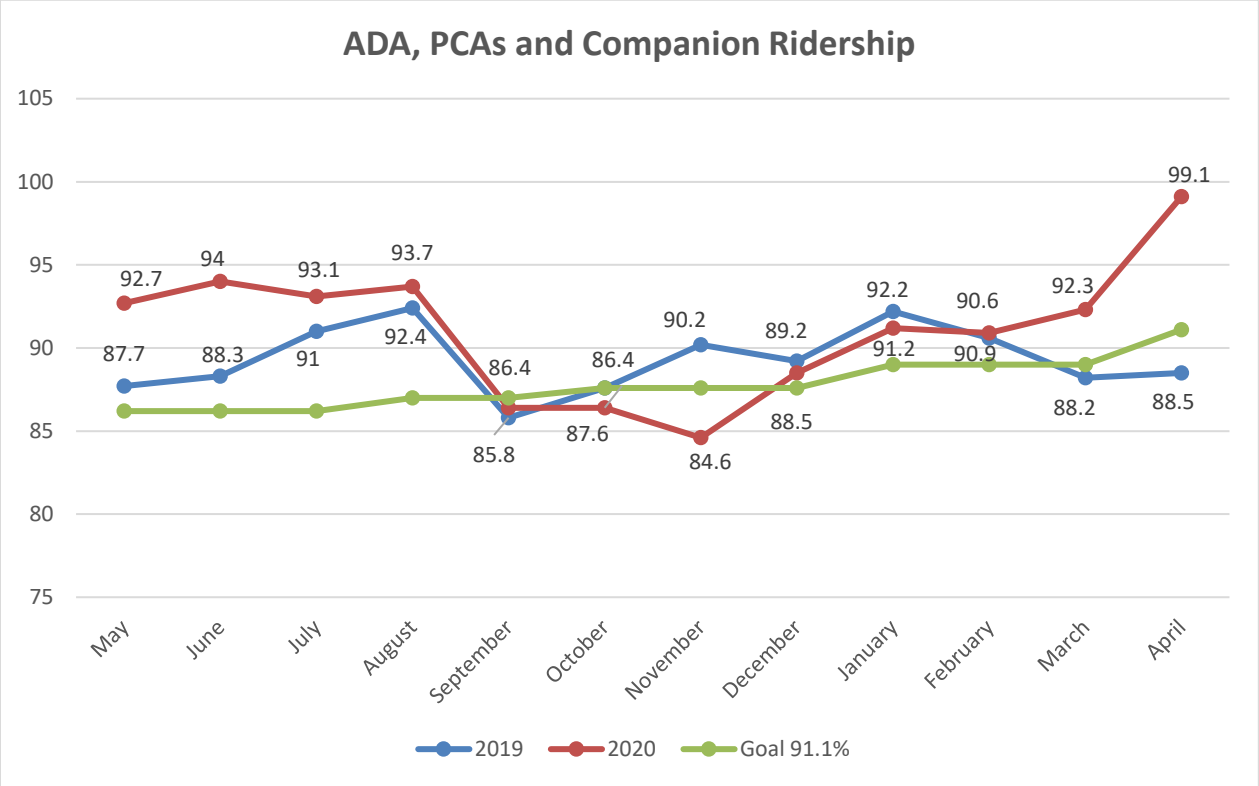
ON-TIME PERFORMANCE
LIGHT RAIL

SUMMARY BY LINE
April 2020



(NJT Board - 05/13/2020)

NJ TRANSIT
ON-TIME PERFORMANCE
ACCESS LINK
MAY 2018 – APRIL 2020



	2019	2020	%Change
April Comparison	88.5%	99.1%	10.6%
April Ridership	152,563	38,355	-114,208
12-Month Average May 2018 – April 2020	89.9%	90.5%	0.6%

Analysis:

Access Link on-time performance was 99.1% for April, 2020. In serving 41,640 total riders, for 38,355 ADA customer trips, 346 (or 0.9%) experienced delays.

Key Causes included:

- Customer no-shows and delays
- Transfer trips
- Vehicle operator coverage

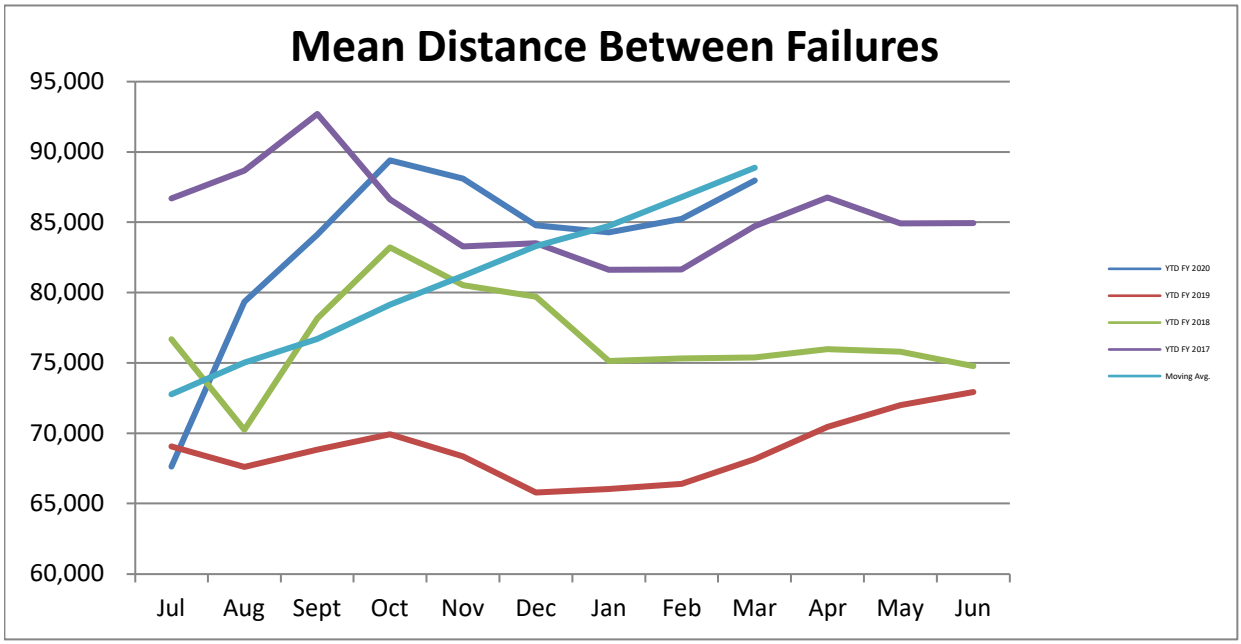
The 12-month Average for Access Link on-time performance was 90.5%.

MEAN DISTANCE BETWEEN FAILURES

March 2020

NJ TRANSIT Rail Operations
Mean Distance Between Failures

Month	YTD FY2020*	YTD FY2019	YTD FY2018	YTD FY2017	12 Month Moving Avg.
Jul	67,634	69,055	76,674	86,683	72,788
Aug	79,350	67,612	70,263	88,680	75,030
Sept	84,111	68,823	78,151	92,705	76,712
Oct	89,410	69,913	83,213	86,626	79,134
Nov	88,101	68,356	80,523	83,272	81,181
Dec	84,773	65,796	79,711	83,501	83,301
Jan	84,273	66,025	75,139	81,633	84,741
Feb	85,233	66,391	75,324	81,639	86,792
Mar	87,973	68,141	75,376	84,715	88,881
Apr	-	70,447	75,968	86,771	-
May	-	71,986	75,787	84,920	-
Jun	-	72,930	74,776	84,936	-

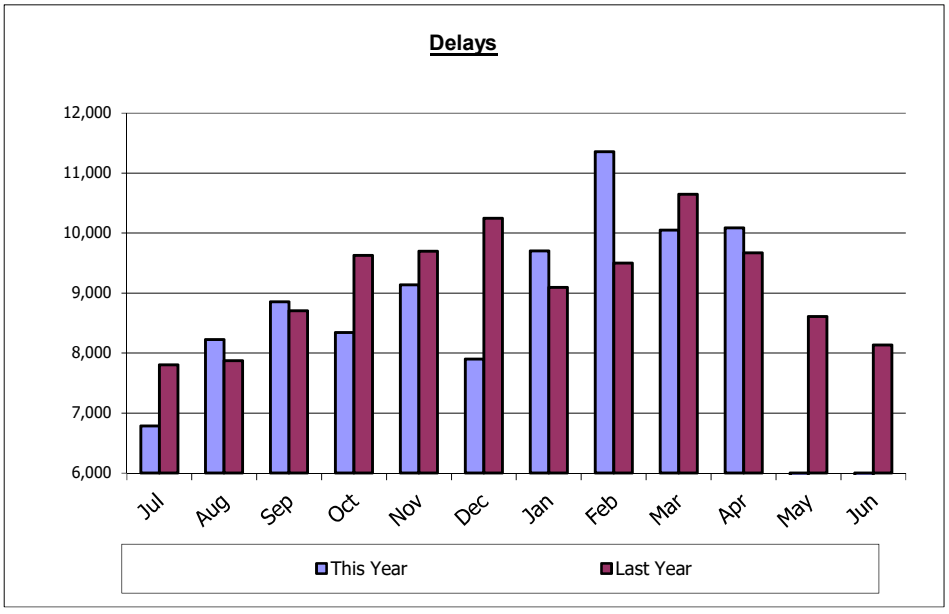


*** FY2020 Numbers corrected to reflect start of FY2020**

Garage Performance Parameters

April 2020

Location	Miles Between In-Service Delays			
	FY2020 Goal	This Month	FY2020 YTD	FY2019 YTD
Fairview	6,000	3,506	3,431	4,148
Greenville	7,500	6,104	4,461	5,174
Market Street	8,500	5,742	6,509	6,764
Meadowlands	10,200	4,675	5,101	5,434
Oradell	10,500	11,077	6,574	7,622
Wayne	10,500	25,092	14,572	9,373
Northern Division	**-**	**7,520**	**6,428**	**6,633**
Big Tree	8,800	5,565	5,273	5,830
Hilton	10,200	5,895	7,264	7,810
Howell	16,750	43,956	30,967	25,021
Ironbound	9,600	8,244	7,250	8,042
Orange	9,250	6,243	5,342	6,832
Morris	10,500	22,310	24,453	26,211
Central Division	**-**	**8,763**	**8,685**	**9,670**
Egg Harbor	15,500	25,639	18,726	19,790
Hamilton	13,000	13,501	11,236	9,198
Newton Avenue	12,000	12,474	13,372	12,478
Washington Twp.	14,500	24,558	21,564	18,301
Southern Division	**-**	**19,661**	**16,861**	**15,512**
	-	-	-	-
Bus Operations	***-***	***10,084***	***8,790***	***9,184***



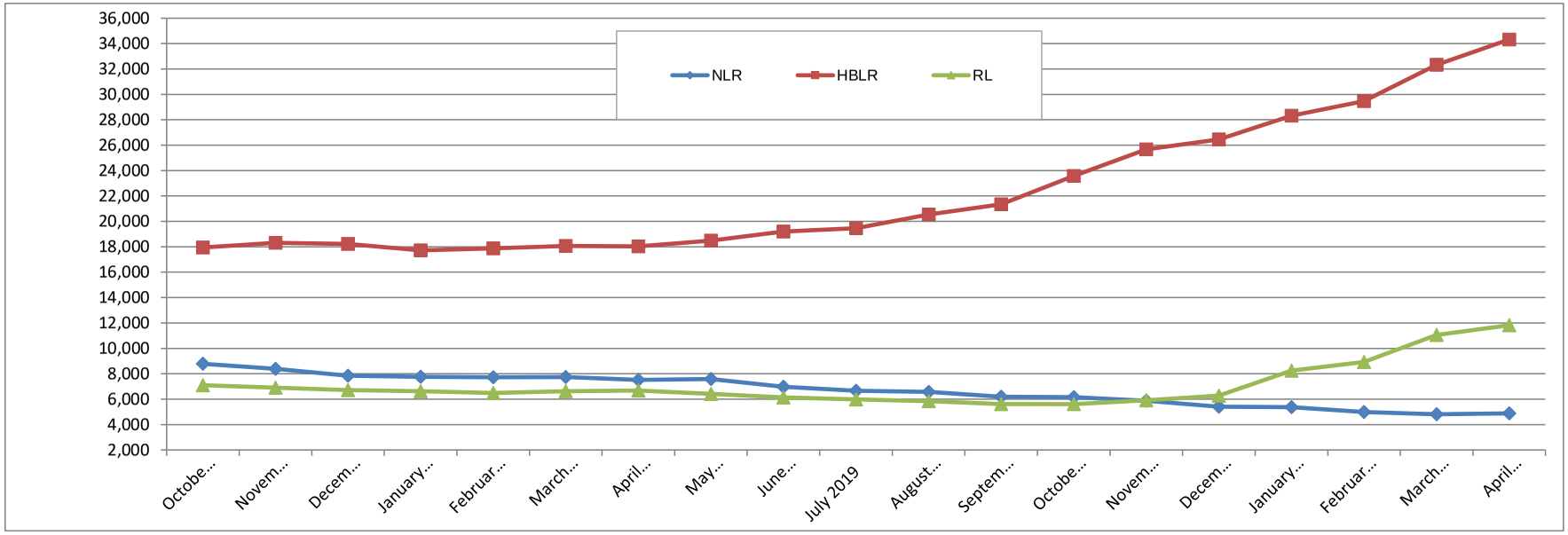
56531

NJ TRANSIT - LIGHT RAIL, April 2020

Average Miles Between In Service Failures

NJT LIGHT RAIL	MDBSF * April 2020	MDBSF * March 2020
Newark Light Rail	4,886	4,809
Hudson Bergen	34,322	32,341
River LINE	11,819	11,050

AVERAGE MILES BETWEEN IN-SERVICE MECHANICAL FAILURES



(NJT Board - 05/13/2020)

DBE/SBE PROGRAM

NJ TRANSIT –Office of Business Development Additional DBE/SBE Participation for April 2020

State Funded Contracts

During the month April 2020, NJ TRANSIT awarded **$3,096,503.64** in state funded contracts. Of that total, Small Business Enterprises (SBEs) received **$ 955,654.20** or **30.86%.**

During the State Fiscal Year **2020** (July 1, 2019 through June 30, 2020) NJ TRANSIT awarded **$244,235,040.05** in state funded contracts. Of that total, SBEs received **$27,342,704.33** or **11.20%.**

Note: The above reflects the Procurement Report of Awards received March 31, 2020.

SBE Goal Attainment from July 1, 2019 through June 30, 2020 (FY 2020)

Category 1 SBEs received	$580,010.90	0.24%
Category 2 SBEs received	$4,596,749.57	1.88%
Category 3 SBEs received	$6,127,317.65	2.51%
Category 4 SBEs received	$4,664,430.87	1.91%
Category 5 SBEs received	$1,649,859.91	0.68%
Category 6 SBEs received	$9,724,335.43	3.98%

FTA Funded Contracts (updated Quarterly – next update will occur May 2020)

During the 3rd Quarter (April 1, 2019 – December 30, 2020) of Federal Fiscal Year 2020 (October 1, 2019 through September 30, 2020), the FTA funded share of NJ TRANSIT's federal contracts awarded was **$42,492,295.21**. Of that total, Disadvantaged Business Enterprises (DBEs) received **$4,336,464.70** or **10.21%.**

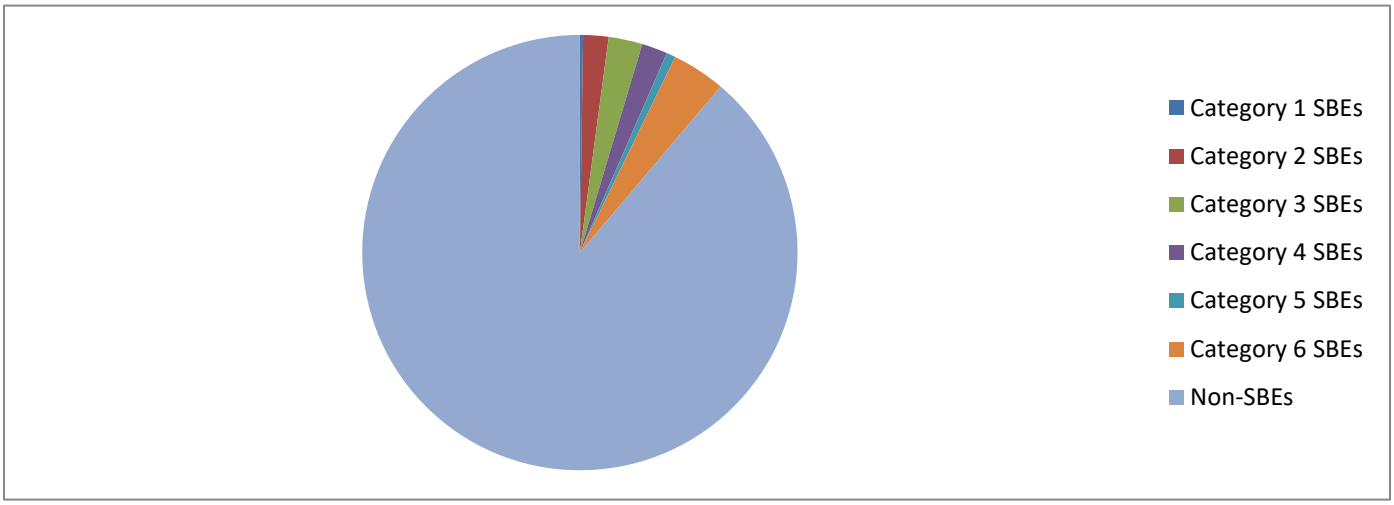
DBE Goal Attainment from October 1, 2019 – September 30, 2020 (FFY 2020) *

Contracts awarded	$42,492,295.21
DBEs received	$4,336,464.70 or 10.21%.

**Numbers reflect federal share.*

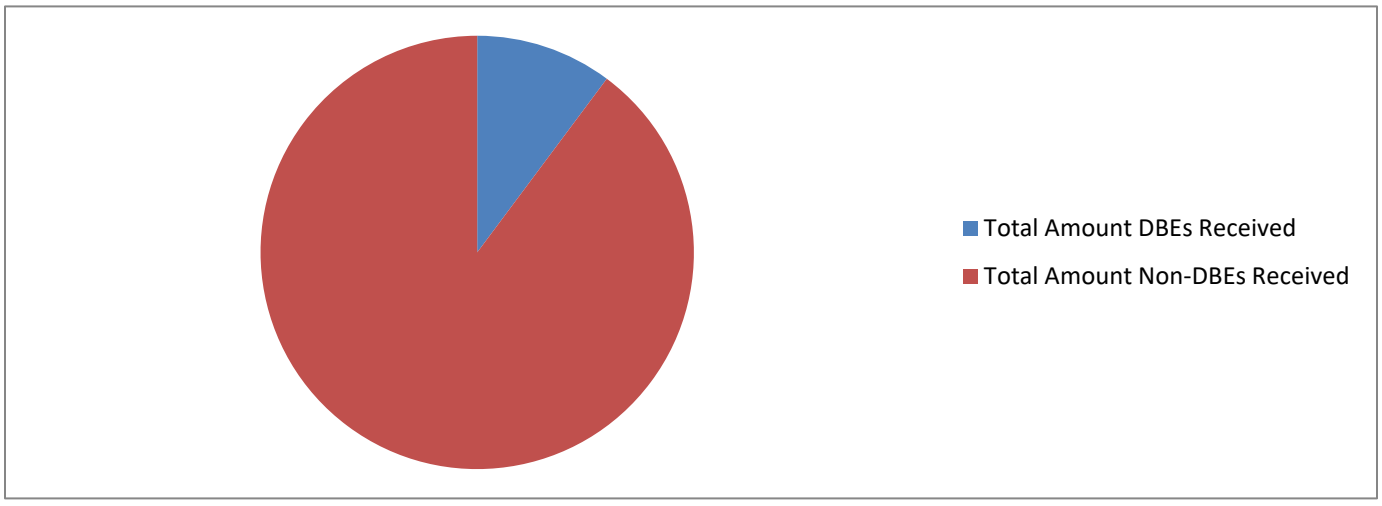
SBE PARTICIPATION
STATE CONTRACTS
STATE FYTD 2020

Category 1 SBEs	**$580,010.90**	**0.24%**
Category 2 SBEs	**$4,596,749.57**	**1.88%**
Category 3 SBEs	**$6,127,317.65**	**2.51%**
Category 4 SBEs	**$4,664,430.87**	**1.91%**
Category 5 SBEs	**$1,649,859.91**	**0.68%**
Category 6 SBEs	**$9,724,335.43**	**3.98%**
Non-SBEs	$216,892,335.72	88.80%



DBE PARTICIPATION
FEDERAL CONTRACTS
FEDERAL FYTD 2019

Total Amount DBEs Received	**$4,336,464.70**	**10.21%**
Total Amount Non-DBEs Received	$38,155,830.51	89.79%



EMPLOYEE RECOGNITION

NJ TRANSIT employees bid farewell after outstanding careers

17 NJ TRANSIT employees retired recently with careers ranging from 11 to 37 years of service:

1. Ahmed Hassan, Operator – Howell – 11 years
2. Scott Fryer, Operator – Hamilton – 21 years
3. Edgar Gaviria, Operator – Ironbound – 16 years
4. Kathy Hunsberger, Operator – Washington Township – 24 years
5. Marlon Olmo, Repairman A – Market Street – 24 years
6. Albert Phipps, Operator – Wayne – 18 years
7. Phillip Nieddu, Senior Trainmaster – Long Branch – 25 years
8. Gerald Obert, Dir. Site Remediation – Penn Plaza – 27 years
9. Cynthia Banks, Sr. Disability Claims Admin. – Maplewood – 27 years
10. Frank Colos Jr., General Foreman – MMC – 34 years
11. James Gerrity Jr., Princ. Tech Specialist – Penn Plaza – 34 years
12. Michael Racine, Chief Regional Supervisor – Maplewood – 33 years
13. Joaquim Abrantes, Asst. Supervisor Structures – Red Bank – 37 years
14. Timothy Cross, Mechanic B&B – MMC – 34 years
15. Robert Greene, Bridge Operator – South Amboy – 27 years
16. Mark Ives, Mgr. Tech Services Rail – MMC – 12 years
17. Robert Johnson, Mgr. Svc and Inspection – Morrisville – 36 years

ACTION ITEMS

ITEM 2005-22: PRELIMINARY AND FINAL DESIGN ENGINEERING AND CONSTRUCTION ASSISTANCE SERVICES FOR THE NEW NORTHERN BUS MAINTENANCE FACILITY

WHEREAS, NJ TRANSIT's New York City-bound interstate bus system has continued to experience year-over-year growth and peak service to New York City's Port Authority Bus Terminal (PABT) operates near, at, or over capacity; and

WHEREAS, several buses that NJ TRANSIT operates into the PABT in the peak hour is limited by the PABT and related constraints; and

WHEREAS, NJ TRANSIT has developed plans to purchase larger 45' and 60' buses with additional seating in order to address capacity issues on certain routes in the northern portion of the state; and

WHEREAS, NJ TRANSIT currently does not have available capacity at any of its existing garages to accommodate additional buses within the target service area; and

WHEREAS, NJ TRANSIT requires a new facility to store and maintain buses in order to support existing and future bus operations in the northern portion of the state; and

WHEREAS, authorization of this concept development design contract will provide necessary data collection, a needs assessment, general conceptual layouts satisfying the needs and future growth, a preparation of a Project Definition Report, and a Feasibility Report; and

WHEREAS, this design phase is part of a larger program to design and construct a new Northern Division Bus Maintenance Facility; and

WHEREAS, subsequent phases include preliminary engineering, value engineering, final design, construction support services, and construction; and

WHEREAS, on October 31, 2019, a Request for Proposals (RFP) was advertised on BID EXPRESS, NJ TRANSIT's electronic bid system, and in *The Star-Ledger* and *Trenton Times*; and

WHEREAS, technical proposals were received from four (4) firms on December 17, 2019, at NJ TRANSIT Headquarters in Newark; and

WHEREAS, upon completion of a competitive procurement process for design and construction assistance services, it was determined that Gannett Fleming, Inc. was the highest and best technically qualified firm; and

WHEREAS, a request for Cost Proposal was issued to Gannett Fleming, Inc. on February 19, 2020, and NJ TRANSIT negotiated a final cost which is reflected in the final proposal dated March 9, 2020 submitted by Gannett Fleming, Inc.; and

WHEREAS, the Federal Transit Administration and Transportation Trust Fund are the anticipated sources of funding for this project; and

WHEREAS, the Conceptual Design phase (Phase 1A only) is a Race Neutral project as determined by NJ TRANSIT Office of Business Development (OBD); and

WHEREAS, Disadvantaged Business Enterprise (DBE) goals will be determined at each subsequent phase; and

WHEREAS, OBD reviewed the proposal and approved the 16.43% DBE commitment identified by Gannett Fleming Inc.;

NOW, THEREFORE, BE IT RESOLVED that the Chair or President & CEO is authorized to enter into NJ TRANSIT Contract No. 19-051 with Gannett Fleming Inc. of Newark, New Jersey, to provide Conceptual Design (Phase 1A only) for the New Northern Bus Maintenance Facility at a cost not to exceed $1,105,509.23, plus five percent for contingencies, subject to the availability of funds, with options to continue at sole discretion of NJ TRANSIT for future phase Preliminary and Final Design Engineering And Construction Assistance Services.

RARITAN RIVER BRIDGE REPLACEMENT PROJECT

Resilience Program • Building Stronger

ITEM 2005-23
RARITAN RIVER BRIDGE REPLACEMENT PROJECT – CONTRACT GC.01 & CONSTRUCTION ASSISTANCE

May 13, 2020

ITEM 2005-23
RARITAN RIVER BRIDGE REPLACEMENT - CONTRACT GC.01 & CONSTRUCTION ASSISTANCE

- **Sole Rail Link for 17 of the 20 North Jersey Coast Line (NJCL) Stations to Newark and Manhattan**
- **22,800 Average Weekday Passenger Trips**
- **Conrail Freight Rail Services**

ITEM 2005-23
RARITAN RIVER BRIDGE REPLACEMENT - CONTRACT GC.01 & CONSTRUCTION ASSISTANCE

THE NEW YORK TIMES. WEDNESDAY. APRIL 22. 1908.

NEW RARITAN BRIDGE OPENS FOR TRAVEL

No Ceremony, but a Sigh of Relief Goes Up from Railroad Men and Commuters.

A HOODOO PUT TO SLEEP

Gales and Dynamite Prolonged It, but the Million-Dollar Giant Is Working at Last—Cuts Time to Resorts.

Special to The New York Times.

PERTH AMBOY, N. J., April 21.—The million-dollar steel and masonry double-track drawbridge of the New York & Long Branch Railroad spanning the Raritan River at this place was opened to regular travel to the North Jersey coast resorts, Lakewood and Atlantic City, late this morning. The old wooden bridge, which has been a matter of grave concern to the railroad management and to travelers for more than a year, was at once abandoned, and to-night the dismantling of the structure is well under way.

Work on the new bridge began in February, 1896, and of late has been pushed with feverish haste. It was almost ready for service three weeks ago when some-

Source: *The New York Times*, April 22, 1908

ITEM 2005-23
RARITAN RIVER BRIDGE REPLACEMENT - CONTRACT GC.01 & CONSTRUCTION ASSISTANCE

Existing Bridge Damage Post Superstorm Sandy

- Track was out of alignment due to ocean surges against the bridge superstructure
- Pier capstones supporting the bearings were loose due to superstructure movement
- Bridge embankment was washed out due to ocean surges

ITEM 2005-23
RARITAN RIVER BRIDGE REPLACEMENT - CONTRACT GC.01 & CONSTRUCTION ASSISTANCE

Existing Bridge Repairs Post Superstorm Sandy

- Emergency Repairs within Three Weeks of Bridge Outage
  - Realigned bridge girders
  - Installed steel strapping to prevent movement of pier stone blocks
  - Grouted voids in piers from washout
- Additional Pier Repairs
  - Further investigations identified damages to additional bridge piers
  - Repairs required before a permanent replacement bridge can be constructed
  - In October 2015, the NJ TRANSIT Board of Directors authorized $3,091,000.00 + 5% contingencies (Board Item 1510-40) for interim pier repairs

ITEM 2005-23
RARITAN RIVER BRIDGE REPLACEMENT - CONTRACT GC.01 & CONSTRUCTION ASSISTANCE

FTA Competitive Resilience Grant

On November 5, 2014, the Federal Transit Administration announced its award of a total of $1.27 billion to NJ TRANSIT in additional funding through a 13-state competition for five resilience projects, as follows:

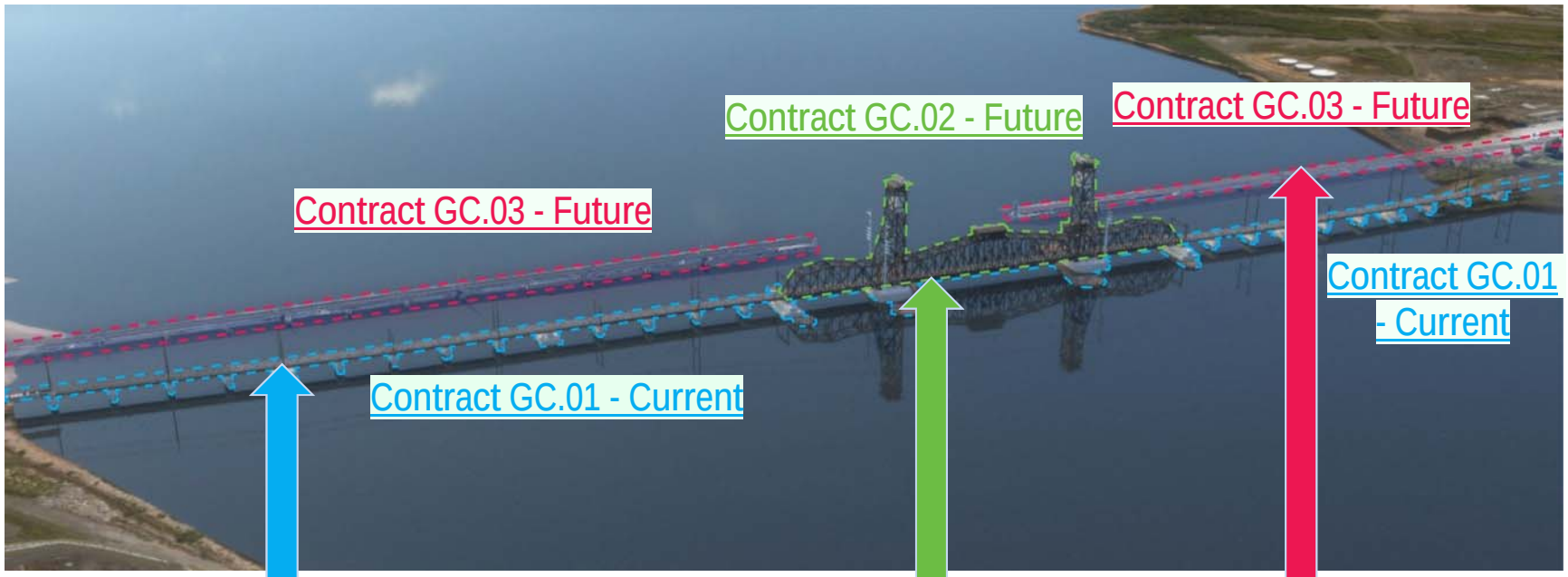
➢ NJ TRANSITGRID	$ 409,764,814
➢ Delco Lead Train Safe Haven Storage and Inspection Facility	$ 184,493,910
➢ Hoboken Long Slip Fill and Rail Enhancement	$ 146,548,432
➢ **Raritan River Drawbridge Replacement**	**$ 446,312,465**
➢ Train Controls Resilience	$ 88,903,190
Total:	$1,276,022,811

ITEM 2005-23
RARITAN RIVER BRIDGE REPLACEMENT - CONTRACT GC.01 & CONSTRUCTION ASSISTANCE

Project Goals

- Improve resilience of the Raritan River Bridge to severe storms.
- Provide rail improvements to enhance operations.
- Improve marine navigation beneath the bridge.
- Minimize the impact to the built environment and real estate.

ITEM 2005-23
RARITAN RIVER BRIDGE REPLACEMENT - CONTRACT GC.01 & CONSTRUCTION ASSISTANCE



GC.01: Bridge Approach Spans, Lift Bridge and Flanking Spans Piers, and Associated Land Work

GC.02: Lift Bridge and Flanking Spans Superstructure, Communications, Signal and Overhead Catenary Work

GC.03: Demolition of Existing Bridge

ITEM 2005-23
RARITAN RIVER BRIDGE REPLACEMENT - CONTRACT GC.01 & CONSTRUCTION ASSISTANCE

Economic Impact

The one-time total economic impact of the project on the New Jersey economy will be **$1.0 billion** including the direct, indirect and induced economic impacts, supporting **5,740 jobs** and **$352.5 million** in earnings.

Impact Type	New Jersey
Direct Output ($M)	$580.0
Indirect & Induced Output ($M)	$467.2
Total Impact ($M)	**$1,047.2**
Direct Employment (Full Time Equivalent, FTE)	3,260
Indirect & Induced Employment (FTE)	2,480
Total Employment (FTE)	**5,740**
Earnings Supported ($M)	**$352.5**

Source: Economic Impacts of NJ TRANSIT's Raritan River Drawbridge Replacement (2020), Center for Advanced Infrastructure and Transportation (CAIT), Rutgers, The State University of New Jersey, Piscataway, NJ 08854; IMPLAN (2017), Econsult Solutions, Inc. (2020)

ITEM 2005-23
RARITAN RIVER BRIDGE REPLACEMENT - CONTRACT GC.01 & CONSTRUCTION ASSISTANCE

NOW, THEREFORE, BE IT RESOLVED that the Chair or President & CEO is authorized to enter into NJ TRANSIT Contract No. 20-005X with George Harms Construction Co., Inc. of Farmingdale, New Jersey, for the construction of the Bridge Approach Spans, Lift Bridge and Flanking Span Piers, and Associated Land Work for the Raritan River Bridge Replacement Project - General Construction Contract GC.01 in the amount not to exceed $247,945,055.49, plus five percent for contingencies, subject to the availability of funds; and

BE IT FURTHER RESOLVED that the Chair or President & CEO is authorized to amend NJ TRANSIT Contract No. 15-044 with Hardesty & Hanover / Gannett Fleming Joint Venture of Newark, New Jersey, to provide consultant services for the Raritan River Bridge Replacement Project Phase III – Construction Assistance Services in the amount not to exceed $14,878,806, plus five percent for contingencies, subject to the availability of funds.

ITEM 2005-23: NJ TRANSIT RESILIENCE PROGRAM – RARITAN RIVER BRIDGE REPLACEMENT PROJECT: AWARD FOR GENERAL CONSTRUCTION CONTRACT GC.01 AND AMENDMENT TO CONSULTANT CONTRACT PHASE III CONSTRUCTION ASSISTANCE SERVICES

WHEREAS, the existing Raritan River Bridge is a moveable swing-span bridge across the Raritan River between Perth Amboy and South Amboy; and

WHEREAS, the bridge is the sole rail link for 17 of the 20 North Jersey Coast Line (NJCL) stations to Newark and Manhattan; and

WHEREAS, the NJCL provides service to approximately 11,400 daily riders making approximately 22,800 Average Weekday Passenger Trips and accommodates Conrail freight rail services; and

WHEREAS, the existing Raritan River Bridge suffered significant damage during Superstorm Sandy; and

WHEREAS, the Raritan River Bridge Replacement Project will replace the existing 112-year-old structure and construct a new bridge capable of better withstanding storm surge associated with future extreme weather events; and

WHEREAS, the Raritan River Bridge Replacement Project - General Construction Contract GC.01 will include the construction of Bridge Approach Spans, Lift Bridge and Flanking Spans Piers, and Associated Land Work; and

WHEREAS, the Raritan River Bridge Replacement Project - General Construction Contract GC.02 will include Lift Bridge and Flanking Spans Superstructure, Communications, Signal and Overhead Catenary Work; and

WHEREAS, the Raritan River Bridge Replacement Project - General Construction Contract GC.03 will include the Demolition of Existing Bridge; and

WHEREAS, the Federal Transit Administration selected Raritan River Bridge Replacement Project to receive Disaster Relief Appropriations Act of 2013 funding through a competitive grant process; and

WHEREAS, on October 29, 2019, an Invitation for Bid (IFB) from qualified Contractors to provide Construction Services for the Raritan River Bridge Replacement Project – General Construction Contract GC.01 was advertised on BID EXPRESS, NJ TRANSIT's electronic bid system, and in *The Star-Ledger* and *Trenton* Times; and

WHEREAS, a Prebid Conference was held on Tuesday, November 12, 2019, followed by a site visit on Friday, November 15, 2019; and

WHEREAS, bids were received electronically from six firms and opened on Thursday, February 20, 2020, at NJ TRANSIT Headquarters in Newark, New Jersey; and

WHEREAS, the lowest bidder was deemed non-responsible and was removed from consideration; and

WHEREAS, NJ TRANSIT Office of Business Development (OBD) assigned a four percent Disadvantage Business Enterprise (DBE) goal for the Raritan River Bridge Replacement Project - General Construction Contract GC.01; and

WHEREAS, the OBD reviewed the bid and approved the 4.05 percent DBE commitment identified by George Harms Construction Co., Inc.; and

WHEREAS, upon completion of a competitive procurement process, George Harms Construction Co., Inc. of Farmingdale, New Jersey, was determined to be the lowest responsive and responsible bidder; and

WHEREAS, NJ TRANSIT previously retained Hardesty & Hanover / Gannett Fleming Joint Venture to provide consultant services for the Raritan River Bridge Replacement Project through NJ TRANSIT Contract No. 15-044; and

WHEREAS, On September 6, 2019, a Request for Proposal (RFP) was issued to Hardesty & Hanover / Gannett Fleming Joint Venture for Phase III – Construction Assistance Services; and

WHEREAS, a final negotiated cost proposal was received from Hardesty & Hanover / Gannett Fleming Joint Venture on February 28, 2020; and

WHEREAS, the NJ TRANSIT Office of Business Development assigned a 20 percent DBE goal for NJ TRANSIT Contract No. 15-044; and

WHEREAS, the Federal Transit Administration and Transportation Trust Fund are the anticipated sources of funding for this project;

NOW, THEREFORE, BE IT RESOLVED that the Chair or President & CEO is authorized to enter into NJ TRANSIT Contract No. 20-005X with George Harms Construction Co., Inc. of Farmingdale, New Jersey, for the construction of the Bridge Approach Spans, Lift Bridge and Flanking Span Piers, and Associated Land Work for the Raritan River Bridge Replacement Project - General Construction Contract GC.01 in the amount not to exceed $247,945,055.49, plus five percent for contingencies, subject to the availability of funds; and

BE IT FURTHER RESOLVED that the Chair or President & CEO is authorized to amend NJ TRANSIT Contract No. 15-044 with Hardesty & Hanover / Gannett Fleming Joint Venture of Newark, New Jersey, to provide consultant services for the Raritan River Bridge Replacement Project Phase III – Construction Assistance Services in the amount not to exceed $14,878,806, plus five percent for contingencies, subject to the availability of funds.

ITEM 2005-24: EXECUTION OF CONTRACT 19-064 FOR THE PROVISION OF ACCESS LINK SERVICE IN REGION 6 (BERGEN, HUDSON, PASSAIC, AND ESSEX COUNTIES)

THIS ITEM WAS DEFERRED

ITEM 2005-25: EXECUTION OF CONTRACT 19-063 FOR THE PROVISION OF ACCESS LINK SERVICE IN REGION 3 (ATLANTIC, CAPE MAY, CUMBERLAND and SOUTHERN OCEAN COUNTIES)

WHEREAS, in July 1990, the Americans with Disabilities Act (ADA) was signed into law requiring public entities operating fixed route transportation systems to provide paratransit services for individuals with disabilities; and

WHEREAS, a Request for proposal (RFP 19-063) was issued to seek competitive proposals from paratransit carriers to provide these services; and

WHEREAS, the NJ TRANSIT Office of Business Development assigned an SBE Category 3 goal of three percent on this contract; and

WHEREAS, NJ TRANSIT's Technical Evaluation Committee has reviewed the vendor proposals received for the provision of Access Link service in Region 3; and

WHEREAS, upon completion of the competitive procurement process, it has been determined that Easton Coach Company submitted the proposal that provides the best value and is in the best interest of NJ TRANSIT; and

WHEREAS, Easton Coach Company has been operating the service under contract with NJ TRANSIT since July 7, 2013; and

WHEREAS, providing uninterrupted Access Link service for the provision of ADA paratransit is a requirement of the ADA and Federal Government;

NOW, THEREFORE, BE IT RESOLVED that the Chair or President & CEO is authorized to enter into NJ TRANSIT Contract No. 19-063 with Easton Coach Company of Easton, Pennsylvania, to operate Access Link service in Region 3 (Atlantic, Cape May, Cumberland, and Southern Ocean Counties) for an initial 36-month base contract period from July 12, 2020 to June 30, 2023 at a cost of $14,235,059.00, plus five percent contingencies for a total contract authorization of $14,946,812.00, subject to the availability of funds and Board approval of NJ TRANSIT's operating budget.

ITEM 2005-26
DESIGN ENGINEERING AND CONSTRUCTION ASSISTANCE FOR THE CENTRAL CONCOURSE AT NY PENN STATION

- This project will improve commuter facilities by increasing waiting space and adding stairways to train platforms at NY Penn Station, the busiest station on the NJ TRANSIT system.

- Seeking authorization to enter into NJ TRANSIT Contract No. 19-052 with **FX Collaborative Architects LLP** of New York, New York, for the preliminary design phase of the **Design Engineering and Construction Assistance for the Central Concourse at New York Penn Station**, in the amount not to exceed **$4,121,887**, plus five percent for contingencies, subject to the availability of funds.

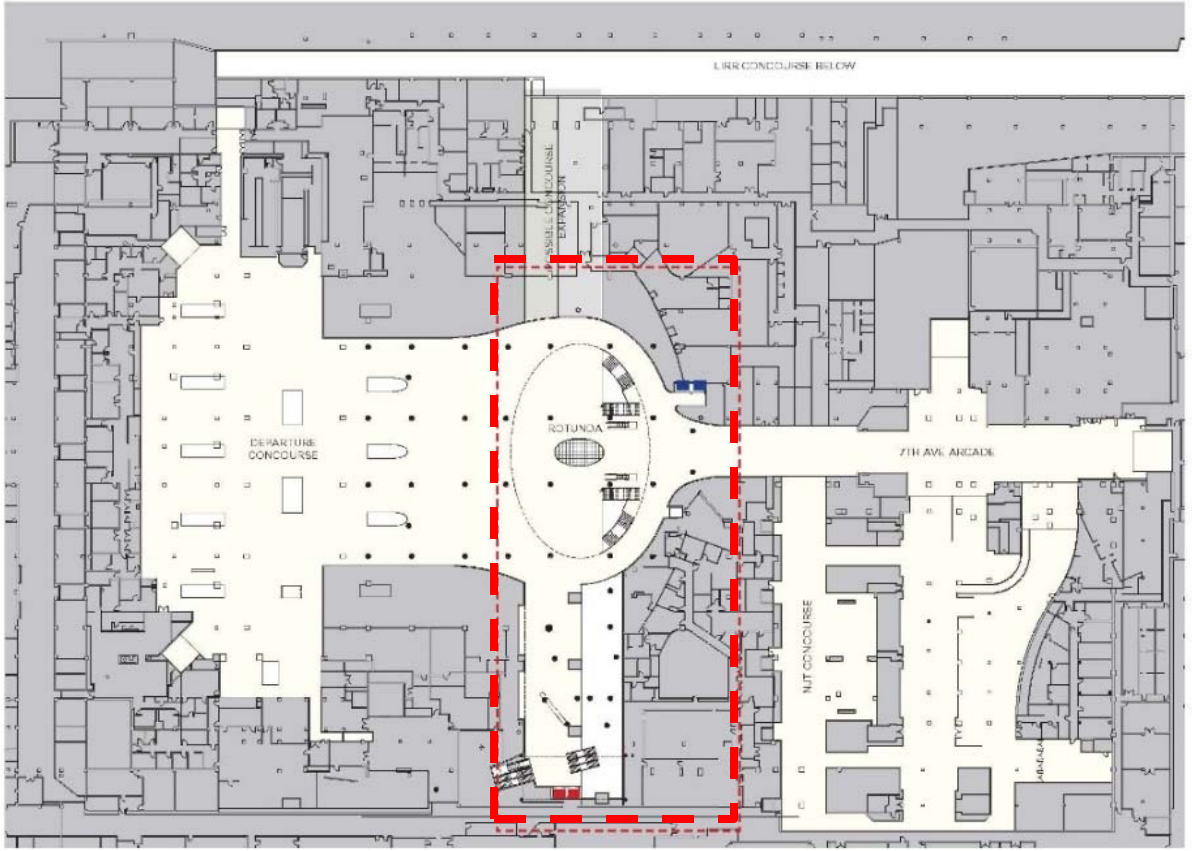
- Funding for this phase, Preliminary Design, by The Port Authority of New York and New Jersey.

ITEM 2005-26
DESIGN ENGINEERING AND CONSTRUCTION ASSISTANCE FOR THE CENTRAL CONCOURSE AT NY PENN STATION

- Central Concourse is adjacent to the existing LIRR Central Corridor.
- It will be mainly on Level A, the level below the main level that most commuters use.
- It begins at the Rotunda, or "fishbowl" in the level below, and extends south.

ITEM 2005-26
DESIGN ENGINEERING AND CONSTRUCTION ASSISTANCE FOR THE CENTRAL CONCOURSE AT NY PENN STATION

- New York Pennsylvania Station (NYPS) is owned by AMTRAK.
- The Central Concourse extension will provide additional access to the train platforms.
- The station serves about 95,000 NJ TRANSIT commuters, more than any other NJ TRANSIT facility.
- It will provide additional access to Platforms 1 through 6 (Tracks 1 through 12).

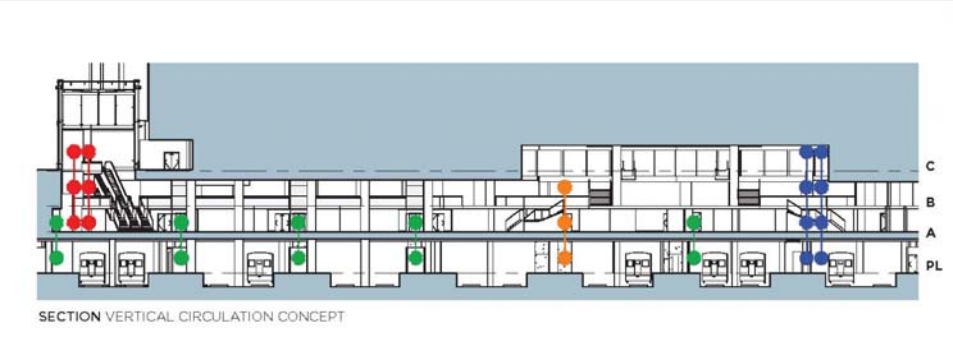


ITEM 2005-26
DESIGN ENGINEERING AND CONSTRUCTION ASSISTANCE FOR THE CENTRAL CONCOURSE AT NY PENN STATION

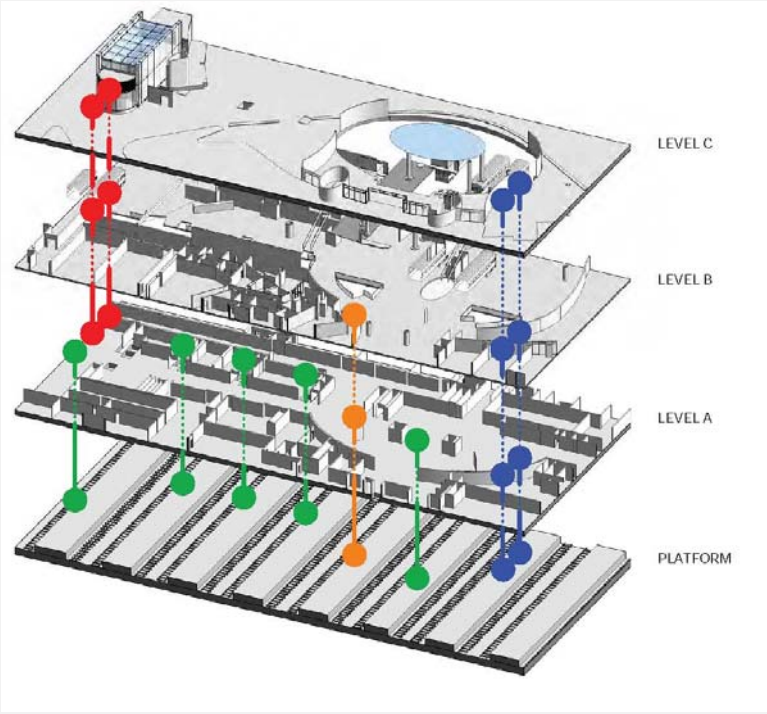
- It will provide additional waiting and circulation areas for NJ TRANSIT customers.
- Project includes construction of the area on level A.
- It may include removal of some of the Level B floor to provide a two-story space.
- Additional stairs, escalators, and elevators between platforms 1 through 6, (tracks 1-12) and Level A.

ITEM 2005-26
DESIGN ENGINEERING AND CONSTRUCTION ASSISTANCE FOR THE CENTRAL CONCOURSE AT NY PENN STATION

- Authorization of this Construction Contract will allow development of Phase I Preliminary Design/Engineering (30% design level).
- Design and engineering will require significant coordination with AMTRAK.
- Project encompasses four levels: Platform/Track Level, Level A, Level B, and Level C (street-level).

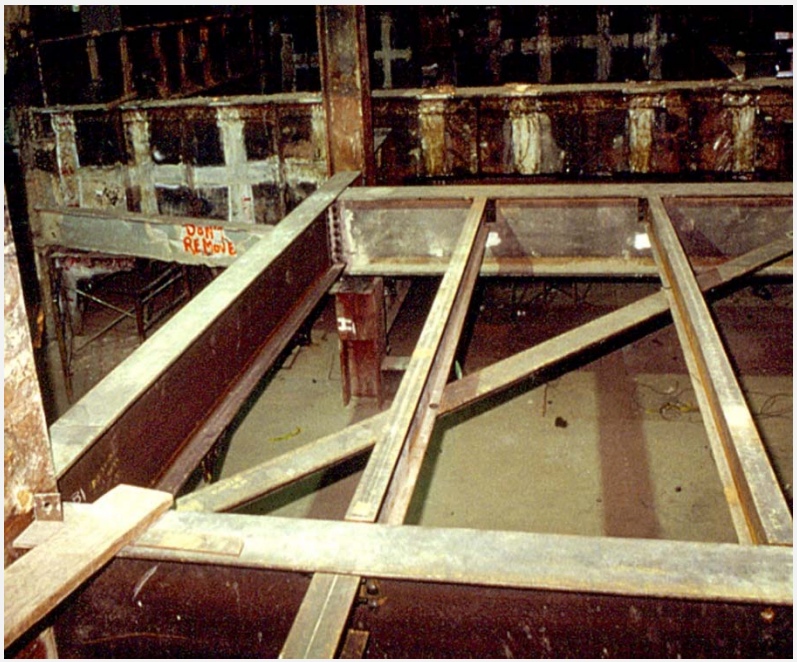


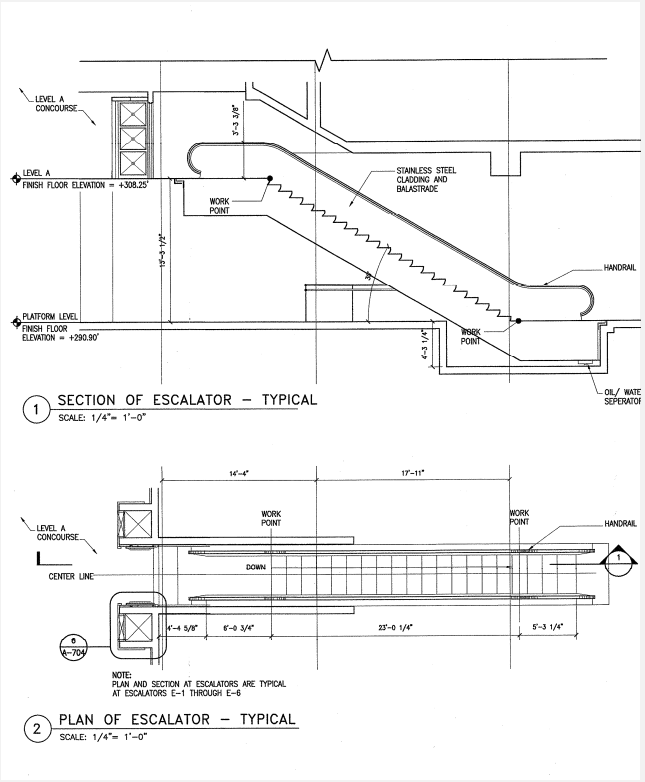
SECTION VERTICAL CIRCULATION CONCEPT



ITEM 2005-26
DESIGN ENGINEERING AND CONSTRUCTION ASSISTANCE FOR THE CENTRAL CONCOURSE AT NY PENN STATION

- Design of structural alterations and demolition of some structural elements
- Relocation of building utilities; ductwork and heating, telecommunications, and mechanical equipment
- New stairways and escalators on platforms





ITEM 2005-26: DESIGN, ENGINEERING, AND CONSTRUCTION ASSISTANCE FOR THE CENTRAL CONCOURSE AT NEW YORK PENNSYLVANIA STATION

WHEREAS, New York Penn Station (NYPS) is owned by the National Passenger Rail Corporation (AMTRAK) and the NJ TRANSIT and Long Island Railroad (LIRR) rail facilities are operated under agreement with AMTRAK, and

WHEREAS, NJ TRANSIT seeks to enhance the capacity and accessibility of its facilities and services, including the NYPS; and

WHEREAS, authorization of this Design Contract will allow for Phase I, Preliminary Design of the Design, Engineering and Construction Assistance for the Central Concourse at NYPS; and

WHEREAS, this project is the first phase of two phases of design of the Central Concourse project; and

WHEREAS, the project will provide additional stairs, escalators and elevators between platforms 1 through 6, (tracks 1-12) and Level A, to serve NJ TRANSIT customers using New York Pennsylvania Station; and

WHEREAS, the Central Concourse is proposed to relieve overcrowding and provide additional access to the train platforms; and

WHEREAS, on August 7, 2019, a Request for Proposal (RFP) was advertised on BID EXPRESS, NJ TRANSIT's electronic bid system, and in *The Star-Ledger* and *Trenton Times*. A Pre-Bid Conference and site visit occurred on August 29, 2019; and

WHEREAS, technical proposals were received electronically from five firms and opened on October 7, 2019, at New Jersey Transit Headquarters in Newark; and

WHEREAS, a cost proposal was received from FX Collaborative Architects LLP in the amount of $4,121,887; and

WHEREAS, NJ TRANSIT's Office of Business Development (OBD) assigned a 25 percent Race Conscious Disadvantaged Business Enterprise (DBE) goal for this design contact. FX Collaborative's proposal included a commitment of 27 percent DBE utilization, although upon review, the actual commitment was 20.95 percent. The OBD accepted this as a good faith effort submission and gave approval to award this contract at 20.95 percent; and

WHEREAS, The Port Authority of New York and New Jersey is the anticipated source of funding for this phase of the project;

NOW, THEREFORE, BE IT RESOLVED, that the Chair or President & CEO is authorized to enter into NJ TRANSIT Contract No. 19-052 with FX Collaborative Architects LLP, of New York, New York, for preliminary design engineering services of the Central Concourse Project in the amount not to exceed $4,121,887, plus five percent for contingencies, subject to the availability of funds.

ITEM 2005-27: APPROVAL OF NJ TRANSIT'S PUBLIC TRANSPORTATION AGENCY SAFETY PLANS

WHEREAS, the New Jersey Transit Corporation ("NJ TRANSIT") was established by the New Jersey Public Transportation Act of 1979 "the Act" (N.J.S.A. 27:25-1 et seq.) as the instrumentality of the State of New Jersey to establish and provide for the operation and improvement of a coherent public transportation system in the most efficient and effective manner; and

WHEREAS, NJ TRANSIT is committed to provide a safe, secure and healthy environment for its employees, customers and the communities where it operates; and

WHEREAS, NJ TRANSIT is empowered and authorized to develop, implement and administer a comprehensive integrated, and coordinated Public Transportation Agency Safety Plans in accordance with the provisions of 49 CFR Part 673; and

WHEREAS, staff has developed and reviewed the NJ TRANSIT's Public Transportation Agency Safety Plans representing NJ TRANSIT's Bus Operations, Newark Light Rail Operations, Hudson-Bergen Light Rail Operations Contractor 21st. Century Rail Corporation, and RiverLINE, Contractor, Southern New Jersey Rail Group – Bombardier LLC; and

WHEREAS, NJ TRANSIT Public Transportation Agency Safety Plans for NJ TRANSIT's Light Rail divisions and Bus Operations meets the requirements under Federal Transit Administration (FTA) 49 CFR Part 673; and

WHEREAS, staff seeks authorization to take all actions necessary for NJ TRANSIT's Board approval of its Public Transportation Agency Safety Plans in compliance with FTA 49 CFR Part 673;

NOW, THEREFORE, BE IT RESOLVED, that the Chair or President & CEO, or the appropriate designee, is hereby authorized to take all actions necessary for approval of NJ TRANSIT's Public Transportation Agency Safety Plans detailed in the corresponding Exhibits with this Board item.

Bus Operations
Public Transportation Agency
Safety Plan

Final Draft Copy (Updated 02-18-20) _V11.0

NJTRANSIT The Way To Go.

Table of Contents

SECTION 1 4
1.1 AGENCY INFORMATION 4
1.2 AGENCY LEADERSHIP AND EXECUTIVE MANAGEMENT 4
1.3 SCOPE OF BUS OPERATIONS 5

SECTION 2 6
2.1 PLAN DEVELOPMENT AND APPROVAL 6
2.2 PLAN UPDATES AND REVIEW PROCESS 7

SECTION 3 11
3.1 COORDINATION WITH METROPOLITAN PLANNING ORGANIZATIONS (MPO'S) PROCESSES 11
3.2 SAFETY PERFORMANCE MEASURES/TARGETS 11

SECTION 4 13
STATEMENT OF SAFETY MANAGEMENT POLICY 13

SECTION 5 14
5.1 SAFETY HAZARD IDENTIFICATION AND ANALYSIS, EVALUATION, AND RESOLUTION 14

SECTION 6 23
6.1 SAFETY PERFORMANCE MONITORING AND MEASUREMENT 23
6.2 OPERATIONS MAINTENANCE 23
6.3 QUALITY ASSURANCE DEPARTMENT ACTIVITIES 24
6.4 OPERATOR PRE/POST TRIP INSPECTION PROCEDURES 24
6.5 GARAGE/MAINTENANCE FACILITY INSPECTIONS AND AUDITS 25
6.6 BUS SHELTER AND BUS STOP INSPECTION AND TESTING 25
6.7 PARKING/STORAGE PROCEDURES 25
6.8 FOLLOW-UP AND UNDERCOVER RIDES 25
6.9 TRACKING SYSTEM FOR IDENTIFIED HAZARDS 26
6.10 REPORT OF FINDINGS 26

6.11 RULES FOR INCORPORATING MODIFICATIONS INTO SYSTEM - MANAGEMENT OF CHANGE 26
6.12 SAFETY ANALYSIS REVIEWED OR UPGRADED 29
6.13 SAFETY ATTENDS/PARTICIPATES SAFETY MEETINGS 30
6.14 ACCIDENT/INCIDENT INVESTIGATIONS 30
6.15 ACCIDENT/INCIDENT INVESTIGATION - PANEL COMMITTEE 32
6.16 LIAISON COMMITTEE – LOCAL FIRE DEPARTMENTS 32
6.17 LIAISON COMMITTEE – LAW ENFORCEMENT 32
6.18 LIAISON COMMITTEE – FEDERAL/STATE EMERGENCY ORGANIZATIONS 32
6.19 LIAISON COMMITTEE – LOCAL DISABLED COMMUNITY 32
6.20 EMPLOYEE SAFETY REPORTING SYSTEM 32
6.21 REPORTS/RESPONSIBILITIES 33
6.22 CONTINUOUS IMPROVEMENT 33

SECTION 7 34
7.1 COMPETENCY AND TRAINING 34
7.2 SAFETY COMMUNICATION 43

SECTION 8 45
8.1 ACRONYMS 45
8.2 DEFINITIONS 46

APPENDIX 52

SECTION 1

TRANSIT AGENCY INFORMATION

1.1 AGENCY INFORMATION

Transit Agency Name
NEW JERSEY TRANSIT

Transit Agency Address
One Penn Plaza East, Newark, NJ 07105-2246

Name and Title of Accountable Executive
Kevin S. Corbett, President & CEO

Name of Chief Safety Officer or SMS Executive
Brian A. Lapp, Sr. VP & Chief Safety Officer

Mode(s) of Service Covered by This Plan
Bus Operations

1.2 AGENCY LEADERSHIP AND EXECUTIVE MANAGEMENT

Kevin S. Corbett – **President & CEO & Accountable Executive**

Michael P. Kilcoyne – **Sr. VP Surface Transit & GM of Bus Operations**

Justin P. Davis – **Sr. VP Regulatory & Govt. Affairs & Chief of Staff**

Chris Iu- **Acting Chief Compliance Officer**

Jeannie Kwon – **Sr. VP & Chief Administrative Officer**

William Viqueira – **Chief Financial Officer & Treasurer**

Anthony M. Grieco – **Sr. VP Communication & Customer Experience**

Christopher Trucillo – **Sr. VP Chief of Police & Office of Emergency Management**

Eric R. Daleo – **Sr. VP Capital Program**

Brian A. Lapp – **Sr. VP & Chief Safety Officer**

1.3 SCOPE OF BUS OPERATIONS

A. History and Background

In 1979, the New Jersey State Legislature enacted the New Jersey Public Transportation Act establishing NJ TRANSIT, Inc. (Parent) as a successor to the NJDOT Commuter Operating Agency and provided the organization with a mandate to 'acquire, operate, and contract transportation services in the interest of the public'. NJ TRANSIT Bus Operations was formed the following year in 1980. As legal entities, NJ TRANSIT, Inc. (Parent) and NJ TRANSIT Bus Operations, Inc. are quasi-public agencies of the state.

NJ TRANSIT's establishing act granted the organization sanction in salvaging private intrastate bus companies facing insolvency; the Maplewood Equipment Company and Transport of New Jersey (TNJ) were principally included in early acquisitions. Throughout the 1980's NJ TRANSIT proceeded to further incorporate private bus companies formerly servicing the North, Central, and South Jersey areas - notably including Mercer Metro, Somerset Bus Company, and Lincoln Transit.

NJ TRANSIT Bus Operations presently provides local and commuter passenger service to the residents of New Jersey, New York, and Pennsylvania. Scheduled local service is primarily inter-urban, serving the Newark-North Jersey area and the Camden-Philadelphia area. Commuter service includes operations from North and Central Jersey into New York City including service from Warwick, New York to New York City, as well as commuter service from South Jersey to Philadelphia, Pennsylvania.

B. Type of Operations

- **Company Name:** NJ TRANSIT Bus Operations Inc.
- **Type of Service:** Urban/Suburban/Highway
- **Annual # number of Passengers:** 154 Million
- **Annual # number of Revenue Miles:** 72 Million

C. Operating Schedule/Routes/Fleet Service

NJ TRANSIT Bus Operations operates local and commuter bus services for 19 of New Jersey's 21 counties via 251 separate lines, including 52 contracted lines using a total of 2,288 buses. Patrons served range through segments of all demographics, including daily commuters, children, the elderly, and the disabled. Major metro areas serviced include: Camden, Atlantic City, Cape May, Newark, Paterson, etc. Interstate service is provided into Philadelphia and New York City.

D. NJ TRANSIT Bus Operations Personnel

Bus Operators:	3,511	**Maintenance:**	1,391
Management:	501	**Clerks/Ticket Agents:**	224

SECTION 2

PLAN DEVELOPMENT, APPROVAL, AND UPDATES

2.1 PLAN DEVELOPMENT AND APPROVAL

PLAN DRAFTED BY:

NJ TRANSIT BUS OPERATIONS

Date: **February 18, 2020**

SIGNATURE: _____ _____
Date

Michael P. Kilcoyne
Sr. VP Surface Transit
GM of Bus Operations

SIGNATURE: _____ _____
Date

Brian A. Lapp
Sr. VP & Chief Safety Officer
Office of System Safety

NJ TRANSIT BOARD OF DIRECTORS APPROVAL:

SIGNATURE: _____ _____
Date

NJ TRANSIT Board of Directors

CERTIFICATION OF COMPLIANCE:

SIGNATURE: _____ _____
Date

Kevin S. Corbett
President & CEO
Accountable Executive

2.2 PLAN UPDATES AND REVIEW PROCESS

2.2.1 Annual Public Transportation Agency Safety Plan (PTASP) Review Process

The Public Transportation Agency Safety Plan is annually reviewed to:

- Incorporate modifications required by 49 CFR 673.11 (a) (5) [annual review and update] and 49 CFR 673.13 (b) [annual certification of compliance]
- Incorporate changes in management
- Incorporate new equipment
- Incorporate new or modified systems and facilities
- Incorporate extended or modified operations
- Incorporate newly added safety related topics
- Incorporate evaluations of safety performance targets

2.2.2 Annual Public Transportation Agency Safety Plan (PTASP) Internal Review Process – Defined

The NJ TRANSIT Public Transportation Agency Safety Plan (PTASP) analysis, review, revision, and publication process is the responsibility of the NJ TRANSIT Office of System Safety (NJ TRANSIT OSS). On or before January 1st of each year, review and input is solicited from the various divisions within NJ TRANSIT Bus Operations. If substantive changes in the content of the plan occur, the plan will be forwarded to the Sr. Vice-President – Chief of the Office of System Safety and the Sr. Vice-President of Surface Transit – General Manager of Bus Operations for review and approval. Upon approval, the plan will be submitted to the Accountable Executive (President & CEO of NJ TRANSIT) for certification. An electronic copy of the PTASP will be posted annually on the NJ TRANSIT intranet for employee access.

2.2.3 Internal Review Policy Goals

NJ TRANSIT Bus Operations currently has an internal review process completed by various departments. All internal reviews and audits are performed to evaluate the organizations adherence to policies, procedures, and rules.

2.2.4 Procedures for Conducting Internal Reviews

Each department conducts reviews with checklists and schedules of criteria items to specifically measure the performance being reviewed.

2.2.5 Roles/Responsibilities of Participants

Roles and responsibilities of the selected participants will be defined at the onset of the criteria review process.

2.2.6 Reporting Requirements

Reports are analyzed to establish applicable recommendations and are circulated to accountable management for corrective action(s). Reports are filed and maintained with NJ TRANSIT OSS.

2.2.7 Internal Review Report Statistics

NJ TRANSIT OSS maintains a file and tracking system to identify deficiencies and corrective actions.

2.2.8 Process for Addressing Public Comments

NJ TRANSIT has a public information office (PIO) that is responsible for communicating public safety concerns to Bus Operations. Upon notification, OSS provides safety oversight and guidance on corrective action(s) if needed.

2.2.9 Internal Review by Organization

Refer to Section 6.8 – Follow up and Undercover Ride Program.

2.2.10 Internal Review of Communications Activities

The Director of Service and Supervision is responsible for Control Center operations, including the periodic evaluation of controllers. The evaluation process includes replaying taped transmissions for the purpose of assessing emergency operating procedures.

2.2.11 Maintenance Department Internal Reviews

Maintenance personnel conduct daily post-trip inspections of all buses receiving nightly service. Items inspected include safety-related systems, fluid levels, and specific campaign items. Maintenance personnel also conduct periodic inspections of the vehicle heating and air conditioning systems on a regular basis.

In accordance with the maintenance standard operating procedures manual, the NJ TRANSIT Vehicle Maintenance Support and Quality Assurance Departments conduct regular audits on vehicle systems and perform periodic reviews of mechanical systems with results forwarded to applicable management personnel.

2.2.12 Internal Review Administrative Managers

All administrative managers have been provided with a copy of this PTASP and have been advised of their on-going responsibilities as defined within this document. NJ TRANSIT OSS will conduct an annual evaluation of compliance with administrative activities and functions (including the PTASP review process) as part of on-going assessments of system safety responsibilities.

2.2.13 Internal Review Bus Station Cleanliness

Periodic inspections are conducted by NJ TRANSIT OSS representatives and Bus Operations personnel to ensure that physical hazards and cleanliness standards are maintained at all NJ TRANSIT bus stations.

2.2.14 External Reviews

As a public carrier, NJ TRANSIT Bus Operations is subject to external review processes conducted by various outside agencies, including:

- New York State Public Transportation Safety Board (NYSPTSB)
- National Transportation Safety Board (NTSB)
- NY/NJ State Department of Transportation (NY/NJ DOT)
- NJ Department of Labor (NJDOL)
- NJ Department of Health (NJDOH)
- NJ Department of Community Affairs (NJDCA)
- Federal Transit Administration (FTA)
- Occupational Safety and Health Administration (OSHA)
- Public Employees Occupational Safety and Health (PEOSH)
- Federal Motor Carrier Safety Administration (FMCSA)
- American Public Transportation Association (APTA)

2.2.15 Procedures for Implementation of External Audits

The policy of NJ TRANSIT Bus Operations is complete cooperation with all external agencies when concerning safety-related recommendations. NJ TRANSIT OSS is authorized to act as liaison for all issues relating to safety.

2.2.16 Recommendations/Findings by External Audits

NJ TRANSIT OSS reviews all external agency written requests and subsequently coordinates an action plan and response.

2.2.17 Agency Safety Plan Review and Approval by the Oversight Agency

In accordance with the New York State Public Transportation Safety Board (NYSPTSB) oversight requirements, the Bus System Safety Program Plan SSPP must be submitted biennially to the NYSPTSB for their review and approval on or before June 30th for recertification, or when changes in conditions require a modification of the SSPP. The PTASP has incorporated most of those elements contained in SSPP, however, the SSPP will remain a separate document requiring biennial submission to the NYSPTSB oversight agency.

2.2.18 PTASP Documentation and Recordkeeping

All documents related to the PTASP including policies, procedures, reference sources, and changes to the plan are maintained by the NJ TRANSIT OSS for a minimum of three years after they are created.

2.2.19 Tracking Versions

Version Number and Updates			
Version Number	**Section/Pages Affected**	**Reason for Change**	**Date Issued**
(V)11.0		Original	2/18/2020

SECTION 3

SAFETY PERFORMANCE MEASURES

3.1 COORDINATION WITH METROPOLITAN PLANNING ORGANIZATIONS (MPO'S) PROCESSES

NJ TRANSIT will work closely with each state MPO to ensure the following:

- Coordination with each state MPO in the development and selection of safety performance targets
- Safety performance targets are provided to each state MPO

3.2 SAFETY PERFORMANCE MEASURES/TARGETS

		*Safety Events			
Fatalities/Rate	**Injuries/Rate**	**Collisions/Rate**	**Employee Injury Rate**	**Major Bus Fire Events/Rate**	**System Reliability**
.027/Mil.	**6.14/Mil.**	**3.66/Mil.**	**7.35/200K Hrs.**	**.15/Mil.**	**135.45/Mil.**

3.2.1 Methodology:

Data was extracted from the National Transit Database (NTD) SSTime dataset and an average was established for three consecutive calendar years (2016, 2017, and 2018).

The frequency rate was calculated using the following formula for each of the categories:

Frequency Rate =	$\frac{\text{Number of Events x 1,000,000 Miles}}{\text{Annual Mileage}}$
Employee Injury Rate =	$\frac{\text{Number of Recordable Injuries x 200,000 Employee Hours}}{\text{Total Employee Hours}}$

3.2.2 Definitions:

National Transit Database (NTD) – Established in 1974, the National Transit Database (NTD) is a federal reporting program for transit agencies receiving Federal Transit Administration (FTA) funding. It serves as a primary repository for all transit-related data including safety statistics in the United States. The performance data from the NTD is used to allocate FTA funding and to report on public transit performance to Congress and researchers.

NTD Reportable Event – An event (either planned or unplanned) occurring on transit right-of-way, in a transit revenue facility, in a transit maintenance facility, or involving a transit revenue vehicle that meets NTD reporting thresholds provided below: (Occupational safety events occurring in administrative buildings are excluded from NTD reportable events)

- Fatalities involving passengers, others (people waiting or leaving), bus operators, bicyclists, pedestrians, and occupants of other vehicles
- Injuries requiring transportation away from the scene for medical attention
- Total property damage greater than $25,000
- Towaways of any motor vehicle
- Smoke, Fire Evacuations for life safety reasons

Fatalities – Total number of NTD reported fatalities and rate per total vehicle revenue miles.

Injuries – Total number of NTD reported injuries and rate per total vehicle revenue miles.

***Safety Events** – Total number of NTD reported events and rate per total revenue miles that occur during transit operations and the performance of regular supervisory or maintenance activities. Safety events include all NTD reportable collisions, employee injuries and major smoke conditions and/or fires during revenue service requiring evacuation for life safety reasons.

System Reliability (Mean distance between major mechanical failures) – The average distance between major mechanical failures that inhibit vehicle movement or prevents the start or completion of a scheduled revenue trip due to safety concerns. Examples of factors and/or components impacting System Reliability include: tires, brakes, doors, engine/transmission, cooling systems, steering, axles, and suspension. This data is represented as a total number of events and the rate per total revenue miles.

NOTE: The thresholds for "reportable" fatalities, injuries, and safety events are defined in the National Transit Database Safety and Security Reporting Manual.

(Data as of CY 2018)

SECTION 4

STATEMENT OF SAFETY MANAGEMENT POLICY

The management of safety is one of our core business functions. NJ TRANSIT Bus Operations is committed to developing, implementing, maintaining, and continuously improving safety hazard assessment and risk management processes in order to ensure bus transit services operate with the highest practicable performance standards while maintaining a balanced allocation of organizational resources, and a strict adherence to state and federal regulatory standards. All levels of management and all employees are accountable for implementing and delivering the highest level of safety standards, starting with the President & CEO, Kevin S. Corbett. The following objectives are provided in support of NJ TRANSIT Bus Operations' safety performance goals and objectives:

- **Support** the management of safety through the provisioning of appropriate resources and cultivate an organizational culture that promotes safe practices, encourages effective employee safety reporting and communication, and actively manages safety performance objectives with the same attention to results as other management systems within the organization;
- **Integrate** safety management among the responsibilities of all managers and employees;
- **Clearly define** for all staff, managers, and employees alike their accountabilities and responsibilities with regards to delivering the organization's safety performance goals and their contributions to the overall performance of our safety management system;
- **Establish and implement** hazard identification, analysis, and safety risk evaluation activities (including an employee safety reporting program as a fundamental resource for addressing safety concerns), in order to eliminate or to mitigate the consequences of safety risks/hazards resulting from our operations - or to reduce hazardous activities to a point consistent with our acceptable safety performance levels;
- **Ensure** that no action will be taken against an employee who discloses a safety concern through the safety reporting program, unless disclosure indicates, beyond any reasonable doubt, an illegal act, gross negligence, or deliberate or willful disregard of regulations or procedures;
- **Comply** with, and whenever possible, exceed legislative and regulatory requirements and standards;
- **Ensure** that enough skilled and trained employees are available to implement safety management processes;
- **Ensure** that all staff are provided with adequate and appropriate safety-related information and training, are competent in safety management matters, and are allocated only tasks commensurate with their skills;
- **Establish and measure** our safety performance against realistic and data-driven safety performance indicators and safety performance targets;
- **Continually improve** our safety performance through management processes and Safety Management System (SMS) principles that ensure appropriate safety management action is taken and that it is effective; and-
- **Ensure** that externally supplied systems and services necessary to support our operations and achieve our safety performance objectives are delivered meeting our safety performance standards.

Kevin S. Corbett
President & CEO

Michael P. Kilcoyne
Sr. VP Surface Transit & GM Bus Operations

SECTION 5

SAFETY RISK MANAGEMENT

5.1 SAFETY HAZARD IDENTIFICATION AND ANALYSIS, EVALUATION, AND RESOLUTION

This section describes the methods or processes integral in identifying, analyzing, and evaluating operational hazards and in achieving resolution.

The hazard management process is utilized to assess and to mitigate safety-related hazards associated with NJ TRANSIT activities, passengers, employees, vehicles, and facilities. The process requires the identification of system hazards, analyzing the probability and severity of occurrences, and developing actions required to reduce risks as low as reasonably practicable.

Hazard identification is the initial step in the hazard management process. It is a methodical approach in assessing risks via various methods involving all systems and personnel. This process uses SMS (Safety Management System) concepts including engineering and operations management. The process of hazard identification is further achieved through safety inspections and audits, safety reviews, accident investigations, and industrial hygiene and fire safety surveys. Data trend analyses focus on employee/passenger accidents, near miss incidents, fire incidents, and site-specific surveys.

System programs and procedures utilized in hazard identification and assessment, evaluation, and resolution are discussed as follows:

- Rules/policies regarding hazard identification are in place and included as a part of every employee's duties (Appendix 1 - Employees Safety Rule Book).
- A systematic approach to ensure NJ TRANSIT's SMS processes are in place
- Establishment of the accountability and responsibilities for hazard identification and assessment, analysis, and resolution are identified within the safety risk management process

5.1.1 Internal Safety Data Sources Used for Hazard Identification and Analysis

The following sources of information are used in the hazard identification and analysis process:

a. Specifications, plans, on-site safety evaluations and safety data analysis

b. Evaluation of employees' adherence to safety policies and procedures and materials

c. Feedback from various evaluations and audits completed by Bus Operations, OSS Safety, and Internal audits

d. Quality Assurance and Preventative Maintenance Inspection reports

e. Passenger Complaint reports

f. Accident/Incident Investigation reports and logs

g. On-board camera system events

h. Bus Operator Reports of Unsafe Conditions

i. Bus Condition Reports

j. Computer reporting systems such as Vehicle Maintenance Information Systems (VMIS) and fluids management tracking program

5.1.2 External Safety Data Sources Used for Hazard Identification and Analysis

a. External audits and inspections

b. Contractor/vendor inspections of fixed facilities, equipment, operations, and safety procedures

c. Vendor bulletins regarding defects and/or changes in maintenance intervals

d. Industry trade organizations papers and newsletters

e. Bulletins from government agencies, such as the Occupational Safety and Health Administration (OSHA) and Department of Transportation (DOT)

f. Statistical data from the American Public Transportation Association (APTA), National Safety Council (NSC), and other organizations

g. Safety Data Sheets (SDS)

h. Internet and the World Wide Web

5.1.3 Internal Methods Used for Operational Systems Hazard Identification and Analysis

a. Bus shelter designs and installations are evaluated for potential safety hazards

b. Bus stops, park and rides, terminals, and adjacent areas are inspected and analyzed for safety hazards (Appendix 2 – Customer Facility Inspection Procedures).

c. Fixed routes and road conditions are evaluated for potential safety hazards

5.1.4 Fixed Facility Inspections and Audits Used for Hazard Identification and Analysis

a. Garage Self-Inspection Program:

The program is used to identify and resolve root hazards that could lead to employee or facility accidents. Additionally, it provides a mechanism to ensure that physical hazards will be identified and resolved prior to outside inspections by external agencies (Appendix 3 – Garage Self-Inspection Procedures).

b. Monthly Fire Protection Equipment (FPEI) Inspections:

Inspections are performed to ensure that fire protection equipment is functional during an emergency (Appendix 4 – Fire Equipment Inspection Procedures).

c. Annual Bus Safety Facility Audits:

Audits are performed at all Bus facilities using the Safety Audit Criteria based on OSHA Codes and Federal Regulations (CFR) (Appendix 5 – Annual Garage Audit Procedures).

d. Semi-Annual Environmental Compliance Audits:

The NJ TRANSIT Environmental Service Unit performs two audits each year to determine whether the facility is operating in compliance with all applicable federal and state environmental regulations and permit conditions.

e. Storage and parking areas are periodically inspected.

f. Fleet maintenance equipment is periodically inspected.

g. Personal protective equipment is periodically inspected and changes to equipment are incorporated into the Bus Operations Personal Protective Equipment Catalogue.

h. Shop maintenance equipment is regularly inspected.

i. Fire detection and warning systems are regularly inspected and tested.

j. Fire suppression systems (i.e. automatic sprinkler systems, Halon systems, and portable fire extinguishers) are inspected for hazards and serviced periodically.

k. Fare collection equipment is periodically inspected for hazards to employees and customers.

5.1.5 Systems and Equipment Inspections Used for Hazard Identification and Analysis

a. Inspection of Communication rooms and systems

b. Inspection of Sub-stations

c. Facility signs and lighting are inspected for proper operation

d. Inspection of Control Center facilities and equipment

5.1.6 Operating and Maintenance Procedures Used for Hazard Identification and Analysis

a. Transportation and Maintenance procedures are reviewed as requested

5.1.7 Human Factors Hazard Identification and Analysis Processes

a. Employees with multiple operational vehicle accidents are identified, counseled, and retrained by Bus Operations personnel

b. The following series of activities involving employee and supervisory personnel are used to identify and mitigate hazards and unsafe behaviors are completed:

- Behavioral safety reviews, including Bus Operator performance ride observations and DriveCam camera events
- Location Safety Chair Person participation in safety meetings and awareness programs

- Bus Operator re-training and defensive driving programs

5.1.8 Methodologies and Procedures Used for Hazard Evaluation

a. Hazards are identified and evaluated using the above activities and are assessed for potential risks to the system in accordance with established system safety principles outlined in Military Standard 882E (Refer to the **Hazard Analysis Chart** next page).

b. NJ TRANSIT OSS is tasked with implementing the hazard evaluation process with input from NJ TRANSIT Bus Operations senior management.

c. A Hazard Identification Risk Assessment Table (HIRA) is reviewed and maintained for changes in operational activities and hazards that may introduce risk to the Bus System.

Hazard Analysis Chart:

Description	Level	Specific Individual Item	Fleet or Inventory
Frequent	A	Likely to occur in the life of an item	Continuously experienced
Probable	B	Will occur several times in the life of an item	Will occur frequently
Occasional	C	Likely to occur sometime in the life of an item	Will occur several times
Remote	D	Unlikely but possible to occur in the life of an item	Unlikely, but can reasonably be expected to occur
Improbable	E	Unlikely, but possible, it can be assumed occurrence may not be experienced in the life of an item	Unlikely to occur, but possible
Eliminated	F	Incapable of occurrence - this level is used when potential hazards are identified and later eliminated	Incapable of occurrence. This level is used when potential hazards are identified and later eliminated

Risk Assessment Matrix:

	SEVERITY			
PROBABILITY	1 - Catastrophic	2 - Critical	3 - Marginal	4 - Negligible
A-Frequent	High	High	Serious	Medium
B-Probable	High	High	Serious	Medium
C-Occasional	High	Serious	Medium	Low
D-Remote	Serious	Medium	Medium	Low
E-Improbable	Medium	Medium	Medium	Low
F-Eliminated	ELIMINATED			

Category 1: Catastrophic – Could result in one or more of the following: death, permanent total disability, irreversible significant environmental impact, or monetary loss equal to or exceeding $10M.

Category 2: Critical – Could result in one or more of the following: permanent partial disability, injuries or occupational illness that may result in hospitalization of at least three personnel, reversible significant environmental impact, or monetary loss equal to or exceeding $1M but less than $10M.

Category 3: Marginal – Could result in one or more of the following: injury or occupational illness resulting in one or more lost work day(s), reversible moderate environmental impact, or monetary loss equal to or exceeding $100K but less than $1M.

Category 4: Negligible – Could result in one or more of the following: injury or occupational illness not resulting in a lost work day, minimal environmental impact, or monetary loss less than $100K

5.1.9 Tracking System for Identified Hazards

Representatives from NJ TRANSIT OSS conduct monthly inspections and annual audits at all Bus garages/facilities. Upon completion, the hazards identified are entered into a Hazard Tracking Log Database. This information is consolidated to ensure that a process is in place to identify trends and corrective actions. NJ TRANSIT OSS analyzes trends and recommends actions taken to reduce hazards to as low as reasonably practicable.

5.1.10 Other Risk Assessment Methods

NJ TRANSIT OSS completes a trend analysis to establish priorities in the hazard resolution process via database compilations.

5.1.11 Priority of Hazards

Identified hazards are prioritized and addressed based on an analysis of occurrence probability and severity. The most severe/imminent safety hazards are addressed first.

5.1.12 Acceptable Level of Risk

Hazards are identified and corrective actions are implemented to bring probability and severity as low as reasonably practicable.

5.1.13 Analysis Conducted as Required

As a result of the hazard identification process, an analysis is conducted to determine the appropriate level of risk.

5.1.14 Responsibility of Hazard Assessment and Analysis

NJ TRANSIT OSS has the principal responsibility for ensuring that the hazard assessment and analysis is performed.

5.1.15 Staffing for Hazard Assessment and Analysis

NJ TRANSIT is adequately staffed for its role in hazard assessment and analysis.

5.1.16 Deferred Status

a. Hazards are placed in a deferred/retained status when alternative measures of control are in place and meet the requirements of NJ TRANSIT OSS.

b. Alternative measures of controlling hazards are discussed and included as part of deferred status.

c. Alternative measures for temporarily deferred items are used as a short-term measure only.

d. NJ TRANSIT OSS and Bus Operations coordinate activities and solutions to resolve deferred action into permanent resolution.

e. Documentation of rationale and sign-offs are retained in files.

5.1.17 Corrective Action/Hazard Resolution Implementation and Monitoring

a. Corrective action/hazard resolution follows the SMS principles and practices guided by the hierarchy of controls below:

Hierarchy of Hazard Controls	
Elimination	Remove the hazard from the workplace
Substitution	Replace hazardous material or equipment
Engineering Controls	Design or modify equipment or hazard to reduce the exposure
Administrative Controls	Warnings, labels, signs, alarms, training, monitoring, etc.
Personal Protective Equipment (PPE)	Equipment worn by employees to reduce exposure

b. Recommended corrective actions pertaining to identified hazards are monitored for effectiveness.

5.1.18 Security and Emergency Awareness

a. Vulnerability Self-Assessment

Refer to NJ TRANSIT Office of Emergency Management Emergency Preparedness Plan.

b. Employee Awareness Training for Detection and Deterrence

All NJ TRANSIT Bus Operations Transportation and Maintenance employees have been trained on system safety and security protocol using the National Transit Institute video.

All NJ TRANSIT buses are equipped with two-way radios monitored by our Control Center. Messages are handled by their priority (e.g. emergency transmissions can be handled by pressing the “PRTT – priority request to talk” button), or in serious situations, an operator can press the emergency

alarm that advises the Control Center of an emergency, changes the destination sign to “Emergency“ Call Police,” and activates the DriveCam video system to record the event.

NJ TRANSIT uses the USDOT, NJDOT, and FTA websites, as well as others as a source of information on bus safety and security.

c. Proper Maintenance and Control of Security Sensitive Documents

Accident/incident investigative reports, drug & alcohol records, and personnel records are properly stored in a secured space and maintained for a minimum of three-years as required by law.

SECTION 6

SAFETY ASSURANCE

6.1 SAFETY PERFORMANCE MONITORING AND MEASUREMENT

This section describes the following activities:

- **a.** Monitoring the system for compliance with maintenance and operations procedures
- **b.** Monitoring operations to identify any safety risk mitigations that may be ineffective, inappropriate, or were not implemented as intended
- **c.** Conducting investigations of safety events to identify causal factors
- **d.** Monitoring information reported through internal safety reporting programs

6.2 OPERATIONS MAINTENANCE

This subsection describes activities related to monitoring the system for compliance with maintenance and operations procedures:

6.2.1 Safety Related Maintenance Procedures

a. Preventive maintenance procedures and intervals for vehicles are established based on the manufacturers' recommended maintenance intervals. In addition, each vehicle is inspected at 3,000 mile and 6,000-mile intervals (not to exceed 500 miles past inspection intervals). The grace period for preventative maintenance intervals shall not exceed 500 miles. Consequently, each vehicle must be inspected no more than 3,500 miles after the last 3,000-mile inspection and no more than 6,500 miles after each 6,000-mile inspection. Vehicles also receive semi-annual State of New Jersey, Department of Transportation inspections as well.

b. Bus Maintenance in-house Bulletins/SOP's are periodically published by Maintenance Support to provide garage maintenance, management, and employees' detailed information required to complete modifications or upgrades to bus/vehicle components as needed. (Refer to Vehicle Maintenance Campaign Bulletin Binder and Maintenance SOP's Manual).

c. Manpower size/qualifications are in place at all NJ TRANSIT operated bus locations. Manpower analysis showing shortages by job titles are published monthly and distributed to all bus locations. The following process evaluates manpower distribution:

1. Number of buses at location
2. Number of miles operated
3. Number of inspections required as a result of (2)
4. Amount of cleaning and servicing based on (1)
5. Amount of corrective demand maintenance anticipated

d. NJ TRANSIT Bus Operations has the following programs in place to track vehicle maintenance trends:

- **Fleetwatch Tracking System** - A computer system tracking daily vehicle fluid consumption. Maintenance staff analyze resulting data to identify specific trends, such as higher than average levels of fluid usage that may indicate mechanical problems.

- **Vehicle Maintenance Information System (VMIS)** - A system that captures and provides historical information on **all** vehicle inspections and repairs. (Refer to System-wide Fleetwatch Tracking System VMIS program)

- **Automatic Vehicle Monitoring (AVM) System** – A system continuously monitoring bus electronic controls, reporting fault codes in real-time, and providing daily reports to the NJ TRANSIT Bus Operations Maintenance Department.

6.3 QUALITY ASSURANCE DEPARTMENT ACTIVITIES

The NJ TRANSIT Bus Operations Quality Assurance Department is responsible for the quality control for the maintenance of revenue vehicles. Responsibilities include, but are not limited to the following:

- Monitoring inspection intervals in accordance with FTA and DOT requirements
- Monitoring customer comfort controls
- Inspection of safety equipment
- Fluid testing
- ADA equipment condition inspections
- Biocide compound treatment of fuel tanks

6.4 OPERATOR PRE/POST TRIP INSPECTION PROCEDURES

6.4.1 All NJ TRANSIT Bus Operators are required to conduct pre & post trip inspections in accordance with DOT requirements. (Appendix 6 - NJ TRANSIT Bus Operations Transportation Employees Service Guide and Bus Condition Report Procedures)

6.4.2 NJ TRANSIT OSS ensures compliance with pre/post trip inspection procedures and seat belt compliance.

6.5 GARAGE/MAINTENANCE FACILITY INSPECTIONS AND AUDITS

6.5.1 NJ TRANSIT Bus Operations uses a wide variety of inspections, audits, and PM procedures to ensure the safety and maintenance of the facility (Appendix 7 - Garage Inspection and Audit Procedures).

6.5.2 Facility management at NJ TRANSIT Bus Operations facilities are required to conduct a monthly self-inspection to identify potential safety hazards. NJ TRANSIT OSS conducts monthly inspections to monitor corrective action.

6.6 BUS SHELTER AND BUS STOP INSPECTION AND TESTING

6.6.1 NJ TRANSIT provides bus stop shelters in a cooperative effort with local municipalities. Part of the agreement provides for municipalities to maintain bus stop shelters once they are in place. Inspections are conducted and any issues are addressed with each municipality owner.

6.6.2 Major bus stop shelters contain route/schedule information. Detailed scheduling information is available on-board all buses.

6.6.3 A separate Signs and Bus Shelter Department rationalizes all bus stops. Periodic monitoring and inspections are completed to ensure they meet operating needs.

6.6.4 “No Parking” enforcement is accomplished through cooperation with NJ TRANSIT and local police departments. Bus Operators and Garage Supervisors report problems using an “Unsafe Condition” reporting process.

6.7 PARKING/STORAGE PROCEDURES

Each NJ TRANSIT Bus Operations facility has specific parking and storage plans in effect. Parking/storage procedures are audited by the Bus Safety Department to ensure adequate access/egress and fire exit safety standards have been met. All facilities are striped to ensure aisle/fire lanes are maintained. “No parking” and “speed limit” signs are in place at all facilities as needed and have appropriate ADA designated parking.

6.8 FOLLOW-UP AND UNDERCOVER RIDES

6.8.1 Performance rides are completed randomly and at the request from garage management by Operational Training and representatives from NJ TRANSIT OSS to evaluate Bus Operator driving behaviors. Findings of unsafe behavior, inappropriate actions and/or rule violations are forwarded to garage management

for corrective action. Re-training/instruction may be requested if performance requires improvement (Appendix 8 – Performance Ride Program Procedures).

6.9 TRACKING SYSTEM FOR IDENTIFIED HAZARDS

NJ TRANSIT OSS conducts monthly inspections and annual audits at all garages/facilities. Upon completion of the inspections and audits, all noted deficiencies are entered into a Hazard Tracking Log database. The log consolidates the information to identify and track specific trends, implementation of corrective action, and compliance results.

6.10 REPORT OF FINDINGS

NJ TRANSIT OSS provides location management with documentation of inspections and audits that include findings and recommendations for corrective action.

6.11 RULES FOR INCORPORATING MODIFICATIONS INTO SYSTEM - MANAGEMENT OF CHANGE

6.11.1 New and Extended Routes/Lines

When a bus route/line is extended or added to the system, NJ TRANSIT Bus Operations Planning Department takes the lead role in communicating and documenting the management of change. Activities include the following:

a. The Planning Department develops proposed routes/lines - including a description of the route/line and the bus stops associated. This process involves a company-wide work plan that coordinates all related activities.

b. NJ TRANSIT Bus Operations' Transportation and Maintenance departments perform a cost analysis to plan for additional equipment and personnel.

c. Depending on the impact of the change, an analysis team comprised of Bus Operations, Planning, Operational Training, and NJ TRANSIT OSS may evaluate environmental conditions, including traffic patterns and Bus Operator driving exposures.

d. The Operational Training Department conducts training for Bus Operators on new routes/service.

e. During implementation, Operational Training and/or Field Supervision provide increased presence and assistance to support the extended/new service. Safety Division monitors accident frequency for trends.

6.11.2 New/Upgraded Fleet

The following process is used for all new bus purchases:

a. New bus specifications are developed and circulated to all NJ TRANSIT Bus Operations departments and NJ TRANSIT OSS for review and comment.

b. New bus specification meetings are held during the review process to consolidate comments and finalize specifications.

c. Final specifications are developed, re-circulated, approved, and/or accepted by NJ TRANSIT Bus Operations departments and the NJ TRANSIT OSS.

d. Once the prototype bus is ordered, it is subsequently inspected and approved for an operational evaluation.

e. NJ TRANSIT Bus Operational and Maintenance Training provides "Familiarization Training" to all Bus Operators, Mechanics, and management personnel.

f. Upon placing the prototype bus into revenue service, the project management team monitors the bus for acceptable performance.

g. Surveys are performed and evaluated by NJ TRANSIT Bus Operations based on criteria provided by customers, operations, and maintenance personnel concerning operational features.

h. Project Management team meetings are held to review comments and feedback during the prototype bus evaluation.

i. Changes on prototype vehicle specifications are reviewed and forwarded to the manufacturer for final concurrence.

j. All vehicles procured and received are inspected to ensure quality and adherence to manufacturers' specifications.

k. NJ TRANSIT Bus Operational Training provides "Qualification" training to all Bus Operators prior to utilizing the vehicle in revenue service.

l. Bus Operations Maintenance Training provides technical training courses for all new vehicles.

m. The Maintenance and Engineering departments manage material inventory and ensure the development and implementation of maintenance procedures and inspection intervals for all new vehicles.

6.11.3 Operational Procedures for Incorporating New/Upgraded Facilities into the Bus System

a. Pre-design meeting coordinated with NJ TRANSIT Engineering and Bus Operations departments to discuss location, objectives, and user needs.

b. Facility design specifications completed by NJ TRANSIT Engineering and reviewed by all Bus Operations departments.

c. Engineering plans developed for bid process.

d. Contract awarded to contractor.

e. Project started with monitoring from NJ TRANSIT Engineering and OSS personnel.

f. As construction proceeds, a work team is formed comprising NJ TRANSIT Engineering & Project Management, OSS, Police and Operations departments. The team monitors progress and develops plans to interface into the bus system.

6.11.4 Operational Procedures for Incorporating New/Upgraded Systems into the Bus System

a. Pre-design meetings are coordinated with NJ TRANSIT Engineering and Bus Operations departments to discuss objectives and user needs.

b. Design specifications completed by NJ TRANSIT Engineering and reviewed by all Bus Operations departments.

c. Engineering plans are developed for bid process.

d. Contract awarded to contractor/vendor.

e. Project started with monitoring from NJ TRANSIT Engineering and OSS personnel.

f. New system installed and tested to ensure equipment conforms to specifications. NJ TRANSIT Engineering, Training, and NJ TRANSIT OSS evaluate performance criteria and the interface of the new system with the vehicle and/or facility.

g. Upon concurrence, final design and implementation of the new system is accepted.

h. Operating procedures/policies and training programs are designed and completed by NJ TRANSIT Bus Operations departments.

i. Prior to implementation, NJ TRANSIT Bus Operations training personnel conduct management familiarization and training for Bus Operators and Maintenance personnel.

j. During the new equipment phase in process, NJ TRANSIT Bus Operations monitors new equipment performance to specified operational criteria.

6.11.5 Changes in Service/Operations

NJ TRANSIT Bus Operations coordinates changes in service and interfaces with NJ TRANSIT OSS, all internal Bus Operations departments, and external agencies. Coordinated evaluations are completed and changes to equipment/operating personnel are implemented accordingly.

6.11.6 Procedures to Evaluate the Effect of Modifications/New Systems on Safety

a. NJ TRANSIT OSS review is completed for changes in the design of bus systems that may impact customers, employees, public, and/or vehicle safety.

b. NJ TRANSIT OSS collaborates with NJ TRANSIT Bus Operations in the drafting and implementation of safety related procedures.

c. NJ TRANSIT OSS staff reviews all changes in chemicals, personal protective equipment, and safety items provided in the workplace.

d. Results of all NJ TRANSIT OSS reviews are circulated to NJ TRANSIT Bus Operations for review and concurrence prior to system modifications/changes.

6.12 SAFETY ANALYSIS REVIEWED OR UPGRADED

6.12.1 A hazard assessment and an analysis are completed for the evaluation of system modifications including a comparative review to applicable code requirements/standards.

6.12.2 Results and recommendations of the evaluation are distributed to management for concurrence prior to implementing a system change.

6.12.3 Corrective actions for hazard resolution are validated prior to implementing system modifications.

6.13 SAFETY ATTENDS/PARTICIPATES SAFETY MEETINGS

6.13.1 Safety Meetings/Planned Topics

Monthly Safety Meetings are completed at all NJ TRANSIT Bus Operations locations for Transportation and Maintenance departments. The meetings include participation by both labor and management. Monthly safety topics including handouts, posters, and videos are planned and prepared by NJ TRANSIT OSS for topics related to each department. (Appendix 9 - Monthly Safety Meeting Procedures).

6.13.2 Feedback Mechanism for Safety Meetings

Minutes for each safety meeting are prepared and distributed to NJ TRANSIT OSS location operations management. Safety meeting minutes are reviewed to identify potential safety concerns and responsibility for corrective actions if required.

6.14 ACCIDENT/INCIDENT INVESTIGATIONS

6.14.1 Plan and Procedures for Accident/Incident Investigation

NJ TRANSIT Bus Operations is committed to a process of systematically classifying and conducting thorough accident and incident investigations to determine whether the processes and procedures in place are adequate in mitigating risks (Appendix 10 - Accident Investigation Procedures). Findings from accident/incident investigations are processed though the safety risk management cycle to effectively reduce identified risks as low as reasonably feasible.

6.14.2 Previous Accident Investigation Records

a. Accidents/Incidents Classified According to Condition

- All accidents are classified by frequency and severity of the occurrence in accordance with an accident grading system (Appendix 11 - Accident Grading and Discipline System).
- Recommendations, when made, are provided to management for analysis and implementation.

b. Follow up on Effectiveness of Recommendations

OSS tracks the effectiveness of all recommendations by analyzing the frequency and severity rate of reoccurrence.

c. Accident Investigation and Prevention

Accident data is collected and stored in a computer database program. Data is analyzed for trends used to develop targeted focus programs, bulletins, and safety meeting topics.

6.14.3 Analysis and Reporting of Accident Data

Reports on accident frequency and severity are circulated to management monthly, quarterly, and yearly for review. Accident costs are provided by NJ TRANSIT Risk Management for review and analysis.

a. Management Review of Accident Reports

Management reviews all accident investigations and takes corrective action on findings/recommendations on a case-by-case basis

b. Accident Notification Procedures – Outside Agencies

1. The following accidents involving bus service in New York are reported to the NYSPTSB by NJ TRANSIT OSS:

   - All fatal accidents
   - All injury accidents involving five or more injuries
   - All accidents caused by mechanical failure, including, but not limited to all fires that occur in revenue service that require customer evacuation and response by the fire department (regardless of whether injuries occurred)

2. The following injuries involving NJ TRANSIT employees are reported to the Occupational Health Administration (OSHA) and the NJ Department of Labor Public Employees Occupational Safety and Health (PEOSH):

   - Employee is killed on the job or suffers a work-related hospitalization, amputation, or loss of an eye
   - A fatality (must be reported within 8 hours)
   - In-patient hospitalization, amputation, or eye loss (must be reported within 24 hours)

6.15 ACCIDENT/INCIDENT INVESTIGATION - PANEL COMMITTEE

NJ TRANSIT OSS and NJ TRANSIT Bus Operations management convene an accident panel committee for serious accidents to review contributing factors and corrective action measures obtained through the accident investigation process.

6.16 LIAISON COMMITTEE – LOCAL FIRE DEPARTMENTS

NJ TRANSIT OSS and NJ TRANSIT Bus Operations participate in activities with local fire departments to educate and inform first responders on emergency procedures related to bus facilities and bus equipment features.

6.17 LIAISON COMMITTEE – LAW ENFORCEMENT

The NJ TRANSIT Police Department participate in local and regional training programs providing updated information on joint transportation safety and security activities.

6.18 LIAISON COMMITTEE – FEDERAL/STATE EMERGENCY ORGANIZATIONS

The NJ TRANSIT Police Department, Office of Emergency Management Division coordinates with local, state, and the Federal Emergency Management Agency (FEMA) to develop plans and procedures for potential state-wide emergencies.

6.19 LIAISON COMMITTEE – LOCAL DISABLED COMMUNITY

NJ TRANSIT has an Americans with Disabilities Act (ADA) Services Department. This department is authorized to oversee the agency's policies and procedures, and to interface with the disabled community. Specific recommendations for problems identified are coordinated with the appropriate internal departments and outside agencies for resolution.

6.20 EMPLOYEE SAFETY REPORTING SYSTEM

The NJ TRANSIT "Safety Hotline" has been developed as an internal reporting system providing employees an accessible/anonymous process for reporting hazards, issues, concerns, occurrences, and incidents via email and/or dedicated telephone number. The Hotline is available 24-hours a day, 7-days a week, and is internally disclosed to all employees within OSS memos, handouts, bulletins, and routine safety alerts. The system ensures that no action will be taken against employees who disclose safety concerns through the safety reporting program, unless disclosure indicates, beyond any reasonable doubt, an illegal act, gross negligence, or deliberate or willful disregard of regulations or procedures. Once NJ TRANSIT OSS receives notification of a report,

appropriate inquiry will occur and follow-up notification on the status of the issue of concern will be provided to the employee if enough contact is available.

6.21 REPORTS/RESPONSIBILITIES

Reports, bulletins, and meeting minutes are distributed to all appropriate internal departments and external agencies to establish a tracking mechanism for the responsible parties' corrective action and activities.

6.22 CONTINUOUS IMPROVEMENT

Continuous Improvement is described as the process for assessing safety performances and for developing and carrying out plans to address safety deficiencies on a consistent basis. The following activities detailed in previous sections of this plan are used to track continuous safety performance improvement:

1. Safety Committees/Safety Meetings
2. Data Collection & Hazard Tracking System
3. Employee Safety Reporting System
4. Accident/Injury Investigations and Cause Analysis Reporting
5. Inspections/Audits and Hazard Tracking System
6. Monthly Safety Reporting for Vehicle Related Accidents and Customer/Employee Injuries
7. NJ TRANSIT Board Safety Committee Reporting on Leading Indicators vs. Lagging Indicators

SECTION 7

SAFETY PROMOTION

7.1 COMPETENCY AND TRAINING

Competency and training pertaining to new bus operators, maintenance personnel, controllers, field salary, and facility maintenance employees can be broken down into several parts. This includes refresher training for new or current personnel, specialized training on new equipment/bus systems, and professional development/qualification training applicable to all NJ TRANSIT OSS personnel.

7.1.1 Newly Hired Bus Operator Training - Commercial Driver's License (CDL)

a. All newly hired Bus Operators who have not yet acquired a commercial driver's license (CDL) undergo a 21-day training program for a 40-foot and 45-foot bus, or a 25-day training program for those who will operate the articulated 60-foot style bus. A 14-day program has been developed for individuals hired with a CDL and have specific bus driving experience. The training program is designed to provide operators with basic driving skills, knowledge of accident causation factors, defensive driving principles/practices, and customer relation skills - including the ability to assist senior citizens and the disabled community (Appendix 12 - New-Hire Bus Operator Training Program). All Bus Operators are required to have a CDL to operate a bus.

7.1.2 New Bus Operator Training Course Outline

New Bus Operator training includes the following elements:

a. Orientation to NJ TRANSIT Bus Operations' core mission and the specific job activities.
- The orientation also includes a training overview and required criteria for students becoming Bus Operators.

b. A two-hour module on the importance of safety to the organization, including a discussion and copies of the NJ TRANSIT Mission and Safety Policy Statements.

c. All students are provided copies of the Federal Motor Carrier Safety Rule Book (Bus Version), NJ Motor Vehicle Commission (MVC) Commercial Driver's License CDL Handbook, the Employee Safety Rule Book, and the Transportation Service Guide.

d. The function of safety in the organization, specifically a Bus Operator's role in maintaining safe operation and performance of their vehicles. These principles are reinforced during the 14-day, 21-day, and 25-day training courses.

e. Bus route/line training, including a detailed study of the company's bus route descriptions and maps.

7.1.3 Bus Operator Training – Equipment Operation

All Bus Operators are trained using the "Doron Precision Systems, Inc." driving simulator equipment. Two new single seat and multi-seater training modules were developed specifically for NJ TRANSIT and installed at the Newark, NJ and Camden, NJ training facilities. Bus Operators are trained for competency in pedestrian awareness and practicing safe left-turn maneuvers. Additionally, a 6-hour online defensive driving course is available for Bus Operators focusing on enhancing safe driving practices and reinforcing the core principles of defensive driving.

The Bus Operator Training Program includes specific hands-on instructions and demonstrations of the following:

a. Proper door operation and door interlock procedures

b. Fire prevention and evacuation procedures

c. Proper operation of the accessibility-lift and kneeling system

d. The securement and locking systems for various types of mobility devices

e. Safe acceleration and deceleration procedures including brake systems operation

f. Proper driver's seat operation and adjustment

g. Glare reduction methods, proper mirror adjustments, and windshield wipers use

h. Proper operation of radio communications and the "Emergency Alarm System"

7.1.4 Customer Safety/ADA Requirements

Bus Operators are instructed on the following customer safety procedures:

a. Accessibility equipment activation and securement. All operators in training are also provided a copy of the Americans with Disabilities Act (ADA) manual applicable to all bus types

b. Safety precautions to prevent customer injuries

c. Safe customer loading requirements, including standee policy covering the use/importance of the standee line

d. Communications, assistance, and completing occurrence reports for customer injuries

7.1.5 Safety Rules and Procedures

New Bus Operators are trained on the following safety rules and procedures (Appendix 1 - Employees Safety Rule Book & Appendix 6 - Transportation Employees Service Guide):

a. The impact of inclement weather (i.e., rain, snow, ice, etc.) on vehicle operation, accidents, and customer injuries during boarding and alighting

b. The enforcement of customer comfort rules (Ex: smoking, use of radios, and cell phone/electronic equipment)

c. The use of the bus driver simulators to develop skills and awareness of potential hazards associated with highway, urban, limited visibility, and night driving conditions

d. Railroad grade crossing procedures, including field skills and simulator demonstrations

e. Crossing bridges and awareness to overhead clearances

f. Emergency procedures while operating a bus

g. Traffic accident procedures

h. Procedures for bus fires or smoke conditions

i. Customer illness and use of emergency call procedures

j. Customer conflict resolution procedures

k. Procedures for all unusual situations, such as flooding, fire, civil disturbance, vandalism, and severe weather

7.1.6 Specific Operator Reinstruction and Training

NJ TRANSIT Bus Operations, Operational Training Department provides Defensive Driving training and instruction: "Collision Reduction," "Accident Grading," "Pedestrian Awareness" and "Winning Combination Refresher Training" (Appendix 12 – Bus Operator Training Programs).

7.1.7 Periodic Operator Training and Refresher

a. Operators are trained on all **new** equipment and operational features when purchased and placed into revenue service.

b. Refresher training is provided to improve Bus Operators' fare collection activities, customer relations, ADA compliance, and emergency procedures (Appendix 12 - Bus Operator Training Programs).

7.1.8 Training for Vehicle Maintenance Employees

a. Maintenance and vehicle recovery employees receive training based on specific job tasks. The Operational Training Department provides all training to employees who, upon completion, must demonstrate adequate skills to the instructor before being qualified. Employees with CDL permits or a valid CDL receive eight-hours of driver training and become qualified to operate maintenance and/or revenue type vehicles on company property. Those employees with a CDL permit are provided with "In and Around Training," (mirror usage, safe bus operation, backing and turning), but can only operate a Commercial Motor Vehicle (CMV) vehicle on company property if accompanied by a CDL holder. Employees driving on public roads, and require a Commercial Driver's License (CDL), receive five days of additional "Field" training.

b. Maintenance Training provides specific tow truck training and instruction for Repairman "A" and Mechanic "A" employees who are required to operate NJ TRANSIT towing equipment.

c. Maintenance Employees are provided on-going and progressive training (Appendix 13 - Maintenance Training Master Course List).

d. A Learning Management System (LMS) for MCI type bus equipment is available to all garage Foremen, Repairmen and Mechanics.

e. Industrial lift truck safety training and evaluations are provided as required to all Maintenance Employees and/or when new equipment is purchased. Retraining may be provided when a Maintenance Employee is recommended for skills enhancement or post-accident training.

f. All mechanics receive task-specific equipment training.

g. All Maintenance Employees are provided with the scope of the Maintenance Department's mission and objectives.

h. Maintenance Employees receive introductory training on the role of safety management and its significance to the organization. This includes an open discussion and distribution of the NJ TRANSIT Mission and Safety Policy Statements.

i. All Maintenance Employees are provided a copy of the "Employees Safety Rule Book" (Appendix 1 – Employees Safety Rule Book).

j. All Maintenance Employees are trained on the use of vehicle maintenance manuals, Preventative Maintenance (PM) sheets, defect cards, etc.

k. All new Bus Maintenance Employees are given a facility orientation covering all areas of their assigned location.

7.1.9 Maintenance Employee Training on Bus Safety Equipment

a. Maintenance and safe operation of doors, interlock brakes, and proper vehicle securement.

b. Maintenance and safe operation of all kneeling systems including testing and troubleshooting.

c. Maintenance, troubleshooting, and safe operation of accessibility lifts and securement devices.

d. Maintenance and safe operation of braking systems including proper use.

e. Maintenance and safe operation of HVAC systems including proper charging, handling, and storage procedures of refrigerants.

f. Proper maintenance, troubleshooting, and safe operation of electric systems.

g. Proper maintenance, troubleshooting, and safe operation of engine and drive-train systems.

h. Proper maintenance, troubleshooting, and safe operation of steering and suspension systems.

i. Proper maintenance, troubleshooting, and safe operation of exterior and interior lights, wipers, mirrors, and other accessories.

j. Proper maintenance, troubleshooting, and safe operation of hybrid propulsion systems including high-voltage safety, safe power-down procedures, and lockout/tagout.

k. All newly-hired Maintenance employees are provided the following training:

- Hazard Communication, Globally Harmonized System (GHS), and Right-To-Know (RTK) training
- Electrical Safety – Lock-out/Tag-out
- Bloodborne Pathogens
- Fatigue Management
- Confined Space Awareness
- Personal Protective Equipment
- Respiratory Protection Hazards in the Workplace
- Fire Safety
- Walking Working Surfaces and Fall Protection
- Drug and Alcohol Awareness

7.1.10 Training for Facility Maintenance Employees

Facility Maintenance employees are assigned to jobs by job title (e.g., electrical, plumbing, etc.). Most employees are graduates of accredited union or trade school apprenticeship programs. In addition to job requirements, all facility personnel undergo system specific training given by vendors on all new projects (e.g., building ventilation systems). Ongoing requirements include training for special skills and licenses such as boiler or wastewater treatment. Ongoing training, such as welding and electrical code updates, are given to specific employees as needed.

7.1.11 Training for Controllers and Regional Supervisors

a. All controllers receive 24 hours of in-house training from the Electronics and Communications Department on how to operate consoles and computers. New controllers are also given 170 hours of on-the-job training by an experienced controller. After training, the new controller is closely supervised by the Chief or Senior Controller on duty. Training includes familiarization with all procedures, SOP's, and EOP's.

b. All Regional Supervisors/Road Supervisors receive initial training and orientation on the requirements of the job. Training includes: customer

service skills, computer systems, fatigue operator procedures, drug and alcohol, security awareness, bus equipment familiarization and accident investigation protocols. A safety rule book and company policies are also provided during training.

7.1.12 Training for Field Salary Employees

Field Salary employees receive classroom, field, and computer-based training to improve their skills in day-to-day garage bus operations and employee relations.

7.1.13 Safety Training Program Plan

NJ TRANSIT Bus Operations has extensive interactive bus simulations and computer training programs that incorporate the organizational safety elements. To enhance training efforts, all training courses are reviewed and revised annually, or as needed to ensure all state and federal laws, NJ TRANSIT safety rules, policies, and procedures are updated and included.

7.1.14 Safety Integration into Training

a. Safety Input

Safety input into the course curriculum is conducted via the collaboration of Bus Operations and the Office of System Safety.

b. Instructor Standards

Both the Bus Operations Training and the Office of System Safety are part of the same NJ TRANSIT organization. Selection criteria for instructors reflect the overall mission of NJ TRANSIT.

c. Standardization of Lesson Plans

Both the Bus Operations' Training and the Office of System Safety use standardized lesson plan formats and requirements.

7.1.15 Documentation of Safety Training Goals/Objectives

a. Safety Rules/Manuals

As part of training students receive manuals, handouts, and safety rulebooks (Appendix 1 - Employees Safety Rule Book).

b. Testing/Evaluation

All students must pass a course competency exam that includes safety related questions.

c. Familiarity with Hazards

Part of all training includes job specific procedures to identify and evaluate hazards and reporting protocols. An evaluation of student's competency in this area is reflected in the course exams.

d. Training Feedback

Course evaluation sheets are provided at the conclusion of new-hire training to obtain feedback on training course goals, objectives, and instructional methods.

e. Training Records

Course attendance, evaluation, and test records are maintained at the conclusion of the training session to ensure the proper documentation of course activities.

f. Safety Audit of Training

The Office of System Safety reviews and attends segments of the courses offered to evaluate relevant safety content.

7.1.16 Interface of Maintenance Training/Vendors

NJ TRANSIT Bus Operations Maintenance Training reviews and evaluates new equipment and/or systems to determine training program elements.

7.1.17 Training for Outside Agencies

NJ TRANSIT Bus Operations, Operational Training Department provides specialized Bus Operator training programs for outside agencies, other than NJ TRANSIT, to improve management skills and other transportation related training needs.

7.1.18 Training Development for Office of System Safety Staff

In addition to basic job qualifications and requirements, NJ TRANSIT provides professional growth and development of OSS personnel through the following on-going training programs:

a. OSS personnel participate in training courses offered by the NJ State Safety Council and FTA Transportation Safety Institute (TSI). Numerous NJ TRANSIT OSS personnel have received and/or are eligible to receive the NJ State Safety Council Practicing Safety Professional Certificate (PSPC), the Transit Safety and Security Program (TSSP) Certificate and have received and/or applied for the World Safety Organization (WSO) designation. NJ TRANSIT OSS personnel participate in the following FTA sponsored training courses:

NJ State Safety Council Courses:
- Ergonomics, Managing for Results
- OSHA Fall Protection & Scaffold Safety
- Job Hazard Analysis
- Respiratory Protection & Fit Testing, Train the Trainer
- Electrical Safe Work Practices & NFPA 70E

TSI Courses:
- Transit Bus System Safety (FT00533)
- Transit Rail Safety and Security Audit (FT00547)
- Transit Rail System Safety (FT00543)
- Transit Rail Incident Investigation (FT00544)
- Transit System Security (FT00432)
- Effectively Managing Transit Emergencies (FT00456)
- Fundamentals of Bus Collision Investigation (FT00435)
- SMS Principles for Transit (FT00564)
- SMS Awareness
- SMS Safety Assurance (FT00561)

b. Office of System Safety Staff Attend Outside Seminars

OSS participate in various seminars and conferences related to transportation, passenger and occupational safety best practices.

c. Safety Memberships

The OSS is actively involved in safety organizations, such as the World Safety Organization (WSO), American Public Transportation Association (APTA), American Society of Safety Professionals (ASSP), National Fire Protection Association (NFPA), and the NJ State Safety Council.

d. Safety Publications

OSS has access to safety reference materials and publications to ensure most recent information is available and utilized.

7.2 SAFETY COMMUNICATION

The following processes and activities are used to communicate safety performance throughout the organization:

7.2.1 Monthly Safety Meetings

Safety meetings are held at all levels of the organization to share and discuss information related to accident/injury prevention activities, location specific trends, and new initiatives to improve overall safety performance (Appendix 9 - Monthly Safety Meeting Procedures).

7.2.2 Quarterly Board Safety Committee Meetings

NJ TRANSIT OSS Sr. Vice President and Chief Safety Officer reports safety metrics and program updates to a Board Safety Committee comprised of NJ TRANSIT Senior Management and selected board committee members on a quarterly basis. Safety information discussed includes: performance indicators related to vehicle collisions and employee/customer injuries. Leading indicators related to facility inspections and audits, bus stops and routes, and Bus Operator performance evaluations are also reviewed. These committee meetings allow for an interactive discussion of key trends identified during each quarter and provides a top down communication approach throughout the organization.

7.2.3 June Safety Month

June of each year, OSS along with the NJ TRANSIT Marketing and Communications group, Public Information, and Bus Operations coordinate the “June Safety Month” awareness and outreach campaign. This program is shared with all NJ TRANSIT employees, Bus, Rail, and Light Rail customers, as well as the general public. Campaign activities include: Bus Rider Tip cards distributed to customers, safety slogans, fire safety and fire prevention tips and simulated exercises, displays via NJTV monitors throughout employee work locations, safety tips on employee paycheck stubs, and safety kit giveaways at designated transit locations.

7.2.4 Safety Alerts, Bulletins, and Advisories

OSS develops and distributes safety alerts, bulletins, and advisories to employees on various safety issues and topics. Information contained in these notices are discussed during employee safety meetings and job safety briefs.

7.2.5 Safety Recognition and Awards Program

Each year, NJ TRANSIT Bus Operations recognizes exceptional Bus Operators with ten, twenty, and thirty-year track-records in which zero (0) preventable accidents occurred during these time periods. Also recognized are Bus locations/facilities that achieve the highest level of safety improvement and overall performance. In addition, maintenance employee's system-wide receive an annual safety award for having Zero (0) recordable injuries throughout the calendar year (Appendix 14 - Bus Safety Awards Recognition Program).

7.2.6 Administration of Drug and Alcohol Abuse Program

a. All new employees must pass a drug and alcohol screen prior to employment. The Medical Services Department in conjunction with the Human Resources Department administers these tests.

b. NJ TRANSIT has an Employee Assistance Program (EAP) for employees and is managed and directed by a separate NJ TRANSIT EAP Department.

c. The NJ TRANSIT Medical Services group requires that a drug and alcohol test be completed on all employees holding a CDL as part of their bi-annual DOT physical.

d. All employees who perform safety-sensitive functions are subject to random, unannounced drug and alcohol testing.

e. An employee is required to submit to an alcohol and/or drug test when a supervisor has reasonable suspicion, based on specific, contemporaneous, articulable observations concerning the appearance, behavior, speech, or body odors of the employee, to believe the employee has engaged in any of the behaviors prohibited by the policy concerning the use of alcohol and/or drugs (Refer to NJ TRANSIT Drug and Alcohol Policy).

f. An employee involved in a serious accident, fatality, or whose performance could have contributed to an accident, is subject to post-accident testing for drugs and alcohol (Refer to Corporate Wide Policy & Procedures Manual, Drug and Alcohol-Free Workplace Policy).

SECTION 8

KEY TERMS & DEFINITIONS

8.1 ACRONYMS

Abbreviation	Description
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASSE	American Society of Safety Engineers
AVM	Automatic Vehicle Monitoring
CDL	Commercial Driver's License
CMV	Commercial Motor Vehicle
CSO	Chief Safety Officer
DCA	NJ Department of Community Affairs
EAP	Employee Assistance Program
FEMA	Federal Emergency Management Agency
FMCSA	Federal Motor Carrier Safety Administration
FTA	Federal Transit Administration
GHS	Globally Harmonized System
LMS	Learning Management System
MPO	Metropolitan Planning Organization
MVC	Motor Vehicle Commission
NFPA	National Fire Protection Agency
NJDOH	NJ Department of Health
NJDOL	NJ Department of Labor
NSC	National Safety Council
NTD	National Transit Database
NTSB	National Transportation Safety Board
NSC	National Safety Council
NY/NJDOT	NY/NJ State Department of Transportation
NYSPTSB	New York State Public Transportation Safety Board
OSHA	Occupational Safety and Health Administration
OSS	Office of System Safety
PEOSH	Public Employees Occupational Safety and Health
PIO	Public Information Office
PTASP	Public Transportation Agency Safety Plan

PPE	Personal Protective Equipment
RTK	Right-to-Know
SDS	Safety Data Sheet
SMS	Safety Management System
SSPP	System Safety Program Plan
TSI	Transportation Safety Institute
TSSP	Transit Safety and Security Program
VMIS	Vehicle Maintenance Information System
WSO	World Safety Organization

8.2 DEFINITIONS

Accident
An event that involves any of the following:
- A loss of Life
- A collision of public transportation vehicles
- A report of serious injury to a person
- An evacuation for life safety reasons

Accountable Executive
Identifies the person at a transit agency that has the responsibility and accountability for the implementation of SMS, control, and direction of the Public Transportation Agency Safety Plan, and the Transit Asset Management Plan.

(ADA) Americans with Disabilities Act
A federal law that establishes the comprehensive prohibition of discrimination based on disabilities – especially pertaining to employment, public accommodations, and transportation access. NJ TRANSIT operates an Americans with Disabilities Act (ADA) Services Department fully authorized to oversee the agency's policies, procedures, and interactions with disabled customers, and which coordinates recommendations and problem identification with appropriate internal departments and outside agencies.

(APTA) American Public Transportation Association
A nonprofit group of approximately 1,500 public and private sector member organizations that promotes and advocates for the interests of the public transportation industry in the United States.

(ASSE) American Society of Safety Engineers
A global organization of professional members who manage, supervise, research, and consult on work-related OSH concerns in all industries, government, and education.

(AVM) Automatic Vehicle Monitoring
A system that continuously monitors electronic control systems on a bus and reports fault codes and daily reports in real-time to the NJ TRANSIT Bus Operations Maintenance Department.

(CSO) Chief Safety Officer
An adequately trained individual responsible for developing and coordinating the implementation of safety policies, and who reports directly to a transit agency's chief executive officer, general manager, president, or equivalent executive officer.

(CDL) Commercial Driver's License
A license requiring a higher level of knowledge, experience, skills, and physical abilities than that required to drive a non-commercial vehicle. An applicant must pass both kills and knowledge testing. A CDL holder is held to a higher standard when operating any type of motor vehicle on public roads.

(CMV) Commercial Motor Vehicle
A vehicle used to transport goods or customers for the profit of an individual or business. Examples are box trucks, semi-trucks, pickup trucks, trailers, buses, coaches, and taxicabs.

(DCA) Department of Community Affairs, NJ
A governmental agency of the U.S. state of New Jersey. The DCA establishes and enforces building codes, licensing code officials, and training to protect the health and safety of New Jersey residents.

(EAP) Employee Assistance Program
An employee assistance program that has been established and is available to all transit system employees who wish to receive counseling or aid related to personnel issues or problems at the workplace/home.

Event
Any accident, incident, or occurrence.

(FEMA) Federal Emergency Management Agency
A federal agency, operating within the United States Department of Homeland Security, that coordinates and supplements responses to disasters that overwhelm local/state authorities.

(FMCSA) Federal Motor Carrier Safety Administration
An agency in the U.S. Department of Transportation that regulates the trucking industry in the United States. The primary mission of the FMCSA is to reduce crashes, injuries, and fatalities involving large trucks and buses.

(FTA) Federal Transit Administration
An agency within the United States Department of Transportation.

(GHS) Globally Harmonized System
A classification and labeling compliance of chemicals. GHS defines and classifies the hazards of chemical products and communicates health and safety information on labels and Safety Data Sheets (SDS).

Hazard
Any real or potential condition that can cause injury, illness, or death; damage to or loss of the facilities, equipment, rolling stock, or infrastructure of a recipient's public transportation system; or damage to the environment.

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

(HIRA) Hazard Risk Assessment Table
An organized display classifying safety hazard probabilities on a graded frequency/severity scale for the purpose of implementing appropriate control methods and adequate resources to mitigate risks.

Incident
An event that involves any of the following
- A personal injury that is not a serious injury
- One or more injuries requiring medical transport
- Damage to facilities, equipment, rolling stock, or infrastructure that disrupts the operations of a transit system

(LMS) Learning Management System
A system software application for the administration, documentation, tracking, reporting, and delivery of educational courses, training programs, or learning and development programs.

(MPO) Metropolitan Planning Organization
A Metropolitan Planning Organization (MPO) is the policy board of an organization created and designated to carry out the metropolitan transportation planning process. MPOs are required to represent localities in all urbanized areas (UZAs) with populations over 50,000, as determined by the U.S. Census. MPOs are designated by agreement between the governor and local governments that together represent at least 75 percent of the affected population (including the largest incorporated city, based on population) or in accordance with procedures established by applicable state or local law.

(MVC) Motor Vehicle Commission
A governmental agency responsible for titling, registering and inspecting automobiles, and licensing drivers in the U.S.

(NFPA) National Fire Protection Association
An international nonprofit organization devoted to eliminating death, injury, property/economic loss due to fire, electrical, and other related hazards.

(NSC) National Safety Council
A nonprofit service organization promoting health and safety in the U.S. The NSC's missions is to eliminate preventable deaths at work, in home and communities, and on the road through leadership, research, and education.

(NTD) National Transit Database
A federal reporting program for transit agencies receiving Federal Transit Administration (FTA) funding. It serves as a primary source for all transit-related data and statistics in the U.S.

(NTSB) National Transportation Safety Board
An independent Federal Agency responsible for civil transportation accident investigations; aviation and highway crashes, ship, marine, and railroad accidents, and pipeline ruptures.

Near Miss
A safety event where conditions with potential to generate an accident, incident, or occurrence existed, but where an accident, incident, or occurrence did not occur because conditions were contained by chance or by safety risk mitigations.

(NJDOH) NJ Department of Health
A state agency serving the U.S. state of New Jersey. The department oversees numerous types of health facilities, including: general hospitals, psychiatric, nursing homes, hospice care, etc.

(NJDOL) NJ Department of Labor
A state agency serving the U.S. state of New Jersey. The agency provides worker protections, including: Workers' compensation, safety and health, wage and hourly compliance, the Equal Pay Act, and paid sick leave.

(NY/NJDOT) NY/NJ State Department of Transportation
The agency responsible for maintaining transportation systems and infrastructure in the states of New Jersey and New York. This includes maintaining and operating the states' highways and public road systems, and planning and developing transportation policies. It is headed by the Commissioner of Transportation.

(OSHA) Occupational Safety and Health Administration
An agency within the U.S. Department of Labor. OSHA's mission is to assure and healthy working conditions for working men and women by setting and enforcing safety standards, and by providing training outreach, education, and assistance.

Occurrence
An unforeseen event that causes or could potentially cause harm to an employee, customer, equipment, and/or physical property.

(OSS/NJ TRANSIT OSS) Office of System Safety
An organizational department within NJ TRANSIT which consists of Safety Personnel. OSS develops and communicates safety policies, implements and monitors key safety performance metrics to mitigate onsite hazards and public safety risks, and is charged with managing, promoting, and overseeing comprehensive system safety throughout NJ TRANSIT.

(PPE) Personal Protective Equipment
Protective clothing, such as helmets, goggles, or other garments or equipment designed to protect the wearer's body from injury or infection. The hazards prevented by protective equipment include physical, electrical, heat, chemicals, biohazards, and airborne particulate matter.

(PEOSH) Public Employees Occupational Safety and Health
An agency that establishes safety and health standards for state and local public employees.

(PIO) Public Information Office
An organizational department within NJ TRANSIT that disseminates information to the general public and generates press releases.

(PTASP) Public Transportation Agency Safety Plan
FTA final rule requires States and certain operators of public transportation systems that receive Federal financial assistance under 49 U.S.C. Chapter 53 to develop Public Transportation Agency Safety Plans based on the Safety Management System approach.

(RTK) Right-To-Know
A group of rules and regulations at the state and national levels that mandate that employers share scientific information with workers and local communities regarding concerning toxicity and other characteristics of chemicals and materials used in business processes.

Risk
The composite of predicted severity and likelihood of the potential effect of a hazard.

(SDS) Safety Data Sheet
A document that provides information on chemicals/products that may be hazardous to employees working in an occupational setting.

(SMS) Safety Management System
A formal, top-down, organization-wide data-driven approach to managing safety risk and assuring the effectiveness of a recipient's safety risk mitigations. SMS includes systemic procedures, practices, and policies for managing risks and hazards using the following four (4) safety components:

- **Safety Management Policy**
  A transit agency's documented commitment to safety – which defines the transit agency's safety objectives and the accountabilities and responsibilities of its employees with regards to safety.

- **Safety Risk Management**
  A process within a transit agency's Public Transportation Agency Safety Plan for identifying hazards and analyzing, assessing, and mitigating safety risk.

- **Safety Assurance**
  A process within a transit agency's Safety Management System that functions to ensure the implementation and effectiveness of safety risk mitigation.

- **Safety Promotion**
  A combination of training and communication of safety information to support SMS as applied to the Transit Agency's Public Transportation System.

(SSPP) System Safety Program Plan
A document developed by the rail and bus transit agency, detailing its safety policies, objectives, responsibilities, and procedures. Currently the SSPP is required by the NYSPTSB, however, the SSPP will be replaced by the PTASP.

(TSSP) Transit Safety and Security Program Certificate
Transportation Safety Institute (TSI), is responsible for managing and administering the Transit Safety and Security Certificate Program (TSSP). This certificate program recognizes the rail and bus transportation safety and security professionals who have successfully completed the required course work and core competencies to earn a TSSP Certificate of Completion. A transit professional that successfully completes the four (4) required courses within a consecutive three (3) year timeframe is eligible to apply. The Certificate of Completion indicates that the individual has a broad-based knowledge of safety and security principles applicable to transit system safety, operations, and management.

(TSI) Transportation Safety Institution
The Transportation Safety Institute (TSI) has assisted the U.S. Department of Transportation's (DOT) modal administrations and other leading transportation agencies and entities in fulfilling their mission-essential training requirements.

(VMIS) Vehicle Maintenance Information System
A system software application to capture all vehicle inspections, repairs, and tracking and fluids management. This system also provides historical information on all vehicle inspections and repairs.

(WSO) The World Safety Organization
An international professional association in safety.

APPENDIX

1..... Employees Safety Rule Book
2..... Customer Facility Inspection Procedures
3..... Garage Self-Inspection Procedures
4..... Facility Fire Inspection Procedures
5..... Annual Garage Audit Procedures
6..... Transportation Employees Service Guide
7..... Garage Inspection and Audit Procedures
8..... Performance Ride Program Procedures
9..... Monthly Safety Meeting Procedures
10..... Accident Investigation Procedures
11..... Accident Grading and Discipline System
12..... New-Hire Bus Operator Training Program
13..... Maintenance Training Employee Course Outline
14..... Bus Safety Awards Recognition Program

NEWARK LIGHT RAIL SAFETY MANAGEMENT

NEWARK CITY SUBWAY

LIGHT RAIL TRANSIT DIVISION

Safely serving the riding public since 1935

SYSTEM PLAN

PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

NJTRANSIT The Way To Go.

MASTER CONFORMED COPY
REVISION No. X: X xxxxxxx 2020

RECORD OF CHANGES

REVISION DATE	REVISION No.	PAGES REVISED	DESCRIPTION
May 2019	Rev No. 1 (Draft)	All	Revised the previously issued NLR SSPP Rev No.12, dated December 2018 (based on 49 CFR 659 and OSSO Standards) to NLR ASP-Safety Management Plan dated May 2019 based on FTA's 49 CFR 673, 674 and NJDOT-OSSO Standards.
July 2019	Rev No. 1 (Draft)	Pages revised refer to NLR's responses to June 28, 2019 comments from NJDOT-Manager of Fixed Guideway	Revised May 2019-Rev No. 1 NLR-ASP to incorporate responses to June 28, 2019 comments from NJDOT-Manager of Fixed Guideway
November 2019 and December 2019	Rev No. 2 (Draft)	Pages revised refer to NLR's responses to October 12, 2019 comments from NJDOT Consultants and NJDOT-Manager of Fixed Guideway.	Revised July 2019-Rev No. 1 NLR-ASP incorporating responses to October 12, 2019 comments from NJDOT Consultants and NJDOT-Manager of Fixed Guideway.
December 2019 and January 2020	Rev No 3 (Draft)	Pages revised refer to NLR's responses to NLR's Internal Audit findings of December 2019	Revised July 2019-Rev No. 1 NLR-ASP incorporating responses to NLR's Internal Audit findings of December 2019.
March 2020	X xxxxxxx 2020		Xxxxxxxx2020

Note: **Printed versions** of NLR-ASP-Revision X, Dated Xxxxxxxx2020 **are not controlled**.
Users are responsible for ensuring that they follow current practices and procedures.

RECORD OF CHANGES (Continued)

REVISION DATE	REVISION No.	PAGES REVISED	DESCRIPTION

Note: **Printed versions** of NLR-ASP-Revision X, Dated Xxxxxxx 2020 **are not controlled**.
Users are responsible for ensuring that they follow current practices and procedures.

TABLE OF CONTENTS

EXECUTIVE POLICY FLOW CHART

1.0 INTRODUCTION.....1

NLR SAFETY POLICY STATEMENT – AGENCY SAFETY PLAN.....1

1.1 AUTHORITY.....2
1.2 GOALS.....2
1.3 OBJECTIVES.....4
1.4 PURPOSE.....7
1.5 SCOPE.....8
1.6 POLICIES.....8
1.7 NLR-AGENCY SAFETY PLAN (ASP) CONTROL and UPDATE PROCEDURES .9
1.8 NLR SAFETY PERFORMANCE MEASUREMENT and MANAGEMENT.....10
1.9 MINIMUM DOCUMENT SUBMISSION TO THE OSSO.....11
1.10 SAFETY MANAGEMENT SYSTEM AND SAFETY CULTURE.....12

2.0 SYSTEM DESCRIPTION – NEWARK LIGHT RAIL.....16

2.1 HISTORY.....16
2.2 SCOPE OF SERVICE.....20
2.3 SYSTEM COMPONENTS.....23
2.4 ORGANIZATIONAL STRUCTURE and ROLES and RESPONSIBILITIES.....31

3.0 SAFETY DEPARTMENT ACTIVITIES.....38

3.1 NLR SAFETY TASKS/RESPONSIBILITIES 38
3.2 NLR AGENCY SAFETY PROGRAM PLAN MANAGEMENT and IMPLEMENTATION.....38

Note: **Printed versions** of NLR-ASP-Revision X, Dated Xxxxxxxx2020 **are not controlled**. Users are responsible for ensuring that they follow current practices and procedures.

4.0 SYSTEM SAFETY PROGRAM ACTIVITIES
SAFETY MANAGEMENT SYSTEM (SMS) IMPLEMENTATION 42

4.1 SAFETY MANAGEMENT POLICY.....44
4.2 SAFETY RISK MANAGEMENT.....54
4.3 SAFETY ASSURANCE.....70
4.3. a. MANAGEMENT OF CHANGE.....100
4.3. b. CONTINUOUS IMPROVEMENT OF NLR'S SMS PROCESS.....111
4.3. c. SUPPORT ACTIVITIES.....115
4.4 SAFETY PROMOTION.....123

5.0 SECURITY PROGRAM TASKS.....132

6.0 DOCUMENTS AND RECORDS MANAGEMENT..... 133

7.0 REFERENCES.....134

8.0 DEFINITIONS.....135

Note: **Printed versions** of NLR-ASP-Revision X, Dated Xxxxxxxx2020 **are not controlled**. Users are responsible for ensuring that they follow current practices and procedures.

PAGE INTENTIONALLY LEFT BLANK

NEW JERSEY TRANSIT

NEWARK LIGHT RAIL

PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

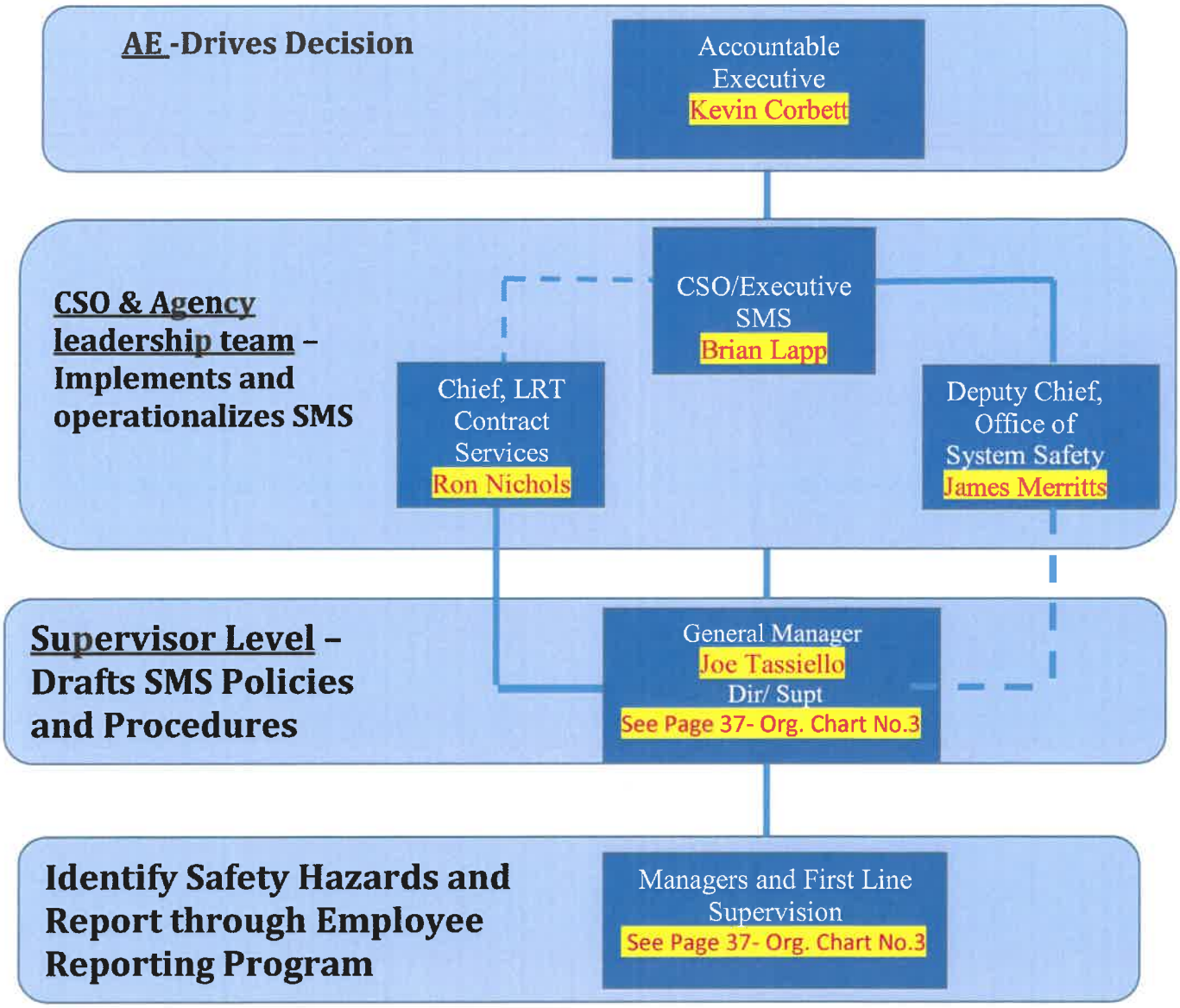
REVISION 1

Xxxxxxxx2020

Ronald Nichols **Reviewed & Recommended** **Chief, Light Rail & Contract Services**	**Date**
Brian Lapp **Reviewed & Recommended** **Chief, Office of System Safety**	**Date**
Kevin Corbett **Reviewed & Recommended** **New Jersey Transit, President / Chief Executive Officer**	**Date**
New Jersey Transit, **Executive Board's Approval Date**	**Date**

POLICY STATEMENT FLOW CHART
NEWARK LIGHT RAIL
PUBLIC TRANSPORTATION AGENCY SAFETY PROGRAM PLAN

Roles and Responsibilities – Overview
Newark Light Rail (NJT)



NEWARK LIGHT RAIL
ORGANIZATIONAL CHART
(See Page 37-ORGANIZATIONAL CHART No 3)

PAGE INTENTIONALLY LEFT BLANK

1.0 INTRODUCTION

POLICY STATEMENT
NEWARK LIGHT RAIL
PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

As New Jersey's public transportation corporation, NJ TRANSIT is committed to providing a safe, secured and healthy environment for its employees, its customers and the communities where it operates.

NJ TRANSIT's mission is to provide safe, reliable, convenient and cost-effective transit service with a skilled team of employees, dedicated to the customers' needs and committed to excellence.

Safety is the primary concern that affects all aspects of NJ TRANSIT Newark Light Rail (NLR) including planning, design, construction, testing, operations and maintenance. Therefore, all NLR personnel and contractors have a responsibility to ensure that reasonable safety precautions are implemented to protect customers, employees, and the public from potential hazards associated with the operation and maintenance of the Light Rail system. Additionally, NLR employees are required to be vigilant for suspicious objects and behaviors and to report their observations to NLR Supervision.

NJ TRANSIT Light Rail Operations is empowered and authorized to develop, implement and administer a comprehensive, integrated and coordinated Safety Management System (SMS) principles and methods and safety program in accordance with the provisions of 49 CFR Part 673, Part 674 and the current FTA regulatory requirements and the NJ State Safety Oversight Program for Fixed Guideway Transit Systems -*System Safety Program Standard* (N.J.A.C. 16:53E). This agency safety program plan includes a specific process to identify, prevent, control and resolve unsafe conditions during design, construction, testing, operations and maintenance of the NLR system.

All activities on the Light Rail system will be conducted in accordance with the provisions of the Newark Light Rail Agency Safety Plan and all applicable codes, standards, rules, and regulations.

Safety Is Everyone's Responsibility!

Ronald E. Nichols
Chief- Light Rail and Contract Services

Joseph Tassiello
General Manager
Light Rail Operations

Nagal Shashidhara, Director
*** (and Interim Director, System Safety)**
Light Rail and Contract Services

The NJ TRANSIT - Newark Light Rail Agency Safety Plan (NJ TRANSIT-NLR ASP) consists of the management organization, activities, rules, procedures and coordination efforts dedicated to a proactive program of safety and security initiatives in the conduct of operations, maintenance, design, construction and integration of all light rail elements and systems.

1.1 AUTHORITY

The New Jersey Transit Corporation (NJ TRANSIT) was created under the Public Transportation Act of 1979. The Act created a public corporation within the Department of Transportation empowered to acquire, operate and contract for the operation of public transportation services and facilities. As part of the Act, the Corporation was empowered to establish one or more operating divisions as deemed necessary.

The New Jersey Transit Corporation, under the powers created by the Public Transportation Act of 1979 to establish one or more operating divisions, acquired the Transport of New Jersey (TNJ) and its wholly owned subsidiary, the Maplewood Equipment Company (MEC). It was also determined that the public would be confused with the names of the new companies and therefore initiated all actions to change the name of TNJ to NJ TRANSIT Bus Operations Inc. ("NJ TRANSIT Bus Operations Inc." referred to herein as "NJ TRANSIT Bus Operations" and "NJ TRANSIT Light Rail Transit Operations").

Through the authorization of the Chief, Light Rail and Contract Services and General Manager, Light Rail Operations, the NJ TRANSIT Light Rail System Safety Department is empowered to develop, implement and update The NJ TRANSIT - Newark Light Rail's Safety Management System Plan/Passenger Transportation System Safety Plan (NJ TRANSIT-NLR ASP) for NJ TRANSIT. The General Manager, Light Rail Operations and the NJ TRANSIT Chief of Police are also responsible for developing and implementing the system security component of the NLR ASP.

1.2 GOALS

The overall goal of the NJ TRANSIT-NLR ASP is to identify, eliminate, minimize and/or control safety hazards and their associated risks by establishing requirements, lines of authority, levels of responsibility and accountability and methods of documentation. The NLR ASP establishes the safety philosophy of NLR and the means for implementing the safety philosophy during operations and maintenance of NLR. The NLR ASP includes: (a) the safety program and its means of enforcement throughout the system, (b) the medium through which NLR displays its commitment to safety, (c) the framework for implementing the NJT/NLR policies and achievement of stated goals and objectives, (d) the methodology for satisfying the federal, state, and local requirements and for achieving industry accepted standards.

NJ TRANSIT- Newark Light Rail's (NLR) specific goals are as follows:

Identify, control, reduce or eliminate all safety hazards and risks to the lowest possible level by:

- Routinely auditing system infrastructure to identify potentially hazardous conditions and initiating timely corrective actions.
- Analyzing employee/customer injuries to identify causal factors and trends.
- Educating our customers and employees about safe practices and precautions through awareness campaigns, forums, and/or meetings.
- Analyzing LRV accidents and incidents.
- Training all employees in safety related programs and assure that safety certifications are updated and maintained.
- Involving and educating community organizations and schools in light rail safety.
- Encouraging citizens to organize neighborhood watch programs for the areas surrounding the NLR system.

Establish and maintain the highest level of safety/security for our customers and employees by:

- Maintaining a security and police presence on station platforms, onboard LRVs, and along the right-of-way.
- Strictly enforcing the fare policy.
- Educating our customers and employees of safety and security precautions, with a heightened emphasis on acts of terrorism and weapons of mass destruction, through public and employee awareness campaigns.
- Ensuring surveillance devices and emergency communications equipment are in good working order.

Minimize and control the effects of accidents and incidents by:

- Developing protocols to efficiently manage emergency incidents or service disruptions and training employees accordingly.
- Familiarizing municipal emergency responders with the NLR system components and enlisting their participation in the development of emergency plans and procedures.

- Conducting emergency simulations to provide practical training sessions for both NLR employees and municipal emergency responders as well as to test emergency plans and procedures.

Improve planning and projections for fiscal support needs by:

- Coordinating and communicating closely with NJ Transit management.
- Estimating based on historical data and previous experience, future costs and system improvements.

1.3 OBJECTIVES

The objectives of Safety Management System (SMS) principles and methods and the NLR ASP are to implement a Program which maximizes the highest reasonable level of operating safety for employees of NJ Transit and its subcontractors, for customers, and for the general public. The objectives provide a framework for the day to day activities for safe and secure operations of NLR. This is achieved, in part, by the application of a formal system of analytical techniques to systematically identify, analyze, assess, and resolve the causes of accidents and incidents impacting the levels of safety and security for NLR. Specific goals and objectives are:

- **Safety Data Acquisition and Analysis**

It is the task of the New Jersey Transit's Office of System Safety and NLR's safety personnel to monitor the safety performance of NLR operations. Selected data is accumulated and analyzed. This data includes injuries to passengers, NLR personnel, and the public; potentially hazardous equipment failures; unacceptable hazardous or threat conditions; and rules and procedure violations.

- **Data Sources**

Information regarding accidents, incidents and hazardous conditions for NLR operations is obtained from several different reporting mechanisms. These include but are not limited to: NJ Transit police reports, municipal police reports, and NLR reports: accident/Injury reports and investigations, incident reports, Daily Operations Summary, Control Center Office logs, Construction Safety Program, and Employee/ Occupational Injury reports, and crime/loss prevention surveys.

- **Data Analysis and Tracking**

Tracking of hazard–related data is used to identify trends. These trends are further analyzed and/or investigated to determine causal factors. This is accomplished by interviews with personnel in the affected department(s) and analysis of pertinent documentation. Identified hazards are submitted with corrective action recommendations or requests for corrective action development.

- **Safety Summary Reports**

A safety summary report is submitted to NJDOT-OSSO as part of the annual report (utilizing the FTA Standard Template). The report contains injury rate data regarding passengers, NLR personnel, and

public accidents and incidents. The report is the basis for the formulation of safety performance goals and objectives for the coming year. The report outlines the strategies for the achievement of the stated safety objectives.

Annual performance goals and objectives for Employee Injury reduction and Passenger Injury reduction have been incorporated into the NJT-wide performance goals process. These goals will be applied to each NLR department. This will include key safety and security goals and objectives, milestones, and methods /accomplishments.

Newark Light Rail has established current year performance measurement goals based on annual Critical Element Lagging Indicators from the previous year's data. The performance goals are established by review of events reported during the calendar year, which resulted in collision, fire, and customer injury and employee injury/loss time, etc. as defined, by FTA, NTD or OSHA reporting criteria. Occurrences are reviewed annually to establish new goals.

US DOT-FTA's National Public Transportation Safety Plan provides (and explains) four *Safety Performance Measures* and an explanation of each of them. NLR's Goals and Objectives are included in the following table.

GOALS AND OBJECTIVES	
Goal #1(Notes 1)	**Fatalities-total number of reportable fatalities and rate per total vehicle revenue miles**
Objective 1.a	Maintain public/passenger/worker fatalities to zero per calendar year
Objective 1. b	Maintain fatalities rate to zero per 100,000 revenue miles
Goal #2 (Notes 2)	**Injuries- total number of reportable injuries and rate per total vehicle revenue miles**
Objective 2. a	Reduce the Number of Passenger Injuries to ≤ 4 per Calendar Year
Objective 2. b	Reducing the Number of Employee Injuries to ≥5% of previous year's NTD reported numbers
Goal #3(Notes 3)	**Reportable Safety Events- Reduce the Number of Accidents and Incidents & Hazardous Conditions By:**
Objective 3. a	Reducing the Number of Derailments to ≤ 2 per Calendar Year
Objective 3.b	Reducing the Number of Collisions to ≤ 3 per Calendar Year
Objective 3.c	Maintain the number of fire occurrences at Zero (0)
Objective 3. d	Maintain the Number of Evacuations for Life Safety Reasons to Zero (0)
Objective 3. e	Reducing the Number of Stop-Signal Violations to ≤ 5 per Calendar Year
Objective 3. f	Reducing the Number of Miss-Route Incidents to ≤ 5 per Calendar Year
Goal #4(Notes 4)	**System Reliability -Mean Distance Between Major Mechanical LRT Failures**
Objective 4. a	**≥5% Improvement in System Reliability (based on previous year's NTD data)**
Goal #5	**Efficiency Check Program**
Objective 5. a	Establish NLR's non-compliance goal of 8% to Rules and Safe-Work Practices

Notes: (Extracted from FTA's National Public Transportation Safety Plan, January 2017)

- *Notes 1: Measuring the number of fatalities over vehicle revenue miles, by mode, provides a fatality rate from which to assess future performance.*
- *Notes 2: Measuring the number of injuries by mode, over vehicle revenue miles provides an injury rate from which to assess future performance.*
- *Notes 3: Measuring the number of safety events by mode over vehicle revenue miles provides a safety event rate from which future performance can be compared.*
- *Notes 4: This measure allows agencies to develop safety performance targets that are specific to their own fleet type, age, operating characteristics, and mode of operation.*

1.4 PURPOSE

Safety Management System refers to the concept of applying operating, technical and management principles and techniques to the safety aspects of a system. These principles and techniques are applied throughout the system's life to reduce hazards and associated risks to the lowest possible level through the most effective use of available resources.

The underlying philosophy essential to the success of Safety Management System is the concept that every employee throughout NLR is responsible for safety. The identification and resolution of hazards are conducted by each department with the safety department acting as a consultant and catalyst to ensure that employees are working to achieve the safest working environment possible.

Safety Management System is an overall, integrated, coordinated effort between all employees, managers and the safety department and is designed to:

- Preserve life and property.
- Minimize, control, correct, reduce or eliminate hazards and risks to the lowest possible level and schedule for taking these actions.
- Prevent and reduce accidents.
- Minimize and control the effects of accidents and incidents.
- Maintain the safe operation and maintenance of the transportation system.
- Insure that safety is an integral part of all personnel decisions, plans, specifications, designs, tests, procedures and operations.

The purpose of having a written NLR ASP at NJ TRANSIT-Newark Light Rail (NLR) is to ensure the consistent communication and implementation of the safety policy. More specifically, the Plan has been developed to:

- Establish the safety program on a system-wide basis.
- Provide a written document demonstrating NLR's commitment to safety.
- Satisfy federal, state, local and APTA requirements.
- Meet accepted industry standards.
- Provide a framework for the implementation of safety policies and the goals and the objectives necessary to achieve them.
- Identify the relationships and responsibilities of NLR with other organizations and agencies that have an impact on NLR's operations.

1.5 SCOPE

The scope of the NJ TRANSIT- NLR ASP encompasses the implementation of safety management for the Newark Light Rail system. This NLR ASP applies to all personnel and activities involved in the operation, maintenance, design, modification, and construction of the Newark Light Rail.

The scope of this NLR ASP includes, but is not limited to:

- Revenue service operations and System and vehicle maintenance
- Operations Control Center activities
- Employee training and certification programs (as appropriate)
- Public safety/security awareness
- Emergency preparedness and coordination
- System modifications and extensions
- Hazard identification and resolution
- Accident investigation, reporting, corrective action plan including the schedule for implementation
- Interdepartmental communication and coordination
- System security support by NJT Police Department

The NLR management and staff are responsible for implementing this NLR ASP and ensuring that NJ TRANSIT support departments comply with the provisions of this NLR ASP. All NJ TRANSIT employees, contractors, consultants, and vendors are responsible for complying with NJ TRANSIT's safety rules, practices, and procedures as well as all applicable codes, standards and regulations when conducting activities on the Newark Light Rail system.

1.6 POLICIES

The update to the NLR ASP will include the formulation of rules and procedures for the safe and secure conduct of operations and maintenance.

The Light Rail Transit Division directs the implementation and enforcement of the rules and procedures. The Light Rail Transit Division uses support from NJ TRANSIT Bus and Rail Operations to assist in operations, engineering, safety, training, human resource administration, planning, risk management, medical services, construction, and procurement and law enforcement functions efficiently to manage the NLR system. The respective NJ TRANSIT department provides support.

Development of the NLR ASP will comply with the provisions of: (i) FTA's 49 CFR 673 and 674 requirements, and (ii) the State of New Jersey, NJ DEPARTMENT OF TRANSPORTATION-Office of Fixed Guideway Safety & Security Oversight (NJDOT-OSSO) programs.

The NLR ASP will include procedures for the integration and support of the local and state fire, police and medical services during fire/life safety emergencies.

Integration and compliance with the NLR ASP are the responsibility of all levels of management. NJT Management is responsible for insuring the safe/secure operation and maintenance of the NLR System, as well as, the modification, construction, and/or installation of new equipment, facilities and systems.

1.7 NLR-AGENCY SAFETY PLAN (ASP) CONTROL, DISTRIBUTION AND UPDATE PROCEDURES

All confirmed copies of the NJ TRANSIT- NLR ASP (with approvals from Chief-Light Rail and Contract Services, Chief- Office of System Safety, NJ Transit's President-and CEO and the Board of Directors) will be numbered and assigned to an individual person or department. The individual receiving a confirmed -numbered copy will sign 'Confirmation of Receipt and Acknowledgement' form and return the signed form to the NLR safety department. Records are maintained at NLR facilities.

The NJ TRANSIT- NLR ASP will be reviewed annually (at a minimum) and revised as needed.

NLR ASP is distributed to all affected departments for review/comments prior to the ASP is finalized.

Proposed revisions to the NLR ASP will be directed to the Interim Director of System Safety who will coordinate the preparation of all revisions, circulate draft versions of updates for review by the appropriate departments (including the Safety Review Committee members) and insure that the approved revisions are appropriately integrated into the NLR SMS PLAN. Changes in policy will be reviewed by the appropriate levels of management, including the Safety Review Committee members.

The NLR ASP is circulated for review and comment to various NLR departments (that have the responsibility for implementing safety) prior to NLR ASP is finalized. Proposed revisions to the NLR ASP will be submitted to the Chief, Light Rail and Contract Services, General Manager, Light Rail Operations and the Director of Quality Assurance- Interim Director of System Safety Programs. The proposed revisions will be reviewed and approved by the Safety Review Committee. Changes to the NLR ASP will be identified as a numbered revision and will include appropriate information, such as the date of the revision and the section revised, along with the proper approval signatures. All revisions to the NLR ASP will be issued to the designated individuals or departments. Changes to the NLR ASP will be on a "page by page" basis. In the event of significant changes or updates to the NLR SMS PLAN, a complete revised copy will be issued to the appropriate departments.

The Chief, Light Rail and Contract Services and General Manager, Light Rail Operations will ensure that the Office of the State of New Jersey Fixed Guideway System - Safety Oversight Program (NJDOT-OSSO) receives revised/updated/controlled copy of the NLR ASP.

All reviews and revisions to the NLR ASP will conform to the NLR Configuration Management process and NJDOT-OSSO Standards. NLR follows its internal document control process for reviewing, issuing, revising, and for storage and retrieval of NLR-ASP. The NLR ASP will be reviewed annually (at a minimum) by June 30th of each calendar year. If, upon review no revisions are required, Chief, Light Rail and Contract Services or the General Manager, Light Rail Operations, will notify the NJDOT-OSSO. If upon review, revisions are required, revised/updated NLR ASP will be submitted to NJDOT-OSSO no later than August 1st for review and approval by the NJDOT-OSSO.

In accordance with 49 U.S.C.5329(d)(1)(A), § 673.11(a)(1) and 673.11 (5), the NLR- ASP will be reviewed annually (at a minimum and revised as needed) by the NLR Management and the Safety Review Committee, to make necessary updates, corrections, and modifications.

The NLR Safety Review Committee will seek feedback from the affected departments to determine if any changes are needed. Any significant changes to the NLR ASP excluding nominal organizational changes, administrative changes etc. will be made to the ASP and presented to the NJ Transit's President-and CEO, Chief-Office of System Safety and Board of Directors for approval. NLR Safety Review Committee will update the Revision Table annually with a new Revision number for the PTASP regardless if any changes need to be made.

The NLR Safety Review Committee is responsible for preparing, maintaining, and updating the NLR PTASP.

1.8 NLR SAFETY PERFORMANCE MEASUREMENT and MANAGEMENT

In 2012 Public Law-MAP-21 amended Federal transit law by authorizing Public Transportation Safety Program at 49 U.S.C. § 5329. Section 5329(b) requires the Public Transportation Safety Program to include a National Public Transportation Safety Plan to improve the safety of all public transportation systems that receive Federal transit funds. The purpose of the National Safety Plan is to guide the national effort in managing the safety risks and safety hazards within our Nation's public transportation systems. To satisfy this purpose, this National Safety Plan has two primary objectives:

1. Meet the statutory requirement to develop and implement a plan to improve the safety of public transportation systems that receive Federal transit funds.
2. Communicate FTA's approach to improving safety to the public transportation industry.

FTA has adopted the principles and methods of SMS as the basis for improving the safety of public transportation within the United States. SMS guides transit agencies to improve their safety performance by supporting in developing procedures for identifying, mitigating, and monitoring safety risks.

In addition to this National Plan, FTA has also released:

- Public Transportation Safety Program
- State Safety Oversight Program
- Public Transportation Safety Certification Training Program
- Public Transportation Agency Safety Plans
- Several Training Courses through Transit Safety Institute
- Transit Advisory Committee for Safety Reports
- Other Guidance Documents, Etc.

National Public Transportation Safety Plan introduced the use of the transit-specific SMS framework, safety performance management, and concepts of managing risks and assuring safety performance at transit agencies that are proactive and based on SMS. This plan has also introduced the FTA's intended requirements for safety performance criteria that the transit agencies will be required to base their safety performance measures and targets on for improvements documented in their Agency Safety Plans.

In accordance with 49 U.S.C. 5329, FTA requires each Public Transportation Agency Safety Plan to include safety performance targets based on the safety performance measures established by FTA in the National Public Transportation Safety Plan. In the National Public Transportation Safety Plan, 49 CFR 673.11 (a) (4), FTA is adopting four initial safety performance measures: (1) Fatalities, (2) Injuries, (3) Safety Events, and (4) System Reliability. These measures are intended to focus transit agencies on the development of specific and reliable targets, as well as the actions each agency would implement to improve their own safety outcomes. Through the SMS process, FTA expects transit agencies to develop their own performance indicators and regularly monitor the performance of their systems to ensure that they are meeting their targets and improving safety outcomes. FTA expects transit agencies to evaluate their safety performances and determine whether they should change their safety performance targets at least annually when the transit agencies are reviewing and updating their Public Transportation Agency Safety Plans.

NJT-NLR will coordinate with the State and Metropolitan Planning Organizations (MPO) in selecting realistic safety performance targets and will make them available to MPOs to aid the States and MPOs in the selection of their own performance targets and planning process.

1.9 MINIMUM DOCUMENT SUBMISSION TO THE NJDOT-OSSO (ASP Element 24)

This element of NLR ASP includes the activities for the documentation of SMS implementation at NLR, the tools required for day-to-day SMS operation, and the management of new or revised safety requirements, regulatory or other from FTA, NJDOT and other agencies.

This element ensures that key elements of SMS are documented.

NO.	*NLR ASPELEMENT*	*CONTENTS*
24	***Minimum Document Submission to the NJDOT SSO Program***	***A description of the procedures to ensure the timely submission of all required documents to the NJDOT SSO program. NLR ASP Section 1.8 lists the minimum documentation required for submission to the NJDOT SSO program.***

The following is the minimum documentation required for submission to the State of New Jersey, Office of Fixed Guideway Safety & Security Oversight (NJDOT-OSSO) programs.

- Annual report of Safety & Security Reviews no later than February 12th of each year, including NJ Transit GM/ CEO certification;

- NLR's Monthly Reports, due by the 15th of each month including;
  - Listing of Accidents, Incidents and Injuries;
  - Hazard Management;
  - Status of Safety Certification;
  - Corrective Action Plans;
  - Internal Safety and Security Audits
  - Annual Review/Update of NLR's ASP
- Updates to NLR's Plans and Procedures as required by the NLR SMS PLAN;
- NLR's Accident/Incident Report(s) submitted within 30 day of the Accident/Incident(s) or a status update of the Accident/Incident(s) in the event that the report cannot be completed, including Corrective Action Plan(s) for each Accident/Incident (if required);
- Internal Audit Check Lists;
- Copies of all monthly/ annual reports and correspondence submitted to the Federal Railroad Administration (FRA) from NLR (which operates with a Federal Railroad Administration Shared Use Waiver);
- Copies of all inspection reports received from the Federal Railroad Administration for NLR (which operates with a Federal Railroad Administration Shared Use Waiver);
- Copies of all correspondence from/or to the Federal Railroad Administration regarding NLR's Shared Use Waiver.

1.10 SAFETY MANAGEMEMT SYSTEM and SAFETY CULTURE

Safety Management System (SMS) at NLR facilitates a shift in the attitudes regarding safety within NLR, by changing both leadership and employee perceptions of system safety and its importance in NLR's day-to-day activities.

SMS places a strong emphasis on safety training and safety communication to guarantee that the entire transit agency (NLR) fully understands SMS policies and procedures and supports an effective safety-reporting environment within all levels of the workforce.

SMS promotes an environment where management and employees work together to identify risks and act together to control them.

FTA promotes the concept of "safety culture" as a key attribute to improving overall transit safety and operational performance.

Some of the practices that define a strong safety culture at NJT/NLR are**:

- Management (including all employees) is accountable and responsible for safety;

- Everyone in NJT/NLR organization takes an active role in safety;
- Open communications and discussions of safety hazards and risks are encouraged*;
- Safety hazards, near miss and close-calls are reported*;
- Efforts to identify hazards and control Risks continue to be performed despite everything looking safe*;
- Human errors and unsafe acts are treated as symptoms of organizational problems;
- Safety redundancies are introduced to ensure resiliency to unplanned events;
- NJT/NLR, NJDOT-OSSO, Local Emergency Responders and FTA work together to make NLR system safer and secured;
- Practices and procedures are regularly reviewed and improved;
- Activities and decisions are risk assessment based;
- Safety data are analyzed to identify systemic causes; Safety performance is measured;
- Investment is made in proactive activities;
- The NJT/NLR safety office is a proactive partner to the NLR staff and all departments;
- Safe practices, continuous learning and improvement are the norm, even during times of financial constraint and labor pressure;
- Safety information is shared internally and externally; and
- The safety management system is audited.

(**Note: NLR encourages for employees to report hazards, unsafe conditions and near miss occurrences to management as described in § 49 CFR 673.23 (b) and 673.25 and Safety Management Policy and Risk Management of this document. NLR's hazard reporting process provides employees protection from reprisal* by providing an opportunity to submit hazards/near-miss occurrence transparently or anonymously. Furthermore, as mentioned in NLR's Safety management policy, "All employees have an obligation to report hazards, and near miss occurrences to their department management".

*Note: Near-Miss occurrences that are captured through NLR's reporting systems, such as SCADA, NJDOT-OSSO and Supervisor Observation are not subject to protection from reprisal, if they are deemed to be egregious or violation of a major safety rule).

The Newark Light Rail (NLR) has adopted as its guiding principle that Safety is the primary value for our customers, employees, and business partners. At NLR safety takes a pre-eminent role in decision making before all other considerations. All levels of management and all employees are accountable for the delivery of this highest level of safety performance. NLR's Public Transportation Agency Safety Plan (PTASP) is the means of integrating safety into all NLR system operations.

With the processes and methodologies contained in the PTASP, NLR can achieve an optimal level of safety in our operations and services.

The NLR-PTASP integrates the four components of Safety Management Systems to lay the foundation of NLR's Safety Culture.

- Safety Management Policy,
- Safety Risk Management,
- Safety Assurance, and
- Safety Promotion

Each NLR department has responsibilities under the PTASP and shall support its implementation.

NLR Departments shall also provide the on-going support necessary for achievement of the following PTASP Safety Objectives:

- *Establish safety policies, procedures, and requirements that integrate safety into NLR's decision-making and operations.*
- *Implement Safety Management System (SMS) Principles, and utilize the Guidance from the:*
    - *Documents and Webinars from FTA*
    - *NJDOT's Office of System Safety,*
    - *American Public Transportation Association's (APTA) Standards, Recommended Practices, and*
    - *Guidance from New Jersey Transit's Office of System Safety and*
    - *Other Guidelines*

  as resources in developing NLR's policies/procedures.

- *Assign responsibilities related to safety policies, procedures, and requirements.*
- *Verify adherence to safety policies, procedures, and requirements.*
- *Investigate accidents, incidents, near misses, fires, and occupational injuries.*
- *Identify, analyze, evaluate and resolve/mitigate hazards and near misses.*
- *Evaluate and verify the operational readiness of new systems.*
- *Minimize system modifications related to safety during the operational stage by reviewing safety requirements at system design and procurement stages.*
- *Conduct safety performance monitoring to determine trends and implement corrective actions.*
- *Evaluate the safety implications of proposed system modifications prior to implementation.*

A key to the success of the PTASP is for NLR employees to be aware that they are accountable for meeting the safety requirements of their positions. In other words, everyone is responsible for safety. Beyond this, its success depends on all employees actively identifying potential hazards and taking into consideration the safety of others as well as their own. All employees have an obligation to report hazards, and near miss incidents to their department management.

The NLR safety department is responsible for developing, administering and overseeing a comprehensive PTASP with specific objectives, programs and activities to prevent, control and resolve unsafe conditions/hazards that may occur during the life cycle of Newark Light Rail systems. The safety department will be involved in all aspects in projects beginning from the conceptual stage, and through the design, procurement, construction, operational and maintenance stages.

NLR's Safety objectives and safety performance targets/measures included in this PTASP are consistent with the National Public Transportation Safety Plan and fulfill the requirements of 49 Code of Federal Regulations (CFR) Part 673 and NJAC16:53 E which are the authorities that establishes this PTASP.

NLR staff realizes the fact that their decisions and actions often affect the safety of our employees, our customers, the public, and business partners. By following the processes described in the PTASP, NLR will have continued opportunities to improve overall performance and safety.

2.0 SYSTEM DESCRIPTION – NEWARK LIGHT RAIL

This section of the NLR ASP provides an overview of the Newark Light Rail (NLR). It is not intended to include detailed technical information.

NLR ASP presents an overview of the system including:

- History of NLR
- Scope of NLR's services
- Description of the alignment
- Vehicles (types and number)
- Facilities (yard, shop, maintenance and administrative)
- Built-in safety capabilities
- Operations
- Maintenance
- Integration of safety function in all activities
- Lines of authority for safety, etc.

2.1 HISTORY

The Newark City Subway was, for the most part, constructed in the bed of the Morris canal, which itself was built between Jersey City and Phillipsburg, NJ in the period 1825-1837. At its peak it was over 100 miles long and barges took five days to traverse its entire length. But, by the early 1900's, the railroads across New Jersey (specifically the Lackawanna and Jersey Central Railroad) and the New Jersey state legislature pushed for draining and filling of the Morris canal bed for construction of street cars and subways. In 1927, the Newark portion of the canal was authorized to become a right-of-way for streetcars, and construction began on this new subway.

The Newark City Subway (which was 'rebranded' Newark Light Rail, NLR in July 2006) was constructed between 1929 and 1935 on the bed of the former Morris Canal. When the system opened in 1935, it was a rapid transit service link to downtown Newark that was directly connected to four (4) different surface trolley lines. The system right of way is still owned by the City of Newark while the vehicles, track and infrastructure are owned by NJ TRANSIT Bus Operations Inc., an instrumentality of the State of New Jersey. The system is operated and maintained by the NJ Transit's Light Rail Transit System, which is under the umbrella of NJ Transit's Surface Transit and Bus Operations.

The following is an abstract of the major events that resulted in the present-day NJ Transit ownership and operation of the NLR by NJ TRANSIT:

Synopsis:

As a result of *RAILROAD COMPANIES'* (The United New Jersey Railroad and Canal Company and The Pennsylvania Railroad Company, its lessee) intention to construct a new railroad station (later known as Penn Station) together with additional tracks, platforms and other appurtenances, the City of Newark and Public Service Coordinated Transport agreed to facilitate the building and use of the new station and the additional tracks to be constructed by Railroad Companies and provided for the layout of a new street railway station partly beneath the new station.

As part of a prior agreement, the City of Newark agreed to facilitate the building and use of the new station and the additional tracks to be constructed by Railroad Companies and provided for the layout of a new street railway station partly beneath the new station.

- **January 9, 1929** - The City of Newark and Public Service Coordinated Transport (a corporation of New Jersey) agreed to lay out, construct and complete a double track electric railway without grade crossings in, on and along the canal property that was acquired for public use and other property acquired in connection with the new railroad station (later called Penn Station).

  The electric railway system, with turnaround loops at both ends, was to be constructed between the new railroad station to or near the Town of Belleville.

- **July 15, 1930** - For the purpose of saving considerable expenditures, the City of Newark and Public Service Coordinated Transport agreed to defer the construction of an underpass at Orange Street. The change included a layout and construction for the electric railway to cross Orange Street at grade.

- **August 21, 1939** -The agreement between the City of Newark and Public Service Coordinated Transport was modified to limit the construction of the electric railway system to a point north of Heller Parkway at the southerly line of Erie Railroad right of way at North Sixth Street, with terminal facilities including a loop for the operation of buses to the terminal station.

- **June 19, 1937** - Starting at midnight, Public Service Coordinated Transport operated the completed portion of City Light Rail from Heller Parkway to the Pennsylvania Station, Newark.

- **December 31, 1969** - The original agreement, for the term of fifty (50) years, between the City of Newark and Public Service Coordinated Transport, which contained a termination clause that either party could terminate the Agreement after thirty (30) years providing there was a two (2) year advance written notice, was amended. The new agreement amended paragraph three of the January 9, 1929 Agreement, to provide; that at any time after the expiration of thirty years from the beginning of the term of fifty (50) years, either party may give at least six (6) months' written notice to terminate the agreement.

- **April 17, 1978**- Memorandum from Ann Summer, Attorney General, to Martin E. Robbins, Exec. Assistant to the Assistant Commissioner for Public Transportation identifies the Public Service Coordinated Transport as now being called TNJ. The Memorandum refers to TNJ (Transport of New Jersey) in the same context as Public Service Coordinated Transport as part of the 1929 agreement addressing the construction and operation of the Light Rail system.

- **July 17, 1979** - The New Jersey Transit Corporation was created under the Public Transportation Act of 1979. The Act created a public corporation within the Department of Transportation powered to acquire, operate and contract for the operation of public transportation services and facilities. As part of the Act, the Corporation was empowered to establish one or more operating divisions as deemed necessary.

- **October 14, 1980** - The New Jersey Transit Corporation, under the powers created by the Public Transportation Act of 1979 to establish one or more operating divisions, acquired the Transport of New Jersey (TNJ) and its wholly owned subsidiary, the Maplewood Equipment Company (MEC).

  It was also determined that the public would be confused with the names of the new companies and therefore initiated all actions to change the name of TNJ to NJ TRANSIT Bus Operations Inc. ("NJ TRANSIT Bus Operations Inc." referred to herein as "NJ TRANSIT Bus Operations" and "NJ TRANSIT Bus and Light Rail Transit Operations")

- **November 4, 1993** - Ordinance of the City of Newark authorized the execution of a lease agreement between NJ TRANSIT for the leasing and continued operation of the Light Rail and right-of-way as a transportation facility.

- **June 1, 1994** - Ordinance of the City of Newark amended the lease agreement and Ordinance of November 4, 1993 to include the addition of a stipulation of dismissal and a stipulation of settlement. The amendment did not alter the agreement as it relates to operation of the Light Rail and right-of-way as a transportation facility.

- **February 1, 1995** - The City of Newark and NJ TRANSIT entered into a renewed agreement for the lease of right-of-way for the Light Rail and to continue operations as a transportation facility. The lease term is fifty (50) years commencing November 1, 1993 and ending October 31, 2043. Also, part of the agreement is an option to renew, six (6) months prior to the expiration of the agreement, for an additional twenty-five (25) years to commence at the end of the termination of the first term.

- **February 1, 1999** - Newark Light Rail commences a major modernization project to accommodate projected ridership increases and a new fleet of modern light rail cars (LRVs). The modernization program consists of replacing the current overhead catenary system, signal system, track structure, improving access to stations to meet ADA requirements, replacement of the aging PCC Cars with modern LRVs, construction of a vehicle maintenance facility, and adding a one-mile extension to the existing Light Rail system.

- **February 10, 2000** - Newark Light Rail accepts delivery of sixteen (16) new modern Kinkisharyo Light Rail Cars (LRVs) to replace the existing revenue fleet of PCC Cars.

- **March 16, 2001** - Newark Light Rail Operations & Maintenance activities are relocated to the new Vehicle Maintenance Facility (VBF) in Bloomfield, NJ.

  August 24, 2001- Newark Light Rail retires the fleet of PCC Cars. The official retirement ceremony was conducted at the Branch Brook Park Station. Commemorative trips were made after the conclusion of revenue service and the PCC Car fleet was moved to the new maintenance facility in Bloomfield, NJ for storage until final arrangements are made for the disposition of the fleet.

- **August 27, 2001** - Newark Light Rail places sixteen (16) new Kinkisharyo Light Rail Cars into revenue service with a modern Train Control System, including automatic train protection. New stations (Orange Street and Branch Brook Park) are opened.

- **September 05, 2001** - Newark Light Rail begins the Penn Station - Newark (PSNWK) Rehabilitation Project. This project will modernize the major transfer point on the system. Station enhancements will include new platforms, improved station lighting, new stairs and escalators, and the installation of new elevators to make the station accessible in accordance with the provisions of the Americans with Disabilities Act (ADA).

- **December 15, 2001** - NJ TRANSIT commences the Broad Street Extension project. This one-mile extension of the NLR system to the commuter rail station on Broad Street in Newark, NJ

will provide additional service to downtown Newark and will serve major venues in the arts and entertainment district including the NJ Performing Arts Center and the minor league baseball stadium. The project includes the construction of a new extension of the existing tunnel system, four (4) stations, and one mile of right-of-way. Revenue service is anticipated to commence during the spring of 2006.

- **February 1, 2002** - Newark Light Rail commences utility relocation in preparation for mainline tunnel extension portion of the Broad Street Extension project. The project includes the construction of a one-mile extension of the City Light Rail system, including track, OCS, Train Control system, track structure, improving access to stations to meet ADA requirements, replacement of the aging PCC Cars with modern LRVs, construction of a vehicle maintenance facility, and adding a one- mile extension to the existing Light Rail system.
- **June 22, 2002** - Newark Light Rail commences revenue service on the new northern extension. Two new passenger stations, Silver Lake and Grove Street, are opened to provide system access to Belleville and Bloomfield residents.
- **May 30, 2003** - Washington Street Station Rehabilitation Project is completed and the entire station is opened for revenue service. Station improvements include: new platforms, station lighting, stairs, and the installation of elevators to make the station accessible in accordance with the provisions of the Americans with Disabilities Act (ADA).
- **June 03, 2004** - Newark Light Rail accepts delivery of three (3) additional new modern Kinkisharyo Light Rail Cars (LRVs) for service on the Broad Street Extension.
- **October 03, 2005** - NJ TRANSIT creates a Light Rail Operations division within the Capital Improvements Department. The Light Rail Operations division includes the Newark Light Rail, the Hudson-Bergen Light Rail Transit System, and the Southern NJ Light Rail RIVER Line.
- **May 01, 2006** -The Penn Station Rehabilitation Project was completed and the entire station is opened for revenue service. Station improvements include: new platforms, Call-For-Aid boxes, CCTV cameras, Customer amenities, station lighting, stairs, replacement of escalators, and the installation of elevators to make the station accessible in accordance with the provisions of the Americans with Disabilities Act (ADA).
- **July 17, 2006** - Newark Light Rail commences revenue service on the Broad Street Extension. This segment includes five (5) new stations: NJPAC/Center Street, Atlantic Street, River Front Stadium, Broad Street Station and Washington Park.
- **May 01, 2017-Five (5) Section LRV Extension Program-** At Newark Light Rail, ridership is always near capacity during peak hours resulting in full vehicles and a scarcity of seats. NJT/NLR took the 'Best Value" approach to increase passenger capacity by retrofitting a portion of each of the ten (10) LRVs with an additional two sections and a second trailer truck, making 3 section vehicles into 5 section vehicles.

2.2 SCOPE OF SERVICE

2.2.1 NLR System Operations - The NLR is a 6.5-mile light rail line that operates as a rapid transit link between terminal stations at Newark Broad Street Station through Newark Penn Station located in Newark (Pennsylvania Railroad Station or Penn Station - Newark) to the Grove Street Station in Bloomfield, NJ. The line is in an underground tunnel for 1.7 miles and either at grade or depressed cut for 3.8 miles and approximately one mile of street running territory. The patronage is derived from pedestrian traffic, bus and rail transfers, and park/ride commuters. The fleet of twenty-one (21) modern Light Rail Cars (LRV) and seventeen (17) stations serve 6.0 million passengers annually. Approximately two-thirds of the riders travel the system during the morning and evening peak periods. With nearly around the clock operation, the service is curtailed at 1:35 A.M. and resumes 4:10 A.M. The LRVs operate at asymmetrical intervals during peak periods (every three to four minutes on the base main line system-AM peak hours start at 6:30 A.M. to 9:30 A.M., and PM peak hours, 3:30 P.M. to 7:00pm).

Off-peak midday week day service runs every ten minutes; post PM peak service decreases gradually from every ten minutes at 7:00pm to every 30 minutes after 10:00pm until closing.

Penn Station - Newark is the eastern terminus of the NLR system and serves as a major transfer point for NJ TRANSIT's commuter rail and bus service, as well as, providing access to Greyhound Bus lines, PATH service and Amtrak train routes. The NLR has five (5) tracks and two (2) controlled interlockings to route LRVs through the station. Interlocks are automatically aligned for inbound movements by the Train Control system and aligned for outbound movements through the use of Train to Wayside Communication (TWC) devices initiated by the LRV operator with permission from the Operations Control Center. Electro-pneumatic switches are used to align the track.

Branch Brook Park (BBP) Station in Newark, NJ, is the western terminus of the NLR trunk system and is a major transfer point to NJ TRANSIT Bus lines. The BBP Station has platforms adjacent to the Bus plaza, an island platform that serves two (2) tracks, and a pedestrian ramp to provide access from the bus stops on Heller Parkway. The BBP Station has two (2) controlled interlockings to route LRVs through the station for the turn back operation. Interlockings are automatically aligned for movements into the station and pocket track by the Train Control system and aligned for movements out of the pocket track and station through the use of TWC devices initiated by the LRV operator with permission from the Operations Control Center or BBP Depot Master. Electro-pneumatic switches are used to align the track.

Grove Street Station in Bloomfield, NJ, is the western terminus of the NLR system and is a transfer point to NJ TRANSIT Bus lines and includes a commuter park & ride facility. Grove Street Station has an island platform that serves two (2) tracks. Interlockings are automatically aligned for movements into the station via the Train Control system and aligned for movements out of the station similarly or through the use of TWC devices initiated by the LRV operator with permission from the Operations Control Center. Electro-pneumatic switches are used to align the track.

Broad Street Station in Newark, NJ, is the northern terminus of the NLR street-running branch and is a major transfer point to NJ TRANSIT Commuter and Bus lines. The Broad Street Station has an

island platform that serves two (2) tracks and a pedestrian crossing to provide access to NJ TRANSIT's adjacent commuter rail station. The Broad Street Station has two (2) controlled interlockings to route LRVs through the station for the turn back operation. Interlocking is automatically aligned for movements into the station and pocket track by the Train Control system and aligned for movements out of the pocket track and station through the use of TWC devices initiated by the LRV operator with permission from the Operations Control Center. Electric switches are used to align the track.

NLR/LRT Division's Operations & Maintenance offices are located at the Vehicle Base Facility (VBF), Bloomfield, NJ. Administrative, operational, and maintenance functions of the NLR are performed, monitored and controlled from this facility.

Procedures for the safe and efficient operation of the NLR are detailed in the Newark Light Rail Light Rail Transit Division *Safety Rules & Procedures* manual. Standard Operating Procedures for typical service and Emergency Procedures for incidents and evacuations occurring on the NLR are detailed in the *Manual of Standard and Emergency Operating Procedures.*

An emergency notification guide is maintained at the NLR Operations Control (OC) located in Bloomfield, NJ. This guide is designed to expedite critical notifications to key internal personnel and to local emergency forces. The guide contains an index of possible incidents and appropriate notification priorities.

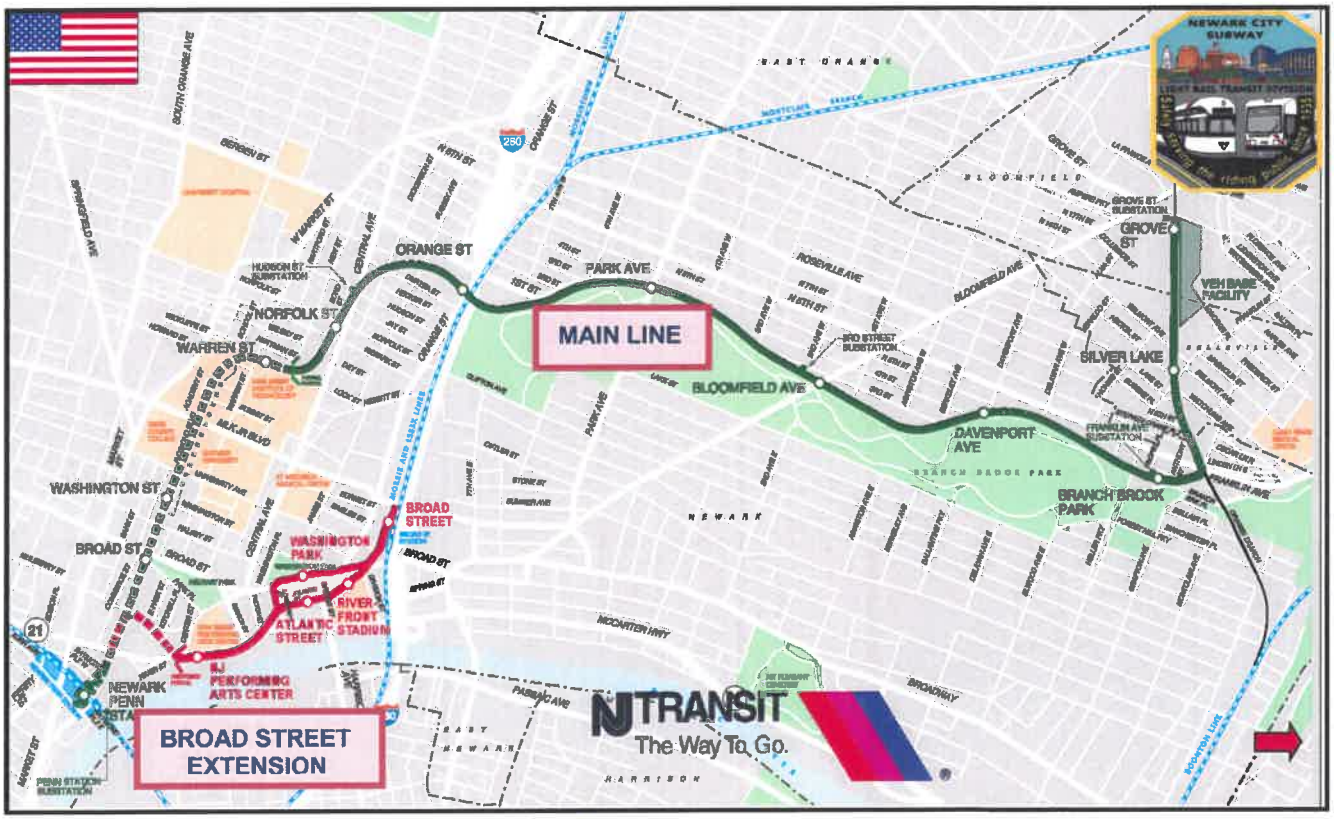
2.2.2 Shared Right-of-Way - Access to the NLR Vehicle Base Facility (VBF) extends along a portion of the Norfolk Southern (NS) Orange Industrial Track (MP-9.156 and MP-9.83) of which 0.24 mile portion is utilized by both NLR and the freight carrier. NJT and Norfolk Southern (NS) have a formal written agreement where freight service will be permitted with permission from NLR Operations Control and will not be confined to a specific time period.

When aligned for exclusive NLR operations, the shared track is protected from freight encroachment by a wayside signals and interlocked power operated split point derails on the freight side of both entrances to the shared track.

When the shared track is aligned for exclusive NS freight operations, the shared track is protected against NLR LRV encroachment by wayside signals at all turnouts, audio frequency track circuits and cab signals. The freight engineer contacts and receives verbal authorization from a NLR OC Controller to align the track for freight movements. The freight crew uses a wayside device to align the track for freight movements and initiate protection against LRV encroachment. Additionally, the wayside device initiates a timed sequence for the traffic control devices at the Franklin Street and Belmont Avenue crossings so that motor vehicle traffic is stopped to allow the unimpeded freight movement through the area.

Shared track operations are actively monitored and controlled by the NLR Operations Central Control through a track circuit block occupancy vehicle location system. The signal system is fully interlocked with switches at all turnouts to control all movements on the shared track.

2.2.3 NLR System Map - The following map illustrates the present configuration of the NLR alignment. Detailed physical characteristics are illustrated on the linear route profile diagrams included in the Newark Light Rail Rules for Operations and Maintenance (Rule Book).



NEWARK light rail

NEWARK LIGHT RAIL SYSTEM MAP

2.3 SYSTEM COMPONENTS

2.3.1 Description of Line - The double-tracked light rail line includes 1.7 miles in underground Light Rail with four stations and 4.8 miles above ground or in depressed open cut right-of-way and twelve stations. The Light Rail stations within the underground tunnel proceeding outbound are located at Penn Station, Military Park, Washington Street, and Warren Street. Continuing outbound, the stations in open cut and at grade are Norfolk Street, Orange Street, Park Avenue, Bloomfield Avenue, Davenport Avenue, Branch Brook Park, Silver Lake, and Grove Street. The stations proceeding outbound in the street-running segment are NJ PAC, Atlantic Street, Broad Street, and Washington Park on the inbound alignment. A special event stop is provided at the Riverfront Stadium, a raised sidewalk provides accessibility to the LRVs. Embedded tracks is used in the street-running segment and the critical curves are protected with girder rail.

2.3.2 Bridges - There are eleven overhead crossings of the NLR right-of-way. Ten of the crossings are auto/pedestrian bridges and one is a pedestrian-only crossing. Fencing and screening have been added to all crossings to reduce the possibilities of a person throwing or discarding objects onto the vehicles or right-of-way. The NLR system crosses over the NJ TRANSIT Morris & Essex commuter rail lines at Orange Street in Newark. The two bridges are equipped with high fencing to minimize trespassing and throwing objects on to the commuter rail right-of-way. Iron rod, fluted panels, steel plates and concrete parapet walls have been used as fencing. Wire mesh is used to supplement the fencing in areas where there is a high rate of incidents.

The 750-volt DC overhead contact system (OCS) wire is insulated from the bridge structure through the use of K&M arms mounted on either wood or inverted fiberglass U-channel. The channel is continuous for the length of the OCS and extends on both sides of the crossings to reduce the chances of objects hitting or contacting the wire.

2.3.3 Electrification - The purpose of the electrification system is to supply and distribute electric traction power for the NLR system. The electrification provides all related functions including conversion and switching of traction power, negative return, and auxiliary power. Critical physical components of the electrification system include: sub-station connections to incoming utility (PSE&G) power, connections at the rail to impedance bond leads and traction power bonding, and connections to the auxiliary power equipment located in train control, station, and shop systems as well as line feed switches and jumpers. Traction Power substations are protected with a fire detection system and security intrusion alarms. Overhead Catenary isolation switches are located along the right-of-way to control power to sections of the power distribution system.

The major components within the electrification system include but are not limited to:

Substation and power distribution – This includes all traction power feeder cables to the OCS as well as the return cables.

Overhead Catenary System - including catenary poles, overhead wire, and sectionalized by-pass switches, pole mounted disconnect switches, pole mounted surge arresters, and cast-in-place foundations. The overhead catenary wire is installed within the dynamic outline of the tracks with a vertical height from top of rail between 12.3 to 22 feet.

Stray current mitigation - including bonding and isolation equipment (which includes rail bonding)

Traction Power Substations (TPSS) are spaced along the right-of-way at approximately 1½-mile intervals. The NLR system has a total of six (6) substations. The substations have traction power rectification equipment and switch gear to supply 750 vDC to the OCS. Normal operations can be maintained with one TPS inoperative and/or out of service. All Traction Power Stations are equipped

with an internal fire detection system and an intrusion alarm system that is monitored by the NLR OC through the SCADA network. SCADA/Supervisory System is remotely connected to train control, traction, and ventilation systems. It allows OC to monitor, in real-time, the status of aforementioned system including the train movements. Certain remote control functionalities of the system are allowed as long as they do not violate the fail-safe principle configured in each system. The supervisory system is considered "non-vital" because it cannot override the vital systems in the field. The Penn Station and Grove TPSS are equipped with two (2) power feeds from separate circuits from the local power supplier. All other TPSs have a single power supply from the local power company.

Each TPS is equipped with an automatic trip reset feature. Tripped circuit breakers will automatically reset, after a brief interval, two (2) times before they must be manually reset.

The power distribution system conducts current from the traction power substation to the vehicle pantograph. The track system forms the return side of the circuit back to the substation due to its role in the interaction between the pantograph and the contact wire.

All metallic system elements that support the OCS are grounded and provide protection against the buildup of electrical ground faults.

Emergency Trip Stations (ETS) are located at each traction power substation and at the rail entrances to the Shop Building and LRV Storage Shed at the VBF. At the substations, the ETS are mounted on the building wall adjacent to the entrance door and are secured in a locked box. When the button is pushed, the track current to the catenary is de-energized. The ETS for the Shop Building and LRV Storage Shed act only on the single DC breaker supplying the catenary in the respective building. ETS are intended for the rapid de-Energization of the OCS by maintenance or possibly emergency response personnel.

Regular visual and functional tests of traction power equipment are accomplished in accordance with best industry practice. The NLR Superintendent is directly responsible for inspection and testing activities as well as preventative maintenance of the electrification system.

2.3.4 Train Control - The train control system provides the primary functions of train routing at the five (5) interlockings and the power operated crossovers on the NLR system as well as train separation at all locations other than in the yard. The system also provides the functions of on-board speed enforcement through the cab signaling system acting on the LRV's traction power and braking control systems. The train control system is an audio frequency track circuit controlled system which displays the necessary commands in the vehicle cab. The vehicle is manually controlled by an operator who must comply with the displayed commands. In the event that the operator does not comply with the displayed commands, an audible warning is sounded to alert the operator to take appropriate action. Further disregard of the displayed command results in the system bringing the train to a safe condition automatically.

This *Automatic Train Protection* (ATP) provides full train 'stop' protection and speed control in either direction on either track. The NLR operation is bi-directional with reverse signaling. The available speeds for operation are in increments between 5 and 50 MPH.

The train control system also insures that conflicting routes cannot be set, either manually or automatically. Once a train is routed, all other conflicting moves are prevented by the automated system. These features are provided at all controlled track switches where conflicting train movements could be initiated, otherwise known as interlockings. These interlocked locations are also equipped with wayside signals which provide additional visual directions to the operator. Noncompliance with a wayside signal will result in activation of the ATP.

The train control system also includes *Train-to-Wayside* (TWC) communications which provides for routing requests at interlockings and supplemental information regarding train location.

A functional check of the operation of all signaling and train control equipment and verification of software integrity is performed as required to meet safety and service availability requirement s. The NLR Superintendent is responsible for the inspection and verification of train control equipment.

2.3.5 Traffic Operating System - This system includes all traffic control software, computer hardware, and devices which control the movement of LRVs and motor vehicles at highway and track intersections. The Traffic Operating System (TOS) interrupts the normal motor vehicle traffic control device cycle (via use of pre-emption or priority) upon approach of an LRV. The traffic control device is cycled to stop motor vehicle traffic to allow passage of the LRV. LRV movements are governed by a separate bar signal system that is displayed perpendicular to the motor vehicle traffic control devices. All NLR LRVs and special purpose vehicles stop at all highway/track intersections and proceed after visual verification that all motor vehicles have stopped clear of the intersection.

2.3.6 Track - The primary purpose of the fixed guideway is to provide support and guidance to trains. NLR utilizes three types of track which are:

Ballasted Track - consisting of 115 lb. AREA rail installed on wood ties fasted with a spring-loaded Pandroil clip.

Slab (Direct fixation) Track - consisting of 115 lb. AREA rail fastened directly to cast-in-place track plinths. The rail rests on resilient plates which are in turn bolted to the plinths. Special effort is made to provide electrical isolation of the rail from the concrete.

Embedded Track - consisting of 115 lb. AREA rail implanted into the guideway so that it is flush with the roadbed.

2.3.7 Switches/Crossovers - Power operated crossovers are strategically located throughout the system to provide operational flexibility. These crossovers are controlled by electro-pneumatic switch machines. LRV movements through these power operated crossovers are automatically routed from normal operations through the Train Control System. Wayside home signals are present to provide the LRV Operators with color aspects that indicate stop and wait as well as aspects for turn-out and through moves. Train to Wayside (TWC) equipment on board the LRV and antennae receivers near the crossovers allow the LRV Operator to align the switches for either turn-out or through movements. An Automatic Train Protection (ATP) system, with positive train stop, prevents conflicting LRV movements at interlockings and crossovers.

2.3.8 Maintenance and Storage Area -The Vehicle Base Facility (VBF), located in Bloomfield, NJ, is the primary maintenance facility for the LRV fleet. The VBF site includes the LRV Maintenance Shop, the LRV Storage Building, an electrical substation, and three (3) Central Instrument Houses (CIHs). The LRV Maintenance Shop is a one story building with a mezzanine. The main shop contains four (4) tracks and all the necessary shop equipment and service pits to accomplish all maintenance and repairs of the LRV fleet, including a paint preparation/Car body repair area, a paint booth, an automated car wash, a car inspection/repair area, a heavy repair area with car lifts, a wheel truer, and a parts/supplies warehouse.

Since the major components are located on the roof of the LRVs, raised platforms have been installed to provide access to the roof. Additionally, an electric hoist, on a fixed guideway, has been installed to transport components from the LRV roof to the repair area. OCS isolation switches are

provided to control power to the individual shop tracks. Lock Out/Tag Out procedures are established to ensure employee safety when working near the high voltage catenary wires.

The Mezzanine contains employee areas such as locker rooms, break rooms, and restrooms, administrative offices, the Operations Control Center (OC), and support areas. The LRV Maintenance Shop meets the accessibility requirements of the Americans with Disabilities Act.

The LRV Storage Building provides weather protection for the fleet. This building has three tracks and is open at either end to allow the free movement of LRVs through the building. Peak service pull outs typically occur from the storage building. Additionally, off-peak interior cleaning and pre-trip inspections are performed in this area.

The electrical substation is sized to supply power for the yard catenary, yard lighting, and building requirements. *The safety and security features of the VBF include, but are not limited to, the following*:

- Automatic sprinkler systems are installed throughout the building.
- The LRV Storage Building is equipped with a dry sprinkler system.
- An automatic fire alarm system is installed in the building and substation.
- Emergency lighting is provided throughout the building and substation.
- Fire hydrants are provided throughout the site.
- Protective guards and shields are provided for all rotating machinery.
- CCTV surveillance of the VBF property and building storage areas.
- Warning signs, devices, and barriers are provided at all LRV maintenance areas.
- A Public Address system is provided for communicating emergency messages.
- Emergency trip stations are located at the ends of the Shop tracks and in the LRV Storage Building.

2.3.9 Light Rail Cars (LRV) - NLR uses a fleet of twenty-one (21) bi-directional LRVs for revenue service. Eleven LRVs consist of three sections and the remaining ten LRVs consist of five sections. The three section LRVs are 70% low floor double articulated vehicles approximately 90 feet in length, 9 feet wide, and 12 feet high. The LRVs are equipped with four doors on each side of the vehicle to allow passenger access/egress and one door on each side to the Operator's compartment. The LRVs can accommodate 68 seated passengers and a total of approximately 240 passengers under

crush load conditions. The vehicle has spaces for wheel chairs and is compliant with the accessibility provisions of the Americans with Disabilities Act (ADA).

The LRVs consists of three sections and three trucks. The outer trucks are equipped with traction motors and through axles while the center truck is not. The LRV may be operated individually or as multiple units consists. The vehicle may operate at speeds up to 50 MPH and is powered by 750 volts DC by means of a pantograph contacting the overhead catenary system. The vehicles are equipped with several braking systems. At higher speeds, the braking action is achieved by the dynamic brakes which use the resistance of the traction motors to slow the vehicle. The dynamic brakes are blended

with mechanical disc (friction) brakes as low speeds are reached until all braking is supplied by the disc brakes as the train comes to a full stop. In the event of an emergency requiring maximum braking effort, the dynamic and disc brakes are supplemented by the track brakes. The track brake (is magnetic iron core) can be magnetically applied to the running rail surface by the console push button.

At Newark Light Rail, ridership is always near capacity during peak hours resulting in full vehicles and a scarcity of seats. In 2017, NJT/NLR took the 'Best Value" approach to increase passenger capacity by retrofitting a portion of ten (10) LRVs with an additional two sections and a second trailer truck, making 3 section vehicles into 5-section vehicles. These ten 5-section vehicles would have 34 more seats and room for an additional 159 standees. This represents a 50% increase in the number of seats and an overall 40% increase in passenger carrying capacity. In addition, the extended vehicle would have the same braking rates as the existing 3 section vehicle as demonstrated during testing of the first extended vehicle. The acceleration rate would be lower, dropping from 1.34m/s^2 to 1.15 m/s^2 as demonstrated. Extending 10 vehicles at NLR would allow peak hour trains to provide additional seating capacity as well as the associated standing room. This addresses a perception of seat shortages at the NLR as well and helps ease the burden of full passenger loads during peak hours (Details of Five- Section Cars can be found in NLR ASP Revision 11 A- February 2017).

The safety and security features of the LRVs include, but are not limited to, the following:

- Fire extinguisher located in the Operator's compartments.
- Operator's compartments equipped with alarms & fire extinguishers.
- Doors interlock (NO-MOTION) system to prevent train movement when a door is open.
- Emergency intercom for passenger communication with the Operator.
- Passenger doors equipped with manual release mechanisms (exterior and interior) for emergency situations.
- Event recorders to document vital train functions, commands, and faults.
- Automatic Train Protection (ATP) system linked to the cab signaling.
- Closed Circuit Television in lieu of side view mirrors.

2.3.10 Special Purpose Vehicles – NLR utilizes several non-revenue rail vehicles to support the maintenance operation of the system. These vehicles include:

Line Car (5420) - This vehicle is used for catenary maintenance, inspection, and repair. Built in 1996, the diesel hydraulic drive car can be operated from the cab or by radio remote control.

The Line Car is equipped with hydraulic attachments for a variety of tools, a 110-volt AC alternator, a scissor lift with an insulated deck expandable to 30 feet in height, and a pull bar to tow a line cart with a drum of trolley wire and other materials.

Track Mobile (4500 TM) - This vehicle, built in 1986, is used to transfer LRVs through non-powered sections of the system. The diesel drive Track mobile can be moved over city streets or on the fixed guideway through the use of hi-rail equipment. The Track mobile is equipped with air over hydraulic disc brakes actuated on all four rail wheels.

Bucket Truck - This vehicle is used for catenary maintenance, inspection, and repair. Built in 2000, this is a standard diesel-powered truck equipped with high-rail pony wheels and an extendable articulated boom with a work platform on a turntable.

Tunnel Safety Features -The underground tunnel, built of concrete and steel, is approximately 1.7 miles in length starting at Penn Station, Newark proceeding to Warren Street, Newark. An 800' section of tunnel was added as part of the Broad Street alignment extension with the portal located at Center Street in Newark.

A dry standpipe system has been installed in the tunnel for use by the Fire Department for fire suppression activities. The standpipe system is not connected to a water source and must be supplied by fire apparatus. Six (6) Fire Department connections are strategically located to charge the standpipe system. Standard 2½" outlets are provided in the tunnel at approximately 300' intervals for Fire Department hose connections. The outlets are equipped with pressure reducers to provide safe operating pressure for Fire Department personnel.

The tunnel is equipped with a mechanical ventilation system designed to aid in fire and smoke control. The system has an environmental mode for routine ventilation. The system incorporates 115 bidirectional axial fans and 10 bi-directional jet fans to achieve optimal flexibility and air flow management. Critical system components are hardened to withstand high temperatures for a minimum of one hour. Materials for electrical conduits, raceways, ducts, equipment enclosures, and their surface finish materials can withstand elevated temperatures for a minimum of one hour and will not support or contribute to combustion.

Power for the ventilation system is provided from two separate and distinct utility sources fed from different power grids. The primary power source is from the Warren Street sub-station and a secondary feed from the Mulberry Street sub-station is totally isolated from the main system feeds to provide a reliable redundant power supply.

Thirty-three (33) of the axial fans have two-speed capability. These fans may be used for routine environmental ventilation as well as smoke control and extraction.

Fluorescent lighting is provided throughout the tunnel and station areas. Each light fixture contains two fluorescent tubes normally powered by the auxiliary AC power distribution system. One tube in each fixture is powered from a battery back-up for emergency lighting in the event of a power outage.

2.3.12 Right-Of-Way Safety Features – From Warren Street to the VBF, the track way is located either in depressed open-cut or at grade right of way. The entire mainline segment is fenced to deter access to the right of way and secure non-operating sections of the platforms, except where the line crosses city streets at grade. A locked gate is located in the vicinity of the Bloomfield Avenue Station for maintenance and emergency access.

The Broad Street Extension (BSE) is a mixed street-running segment where automobile traffic operates parallel to the guideway. The guideway is separated from the traffic lanes by a mountable granite curb 6" high. The extension alignment has fourteen grade and pedestrian crossings. These

intersections are protected by traffic control devices that are integrated with the train control system to give priority to the LRVs and to prevent conflicting signals and unsafe vehicular movement. Each intersection is marked in accordance with the provisions of the US Department of Transportation *Manual of Uniform Traffic Control Devices* and the NJ Department of Transportation diagnostic team recommendations.

The Vehicle Base Facility is completely fenced and has lockable gates to secure track access to the facility maintenance yards. Security officers monitor activities at the maintenance facility and provide an enhanced security presence at all times.

Overhead bridges have either fencing and steel panels or a combination of both to offer protection to the LRVs against thrown or discarded objects. The protection also serves as a barrier to deter intruders from coming into contact with the overhead contact wire or in some cases high-tension distribution cables.

Closed Circuit Television (CCTV) units are used to monitor activity on the station platforms. CCTV transmissions are monitored at the NJ TRANSIT Police Central Communications Center and the NLR Operations Control Center.

Each station platform edge is identified by a high-visibility safety line or with a tactile surface. Frequent automated public address announcements are made to remind customers of safety-related advisories. Additionally, warning signs and *No Trespassing* signs are located at the ends of each station platform and at pedestrian crossings to deter unauthorized access onto the right-of-way.

The safety and security features of the Stations, Right-of-Way and Tunnel include, but are not limited to, the following:

- An approved Agency Safety Program Plan and Safety Rules & Procedures Manual.
- Tunnel is equipped with a dry standpipe system and mechanical ventilation system.
- The Center Street tunnel portal is equipped with an enhanced CCTV system for Intrusion detection
- Station platforms are monitored by Closed Circuit Television (CCTV).
- Station platforms have tactile surface to warn visually impaired customers of platform edge.
- Right-of-Way is either grade separated or fenced to deter unauthorized access and vandalism.
- Stations and right-of-way regularly patrolled by NJT Police.
- Station platforms and critical right-of-way locations have posted *No Trespassing* signs.
- Penn Station - Newark and VBF are equipped with automatic fire detection, automatic fire suppression, and standpipe systems.
- The VBF has contracted Security Officer on-duty.

2.3.13 Fare Collection – NLR uses a Proof of Payment system to collect fares for passenger service. Customers are required to purchase tickets prior to boarding the LRV. Tickets may be purchased from Ticket Vending Machines (TVM) located at each station, or monthly passes by mail.

Other than monthly passes, all tickets must be validated before boarding the LRV. Validators are located at each station. Customers are required to present a validated ticket or monthly pass to NJT Fare Enforcement Officers (FEO) who routinely patrols the LRVs and the stations to ensure compliance with the fare policy. Customers without valid proof of payment are issued a summons and are subject to a fine.

Maintenance and repair of TVMs, as well as revenue collection is performed by vendors hired by NJ TRANSIT. All TVMs are equipped with intrusion and vibration alarms that sound an audible alarm when attempts of abuse or unauthorized entry into the equipment are detected. Additionally, TVMs are equipped with remotely monitored alarms and revenue/ticket stock status.

2.4 ORGANIZATIONAL STRUCTURE and ROLES and RESPONSIBILITIES

The NLR operates under the Light Rail and Contract Services Operations Division, an operating subsidiary of New Jersey Transit Corporation. In accordance with the organizational structure the related roles and responsibilities of the Accountable Executive and other related staff are detailed below:

New Jersey Transit's President and Chief Executive Officer, who is the Accountable Executive, has the following Authorities, Accountabilities, and Responsibilities under NJ Transit's Light Rail operations and SMS plan. These include but not limited to: (i) ensuring the establishment and implementation of NJ Transit's Light Rail Operations ASP, (ii) ensuring control and direction of resources needed to develop and maintain both the NJ Transit's Light Rail operations ASP, in accordance with 49 USC 5329 (d), and the Transit Asset Management (TAM) Plan in accordance with 49 U.S.C. 5326, (iii) designate a Chief Safety Officer in accordance with 49 CFR 673.23(d)(2), (iv) ensure that NJ Transit's Light Rail Operations' SMS is effectively implemented, (v) ensuring action is taken to address substandard performance in NJ Transit's Light Rail operations SMS and Safety Performance.

The Chief Safety Officer of New Jersey Transit's Office of System Safety/SMS Executive, Deputy Chief, Office of System Safety and staff of Office of System Safety (OSS) monitors the safety performance of New Jersey Transit Light Rail Systems through evaluating safety data from accident/injury occurrences, unacceptable hazardous conditions, threats and rules/ procedure violations. The data is obtained from each agency's' Operations and other reporting mechanisms. OSS performs audits and inspections and participates in Safety Certification, safety meetings, etc. The Chief Safety Officer who leads the NJ TRANSIT's Office of System Safety reports directly to NJ TRANSIT's President and CEO (Accountable Executive). The Chief Safety Officer is adequately trained and does not serve in any other NLR's operational or maintenance activities. The Chief Safety Officer has the authority and responsibility for day-to-day implementation and operation of NLR's SMS program.

Chief, Light Rail and Contract Services provides safety oversight of Newark Light Rail's (NLR's) Operations and Maintenance activities and supports NLR in achieving its SMS objectives and reviews: (i) NLR's safety and SMS policies, procedures, and requirements that integrate SMS into NLR's decision-making process and its operations, and (ii) NLR's SMS Principles, and evaluates and verifies the operational readiness of new systems, monitors safety implications of proposed system modifications prior to implementation. Chief, Light Rail and Contract Services directly interacts with the Office of System Safety in NLR's safety performance monitoring to determine trends and implement corrective actions, and (iii) ensure action is taken to address substandard performance in NLR's SMS and Safety Performance.

The General Manager, Light Rail Operations reports to the Chief, Light Rail and Contract Services and is responsible for the overall operation, maintenance, expansion, and development of both the purchased (Hudson-Bergen Light Rail Transit System in Jersey City, NJ and River LINE Transit System in Camden, NJ) and directly operated (Newark Light Rail in Bloomfield, NJ) NJ TRANSIT's Light Rail systems.

The General Superintendent, Newark Light Rail Operations, reports to the General Manager, Light Rail Operations and is responsible for the overall management, operation and maintenance of the NLR system.

The NLR Superintendent - Mechanical reports to the General Superintendent of NLR Operations and is responsible for the administration of the maintenance and operation of the LRV and non-revenue fleet.

The NLR Superintendent - LRT System Engineering and M-O-W reports to the General Superintendent, NLR Operations and is responsible for the administration of the maintenance of the train control signal system, the electric traction substations, passenger stations, the right-of-way, VBF and the overhead catenary system.

The Superintendent – Transportation reports to the General Superintendent NLR Operations and is responsible for managing daily revenue operations of the Light Rail System and the performance of Operations Control Center and monitoring/maintaining the remote function of the Electric Traction Power/SCADA and Train Control systems. The Superintendent – Transportation is also responsible for accident investigation and report preparation, accident reporting and resolution, for safety of patrons, public, and employees, safety of operating department employees.

Manager of Training reports to the General Manager, Light Rail Operations and interacts with the NLR General Superintendent and NLR operating staff. The Manager of Training participates in accident investigation and accident report preparation, accident reporting and resolution of open items and oversees on a day-to-day basis safety of patrons, public, and employees, safety of operating department employees, and provides safety training for operational and maintenance employees and contractors of the rail operations and maintenance unit. As a member of the TIGER team, Manager of Training also participates in accident investigation, reporting and resolution. The Manager of Training also participates as the Chairman of the Safety Review Committee and has NLR safety oversight responsibilities on a day-to-day basis.

Manager- Procurement, Budget and Material reports to the General Manager, Light Rail Operations and interacts with the NLR General Superintendent and is responsible for procurement of equipment and materials for operations and maintenance. Equipment/Materials are purchased directly from vendors through the solicitation of quotes or with the P-Card. Activities include: controlling all electronic requisitions generated for NLR and checking the status and integrity of received equipment and materials. Manages CPAS activities related to capital budget task generated and funded. Manages all shipping and receiving of materials for both Domestic and International shipments.

The Operations Central Control (OC) Controllers monitor and control on-track movements on the system. Controllers typical duties include but are not limited to: routing on-track movements, maintaining communications with LRVs and on-track personnel, monitoring system components via SCADA, adjusting LRV movements to maintain established headways, coordinating emergency notifications and providing information and instructions to mitigate unusual occurrences.

Depot Masters report to the Assistant Superintendent (Transportation) and are responsible for the assignment of work for LRV Operators, payroll administration, incident and injury reporting, and LRV Operator fitness for duty audits.

Manager of Safety reports to the General Manager, Light Rail Operations and is responsible for day-to-day administration, oversight and implementation of NLR's safety program. The Manager of Safety is responsible for accident investigation, resolution and reporting and accident report preparation and resolution. Responsible for safety of patrons, public, and employees, safety of operating staff and provides safety training for operational and maintenance employees and for contractors of rail operations and maintenance. The Safety Manager inspects facilities and reports defective conditions and hazards/risks to the General Manager. The Safety Manager provides assistance in coordinating training for responders and in conducting Emergency Response Exercises. Provides assistance in NJ Transit safety training programs, such as Blue Signal, Haz Com / Right-to-Know, Bloodborne Pathogens, Hearing Conservation, etc. and coordinates Respirator Fit Testing.

The Director, Quality Assurance and Quality Control Programs and Interim Director, System Safety, reports to the Chief, Light Rail and Contract Services, and is responsible for the administration, oversight and implementation of Newark Light Rail's Quality Assurance and Quality Control related activities and programs, regularly interacts with the NLR staff (General Manager, Manager of Safety, Manager of Training, Superintendents, Operations Control Center, etc.). Additionally, provides Quality Assurance and Quality Control oversight of NJ TRANSIT's Hudson-Bergen Light Rail Transit System and River LINE Transit System, also provides System Safety oversight of Newark Light Rail and NJ TRANSIT's purchased Light Rail Transit systems ((Hudson-Bergen Light Rail Transit System in Jersey City, NJ and River LINE Transit System in Camden, NJ) on an as needed basis. The Director, Quality Assurance and Quality Control Programs also communicates (on an as need basis) with NTSB, FTA and the State Safety Oversight Offices for SMS related matters

The Track Department is responsible for the maintenance and inspection of the track. Track maintenance typical duties include, but are not limited to: renewing switches, replacing bolts, greasing guard rail, renewing ties, renewing rail, gauging, surfacing, renewing ballasts, and snow removal. The track inspection includes visual inspection of track. Track is inspected weekly and the switches monthly. A report on track condition is recorded on NLR Track Inspection report and kept in the Foreman's office. The track department also provides flagging services for contractors working on the Newark Light Rail.

The Line Department is responsible for the maintenance of all electrical systems on the Newark Light Rail, DC switchgear, signal system and lighting system. Maintenance of the OCS includes replacement of contact wire, span wires, section insulators, trolley frogs, trolley feeders and tap switches. It also includes the periodic inspection and recording of the condition of the contact trolley wire. The condition of the contact trolley wire is recorded on a NLR Trolley Wire Inspection Report and kept in the Foreman's office. Maintenance of the DC switch gear includes cleaning and lubricating trolley feeder disconnect switch gear located in the DC switch rooms at Penn Station, Broad, Washington, High, Warren and Norfolk as well as pole mounted switch gear at Dickerson Street, Park Avenue, Bloomfield Avenue and Heller Parkway.

The NLR Shop performs the inspection and maintenance of the LRVs and support vehicles. The daily inspection of the LRVs includes, but is not limited to: car cleanliness, functioning of doors and windows, level of sand in the sand boxes, position of track brakes, LRV cab signal equipment, and the LRV communication devices. Programmed inspections are conducted on each LRV at daily, 30, 60, 90, 180, 360-day intervals in accordance with the NLR *Maintenance Standard Operating*

Procedure and the manufacturer's recommendations. The Office of the Superintendent, Mechanical, maintains a record of all inspections.

All NLR stations are serviced by Light Rail cleaning staff daily. In addition to daily cleaning, which consists primarily of sweeping and servicing trash containers, campaigns, such as graffiti removal, vandalism reduction and vegetation control, are conducted on an ongoing basis. Station platforms, stairs, street level sidewalks, and lighting are all checked during monthly audits and repaired in-house or by contract as appropriate.

NLR Operations & Maintenance supervision offices are located at the Vehicle Base Facility (VBF) in Bloomfield, NJ. All operations of the NLR system are monitored and controlled from these offices. Administrative functions, such as maintenance of personnel files, assignment of work, payroll, vacation scheduling, uniform inspections, union matters, etc., are performed by the NLR supervision staff.

Operators assigned to work at the NLR report to the VBF in Bloomfield where an Operator day room is located. Facilities for the Operators use (e.g. bathrooms) are also available at Branch Brook Park Station, Broad Street and Penn Station - Newark.

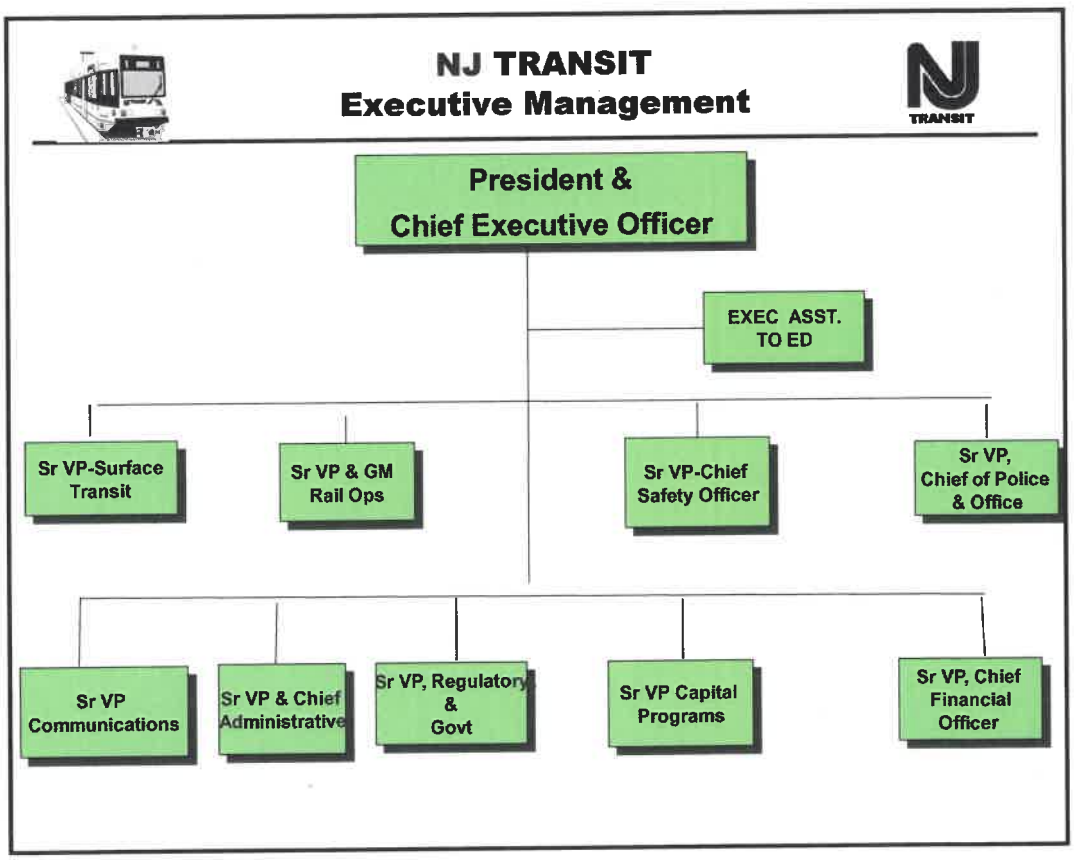
Newark Light Rail uses support from both NJ TRANSIT Bus and Rail Operations to efficiently manage the light rail system. Key interfaces and support groups include, but are not limited to: Operational Training, Maintenance Training, Facility Maintenance, Engineering Development & Construction, Safety, Service Supervision, Human Resources, Risk Management, Environmental Services, Medical Services, Passenger Communications, Planning, and Procurement. NJ TRANSIT Police Department provides security support services, which are outlined in the security element of the agency safety program plan.

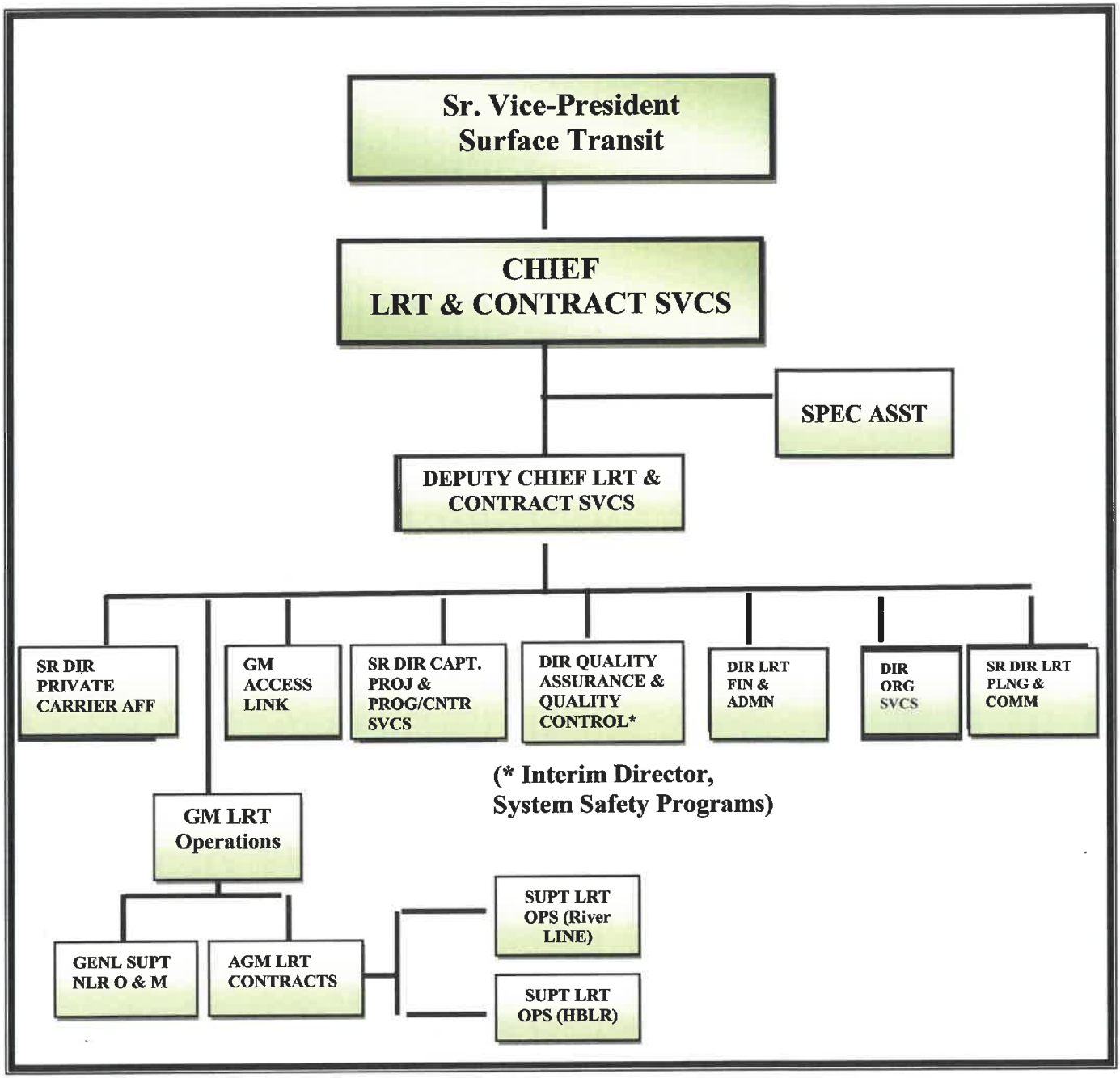
2.4.1 Management Structure

NLR ASP (Organizational Charts 1, 2, and 3) describes the lines of authority and responsibility for operations, maintenance, and engineering as they relate to safety. Detailed organizational diagrams with a title to each position, organizational charts showing the relationship and lines of communication between the system safety unit and other departments are presented.

The following charts illustrate the organizational structure of the NJ TRANSIT Executive Management Team and the Newark Light Rail Staff.

ORGANIZATIONAL CHART No. 1

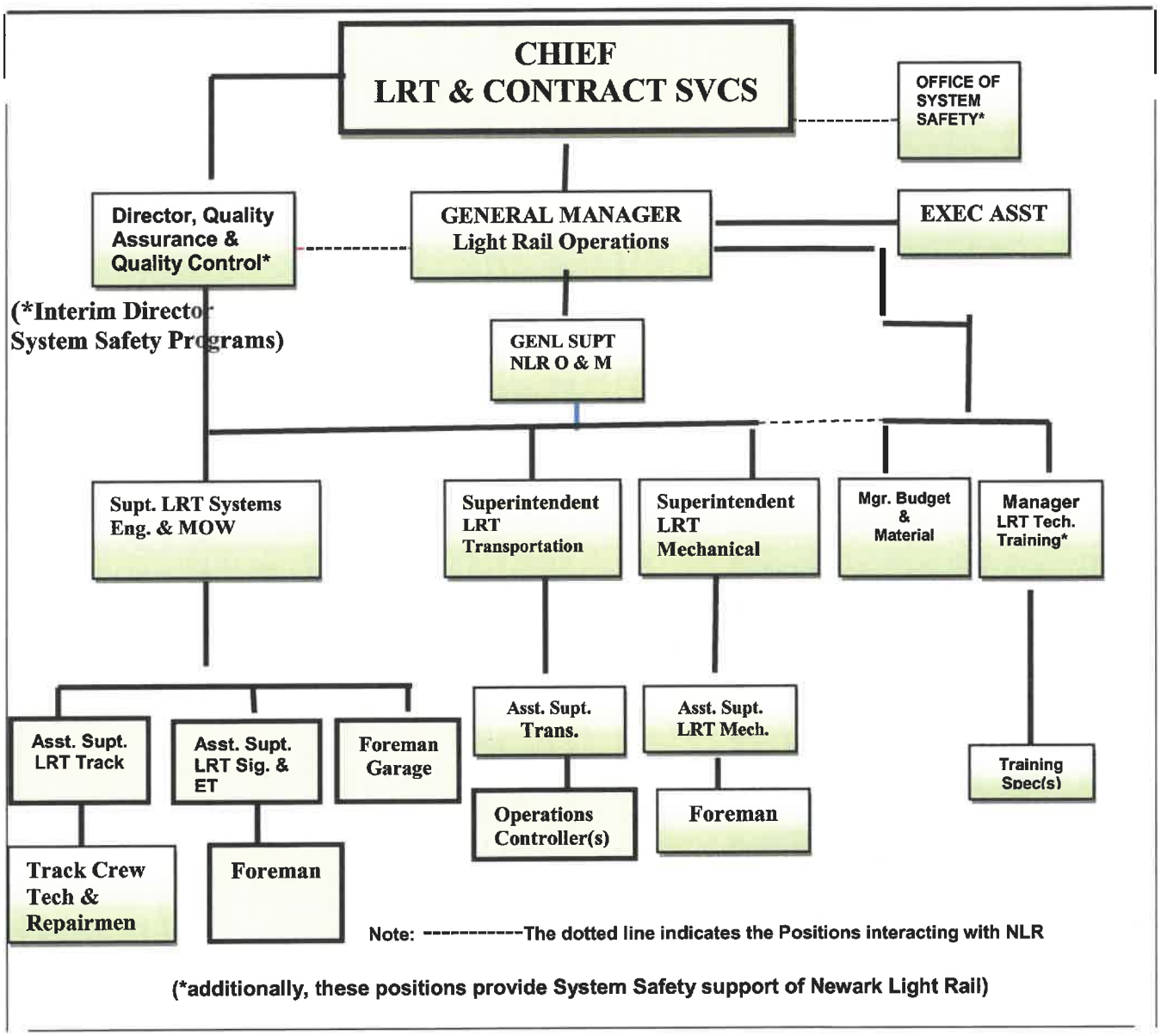




ORGANIZATIONAL CHART No 2

NJT-LIGHT RAIL & CONTRACT SERVICES MANAGEMENT ORGANIZATION

(* Note: NJT-LR&CS Director of Quality Assurance and Quality Control also has System Safety Oversight Responsibility of Newark Light Rail)



NEWARK LIGHT RAIL
MANAGEMENT ORGANIZATION

ORGANIZATIONAL CHART No 3

3.0 SAFETY DEPARTMENT ACTIVITIES

3.1 NLR SAFETY TASKS/RESPONSIBILITIES

Safety is a critical performance measurement factor incorporated into the annual individual non-agreement employee performance appraisals throughout NJ TRANSIT Light Rail Operations. Additionally, department goals and objectives include performance based safety and security goals.

The NJ TRANSIT Light Rail Operations develops, implements and maintains the safety functions of the NLR-Agency Safety Program Plan for NJ TRANSIT. The Safety Department (from the Office of System Safety) provides oversight and coordinates the efforts of the Newark Light Rail to improve overall safety for customers and employees. NLR Safety staff ((Interim Safety Director) and Office of System Safety are responsible for initiating safety activities, disseminating statistics, and developing/introducing safety-related programs.

The Superintendent-Transportation reports to the General Superintendent and is responsible for accident investigation and report preparation, accident reporting and resolution, for safety of patrons, public, and employees and safety of operating department employees. Manager, LRT Training is responsible for training operational employees and contractors of the rail operations and maintenance unit. The Superintendent(s) and Assistant Superintendents participate in the Safety Review Committee.

The NJ TRANSIT Interim Director, System Safety reports to the Chief, Light Rail and Contract Services and coordinates with the NJ Department of Transportation (NJDOT) on matters related to the State of New Jersey Fixed Guideway System - Safety Oversight Program (NJAC 16:53E) and FTA for matters related to 49 CFR 659 Rail Fixed Guideway Systems-State Safety Oversight, Final Rule and FTA's State Safety Oversight and Public Transportation Safety Plan Final Rules: 49 CFR Part(s) 674 and 673.

The organizational responsibilities for preparing, initiating, supporting and/or reviewing and commenting for each task or activity of the NLR ASP are depicted in the *NLR Safety Implementation Task/Responsibility Matrix* (Exhibit 1), under **Safety Management Policy (Section 4.1).**

3.2 NLR AGENCY SAFETY PLAN MANAGEMENT and IMPLEMANTATION

The NJ TRANSIT-NLR's Interim Director, System Safety coordinates the development, implementation, and maintenance of the NLR –Agency Safety Program Plan.

The Agency Safety Plan is reviewed and updated annually (at a minimum) or as required by the Interim Director, System Safety to maintain a consistently high level of safety and accuracy. Activities which might cause a revision to the NLR ASP includes, but are not limited to: regulatory changes, modification to system components, new/extended service, or operational/organizational changes. All NLR ASP revisions/modifications, including time frames for submitting revisions to NJDOT-OSSO is coordinated with the NJDOT-OSSO.

Revisions to the NLR ASP conform to the NLR Configuration Management process. All revisions to the NLR ASP are issued the designated individuals or departments. Changes to the NLR ASP will be on a "page for page" basis. In the event of significant changes or updates to the NLR ASP, a complete revised copy will be issued to the appropriate departments. All conformed copies of the NJ

TRANSIT NLR ASP are numbered and assigned to an individual person or department.

The NLR ASP describes the specific activities that are required to be performed by NLR. It describes the tasks to be prepared by NLR's Safety and NLR's management accountability; safety–related tasks that are performed by other departments (e.g., NJT Police, Office of System Safety, Engineering, Purchasing, Human Resources, etc.) to implement system wide safety.

Exhibit 1 presents a matrix of system safety activities and responsibilities. The exhibit lists the safety-related tasks to be performed by various divisions within NJ Transit. Detailed matrix of system safety activities and responsibilities is included in Exhibit 1.

3.2.1 NLR SYSTEM SAFETY COMMITTEES

NLR has established system safety committees to facilitate distribution of information and the proper resolution of safety issues that affect NLR's operation and maintenance. The Safety Review Committee (SRC) is chaired by the Manager, LRT Training (who is also the Interim Safety Officer, has additional NLR System Safety Responsibilities). System Safety committee is the primary committee and it is supported by the Fire/Life Safety Committee (F/LSC), Safety Certification and Commissioning Review Committee (SCCRC), Change Control Board (CCB), etc. The Interim Director, System Safety and the senior NLR staff attend these meetings and participate in these committees. NJDOT-OSSO and the Office of System Safety staff are invited to these meetings, receive meeting agenda, minutes and supplemental documentation for these meetings.

The scope and responsibilities of these committees are presented in the following sections. Unresolved and open issues that result from these supporting committees are forwarded to the Safety Review Committee for resolution.

3.2.1.1 Safety Review Committee (SRC)

The Safety Review Committee oversees the conduct of Safety for NLR Operations and Maintenance and is responsible for:

- Reviewing documentation (evidence of conformance to safety requirement), assigning responsibilities for open issues and approvals of certification documentation, conducting site visits, and defining safety -related tests and analyses, as required.
- Determining whether to accept specific conditions or require corrective action(s), including determining the specific methods to mitigate the conditions of hazards or potential hazards.
- Providing recommendations to the General Manager, Light Rail Operations regarding certification and noncompliance of system elements.

The SRC consists of the following ex-officio members:

- General Manager, Light Rail Operations
- Superintendent – M-O-W
- Superintendent-M-O-E
- Superintendent-Transportation
- Interim Director, NLR System Safety (Director, Quality Assurance Programs)
- Manager, Light Rail Training (who is also the Interim Safety Officer), (Chair Person)

- Office of System Safety
- Others as required.

NJDOT-OSSO is notified of these meetings is provided with the meeting agenda, minutes and supplemental documentation for these meetings.

Safety Review Committee is chaired by Manager, Light Rail Training (who is also the Interim Safety Officer), or his designee has System Safety responsibilities.

3.2.1.2 Safety Certification and Commissioning Review Committee (SCCRC)

SCCRC is responsible for overseeing the NLR activities that includes Systems Integration, Start-up, Railway Activation, Safety Certification, and Operation Demonstration. SCCRC activities include:

Planning and coordinating operational training,

Simulating revenue service conditions, and

Pre-revenue plans, rules and procedures for revenue service
Additionally, the SCCRC may identify changes to the NLR ASP and reviews procedures, manuals and other documents pertaining to proposed system modifications.

SCCRC is comprised of the SRC Members discussed in Section 3.2.11.

3.2.1.3 Fire/Life Safety, Emergency Responders Training (F/LSC)

The purpose of the Fire/Life Safety Committee (F/LSC) is to serve as a liaison between NJTPD, NLR and fire jurisdictions and emergency response agencies during operations. The F/LSC is comprised of local and state fire jurisdictions, local emergency response agencies, NJTPD, and NLR Operations and Safety. NLR provides training and system orientation to NJTPD, fire jurisdictions and emergency response agencies on an as required basis.

The Committee is coordinated by NJTPD. It meets on an as required basis by NJTPD (example: prior to and after drills and exercises, to review proposed design changes that may affect fire/life safety, to debrief major incidents which involve emergency response agencies, and to plan emergency response drills and exercises and provide input to after action reports). The Committee recommends revisions (if required) to NJTPD's emergency preparedness plans, policies, and procedures; operating procedures which affect emergency response; changes to training plans and training programs pertaining to emergency response and personnel; and fire/life safety design changes to the SCCRC.

All emergency response drills and exercises that affect NLR's fire and life safety are coordinated by NJ Transit Police Department. NLR coordinates with NJTPD for emergency response drills (one each per light rail locations annually and one related table top exercise at each light rail location annually). This practice represents at least two associated fire and life safety practice events at each of the three light rail operations.

3.2.1.4 Change Control Board (CCB)

The Change Control Board (CCB) reviews, evaluates and manages the changes proposed to the NLR baseline configuration and related NLR baseline operation. The CCB will make

recommendations for the disposition of proposed changes. The CCB is comprised of the SRC Members discussed in Section 3.2.1.1.

The General Manager or his designee has overall responsibility for the Rail Operations Configuration Management process and for chairing the NLR Change Control Board (CCB).

Other organizations such as: Project Administration, Contracts, Procurement, Project Controls support as required. This will apply if the proposed 'configuration change':

- Results in a change, or a likely change to the Global Risk Profile of NLR Operations. In this case, the Safety Review Committee must review and concur, or
- Causes a change to the Directives or Mandatory Criteria governing operations. In this case, Corporate NJ Transit may review and concur.

4.0 SYSTEM SAFETY PROGRAM ACTIVITIES
SAFETY MANAGEMENT SYSTEM (SMS) IMPLEMENTATION

SAFETY MANAGEMENT SYSTEMS (SMS) AND SAFETY CULTURE* (*details of SMS and Safety Culture can be found in http: fta.dot.gov; also, please ref. to TRACS Report: 12-02 Public Transit Agency Safety Plans-November 30, 2013)

SMS Summary- SMS is about strategically applying resources to effectively managing risk. It is based on ensuring that a transit agency has the necessary organizational infrastructure in place to support **decision-making** at all levels regarding the assignment of **resources.** This is essential to effectively **manage safety risks** during the delivery of service. The elements of an organizational infrastructure include: Defined roles and responsibilities, Strong executive safety leadership, formal safety accountabilities and communication, effective policies and procedures and active employee involvement.

An SMS is a system to assure the safe operation of transit systems through effective management of safety risk. SMS is designed to continuously improve safety by identifying hazards, collecting and analyzing data and continuously assessing safety risks. The SMS seeks to proactively contain or mitigate risks before they result in accidents and incidents. It is a system that is commensurate with the New Jersey Transit's State and Federal regulatory obligations and safety goals.

SMS is necessary for NLR's organization to identify hazards and manage safety risks encountered during the services. An SMS includes key elements that are essential for hazard identification and safety risk management by ensuring that:

a) Necessary information is available;
b) Appropriate tools are available for the organization's use;
c) Tools are appropriate to the task;
d) Tools are commensurate with the needs and constraints of the organization; and
e) Decisions are made based on full consideration of the safety risk.

SMS Components- *SMS is comprised of four components:*

- **Safety Policy *(and Objectives)*** – safety commitment and accountability, safety roles and responsibilities, Safety resource allocation to support safety performance targets (Component: 4.1). *Safety Policies (and Objectives) creates the frame of reference for the SMS.*

- **Safety Risk Management** – safety hazard identification, safety risk-based analysis and implementation of safety risk controls (Component: 4.2). *The objective of the Safety Risk management is to identify hazards, assess the related risks and develop appropriate mitigations in the context of the NLR's transportation services.*

- **Safety Assurance** – monitoring of safety risk controls to ensure they are achieving their intended objective while assessing the need for new risk control strategies (Component: 4.3). *Safety Assurance* (Component: 4.3) *is accomplished through ongoing processes that monitor compliance with State and Federal Standards and Regulations. Furthermore, the Safety Assurance process provides confidence that the SMS is operating as designed and is effective.*

- **Safety Promotion** – achieving the safety mission through clear safety communication channels and safety training programs (Component: 4.4). *Safety Promotion* (Component: 4.4) *provides the necessary awareness and training. NLR Quality Management System will monitor Risk Controls, Compliance with Policies, Objectives, Standards, Procedures and Regulations.*

4.1 SAFETY MANAGEMENT POLICY

4.1.1 Safety Management Policy, Goals and Objectives

Safety Management Policy, Goals and Objectives component outlines the principles, processes and methods of NLR organization's SMS to achieve the desired safety outcomes. The policy establishes senior management's and NLR's commitments, objectives, accountabilities and responsibilities to continually improve safety in all aspects of its activities. Senior management develops measureable and attainable organization-wide safety objectives to be achieved.

NLR's Safety Policy, Goals and Objectives component establishes the required organizational structure, roles and responsibilities, ensures safety is addressed with the same priority as other critical organizational functions, provide direction for effective: Safety Risk Management, Safety Assurance and Safety Promotion. NLR's Safety Policy helps to ensure that sufficient resources are provided to achieve safety goals and objectives.

The NLR ASP elements that address SMS Component 1, Safety Policy, Goals and Objectives are:

- Safety Management Policy Statement, Authority, Goals and Objectives, and
- Safety Accountabilities and Responsibilities.

4.1.1 a. Safety Management Policy Statement, Authority, Goals and Objectives

This sub-component of Safety Policy and Goals and Objectives provides the frame work for NLR's SMS. It shows NJT's/NLR's' top management's commitment to the SMS and places the management of safety at the same level as NLR's business processes. FTA indicates that this policy statement includes the non-punitive safety reporting system. All NLR employees have an obligation to report hazards, and near miss occurrences to NLR department management.

ASP Element 1: Policy Statement and Authority for ASP

ASP Element 2: Goals and Objectives

NO.	*ASP ELEMENT*	*CONTENTS*
1	***Policy Statement and Authority for ASP***	***A policy statement signed by the agency's chief executive that endorses the safety program and describes the authority that establishes the ASP.***
2	***Goals and Objectives***	***A clear definition of the goals and objectives for the rail transit agency safety program and stated management responsibilities to ensure that they are achieved.***

4.1.1 b. Safety Accountabilities and Responsibilities

This sub-component defines the accountabilities and responsibilities for the performance of the SMS. It describes the relationships between the NJT's/NLR's' top management's and NLR's operating structure. NLR organization provides for an adequately trained safety officer who reports directly to the General Manager, Light Rail Operations.

Task numbers in the left-hand column of the *Safety Implementation Task/Responsibility Matrix* (Exhibit 1) correspond with the System Safety tasks discussed in the NLR SMS PLAN.

P - Primary Responsibility for the Task - The identified participant is responsible for the conduct of the task and the preparation of the necessary documentation.

S - Secondary or support responsibility for the Task- The identified participant is to provide such support as may be necessary in the accomplishment and documentation of the task effort.

RC - Review and Comment Responsibility for the Task - The identified participants are required to review and provide comment on the task or requirement.

A - Approval Responsibility -The identified participant is required to review, comment and subsequently approve the task or requirement.

AS - As Required - Review and Comment responsibility.

K - Knowledgeable- All responsible parties maintain knowledge and skills as required.

Safety Implementation Task/Responsibility Matrix (Exhibit 1)

ACTIVITY NUMBERS	TASK/ACTIVITY	CHIEF, LRT & CONTRACTS	NJDOT - OSSO	SYSTEM SAFETY	ENGINEERING	QUALITY MGMT. SYSTEMS	LRT OPERATIONS	NLR MAINTENANCE	SAFETY & TRAINING	OFFICE Of SYSTEM SAFETY
	EXECUTIVE POLICY STATEMENT ON PUBLIC AGENCY SAFETY PROGRAM PLAN	RC	RC	P	S	S	S	S	S	AR
1.0	INTRODUCTION	A	RC	P	S	S	S	S	S	AR
1.1	AUTHORITY	RC	RC	P	S	S	S	S	S	AR
1.2	GOALS	RC	RC	P	S	S	S	S	S	AR
1.3	OBJECTIVES	RC	RC	P	S	S	S	S	S	AR
1.4	PURPOSE	RC	RC	P	S	S	S	S	S	AR
1.5	SCOPE	RC	RC	P	S	S	S	S	S	AR
1.6	POLICIES	RC	RC	P	S	S	S	S	S	AR
1.7	NLR ASPUPDATE PROCEDURES	RC	RC	P	P	P	P	P	P	AR
1.8	COORDINATION, COMMUNICATION, DOCUMENT SUBMISSION TO THE OSSO	RC	RC	P	S	S	S	S	S	AR
1.9	SAFETY MANAGEMENT SYSTEMS AND SAFETY CULTURE	A	RC	P	P	P	P	P	P	AR
2.0	SYSTEM DESCRIPTION – NEWARK LIGHT RAIL	A	A	P	P	P	P	P	P	AR
2.1	HISTORY	RC	RC	P	S	S	S	S	S	AR
2.2	SCOPE OF SERVICE	A	A	P	S	S	S	S	S	AR
2.3	SYSTEM COMPONENTS	A	A	P	P	P	P	P	P	AR
2.4	NLR MAINTENANCE AUDITS and INSPECTIONS	RC	RC	P	P	P	P	P	P	AR
2.5	ORGANIZATIONAL STRUCTURE	RC	RC	P	S	S	S	S	S	AR
3.0	SAFETY DEPARTMENT ACTIVITIES	RC	RC	P	S	S	S	S	P	AR

P: Primary Responsibility for the Task
S: Secondary or Support Responsibility for the Task
RC: Review and Comment Responsibility for the Task
A: Approval
AR: As Required
K: Knowledgeable- All responsible parties maintain knowledge and skills as required.

Safety Implementation Task/Responsibility Matrix (Exhibit 1)—(Continued)

ACTIVITY NUMBERS	TASK/ACTIVITY	CHIEF, LRT & CONTRACTS	NJDOT OSSO	SYSTEM SAFETY	ENGINEERING	QUALITY MGMT. SYSTEMS	LRT OPERATIONS	NLR MAINTENANCE	SAFETY & TRAINING	OFFICE of SYSTEM SAFETY
3.1	SAFETY TASKS / RESPONSIBILITIES	RC	RC	P	P	P	P	P	P	AR
3.2	SYSTEM SAFETY PROG. PLAN MANAGEMENT and IMPLEMENTATION	RC	RC	P	P	S	P	P	P	AR
4.0	SYSTEM SAFETY PROGRAM ACTIVITIES	RC	RC	P	P	S	P	P	P	AR
4.1	HAZARD MANAGEMENT PROCESS	RC	RC	P	RC	RC	RC	RC	P	AR
4.2	HAZARD IDENTIFICATION	A	A	P	RC	RC	RC	RC	P	AR
4.3	HAZARD CLASSIFICATION, TRACKING and RESOLUTION	RC	RC	P	RC	RC	RC	RC	P	AR
4.4	SAFETY DATA ACQUISITION	A	A	P	P	P	P	P	P	AR
4.5	ACCIDENT/INCIDENT and HAZARDOUS CONDITIONS-	A	A	P	P	P	P	P	P	AR
4.6	NOTIFICATION, INVESTIGATION and OCCURRENCE REPORTING	A	A	P	P	P	P	P	RC	AR
4.7	SAFETY AUDITS AND INSPECTIONS	A	A	P	P	P	P	P	P	AR
4.8	NLR FACILITIES and EQUIPMENT INSPECTIONS	A	A	P	P	P	P	P	P	AR
4.9	EMPLOYEE SAFETY TRAINING	RC	RC	P	RC	RC	RC	RC	P	AR

P: Primary Responsibility for the Task
S: Secondary or Support Responsibility for the Task
A: Approval
AS: AR Required
RC: Review and Comment Responsibility for the Task
K: Knowledgeable- All responsible parties maintain knowledge and skills as required

Safety Implementation Task/Responsibility Matrix (Exhibit 1) - (Continued)

ACTIVITY NUMBERS	TASK/ACTIVITY	CHIEF, LRT & CONTRACTS	NJDOT OSSO	SYSTEM SAFETY	ENGINEERING	QUALITY MGMT. SYSTEMS	LRT OPERATIONS	NLR MAINTENANCE	SAFETY & TRAINING	OFFICE Of SYSTEM SAFETY
4.10	NLR SYSTEM MODIFICATION	RC	RC	P	P	RC	P	S	RC	AR
4.11	NLR CONFIGURATION MANAGEMENT	RC	RC	P	P	P	P	P	RC	AR
4.12	NLR SAFETY CERTIFICATION	RC	RC	P	P	RC	P	S	RC	AR
4.13										
4.14	QUALITY MGMT. SYSTEM	RC	RC	S	RC	P	P	P	RC	AR
4.15	EMERGENCY PREPAREDNESS	RC	RC	S	RC	RC	P	P	RC	AR
4.16	PUBLIC SAFETY AWARENESS	RC	RC	S	RC	RC	P	P	RC	AR
5.0	RULES COMPLIANCE /PROCEDURES REVIEW and TRAINING	RC	RC	P	RC	RC	S	S	RC	AR
5.1	OPERATIONS DEPARTMENT TRAINING	RC	RC	P	RC	RC	P	P	RC	AR
5.2	SAFETY RULES/PROCEDURES	RC	RC	S	RC	P	S	P	S	AR
5.3	MAINTENANCE TRAINING	RC	RC	S	RC	P	S	P	S	AR
5.4	CONTRACTOR SAFETY TRAINING AND COORDINATION	RC	RC	P	RC	S	S	S	S	AR

P: Primary Responsibility for the Task
S: Secondary or Support Responsibility for the Task
RC: Review and Comment Responsibility for the Task
A: Approval
AR: As Required
K: Knowledgeable- All responsible parties maintain knowledge and skills as required

Safety Implementation Task/Responsibility Matrix (Exhibit 1)- (Continued)

ACTIVITY NUMBERS	TASK/ACTIVITY	CHIEF, LRT & CONTRACTS	NJDOT OSSO	SYSTEM SAFETY	ENGINEERING	QUALITY MGMT. SYSTEMS	LRT OPERATIONS	NLR MAINTENANCE	SAFETY & TRAINING	OFFICE Of SYSTEM SAFETY
5.5	EFFICIENCY CHECKS/TESTS	RC	RC	P	RC	P	P	P	P	AS
5.6	DRUG/ALCOHOL ABSUSE PROGRAM	RC	RC	RC	RC	RC	RC	RC	RC	AS
5.7	HAZARDOUS MATERIALS MGMT.	RC	RC	P	RC	RC	RC	RC	P	AS
6.0	INTERDEPARTMENTAL COORDINATION AND COMMUNICATION	RC	RC	P	RC	S	S	S	S	AS
6.1	NJ TRANSIT INTERDEPARTMENTAL COORDINATION AND COMMUNICATION	A	A	P	RC	RC	RC	RC	RC	AS
6.2	REGULATORY INTERAGENCY COORDINATION AND COMMUNICATION	A	A	P	RC	RC	S	S	RC	AS
6.3	EMERGENCY RESPONSE AGENCIES- COORDINATION AND COMMUNICATION	A	RC	P	RC	RC	RC	RC	RC	AS
7.0	SECURITY PROGRAM TASKS	RC	RC	P	S	S	S	S	S	AS
7.1	GENERAL (SECURITY)	RC	RC	P	S	S	S	S	S	AS

P: Primary Responsibility for the Task
S: Secondary or Support Responsibility for the Task
RC: Review and Comment Responsibility for the Task
A: Approval
AS: As Required
K: Knowledgeable- All responsible parties maintain knowledge and skills as required

4.1.2 & 4.1.3 Policy Statement and Authority for ASP and Goals and Objectives (ASP 1&2)

The higher levels of NJT/NLR management have set forth its policy embracing safety at Newark Light Rail. New Jersey Transit's President-and CEO, the Board of Directors, Chief, Office of System Safety, Chief, Light Rail and Contract Services, Chief, Newark Light Rail, and Interim Director, NLR System Safety have signed off on the policy statement and circulation of the statement to NLR organization.

As part of this section, NJT/NLR top management provides direction to NLR for the development of a ASP that encompasses the safety policy statement in all facets of its operations.

- ASP Element1; Policy Statement and Authority

  NLR Policy Statement is provided at the beginning of this safety plan and the Authority for NLR ASP is provided in Section 1.1

- ASP Element 2: Goals and Objectives

  NLR's Goals and Objectives are provided in the following Sections of the NLR ASP:

  - Section-1.2: Goals
  - Section-1.3: Objectives
  - Section-1.4: Purpose, and
  - Section-1.5: Scope

Section 1.4 describes how the Agency Safety Plan (ASP) fulfills the directives of the Policy Statement. It describes the intent of the ASP emphasizing that the development of the Agency Safety Program complies with policy directives and integrates safety with all aspects of NLR's safety functions. This section summarizes how the safety plan establishes the safety philosophy of the NLR and the means for implementing its philosophy during operations. The ASP includes the following:

- A safety program and its means of enforcement on a system wide basis.
- The medium through which the NLR can display its commitment to safety.
- The framework for the Plan's implementation of policies and achievement of goals and objectives.
- How federal, state and local requirements are satisfied.
- How industry accepted standards are achieved.

Section 1.5 provides the scope of the NLR ASP.

NLR ASP Elements 3 and 5 explains NLR's Safety Accountabilities and Responsibilities.

NLR ASP Element 3: Overview of management structure
NLR ASP Element 5: NLR ASP implementation activities and responsibilities

NO.	ASP ELEMENT	CONTENTS
3	*Overview of Management Structure*	*An overview of the management structure of the rail transit agency, including: (i) an organization chart; (ii) a description of how the safety function is integrated into the rest of the rail transit organization; and (iii) clear identification of the lines of authority used by the rail transit agency to manage safety issues.*
5	*Implementation Activities and Responsibilities*	*A description of specific activities required to implement the system safety program, including: (i) tasks to be performed by rail transit agency safety function, by position and management accountability, specified in matrices and/or narrative format; and (ii) safety-related tasks to be performed by other rail transit agency departments, by position and management accountability, specified in matrices and/or narrative format.*

4.1.4 Overview of Management Structure (ASP-Element 3)

ASP Section 2.4 provides an overview of NLR's management structure including: (i) the organizational charts, (ii) a description of how the safety function is integrated into the rest of the NLR organization, and (iii) NLR's clear identification of the lines of authority to manage safety issues.

Section 2.5 describes the lines of authority and responsibility for operations, maintenance, and engineering as they relate to safety. This provides the following information to compliment the requirements of Element 5 – ASP Implementation – Tasks and Activities.

- Organizational charts with the title of each position
- Description of the system safety units identifying levels and key positions.
- Diagrams showing the relationship and lines of communications between the system safety unit and other NLR units.

Overview
NLR ASP describes the particular characteristics of NLR Including a graphical representation depicting the service area and location of facilities. NLR ASP presents the information in a manner that permits non-technical and non-transit persons to understand the system and its basic operations;

NLR ASP includes the following elements in the System Description:

General Overview and History of NLR – provides a chronology of key events in the history or development of NLR and a general overview of the system and its facilities. ASP. describes NLR's public safety/security provisions intended to minimize intrusions and protect property and other types of security/surveillance used to achieve a high level of safety for patrons, employees, and workers.

Scope of NLR Transit Services- a description of planned services and general operating characteristics of NLR transit system.

NLR System description, Safety Inspections, Quality Assurance, and Maintenance Programs- ASP provides a description of the facilities and including the regular cycle of inspections and maintenance programs for the safety-related facilities and equipment. This includes:

- A description of the fixed guideway transit system including at-grade/below grade, tunnel segments, and joint railroad-fixed guideway common corridor operations, railroad - fixed guideway shared use operation.
- Information pertaining to the number and types of vehicles and other data that sufficiently identifies the technical differences within the LRV fleet.
- The maintenance facilities and storage yards and their respective locations.
- The built-in safety capabilities such as fire suppression systems, emergency ventilation, emergency communications equipment, passenger communication equipment (visual and audio), and flammable storage shelters, etc.
- A description of how identified hazards are entered into the hazard resolution process Etc.

Operations and Maintenance

NLR ASP provides a description of the role, the responsibilities and the organization of the operating departments, including a general description of the type of operation and controls for the conduct of NLR operation.

Operations - Schedules, Headway and Recovery- NLR ASP provides a general description of operating schedules with approximate headway(s) and dwell time(s).

Maintenance- NLR ASP describes the role, the responsibilities, and the organization of the various maintenance departments. This provides a description of the maintenance process and practices. Including the controls and quality assurance measures for equipment and equipment manuals, shop/site specific procedures, maintenance records, parts and materials, tracking/resolving of problems identified during inspections, demand/preventative maintenance, and the following:

- Scheduled maintenance for equipment.
- Maintenance tasks performed by NLR personnel and tasks performed by outside contractors.
- Scheduled maintenance activities, tracking in-service failures, and provisions for corrective maintenance and emergency repairs are to be included (emphasizing on

any special maintenance practices, rules, and procedures used for safety critical equipment).

- Verifying to assure that LRV(s) are safe for use in revenue service.

Integration of Safety Function - ASP describes how the system safety function is integrated into the rest of the NLR to ensure that safety program requirements are made known to all NLR departments, including those responsible for disseminating these requirements and measuring their compliance.

Lines of Authority for Safety - ASP describes the lines of authority for safety at NLR, including the personnel, policies and procedures established for NLR.

4.1.5. NLR ASP implementation activities and responsibilities (ASP-Element 5)

NLR ASP Section 4.1.1 b: *Safety Accountabilities and Responsibilities* describe specific activities required and responsibilities assigned to implement the NLR's safety management program. This includes (i) tasks performed by NLR safety function, by position and management accountability, (ii) safety-related tasks performed by other NJT departments, by position and management accountability, specified in matrices and/or narrative format. The matrices and/or narrative also specify associated schedules identifying the frequency in which the activity is performed.

4.2 SAFETY RISK MANAGEMENT

4.2.1: Safety Risk Management

NLR ensures that the safety risks encountered in the Operation and Maintenance activities are controlled in order to achieve their safety performance targets. This process is known as safety risk management and includes hazard identification, safety risk assessment (Risk Analysis-Probability and Risk Analysis-Severity), Risk assessment and tolerability, the implementation of appropriate remediation measures (Risk control and mitigation).

NLR systematically identifies hazards and risks that exist in its Operation and Maintenance activities. Hazards may be the result of systems that are deficient in their design, technical function, human interface or interactions with other processes and systems. They may also result from failure of existing processes or systems to adapt to changes in NLR's operating environment. NLR has performed careful analysis of these factors during the planning, design and implementation and commissioning phases and has identified potential hazards and had implemented remediation measures before NLR system became operational. Additionally, Interim Director, System Safety Programs monitors Risk controls, Compliance with Policies, Objectives, Standards, Procedures and Regulations

Understanding the NLR system and its operating environment is also essential for achievement of high level of safety performance. Hazards may be discovered during the operational life cycle, through audits, supervision, employee reports or incident investigations. Analyses of these hazards are conducted in the context of the NLR system. This context is key to avoiding attribution of events to —human error, where defects in the NLR system may be neglected, may remain latent for future and potentially more serious events to occur.

4.2.1 a. *Hazard Identification and Analysis* – As the first two steps in the Safety Risk Management process, hazard identification and analysis identify and address hazards before they escalate into incidents or accidents. They also provide a foundation for the risk evaluation and mitigation activities that follow. This also includes input from Threat and Vulnerability analyses from SEPP.

4.2.1 b. *Safety Risk Evaluation and Mitigation* – Following hazard identification and analyses, NLR implements activities and tools to evaluate safety risks associated with identified hazards, and subsequently develops mitigations to reduce safety risk exposure (Strategies to minimize exposure of the public, personnel, and property to hazards and unsafe conditions).

The NLR ASP elements that address SMS Component 2, Safety Risk Management, are:

NO.	ASP ELEMENT	CONTENTS
06	Hazard Management Process	A description of the process used by the rail transit agency to implement its hazard management program, including activities for: (i) hazard identification; (ii) hazard investigation, evaluation and analysis; (iii) hazard control and elimination; (iv) hazard tracking; and (v) requirements for on-going reporting to the oversight agency regarding hazard management activities and status.
08	System Modification	A description of the process used by the rail transit agency to ensure that safety concerns are addressed in modifications to existing systems, vehicles, and equipment, which do not require formal safety certification, but, may have safety impacts.
07	Safety Certification	A description of the safety certification process required by the rail transit agency to ensure that safety concerns and hazards are adequately addressed prior to the initiation of passenger operations for New Starts and subsequent major projects to extend, rehabilitate, or modify an existing system, or to replace vehicles and equipment.
21	Procurement Process	A description of the measures, controls, and assurances in place to ensure that safety principles, requirements and representatives are included in the rail transit agency procurement process.

NLR ASP Section 4.2.2 describes NLR's HAZARD and SAFETY RISK MANAGEMENT PROCESS. This section describes the process used by NLR to implement its hazard and safety risk management program, including activities for:

- hazard identification;
- hazard investigation, evaluation, and analysis;
- hazard control/mitigation and elimination;
- hazard tracking; and
- Ongoing reporting to NJDOT OSSO relating to NLR's hazard/risk management activities and status.

NLR's hazard/risk management process identifies all mechanisms, systems, and procedures in place to identify hazards and resulting risks. The hazard/risk management system describes how identified hazards are investigated, evaluated, and analyzed, and how they are controlled or eliminated either through design, use of safety and/or warning devices, or provision of procedures. NLR's hazard/risk management process describes how hazards are tracked through resolution and specifies NLR's on-going reporting requirements for communicating this information to the NJDOT OSSO office.

4.2.2 Hazard and Safety Risk Management Process (ASP-6)

NLR (System Safety and NLR designated staff) and NLR's Contractor investigate all hazardous conditions. NLR or Contractor performs separate, independent investigations at its own discretion.

Hazardous conditions are reported to the NLR General Manager and other NLR Staff as required by Section 4.3.2, Accident/Incident and Hazardous Conditions Notification, Investigation, and Reporting.

In order to achieve an optimum level of safety throughout all aspects of the operation of the NLR system, a comprehensive approach to hazard identification, classification, resolution and management is necessary. The Superintendent, Transportation (or the Operations Control) shall notify the NJ State Fixed Guideway Safety Oversight Agency (NJDOT-OSSO) by telephone, fax, cell phone page, or electronic mail within two (2) hours of the discovery of an accident, injury or unacceptable hazardous condition that meets the reporting thresholds defined by the NJDOT-OSSO and FTA. The Superintendent, Transportation submits a report/ working papers to the NJ State Fixed Guideway Safety Oversight Agency describing the corrective action for the unacceptable hazardous condition. Monthly progress reports shall also be submitted to the NJDOT-OSSO until the unacceptable hazardous condition has been remediated. The Director, System Safety Programs (from the Office of System Safety) also submits monthly reports to FTA's National Transit Database summarizing accidents, injuries or unacceptable hazardous conditions on NLR, HBLR and River LINE.

This section describes the process by which NLR identifies, analyzes, categorizes, resolves, and documents hazards occurring in operations, maintenance, and engineering. The process, accessible to all levels of the organization, includes analysis of potential impacts on the operating system, and a means to resolve the identified impacts, acceptable to NLR management.

The following methodology provides a systematic means of identifying, analyzing, assessing, and resolving potential hazards that could result in accidents and/or injuries.

4.2.2a Hazard Identification

NJ TRANSIT Light Rail Transit Operations has an on-going policy to identify, analyze and resolve hazards. Hazard identification on the NLR system will be accomplished by various methods (such as: observations, inspections, reports, etc.) involving all NLR personnel.

Data sources for hazard identification include, but are not limited to: audits and inspections, occurrence reports, near miss, injury reports, testing, bulletins, complaints, observations and maintenance records.

Additionally, since NLR has operated over a period of years, it uses the input of operations and maintenance personnel as sufficient for the hazard analysis process. NLR's Hazard Identification process remains formal to sufficiently document a procedure with appropriate sign-off and checks and balances. The process, available to all units of the organization, is reviewed, administered on a routine basis, and has high level visibility and participation. Hazard Identification is an ongoing process, viable throughout NLR's life cycle. Accidents and incidents, resulting from previously unidentified hazards, are also entered into the Hazard Management Process. Hazards and problems identified during maintenance inspections are also integrated into the hazard management process. Various inspection and audit reports are reviewed to identify potential hazards. These include but are not limited to: accident/incident reports, near miss control center logs, defect cards, work orders, equipment inspections, operating/maintenance reports and bulletins.

The safety analyses methods that are used for hazard identification and assessment include: Preliminary Hazard Analysis (PHA), Operating Hazard Analysis (OHA), Critical/Catastrophic Items List (CCIL), Fault Tree Analysis, Subsystem Interface Analysis, various Human Factors Analysis and Joint Railroad - Fixed Guideway Corridor Operations, Systems Hazard Analysis (SHA) and Failure Mode and Effects Analysis (FMEA).

4.2.2b Hazard Classification, Tracking and Resolution

Accident and injury prevention are the responsibility of each employee at Newark Light Rail. When an accident occurs, it can result in personal or customer injury, damage to equipment or infrastructure. In addition to the pain and suffering caused by the accident, the result can be very costly to the agency in terms of monetary losses, loss of rider confidence, and lost productivity. Therefore, an aggressive pro-active approach to system safety is extremely beneficial. For this reason, it is very important to ensure that a process is in place to identify, categorize, and resolve safety hazards.

Responsibility for hazard assessment/resolution rests with NLR staff / facility management. Safety Department is available as a resource to assist in these activities and is routinely consulted.

Safety and facility inspections are performed by the Manager of Training (Interim Safety Officer) with assistance from other NLR Staff and inspection reports are completed and evaluated periodically. These inspection reports are disseminated to the appropriate departments for implementation. The Manager of Training (Interim Safety Officer) verifies that the recommended resolution is completed.

An important element in the NJ TRANSIT Newark Light Rail Agency Safety Program Plan is the mechanism by which potential hazards are formally identified, analyzed, and resolved. The three (3) components of this process are: hazard identification, hazard categorization/classification, and hazard resolution. Hazards are classified in terms of severity and probability of occurrence.

A hazard analysis form has been developed to document the process.

The following sections (from MIL-STD-882E) represent a methodology used for determining which hazards are acceptable, acceptable with certain conditions applied, and unacceptable. Hazards are rated in terms of their effects on NLR employees, passengers and/or NJT-NLR transit system.

It is extremely important to use a design process that handles (in advance) exceptions to established procedures. Anticipating every situation is virtually impossible.

A method of categorizing all identified hazards is included in the following sections.
Hazard severity Is a subjective measure of the worst credible mishap resulting from personnel error, environmental conditions, design inadequacies, and/or procedural deficiencies for system, subsystem, or component failures or malfunctions.

Hazard severity is categorized as follows:

- ***Category 1,*** *Catastrophic* -may cause death or system loss

  Operating conditions are such that human error, environment, design deficiencies,

element, subsystem or component failure or procedural deficiencies may cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.

Category 1 hazard could result in one or more of the following: death, permanent total disability, irreversible significant environmental impact, or monetary loss equal to or exceeding $10M.

- ***Category 2,*** *Critical-* may cause severe injury or illness or major system damage/disruption

Operating conditions are such that human error, environment, design deficiencies, element, subsystem or component failure or procedural deficiencies may cause severe injury or illness or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.

Category 2 hazard could result in one or more of the following: permanent partial disability, injuries or occupational illness that may result in hospitalization of at least three personnel, reversible significant environmental impact, or monetary loss equal to or exceeding $1M but less than $10M.

- ***Category 3,*** *Marginal* - may cause minor injury or illness or minor system damage/disruption

Operating conditions are such that human error, environment, design deficiencies, element, subsystem or component failure or procedural deficiencies can be counteracted or controlled without serious injury, illness or *major system damage.*

Category 3 hazards could result in one or more of the following: injury or occupational illness resulting in one or more lost work day(s), reversible moderate environmental impact, or monetary loss equal to or exceeding $100K but less than $1M.

- ***Category 4,*** *Negligible* - may cause less than minor injury or illness or minor system damage/disruption

Operating conditions are such that human error, environment, design deficiencies, element, subsystem or component failure or procedural deficiencies will not result in no, or less than minor illness, injury or system damage.

Category 4 hazards could result in one or more of the following: injury or occupational illness not resulting in a lost work day, minimal environmental impact, or monetary loss less than $100K.

Hazard probability is defined as the likelihood that a specific hazard will occur during the life expectancy of the system element, subsystem, or component. It can be described subjectively in potential occurrences per unit, events, population, items, or activity. Hazard probability is determined subjectively and is classified as follows:

PROBABILITY LEVELS			
Description	**Level**	**Specific Individual Item**	**Fleet or Inventory**
Frequent	**A**	**Likely to occur often in the life of an item.**	**Continuously experienced**
Probable	**B**	**Will occur several times in the life of an item.**	**Will occur frequently**
Occasional	**C**	**Likely to occur sometime in the life of an item.**	**Will occur several times**
Remote	**D**	**Unlikely, but possible to occur in the life of an item.**	**Unlikely, but can reasonably be expected to occur.**
Improbable	**E**	**So unlikely, it can be assumed occurrence may not be experienced in the life of an item.**	**Unlikely to occur, but possible.**
Eliminated	**F**	**Incapable of occurrence. This level is used when potential hazards are identified and later eliminated.**	**Incapable of occurrence. This level is used when potential hazards are identified and later eliminated.**

Hazard Tracking Log consolidates the information contained in the hazard management process. During the process of developing the hazard analysis, Categories 1, 2, 3 and 4 failures are identified through a Hazard Tracking process. These failures are compiled into a 'Hazard Management Log' or an 'Accidents, Incidents, and Injuries' log listing the Safety Critical Items, to provide NLR management visibility of these issues and provide for monitoring and control. The 'Hazard Management Log' or a 'Accidents, Incidents, near miss and Injuries' log is a controlled list that is continually updated and revised to reflect the elimination, reduction and/or control of hazards presented by these failures. The Hazard Management Log is a part of the design and safety review process functioning as an "open or unresolved hazards file." The procedure for resolving the hazards is contained in the following paragraphs.

An example of the Hazard Management Log format is shown below. It is modeled after similar programs at other transit systems. Updates of the log are periodically published until all Categories of hazards are eliminated, reduced or controlled to acceptable levels.

ACCIDENTS, INCIDENTS, AND INJURIES

Description and Date Of Event/ Tracking Number	Hazard Risk Index	Probable Cause	Corrective Action	Hazard Risk Index after Corrective Action	Implementation Schedule	Status

HAZARD MANAGEMENT

Description and Date Of Event/ Tracking Number	Hazard Risk Index	Probable Cause	Corrective Action	Hazard Risk Index after Corrective Action	Implementation Schedule	Status

A hazard resolution system has been adopted to determine the appropriate remediation for identified hazards. This system identifies the amount of risk involved with accepting the existing hazard compared to the amount of resources needed to reduce the hazard to an acceptable level. These tools are used so that the decision to accept the risk or to remediate the hazard can be made in an effective and efficient manner.

- **Analysis of potential severity and probability**

  Once a hazard is identified, an analysis as to its potential severity and probability of occurrence is performed. NLR has a standardized documented process/procedure for hazard resolution. While qualitative methodology for implementing hazard resolution is possible, the most practical method for NLR is simple deductive reasoning, applied on a collective or organizational basis. The NLR operation and maintenance staff effectively determines the severity of all but the most difficult or unusual hazards.

- **Mechanism for reviewing hazards**

  It is important, however, to determine in advance the exact mechanism for implementation of this process. Through Safety Review Committee meetings, TIGER Team meetings, Safety meetings, The NLR ASP provides a mechanism for a review process, should a consensus on categorizing a specific hazard prove too difficult to achieve.

- **Processing identified hazards**

  Hazards identified on an ongoing basis enter the formal process, the same as those identified by formal analyses techniques associated with new procurement and new system construction. NLR management knows the process and understands their respective roles.

- **Eliminating and/or controlling hazards**

  Hazard Resolution is the analysis and subsequent actions to reduce to the lowest level practical, the risk associated with an identified hazard. Part of the Hazard resolution procedure is a predetermined matrix prescribing which identified hazards are acceptable, acceptable with mitigation, and unacceptable. Once this matrix is defined by NLR, deviation from the prescribed resolution process occur only through approved (by NLR management), predetermined channels.

Figure below provides the Hazard Resolution/Risk Assessment Matrix used by NLR.
The hazard resolution / Risk Assessment Matrix process is illustrated in the following chart:

HAZARD RESOLUTION/RISK ASSESSMENT MATRIX				
SEVERITY / PROBABILITY	1-Catastrophic	2-Critical	3-Marginal	4-Negligible
A-Frequent	UN	UN	UD	AC/WR
B-Probable	UN	UN	UD	AC/WR
C-Occasional	UN	UD	AC/WR	AC
D-Remote	UD	AC/WR	AC /WR	AC
E-Improbable	AC/WR	AC/WR	AC/ WR	AC
F-Eliminated	Eliminated			

Codes:
UN – Unacceptable-High
UD – Undesirable-Serious
AC/WR- Acceptable with review by management-Medium
AC- Acceptable without review by management-Low

Frequency of occurrence and hazard severity categories are identified for each analysis and risk assessment by the NLR Interim Director, System Safety in consultation with appropriate departments.

The documentation of risks, hazards, injuries, accidents, and occurrences is accomplished through the use of accident/injury reports, occurrence reports, daily and periodic inspection reports, and safety audit reports. This information is used to evaluate system modifications, procedural changes, and training program enhancements.

Comprehensive statistical analysis of accidents and injuries is used to assess the effectiveness of safety programs and corrective action plans. Statistical analysis is also used to identify trends and high occurrence injuries/hazards to further focus priorities in hazard awareness and abatement. All safety data that is collected, maintained, and analyzed is distributed to NLR staff and management through morning meeting reports, monthly and annual reports.

To determine what action to take to correct or to document acceptance of identified hazards, a system of determining the level of risk involved has been adopted. This risk assessment activity is incorporated in formal system safety analyses. In turn, this will enable NLR management to properly understand the amount of risk involved relative to what it will impact (schedule, dollars, operations, etc) to reduce the hazard to an acceptance level.

Newark Light Rail will take appropriate actions to reduce to the lowest level practical, the risk associated with the identified hazard. The methods utilized for eliminating or controlling hazards are listed in their order of precedence, as follows:

- **Eliminate hazards/risks through design selection;**
- **Reduce risk through design alteration;**
- **Incorporate engineered features or devices;**
- **Provide warning devices; and**
- **Incorporate signage, procedures, training, and PPE.**

Each of the methods identified above is defined in following paragraphs (Ref: Mil-Std 882 E)

NLR's goal is always to eliminate the hazard if possible. When a hazard cannot be eliminated, the associated risk is reduced to the lowest acceptable level within the constraints of cost, schedule, and performance by applying the system safety design order of precedence. The system safety design order of precedence identifies alternative mitigation approaches and lists them in order of decreasing effectiveness.

a. **Eliminate hazards risks through design selection-** Ideally, the hazard is eliminated by selecting a design or material alternative that removes the hazard altogether.
From the conceptual design stages, system is designed to eliminate hazards. If an identified hazard cannot be eliminated, reduce the associated risk to an acceptable level, as defined by the Risk Assessment Criteria, through design.

b. **Reduce risk through design alteration**- If adopting an alternative design change or material to eliminate the hazard is not feasible, NLR will consider design changes that reduce the severity and/or the probability of the mishap potential caused by the hazard(s).

c. **Incorporate engineered features or devices-** If mitigation of the risk through design alteration is not feasible, NLR reduces the severity or the probability of the mishap potential caused by the hazard(s) using engineered features or devices. In general, engineered features actively interrupt the mishap sequence and devices reduce the risk of a mishap.
if identified hazards cannot be eliminated or their associated risk adequately reduced through design, that risk shall be reduced to an acceptable level through the use of fixed, automatic, or other protective safety-designed features or devices. Provisions are made for periodic functional checks of safety devices.

d. **Provide warning devices**- If engineered features and devices are not feasible or do not adequately lower the severity or probability of the mishap potential caused by the hazard, NLR will consider including detection and warning systems to alert personnel to the presence of a hazardous condition or occurrence of a hazardous event.

When neither the design nor safety devices can effectively eliminate identified hazards or adequately reduce associated risk, devices shall be used to detect the condition and to produce an adequate warning signal to alert personnel of the hazard. Warning signals and their application shall be designed to minimize the probability of incorrect personnel

reaction to the signals and shall be standardized within like types of systems.

e. **Incorporate signage, procedures, training, and PPE-** Where design alternatives, design changes, and engineered features and devices are not feasible and warning devices cannot adequately mitigate the severity or probability of the mishap potential caused by the hazard, NLR will incorporate signage, procedures, training, and PPE requirements. Signage includes placards, labels, signs and other visual graphics. NLR's procedures and training includes appropriate warnings and cautions. Procedures prescribe the use of PPE. For hazards assigned Catastrophic or Critical mishap severity categories, the use of signage, procedures, training, and PPE as the only risk reduction method is avoided.

   Where it is impractical to eliminate hazards through design selection or adequately reduce the associated risk with safety and warning devices, procedures and training shall be used. However, without a specific waiver, no warning, caution or other form of written advisory shall be used as the only risk reduction method for Category I or II hazards. Procedures may include the use of personal protective equipment. Precautionary notations shall be standardized. Tasks and activities judged critical might require certification of personnel proficiency.

NLR selects and implements mitigation measures to reduce risks and hazards and achieve an acceptable risk level. NLR considers and evaluates the cost, feasibility, and effectiveness of a particular mitigation method as part of the System Safety and Engineering process.

The Hazard Resolution/Risk Assessment process has the following objectives:

1. To identify areas where hazard resolution may require a change in the system design or development of special procedures;
2. To verify that hazards involving interfaces between two or more systems have been resolved;
3. To verify that the resolution of a hazard in one system does not create a new hazard in another system; and
4. To verify that required analysis is provided in a timely manner and identify where delinquent analysis is delaying hazard resolution.

Hazard resolution is not synonymous with hazard elimination. In the NLR environment, there are some hazards that may be impossible to eliminate and other hazards that are highly impractical to eliminate. Reduction of risk to the lowest practical level is accomplished in a variety of ways, from protective and warning devices to redesign and special procedures. However, some hazards present unacceptable risks because of the severity and high probability and are eliminated.

NLR investigates all unsafe and hazardous conditions. NLR has policy describing investigation guidelines and reporting in accordance with NJDOT Procedure NJDOT-OSSO 0003. NLR submits written incident investigation reports for review and concurrence. The reports include information of the most probable cause, other contributing causal data, corrective action plans, and schedule for implementing action. NJT-Director of System Safety (from the Office of System Safety) reports hazards and risks on a monthly report to the NJDOT-OSSO so that the NJDOT-OSSO may be

knowledgeable about hazards and corrective action plans. The corrective actions are reported with the anticipated date of the correction being implemented.

4.2.2c--Hazard Management (Specifically Hazard Communication)

NLR's has established hazard communication mechanisms to promote safety information sharing and exchanging internally and externally. At NLR, hazard/risk related training, education and safety communication are important ongoing activities throughout all phases of SMS implementation. As NLR System changes, new processes, procedures or regulations may come into effect or existing procedures may change to cater for the SMS requirements. To ensure these changes are effectively understood and implemented by all personnel involved in safety-related duties it is vital that training and communication remain as ongoing activities throughout and after the complete implementation of the SMS.

Section 4.2, *Safety Risk Management*, explains NLR's Hazard Management Process. Hazard Communication is part of the previously described Hazard Management Process. NLR's Hazard Communication process:

- ensures NLR employees are aware of the safety and hazards to a degree commensurate with their positions;
- conveys hazard critical information;
- explains why particular safety precautions are taken; and
- explains why applicable procedures are introduced or changed.

As required, some of this information is communicated with customers and visitors also.

Examples of NLR's hazard communication initiatives include:

- dissemination of the safety manual;
- safety processes and procedures;
- safety newsletters, notices and bulletins; and
- web sites or emails. Etc.

NLR's Hazard Communication processes and procedures facilitate effective communication throughout all levels of the organization. NLR communicates safety objectives, as well as the current status of any related activities and events. NLR also encourages—bottom-up communication, providing an environment that allows senior management to receive open and constructive feedback from NLR operations and maintenance personnel.

Hazard/Risk communication training for NLR senior managers include contents related to compliance with national and organizational safety requirements, allocation of resources and active promotion of the SMS including effective inter-departmental safety communication. In addition, safety training for senior managers includes material on establishing safety performance targets.

4.2.2d-- Hazard Management and Hazard (Safety) Communication

A description of Safety Communication is provided in Section 1.9.4 a: Safety Communication.

NJT and NLR have an open communication policy between frontline employees and management about security and safety information. NJT and NLR consider this as crucial in establishing a positive safety culture. Effective safety communication makes personnel aware of safety priorities and initiatives and ensures that feedback is captured and acted upon as appropriate. Safety-related information is actively and routinely communicated, focusing on raising awareness of hazards and potential safety risks. NLR and NJT follows the principle that regular discussion of safety concerns promotes an environment that encourages employees to report concerns and demonstrates management commitment to both the employees and NJT/NLR's safety performance objectives.

- **Hazard Management Process**

A description of NLR's Hazard and Risk Management Process is provided in Section: 4.2.2, under: Safety Risk Management.

At NLR, Hazard identification is considered as a prerequisite to the safety risk management process. Any identified hazard on the NLR system is brought to the attention of NLR Management, Safety Department and the Safety Review Committee. This assists in correct differentiation between hazards and safety risks.

A clear understanding of hazards and their related risks and consequences is essential to the appropriate implementation of safety risk management.

Safety risk management includes the assessment and mitigation of safety risks. The objective of safety risk management is to assess the risks associated with identified hazards and develop and implement effective and appropriate mitigations. Identified hazards, risks and mitigations are discussed and reviewed by the management and the Safety Review Committee*. At NLR, Safety risk management is considered as a key component of the safety management process.
(Members of NJDOT-OSSO and NJ Transit OSS participated in the Safety Review Committee)

At NLR, safety risks are conceptually assessed as:

- Unacceptable (High Risk)
- Undesirable (Serious Risk)
- Acceptable with review by NLR management and the Safety Review Committee (Medium Risk)
- Acceptable without review by management (Low Risk)

Safety risks assessed as initially falling in to the 'Unacceptable-High Risk' category are unacceptable. The probability and/or severity of the consequences of the hazards/risks are of such a magnitude, and the damaging potential of the hazard poses such a threat to safety, that immediate mitigation action should be considered.

Safety risks assessed in the 'Acceptable-Low Risk' category are considered acceptable. In some cases, NLR implements appropriate mitigation measures. A safety risk initially assessed as 'Undesirable (Serious Risk)' may be mitigated and subsequently moved into the 'Acceptable with review by NLR management and the Safety Review Committee (Medium Risk) -tolerable region

provided that such risks remain controlled by appropriate mitigation strategies. In all cases, an additional / supplementary cost-benefit analysis is performed, as required. Safety risks assessed as initially falling in the Acceptable without review by management (Low Risk)' region are acceptable as they currently stand and require no action to bring or keep the probability and/or severity of the consequences of hazards under organizational control.

- **Risk management documentation**

Since NLR ASP and SMSs target both human and organizational factors, a specific analysis process is a component of risk management system. In the process of NLR's hazard identification and risk mitigation, it is necessary to assure that existing or recommended defenses have taken human factors (HF) into consideration.

Process used by the NLR to implement its hazard management program includes:

- hazard identification;
- hazard investigation, evaluation, and analysis;
- hazard control and elimination;
- hazard tracking; and,
- requirements for on-going reporting to the NJDOT-OSSO program on information relating to hazard management activities and status.

NLR's hazard management process identifies all mechanisms, systems, and procedures to identify hazards. NLR's hazard management system investigates, evaluates, and analyzes hazards and describes how they are controlled or eliminated either through design, use of safety and/or warning devices, or provision of procedures. The hazard management process includes how hazards are tracked through resolution. When required, this information is communicated to the NJDOT-OSSO, FTA and when required to NTSB.

4.2.2 e-- FTA Safety Directives

Section 5329 provides FTA with several explicit authorities to administer the Safety Program and to take enforcement actions, including issuing directives. The Public Transportation Safety Program Rule (49 CFR part 670) establishes two types of directives—general directives and special directives. General directives are generally applicable and will be issued through the *Federal Register* and subject to public comment. Special directives apply to one or more named entities based on a specific set of facts. FTA will issue special directives directly to the named recipient(s).

Additional information on the procedural rules related to the issuance of general or special directives, can be found in: Public Transportation Safety Program rule at https://www.gpo.gov/fdsys/pkg/FR-2016-08-11/pdf/2016-18920.pdf.

4.2.3 System Modification (ASP Element 8)

System Modification provides an overview of the process to ensure safety concerns are addressed in modifications to existing systems, vehicles, and equipment, which do not require formal safety certification. System Modification may have safety impacts, including the following:

- Maintenance and construction activities that do not require formal safety certification but that do require safety inspections and sign-offs.

- Identification of the Department and Personnel responsible for ensuring that hazards associated with system modifications are included in the Hazard Management Process.

- The process used to ensure that the end-product conforms to the criteria, standards, and specifications prepared for system modification.

- A program that documents how design/build activities integrated safety into the end product, so that the system modifications meet industry standards, codes, regulations, and are capable of being certified as safe for operation.

Section 4.3.13 (under Safety Assurance-Management of Change) provides further details of NLR's System Modification Process.

4.2.4 Safety Certification (ASP Element 7)

FTA defines, 'Safety Certification' as "the series of processes that collectively verify the safety readiness of a project for public use".

NLR's Safety Certification process ensures that safety concerns and hazards are adequately addressed prior to the initiation of passenger service for any NLR's capital projects to extend, rehabilitate, or modify an existing system, or to replace vehicles and equipment.

Safety Certification and any associated plan or procedure includes the use of acceptance testing and assuring proper installation and operation once the capital project is near completion and ready for such acceptance testing.

NLR implements results of the Hazard/Risk Management process during Safety Certification

(a) NLR develops and documents in its safety certification process identification and resolution of hazards during its operation, including any hazards resulting from subsequent system extensions or modifications, operational changes, or other changes within the operational environment, and

(b) NLR's hazard/risk management process as part of Safety Certification includes:

- defining NLR's approach for hazard/risk management;
- implementation of an integrated system-wide hazard/risk resolution process;
- specifying the sources of, and the mechanisms to support, the on-going identification of hazards;
- defining the process by which identified hazards/risks will be evaluated prioritized for elimination or control;
- Identifying the mechanism used to track through resolution the identified hazard(s);
- defining minimum thresholds for the notification and reporting of hazard(s) to NJDOT-OSSO; and
- specifying the processes by which NLR will provide on-going reporting of hazard resolution activities to NJDOT-OSSO.

Section 4.3.14 (under Safety Assurance-Management of Change) provides further details of NLR's Safety Certification Process.

4.2.5 Procurement Process (ASP Element 21)

The Light Rail Safety Department, Interim Director, System Safety (Director, Quality Assurance Programs) and Manager, LRT Training and potentially affected departments perform a comprehensive review of procurement specifications and designs for facilities, equipment, or systems which may have an impact on the safety of employees, customers, or the general public. This review ensures that safety requirements and provisions to assure compliance through appropriate inspections, tests, and evaluation of contract deliverables are incorporated into contract specifications. As part of NLR's Procurement process, vendor inspections, receiving inspections, configuration management, and other required activities are performed.

Section 4.3.16 (under Safety Assurance-Management of Change) provides further details of NLR's Procurement Process.

4.3 SAFETY ASSURANCE

4.3.1: Safety Assurance Processes and Activities

Safety assurance consists of processes and activities undertaken by NLR to determine whether the SMS is operating according to expectations and requirements. NLR continually monitors its internal processes as well as its operating environment to detect changes or deviations that may introduce emerging safety risks or the degradation of existing risk controls. Such changes or deviations may then be addressed together with the safety risk management process.

Safety Assurance ensures implementation and effectiveness of Safety Risk Mitigation (Section 1.9.2). This ensures that NLR meets (or exceeds) its safety objectives through collection, analysis, and assessment of data and information.

The safety assurance process also complements that of quality assurance, with each having requirements for analysis, documentation, auditing and management reviews to assure that certain performance criteria are met. While quality assurance typically focuses on the organization's compliance with regulatory requirements, safety assurance specifically monitors the effectiveness of safety risk controls.

At NLR, safety assurance activities include the development and implementation of corrective actions in response to findings of systemic deficiencies having a potential safety and operational impact. Organizational responsibility for the development and implementation of corrective actions reside with the NLR department(s) cited in the findings.

Safety Performance Monitoring and Measurement – SMS provides NLR the required data and information that its senior management needs in order to evaluate whether implemented safety risk mitigations are appropriate and effective, and how well NLR's safety performance is in line with established safety objectives and safety performance targets. Safety performance monitoring does not focus on monitoring individuals, but rather monitoring the safety performance of NLR itself through routine monitoring of operations and maintenance activities.

The NLR ASP elements that address SMS Component 3, Safety Assurance are:

NO.	ASP ELEMENT	CONTENTS
09	***Safety Data Collection and Analysis***	***A description of the process used to collect, maintain, analyze, and distribute safety data, to ensure that the safety function within the rail transit agency receives the information necessary to support implementation of the system safety program.***
10	***Accident/ Incident Investigations***	***A description of the process used by the rail transit agency to perform incident notification, investigation and reporting, including: (i) notification thresholds for internal and external organizations; (ii) investigation process and references to procedures; (iii) the process used to develop, implement and track corrective actions that address investigation findings; (iv) reporting to internal and external organizations; and (v) coordination with the oversight agency.***

11	***Emergency Management Program***	***A description of the process used to develop an approved, coordinated schedule for emergency management program activities, which include: (i) meetings with external agencies; (ii) emergency planning responsibilities and requirements; (iii) process used to evaluate emergency preparedness, such as annual emergency field exercises; (iv) after action reports and implementation of findings; (v) revision and distribution of emergency response procedures; (vi) familiarization training for public safety organizations; and (vii) employee training.***
12	***Internal Safety Audits***	***A description of the process used to ensure that planned and scheduled internal safety audits are performed to evaluate compliance with the ASP, including: (i) identification of departments and functions subject to review; (ii) responsibility for scheduling reviews; (iii) process for conducting reviews, including the development of checklists and procedures and issuing of findings; (iv) review of reporting requirements; (v) tracking the status of implemented recommendations; and (vi) coordination with the oversight agency.***
13	***Rules Compliance***	***A description of the process used by the rail transit agency to develop, maintain, and ensure compliance with rules and procedures having a safety impact, including: (i) identification of operating and maintenance rules and procedures subject to review; (ii) techniques used to assess the implementation of operating and maintenance rules and procedures by employees, such as performance testing; (iii) techniques used to assess the effectiveness of supervision relating to the implementation of operating and maintenance rules; and (iv) process for documenting results and incorporating them into the hazard management program.***
14	***Facilities and Equipment Inspections***	***A description of the process used for facilities and equipment safety inspections, including: (i) identification of facilities and equipment subject to regular safety-related inspection and testing; (ii) techniques used to conduct inspections and testing; (iii) inspection schedules and procedures; and (iv) description of how results are entered into the hazard management process.***
15	***Maintenance Audits and Inspections***	***A description of the maintenance audits and inspections program including identification of the affected facilities and equipment, maintenance cycles, documentation required, and the process for integrating identified problems into the hazard management process.***
18	***Compliance with Local, State, and Federal Requirements***	***A description of the safety program for employees and contractors that incorporates the applicable local, state, and federal requirements, including: (i) safety requirements that employees and contractors must follow when working on, or in close proximity to, rail transit agency controlled property; and (ii) process for ensuring the employees and contractors know and follow the requirements.***

19	*Hazardous Materials Program*	*A description of the hazardous materials program including the process used to ensure knowledge of and compliance with the program requirements.*
20	*Drug and Alcohol Program*	*A description of the drug and alcohol program and the process used to ensure knowledge of and compliance with program requirements.*
22	*Hours of Service*	*A description of the Hours of Service Policy that is in place for all operations and maintenance employees, and the process used to ensure knowledge of and compliance with the policy.*
23	*Roadway Worker Protection (RWP)*	*A description of RWP Policy and plan that is in place for all operations and maintenance employees, and the process used to ensure knowledge of, and compliance with the policy and plan. The NJDOT SSO program recommends that NLR follow the FRA's 49 CFR Part 214 for RWP; it is also acceptable to follow the APTA standard RT-OP-S-016-11 Rev 1*

4.3.2 SAFETY DATA ACQUISITION and ANALYSIS (ASP Element 9)

4.3.2 a-Safety data collection -

Data-based decision making is an important aspect of NLR safety management system. The type of safety data that is collected and analyzed includes accidents and incidents, injuries, near misses, events, non-conformance or deviations and hazard reports. The quality of the data that are used to enable effective decision making is considered throughout NLR's SMS development and implementation. NLR's databases and data quality provide reliable basis for evaluating safety priorities and the effectiveness of risk mitigation measures. NLR's databases and data quality support evaluating safety risk management and safety assurance functions that will result in correct analysis and results that may lead to proper decisions and support NLR's safety management process.

4.3.2. b- Data quality

Given the importance of appropriate data and data quality, NLR reviews the appropriateness of the data used to support safety risk management and safety assurance processes evaluating:

- *Data Validity.* Data collected are acceptable as per established criteria for their intended use.
- *Data Completeness.* No relevant data are missing.
- *Data Consistency (and Representativeness).* The extent to which measurement of a given parameter is consistent can be reproduced and avoids error.
- *Accessibility.* Data are readily available for analysis.
- *Timeliness.* Data are relevant to the time period of interest and available promptly.
- *Security.* Data are protected from inadvertent or malicious alteration.
- *Accuracy (and Precision).* Data are error-free.

Etc.

By considering these criteria for data quality (and input from NLR TIGER Team), NLR will generate the proper information support of proper data acquisition, analysis and conclusion and recommendations.

4.3.2 c-Safety database-

In the context of safety data collection and analysis, NLR's safety database may include the following type of data or information which can be used to support safety data analysis:

- accident investigation data;
- incident investigation data;
- efficiency check/voluntary reporting data;
- reporting data from public;
- operational performance monitoring data;
- safety risk assessment data;
- data from audit findings/reports;
- data from safety studies/reviews; and
- safety recommendations from FTA, NTSB, federal agencies, NJDOT-OSSO, other States, regional safety organizations or accident and incident investigation organizations, etc.

4.3.2 d- Safety data analysis and Management

After collecting safety data through various sources, NLR performs the necessary data analysis to identify hazards/risks and control their potential consequences. Among other purposes, the analysis may be used to:

a) assist in deciding what additional facts are needed;
b) ascertain latent factors underlying safety deficiencies;
c) assist in reaching valid conclusions; and
d) monitor and measure safety trends or performance.

NLR's Safety analysis is often iterative, requiring multiple cycles. It may be quantitative or qualitative. The absence of quantitative baseline data may force a reliance on more qualitative analysis methods.

4.3.2 e -Protection of safety data

Given the potential for misuse of safety data that have been compiled strictly for the purpose of advancing NLR's operational safety, NLR's database management includes the protection of that data. NLR balances the need for safety data protection with that of making data accessible to those who can advance NLR's safety.

4.3.2 f- Data Review, Analysis and Tracking

Additionally, open items and unresolved attributes from safety inspections are tracked by the Managers and Superintendents of each department. These are tracked from the safety inspections performed on the Maintenance-of-Way, Maintenance-of- equipment and Transportation departments. Managers and Superintendents of each department maintain a copy of the documents. Tracking of open and unresolved data is used to identify trends. These trends are further analyzed and/or

investigated to determine causal factors. This is accomplished by interviews with personnel in the affected department(s) and analysis of pertinent data and documentation. Identified items are submitted with corrective action recommendations or requests for corrective action development. Reports are submitted to the General Manager, Light Rail Operations, and Interim Director, System Safety, Manager(s) and Superintendents. Chief, Light Rail and Contract Services receives a summary of the report.

4.3.3 ACCIDENT/INCIDENT and HAZARDOUS CONDITIONS INVESTIGATIONS (ASP Element-10)

When an accident or serious incident occurs at NLR, the accident investigation process (including TIGER Team) is initiated to determine possible causes, failures, if any, within the NLR Rules and system, the reasons therefor and to generate the necessary corrective actions and countermeasures to prevent recurrence. Thus, in NLR's safety management environment, the accident /incident investigation process has a distinct role, being an essential process that deploys when safety defenses, training, barriers, efficiency checks, etc. and counterbalances in the system have not worked as designed.

Being an important element of NLR's SMS and ASP frameworks, accident/incident investigations and implementation of appropriate corrective actions contribute to the continuous improvement of NLR system by providing the root causes of accidents/incidents and lessons learned from analysis of events. Detailed accident/incident investigations support decisions regarding the development of corrective actions and corresponding allocation of resources and may identify necessary improvements to the NLR system including SMS, NLR ASP as well as the accident/incident investigation process.

At NLR, in addition to determining findings and the root causes of accidents/incidents, the investigation process also uncovers hazards/risks (and associated threats). NLR's Accident/Incident investigation and analyses process includes determination of and discrimination between an ultimate consequence, an unsafe event and hazards/risks/threats that contributed to the accident/incident. This may include any systemic, latent or other (example: organizational) factors in the NLR operating system framework. NLR's accident/Incident investigation process considers both accident/incident investigation process and hazard reporting/identification process.

4.3.3 a-Notification, Investigation and Reporting

NJ TRANSIT-Newark Light Rail strives to ensure the accurate notification, investigation and reporting of accidents, incidents, hazardous conditions, casualties, injuries, occupational illnesses and grade crossing accidents. NJ TRANSIT-NLR is committed to completely and accurately investigating and reporting all accidents, incidents, injuries and occupational illnesses that occur during the operation of the NLR system. When the investigation involves post-accident inspections, examinations and testing, NLR System Safety notifies the SSO so that it may participate in the investigation. OSSO may also conduct separate, independent investigations at its own discretion.

The "TIGER", (Thorough Investigations Gain Effective Results) Team approach has been successfully employed to investigate accidents and incidents at NLR and has been expanded to

include a full analysis of employee occupational/industrial-injuries/accidents. Lessons learned and briefings are a part of every TIGER team exercise and are the subject of safety meetings and re-instruction as appropriate.

The TIGER team reviews:

- Documentation (evidence related to the accident, incident and injuries), safety requirement, assigning responsibilities for open issues, conducting site visits, and defining safety -related tests and analyses, as required.
- Determining whether to accept specific conditions or requiring corrective action(s), including determining the specific methods to mitigate the conditions or potential hazards.

The TIGER Team consists of the following ex-officio members:

- General Manager, Light Rail Operations or his designee
- Superintendent – M-O-W
- Superintendent-M-O-E
- Superintendent-Operations
- Manager, LRT Technical Training
- Interim Director, System Safety Programs (Director, Quality Assurance and quality Control Programs)
- Office of System Safety
- Others, as required

TIGER team is chaired by the General Manager, Light Rail Operations or his designee.

NLR documents its investigation in a written report that identifies the most probable cause and other contributing causes of the incident, accident or hazardous condition. The report includes a corrective action plan and schedule to prevent a recurrence of the accident, or to mitigate the hazardous condition.

Accident and incident investigations are related to the Hazard Management Process. Since, it is virtually impossible to anticipate all hazards before they cause an accident or incident, once an incident occurs, the NLR System Safety and management takes the necessary actions to prevent a recurrence.

4.3.3 b-Procedures - The methodology for accident and injury investigation is established in the Light Rail Accident/Incident Investigation Procedure in the *Manual of Standard and Emergency Operating Procedures*.

Employees are required to report all accidents and injuries, no matter how small or slight, to their Supervisor or to the Control Center and to adhere to the guidance of the Supervisor during the investigation and reporting process. Control Center, in turn, notifies all appropriate personnel, management, and NJTPD.

In the event of a rail equipment accident, incident, injury or occupational illness that occurs during the operation of the NLR system, the Supervisor in charge must take immediate action to ensure the safety of employees, customers, contractors, and/or trespassers. The Supervisor must immediately

report the situation to the Control Center, where the required notification to the appropriate personnel (including the NJ Transit-Office of System Safety) within and/or outside NJ TRANSIT is initiated. When assistance from municipal emergency forces is necessary (i.e., police, fire, EMS), notification to the appropriate agency is made through the NJ TRANSIT Police Communication Center. NLR Supervision ensures that prompt medical attention is provided to injured persons and accompanies an injured employee to the appropriate medical facility when possible. Supervisory personnel, with assistance from the NLR Safety Department (Interim Director, System Safety and Manager of Training) as appropriate, investigate the cause of the incident/accident and prepare a preliminary report. Upon completion of the investigation, all details are documented using the proper forms.

All reports are promptly forwarded to the General Manager, Light Rail Operations or his designee. Additional and/or revised information relating to any accident, incident, injury or occupational illness developed after the initial report is also forwarded to the General Manager, Light Rail Operations and Superintendent-Transportation. The Superintendent-Transportation prepares the draft accident/incident investigation report for review by the General Manager, the Director, System Safety, Director, Quality Assurance Programs and others suggested by the General Manager. General Manager or his designee, Light Rail Operations submits the accident / incident investigation report (Working Papers that includes a corrective action plan) to the NJDOT-OSSO. Monthly progress reports are also be submitted to the NJDOT-OSSO until the corrective action plan has been implemented and all the open items are satisfactorily resolved.

NLR Superintendent-Transportation or his designee is responsible for notifying the NJDOT-OSSO when appropriate, within two (2) hours of any incident involving a rail transit vehicle or taking place on rail transit-controlled property where one or more of the following incident occurs (described in the following page).

In addition to making telephonic notification to NJDOT-OSSO, NLR is also required to notify NJDOT-OSSO incidents/accidents 'electronically' to the NJDOT-OSSO by the close of the following business day and the complete incident/accident report (Working Papers) in 30 days.

NJ DOT-OSSO also requires Newark Light Rail-NLR (that share track with the general railroad system and are subject to the Federal Railroad Administration notification requirements), to notify 'electronically' the oversight agency within two (2) hours of an incident/accident. NLR must also notify the Federal Railroad Administration.

These events could take place on a rail transit vehicle or on rail transit –controlled property, could involve rail transit passengers, employees, contractors, rail transit facility occupants, other workers, trespassers, or other persons.

The NJDOT-OSSO and the Federal Railroad Administration (FRA) shall be notified (NJDOT-OSSO will be notified electronically) when an occurrence of an accident that results in any of the above occurs on the shared right-of-way. Initial notification of the aforementioned organizations shall be accomplished by the most expedient means available and shall be accomplished within two (2) hours of the occurrence of the incident.

Notifications will be made in accordance with the *Manual of Standard and Emergency Operating Procedures.*

External notification and investigation is accomplished in accordance with external organization requirements; as shown below.

NJDOT-OSSO

NLR will notify the NJ DOT-OSSO within 2 hours, by fax or telephone, of any accident, incident or unacceptable hazardous condition resulting in the following:

- Fatality;
- Collision between a fixed guideway vehicle and any other fixed guideway vehicle;
- Derailment;
- Explosion or fire;
- Property damage to rail transit vehicles, non-rail transit vehicles, other rail transit property or facilities and non-transit property that equals or exceeds $25,000.00;
- Injury to passengers, employees, or person requiring transport to a medical facility by ambulance or police vehicle for medical treatment; and
- Emergency evacuation of passengers along the operating right-of-way.

When the accident, incident, or condition involves post-accident inspections, examination, or testing, the NJDOT-OSSO is notified so that they may participate in the investigation.

Additionally, NLR submits the following information:

- Submits a 24-Hour NJDOT-OSSO Summary,
- Submits a 30-day NJDOT-OSSO Investigation Report

In addition, NLR Discusses the accident/incident details at the monthly safety meetings and NLR TIGER Team Meeting. Information is also included in the monthly safety reports (from the NJ Transit Office of System Safety) to NJDOT-OSSO.

NTSB

NLR will notify the NTSB as required by Title 49 CFR Part 840 (note: NTSB criteria are dollar or casualty based. The only events specified are evacuations or releases of hazmat. Derailments are not mentioned).

NLR will notify the NTSB by telephoning the National Response Center (at telephone 800-424-0201) at the earliest practicable time after the occurrence of any one of the following NLR accidents:

(a) No later than 2 hours after an accident which result in:

1. A passenger or employee fatality or serious injury to two or more crewmembers or passengers requiring admission to a hospital;
2. The evacuation of a passenger train;
3. Damage to a tank car or container resulting in release of hazardous materials or involving evacuation of the general public; or
4. A fatality at a grade crossing.

(b) No later than 4 hours after an accident which does not involve any of the circumstances enumerated in paragraph (a) of this Section, but which results in:

1. Damage (based on a preliminary gross estimate) of $150,000 or more for repairs, or the current replacement cost, to railroad and non-railroad property; or
2. Damage of $25,000 or more to a passenger train and railroad and non-railroad property.

(c) Accidents involving joint operations must be reported by the railroad (I.e. NLR) that controls the track and directs the movement of trains where the accident has occurred.

(d) Where an accident for which notification is required by paragraph (a) or (b) of this section occurs in a remote area, the time limits set forth in that paragraph shall commence from the time the first railroad employee who was not at the accident site at the time of its occurrence has received notice thereof.

NLR General Manager, Light Rail Operations will coordinate all additional information and requests from the NTSB. Should the NTSB conduct an on-site investigation the General Manager, Light Rail Operations will coordinate all efforts on behalf of NLR with assistance from the Manager of Training (who has System Safety responsibilities) and NLR Superintendents.

The NJDOT-OSSO may elect to investigate accidents or incidents and/or hazardous conditions which they determine to be significant. NLR Staff and support personnel shall fully cooperate with the NJDOT-OSSO representatives during any investigation. Upon arrival at the incident scene or facility, NJDOT-OSSO representatives will notify NLR personnel of their presence and their anticipated activities regarding the incident. NJDOT-OSSO representatives shall have access to all information, reports, and records pertinent to the incident under investigation. General Manager, Light Rail Operations and Interim Director, System Safety and Director, Quality Assurance and Quality Control Programs will coordinate all additional information and requests from the NJDOT-OSSO Office. Should the NJDOT-OSSO conduct an on-site investigation the General Manager, Light Rail Operations and Interim Director, System Safety and Director, Quality Assurance and Quality Control Programs) will coordinate all efforts on behalf of NLR with assistance from the Manager of LRT Training and NLR Superintendents.

Following a comprehensive and thorough investigation, NLR develops an in depth, comprehensive report which includes the scenario, facts, analysis, data and results, probable cause(s) and the corrective actions with the schedule and responsible individual for completing/implementing the corrective action. The Corrective Action part of the report shall be a separate section from the findings and recommendations.

For reportable events, NLR's investigations will include determinations of probable causes and contributing factors, as well as root cause analyses of other issues that influenced the causes or consequences of the events. Investigations will identify system safety deficiencies (e.g., poor system design, failed controls, and failed preventive/corrective actions, etc.) as well as other contributing factors.

As part of "Accident/Incident and Hazardous Conditions-Notification, Investigation and Reporting", NLR prepares the Post Accident / Incident and Hazardous Conditions Corrective Action Plan (AI/CAP) that describes the actions NLR will take to minimize, control, correct, or eliminate hazards/risks, and the schedule for implementing for those corrective actions. The AI/CAP will also include recommendations from NLR's investigations and external investigations *(performed by the National Transportation Safety Board [NTSB], FTA, and NJDOT SSO).* AI/CAP(s) are submitted to NJDOT--SSO within thirty days of the incident (for all reports not submitted to the NJDOT SSO program by thirty (30) days, NLR submits a status in the Monthly Reports and quarterly NJDOT-OSSO meetings to the NJDOT-OSSO until the report is submitted).

4.3.3 c- Responsibilities -The following NLR personnel have the respective responsibilities regarding accident and injury reporting and investigation:

- **Employees** - The employee involved must report any accident or injury to his or her supervisor. If the supervisor is not available, the incident is reported to the Operations Central Control. The employee must follow the guidance of supervisors during the accident/investigation and reporting process.

- **Supervision and Manager of LRT Training (*Interim Safety Officer)** - After the initial report by an employee of an accident or injury, the supervisor must make appropriate arrangements for medical attention, if required. NLR Supervision shall conduct an initial investigation of the accident or injury to ensure that any conditions that may have caused or contributed to the incident are corrected in a timely manner. Proper documentation and recommendations must be provided to the Superintendent, Transportation. Superintendent, Transportation prepares the accident/incident report (Working Papers) for submittal to the NJDOT-OSSO.

- **Operations Central Control -** After receiving notification of an accident or injury, the Operations Central Control personnel coordinate the notification of appropriate supervisors and outside agencies when required.

- **General Manager,** Light Rail Operations– NLR TIGER Team chaired by the General Manager, Light Rail Operations (or his designee) and the General Manager (or his designee) investigates all accidents. The TIGER Team coordinates the collection of all pertinent information necessary to accurately report all accidents, incidents, injuries and occupational illnesses.

- **Interim Director, System Safety and Director, Quality Assurance Programs** -The Director, System Safety and Quality Assurance Programs and Manager, LRT Training interface with the General Manager, Light Rail Operations or his designee and appropriate departments to ensure that an accurate and thorough investigation of the occurrence has been completed prior to submitting the report to the NJDOT-OSSO.

Additionally, NJ Transit-Office of System Safety (NJT-OSS) submits a monthly summary of accidents, incidents, and unacceptable hazardous conditions to the NJDOT-OSSO and FTA's National Transit Database.

- **Medical, Risk Management, Labor Relations, Personnel and Payroll Departments-** When requested, these departments provide assistance to supervision during the accident investigation process.

These departments ensure that all pertinent information relative to all accidents, incidents, injuries, and occupational-related illnesses involving NJ TRANSIT personnel, received in their respective areas, is promptly submitted to the General Manager, Light Rail Operations and Superintendents, Light Rail Operations.

The Risk Management Department shall ensure that appropriate documentation regarding injury claims is obtained.

4.3.3. d- Records - One or more of the following forms are required to process an incident, injury, accident or unacceptable hazardous condition affecting NLR Operations:

- Occurrence Report
- Occurrence Investigation Report
- LRV Post Occurrence Inspection Report
- Post Occurrence Station/Facility Inspection Report
- Accident Report of Injury to Employee & Supervisor Accident Investigation

Reports are reviewed and approved by the General Manager (or his designee), Light Rail Operations. Superintendent, Transportation coordinates all the related information and prepares the accident / incident report (Working Papers) for internal review by Director, Quality Assurance, Manager of Training, the Superintendents and NJT-OSS. Superintendent, Transportation prepares the final report (Working Papers) for submittal to NJDOT-OSSO, NJ.

The Light Rail Safety Department (Interim Director, System Safety and Manager, LRT Training requires written notification for any status adjustment of the incident. A written report is prepared for these adjustments and is forwarded to the NJDOT-OSSO. All other relative documents are then adjusted accordingly. Records of accidents / incidents are maintained by the Superintendent, Transportation.

In making timely notification/reporting to NJDOT-OSSO, NLR follows requirements stated in NJDOT-OSSO Standards Appendix 9- "HAZARDOUS CONDITIONS REQUIRING NOTIFICATION TO THE NJDOT-OSSO".

The NJDOT- OSSO as part of its program to ensure that NLR is operating in a safe and secured manner routinely conducts both announced and unannounced inspections. The objective of this inspection is to document the conditions of NLR's infrastructure (stations, facilities and vehicle operation, etc.) that they are in accordance with public safety and applicable operating rules. NJDOT's Inspection Standard Operating Procedures are available in the NJDOT-OSSO Standards.

Copies of NJDOT Inspections that have been conducted at NLR will be sent to the NLR for its review and action as required.

4.3.4 EMERGENCY MANAGEMENT PROGRAM-(ASP Element-11)

4.3.4 a. Integration with Public Safety and Emergency Management

This element ensures integration of programs that have input into, or output from, the SMS. In this element NLR identifies and describes the necessary coordination with both external organizations

and internal departments for dealing with emergencies and abnormal operations, as well as the return to normal operations. This sub-component addresses the various internal and external programs that may affect safety management and includes an index of the plans and procedures that support the transit agency's public safety and emergency management activities. This ensures coordination in plans dealing with emergencies and abnormal conditions and returning to normal operations. This sub-component identifies and describes the interface with external organizations.

Other related details of NLR's Emergency Management, integration and coordination with NJTPD, emergency responders and security offices are explained in Sections: 4.11 and 6.3. These sections address:

- A description of the process used by NJT-NLR system to develop an approved, coordinated schedule for emergency management program activities,
- Required meetings with external agencies regarding the emergency management program are specified,
- The process used to evaluate emergency preparedness, such as annual Table top and emergency field exercises, is documented,
- After action reports and implementation of findings are addressed,
- The process used or to be used by NJT-NLR for the revision and distribution of emergency response procedures is explained,
- NJT-NLR's responsibilities for providing employee and/or contractor training are explained, and
- NJT-NLR's responsibilities for providing familiarization training to local responders and public safety organizations are identified.

4.3.4 b Emergency Preparedness

The NLR with input from the Emergency Responders has developed a safety orientation program for First Responders. The program is designed to familiarize emergency responders with the NLR system and operations. The orientation includes a review of the NLR system, tunnel, traction power system, LRVs, track structure, NLR Maintenance support vehicles, and grade crossings; included in the emergency preparedness program are suggested initial actions as follows: (i) safety recommendations for first responders, and (II) NJ TRANSIT emergency contact information.

Each response agency has been issued program materials that include a CD ROM of the orientation, an accompanying manual, and a NLR system map.

4.3.4 c Emergency Operations Plan and Manual of Standard and Emergency Operating Procedures

NJ TRANSIT/NJTPD has developed an *Emergency Operations Plan/ Continuity of Operations Plan (COOP)* to define corporate-wide organizational priorities and to establish guidelines to effectively manage large scale emergencies, disasters, and major service disruptions. NJ TRANSIT uses a unified command structure for all incidents that require a response from multiple agencies. NJ

TRANSIT Police has the primary responsibility for incident command functions at emergency scenes.

NJ TRANSIT/Newark Light Rail management staffs have attended training classes regarding the National Incident Management System to ensure the consistent application of a standard process for emergency management.

Standard operating procedures for the safe and efficient operation of the NLR and emergency procedures for incidents and evacuations occurring on the Light Rail system are detailed in the NLR *Manual of Standard and Emergency Operating Procedures.* NLR has also developed and implemented an Emergency Action Plan for the Vehicle Base Facility that establishes guidelines for effectively managing emergency incidents that require a response from municipal emergency agencies. The plan was developed with input from the NLR Emergency Preparedness Task Force. This provides a description of the process used by NLR to develop an approved, coordinated schedule for emergency management program activities.

Emergency evacuation procedures are discussed with NLR personnel during Safety Meetings and drills to demonstrate employee familiarity with the procedure.

The NLR Operations Control (OC) facilitates initial notifications and subsequent communication between internal departments regarding accidents, injuries, unusual occurrences, special events, and service disruptions. An automated network is utilized for appropriate notifications based on the nature of the occurrence. A matrix indicating individuals and/or departments to be notified is maintained in the OC. Each individual department is responsible for the appropriate notifications relative to their respective responsibility. Additionally, an emergency notification guide is maintained at the Bus Control Center located in Maplewood, NJ. This guide is designed to expedite critical notifications to key internal personnel and to local emergency forces. The guide contains an index of possible incidents and appropriate notification priorities.

NLR actively participates in emergency preparedness simulations each calendar year to ensure that an effective mechanism is in place to manage emergency incidents on the NLR system.

4.3.4 d Emergency Response Planning, Coordination, and Training

NLR's Emergency Operations Plan and the Manual of Standard and Emergency Operating Procedures describe planning, coordination, and training to address emergencies on the NLR system. These documents include a description of the process used to develop an approved, coordinated schedule for all emergency management program activities including meetings with external agencies (when required); develop and evaluate emergency planning and requirements, evaluate emergency preparedness and employee emergency related training. The process for revision and distribution of emergency response procedures are included in the documents.

The NLR conducts familiarization training prior to drills and exercises for local fire, police, OEM, Bomb Squad, and other public safety organizations. The training includes both class room instruction and a field demonstration. NLR safety department maintains a listing of the organizations trained and date of training, sign-in sheets for all those trained, with the instructor(s) name.

Further, NLR's familiarization training is flexible to meet the needs of the various emergency response organizations. In all cases, however, the primary purpose, goals and objectives that NLR wants to convey to the organizations in the familiarization training are safety and security. The training materials are reviewed by the Manager of Training, Security Personnel and transit police representative. The purpose, goals and objectives of training, familiarization and orientation are reviewed and by the Safety Review Committee with the approval noted in the minutes of the safety review committee meeting. The scope of the training is reviewed annually by the System Safety and System Security Managers and Police, updated as necessary, and re-approved by the Safety Committee with the re-approval noted in the safety committee minutes.

NJ Transit Police have the lead responsibility for performing FTA mandated annual field and tabletop emergency exercises. NLR fully participates in both Tabletop and field exercises. The NJTPD/NLR conducts FTA mandated emergency management drill and exercise program for each year. The drill involves various local police, fire and other emergency services, depending upon the drill scenario. The NJTPD/NLR develops exercise specific written objectives for the tests NLR's emergency procedure's effectiveness and the staff's knowledge of the procedures. NLR prepares an after action report for the NLR's portion of the drills/exercises. A corrective action plan is also developed. These reports are forwarded to NJTPD. The actions are included in the monthly report. NJTPD/NLR will attempt to acquire other participating agencies' after-action reports, especially that information relating to the NLR's Emergency Response Procedures, operations and facilities, to understand problems and issues for possible resolution. The purpose of emergency preparedness and response drills and exercises with emergency services and NLR personnel is to ensure the adequacy of emergency plans and procedures, readiness of NLR personnel to perform under emergency conditions, and effective coordination between NLR and emergency response agencies.

Following each drill or exercise a de-briefing is held to evaluate;

- Interagency communication and operations at the incident scene;
- Internal and external notifications and response procedures; and
- Emergency procedures and protocols.

These exercises and drills are coordinated through NJT Police Department and include potentially affected operations and maintenance personnel as well as the fire departments, local law enforcement agencies, EMS, media relations, and federal and state agencies.

The 'After Action Report' (i.e. Drill Critique) is documented by the Drill Coordinator (example: NJT Police Department), with findings and recommendations as required. Recommendations may include, but are not limited to, revising response procedures, re-writing or updating procedures, additional training of NLR and/or emergency response personnel, or other actions. Procedures and training will be updated and distributed as required. NJT Police Department also coordinates regular fire and life safety meetings with emergency responders.

NLR will notify OSSO in advance of all drills and exercises.

4.3.4 e Emergency Response Agencies- Coordination and Communication

Effective communications between emergency response agencies and NJ TRANSIT representatives during emergency incidents is a vital component of system safety and emergency preparedness. Verbal and written information must be disseminated to emergency responders appropriate to the nature of the incident. NJ TRANSIT must ensure that emergency responders are adequately trained, prepared and sufficiently familiar with NLR system components to effectively manage emergencies that occur on the Light Rail.

NLR routinely interfaces with emergency response agencies regarding system modifications, capital improvements, security, system familiarization, emergency preparedness planning and simulations, special events, and matters of safety. These departments include, but are not limited to:

NJ TRANSIT Police Department	Bloomfield Fire Department
Newark Police Department	Belleville Fire Department
Port Authority Police Department	Newark Fire Department
Bloomfield Police Department	Bloomfield EMS
Belleville Police Department	University Medical Center EMS
Essex County Office of Emergency Management	Rutgers Police Department

The NLR Operations Control (OC) facilitates initial notifications and subsequent communication between internal departments regarding accidents, injuries, unusual occurrences, special events, and service disruptions. An automated network is utilized for appropriate notifications based on the nature of the occurrence. A matrix indicating individuals and/or departments to be notified is maintained in the OC. Each individual department is responsible for the appropriate notifications relative to their respective responsibility. Communications and coordination with emergency response agencies will be made in accordance with the respective procedures in the *Manual of Standard and Emergency Operating Procedures.*

NJ TRANSIT Police Central Communication Center facilitates initial notifications to municipal emergency forces. A unified command structure is implemented for all incidents that require a response from multiple agencies involving NLR vehicles, stations, facilities, infrastructure or right-of-way. The municipal Fire Department assumes Incident Command responsibilities for fire and hazardous materials incidents. NJ TRANSIT Police assumes Incident Command responsibilities for all other situations. Representatives from each agency assemble at a Command Post where pertinent information is shared and coordinated action plans are developed and implemented to effectively manage the incident. NJ TRANSIT's Mobile Command Vehicle may be deployed to major incidents or service disruptions to facilitate interagency communications and emergency management.

A debriefing and a formal critique are conducted after each occurrence that requires a response from multiple agencies or when deemed necessary to evaluate the effectiveness of emergency plans, procedures, and protocols.

4.3.5 INTERNAL SAFETY AUDITS AND INSPECTIONS (ASP Element-12)

NJT's Office of System Safety Department has the primary role in conducting NLR's internal audits. All the twenty-four elements of the NLR-ASP are scheduled for audit within a three-year period. Audit involves a systematic and scheduled examination of NLR's activities, including those specific to implementation of the SMS. To be most effective, internal audits are conducted by persons or departments that are independent of the functions being evaluated. Such audits provide the accountable executive, as well as senior management officials responsible for the SMS, the ability to track the implementation and effectiveness of the NLR's SMS as well as its supporting systems.

Internal audits involve assessment and evaluation of activities that can provide information useful to the NLR organization's decision-making processes. It is here where the key activity of SMS — hazard identification and risk mitigation takes place. Internal audit for the purpose of this requirement is conducted by NJT's Office of System Safety Department that is functionally independent of the technical processes being evaluated. The internal evaluation function includes evaluation of safety management functions, policymaking, safety risk management, safety assurance and safety promotion throughout the organization.

External audits of the SMS are conducted by independent relevant authorities responsible for acceptance of the NLR's SMS (State of New Jersey-Office of System Safety, FTA, etc.). Additionally, peer reviews may be conducted by industry associations (example: APTA) or other third parties selected by NLR. These external audits enhance the internal audit system as well as provide independent oversight.

NLR audit processes contribute to NLR's ability to achieve continuous improvement in safety performance. Ongoing monitoring of the SMS, its related safety controls and support systems assures that the safety management process is achieving its objectives.

NLR Maintenance and Engineering Department personnel inspect the system components in accordance with the SOP(s), manufacturer's recommendations or regulatory requirements. NLR Maintenance and Engineering Department personnel record/report any safety-related hazards that are observed during safety audits and inspections. Inspections and audits are conducted to identify potentially unsafe/hazardous conditions, to verify compliance with established safety rules and procedures, to insure compliance with personal protective equipment, utilization and industrial hygiene practices, as well as, to monitor current conditions of employee and public areas. Regular inspections of fire extinguishers, emergency devices, and fire suppression systems (when applicable) are also conducted. NLR Maintenance staff coordinates and/or initiate corrective actions.

Office of System Safety (OSS) staff conducts audit(s) of compliance within the provisions of the NLR SMS PLAN. This audit consists of on-site inspection / surveillance, and a document review to ensure appropriate records of safety related activities are maintained and available. The Office of System

Safety (OSS) staff uses the process outlined in the American Public Transit Association (APTA) Rail Safety Audit Program - *Internal Safety Audit Handbook* and NJDOT-OSSO Safety and Security Oversight *Safety Audit Program Standard and* FTA's Regulation(s) 49 CFR 673 and 674. Audits are conducted concurrently to provide an accurate assessment of system safety on the Light Rail. Results of the audits and respective corrective action plans are disseminated to appropriate departments for review and resolution.

4.3.5 a Overview of System Safety Audit Program

NLR's System Safety Audit process is a formal process of managing a safety program to ensure that all identified elements in a given environment are in place and performing as designed, engineered and constructed. The Safety Audit Process is the method used to determine if all organizational elements, equipment, procedures, and functions are performing as intended from a safety perspective. The assets for which NLR operational and maintenance personnel have responsibility include the safe and secure transportation of passengers, employee safety, and protection of NJT property. System Safety management, Quality Assurance and good overall management are inseparable concepts. The audit and verification process is an integral part of the overall program.

4.3.5 b System Safety Audit Program-Purpose and Scope

The purpose of System Safety Audits is to verify that established safety program requirements are being met. The audits are performed to verify compliance against prescribed requirements. These audits are established to provide NLR management and the staff with a mechanism for determining if key elements of line organization are following procedures and functions as intended. In all cases, element that addresses safe and secure transportation of passengers, employee safety, and protection of property are examined. These audits are performed to evaluate compliance with the approved Public Agency Safety Program Plan across all operations of the NLR.

Audit Programs will accomplish verification of both NLR's system safety program and that of contractors, whether constructing on-site or providing safety-critical equipment. NLR's verification of compliance is accomplished through the use of surveys, inspections, and analysis of injury and illness reports. In addition, contractors' safety programs are reviewed and approved by NLR.

The scope of the audit includes the following departments/disciplines: maintenance of way, systems engineering, mechanical / LRT maintenance, transportation, safety and training departments, procurement and medical (drug and alcohol) programs, human resources, and security (e.g. Cyber Security) activities.

The Office of System Safety will use the resources (internal and external, as needed) of appropriate staff proficient in the areas being audited for an objective assessment of its own responsiveness to the requirements of the NLR SMS PLAN.

The results of the internal audit are reported to the NLR Management upon completion of the NJT-OSS's internal audit. The NLR General Manager, Light Rail Operations directs his staff for the preparation of a corrective action response plan and schedule for corrective action implementation. The Office of System Safety and Director of Quality Assurance Programs perform a follow-up to verify the effectiveness of the implemented corrective actions. Corrective actions are tracked through completion.

4.3.5 c Audit Responsibility

New Jersey Transit's Office of System Safety (OSS) is responsible for the implementation and conduct of the safety audits while keeping in mind the independent nature of the audit process. The OSS Programs in consultation with NLR line Management selects the Audit Leader and Team proficient in the areas being audited, ensuring that the audit team does not include staff from the functions and/or units being audited. This ensures that all audits are conducted in a cooperative, professional manner, and include an administrative process for resolving problems or disagreements or findings.

4.3.5 d Audit Completeness

The OSS ensures that all audits are performed on a coordinated basis with full support of NLR management. Documents that will not be audited include confidential records and financial records, and other sensitive materials. Once an audit date and scope is established, all departments involved in the audit provide full cooperation to the auditors. Completed audit reports include findings, observations, open items, problem areas, corrective actions and a schedule for implementation of the corrective actions.

4.3.5 e Audit Cycle/ Audit Schedule

Audits are scheduled and announced so as to have minimum disruption of activities. All audits will have concurrence of NLR Management (both Chief, Light Rail & Contract Services and the General Manager, Light Rail Operations).

NLR maintains a three-year audit schedule to ensure that all 24 NLR ASP elements are reviewed during the audit cycle. The audited departments will be informed in advance of the audits, and the audits will be scheduled to be unobtrusive. Unannounced audits or spot checks may also be performed as part of the overall audit process with concurrence of NLR management

Required NLR ASP audit elements (and projected audit schedules) are listed below:

NLR ASP ELEMENT	NLR ASPAUDIT ELEMENTS	SCHEDULE*
NLR-001	Policy Statement and Authority for NLR SMS PLAN	Year -3
NLR-002	Goals and Objectives	Year -3

NLR-003	Overview of Management Structure	Year -3
NLR-004	NLR ASP Control and Update	Year -3
NLR-005	Implementation Activities and Responsibilities	Year -3
NLR-006	Hazard Management Process	Year -2
NLR-007	Safety Certification	Year -2
NLR-008	System Modification	Year -3
NLR-009	Safety Data Collection and Analysis	Year -2
NLR-010	Accident/incident Investigation and Reporting	Year -2
NLR-011	Emergency Management Program	Year -1
NLR-012	Internal Safety Audits	Year -2
NLR-013	Rules Compliance	Year -2
NLR-014	Facilities and Equipment Inspections	Year -2
NLR-015	Maintenance Audits and Inspections	Year -1
NLR-016	Training and Certification for Employees and Contractors	Year -2
NLR-017	Configuration Management and Control	Year -1
NLR-018	Compliance with Local, State and Federal Requirements	Year -1
NLR-019	Hazardous Materials Program	Year -1
NLR-020	Drug and Alcohol Program	Year -1
NLR-021	Procurement Process	Year -1
NLR-022	Hours of Service	Year -3
NLR-023	Roadway Worker Protection Training	Year -1
NLR-024	Minimum Document Submission to the NJDOT-OSSO	Year -3

(* This is a projected schedule, subject to change. NJDOT-OSSO will be notified by NJ Transit-Office of System Safety, as required by the 'Rail Transit State Safety Oversight (NJDOT-OSSO) Program Standards (SSOPS)' in advance of the audit. Audit of all the NLR ASP elements will be completed in three years, i.e. between two SSO's consecutive triennial audits).

4.3.5 f Audit Checklist and Audit Procedure

Audit teams utilize approved checklists in their audit. The checklists reflect the items and areas and the department being audited. The audited department is given the required opportunities to provide support documentation to the auditors so as to "close" the items on the checklist. Auditors may choose a day to do spot checks of individual records, such as maintenance records or personnel

qualification records. In all cases the Auditor(s) from the OSS assures maintenance of a cooperative nature of the audit group and the audit process.

4.3.5 g Organizational Functions

As part of the audit process, the following organizational functions include:

- Implementation;
- Schedule for follow-up;
- Facility Inspections;
- Equipment Inspections;
- Maintenance Audits/Inspections;
- Rules/Procedure Review;
- Training and Certification Review Audit;
- Emergency Response Planning Coordination and Training;
- System Modification Review and Approval Process;
- Safety Data Acquisition/Analysis;
- Interdepartmental/Interagency Coordination;
- Engineering;
- Configuration Management;
- Occupational Safety and Health;
- Hazardous Materials/Environmental Safety Program;
- Drug and Alcohol Abuse Program;
- Contractor Safety Coordination;
- Procurement;
- Human resources;
- Security (Cyber Security);
- Close out of corrective actions, and
- Others as required by the General Manager, Light Rail Operations, Office of System Safety, interim Director, NLR System Safety Programs or Manager, LRT Technical Training.

4.3.5 h Audit Reporting

Upon completion of all the audit elements, the audit team briefs NLR management the areas of concern and recommended corrective actions. The Office of System Safety (OSS) will submit the audit report to the Chief, LR & CS, General Manager, Light Rail Operations and Director, Quality Assurance. The audit report includes a summary of open items, problem areas and the required corrective actions.

4.3.5 i Annual Audit Report

NJT Office of System Safety (OSS) will document the audits completed and the audit report. Chief, Light Rail & Contract Services (LR & CS) submits the audit report to the NJDOT-OSSO. The report is formal documentation of the audits conducted by the NJT OSS. As part of the formal documentation,

Chief, Light Rail and Contract Services, General Manager, Light Rail Operations and respective audited groups/departments receive all necessary reports.

Office of System Safety (OSS) attaches a copy of the audit report in their Annual Report to the Chief, LR & CS. Chief, LR & CS submits the report to NJDOT-OSSO (which is due by February 12th of the year following the reporting year).

4.3.5 j Coordination with the NJDOT-OSSO

The NJT Office of System Safety (OSS) will notify the NJDOT-OSSO (and the NLR staff) prior to conducting the internal system safety audits. The Auditor will also submit to the NLR staff and the NJDOT-OSSO, the audit checklists and audit procedures as part of the audit report. Upon completion of the audit, a copy of the final audit report is also be submitted to the NJDOT-OSSO and the NLR staff.

The NJT Office of System Safety (OSS) also provides NJDOT-OSSO copies of Hazard Management Log, open items from Safety Certification and accident / incident investigations. Acting Chief, LR&CS, General Manager, Light Rail Operations, Interim Director, System Safety and other key NLR staff are all Copied on all NJDOT-OSSO correspondence.

4.3.5 k Documentation

All audits are fully documented and reported.

4.3.6 RULES COMPLIANCE/PROCEDURES REVIEW and TRAINING (ASP Element-13)

Newark Light Rail Operations personnel are trained and certified on the Operating Rules and Physical characteristics by the safety and training department. M-O-W and M-O-E personnel are trained in NLR Employee Safety Rules. The NLR management and the safety and training department define the processes and controls used by the operation and maintenance units to ensure that rules and procedures that affect safety are identified, carefully developed, maintained, and followed. NLR management reviews safety-critical operations and maintenance rules and procedures and makes determinations regarding whether they need updating. NLR management identifies the techniques to assess the implementation of operating and maintenance rules and procedures by employees, such as performance testing, techniques to assess the effectiveness of supervision relating to the implementation of operations and maintenance rules, and the process for documenting results and incorporating them into the NLR's hazard management process.

The Department of Safety and Training maintains the training records in active file for an active employee. Training records of De-Certified/De-Qualified employee is maintained in NJ Transit archived files for thirty years. Training records for contractors are also maintained.

(Additional information regarding 'Rules Compliance' is provided under 'Competencies and Training' section 4.4.1b).

4.3.7 NLR FACILITIES AND EQUIPMENT INSPECTIONS (ASP Element-14)

- NLR's M-O-W, M-O-E and Safety and Training departments regularly inspect facilities and equipment to assure their safety in operation. Checklists are used to document the results of the facilities and equipment inspections. Spot checks are also performed. A cooperative nature is maintained throughout the inspection process. Inspections, follow-up inspections and corrective action verification are performed by a review of objective evidence. During facility or equipment inspection, if safety critical infractions or hazardous conditions are observed, they are immediately brought to the attention their supervisors, Director(s) of System Safety and Quality Assurance, Manager of Training and the General Manager, Light Rail Operations for follow up and implementation of corrective action.

The following paragraphs provide an overview of NLR's inspections and tests.

- Light rail vehicles are inspected on a daily basis for safety and basic integrity and function of vehicle systems. The inspection is documented on the daily inspection form and kept on file with LRV maintenance records. Scheduled maintenance is performed on the LRV based on mileage and intervals specified by the manufacturer.
  All scheduled inspections and checks are documented on checklists and filed in the LRV maintenance records.

- Inspection of fixed facilities including stations, bridges, structures, etc. take place at a series of regular intervals. Intervals vary depending upon the type of fixed facility inspected.

  In addition, any abnormal situations observed by LRV operators or maintainers are documented and reported to the NLR Operations Control Center (OC) and NLR supervision for inspection or repair as required.

- Inspection of the track system and right-of-way is conducted twice per week in accordance with applicable regulations and 'Class of Track' inspected. Specific tolerances are modified to meet specification requirements and LRV operating needs. Any abnormal situations observed by LRV operators or maintainers are reported to the OC, who report the situation to the Track Supervisor, who addresses the situation. Track and switch inspection reports are completed to document findings of all inspections and are maintained on file by the M O W Superintendent.

- Inspection and testing of wayside signals and grade crossings is conducted monthly. The interval of inspection, monthly, quarterly and annually, is in accordance with operating rules. The traffic control systems are maintained by respective municipalities along the alignment.

  Maintenance on the signal and traffic system is documented on appropriate forms and maintained on file by the Supervisor. Any abnormal situations observed by LRV operators are reported to the OCC who report the situation to the Supervisor for corrective actions.

- Fire protection and suppression systems and tunnel ventilation fan systems are inspected and tested on a regular basis in accordance with NLR Requirements, Manufacturer, OSHA

and local public safety standards. All maintenance is documented and filed. Records are maintained by the M O W Superintendent.

- Support vehicles are inspected in accordance with manufacturers' recommendations and industry practices. The aerial trucks, fleet of company trucks and van are maintained by NJT maintenance garage or an authorized contractor. The service interval on the vehicles is based on manufacturer's recommendations. Maintenance documents for Support Vehicles are on file in the Maintenance Superintendent's office.

  All inspection criteria and work plans are maintained by respective Maintenance Superintendents.

- Audit and inspection data is accumulated, analyzed and reported. Open items, equipment or facility failures data is used to identify trends. These trends are further analyzed and/or investigated to determine causal factors. Casual factors are also determined Items for those items that are hazardous to use. This is accomplished by interviews with personnel of the affected department(s) and analysis of pertinent documentation. Identified hazards are submitted with corrective action recommendations or requests for corrective action development.

4.3.8 NLR MAINTENANCE AUDITS AND INSPECTIONS- (ASP Element-15)

NLR performs inspections and tests on operating equipment and facilities after each preventative or corrective maintenance action. Additionally, NLR performs periodic inspections and/or tests at regularly scheduled intervals to provide a reasonable degree of assurance that equipment and facilities are safe for operations.

NLR performs maintenance inspections, monitoring, routine servicing, preventive maintenance, overhaul and replacement of system components on as needed basis. These include Inspection and Maintenance of:

- Track and Right-of-Way
- Electrification System
- Communications and Signal Equipment
- Fixed Facilities
- LRV(s)

NLR does not defer any maintenance work. The goal of the maintenance inspections is to ensure that NLR meets all safety, availability, and reliability requirements to achieve passenger satisfaction and comfort. These ensure: (i) a high degree of continuity and consistency in routine maintenance activities, (ii) a structured process for improving the productivity and efficiency of fixed systems functions, and (iii) a fulfillment of FTA's and NJDOT-OSSO requirements.

NLR's maintenance inspection tasks are divided into:

Inspection and Test (I&T): Activities which are performed in order to ascertain and verify the condition or readiness of equipment, for example, monthly turnout inspection.

Preventative Maintenance (PM): Those maintenance audits and inspections activities that are performed on a schedule to ensure availability, safety or prolong the service life of facilities and equipment. PM activities are scheduled based on frequency of use (e.g., cycle, hours of use or pure elapsed time) and not as a result of differences observed during Inspections and Testing).

Corrective Maintenance (CM): These refer to demand responsive activities that are necessary because they affect operations or the safety of patrons or are in response to in-service failures, or to General Maintenance (GM): Those activities that are necessary to maintain service quality, such as graffiti removal.

While inadequate or improper maintenance on any of the NLR systems may potentially have safety implications, NLR recognizes that failures or incorrect operation of certain systems may directly cause hazardous conditions. Such systems include:

- Light Rail Vehicles and Support Vehicles
- Train Control
- Track System
- Electrification including Traction Power and Sub Stations
- Fixed Facilities including Stations / Shelter Stops, Bridges, Tunnels/Passenger Ways, and other Structures
- Right of Way (for fencing, and drainage adjacent to track)
- Elevator / Escalators
- Fire Protection/Suppression Systems
- Tunnel Ventilation

During maintenance inspections special requirements, including standards, employee certification, documentation, and quality assurance are also reviewed.

Similarly, LRV maintenance inspections are divided into: daily, scheduled, program, and corrective action plan. A brief description of each area is described below:

- Daily Maintenance: Each car undergoes daily inspection and interior and exterior cleaning prior to release for service. The daily inspection check sheet is maintained as support documents.

- Scheduled Maintenance: Scheduled maintenance is a combination of periodic inspections and routine servicing. During monthly inspections, any open or deferred work orders for minor repairs are performed. Bi-annual and annual scheduled maintenance is based on equipment manufacturer's recommendations.

- Program Maintenance: Program maintenance inspection is primarily developed with the support of equipment manufacturers, and consists of engineering changes, field modifications, seasonal programs, and overhauls.

- Corrective Maintenance: Corrective maintenance consists of troubleshooting and repairing equipment in response to a reported malfunction, failure, defect, incident, or other abnormality. These abnormalities may be reported by train operations, OC, inspection technicians, or quality inspectors.

- Quality Management System (QMS) and Quality Assurance and Quality Control: QMS and Quality Assurance and Quality Control functions ensure that maintenance inspections processes, documentation and procedures are in place and properly utilized.

  During Quality Audits, Quality Control functions such as, quality of tools, equipment and instruments, calibration of tools and equipment, conformance of equipment to manufacturers' warranty, proper testing, repair/replacement, and records are examined.

- Materials Control: Materials Control (an element of QMS, Quality Assurance and Quality Control Programs) is the management of all components and equipment, used in support of maintenance of LRV's.

All inspection records are maintained as support documents and should be made available for inspection or audit by QMS, Quality Assurance and Quality Control.

4.3.8 a Audits and Inspections-Use of Checklists

Maintenance audits and inspections are performed by the Managers and Superintendents of each department utilizing applicable manuals, procedures and checklists. The checklists reflect the items and areas and the department being audited or inspected. The checklists include: reference numbers, category of inspection, date, name of the department inspected, names, inspections and observations conducted, references, results and recommendations and corrective actions. The inspected/audited department is given the required opportunities to provide support documentation as to "close" the items on the checklist. Reviewers may choose a day to do spot checks of individual records, such as maintenance records, calibration records or personnel qualification records. Chief, Light Rail and Contract Services, General Manager, Light Rail operations, and Interim Director, System Safety and NJDOT-OSSO receive a copy of the summary of the report.

4.3.9 LOCAL, STATE and FEDERAL REQUIREMENTS (ASP Element-18)

NLR employees and contractors are required to comply with all applicable local, state, and federal requirements and OSHA standards for the safety of their own employees as well as to safeguard NLR employees, customers and the general public. These are described in NLR's safety management program manual.

All contracts for services have a safety element built in to ensure the safety of employees and NLR property. NLR personnel have the authority to stop any work which may cause damage to property or compromise the safety of employees, customers, or the general public.

All contractor employees are required to attend a safety orientation prior to working on the NLR system. These are described in NLR's safety management program manual. NLR LRT Technical Training Programs maintains all training records. The briefing includes a review of NLR guidelines for

Roadway Worker Protection and Contractor Safety with the principles working on the assigned project. Personal protective equipment and clothing requirements, protection against moving equipment, the electric traction system, general safety rules, fire safety requirements, and injury reporting are discussed.

Whenever contracted work is being done on the tracks, right of way, or in the tunnel, NLR provides a flagman to alert contractor employees of the approach of moving equipment and to monitor their proximity to the active track and/or the overhead catenary system. When necessary, the catenary system is de-energized or track is taken out of service by qualified NLR personnel.

The Contractor Safety Orientation is reviewed annually by the Manager, LRT Technical Training Programs and revised as needed with concurrence from NLR Staff.

Section 4.3.8 provides a description of the safety program for NLR employees and contractors (and visitors) that incorporates the applicable local, state, and federal requirements, including (i) safety requirements that NLR employees and contractors must follow when working on, or in close proximity to, NLR controlled property; and (ii) processes for ensuring the employees and contractors know and follow the requirements.

NLR safety program includes a description of how employee's and contractor's safety requirements are assessed during audit and rules compliance activities.

This section includes a description of the employee safety program that incorporates the applicable NJ PEOSH Act (N.J.S.A.34: 6A-25 et. seq.), Safety and Health Standards for Public Employees (N.J.A.C.12: 100) and Federal OSHA requirements.

These requirements include the elements of: Employee Right to Know; Personal Protective Equipment (PPE); Work In Confined Spaces; Lockout and Tag out; Materials Handling, Storage, Use, and Disposal; Hazardous Materials, etc. Safety Data Sheets (SDS) for all chemical and other hazardous materials that are being considered for purchase and use must be reviewed and evaluated by the NLR System Safety Function for approval, prior to use.

4.3.9 a Risk Management - The Risk Management Department coordinates excess liability coverage for the Light Rail physical plant. The Safety Department assists insurer with annual facility audits. Risk Management, Claims Section investigates accidents and settles claims under NJ TRANSIT's self-insurance program.

Risk Management coordinates reporting of fatalities and other serious accidents to appropriate local, state and federal agencies.

4.3.10 Hazardous Materials Management —(ASP Element-19)

Light Rail hazardous materials (including Air and Water Quality) programs are developed by the Environmental Services Department. The program also describes the process used to ensure NLR's knowledge and compliance with the program requirements. All hazardous materials contracts are

written and administered by Environmental Services, including hazardous waste removal, spill response, underground tank design/installation, and air and water quality issues and appropriate mitigation. Environmental Services has the responsibility to maintain the spill response plan. Environmental Services coordinates hazardous waste manifesting, storage, and removal with the facility and the waste hauler. The location maintains a manifest file and hazardous material location log at the facility.

NLR employees are also trained on the new Globally Harmonized System of Classification and Labeling of Chemicals (GHS) and the new label elements (i.e., pictograms, hazard statements, precautionary statements, etc) and SDS format. Safety Department reviews and approves all products used and ensures proper labeling and SDS retention in accordance with OSHA/PEOSH, GHS and State Right to Know laws.

Details provided under ASP Element 19- Hazardous Materials Management includes a description of the NLR's hazardous materials program, including the process used to ensure knowledge of and compliance with local, state, and federal program requirements including hazardous spill response training. ASP also provides a description of how this information is conveyed to employees and contractors through training programs and evaluated through inspections and audits, and rules compliance activities.

This section includes a description of the employee safety program that incorporates the applicable State of New Jersey PEOSH Act (N.J.S.A.34:6A-25) and Safety and Health Standards for Public Employees (N.J.A.C.12: 100) and Federal OSHA requirements.

Light Rail hazardous materials (including Air and Water Quality) programs are developed by the Environmental Services Department. The program describes the process used to ensure NLR's knowledge and compliance with the program requirements. All hazardous materials contracts are written and administered by Environmental Services, including hazardous waste removal, spill response, underground tank design/installation, and air and water quality issues and appropriate mitigation. Environmental Services has the responsibility to maintain the spill response plan. Environmental Services coordinates hazardous waste manifesting, storage, and removal with the facility and the waste hauler. The location maintains a manifest file and hazardous material location log at the facility.

NLR employees are also trained on the new GHS Classification and Labeling of Chemicals and the new label elements (i.e., pictograms, hazard statements, precautionary statements, etc) and SDS format. Safety Department reviews and approves all products used and ensures proper labeling and SDS retention in accordance with OSHA/PEOSH, GHS and State Right to Know laws.

4.3.11 Drug/Alcohol Abuse Programs – (ASP Element-20)

NJ TRANSIT has adopted a comprehensive 'Drug and Alcohol-Free Workplace' policy. The purpose of the policy is to ensure compliance with the Drug-Free Workplace Act of 1988, the Omnibus Transportation Employee Testing Act of 1991, as amended, and to ensure that NJ TRANSIT operates in the safest and most efficient manner possible. NJ Transit seeks to promote the safety and welfare

of its employees and customers by creating a workforce that is free from the effects of prohibited drugs and alcohol use and abuse.

NJ TRANSIT's goal to achieve a drug- and alcohol-free workplace is accomplished through the implementation of a comprehensive anti-drug and alcohol (D&A) program. The NJ Transit D&A Program includes NJ Transit staff training, deterrence, detection, assistance and enforcement.

The D&A program objectives, in support of this goal, are to prevent drug and alcohol abuse, to assist employees who seek help, to detect drug and alcohol abuse, and to enforce NJ TRANSIT's policy.

The above objectives are accomplished by:

- Providing training, orientation, and educational material that explains the requirements of NJ TRANSIT's policy and procedures
- Educating employees about the impact that drug and alcohol use, both on and off the job, can have on job performance, health and safety
- Offering a confidential Employee Assistance Program (EAP) and encouraging affected employees to seek help voluntarily as well as encouraging referral of employees for such assistance before job performance deteriorates
- Training for supervisors to detect the signs and symptoms of drug and alcohol abuse
- Screening employees for drugs and alcohol both prospective to and during employment, and,
- Enforcing NJ TRANSIT's drug- and alcohol-free workplace policy and imposing discipline when prevention and deterrence fail.

All testing under this policy is pursuant to the FTA requirements for the Prevention of Alcohol Misuse and Prohibited Drug Use in Transit Operations per 49 C.F.R. Part 655. All testing is conducted in strict accordance with the DOT Procedures for Transportation Workplace Drug and Alcohol Testing Programs in 49 C.F.R. Part 40. All safety-sensitive employees and/or candidates for employment in safety sensitive positions are required to submit to drug and alcohol detection testing. Tests are administered by the specially trained staff of the Medical Services Department.

A description of the drug and alcohol ***Abuse*** program and the process used to ensure knowledge of and compliance with program requirements are provided in NJ Transit Corporate Policies and NLR ASP. The description provided also explains how implementation of this program is evaluated through inspections and audits, and rules compliance activities. FTA's drug and alcohol program documents and information are available on their website at:

https://transit-safety.fta.dot.gov/DrugAndAlcohol/Default.aspx.

NLR-ASP provides a description of the Drug & Alcohol Abuse Program in place at NLR and the process used to ensure knowledge of, and compliance with the program requirements by workers and management. NLR's program meets both State and Federal DOT requirements. Additionally, NJ Transit's Drug and Alcohol Abuse Program describes the Employee Assistance Program and/or Substance Abuse Program.

4.3.12 Hours of Service--(ASP Element-22)

In order to protect the safety of Operators, NLR Employees and the passengers, NJ Transit follows the hours of service regulations contained in Part 395 of the Federal Motor carrier's safety Regulations handbook and Rule 'P' in the NLR Rules Book.

These regulations limit an NLR operator to:

- no more than 10 hours driving time (as defined below-see Note: (i)) following 8 consecutive hours off duty, and
- no more than 15 hours of on duty time following 8 consecutive hours off duty, and
- no more than 70 hours on duty time during any period of 8 consecutive days, and
- no more than 60 hours on duty time during any period of 7 consecutive days*

(Note: (i) Driving time is defined as "all time spent at the driving controls of a vehicle in operation". (ii) On duty time is defined as "all time from the time a driver begins to work or is required to be in readiness to work until the time they are relived from work and all responsibilities for performing work")

The above hours of service guidelines are followed for all operating employees at NLR.

During emergency and snow removal duties, the rest periods may be shortened to allow for expediting work activities until the time when situation is restored or adequately mitigated. However, the 16 hour/day limit shall not be exceeded. NLR's "Teledriver" system pre-calculates hours of service and alerts the management, preventing any potential violation on the hours of service rule.

Those employees holding a CDL and operate commercial vehicles are required to follow the hours of service guidelines as stated under the NJ State Commercial Drivers' Manual and/or federal Motor Carriers Safety Regulations.

The NLR Track and Line Department personnel shall be governed by the FRA standard for hours of service for on duty time. "Kronos" time keeper system maintains track of Line and Track Department employee's hours.

NLR's hours of service policy is monitored to ensure employees are familiar with the policy and know their responsibility towards compliance with policy.

(Note: For FRA regulated segments of NLR, NLR follows "Code of Federal Regulations Title 49 Part 228 — Hours of Service of Railroad Employees").

4.3.13 Roadway Worker Protection/On-Track Safety Protection Rules-- (ASP Element -23)

Newark Light Rail's (NLR) has established a Roadway Worker (RW) Protection policy for all Operations and Maintenance personnel and a training program to ensure that all RW(s) have knowledge of NLR's policy. These are rules relating to protecting personnel working on or near active track along the NLR Right-of-way. Employees are annually trained and qualified to provide appropriate protection for work groups and individuals performing work activities along the alignment. All NLR Staff, Operators, and Maintenance personnel are required to attend the training program. Additionally, on-track safety requirements are included in the NLR Contractor Safety Orientation Program.

NLR's ROADWAY WORKER PROTECTION (RWP) PROGRAM provides requirements for Roadway Worker (RWs) Protection. RWP is designed to protect all RW(s) conducting work on or near NLR's rights-of-way. RWP Program requires adherence to clear rules and procedures. RWP Program also requires appropriate training, certification and retraining. RWP Program also requires regular monitoring of right-of-way safety compliance of NLR employees and Contractors. NLR staff (Flagman or Employee-in-Charge or Supervisors) oversees the RW(s) to assure safety compliance. RWP also requires reporting of Near Misses or other hazards to OC and these are discussed at the Safety Review Committee and TIGER Team meetings. NLR-RWP is designed to incorporate all these elements and introduce a consistent approach throughout NLR operations.

RWP Training Class covers: RWP Regulations (FRA Rules: 49 CFR 214, APTA Standard: RT-S-OP-016-11, Rev 1 and NLR Rules) and require all RWs to attend the RWP training/ recertification. Training addresses the responsibility of all RW(s). It identifies the dangers on the roadway, including moving trains, the traction power system and known hazardous conditions.

NLR's On-track safety program includes procedures for conducting and participating in a safety briefing before beginning work and when work or job conditions change. Before any RW fouls a track, the designated person providing on-track safety for the group shall ensure that a job safety briefing is held. Additional job safety briefings shall be held anytime the job conditions change during the work period. Such information shall be given to all affected RW(s) before the change is effective. Emergency situations do not relieve the requirement for on-track safety briefings.

4.3.14 On-The Job Training (OJT) – OJT includes classroom instruction, hands-on field training and impromptu instruction that is an unstructured exchange between experienced and inexperienced employees; which can be on an instructor-to-employee basis, supervisor-to-employee basis, or employee-to-employee basis. Outside of OJT, most of NLR's training programs are formalized with lesson plans, LRT Technical Training Programs.

4.3. a Management of Change

Management of Change – NLR system changes/system modifications/configuration changes / procurement of new components or parts may introduce new hazards and safety risks into its operations. As such, NLR has established criteria that define when such changes/modifications must be evaluated through the Safety Risk Management and Safety Assurance process. If proposed or identified change or modification meets or triggers those criteria, then NLR uses Safety Risk Management to review existing mitigations to determine if they are sufficient or if new mitigations are necessary. *NLR ensures that safety concerns and hazards resulting from* system change/system modification / configuration change / procurement of new components or parts *are adequately addressed.* NLR leverages its field monitoring activities (under the Safety Performance Monitoring and Measurement subcomponent) to support the identification of changes in a system that may not be planned.

NO.	*ASP ELEMENT*	*CONTENTS*
08	*System Modification*	*A description of the process used by the rail transit agency to ensure that safety concerns are addressed in modifications to existing systems, vehicles, and equipment, which do not require formal certification but which may have safety impacts.*
07	*Safety Certification*	*A description of the safety certification process required by the rail transit agency to ensure that safety concerns and hazards are adequately addressed prior to the initiation of passenger operations for New Starts and subsequent major projects to extend, rehabilitate, or modify an existing system, or to replace vehicles and equipment.*
17	*Configuration Management and Control*	*A description of the configuration management control process, including: (i) the authority to make configuration changes, (ii) process for making changes, and (iii) assurances necessary for all involved departments to be formally notified.*
21	*Procurement Process*	*A description of the measures, controls, and assurances in place to ensure that safety principles, requirements and representatives are included in the rail transit agency procurement process.*

The operation of Newark Light Rail is dynamic and changes and modifications occur frequently and on an as –needed basis,

Example of changes and modifications include:

- Introduction of new equipment,
- Changes to facilities,
- Scope of work modifications,
- Introduction of new equipment,

- Temporary Route modification,
- New contracted services,
- New procedures or changes to key staff members

Etc.

NLR's Safety Assurance element of SMS involves the continual monitoring of system safety performance. NLR identifies and assesses changes that may introduce new hazards or impact NLR's safety performance, and if NLR determines that a change may impact its safety performance, then NLR evaluates the proposed change through its Safety Risk Management process. In some cases, changes may include modifications to the existing design, service changes to the existing system, new operational or maintenance procedures, new organizational changes, and changes to internal standard operating procedures, such as changes to procurement or safety management processes. Each of the SMS procedures is equally important and are designed to work together as a system for managing safety risks.

At NLR, Management of Change includes:

- System Modification
- Safety Certification
- Configuration Management
- Procurement.

4.3a-1 NLR SYSTEM MODIFICATION (ASP Element-8)

Modifications to any existing system component within the Newark Light Rail usually requires coordination and cooperation within and between not only various internal divisions/departments but also with outside agencies (FTA, NJDOT-OSSO, Local Agencies, etc), consultants, and contractors. Depending upon the type of modification, various departments may be assigned the lead in design/implementation.

System component modifications and changes to existing stations and facilities will conform to the methodology outlined in NJ TRANSIT's *Project Management Guidebook (accessed through '@transit' website)*. The guidebook describes NJ TRANSIT's project management process including but not limited to:

Project initiation, design process, construction management, procurement, and construction/equipment/contracts. The appropriate departments will review and approve the design, modifications, and/or changes of NLR system components prior to implementation. All system component modifications will comply with the provisions of the Americans with Disabilities Act (ADA). All system modifications will be reviewed and approved by the Newark Light Rail Safety Review Committee.

Examples of NLR System Modification include:

- **Bloomfield Avenue Station ADA improvements project**
- **Davenport Avenue Station ADA improvements project**
- **LRV- Five Section Cars**

Managing Safety in System Modifications

NLR ensures that safety concerns that are identified and addressed in modifications to existing systems, vehicles, and equipment, which do not require formal safety certification, but which may have safety impacts are properly reviewed, analyzed and documented. Details include how design/build activities integrate safety into the end-product, so that the system modifications meets industry standards, codes, regulations, and is capable of being approved as safe for operation. This ensures that the end-product conforms to criteria, standards, and specifications prepared for the system modification.

Examples include the following:

- Maintenance and construction activities that do not require formal safety certification but that do require safety inspections and sign-offs, and
- Identification of the Department and Personnel responsible for ensuring that hazards associated with system modifications are included in the Hazard Management Process.

Both capital and operating programs are included in the System Modifications process and address both hardware and software elements

Both NLR's capital and operating projects/programs are included in the change process and they address both hardware and software elements. The changes in 'System Modification' are also included in 'Element 17, Configuration Management', as needed/required.

State of Good Repair Activities

According to US DOT / FTA's MAP-21 and Transit Asset Management final rule, 49 CFR Part 625, examples of Transit Capital Assets may be classified in to four categories: Equipment (non-revenue) Service Vehicles, Rolling Stock, Infrastructure (rail fixed-guideway, track, signals, and systems), and Facilities.

State of Good Repair (SGR) means the condition in which a transit capital asset is able to operate at a full level of performance. A capital asset is in a ***State of Good Repair*** if it meets the following objective standards:

(a) The capital asset is able to perform its designed function;

(b) The use of the asset in its current condition does not pose an identified unacceptable safety risk; and,

(c) The life-cycle investment needs of the asset have been met or recovered, including all scheduled maintenance, rehabilitation, and replacements.

Critical to the safety and performance of a public transportation system is the condition of its capital assets—most notably, its equipment, rolling stock, infrastructure, and facilities. When transit assets are not in a ***State of Good Repair***, the consequences include increased safety risks, decreased system reliability, higher maintenance costs, etc.

NLR's system maintenance work includes State of Good Repair (SGR) activities on an as needed basis. Scope and specific details of tasks involved completely depends on the SGR work under consideration. Maintaining NLR transit system in a State of Good Repair (SGR) is a multi-task as well as a multi-disciplinary effort.

In this process, System Safety activities such as:

- Identification of Engineering Systems (Equipment (non-revenue) Service Vehicles, Rolling Stock, Infrastructure (rail fixed-guideway, track, signals, and systems), and Facilities that are to be maintained in a SGR;
- Configuration Management;
- Systems Management/Integration;
- Start-Up;
- Rail Activation;
- Safety Certification; and,
- Operational Demonstration

all of which are related and lead back to sound revenue operations are considered. Not all elements are applicable in all cases. Similarly, elements of Quality Assurance and Quality Control that affect Safety of the System such as Design Control, Inspection and Testing, Nonconformance, etc., that have a critical role in maintaining NLR in a SGR are considered. Incorporation of appropriate elements of System Safety and Quality Assurance programs in all NLR's SGR activities assures a safe, reliable and efficient NLR system. Throughout SGR activities, NLR's Director of Quality Assurance and the System's management in-charge of all activities (General Manager, Light Rail Operations) will interface with the State Safety Oversight (SSO) Office. SSO may participate in key NLR project/Safety Review Committee meetings. SSO promulgates the State Safety Standards for compliance by NLR.

4.3a-2 Safety-Certification Program--(ASP Element-7)

NLR's Safety Certification process includes a detailed sign-off process to verify the operational readiness of a new LRV(s), major system modification, system expansion, new equipment, and facilities, enabling NLR to consider the system safe for operations, prior to entering revenue service. NLR's Certification process includes development of a Certifiable Items List, the use of Checklists to record compliance to criteria, standards, specifications, codes, and recommended guidelines relevant to safety and security, issuance of Certificates of Compliance for each certifiable element, and issuance of self-certification by NLR.

NLR ASP also identifies the final authority to approve the safety certification of major projects, extensions, etc. The role of the system safety function and safety committee function are also be described, including activities to be performed to ensure that:

(1) Facilities and equipment have been constructed, manufactured, inspected, installed, and tested, in accordance with safety and security requirements in the design criteria and specifications;

(2) Operations and maintenance procedures and rules have been developed and implemented to ensure safe and secure operations;

(3) Training documents have been developed for the training of operating and maintenance personnel, and emergency response personnel;

(4) Transportation and maintenance personnel have been trained and qualified/certified;

(5) Emergency response agency personnel have been prepared to respond to emergency situations in or along the ROW;

(6) Safety and security-related system integration tests have been conducted; and

(7) Security for the segments in operation and the Yard and Shop are addressed.

When all required certifiable system elements are certified, a system safety and security certification statement, signed by NLR's Senior Management is issued along with a Safety and Security Certification Verification Report (SCVR). NLR also identifies major components that form the baseline for certification including, Manuals of Design Criteria, Standard and Directive Drawings, Contract Final Designs, and the System Verification Report and Test Plans. Note that these changes and additions to the rail systems need to be included in Start-Up Procedures, System Integration, and Element 17: Configuration Management as well.

NLR also identifies a formal start-up for portions of NLR system that may not be ready on time, or for equipment that is placed into service with safety mitigations/exceptions. For such cases, the NLR's top management must determine the needs are absolutely necessary and provide the required directive. Safety mitigations/exceptions are signed off by all NLR's Departments involved, indicating they fully understand the nature of the exception and what temporary measures are in place to mitigate any potential side effects. NLR submits the documentation for Start-Up to NJDOT-OSSO.

Upon receiving conditional approval by NJDOT-OSSO, NLR will initiate operations with safety mitigations/exceptions. NLR notifies the NJDOT-OSSO every thirty (30) days of the status of the safety mitigations/exceptions until they are fully removed.

NLR's safety certification plan describes the certification process.

Safety Certification for NLR is:

- A forward thinking, proactive approach to safety, hazard and risk management during NLR's design, construction, commissioning and readiness phases;

- Series of processes that collectively verify NLR's safety and security readiness for (public and employee) use.

The NLR's Safety Certification process verifies that safety requirements are incorporated from the conceptual and preliminary design stage to final operation. Availability of objective and factual evidence to support approval of Certificates of Conformance assures achievement of a level of safety readiness and the ability to safely transport passengers during revenue service. The goal of NLR Safety Certification is verify that NLR transit system is safe for public use prior to revenue operations and to provide documentary evidence of that level of safety.

NJ TRANSIT-Newark Light Rail safety certifies that all major system modifications, major procurement items (that have a safety impact), major configuration changes, rehabilitations, and line extensions are operationally safe to use in revenue service. The purpose of the Safety-Certification Program is to ensure that adequate safety and security features have been incorporated into the design and construction criteria and that the System has been constructed, inspected, and tested in accordance with the design specifications.

The Handbook for Transit Safety and Security Certification (FTA - Nov 2002) is used as the baseline process and guide book for the safety-certification program.

While **49 CFR § 659.19(h)** states:

*A description of the **safety certification process** required by the rail transit agency to ensure that safety concerns and hazards are adequately addressed prior to the initiation of passenger operations for New Starts and subsequent major Transit Systems to extend, rehabilitate, or modify an existing system, or to replace vehicles and equipment.*

49 CFR § 673.27(c) Safety Assurance states:

A transit agency must establish a process for identifying and assessing changes that may introduce new hazards or impact the transit agency's safety performance.
*If a transit agency determines that a change may impact its safety performance, then the transit agency must evaluate the proposed change through its **Safety Risk Management process.***

The Safety Assurance component (stated above under Safety Certification), envelops the requirements of System Modifications/Changes, Procurements, Configuration Changes, etc. that may introduce new hazards, increase safety risks and impact NLR's safety performance.

The purpose of the Safety Certification Program is to ensure that the design, construction, procurement, installation, testing and operation of all critical system elements were evaluated for conformance with established safety and security requirements and to verify safe operational readiness. To this end the program ensures that NLR transit system has the ability to safely transport passengers in revenue service.

Safety Certification verifies facilities, systems, and equipment are designed, constructed, built, inspected, and tested in accordance with applicable codes, standards, criteria, and specifications and

that necessary verification tests, safety plans, operating procedures, and rules book are developed for operations.

It verifies that safety related requirements have been incorporated into the NLR Transit System and verifies and documents that the system has been constructed as designed.

Personnel are trained and qualified to respond to emergencies, and emergency response organizations are familiar with the transit system and its emergency procedures, and inherent hazards.

Major tasks that are included in the NLR Safety Certification Program are:

- Identification of safety and security critical system elements to be certified and authorized development of a certifiable items list
- Identification of safety requirements for each certifiable element or elements to be certified
- Verification and documentation of compliance with safety and security related plans and procedures
- Verification of training programs and emergency preparedness procedures
- Verification of safety-related testing, inspections and issuance of TUNs, authorizations and occupancy permits, development of the hazard / risk management program and resolution of potential hazards / risks
- Compliance with Regulatory Requirements.
- Issuance of Certificates of Compliance for each certifiable element upon satisfactory completion when measured against a set of formal safety and security requirements
- Demonstration to transit agency's Executive Management (Board of Directors), Oversight and Federal agencies that the transit agency has appropriately managed the Safety Certification Program
- Issuance of final safety certification

NLR's Safety Certification Plan describes the certification process. The plan/protocol includes a description of:

- the project
- how and when a PHA/OHA for the planned project will be completed
- preparation and approval of Safety Certification Checklists
  (Note: after the checklists have been developed and approved internally by the Safety Review Committee and GM, NJDOT-OSSO will review the Checklists for their approval).
- A set of NLR's project plans that will be submitted to NJDOT-OSSO for review,
  (Note: The plans need to describe how and when coordination with the NJDOT-OSSO and the project team will be done).
- the scheduled project walk-downs with the NJDOT-OSSO,
- Describe the process of how upon completion of the project (and prior to project being initiated to revenue service) the documents will be submitted to NJDOT-OSSO for review and approval. The documents include:

- all approved Checklists and Certificate(s) of Compliance,
- a system safety certification statement signed by NLR's Senior Management and
- Safety Certification Verification Report (SCVR) as part of the Self Certification process.

- Finally, the plan needs to address how open items in the SCVR will be tracked to closure along with the issuance of an updated SCVR to the NJDOT-OSSO on a monthly basis.

The objectives of the Safety-Certification Program are to verify and approve that:

- Facilities and equipment have been designed, constructed, manufactured, inspected, installed, and tested in accordance with the safety requirements of the design specifications and criteria.
- Operational and maintenance rules and procedures have been developed and implemented to ensure safe operations.
- Operations and maintenance personnel have been trained, qualified, and/or certified to ensure safe operations.
- Emergency response agencies have been prepared to respond to emergency situations involving the NLR system.
- Safety-related integrated testing has been completed to ensure that system components function as intended.

The Safety-Certification process consists of the following major tasks:

- Develop a list of certifiable elements
- Identify safety requirements for each certifiable element
- Verify that required tests and inspections have been completed
- Issue Certificates of Compliance and completion for each certifiable element and for the entire system
- Issue System Safety Certification Verification Report (SCVR)
- Review and approval of SCVR by the Safety Committee and NJ Transit Executive Management, and
- Submit System Safety Certification Verification Report (SCVR) to the State Safety Oversight Office (NJDOT-OSSO) for review and approval. The NJDOT-OSSO reviews the SCVR and certifies that the system is "Revenue Ready".

When all the items in the Authorization Checklist(s) List are satisfactorily completed and verified, NLR Safety Review Committee issues "Temporary Use Notices" (TUNs) for a specific system/ facility authorizing commissioning of the specific system/facility.

The purpose of the TUNs for a specific phase (or system/facility) is to authorize incremental testing and commissioning. These TUNs define the elements of the systems, sub-systems and/or facility to be utilized and any restrictions placed on their use due to reduced functionality (e.g., speed restrictions, geographical limitation, etc.). These TUNs are also tied to the first level of system integration, such as, essential Safety-related interfaces (e.g., wheel to rail). Work-arounds are also established for non-functional elements of the systems, sub-systems and/or facilities. The TUNs are

also issued for the shakedown and initial testing of each vehicle and for subsequent test phases.

The NLR System Configuration which is certified as "Revenue Ready" during the Safety Certification process is considered the Baseline for purposes of O & M Configuration Management.

This baseline includes the "As-Built Drawings" and all mitigations delineated as part of Safety Certification.

4.3a-3 Configuration Management and Control--(ASP Element-17)

The NLR Configuration Management process uses baseline management to ensure that technical, operational, safety, and security needs are defined and controlled throughout the entire system component or operational modification process. This process ensures that appropriate staff and departments review and concur with system component or operational modifications affecting the NLR system. The NLR M-o-W, M-o-E, Transportation Staff is responsible to maintain the appropriate documentation to verify that the required review and concurrence has taken place.

Configuration management requirements are included in major contracts to assure that changes to previously Safety Certified (i.e., designed, constructed, inspected, tested and approved) equipment and facilities are adequately documented and approved. Appropriate information will be disseminated to employees and shall be included in training manual updates. Employee training provisions will be provided for and included in contracts involving major modifications. All changes to design, construction methods, and inspection and test procedures of previously Safety Certified elements will be reviewed by NLR M-o-W, M-o-E, Transportation and System Safety staff and approved by the Newark Light Rail Safety Review Committee.

To assess the effect of improvements, upgrades, revisions to an existing NLR system or new systems and/or equipment on safety and security, NLR utilizes a combination of analyses, tests, and configuration control measures. Depending on safety criticality of revised system, the Safety Review Committee (which is chaired by the Manager, LRT Technical Training, Interim Safety Officer) determines the necessary analysis to be performed such as a detailed Hazard Analysis. NLR Safety Review Committee reviews the proposed NLR Configuration Changes (as a result of System Modifications, Procurement of major items, etc.) and make recommendations for Safety Certification. Configuration changes that impact elements of Quality Management System (QMS) such as Design Control, Procurement, process control, Inspection and testing, Software Changes etc. will also be reviewed.

Test Procedures and Results, safety-critical systems and/or equipment are reviewed by the Safety Review Committee. This review enables the Committee to assess the test procedures and control measures to conduct a safe test. Test Results are reviewed by the Committee to verify the successful demonstration of specification safety requirements. Test procedures and test results are documented and maintained, as applicable.

NLR utilizes the Configuration Control Program to assure control and documentation of all in service systems and equipment, including new additions. As part of their responsibilities, the Safety Review Committee assures that safety updates are implemented and are made known to NLR personnel responsible for maintaining the configuration control program.

This Agency Safety Program Plan (NLR SMS PLAN) is also subject to NLR configuration control. The Director, Quality Assurance Programs is responsible for maintaining and updating this NLR SMS

PLAN, and assuring it reflects the current regulatory requirements and the status of the safety program.

The configuration management process will be applied, but not limited to, all areas of operations and maintenance, safety/security, and system and facility modifications.

4.3a-4 Procurement Process – (ASP Element-21)

Representatives from the appropriate departments (the Light Rail Superintendents, Interim Director, System Safety-Director, Quality Assurance Programs and Manager, LRT Training and potentially affected departments perform a comprehensive review of performance specifications and design criteria for computer software that is critical to the operation of the NLR system. Such software shall include, but not be limited to, power distribution, electric traction control, train control, and light rail vehicle operations. This review ensures that safety and operational requirements as well as provisions to assure product compliance through appropriate inspections, tests, and evaluations are incorporated into contract specifications. Depending upon the system/product procured, Safety certification may be performed. Implementing Quality Management Systems (QMS) and Safety Management Systems (SMS) requirements is an integral part of the Procurement process.

The Procurement and Support Services Department is responsible for purchasing products/materials and services in accordance with technical specification requirements provided by the appropriate department. The technical specifications include QMS and SMS requirements.

Pursuant to the provisions of the *NJ Worker and Community Right to Know Act*, the Materials Management Department is responsible for obtaining specific product information for materials containing hazardous substances. This information includes Material Safety Data Sheets and any special requirements for handling, storing, or dispensing such products. The Safety Department is responsible to review and approve all products containing hazardous substances prior to procurement.

NLR has implemented appropriate the measures, controls, and assurances in place to ensure that safety principles and requirements are included in NLR's procurement process.

The scope of NLR's procurement process is comprehensive and includes:

- acquisition of services,
- acquisition of materials,
- training curricula, and
- maintenance documentation and equipment, as well as new systems.

Approved procurement procedures are established that enforce and preclude the introduction of unauthorized hazardous materials and supplies, as well as defective or deficient equipment.

As part of the procurement process, NJT/NLR implements 'Quality' and 'Safety' reviews that includes: preparation of specifications, design reviews, audits, quality testing, calibration, analysis, design/production/completed product reviews of hardware and software components, assemblies, and products. This process precludes mishaps, faults and/or failures that may cause safety or security to be compromised and assures optimum reliability, minimum repair/replace time, energy efficient systems, and user-friendly interface.

NLR's internal reviews and audits include checks to ensure that proper procedures are followed and materials received meet the procurement requirements. In addition, NLR's procurement process ensures all hazardous materials are stored in a safe and controlled manner. The procurement of hazardous materials complies with all applicable state and federal regulations.

4.3. b. Continuous Improvement of NLR's SMS Process

Continuous Improvement- NLR performs an evaluation of the SMS for its operating system to ensure that it effectively and efficiently allows NLR to meet safety objectives and performance targets. NLR addresses any identified weaknesses in SMS organizational structures, processes, and resources in a timely manner, and also complete annual reviews of overall safety performance (including an annual review and update of all of its safety related documents (Manuals and Procedures).

NO.	ASP ELEMENT	CONTENTS
04	ASP Control and Update	The process used to control changes to the ASP, including: (i) specifying an annual assessment of whether the ASP should be updated; and (ii) required coordination with the oversight agency, including timeframes for submission, revision and approval.
09	Safety Data Collection and Analysis	A description of the process used to collect, maintain, analyze, and distribute safety data, to ensure that the safety function within the rail transit agency receives the information necessary to support implementation of the system safety program.
10	Accident/ Incident Investigations	A description of the process used by the rail transit agency to perform incident notification, investigation and reporting, including: (i) notification thresholds for internal and external organizations; (ii) investigation process and references to procedures; (iii) the process used to develop, implement and track corrective actions that address investigation findings; (iv) reporting to internal and external organizations; and (v) coordination with the oversight agency.
11	Emergency Management Program	A description of the process used to develop an approved, coordinated schedule for emergency management program activities, which include: (i) meetings with external agencies; (ii) emergency planning responsibilities and requirements; (iii) process used to evaluate emergency preparedness, such as annual emergency field exercises; (iv) after action reports and implementation of findings; (v) revision and distribution of emergency response procedures; (vi) familiarization training for public safety organizations; and (vii) employee training.
12	Internal Safety Audits	A description of the process used to ensure that planned and scheduled internal safety audits are performed to evaluate compliance with the ASP, including: (i) identification of departments and functions subject to review; (ii) responsibility for scheduling reviews; (iii) process for conducting reviews, including the development of checklists and procedures and issuing of findings; (iv) review of reporting requirements; (v) tracking the status of implemented recommendations; and (vi) coordination with the oversight agency.

NLR monitors and assesses the effectiveness of its SMS and performs an evaluation of the SMS for its operating system to ensure that it effectively and efficiently allows NLR to meet safety objectives and performance targets. NLR addresses any identified weaknesses in SMS organizational structures, processes, and resources in a timely manner and also completes regular reviews of overall safety performance (including a review and update of all of its safety related documents, such as, Manuals and Procedures). These activities enable continuous improvement of the overall performance of the SMS at NLR.

Based on NLR's operating system evaluation, if NLR identifies any system safety deficiencies, NLR will immediately address the identified deficiencies.

Continuous improvement is evaluated through monitoring the results of: Safety data collection and analysis, Accident/Incident Investigations, Emergency Management, Internal and external safety audits, NLR efficiency checks, NLR-ASP's control and update procedure. Continuous improvement is measured through the monitoring of safety performance indicators and is related to the maturity and effectiveness of an SMS. Safety assurance processes support improvements to the SMS through continual verification and follow-up actions. These objectives are achieved through the application of internal evaluations and independent audits and inspections of the SMS.

4. 3b-1 ASP Control and Update Procedures (ASP Element-4)

The NJ TRANSIT NLR ASP will be reviewed annually (at a minimum) and revised as needed.

Proposed revisions to the NLR ASP will be directed to the Interim Director of System Safety Programs who will coordinate the preparation of all revisions, circulate draft versions of updates for review by the appropriate departments (including the Safety Review Committee members) and insure that the approved revisions are appropriately integrated into the NLR ASP. Changes in policy will be reviewed by the appropriate levels of management, including the Safety Review Committee members.

Proposed revisions to the NLR ASP will be submitted to the General Manager, Light Rail Operations and the Interim Director of System Safety Programs. The proposed revisions will be reviewed and approved by the Safety Review Committee. Changes to the NLR ASP will be identified as a numbered revision and will include appropriate information, such as the date of the revision and the section revised, along with the proper approval signatures. All conformed copies of the NJ TRANSIT NLR ASP will be numbered and assigned to an individual person or department. All revisions to the ASP will be issued the designated individuals or departments. Changes to the ASP will be on a "page for page" basis. In the event of significant changes or updates to the NLR ASP, a complete revised copy will be issued to the appropriate departments.

The General Manager, Light Rail Operations will ensure that the Office of the State of New Jersey Fixed Guideway System - Safety Oversight Program (NJDOT-OSSO) receives revised/updated ASP.

All reviews and revisions to the NLR-ASP will conform to the NLR Configuration Management process and NJDOT-OSSO Standards. The ASP will be reviewed annually (at a minimum) by June 30th of each calendar year. If upon review no revisions are required, General Manager, Light Rail Operations will notify the NJDOT-OSSO. If upon review, revisions are required, revised/updated ASP will be submitted to NJDOT-OSSO no later than September 30 for review and approval by the NJDOT-OSSO.

4.3b-2 Safety Data Collection and Analysis (ASP Element-9)

Section 4.3.1 (under Safety Assurance) provides details of Safety Data Collection and Analysis

4.3b-3 Accident/Incident and Hazardous Conditions Investigations--(ASP Element-10)

Section 4.3.3 (under Safety Assurance) provides details of Accident/Incident and Hazardous Conditions Investigations.

4.3b-4 Emergency Management Program (ASP Element-11)

Emergency Management element of NLR-ASP identifies and describes NLR's required coordination with internal departments (NJ Transit Police) and external organizations. Emergency Management includes:

- Familiarization training for public safety organizations and Emergency Responders,
- Table-top drills,
- Emergency Response field drills,
- Attending training provided by Emergency Responders,
- After-action report preparation and implementation of findings,
- Emergency response member(s) participation in NLR's Safety Meetings,
- distribution of NLR ASP and emergency response procedures

  Etc.

This element ensures integration of programs that have input into, or output from, the SMS. In this element NLR identifies and describes the necessary coordination with both external organizations and internal departments for dealing with emergencies and abnormal operations, as well as the return to normal operations. This sub-component addresses the various internal and external programs that may affect safety management and includes an index of the plans and procedures that support the transit agency's public safety and emergency management activities. This ensures coordination in plans dealing with emergencies and abnormal conditions and returning to normal operations. This sub-component identifies and describes the interface with external organizations.

These activities contribute to determining the root cause(s) of accidents/incidents, lessons learned and continuous improvement of NLR system

Security and Emergency Preparedness Plan (SEPP)

NJ Transit Police Department takes the lead in preparing and implementing the Security and Emergency Preparedness Plan (SEPP). SEPP is security program document that describes the requirements for system security and emergency preparedness for NJ Transit Systems.

NLR- Security and Emergency Preparedness

The NLR with input from the Emergency Responders has developed a safety orientation program for First Responders. The program is designed to familiarize emergency responders with the NLR system and operations. The orientation includes a review of the NLR system, tunnel, traction power system, LRVs, track structure, NLR Maintenance support vehicles, and grade crossings; included in the emergency preparedness program are suggested initial actions as follows: (i) safety recommendations for first responders, and (II) NJ TRANSIT emergency contact information. The NLR conducts familiarization training prior to drills and exercises for local fire, police, OEM, Bomb Squad, and other public safety organizations. The training includes both class room instruction and a field demonstration.

Each response agency has been issued program materials that include a CD ROM of the orientation, an accompanying manual, and a NLR system map.

Emergency Operations Plan and NLR Manual of Standard and Emergency Operating Procedures

NJ TRANSIT/NJTPD has developed an *Emergency Operations Plan/ Continuity of Operations Plan (COOP)* to define corporate-wide organizational priorities and to establish guidelines to effectively manage large scale emergencies, disasters, and major service disruptions. NJ TRANSIT uses a unified command structure for all incidents that require a response from multiple agencies. NJ

TRANSIT Police has the primary responsibility for incident command functions at emergency scenes. NJ TRANSIT/Newark Light Rail management staffs have attended training classes regarding the National Incident Management System to ensure the consistent application of a standard process for emergency management.

Emergency evacuation procedures are discussed with NLR personnel during Safety Meetings and drills to demonstrate employee familiarity with the procedure.

NLR actively participates in emergency preparedness simulations each calendar year to ensure that an effective mechanism is in place to manage emergency incidents on the NLR system.

Emergency Response Planning, Coordination, and Training

NLR's Emergency Operations Plan and the Manual of Standard and Emergency Operating Procedures describe planning, coordination, and training to address emergencies on the NLR system. These documents include a description of the process used to develop an approved, coordinated schedule for all emergency management program activities including meetings with external agencies (when required); develop and evaluate emergency planning and requirements, evaluate emergency preparedness and employee emergency related training. The process for revision and distribution of emergency response procedures are included in the documents.

NJ Transit Police have the lead responsibility for performing FTA mandated annual field and tabletop emergency exercises. NLR fully participates in both Tabletop and field exercises.

Following each drill or exercise a de-briefing is held to evaluate:

- Interagency communication and operations at the incident scene;
- Internal and external notifications and response procedures; and
- Emergency procedures and protocols.

The 'After Action Report' (i.e. Drill Critique) is documented by the Drill Coordinator (example: NJT Police Department), with findings and recommendations as required. Recommendations may include, but are not limited to, revising response procedures, re-writing or updating procedures, additional training of NLR and/or emergency response personnel, or other actions. Procedures and training will be updated and distributed as required. NJT Police Department also coordinates regular fire and life safety meetings with emergency responders.

NLR will notify OSSO in advance of all drills and exercises.

Emergency Response Agencies- Coordination and Communication

Effective communications between emergency response agencies and NJ TRANSIT representatives during emergency incidents is a vital component of system safety and emergency preparedness. Verbal and written information must be disseminated to emergency responders appropriate to the nature of the incident. NJ TRANSIT must ensure that emergency responders are adequately trained, prepared and sufficiently familiar with NLR system components to effectively manage emergencies that occur on the Light Rail.

These SEPP activities enable continuous improvement of the overall performance of the SMS at NLR.

4.3b-5 Internal and External Safety Audits (ASP-12)

Section 4.3.5 (under Safety Assurance) provides details of NLR's Internal and External Safety Audits.

4.3.c- Support Activities

➢ Quality Assurance

NJT/NLR's Safety Assurance process complements that of Quality Assurance process, with each having requirements for analysis, documentation, auditing and management reviews to assure that certain performance criteria are met. While quality assurance typically focuses on the NJT/NLR's compliance with regulatory requirements, safety assurance specifically monitors the effectiveness of safety hazard / risk controls.

The complementary relationship between quality assurance and safety assurance allows for the integration of certain supporting processes. Such integration can serve to achieve synergies to assure that the NLR's safety, quality, security and emergency response objectives are met.

Additionally, at NLR, both quality and safety assurance activities include the development and implementation of corrective actions in response to findings of systemic deficiencies having a potential quality and safety impact. Organizational responsibility for the development and implementation of corrective actions should reside with the departments cited in the findings.

- **Quality Management System**

Quality Management System (QMS) tasks for NLR are performed by NLR Quality Assurance/Quality Control Programs staff in accordance with the *New Jersey Transit's Project Management Guidebook (accessed through "@transit" website),* NLR and FTA QMS Guidelines. These guidebooks describe NLR/NJ TRANSIT's and FTA's project management and Quality Management System (QMS) process including but not limited to: project initiation, design process, construction/equipment/contracts, inspection, construction, configuration management, and procurement and provides adequate confidence that a structure, system or component will perform safely and satisfactorily in service. Quality Management System (QMS) participates in the review of design, construction, operation and maintenance work to verify that work is properly planned; activities are performed according to the plan; and activities performed are documented. Other activities that Quality Management System (QMS) participates include: vendor inspections, receiving inspections, configuration management and control, procurement, safety Certification, system modifications, etc. For transit maintenance activities, Quality Management System (QMS) is utilized specifically to prevent, detect and correct defects by Quality of design, construction, operation maintenance and Quality of conformance.

At NLR operations, QMS and SMS are complementary. While QMS is focused on compliance to prescriptive regulations and requirements, to meet customer expectations and contractual obligations, the SMS is focused on safety performance. The objectives of an SMS are to identify safety related hazards, assess the associated risk, and implement effective risk mitigations and controls. In contrast, the QMS focuses on the consistent delivery of products and services that meet relevant specifications.

Nonetheless, both the SMS and QMS:

a) must be planned and managed;
b) involve all organizational functions related to the safe and quality delivery of NLR's transit products and services;
c) depend upon measurement and monitoring of performance indicators; and,
d) strive for continuous improvement.

SMS and QMS utilize similar risk management and assurance processes.

The objective of the SMS is to identify safety related hazards the organization must confront, and to control the associated risks. SMS is designed to manage safety risk and measure safety performance during delivery of products and services. The safety risk management process eliminates hazards or provides effective controls to mitigate safety risks by maintaining an appropriate resource allocation balance between production and protection to meet safety performance requirements.

A QMS provides consistency in the delivery of products and services to meet performance standards as well as customer expectations. The QMS also has an independent assurance function that utilizes a feedback loop to assure delivery of products and services that are —fit for purpose and free of defects or errors. The quality assurance function identifies ineffective processes and procedures that must be redesigned for efficiency and effectiveness.

Furthermore, SMS and QMS utilize similar tools. Safety and quality in practice are essentially focused on the same goal of providing safe and reliable products and services to customers. Both quality and safety staffs are trained on various analysis methods including root cause analysis and statistical trending analysis.

Given the complementary aspects of SMS and QMS, it is possible to establish a synergistic relationship between both systems that can be summarized as follows:

a) a SMS is supported by QMS processes such as auditing, inspection, investigation, root cause analysis, process design, statistical analysis, and preventive measures;

b) a QMS may anticipate safety issues that exist despite the organization's compliance with standards and specifications; and

c) Quality principles, policies and practices are linked to the objectives of safety management.

The relationship between SMS and QMS leads to the complementary contributions of each system to the attainment of the organization's safety and quality goals. A summary comparison may be reflected as follows:

QMS-Quality Management System	SMS-Safety-Safety Assurance
▪ Quality	▪ Safety
▪ Quality assurance	▪ Safety assurance
▪ Quality control	▪ Hazard identification & Risk control
▪ Quality culture	▪ Safety culture
▪ Compliance to requirements	▪ Acceptable level of safety performance
▪ Prescriptive	▪ Performance-based
▪ Standards & specifications	▪ Organizational & human factors
▪ Reactive > Proactive	▪ Proactive > Predictive

Because of the overlapping nature of QMS and SMS, NLR QMS staff also participates in LR&CS's safety related activities. These include:

- System safety audits of LR&CS's and contractors' activities on-site to verify compliance with FRA, FTA, NJ State Safety Oversight Agency, OSHA, N J Transit, applicable ISO and/or contractual requirements.
- Field safety inspections to verify conformance of field installations with regards to specifications / design and safe construction practices, Risk / Hazard analysis and Safety Certification of critical LRT systems and providing recommendations for their mitigation.
- Reviewing Quality Management System (QMS) (QA / QC) programs for activities related to Transit Asset Management and third-party construction projects along light rail right-of-way and verification of their implementation.
- Implementation of the elements of the Public Transportation Agency Safety Program Plan(s) and supporting documents.

Etc.

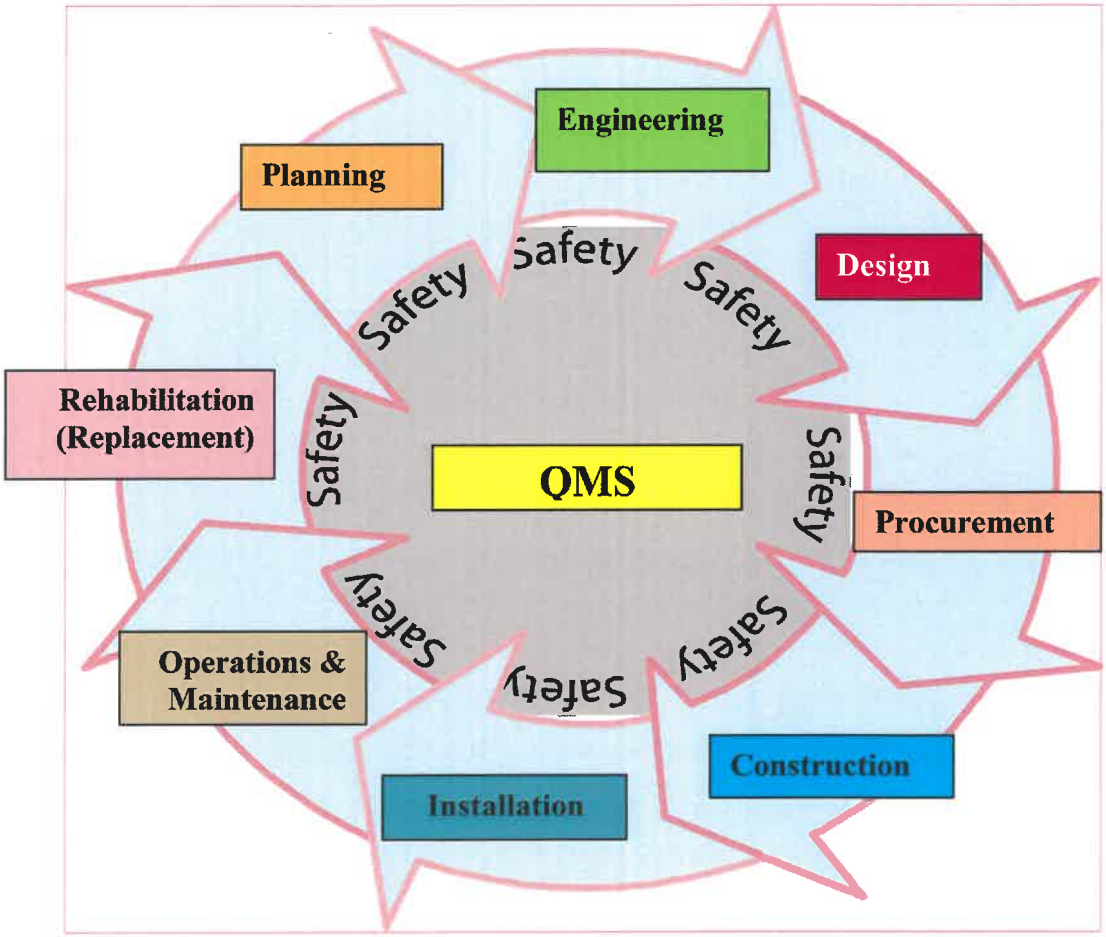
(Note: *Part of the Information in Section: 4.10 "Quality Management System", was extracted from Safety Manual (SMM), 2018 International Aviation Organization)*

Quality and Safety Integration

The following diagram was extracted from FTA's Quality Management System Guidelines, February 2012. This diagram shows that Quality, along with safety, remains at the core of any project phases during the lifecycle.

'Quality' is part of each element in a Transportation System and at every stage. It is a continuous process.

Quality, Safety and the Project Life cycle



During Safety Certification, System Modification, Configuration Management and Changes, Accident Investigation, etc., as part of implementation of Safety Assurance, NLR considers principles QMS.

The appropriate departments will review and approve the design, modifications, and/or changes of NLR system components prior to implementation. New equipment designs and/or changes to the existing Operational System fully consider all applicable federal, state and municipal standards, regulations, and requirements.

The Safety and Quality Department reviews specifications to ensure compliance, especially with life safety issues. A hazard analysis is conducted, using frequency/severity of assessed hazards/risks, to assist management in planning design changes.

Design meetings are held with the senior Light Rail Transit staff, and internal or contracted engineering staff to discuss objectives and user needs. The General Manager, Light Rail Operations, respective Superintendents, Director, System Safety, Director, Quality Assurance and Quality Control Programs of Light Rail or their designee are involved in all phases of design and design changes.

Safety Department review is required for any changes in design/systems which may impact customers, employees, and public or vehicle safety.

The design, modification, and/or changes for NLR system components receive final approval only after review and concurrence by the Newark Light Rail Safety Review Committee and the General Manager, Light Rail Operations.

➢ Office of System Safety (OSS)

OSS monitors the safety performance of New Jersey Transit Light Rail Systems (including NLR) through evaluating safety data (from accident/injury occurrences, unacceptable hazardous conditions, threats and rules/ procedure violations). The data is obtained from each agency's' Operations and other reporting mechanisms.

OSS works with each Light Rail Systems management staff to ensure that employees are working safely. Safety strategies are created by working from the traditional safety by compliance to a concept of prevention through planning which involves operational and maintenance personnel in the identification of hazards and risks with program focus on influencing workforce behaviors and providing real-time safety analysis.

OSS reviews specifications to ensure compliance, through involvement in system/design changes that may have impact on customers, employees, general public, facilities or vehicle safety. It is the responsibility of the OSS to perform internal audits, inspections and reporting as required by the NJDOT- SSOPS. This includes coordination of information and requests submittals to NJDOT-OSSO while maintaining an independent nature of the audit process. Hazard tracking provides a description of analysis/findings, frequency/severity assessments and corrective action(s) to be taken to mitigate hazards. Reporting is provided to NJT senior management for top-down Safety Management System philosophy of risk mitigation implementation. Those practices are monitored to evaluate mitigation effectiveness.

The OSS interfaces with FTA, NJDOT-OSSO, NJTPD, local PD/FD and emergency responders to develop lines of communication through participation in Emergency Preparedness Exercises, Fire/Life Safety Committees (F/LSC), NLR's Safety Review Committee Meetings (SRCM) and Incident Investigation analysis teams where there are consensus efforts to conduct hazard analysis and manage system safety programs.

As part of Safety Assurance, the Office of System Safety monitors Operations and Maintenance activities to measure if safety performance is in line with established objectives and performance targets.

➢ Engineering

Facility and vehicle/equipment design, including specification development to meet all applicable codes is an engineering responsibility, with input from the Safety Department and NLR Staff.

Engineering project managers are responsible for contract completion; including ensuring work is performed in a safe manner, and in compliance with specifications. Engineering is responsible for equipment tests, final inspections, and obtaining as built drawings, when applicable.

➢ Human Resources

The personnel Section of Human Resources establishes, monitors, and reviews as needed all hiring procedures to ensure compliance with applicable federal and state laws. Personnel Section incorporates safety qualifications into job requirements and reviews all applicants to ensure maintenance of standards. Personnel Section provides employees with copies of appropriate corporate policies and procedures and ensures that a signed receipt is obtained from the employee.

➢ Regulatory Interagency Coordination and Communication

As a public carrier, the Newark Light Rail is subject to the external review processes of various outside agencies, including but not limited to:

- National Transportation Safety Board (NTSB)
- US Departments of Transportation (US DOT)
- NJ Departments of Transportation (NJ DOT)
- Federal Transit Administration (FTA)
- Federal Railroad Administration (FRA) [for Shared Right-of-Way issues]
- NJ Department of Labor (DOL)
- NJ Department of Health (DOH)
- NJ Department of Community Affairs (DCA)

It is the policy of NJ TRANSIT to completely cooperate with all external agencies regarding safety-related recommendations. Office of System Safety & interim Safety Director- System Safety are authorized to act as liaison for all issues and items relating to Safety.

Communications and coordination with regulatory agencies will be made in accordance with the respective procedures in the *Manual of Standard and Emergency Operating Procedures*.

Responses to outside recommendations are maintained by the Office of System Safety and the Interim Director, System Safety. The Office of System Safety and the Interim Director, System Safety coordinates with NJ DOT on all matters pertaining to the NJ State Fixed Guideway Safety Oversight Program.

➢ Public Safety Awareness

NJ TRANSIT has a comprehensive customers and community safety campaign that aggressively markets safety to customers. Safety and security messages are included in all forms of communications and publications to customers. Such publications include, but are not limited to, brochures, flyers, posters, timetables, mail-tiks, seat drops and customer notices. Safety and security

information is also displayed inside the passenger equipment.

NLR Staff informs customers and the affected communities when station or system rehabilitations occur. Directional signs, temporary barriers, and warning signs are installed to prevent customer injuries during construction, maintenance, or repair projects. In addition, NLR has conspicuously posted warning signs along the right-of-way to discourage trespassing and at locations containing high voltage equipment to provide electrical hazard warnings.

NJ TRANSIT actively participates in the Operation Lifesaver Program. Operation Lifesaver is a national organization working to reduce highway-rail grade crossing incidents, injuries, and fatalities by increasing public awareness of rail safety. The program is sponsored cooperatively by federal, state, and local government agencies, civic organizations and the national's railroads.

The success of the program is based on educating people of all ages about highway-rail grade crossing safety. NJ TRANSIT accomplishes this through education programs at high school driver education classes, to bus drivers, emergency responders, and to community organizations.

➢ NJ TRANSIT Interdepartmental Coordination and Communication

Effective communications between internal departments regarding matters of safety are a vital component of system safety and emergency preparedness. Verbal and written information must be disseminated to departments appropriate to the nature of the issue and accompanied by adequate training for affected personnel.

NLR routinely interfaces with internal departments regarding system modifications, capital improvements, major repairs, security, training, service modifications, special events, and matters of safety. These departments include, but are not limited to:

❖ NJ TRANSIT Police	❖ Medical Services
❖ Office of System Safety	❖ Human Resources
❖ Capital Planning/Engineering	❖ Planning
❖ Risk Management	❖ Procurement
❖ Finance	❖ Light Rail Safety
❖ Information Services	❖ Bus Operations
❖ Operational Training	❖ Rail Operations
❖ Project Management	❖ Quality Management Systems
❖ Access Link	❖ Customer Services/Public Information

NLR projects and programs requiring input and participation from internal departments are coordinated by the designated Project Manager.

4.4 SAFETY PROMOTION

4.4.1a SMS Component: Safety Communication

NLR promotes safety and encourages a positive safety culture and creates an environment that is conducive to the achievement of NLR's safety objectives. At NLR, a positive safety culture is characterized by values, attitudes and behavior that are committed to NLR's safety efforts. This is achieved through the combination of technical competence that is continually enhanced through training and education, effective communications and information sharing. Senior management provides the leadership to promote the safety culture throughout NLR.

NLR completely realizes an organizational safety effort does not succeed solely by mandate or strict adherence to policies. Safety promotion affects both individual and organizational behavior and supplements the organization's policies, procedures and processes, providing a value system that supports safety efforts.

NLR has established and implemented processes and procedures that facilitate effective communication throughout all levels of the organization. NLR communicates its safety objectives, as well as the current status of any related activities and events. NLR also encourages —bottom-up communication, providing an environment that allows senior management to receive open and constructive feedback from personnel at all levels.

NLR monitors and observes safety communication and changes in employee safety actions and work ethics. NLR is sensitive to indications of change in trends toward Safety Culture by observing and monitoring efforts to meet and /or exceed Safety Policies and Objectives, also observing employee(s) action in conducting work and communicating with work partners and associates. (Note: These actions and observations can be measured to provide a feed back to Management for indications of progress or alternatively review and alter the program to be better understood by the work force and supervisors).

NJT and NLR has an open communication policy between frontline employees and management about security and safety information. NJT and NLR considers this as crucial in establishing a positive safety culture. Effective safety communication makes personnel aware of safety priorities and initiatives and ensures that feedback is captured and acted upon as appropriate. Safety-related information is actively and routinely communicated, focusing on raising awareness of hazards and potential safety risks. NLR and NJT follows the principle that regular discussion of safety concerns promotes an environment that encourages employees to report concerns and demonstrates management commitment to both the employees and NJT/NLR's safety performance objectives.

4.1 b Competencies and Training – Training of all NLR employees with respect to their role and responsibilities as they relate to NLR's safety performance is perhaps the most critical driver for successful SMS implementation. It also shapes NLR employee perception of executive management's commitment to safety. Achieving appropriate levels of competency for each staff level enables the consistent application of their skills to help NLR achieve its safety performance objectives.

4.4.2 Training and certification program for employees and contractors. (ASP Element 16)

Newark Light Rail has established a training curriculum to ensure basic level of safety –related competency for rail transit system auditing and oversight.

Additionally, NLR Staff who are directly responsible for safety oversight will be required to complete applicable training requirements of 49 CFR Part 672 within three (3) years of their initial designation. Thereafter, refresher training shall be completed every two (2) years. Additionally, refresher training requirements which must include, at a minimum, one (1) hour of safety oversight training will be provided.

Required Curriculum over a Three-Year Period is as follows:

NLR Staff (public transportation agency personnel) with direct responsibility for safety oversight of rail fixed guideway public transportation systems:

- *One (1) hour course on SMS Awareness—e-learning delivery (all required participants)*
- *Two (2) hour courses on Safety Assurance—e-learning delivery (all required participants)*
- *Twenty (20) hours on SMS Principles for Transit (all required participants)*
- *TSSP curriculum (minus Transit System Security (TSS) course) (all required participants—credit will be provided if participant has a Course Completion Certificate of previously taken TSSP courses)*
    - *Rail System Safety (36 hours)*
    - *Effectively Managing Transit Emergencies (32 hours)*
    - *Rail Incident Investigation (36 hours)*

NO.	*ASP ELEMENT*	*CONTENTS**
16	***Training and Certification Program for Employees and Contractors***	***A description of the training and certification program for employees and contractors, including: (i) categories of safety-related work requiring training and certification; (ii) a description of the training and certification program for employees and contractors in safety-related positions; (iii) process used to maintain and access employee and contractor training records; and (iv) process used to assess compliance with training and certification requirements.***

NLR's employees, emergency responders and contractors receive safety training. In general, the safety training meets the following criteria.

- The training syllabus, eligibility and requirements are documented.
- There is a validation process that measures the effectiveness of training.
- The training includes initial, recurrent and update training, where applicable.
- The organization's SMS training is part of the organization's overall training program.
- SMS awareness is incorporated into the employment or indoctrination program.
- The safety communication processes/channels within the organization.
  Etc.

4.4.2a Operations Department Training

NLR personnel assigned/selected to operate Light Rail cars on the NLR system must successfully complete the LRV Operator Certification Training. Newark Light Rail's LRV operators receive specific training and certification from Operational Training. Field Salary and supervision personnel receive specific training from Operational Training and other support departments. Lesson plans and reference materials are developed and maintained by the Safety and Training Department.

LRV Operators attend a re-certification training program conducted annually by Operational Training. This training program reviews current operating and safety rules, revisions to standard procedures as well as any changes or enhancements to the infrastructure, equipment, or operation of the NLR system.

In accordance with the requirements of the Americans with Disabilities Act (ADA), NLR operators receive training regarding the special needs/problems of disabled customers. NLR operators are instructed on how to make station announcements and are periodically monitored to ensure compliance.

- **Initial LRV Operator Training/Certification** - The initial LRV Operator training and certification course is eighteen days long. The training program consists of classroom instruction and performance-based skill evaluation with an Operational Training Instructor. Participants receive instruction and demonstrations on subjects including, but not limited to, safety, signals, overhead catenary system, switches/crossovers, LRV operation, trouble-shooting, yard movements, and LRV towing and emergency procedures. At any time, the student may be disqualified from training for substandard operating skills as determined by the Instructor. Upon successful completion of the training /certification program, the student is issued certification of training.

- **Annual LRV Operator Re-certification** - Each year, all personnel qualified to operate an LRV must successfully complete a one-day re-certification training program. The training program consists of classroom instruction and performance-based skill evaluation with an Operational Training Instructor. Participants receive instruction on subjects including, but not limited to: safety, signals, overhead catenary system, switches/crossovers, LRV operation, trouble-shooting, yard movements, and LRV towing and emergency procedures. An Operational Training Instructor evaluates the participant's performance while operating an LRV in both yard and main line operations. Upon successful completion of the training/certification program, the student is issued certification media.

- **LRV Operator Re-Certification** - Re-certification training is also provided for LRV operators and NLR personnel who have had their certification revoked as a result of having safety violations or who have been inactive for extended periods of time. This training is tailored to the individual employee's needs and is done one-on-one with an Operational Training Instructor.

Employees who have received initial certification within 90 days of the annual re-certification program will not be required to re-certify until the next annual re-certification program.

- **LRV Operator De-Certification** - LRV Operators may be de-certified by System Supervision and subjected to appropriate discipline for repeated and/or cumulative from violations including, but not limited to, the following:
  - NJ TRANSIT Drug & Alcohol Policy
  - Avoidable Derailment
  - Failing to stop for a **RED** signal
  - Running through a switch
  - Failing to avoid a collision with a fixed object
  - Failing to follow blue signal protection procedures
  - Failing to follow flagging procedures
  - **Specialized Training** -The Operational Training Department and other NJ TRANSIT support departments also provide specialized training to operational personnel on such topics as customer sensitivity, diversity in the workplace and ADA compliance.

4.4.2b Safety Rules/Procedures

All NJ TRANSIT Light Rail employees receive a Safety Rules and Procedures manual when hired. In addition, operating employees receive an employee's service guide. Because of the specialized nature of the operation, employees of the Light Rail will also receive a Light Rail-specific rulebook titled *Newark Light Rail Light Rail Transit Safety Rules & Procedures*.

NLR Supervision shall maintain the most current version of all policies, procedures, bulletins, general orders, and protocols affecting NLR operations and administration.

NLR employees shall have a knowledge and understanding of the rules, regulations, and requirements affecting their respective position. Additionally, NLR employees are required to maintain the most current version of the *Newark Light Rail Light Rail Transit Safety Rules & Procedures* manual.

- **General Employee Work Rules** - These are rules relating to work practices that ensure the maximum level of safety for employees, customers, and the public. Included are procedures for reporting unsafe conditions, injuries and accidents. Also included are building evacuation procedures and company policies on horseplay, visitors, and garage access. The Employee work rules are reviewed biannually by NLR Staff and are revised as needed with concurrence from the NLR Rules Review Committee.

- **Operation Staff Work Rules** -These are rules relating to the operation of the Light Rail cars and the responsibilities of operators. Included are company policies on use of intoxicants, narcotics, or drugs, basic speed rules, a discussion of the Light Rail signal systems, and a complete listing of all operating procedures. The Operating work rules are reviewed bi-annually by NLR Staff and are revised as needed with concurrence from the NLR Rules Review Committee.

- **Maintenance Work Rules** - These are rules relating to the maintenance of all Light Rail systems and the responsibilities of maintenance employees. Included are rules for working on vehicles, use of personal protective equipment and fire safety practices. Also included are work rules for employees who repair line and track systems. The Maintenance work rules are reviewed bi-annually by NLR Staff and are revised as needed with concurrence from the NLR Rules Review Committee.

4.4.2c Roadway Worker Protection Training

A detailed description of NLR's Roadway Worker Protection policy, training and other details are provided in Section 4.3.13 –Element 23.

Section 4.3.13 provides a description of NLR's Roadway Worker Protection Policy and plan that is in place at NLR for all operations and maintenance employees, and the process used to ensure knowledge of and compliance with the policy and plan. In compliance with NJDOT SSO program recommendation NLR follows the FRA's regulation 49 CFR Part 214 for Roadway Worker Protection and APTA standard: RT-OP-S-016-11 Rev.1.

4.4.2d Maintenance Training

Training of new employees and supplemental training of experienced employees is a critical element in the safety program. Safety elements are incorporated into all courses, including management courses.

Lesson plans and reference materials are developed and maintained by the Training Department.

- **Documentation/Evaluation of Training** -As a part of all training, students are given either written or practical examinations. All departments use standardized lesson plans, which are presented by qualified instructors.

Training records are kept by the safety and training department, which might be one of several within NJ TRANSIT.

- **Periodic Evaluation of Training** -Standardized training is designed with initial input from the Safety Department and the user. Periodically, all training lesson plans are reviewed and audited to ensure their quality, accuracy, and effectiveness. Students are given the opportunity to evaluate training through the use of course comment sheets.

- **Maintenance Employee De-Qualification** – Maintenance employees may be de-qualified by NLR System Supervision and subjected to appropriate discipline for repeated and/or cumulative safety and rules violations. De-qualification and disciplining results from

violations including, but not limited to, the following:

- NJ TRANSIT Drug & Alcohol Policy
- Weapons
- Vehicle operation without license
- Lockout/Tagout
- Tampering with Safety Equipment
- Failing to follow procedures on the R-O-W
- Failing to follow flagging procedures

4.4.2e Employee Safety Training

NJ TRANSIT Light Rail Operations has an extensive training effort with elements of safety incorporated into all courses. Employee training programs incorporate the requirements of all state and federal laws that include, but are not limited to, the following:

- Powered Industrial Trucks
- Fire Extinguisher Operation
- Hearing Conservation
- Fatigue Awareness
- Fall Protection Awareness
- Confined Space Awareness
- Roadway Worker Safety
- Facility Emergency Evacuation Procedures
- Drug and Alcohol Program
- NJ Worker & Community Right-To-Know Act (Chemical Safety Awareness)

NLR Safety staff ensures that all newly hired/transferred employees receive initial safety orientation and training that includes chemical safety awareness, Drug and Alcohol prevention, working in confined spaces and using respirators. Appropriate manuals, supplemental reference materials, and rule books are disseminated to students at each training class. Additionally, the NJ Transit Bus Safety and Training Department provides safety related topics and support materials to assist NLR management in discussing various safety issues at monthly employee safety meetings.

Safety awareness posters, brochures, pamphlets, and other materials are distributed and/or displayed to increase employee awareness regarding safety-related topics. The awareness program is intended to remind employees of safe work practices to minimize the potential for accidents and injuries.

NLR Management and Support Staff (Superintendents, Supervisors) conduct monthly safety meetings for employees to provide a forum for employees to identify safety concerns and to highlight the safety topic for the month.

4.4.2f Contractor and Subcontractor Safety Coordination –

Contractor and Subcontractor Safety Coordination includes a description of the background checks, safety procedures and instructions to contractors. It includes how the information is disseminated to contractors/subcontractors such as construction/procurement specifications, standards, meetings or other means. The procedures include a mandatory pre-activity conference for Contractor(s) that is used to review safe practices while performing work on or near the operating system, passenger facilities and in RTA/RTS maintenance facilities. Instructions to Contractor(s) require the log in/out of all personnel involved in activities on or near the operating system, visual identification label and I.D. system and require the use of RTA/RTS flag persons when the Contractor(s) is granted access to the operating ROW.

4.4.2g Efficiency Checks/Tests

Implementation of a comprehensive and effective safety program at NLR is a line responsibility at all levels within the NLR organization. The responsibility, authority and accountability for effective implementation of the safety program flows directly from the General Manager, Light Rail Operations, to the Superintendents. From the Superintendents, this responsibility flows to all NLR employees (and contractors).

Particular areas of concentration for Efficiency Checks / Tests include:

(a) Passenger Security and Safety
(b) Safety during Operations
(c) Employee Safety & Security
(d) Contractor safety
(e) Life Safety
(f) Special Requirements
Etc.,

Objective: The objective of the Efficiency Check/Tests is to improve safety in overall NLR's performance. One method to accomplish this is by evaluating employee's (and contractor) compliance with safety rules and practices.

In addition to focusing on checking compliance with safety rules, the management may identify specific rules or practices or areas or themes to concentrate on or emphasize while performing efficiency checks. The NLR General Manager or his designee will identify and communicate this information to the staff.

Responsibility: All NLR employees who have the responsibility for participation must understand the safety rules applications they are observing, accurately record those observations, and submit the information without delay to the Safety Department

Procedures:

- Direct observation of the employee (can be on the vehicle or wayside)
- Monitor radio or telephone transmissions
- Examination of event recorder tapes

Whenever possible, employees (contractors) must be observed without knowledge that the tests are being performed or Checks are being conducted. When an employee is in doubt about the proper application of a safety rule, they are advised to contact their respective Supervisor(s) or Manager(s). Efficiency Checks provide NLR the techniques to assess the implementation of various rules and procedures (example: operating rules, maintenance rules, and safety rules) and evaluate the effectiveness of training.

Scope: The scope of efficiency checks/ tests is to verify compliance with items, such as:

- Private Contractors' compliance when/where 3rd party Contractors are on the property
- Signal / Signs Indications
- Maximum Authorized Speed
- Grade Crossing Operations
- PPE
- Roadway Worker
- Passenger Requirements
- Communication with Control Center
- Switches Facing / Trailing and /or Special work
- Proper equipment/Personal appearance
- Schedule Maintenance
- Station Stops
- Radio /Communication Procedures
- Safety Rule of the Day/week
- Train/Vehicle movement and other craft Responsibilities
- Interaction with Passengers
- Communication with OC
- Cell Phone Use
- Un Authorized Person in the LRV Cab
- Others as suggested by employees or GM
  Etc.,

All Rules compliance and efficiency check findings (operating rules, maintenance rules, safety rules, performance testing, other techniques used by NLR) are documented, and discussed during the morning meetings and are incorporated into the NLR's hazard management process.

The Other NLR ASP elements that address SMS Component 4, Safety Promotion are, NLR ASP Elements: 6, 9,18,19 and 20.

4.4.3 Hazard Management, specifically hazard communication (ASP Element 6)

Details of Hazard Management, specifically Hazard Communication, is provided under Section 4.2.1 'Safety Risk Management'

4.4.4 Safety Data Collection and Analyses (ASP Element 9)

Details of **Safety Data Collection and Analysis** are provided under 'Safety Assurance' Section(s):4.3.2

4.4.5 Compliance with Local, State, and Federal Requirements (ASP Element 18)

Details of **Compliance with Local, State, and Federal Requirements** are provided under 'Safety Assurance' Section(s): 4.3.9

4.4.6 Hazardous Materials Program (ASP Element 19)

Details of NLR's **Hazardous Materials Program are** provided under 'Safety Assurance' Section(s):4.3.10

4.4.7 Drug and Alcohol Program (ASP Element 20)

Details of **Drug and Alcohol Program are** provided under 'Safety Assurance' Section(s):4.3.11

5.0 SECURITY PROGRAM TASKS

5.1 GENERAL

NJ TRANSIT Police have the primary responsibility for security functions at NLR stations, facilities, onboard LRVs and along the right-of-way. NJ TRANSIT Police officers routinely patrol the NLR system and support the fare enforcement program. NJ Transit Police have the lead responsibility for performing FTA mandated annual field and tabletop emergency exercises.

Security activities are described in the NJ TRANSIT Light Rail Operations System Security Plan (SSP). The SSP is maintained and implemented by NJ TRANSIT Police in conjunction with NLR personnel. Copies of the SSP are located at NJ TRANSIT Headquarters in the Police Department.

6.0 Documents and Records Management

NLR maintains all records/documents related to System Safety and NLR System in compliance with the requirements of NJ DOT-OSSO Standards and with those set forth in 49 CFR 673.31. Public Transportation Agency Safety Plan, including those related to the implementation of NLR's Safety Management System (SMS), and results from SMS processes and activities. NLR maintains documents that are included in whole, or by reference, that describe the programs, policies, and procedures that NLR uses to carry out Safety Plan. Records are maintained in a secure location with controlled access. All records are legible, readily identifiable and retrievable.

All NLR records are made available upon request by the US DOT-FTA or other Federal entity or NJDOT-OSSO.

7.0 REFERENCES

- NJDOT, Office of Fixed Guideway Safety and Security Oversight, Rule: N.J.A.C16: 53E (Authority: N.J.S.A. 27:1A-5, 27:1A-6, 27:25-8c, 48:2-12 and 52:14D-6; 49 U.S.C. § 5329(e); 49 CFR Part 674; October 5, 1978 Executive Reorganization Plan; and Executive Order No. 65 (1997); Refer to the current revision
- Rail Transit State Safety Oversight Program Standard (SSOPS), Office of Fixed Guideway Safety and Security Oversight, NJ DOT, March 5, 2018, Version 1.0 (Refer to the current revision)
- American Public Transit Association, Standards and Manual for the Development of Rail Transit System Safety Program Plans, dated 1998 (Revised 6/2001).
- New Jersey Transit- Manual of Design Criteria, (April 2004)
- Newark City Subway- Safety Certification Program Plan, (September 1999)
- MIL STD-882E, SYSTEM SAFETY, U.S. Department of Defense, (11 May 2012)
- NFPA 130 Fixed Guideway Transit Systems, National Fire Protection Association (Revised 2010).
- FTA Regulations, 49CFR, Part 659, State Safety Oversight of Rail Fixed Guideway Systems, Federal Transit Administration (April 29, 2005).
- FTA Quality Management System Guidelines (December 2012)
- System Security and Emergency Preparedness Plan for New Jersey Transit, Rev. 4, (August 1, 2005)
- Newark City Subway-Accident Investigation Guide (June 2013); Refer to current revision
- FTA Handbook for Transit Safety and Security Certification, Final Report November 2002
- NJ TRANSIT Guidelines for Project Management and Administration-Project Management Guide, revised: 10/05 (Accessed through "@ transit" website)
- 49 CFR Part 673, July 18, 2018, Public Transportation Agency Safety Plan, FTA Final rule.
- 49 CFR Part 674, March16, 2016, State Safety Oversight; Federal Transit Administration-Final Rule
- 49 CFR Parts 625 and 630--Transit Asset Management; National Transit Database-FTA Final Rule
- 49 C.F.R. Part 672- Public Transportation Safety Certification Training Program final rule-FTA Final Rule

8.0 DEFINITIONS

- Accident - Any event or occurrence that involves a collision between the light rail vehicle and rail equipment, facility, motor vehicle, derailment, explosion, fire or other loss-causing event during operations (other than yard operation) that results in a fatality or severe injury to passengers, employees, or other person(s), or the emergency evacuation of persons from the Guideway.

- Americans with Disabilities Act of 1990 – Civil rights law passed by Congress in 1990 which makes it illegal to discriminate against people with disabilities in employment, services provided by state and local governments, public and private transportation, public accommodations, and telecommunications.

- Catenary – An overhead contact wire system (OCS) which supplies power from a central power source –a Sub-Station to a light rail vehicle.

- Contractor- Contractor means an entity that performs tasks required on behalf of the oversight or rail transit agency.

- Configuration Management- A documented process that controls Transit System's activities, and interfaces, among design, construction, procurement, training, safety certification, operations, maintenance and software and hardware activities to ensure that the configuration of the transit system is established, approved and maintained.

- Corrective Action Plan- ``Corrective action plan'' means a plan developed to set forth the actions the ``rail transit agency'' will take to minimize, control, correct, or eliminate ``hazards,'' and the schedule for implementation for those actions.

- Downtime – A period in which a vehicle is inoperative because of repairs or maintenance.

- Dwell Time – The scheduled time a train is allowed to discharge and take on passengers at a stop, including opening and closing doors.

- Emergency – A situation which is life threatening to passengers, employers, or other interested citizens or which causes damage to any transit vehicle or facility or results in the significant loss of services and reduces the ability of the system to fulfill its mission.

- FRA - FRA means the Federal Railroad Administration.

- FTA - FTA means the Federal Transit Administration.

- GHS (*The Globally Harmonized System of Classification and Labeling of Chemicals*) - is a system for standardizing and harmonizing the classification and labeling of chemicals. It is a logical and comprehensive approach to: Defining health, physical and environmental hazards

of chemicals; creating classification processes that use available data on chemicals for comparison with the defined hazard criteria; and Communicating hazard information, as well as protective measures, on labels and Safety Data Sheets (SDS).

- Hazard - Hazard means a condition (as defined in the rail transit agency's hazard management process) that may endanger human life or property. Hazard is a real or potential condition that could lead to an unplanned event or series of events (i.e. mishap) resulting in death, injury, occupational illness, damage to or loss of equipment or property, or damage to the environment.

Hazard Severity

- Catastrophic - A hazard severity category defined as "Category I" failure condition that could result in a large number of serious injuries and/or fatalities, and/or significant loss of system capability.

- Critical - A hazard severity category defined as "Category II" failure condition that could result in severe injury to one or more persons, and/or significant system damage.

- Marginal - A hazard severity category defined as "Category III", failure conditions that could result in minor injury, minor occupational illness, or minor system damage.

- Negligible - A hazard severity category defined as "Category IV" failure conditions that cause less than minor injuries, illness, or system damage.

- Hazard threat Probability – The probability a hazard or threat will occur during the NLR's life. Probability may be expressed in quantitative or qualitative terms and the ranking system is as follows: (a) frequent, (b) probable, (c) occasional, (d) remote, (e) improbable, and (f) impossible.

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

- Headway – Time interval between vehicles moving in the same direction on a particular route.

- Incident – An unforeseen event or occurrence that does not necessarily result in death, injury, or significant property damage but may result in a minor loss of revenue.

- Individual- Individual means a passenger; employee; contractor; other rail transit facility worker; pedestrian; trespasser; or any person on or impacted by rail transit-controlled property.

- Injury – injury to a person requiring medical attention necessitating transport to a medical facility by ambulance or police vehicle for medical treatment.

- Investigation - Investigation means the process used to determine the causal and contributing factors of an incident, accident or hazard, so that actions can be identified to prevent recurrence.

- Light Rail – An electric railway with a "light volume" traffic capacity compared to rail rapid transit. Light rail may use shared or exclusive rights-of-way, high or low platform loading, and multi-car trains or single cars.

- Management Loss Control – An element of the system safety and security management function that evaluates the effects of potential hazards/threats considering acceptance, control, or elimination with respect to the expenditure of available resources.

- Mean Distance Between Failures (MDBF) – The average distance in miles that a transit vehicle travels before failure occurs.

- Mean Time Between Failures (MTBF) – The average time in hours that a transit vehicle travels before failure occurs.

- National Public Transportation Safety Plan means the plan to improve the safety of all public transportation systems that receive Federal financial assistance under 49 U.S.C. Chapter 53

- Off-Peak Period – The period between the morning and evening peak periods when travel activity is generally lover and less transit service is scheduled.

- Park and Ride Lot – Designated parking areas for automobile drivers who then board transit vehicles from these locations.

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

- Passenger Operations: Passenger Operations means the period of time when any aspect of rail transit agency operations is initiated with the intent to carry passengers.

- Peak Period – Morning and afternoon time periods when transit riding is heaviest.

- Preliminary Hazard Analysis- or "PHA" means an initial or early hazard analysis of a system or subsystem.

- Procedures – Established and documented methods to perform a series of tasks.

- Program Standard: Program standard means a written document developed and adopted by the oversight agency, that describes the policies, objectives, responsibilities, and procedures used to provide rail transit agency safety and security oversight.

- Property Damage –

- Damage, based on a preliminary gross estimate of $25,000 or more for repairs, or current replacement cost, to fixed guideway and non-fixed guideway property, or,
- Damage of $25,000 or more to a passenger carrying light rail vehicle and fixed guideway and non-fixed guideway property.

- Public Transit System – An organization that provides transportation services owned, operated, or subsidized by any municipality, county, regional authority, state, or other governmental agency, including those operated or managed by a private management firm under contract to the government agency owner.

- Quality Assurance (QA) is defined as "All those planned and systematic actions necessary to provide adequate confidence that a structure, system or component will perform safely and satisfactorily in service".

  QA emphasizes actions at a management level that directly improve the chances that QC actions will result in a product or service that meets requirements. QA includes ensuring the project requirements are developed to meet the needs of all relevant internal and external agencies, planning the processes needed to assure quality of the project, ensuring that equipment and staffing is capable of performing tasks related to project quality, ensuring that contractors are capable of meeting and carrying out quality requirements, and documenting the quality efforts.

  (Note: Essentially, 'Quality' becomes a 'Quality Assurance' when design, construction, operation and maintenance work is properly planned; activities are performed according to the plan; and activities performed are documented. For transit maintenance activities, Quality Assurance is utilized specifically to prevent, detect and correct defects by Quality of design and construction and Quality of conformance).

- Quality Management System (QMS) -The American Society for Quality (ASQ) defines the QMS as "A formalized system that documents the structure, responsibilities and procedures required to achieve effective quality management."

- Quality Management-ASQ defines Quality Management as "The application of a quality management system in managing a process to achieve maximum customer satisfaction at the lowest overall cost to the organization while continuing to improve the process."

- Quality Control (QC)-Techniques that are used to assure that a product or service meets requirements and that the work meets the product or service goals. Generally, QC refers to the act of taking measurements, testing, and inspecting a process or product to assure that it meets specification. It also includes actions by those performing the work to control the quality of the work. Products may be design drawings/calculations or specifications, manufactured equipment, or constructed items. QC also refers to the process of witnessing or attesting to and documenting such actions.

- Rail Fixed Guideway System- Rail fixed guideway system means any light, heavy, or rapid rail system, monorail, inclined plane, funicular, trolley, or automated guideway that:

- is not regulated by the Federal Railroad Administration; and
- is included in FTA's calculation of fixed guideway route miles, or receives funding under FTA's formula program for urbanized areas (49 U.S.C.5336); or
- has submitted documentation to FTA indicating its intent to be included in FTA's calculation of fixed guideway route miles to receive funding under FTA's formula program for urbanized areas (49 U.S.C. 5336).

- Rail Transit-Controlled Property means property that is used by the rail transit agency and may be owned, leased, or maintained by the rail transit agency
- Rail Transit Vehicle means the rail transit agency's rolling stock, including but not limited to passenger and maintenance vehicles.
- Redundancy – The existence of more than one means of accomplishing a given function.
- Ridership – The number of rides taken by people using a public transportation system in a given time period.
- Risk- An expression of the impact of an undesired safety event or security incident in terms of severity and likelihood. Risk is a combination of the severity of the mishap and the probability that the mishap will occur.
- Risk Assessment – Risk Assessment means a formal activity that transit agency determines Safety Risk Management priorities by establishing the significance or value of its safety risks.
- Initial Risk Index – The index of the worst credible consequences resulting from the hazard.
- Residual Risk Index – The index of the worst credible consequences resulting from the hazard once corrective actions have been implemented
  - Residual Risk Index – The index of the worst credible consequences resulting from the hazard once corrective actions have been implemented.
- Safety – Safety means freedom from harm resulting from unintentional acts or circumstances.
- Security-Security means freedom from harm resulting from intentional acts or circumstances
- Safety and Security Certification: The series of processes that collectively verify the safety and security readiness of a project for public use.
- Safety Verification – An activity of safety certification. The NLR implements a program to certify the system is safe, to the NJDOT SSO.
- Security – Freedom from harm resulting from intentional acts or circumstances.
- Security Breach – An unforeseen event or occurrence which endangers life or property and may result in the loss of services or system equipment.

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

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

- System Safety – The application of 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.

- System Safety Program Plan - means a document developed and adopted by the rail transit agency, describing its safety policies, objectives, responsibilities and procedures.

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

- System Security Plan means a document developed and adopted by the rail transit agency describing its security policies, objectives, responsibilities, and procedures

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

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

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

- Threat Analysis – A systematic analysis of a system operation performed to identify threats and make recommendations for their elimination or mitigation during all revenue and non-revenue operations.

- Threat Index – A quantitative measure interfacing the numerical probability of a threat with the severity of the threat.

- Threat Resolution – The analysis and subsequent action taken to reduce the risks associated with an identified threat to the lowest practical level.

- Transit Agency- means an entity that owns a fixed guideway system.

- Transit-controlled property - means property that is used by the transit agency and may be owned, leased or maintained by the transit agency.

- Transit vehicle means the transit agency's rolling stock including, but not limited to, passenger and maintenance vehicles.
- Unsafe Condition or Act – Any condition or act which endangers life or property.
- Vulnerability – A characteristic of the system that increases the probability of occurrence of a security incident.

Note: The following definitions were extracted from the Federal Register:

DEPARTMENT OF TRANSPORTATION
Federal Transit Administration
49 CFR Part 673
[Docket No. FTA–2015–0021]
RIN 2132–AB23
Public Transportation Agency Safety Plan

ACTION: Final rule

- *Risk* means the composite of predicted severity and likelihood of the potential effect of a hazard.
- *Risk mitigation* means a method or methods to eliminate or reduce the effects of hazards.
- *Safety Assurance* means processes within a transit agency's Safety Management System that functions to ensure the implementation and effectiveness of safety risk mitigation, and to ensure that the transit agency meets or exceeds its safety objectives through the collection, analysis, and assessment of information. *Safety Management Policy* means a transit agency's documented commitment to safety, which defines the transit agency's safety objectives and the accountabilities and responsibilities of its employees regarding safety.
- *Safety Management System (SMS)* means the formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of a transit agency's safety risk mitigation. SMS includes systematic procedures, practices, and policies for managing risks and hazards.
- *Safety Management System (SMS) Executive* means a Chief Safety Officer or an equivalent.
- *Safety performance target* means a Performance Target related to safety management activities.
- *Safety Promotion* means a combination of training and communication of safety information to support SMS as applied to the transit agency's public transportation system.
- *Safety risk assessment* means the formal activity whereby a transit agency determines Safety Risk Management priorities by establishing the significance or value of its safety risks.
- *Safety Risk Management* means a process within a transit agency's Public Transportation Agency Safety Plan for identifying hazards and analyzing, assessing, and mitigating safety risk.

- *Serious injury* means any injury which: (1) Requires hospitalization for more than 48 hours, commencing within 7 days from the date of the injury was received; (2) Results in a fracture of any bone (except simple fractures of fingers, toes, or noses); (3) Causes severe hemorrhages, nerve, muscle, or tendon damage; (4) Involves any internal organ; or (5) Involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface.

- *State of good repair* means the condition in which a capital asset is able to operate at a full level of performance.

- *State Safety Oversight Agency* means an agency established by a State that meets the requirements and performs the functions specified by 49 U.S.C. 5329(e) and the regulations set forth in 49 CFR part 674.

- *Transit agency* means an operator of a public transportation system.

- *Transit Asset Management Plan* means the strategic and systematic practice of procuring, operating, inspecting, maintaining, rehabilitating, and replacing transit capital assets to manage their performance, risks, and costs over their life cycles, for the purpose of providing safe, cost-effective, and reliable public transportation, as required by 49 U.S.C. 5326 and 49 CFR part 625.

PAGE INTENTIONALLY LEFT BLANK

TWENTY-FIRST CENTURY RAIL CORP. TRANSMITTAL

20 Caven Point Avenue
Jersey City, NJ 07305-4604

Phone: 201-209-2586
Fax: 201-209-2598

No: LOT TFC-OM-NJT-0357

TO: **New Jersey Transit**
One Penn Plaza East
Newark, NJ 07105-2246

DATE: **03-10-2020**

REFERENCE: **Public Transportation Agency Safety Plan (TFC-ASP-1)**

CONTRACT NO. 96CT001

ATTN: R. Nichols

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
☐ Drawings	☐ Approval	☐ IO – For Info – No Return Required
☐ Letter	☐ Your Use	☐ NC – No Comment – No Return Required
☐ Prints	☐ As Requested	☐ WC – With Comment – Revise & Resubmit
☐ Change Order	☒ Review and Comment	☐ V – Void
☒ Plans	☐ Final	
☐ Samples	**SENT VIA:**	
☐ Specifications	☐ Attached	
☐ Other: Schedule	☒ File e-mail	

ITEM NO.	COPIES	DATE	DESCRIPTION
1	1	3/2020	Public Transportation Agency Safety Plan (TFC-ASP-1) - DRAFT (with NJT comments incorporated)

Comments:

Signed: S Vecerina

cc: P Maccioli, S Vecerina, N Shashidhara, DCC

21ST CENTURY RAIL CORPORATION

PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

INCORPORATING THE ELEMENTS OF SYSTEM SAFETY MANAGEMENT & PERFORMANCE MEASUREMENT

TFC-ASP-1

NJTRANSIT
The Way To Go.

NEW JERSEY TRANSIT

21ST CENTURY RAIL CORPORATION

HUDSON-BERGEN LIGHT RAIL TRANSIT SYSTEM

PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

INCORPORATING THE ELEMENTS OF SYSTEM SAFETY MANAGEMENT & PERFORMANCE MEASUREMENT

(TFC-ASP-1)

MARCH 2020

SUBMITTED TO:
New Jersey Transit

SUBMITTED BY:
PHILIP J. MACCIOLI, PRESIDENT, CEO & DIRECTOR, RAIL OPERATIONS
Steven R. Vecerina, Manager, System Safety Programs
21ST CENTURY RAIL CORPORATION

NEW JERSEY TRANSIT

21ST CENTURY RAIL CORPORATION

HUDSON-BERGEN LIGHT RAIL TRANSIT SYSTEM

PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

(TFC-ASP-1)

Ron Nichols **Reviewed and Recommended** **Chief, Light Rail & Contract Services**	**Date**
Brian Lapp **Reviewed and Recommended** **Chief, Office of System Safety**	**Date**
Kevin Corbett **Reviewed and Recommended** **New Jersey Transit Accountable Executive**	**Date**
New Jersey Transit **Executive Board's Approval**	**Date**

HUDSON-BERGEN LIGHT RAIL TRANSIT SYSTEM
SAFETY PLAN
RECORD OF REVISIONS

Document Title	Pages Revised	Rev. No.	Rev. Date	Author	Description
Safety Plan	Original. This document supersedes all previous editions of the SSPP.	0	July 2018	Steven Vecerina	Complete restructuring to comply with new FTA Safety Management and Performance Measurement Requirements and revised NJDOT-OSSO Standards and Procedures. New Original Based on 49CFR, Part 673 – This Replaces SSPP-TFC-SAF-1, which was based on 49CFR, Part 659.
Safety Plan	Multiple	1	September 2018	Steven Vecerina	Added Comments and Corrections pertaining to Appendix J – Exhibit B – Detailed Conformance Checklist
Safety Plan	Numerous Changes	2	February 2019	Steven Vecerina	Several Changes made to incorporate comments from the 2018 Internal Safety Review
Safety Plan	Final Compliance with 49 CFR 673 and MIL-STD-882E	3	April 2019	Steven Vecerina	Final changes to comply with 49 CFR 673
ASP	Front matter; pages 5-6 Goals and Objectives; page 8 Safety Plan Activity & Responsibility Matrix; pages 29-36; Training pages 47-48	Draft	July 2019	Steven Vecerina	Changes made to comply with NJT from meeting held at NJT on Friday July 26, 2019
ASP	Sections 5 and 8.	Draft	March 2020	Steven Vecerina	Added comments from NJT Review of 2/28/2020

Cross-Walk Matrix
49 CFR Part 673 Requirements / NJ DOT Program Standard & Procedures/HBLRTS Safety Plan

49 CFR Part 673 Rail Fixed Guideway Systems; State Safety Oversight; Final Rule	State of New Jersey Safety Oversight Program – Fixed Guideway Systems New Jersey Administrative Code 16:53E	Hudson Bergen Light Rail Transit system Safety Plan Incorporating the Elements of System Safety Management & Performance Measurement
Par Description	Par Description	Par Description Page
Sub-Part A – General	Introduction and Background	1.1 Introduction & Background 1
§673.1 – Applicability	4.2.2 Purpose	3.1 & 13.2.1 Purpose 2
§673.3 – Policy	4.2.1 Policy	11 Safety Policy 17
§673.5 – Definitions	Page viii Definitions	Appendix C Definitions 119
Sub-Part B – Safety Plans		
§673.11 General requirements §673.13 Certification of compliance §673.21 General Requirements – establish and implement a Safety Management System	4.2 Required Content of the RTA SSPP	3.0 HBLRTS Elements of Safety Management & Performance Measurement 2
	4.2.1 Element 1. Policy Statement and Authority for SSPP	11 Safety Policy 17
	4.2.2 Element 2. Purpose, Goals and Objectives	3.1 & 13.2.1 Purpose 2 & 25
	4.2.3 Element 3. Overview of Management Structure	3.0 HBLRTS Elements of Safety Management & Performance Measurement 2
	4.2.4 Element 4. SSPP Control and Update Procedure	4.3 Control & Update Procedures 4
	4.2.5 Element 5. SSPP Implementation – Tasks and Activities	13.3 Safety Plan Implementation – Tasks And Activities 26
	4.2.6 Element 6. Hazard Management Process	12 Safety Risk Management 18
	4.2.7 Element 7. Safety Certification	13.5.1 Safety Certification Program 41
	4.2.8 Element 8. Managing Safety in System Modifications	13.9.8 Process for Change 65 13.9.9 Authority for Change 65
	4.2.9 Element 9. Safety program data collection and analysis	13.7.11 Safety Data Collection Overview 65
	4.2.10 Element 10. Accident/Incident Notification, Investigation, and Reporting	13.7 Accident/Incident/Hazardous Condition Notification, Investigation, Reporting 45
	4.2.11 Element 11. Emergency Management Program	7.2 Security & Emergency Preparedness 6
	4.2.12 Element 12. Internal Safety Audits	13.10 Internal Safety Audit Process 66
	4.2.13 Element 13. Rules Compliance	8.1.14 Rules Examiner 11
	4.2.14 Element 14. Facilities and Equipment Inspections	13.11.2 Facilities and Equipment Subject to Inspections 71
	4.2.15 Element 15. Maintenance Audits and Inspections	13.12 Maintenance Audits/Inspections 75
	4.2.16 Element 16. Training and Certification Program for Employees and Contractors	13.6.1 Training and Certification Review/Audit 41
	4.2.17 Element 17. Configuration Management and Control	13.9 Design and Configuration Management 61
	4.2.18 Element 18. Local, State, and Federal Requirements	I3.13 Compliance With Local/State/Federal Requirements 82
	4.2.19 Element 19. Hazardous Materials Program	13.14 Hazardous Materials Program 85

Cross-Walk Matrix
49 CFR Part 673 Requirements / NJ DOT Program Standard & Procedures/HBLRTS Safety Plan

49 CFR Part 673 Rail Fixed Guideway Systems; State Safety Oversight; Final Rule	State of New Jersey Safety Oversight Program – Fixed Guideway Systems New Jersey Administrative Code 16:53E	Hudson Bergen Light Rail Transit system Safety Plan Incorporating the Elements of System Safety Management & Performance Measurement
Par Description	Par Description	Par Description Page
Sub-Part B – Safety Plans - Continued		
	4.2.21 Element 21. Procurement Process	13.16 Procurement 88
	4.2.22 Element 22. Hours of Service	Appendix G: Hours of Service 127
	4.2.23 Element 23. Roadway Worker Protection	13.13.8 Right-Of-Way Worker Protection 84 Figure III-5 Safety Training Requirements
	4.2.24 Element 24. Minimum Document Submission to the NJDOT SSO Program	13.7.11.5 Minimum Document Submission to MJDOT-OSSO 50
§673 Subpart C—Safety Management Systems		
§673.23 Safety Management Policy	4.2.1 Policy	1 Safety Policy 17
§673.25 Safety Risk Management (a) Safety Risk Management process. (b) Safety hazard identification (c) Safety risk assessment (d) Safety risk mitigation.	4.2.6 Element 6. Hazard Management Process	12.1 Safety Risk Management and Assessment 18
§673.27 Safety Assurance (a) Safety assurance process (b) Safety performance monitoring and Measurement (c) Management of change (d) Continuous improvement	4.2 Required Content of the RTA SSPP	13.2 Safety Assurance Purpose, Goals and Objectives 25
§673.29 Safety promotion (a) Competencies and training (b) Safety communication.		14 Safety Promotion 89
§673 Subpart D – Safety Plan Documentation and Record Keeping		
§673.31 Safety plan documentation	4.2.24 Element 24. Minimum Document Submission to the NJDOT SSO Program	13.7.11.5 Document & Record Retention 50

TABLE OF CONTENTS

	Page Number
Record of Revisions	i
Cross Walk Matrix	ii
Table of Contents	iv
Acknowledgement	xi
1.0 Introduction/Background	1
2.0 Safety Management & Performance Measurement Overview	1
2.1 Overview of HBLRTS Safety Plan	2
3.0 HBLRTS Safety Plan	2
3.1 Safety Plan Purpose	2
3.2 Safety Plan and Supporting Programs	3
4.0 Safety Plan Review and Modification	3
4.1 General Description of the HBLRTS Safety Plan	3
4.2 Annual Review of the HBLRTS Safety Plan	3
4.3 Safety Plan Control and Update Procedures	4
4.4 Review and Approval by NJTDOT Office of State Safety Oversight	4
5.0 Safety Management and Performance Measurement	4
6.0 Relationship of Quality Assurance and This Safety Plan	5
7.0 Management of the Safety Plan and Regulatory Compliance	5
7.1 Safety Management System Activities	6
7.2 Security and Emergency Preparedness	6
8.0 HBLRTS Organizational Responsibilities	8
8.1 Individual Responsibilities Related to the Safety Plan	8
8.1.1 The TFCRC President, CEO & Director, Rail Operations	8
8.1.2 System Safety Manager	8
8.1.3 Quality Assurance Manager	8
8.1.4 Superintendent of Transportation	8
8.1.5 Safety Manager	8
8.1.6 Maintenance of Way and LRV Maintenance	9
8.1.6.1 Superintendent of Maintenance-of-Way	9
81.6.2 Light Rail Vehicle (LRV) Maintenance Department	9
8.1.7 Engineering	9

	Page Number
8.1.8 Manager of Training	10
8.1.9 Procurement Manager	10
8.1.10 Human Resources Manager	10
8.1.11 Contract Administrator	10
8.1.12 Operations Control Center (OCC) Controllers / Assistant Train Masters (ATMs)	10
8.1.13 Train Operators	11
8.1.14 Rules Examiner	11
8.1.15 Integrated Control Systems Specialist	11
9.0 Functional Operation and Maintenance Responsibilities	12
9.1 Operating Plans	12
9.2 Fixed Maintenance Plan	13
9.3 Other Technical Functions/Positions	13
9.4 Specialty Consultants	14
10.0 Integration of Safety	14
10.1 Safety Related Committees	14
10.1.1 Safety Review Committee (SRC)	15
10.1.2 Fire/Life Safety Committee	15
10.1.3 Safety Certification Review Committee	15
10.1.4 Change Control Board (CCB)	16
10.1.5 System Change Review Committee (SCRC)	16
11.0 Safety Policy Statement	17
12.0 Safety Risk Management	18
12.1 Safety Risk Management Overview	18
12.2 Hazard Identification and Analysis	18
12.3 Hazard Categorization	19
12.4 Hazard Resolution	21
12.5 Corrective Action Plan	22
12.6 Coordination with NJDOT-OSSO	23
12.7 Hazard Tracking (Critical Items List)	23

	Page Number
13.0 Safety Assurance	25
13.1 Introduction	25
13.2 Safety Assurance Purpose, Goals and Objectives	25
13.2.1 Purpose	25
13.2.2 Goals	26
13.2.3 Objectives	26
13.3 Safety Plan Implementation – Tasks and Activities	26
13.3.1 Overview	26
13.3.2 Interdepartmental Coordination	27
13.4 Management Structure	36
13.4.1 Overview	36
13.4.2 Scope of Operational Services	39
13.4.3 General Overview and History of the HBLRTS	40
13.5 Safety Certification Overview	44
13.5.1 Safety Certification Program	44
13.6 Training	44
13.6.1 Training and Certification Review/Audit	44
13.6.2 Employee Safety Training	45
13.6.3 Safety/Industrial Hygiene Training and Education	45
13.6.4 Operations Related Safety Training	45
13.6.5 Train Operator Training and Qualifications	46
13.6.6 Transportation Supervision Training and Qualifications	46
13.6.7 Maintenance Personnel Training and Qualifications	46
13.6.8 Safety Critical Training and Certification Compliance	46
13.6.9 Contractor Safety Training	47
13.6.10 Maintaining Training Records	48
13.6.11 Training Compliance Requirements	48
13.7 Accident Investigation Plan	48

	Page Number
13.7.1 Overview	48
13.8 HBLRTS Physical Plant	54
13.8.1 Vehicles	54
13.8.2 Integrated Control System	55
13.8.3 Electrification	55
13.8.4 Track	56
13.8.5 Operations Control Center (OCC)	57
13.8.6 Train Control	59
13.8.7 Traffic Operating System	60
13.8.8 Communications Infrastructure	60
13.8.9 Fare Collection and Ticket Vending Machines (TVM's)	61
13.8.10 Shelter Stops, Stations and Parking Areas	61
13.8.11 Computerized Maintenance Management System (CMMS)	62
13.8.12 Right-of-Way	62
13.8.12.1 Guideway	62
13.8.12.2 Tunnel	63
13.8.12.3 Guideway (Viaducts)	63
13.8.13 Vehicle Maintenance, Storage Yard & Maintenance Shops	63
13.8.14 Special Equipment	64
13.9 Design and Configuration Management	64
13.9.1 Design Requirement	64
13.9.2 System Safety Design Techniques	64
13.9.3 General Design Support	65
13.9.4 Codes and Standards	65
13.9.5 Safety Design Review	66
13.9.6 Configuration Management	67
13.9.7 Software Control, Access, and Protection	67
13.9.8 Process for Change - Configuration Control	68
13.9.9 Authority for Change	68
13.10 Internal Safety Audit Process	69
13.10.1 Overview	69

13.10.2 Scope of Audit Activities 70
13.10.3 Organizational Units 70
13.10.4 Organizational Functions 71
13.10.5 Internal Audit Process 71
13.10.6 Audit cycle/schedule 71
13.10.7 Audit Checklists and Procedures 72
13.10.8 Audit Reporting 72
13.10.9 Annual Audit Report to NJDOT-OSSO 72
13.10.10 Coordination with NJDOT-OSSO 72
13.10.11 Audit Completeness 72
13.10.12 External Audits 73
13.10.13 Annual Report to NJDOT-OSSO 73
13.11 Facilities and Equipment Inspection 73
13.11.1 State of Good Repair 73
13.11.2 Facilities and Equipment Subject to Inspections 74
13.11.3 Categories of Maintenance 74
13.11.4 Types of Maintenance (Safety Critical) 75
13.11.5 Equipment Inspections 75
13.11.6 Preventive Maintenance Inspection Schedules 75
13.11.7 Vehicle Maintenance Plan 76
13.11.8 Materials Control 77
13.11.9 Maintenance Inspection Checklist Requirements 78
13.11.10 Inspection-Hazard Management Coordination 78
13.12 Maintenance Audits/Inspections 78
13.12.1 Systems and Facilities Subject to Maintenance Audit 78
13.12.2 Failure and Corrective Maintenance 79
13.12.3 Audit/Inspection Findings and Resolution 79
13.12.4 Maintenance Program Monitoring 79
13.12.4.1 General Certification Process 79
13.12.5 Maintenance of Way 84
13.12.6 Shelter Stop, Station and Parking Lot Maintenance 84
13.12.7 Maintenance Audit Checklists 84
13.12.8 Maintenance Hazard Identification & Tracking 85
13.13 Compliance with Local/State/Federal Requirements 85

13.13.1 Employee Safety Program 85
13.13.2 Occupational Safety and Health Program 85
13.13.3 Industrial Hygiene Program 85
13.13.4 Personal Protective Equipment Program 86
13.13.5 Medical Surveillance Program 86
13.13.6 Contractor/Subcontractor ES&H Programs 86
13.13.7 Contractor Safety Program 86
13.13.8 Roadway Worker Protection 86
13.13.9 Required Safety Program Compliance 87
13.13.10 Safety Committees 87
13.14 Hazardous Materials Program 87
13.14.1 Environmental Protection Program 88
13.14.2 Hazardous Waste Management Program 89
13.14.3 Waste Water Abatement Program 89
13.15 Drug and Alcohol Program 89
13.15.1 Employee Assistance Program 91
13.15.2 Drug and Alcohol Abuse Education and Training 91
13.16 Procurement 91
14.0 Safety Promotion 92
14.1 HBLRTS Safety Culture 92
14.1.1 Safety Culture Goal / Purpose 92
14.1.2 Philosophy Toward a Safety Culture 92
14.1.3 Safety Attitudes, Awareness and Ethics 92
14.1.4 Safety Culture Implementation 92
14.1.5 Safety Culture Training 93
14.1.6 Communicating Safety 93
14.1.7 Continued Safety Awareness 93
14.2 Non-Punitive Reporting 93
14.2.1 Historical Background for Confidential Non-Punitive Reporting 93
14.2.2 Purpose 94
14.2.3 Confidential Non-Punitive Reporting Policy 94
Appendix A: Weehawken Tunnel and Bergenline Avenue Station 96
Appendix B: Summary Protocol for System Safety Certification 117
Appendix C: Definitions 121

Appendix D: Abbreviations Used 124
Appendix E: Emergency Notification Lists 125
Appendix F: List of Figures 128
Appendix G: Hours of Service 129
Appendix H: List of Stations 131

ACKNOWLEDGEMENT

The Hudson-Bergen Light Rail Transit System (HBLRTS) wishes to acknowledge the contribution of the U. S. Department of Transportation – Transit Rail Advisory Committee for Safety, the Federal Transit Administration, the Federal Aviation Administration Safety Management Systems, and various State Safety Oversight Programs for their guidance and use of their information in the development of this Safety Plan.

The documents referenced below were used in the preparation of this HBLRTS Safety Plan:

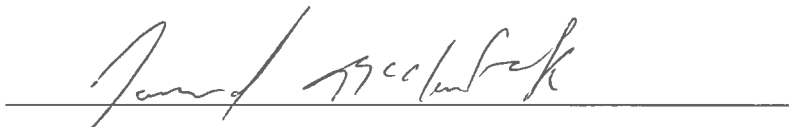
- 49CFR, Part 625, National Transit Database; Transit Asset Management
- 49CFR, Part 630, National Transit Database: Capital Asset Reporting
- 49 CFR, Part 670, Public Transportation Safety Plan
- 49 CFR, Part 673, Public Transportation Agency Safety Plan
- 49 CFR, Part 674, State Safety Oversight
- Transit Safety Management and Performance Measurement, Volume 1: Guidebook
- TRACS Committee – Safety Management System, Final Report
- State of New Jersey Safety Oversight Administrative Code 16:53E

The above noted documents also provide the Authority for issuance of this Safety Plan

It is noted that this Safety Plan is based on the four components of Safety Management & Performance Measurement.

The Safety of employees, our customers, and of the public is the highest priority in the execution of all aspects of the Hudson-Bergen Light Rail Transit System.

21st Century Rail Corporation (TFCRC) wishes to acknowledge the contributions of the State of New Jersey Department of Transportation, Division of Intermodal Services, Office of Fixed Guideway Safety Oversight and New Jersey Transit, in the successful development and implementation of the Hudson-Bergen Light Rail Transit System safety programs.



Philip J. Maccioli
TFCRC President, CEO & Director, Rail Operations

1.0 INTRODUCTION/BACKGROUND

Safety, as defined in this HBLRTS safety management program, is the potential risk of harm to people or damage to property. Our purpose is to reduce safety risk to an acceptable level through a continuing process of hazard identification and risk management.

This HBLRTS Safety Plan has been developed using as guidance, the U. S. Department of Transportation – Transit Rail Advisory Committee for Safety, the Federal Transit Administration, and the Federal Aviation Administration Safety Management Systems.

Use of their documents in the development of this Safety Plan (to include Management & Performance Measurement), is acknowledged.

Matters related to Security are governed by the HLRTS Security & Emergency Preparedness Plan (SEPP), and hence, are not included in this document.

2.0 SAFETY MANAGEMENT & PERFORMANCE MEASUREMENT OVERVIEW

The HBLRTS has achieved a high level of safety. Sustaining this successful safety record will prove challenging as our system and ridership increases. The statistical reality is that as HBLRTS grows and the passenger-miles increase, potential for accidents and injuries may also increase, hence, a growing concern that the traditional approach of ***reacting*** to accidents by prescribing measures to prevent recurrence are no longer sufficient for sustaining and improving HBLRTS safety. The need for a new approach in addressing HBLRTS safety has become necessary. Modern safety management practices that ***systemically*** and ***proactively*** identify the factors that contribute to unsafe events and prevent or minimize the likelihood of their occurrence have proven effective. Such practices call for setting safety goals and objectives, defining clear levels of accountability and responsibility for safety, establishing a proactive approach to managing risks and hazards in the day-to-day activities, risk-based resource allocation, monitoring and evaluating performance towards goals, and continuous learning and improvement.

To that end, the HBLRTS is working to promote the adoption of safety management and performance measurement concepts and transform the safety culture within our organization continually to make progress on our safety objectives. **Figure 2-0** illustrates the principles of a safety management and performance system, which is courtesy of the FTA.

Figure 2-0: Safety Performance Management Framework

The HBLRTS has established this safety management and performance measurement process. It is

considered essential to our organization in implementing an effective and comprehensive safety management & performance measurement program. HBLRTS has organized this Safety Plan to achieve the following important needs:

1. Provide our organization with a standard set of concepts, documents, and tools for development and implementation of a Safety Management & Performance Measurement System (SMPMS);
2. Ensure our Safety Plan implementation complies with the requirements of 49CFR, Part 673, and NJ Administrative Code 16:53E;
3. Make our safety program documents and tools align with the structure and format of the FTA Transit Safety Management & Performance Guidebook, Volume I; and
4. Create documents and tools that are easily understood internally by all departments.

2.1 Overview of HBLRTS Safety Plan

The HBLRTS safety program is organized into the four components of safety management: *safety promotion*, *safety policy*, *safety risk management* and *safety assurance*.

- ***Safety Policy*** defines who has responsibility, authority, and accountability for the goals of the organization.
- ***Safety Risk Management*** is the process of hazard identification and management of risk to acceptable levels. It describes how we identify hazards, how we assess the risks, and our process for controlling the risks.
- ***Safety Assurance*** is the day-to-day activities ensuring that risk controls and safety initiatives are maintained within acceptable levels.
- ***Safety Promotion*** is our continuing process of promoting safety within the HBLRTS. Senior leadership continuously promotes a positive safety culture within our organization. Key components are personnel training and clear communication of lessons learned.

3.0 HBLRTS Safety Plan

HBLRTS has developed and maintains a comprehensive Safety Plan in accordance with FTA 49CFR, Parts 673 and the State of New Jersey Safety Administrative Code 16:53E.

The Twenty First Century Rail Corp (TFCRC) President, CEO & Director, Rail Operations, is the "Accountable/Responsible Executive", and as such, he accepts full responsibility for Safety Management and Performance Measurement, and for ensuring that personnel adhere to the requirements of this Safety Plan.

HBLRTS has established its Safety Plan and is under the control of the Manager of System Safety, who reports directly to the TFCRC President, CEO & Director, Rail Operations. The program and the person administering it are independent of other departments to assure autonomy.

It is intended to ensure that the integrity of the Safety Plan remains intact by regular surveillance, review and audit in accordance with Federal Regulations and State of New Jersey Safety Oversight Standards.

3.1 Safety Plan Purpose

The purpose of this Safety Plan is to describe HBLRTS systems and processes that have been established in accordance with Title 49 of the Code of Federal Regulation (49CFR, Part 673), to ensure that Safety is considered in every aspect of day-to-day operations. This includes Operations, Maintenance, Training, and Administration.

In preparing this Safety Plan, FTA Safety Management and Performance Measurement Guidebook (May 2011), and all interfacing documents, were used as guidance.

All personnel are required to be knowledgeable of the content of this Safety Plan as it applies to their specific area of responsibility.

Other documents that are incorporated by reference include the following:

- Security and Emergency Preparedness Plan
- Maintenance Plans and Procedures
- Operations Plans and Procedures
- Operations/Maintenance Training
- Emergency Planning and Response
- Accident/Incident Reporting, Investigation & Resolution
- Book of Operating Rules

3.2 Safety Plan and Supporting Programs

The HBLRTS Safety Plan has been developed to guide all personnel in the safe operations of HBLRTS, and it is the policy that governs the operation of this organization. It is a proactive, integrated approach to safety management and is part of an overall management process that the HBLRTS has adopted to ensure that the goals of our organization can be accomplished.

Our Safety Plan embraces the principle that the identification and management of risk increases the likelihood of accomplishing our mission. Hazards can be identified and resolved systemically through our Hazard Reporting System to facilitate continuous improvement and professionalism.

Auditing and monitoring of our safety practices ensures that operation, maintenance and training are accomplished minimizing the risks inherent in HBLRTS operations.

This Safety Plan sets forth instructions and guidance to all HBLRTS personnel regarding their responsibilities, authorities, and performance of duties as they pertain to Safety.

4.0 SAFETY PLAN REVIEW AND MODIFICATION

4.1 General Description of the HBLRTS Safety Plan

The HBLRTS Safety Plan is a systemic and explicit process for the management of safety risks that integrates operations, maintenance, and technical systems with financial and human resource management, for all activities related to operation and maintenance of the HBLRTS.
Further, our Safety Management System provides goal setting, planning, and measurement of performance. It focusses on organizational rather than the conventional safety practices.
It is woven into the fabric of our organization and is part of our culture; the way people do their jobs.

4.2 Annual Review of the HBLRTS Safety Plan

The initial development of the HBLRTS Safety Plan and periodic reviews are conducted by the Safety Review Committee (SRC) on an annual basis, at a minimum.

HBLRTS line extensions, system and equipment changes, including operational practices, safety incidents, and/or other events may be cause for a review and subsequent revision at any time. The

review is jointly conducted and in consultation with other individuals/departments who are governed by this Plan. The Safety Plan is reviewed on an annual basis to:

- Review progress on tasks accomplished as the system matures, including system extensions;
- Refine and improve the current task descriptions and activities;
- Identify new tasks that may be required as the system progresses; and
- Identify the safety, fire/life safety-related tasks and responsibilities.

4.3 Safety Plan Control and Update Procedures

The Safety Plan is designated as a controlled document within the HBLRTS. As such, it is subject to formal Document Control procedures. These include: Designation of control copies which are issued to individuals within HBLRTS, NJ Transit (NJT), and New Jersey Department of Transportation (NJDOT). The HBLRTS Safety Plan, and its revisions, are retained for record purposes

This Safety Plan was developed under the authority of the TFCRC President, CEO & Director, Rail Operations and staff. The Manager of System Safety is responsible for amending this plan as required to ensure that its content is relevant and current with the latest Federal Transit Administration Regulations, and the NJDOT- Office of Safety Oversight Standards.

All recommended revisions to the Safety Plan are reviewed by the Safety Review Committee. Revisions, which are accepted, are forwarded to the President, CEO & Director, Rail Operations, for approval and, upon approval, submits all revisions to NJDOT – OSSO.

4.4 Review and Approval by NJTDOT Office of State Safety Oversight

Upon approval by the TFCRC President, CEO & Director, Rail Operations, the revised Safety Plan is transmitted to NJDOT Office of State Safety Oversight (OSSO) for review and approval.

The NJDOT-OSSO reviews, comments on revisions, and once incorporated, are issued through the HBLRTS document control process.

5.0 SAFETY MANAGEMENT AND PERFORMANCE MEASUREMENT

HBLRTS Management, the Manager of System Safety, the Superintendent of Maintenance, and Director of Operations have jointly established the following processes to set and measure safety goals for employees, and the Maintenance and Operations Departments of the HBLRTS.

- The **Maintenance Department** performance goals are established through the review of Reliability Deficiencies, Maintenance Reports and Quality Audits. The Safety Management and Performance Measurement System database is utilized to determine the frequency, severity, and root causes of maintenance anomalies.
- The **System Safety Department** reports quality issues to the President, CEO & Director, Rail Operations, in Assurance Audit Summary annually. This report summarizes the annual maintenance issue Inspection Reports and quality audits carried out on the Maintenance Department. This information is used to measure established performance goals.
- The **Transportation Department** performance goals and objectives are established by review of Accident, Incident and Hazardous Condition reports.

The **Employee** performance goals and objectives are established by review of employee injury, illness and loss time data and are reviewed annually for establishing new goals.

Figure 5-0 defines our Goals for calendar year **2019**.

- **Safety Summary Reports**

A safety summary report is submitted to NJDOT-OSSO as part of the annual report (utilizing the FTA Standard Template). The report contains injury rate data regarding passengers, HBLR personnel, and public accidents and incidents. The report is the basis for the formulation of safety performance goals and objectives for the coming year. The report outlines the strategies for the achievement of the stated safety objectives.

Annual performance goals and objectives for Employee Injury reduction and Passenger Injury reduction have been incorporated into the NJT-wide performance goals process. These goals will be applied to each HBLR department. This will include key safety and security goals and objectives, milestones, and methods /accomplishments.

Hudson-Bergen Light Rail has established current year performance measurement goals based on annual Critical Element Lagging Indicators from the previous year's data. The performance goals are established by review of events reported during the calendar year, which resulted in collision, fire, and customer injury and employee injury/loss time, etc. as defined, by FTA, NTD or OSHA reporting criteria. Occurrences are reviewed annually to establish new goals.

US DOT-FTA's National Public Transportation Safety Plan provides (and explains) four *Safety Performance Measures* and an explanation of each of them. HBLR's Goals and Objectives are included in the following table.

Figure 5-0: Safety Goals and Objectives

GOALS AND OBJECTIVES	
Goal #1 (Notes 1)	**Fatalities-total number of reportable fatalities and rate per total vehicle revenue miles**
Objective 1.a	Maintain public/passenger/worker fatalities to zero per calendar year
Objective 1.b	Maintain fatalities rate to zero per 100,000 revenue miles
Goal #2 (Notes 2)	**Injuries- total number of reportable injuries and rate per total vehicle revenue miles**
Objective 2.a	Reduce the Number of Passenger Boarding Injuries to ≤ 4 per Calendar Year
Objective 2.b	Maintain the Number of public/passenger/employee Injury to ≤ 5 per Calendar Year
Objective 2.c	Reducing the Number of Employee Lost Time Injuries to ≥5% of previous year's NTD reported numbers
Goal #3 (Notes 3)	**Reportable Safety Events- Reduce the Number of Accidents and Incidents & Hazardous Conditions By:**
Objective 3.a	Reducing the Number of Derailments to ≤ 2 per Calendar Year
Objective 3.b	Reducing the Number of Collisions to ≤ 3 per Calendar Year

Objective 3.c	Maintain the number of fire occurrences at Zero (0)
Objective 3.d	Maintain the Number of Evacuations for Life Safety Reasons to Zero (0)
Objective 3.e	Maintaining the Number of Stop-Signal Violations to ≤ 5 per Calendar Year
Objective 3.f	Maintaining the Number of Miss-Route Incidents to ≤ 5 per Calendar Year
Goal #4(Notes 4)	**System Reliability -Mean Distance Between Major Mechanical LRT Failures**
Objective 4.a	**≥5% Improvement in System Reliability (based on previous year's NTD data)**
Goal #5	**Efficiency Check Program**
Objective 5.a	Establish NLR's non-compliance goal of 8% to Rules and Safe-Work Practices

Notes: (Extracted from FTA's National Public Transportation Safety Plan, January 2017)

- *Notes 1: Measuring the number of fatalities over vehicle revenue miles, by mode, provides a fatality rate from which to assess future performance.*
- *Notes 2: Measuring the number of injuries by mode, over vehicle revenue miles provides an injury rate from which to assess future performance.*
- *Notes 3: Measuring the number of safety events by mode over vehicle revenue miles provides a safety event rate from which future performance can be compared.*
- *Notes 4: This measure allows agencies to develop safety performance targets that are specific to their own fleet type, age, operating characteristics, and mode of operation.*

6.0 RELATIONSHIP OF QUALITY ASSURANCE AND THIS SAFETY PLAN

Although Quality Assurance (QA) and Safety Management and Performance Measurement are separate and distinct processes, they are also inseparable. Safety Management and Performance Measurement, facilitate continuous improvements. Quality Assurance is a Pro-Active assessment that ensures process control and regulatory compliance through constant verification by audit and surveillance to provide a constant upgrading of systems based on the results of audit.

To carry out meaningful audits of its processes and procedures there must be documented policies, procedures in safety through a similar system of auditing processes and procedures to ensure correct application and relevancy.

Whenever the term SMPM is used in this plan, it should be taken to mean all components that are built into our processes and procedures and the methods used to comply with the principles of safety management, including regulations that are applicable to operations and maintenance, and functions and standards for every aspect of the system's operation.

7.0 MANAGEMENT OF THE SAFETY PLAN AND REGULATORY COMPLIANCE

Most of the procedures and standards that are used by HBLRTS are mandatory by FTA Regulation and Guidance documents or other State Safety Oversight requirements. Whether they are FTA or State Safety Oversight Standard requirements, in the interest of safety, it is essential for all employees to adhere strictly to these policies and procedures. Audits are conducted to confirm compliance with policies and procedures.

HBLRTS Guidelines have been developed for use by the Operations and Maintenance Departments and must be followed.

Further, to ensure regulatory compliance with this Safety Plan, the HBLRTS has developed and implements a Quality Assurance Program in accordance with FTA Quality Management System Guidelines. The Quality Assurance Plan (QAP) has been developed to ensure the continued integrity of Safety and regulatory compliance.

It is accomplished by scheduled and random audits and surveillance of the Safety Plan processes and records. The audit includes, but not limited to:

- Accuracy and completeness of documentation of safety reports.
- Review of the corrective actions taken.
- Review of follow-up actions.
- Audit of controlled documents for currency.
- Reporting to the President, CEO & Director, Rail Operations, responsibility for the regulatory compliance program is assigned to jointly the Safety and Quality Assurance Departments.

7.1 Safety Management System Activities

Figure 7-1 provides a general matrix of Safety Plan Activities and Responsibilities.
Further details, specific to day-to-day operations, maintenance and management of the HBLRTS are described in Section IV–Safety Assurance.

7.2 Security & Emergency Preparedness

This Safety Plan describes only safety-related activities for the HBLRTS. The HBLRTS has a Security and Emergency Preparedness Plan (SEPP) describing all security and emergency preparedness-related activities, which is a sub-plan to this Safety Plan. It identifies all security and emergency preparedness activities.

Figure 7-1: Safety Plan Activity & Responsibility Matrix

ITEM No.	SMPM ACTIVITY	President/ CEO	DOT	Safety Department	Engineering	Quality Assurance	Operations Department	Maintenance Department	Training Department	Frequency
SAFETY PLAN (INCLUDING MANAGEMENT & PERFORMANCE MEASUREMENT ACTIVITIES)										
I	Executive Safety Management & Performance Measurement (SMPM) Policy	P	A	P	R/C	R/C	R/C	R/C	R/C	AR
1.0	SMPM Modification Review & Modification	A	A	P	R/C	R/C	R/C	R/C	R/C	Y
2.0	Safety Management System Overview	A	A	P	R/C	R/C	R/C	R/C	R/C	AR
3.0	Safety Plan	A	A	P	R/C	R/C	R/C	R/C	R/C	Y
4.0	SMPM System Goals	A	A	P	P	P	P	P	P	Y
5.0	Quality Assurance & Safety Plan	A	R/C	P	R	P	R	R	R	Y
6.0	Regulatory Compliance	A	A	P	R/C	R/C	R/C	R/C	R/C	AR
7.0	Organizational Responsibility	A	R/C	P	P	P	P	P	P	Y
7.2	SMPM Committee & Chair	A	R/C	P	R/C	R/C	R/C	R/C	R/C	AR
8.0	Risk Management & Assessment	A	R/C	P	R/C	R/C	R/C	R/C	R/C	AR
9.0	Accident/Incident/Hazard Reporting	A	A	P	R/C	S	S	S	S	AR
10.0	Safety Culture	P	R/C	P	P	P	P	P	P	AR
11.0	Non-Punitive Reporting	A	R/C	P	R/C	R/C	R/C	R/C	R/C	AR
12.0	Training	A	R/C	R/C	R/C	P	P	P	P	AR
13.0	Configuration Management	A	R/C	R/C	P	S	RC	S	R/C	AR
14.0	Safety Data	A	R/C	P	R/C	P	R/C	R/C	R/C	AR
15.0	Safety Assurance	A	A	P	R/C	R/C	R/C	R/C	R/C	AR

Table Legend - **P**: Primary Responsibility; **S**: Support Responsibility; **R/C**: Review and Comment; **A**: Approval
K: Knowledgeable-All responsible parties maintain knowledge and skills as required.

Frequency - **M**: Month; **Q**: Quarter; **Y**: Yearly; **AR**: As Required

(NJT Board - 05/13/2020)
EXHIBIT C
56792

8.0 HBLRTS ORGANIZATIONAL RESPONSIBILITIES

8.1 Individual Responsibilities Related to the Safety Plan

21st Century Rail Corporation (which has the Design-Build-Operation- Maintenance responsibility for Hudson-Bergen Light Rail Transit system, HBLRTS) operate under the contract by NJ TRANSIT.

In accordance with the organizational structure (Figures13-4-1 and 13-4-2), detailed below is the related roles and responsibilities of NJ TRANSIT's Accountable Executive, Chief Safety Officer and Chief, Light Rail and Contract Services with respect to contractual relationship of NJ TRANSIT With HBLRTS.

New Jersey Transit's President and Chief Executive Officer, who is the Accountable Executive, ensures that NJ TRANSIT's light rail contracted operators complies with the requirements as described under 49 CFR 673 and designate a Chief Safety Officer in accordance with 49 CFR 673.23(d)(2).

The Chief Safety Officer of New Jersey Transit's Office of System Safety/SMS Executive, Deputy Chief, Office of System Safety and staff of Office of System Safety (OSS) monitors the safety performance of HBLRTS through evaluating safety data from accident/injury occurrences, unacceptable hazardous conditions, threats and rules/ procedure violations. The data is obtained from HBLRTS's Operations and other reporting mechanisms. OSS performs audits, surveillances and inspections and participates in Safety Certification, safety meetings, etc. The Chief Safety Officer who leads the NJ TRANSIT's Office of System Safety reports directly to NJ TRANSIT's President and CEO (Accountable Executive). The Chief Safety Officer is adequately trained and does not serve in any HBLRTS's operational or maintenance activities.

Chief, Light Rail and Contract Services and his staff provides safety oversight of HBLRTS Operations and Maintenance activities and supports HBLRTS in achieving its SMS objectives. The Chief, Light Rail and Contract Services reviews HBLRTS's safety and SMS policies and procedures. Evaluates and verifies the operational readiness of new systems, monitors safety implications of proposed system modifications prior to implementation. Chief, Light Rail and Contract Services directly interacts with the Office of System Safety in HBLRTS's safety performance monitoring to determine trends.

8.1.1 The TFCRC President, CEO & Director, Rail Operations is responsible for and has direct authority for transit line operations including Labor Relations, Transportation, Maintenance of Way, Vehicle Maintenance, Safety, and the Operations Control Center (OCC), This individual holds authority and responsibility for tactical implementation of system safety within each of the line operating groups.

This individual has the responsibility of supporting the Manager, System Safety Programs in the direct implementation of all aspects of the Safety Plan. The President, CEO & Director, Rail Operations, assures that TFCRC policy is consistently applied to operational activities. Additionally, this individual

- Ensures that safety performance goals and measuring the attainment of those goals are met in accordance with current regulations and State Safety Oversight Standards.

- Ensures regular review of the Safety Plan to determine its effectiveness. This will be accomplished by the Manager of System Safety.

8.1.2 System Safety Manager

System Safety has authority for implementing policies and tasks associated with the Safety Plan, and for day-to-day operational safety. This includes accident investigation, reporting and resolution, safety of patrons, public, and employees, safety of operating department employees and management of hazards.

System Safety is responsible for development and management of the Safety Plan.

8.1.3 Quality Assurance Manager

Quality Assurance is responsible for implementing the Safety Plan.

8.1.4 Superintendent of Transportation

The Superintendent of Transportation reports to the President, CEO & Director, Rail Operations and is responsible for all day to day operational activity including OCC, field supervisors, controllers, transportation clerks and train operators.

This position ensures that the system complies with SOPs and EMPs. In addition, this position performs accident/incident investigations according to HBLRTS defined protocols.

The Superintendent works in coordination with the Rules Examiner and the Training Manager to ensure that certifications are maintained.

8.1.5 Safety Manager

The Safety Manager reports to the President, CEO & Director, Rail Operations, and provides Safety, Health and Environmental guidance for the Train Operators, Maintenance of Way personnel as well as Contractors on the Railroad Right of Way. Additional responsibilities include: preparation and review of Safety Plans and THAs, Substance Abuse Testing Administrator, Subcontractor prequalification, Training, Incident Investigations, Safety Metrics Preparation, Site Safety Inspections and Auditing.

8.1.6 Maintenance of Way and LRV Maintenance

8.1.6.1 Superintendent of Maintenance-of-Way

The Superintendent of Maintenance of Way reports to the President, CEO & Director, Rail Operations, and has total responsibility for inspections and maintenance of fixed plant systems for applicable sections of this Safety Plan.

This individual is responsible for performing periodic inspections and for assuring that all personnel under his or her direction have received required training and certification in Maintenance of Way activities.

The Superintendent is also responsible for all administrative and organizational requirements for the operation of the M/W department, including, preparation of budgets, staffing, planning, and employee development.

This position is responsible for the implementation of the SSPP throughout this department and for the development and implementation of the Maintenance-of-Way Plan.

8.1.6.2 Light Rail Vehicle (LRV) Maintenance Department

The Senior Vice President, TFCRC is responsible for all LRV maintenance activities. Maintenance of all vehicles, equipment, and facilities is performed in accordance with manufacturers' manuals, codes, standards and established procedures. The intent is to maintain a level of readiness that will ensure safe, efficient and reliable transit service. Preventive maintenance activities on vehicles, wayside equipment, and other safety critical equipment are performed in accordance with manufacturer recommended practices.

The LRV Maintenance Department maintains responsibility for scheduled maintenance of vehicles and equipment. An active log is maintained of all in-service failures. Although such failures may not necessarily lead to an incident or accident, all "in-service" failures are documented for review by the President, CEO & Director, Rail Operations and for determination of the causal factors. Corrective actions of "in-service" failures are coordinated with the Safety Department.

Safety-critical equipment that does not meet established requirements are withdrawn from service. Vehicles or equipment that are involved in an accident are inspected by qualified personnel prior to it being placed back into service.

8.1.7 Engineering

Engineering manages and provides engineering liaison for future extension and supports the Manager of Safety Programs in implementing the requirements of the Safety Plan.

Engineering is also responsible for preventive maintenance and repair of stations, vehicle maintenance shop including building systems, shop equipment and bridges. Additionally, Engineering handles long and short-term maintenance planning, review and design.

8.1.8 Manager of Training

The Training Manager reports to the Superintendent of Transportation and is responsible for coordinating all training activities within the O/M organization.

This includes the tracking of employee certifications and notification of their expirations, scheduling annual re-certification training, and analyzing historical training activities to improve the organization's time management without degrading the assurance of safety within the system.

Instruction to employees will be provided by this individual in the areas of expertise. Subcontracted and other off-site training courses will be coordinated by this individual, including the development of courses, if necessary.

8.1.9 Procurement Manager

The Procurement Manager reports to the Business Manager, and procures equipment, supplies, and services for the HBLRTS system in accordance with contractual, company, and federal/state regulations, policies, and procedures; ensures configuration management compliance by prohibiting the procurement of substitute equipment, supplies, and services not originally approved by Safety and/or specified by the Plan or proper governing authority.

8.1.10 Human Resources Manager

The Human Resources Manager ensures that applicants for covered as well as non-covered positions are screened properly (e.g. physicals, substance abuse, background checks, etc.), and that personnel records are maintained in employee files.

8.1.11 Contract Administrator

The Contract Administrator reports to the President, CEO & Director, Rail Operations and administers contracts, including contractual safety compliance by coordinating directly with the Manager, System Safety further ensuring contractual compliance by the Operations and Maintenance Departments

8.1.12 Operations Control Center (OCC) Controllers / Assistant Train Masters (ATMs)

As direct representatives of the Superintendent of Transportation, the lead controller is in direct charge of all daily operational activities which impact train movements or passengers. OCC Controllers are responsible for ensuring that all train operations and employees and contractors working on or near the right-of-way are performing activities in a safe manner in compliance with written rules and procedures.

Assistant Train Masters are responsible directly supervising mainline and yard operations of all LRTs and LRT Operators to help ensure the safe and dependable provision of HBLRTS transportation. They cover all or a designated portion of the system. The ATM supports the overall transportation function by ensuring rules compliance by LRT Operators, responding to, managing, reporting on, investigating, and documenting incidents and the recovery thereof. All these activities are directed by and in coordination with the 20 Office.

8.1.13 Train Operators

Train Operators report to Transportation Supervisors. Responsibilities include operating Trains in compliance with the Rules for Operation, SOP's, Emergency Procedures, General Orders, and Special Instructions.

Additionally, they are responsible for updating their Rule Books in accordance with published bulletins, orders, notices, and special instructions, maintaining their certification to operate Trains, and for compliance with the Drug and Alcohol Policy as defined by HBLRTS and the FTA.

A formal ride check program is accomplished by requiring each train operator to be checked annually, or upon the occurrence of an incident frequency, complaints, or upon return to work after a long absence. Train operator records are periodically checked based on level of risk.

8.1.14 Rules Examiner

The Rules Examiner reports to the Superintendent of Transportation, and is responsible for all issues regarding procedure and compliance with operating rules. He or she provides instruction to employees whose duties are in any way affected by the operating rules and maintains records of

periodic and special rules examinations. The Rules Examiner conducts field observation checks and classroom training to ensure understanding and compliance to the requirements of the operating rules.

In cases of an accident or violation of the operating rules, the Rules Examiner assists the investigation team in determining facts related to rules procedures. The Rules Examiner makes recommendations for additions, modifications, or deletions to the operating rules.

8.1.15 Integrated Control Systems Specialist

The Integrated Control Systems Specialist reports to the President, CEO & Director, Rail Operations and ensures the safety of passengers/employees within the system by maintaining an operational Integrated Control System located in the Control Center and communications room.

They ensure the safety function by maintaining operational communications systems for coordination with life-safety agencies, employees, and passengers (call-for-aid function). The CMMS Manager reports to Business Manager.

The CMMS (Computerized Maintenance Management and Information Systems) Manager reports to the Manager of Technology, and is responsible for the Configuration, development, and upkeep of CMMS software package and its associated modules, and interfaces with external data sources.

The Manager, CMMS creates custom management information reports and statistical information as required by the client contract, regulatory agencies, or internal needs of the Company. The Stores/Inventory functions are managed utilizing a module within the CMMS System.

9.0 FUNCTIONAL OPERATION AND MAINTENANCE RESPONSIBILITIES

HBLRTS has specific Plan Documents that define in detail, operational and maintenance requirements, and capabilities. The Plans are:

9.1 Operating Plans

The Operating Plan is a comprehensive summary of all aspects of HBLRTS operations and maintenance. It is subordinate to, and directly supports the Safety Plan, and as such, is considered a "second tier" document in the hierarchy. It forms the basis for consistent and uniform development of lower level procedures and plans which may be necessary to support HBLRTS Operations.

These lower level documents include, but are not limited to, train schedules, crew assignments, maintenance-of-way and rolling stock plans and practices, employee training, and qualification and certification requirements.

Transportation Plan

The Transportation Plan addresses the specific requirements, goals, staffing requirements and actions necessary to provide passenger operations.

A full description of the hours of service and headways are included within the Transportation Plan.

The Transportation plan applies to all Transportation Department personnel who are responsible for the operation and maintenance of the system. Subcontractors are made aware and familiarized with portions that pertain to them.

This plan is generated and implemented to convey the specific responsibilities and parameters regarding the safe and efficient operation of the transportation department as well as the specific criteria attached to its implementation.

Additionally, the responsibility of customer relations and customer service are held primarily by Transportation Department. The necessity for informative and responsible customer relations is stressed by Supervision through daily briefings and mainline checks as well as reiteration during and recertification.

Customer Service Plan

Courteous, reliable, and efficient services are provided to HBLRTS customers. Operators and supervisors are in primary contact with passengers, visitors, residents of the community and provide the highest level of customer service. This includes the demeanor and appearance of all employees. Operators are required to comply with all aspects of HBLRTS policies regarding appearance and uniform.

The Supervisor's duties include the timely response to passenger requirements as well as checking the performance (e.g., appearance, train announcements, train handling) of train operators. Included in road supervisor's responsibilities is the provision of customer assistance (e.g., directions, schedule information, connecting transit services).

Personnel assigned to assist passengers are trained and knowledgeable in providing passenger assistance with travel-related information including:

- HBLRTS areas served, stations, and major streets and destinations.
- HBLRTS service schedules, including stopping patterns for express and limited stop Trains
- Services offered for connecting to other public transportation.

9.2 Fixed Maintenance Plan

This section describes the roles, responsibilities, and organization of the various maintenance functions, including the types of maintenance performed. For safe and reliable service on the HBLRTS system, maintenance must be effective to ensure that all systems, equipment, and facilities operate as required (or, in the event of failure and/or degradation of functionality), and that operational safety is not compromised. Implementation of maintenance activities are described in the Fixed Plant Maintenance Plan.

Fixed plant equipment, non-revenue rolling stock, and maintenance for the shops are managed by Superintendents. These individuals closely coordinate their actions with the President, CEO & Director, Rail Operations.

Maintenance of all vehicles, equipment, and facilities is performed in accordance with manufacturers' manuals, codes, standards and established procedures. The intent is to maintain a level of readiness that will ensure safe, efficient and reliable transit service. Preventive

maintenance activities on vehicles, wayside equipment, and other safety critical equipment are performed in accordance with manufacturer recommended practices.

The Maintenance Department maintains responsibility for scheduled maintenance of vehicles and equipment. An active log is maintained of all in-service failures. Although such failures may not necessarily lead to an incident or accident, all "in-service" failures are documented for review by the President, CEO & Director, Rail Operations and for determination of the causal factors. Corrective actions of "in-service" failures are coordinated with the Safety Department.

Safety-critical equipment that does not meet established requirements are withdrawn from service. Vehicles or equipment that are involved in an accident are inspected by qualified personnel prior to it being placed back into service.

To ensure the integrity of the maintenance system, the Manager, System Safety conducts periodic audits and inspections of maintenance activities and monitors "in-service failures".

For the safety of maintenance-of-way workers, a work authorization, identifying the bounds of the work, is established and controlled by both the OCC and the work crew supervisor.

This information is duly logged in the OCC. Further, all train operators operating in the work area are advised to use caution when proceeding through the work site.

9.3 Other Technical Functions/Positions

Technical Positions report to Shift Supervisors for their respective departments. They include:

- Electronic Technician for work on Train Control System and communications;
- Line Technician for work on catenary, substations, and train control equipment other than electronics;
- Signal and Communications Maintainer;
- Line Foreman;
- Track and Facilities Foreman; and
- Track and Facilities Specialist if utilized to perform track inspection.

9.4 Specialty Consultants

Selected activities related to rail operations are performed on a subcontract basis. This includes specialty consultants and contractors, all of whom work under the technical direction of HBLRTS Operations Division.

Activities which consist of programmed maintenance or major renewal and replacement are candidates for subcontracting. In all cases where sub-contract personnel perform work, certified HBLRTS personnel are required to inspect and assure conformance with safety standards prior to restoration of service.

10.0 INTEGRATION OF SAFETY

The President, CEO & Director, Rail Operations is responsible for, and has direct authority for transportation operations including Labor Relations, Maintenance of Way, Vehicle Maintenance, Safety, and the OCC. He holds authority and responsibility for tactical implementation of

system safety within each of the line operating groups. This individual has the responsibility of supporting the Manager, System Safety in the direct implementation of all aspects of the Safety Plan. The President, CEO & Director, Rail Operations assures that HBLRTS policy is consistently applied to operational activities.

The Manager, System Safety has authority for implementing policies and tasks associated with the Safety Plan.

To establish the importance of safety in all aspects of our organization, HBLRTS has established a set of comprehensive safety activities which are documented in this Safety Plan.

The overall goal is to maximize the level of safety afforded to our passengers, employees, and other individuals who come into contact with the HBLRTS.

To be effective, the program documented herein is oriented toward establishing responsibilities with respect to safety, identifying the methodology for documenting and analyzing potential safety issues, and establishing the methodology for implementing remedial and/or mitigating solutions before incidents occur. In addition, this program emphasizes post-safety analyses so that appropriate and effective steps can be taken to minimize or prevent similar occurrences in the future.

10.1 Safety Related Committees

There are several HBLRTS Committees that the Safety Department directly manages or is an active participant. These committees are:

- Safety Review Committee*
- Fire/Life Safety Committee*
- Safety Certification Review Committee*
- Change Control Board (CCB)
- Change Review Committee
- System Change Review Committee

***Committees Chaired by the Safety Manager**

10.1.1 Safety Review Committee (SRC)

The System Safety Manager, who reports to the President, CEO & Director, Rail Operations, chairs the Safety Review Committee. Engineering, Operations, Maintenance and Quality Assurance Departments are active members. The Committee meetings are formal with prepared Agendas and minutes of meetings documented. This Committee meets periodically when needed.

As Chairman, the System Safety Manager will ensure that the following safety functions are carried out in accordance with FTA Regulations, State Safety Oversight Standards, and HBLRTS Policies and Procedures, including:

- Coordination of the activities of the committee with other members.

- Establishing and maintaining a reporting system to ensure the timely collection of information related to hazards, incidents and accidents that may adversely affect safety.
- Establishing and maintaining a safety data system to monitor and analyze trends in hazards, incidents and accidents.
- Ensuring Safety Plan (including deviation reports), are entered into the database and disseminated to management.
- Communicating to all personnel, the results of the safety investigations and all pertinent safety information.
- Keeping and distributing minutes of committee meeting.

10.1.2 Fire/Life Safety Committee

The System Safety Manager chairs the Fire/Life Safety Committee (F/LSC). HBLRTS Engineering, Operations, Maintenance and Quality Assurance Departments, Municipal Fire and Police Departments, NJ Transit Safety and NJ Transit Police are active members. This Committee meets on an "Ad Hoc" basis, as needed with meeting Agendas prepared and minutes of meetings documented.

10.1.3 Safety Certification Review Committee

The System Safety Manager chairs the Safety Certification Review Committee. Engineering, Operations, Maintenance and Quality Assurance Departments are active members. The Committee meetings are formal with prepared Agendas and minutes of meetings documented. This Committee meets periodically when needed.

10.1.4 Change Control Board (CCB)

The Change Control Board member composition, Agenda, Meeting Minutes and meeting frequency are described in **13.9.9 Page 68.** The HBLRTS Safety Manager is an active participant

10.1.5 System Change Review Committee (SCRC)

The System Change Review Committee member composition, Agenda, Meeting Minutes and meeting frequency are described in **13.9.9 Page 69.** The HBLRTS Safety Manager is an active participant.

11.0 SAFETY POLICY STATEMENT

The 21st Century Rail Corp. is a joint venture between AECOM and Kinkisharyo International LLC, which is responsible for LRV maintenance. Both are an integral part of the Hudson Bergen Light Rail Transit System safety program. The Policy Statement below represents the 21st Century Corp. policy toward safety.

Safety is of utmost importance in our everyday activities. TFCRC is committed to the preparation, implementation, and improvement of our strategies and our management systems and processes to ensure that all our operational activities uphold the highest level of safety performance to achieve the highest industry standards.

Our commitment is to:

- Develop, embrace and embed a safety culture in all our public activities that recognize the importance and value of effective safety management and further,

acknowledges that safety is priority in everything we do;

- Clearly define our staff responsibilities and accountabilities for the development and delivery of our safety strategy and performance;
- Minimize all known risks associated with our system operations as low as reasonably practicable/achievable;
- Ensure that supplied equipment, systems and services having an impact on the safety of our operations meet appropriate safety standards;
- Continually develop and improve our safety practices to meet or exceed national and industry standards;
- Comply with and, wherever possible, exceed national and industry requirements and standards;
- Ensure that all staff are provided with adequate and appropriate safety information training and equipment and further, are only assigned tasks based on their ability to perform them;
- Ensure that resources (including skilled and trained staff are available), to carry out our organization's safety policy;
- Establish and measure our safety performance against practical targets;
- Continually work toward improvement of our safety performance and culture;
- Conduct safety and management reviews to ensure that relevant corrective actions are taken; and
- Ensure that the application of effective safety management systems is integral to all our activities, with the objective of achieving the highest levels of safety standards and performance.

Signed_____

TFCRC President, CEO & Director, Rail Operations

12.0 SAFETY RISK MANAGEMENT

12.1 Safety Risk Management Overview

System Safety is the application of hazard management techniques to achieve an optimum level of safety throughout all phases of the HBLRTS life.

HBLRTS methodology provides a systematic means of identifying, analyzing, assessing and resolving the cause(s) of accidents, incidents and hazards within the HBLRTS that could impact the safety of the system. The application of hazard identification methods during the HBLRTS life-cycle phases and to all system elements permits the timely identification, elimination, minimization or control of hazards. System safety activities include trend analysis, failure reporting and accident rate analysis.

Risk is the impact of an undesired event in terms of event severity and event likelihood. Throughout this process, hazards are identified, risks analyzed, assessed, prioritized, and results documented for decision-making. The continuous loop process provides for validation of decisions and evaluation for desired results and/or the need for further action. A systematic approach to process improvement requires proactively

searching for opportunities to improve the process at every step, not simply identifying deficiencies after an undesired event. Risk Management has been defined as the process by which Risk Assessment results are integrated with political, social, economic, and engineering considerations for decisions about need/methods for risk reduction.

HBLRTS implements a formal process of hazard management to systematically identify, evaluate, and mitigate potential hazards associated with the engineering and operation of the HBLRTS for patrons, employees, and the public. All known hazards identified are categorized as to their potential severity and probability of occurrence, analyzed for potential impact, and resolved by design, procedure, warning device, or other methods so that they fall within the prescribed level of risk acceptable to NJDOT and NJ Transit.

The purpose of this methodology is to provide management with appropriate information regarding the risk of hazards. This information includes identifying hazards and faults, the probable causes and effects, and recommended resolution action(s). By evaluating these causes, conditions, and any combination thereof, together with the resolutions available, informed management decisions can be made. This methodology is the underlying rationale for all hazard determinations and recommended resolution actions, whether formal analyses are conducted or informally performed.

Hazard management is the responsibility of HBLRTS Manager of System Safety and consists of three elements: ***Risk Identification and Analysis***, ***Hazard Categorization***, and ***Hazard Resolution***. These processes and techniques are described in the following sections.

12.2 Risk Identification and Analysis

The methodologies used to identify safety conditions and potential risks are based on the Program documents, standards and procedures of the State of New Jersey Department of Transportation, State Safety Oversight, System Safety Program Standards, and U.S. Military Standard (MIL-STD-882E, May 2012).

Risk identification activities define conditions and failures which have the potential for causing an accident. The process involves the analysis of critical elements to identify components and equipment failure modes, their effects on the operating system, or a portion thereof, and the actions taken by personnel. Means to identify and assess risks include the following:

The System Safety Manager conducts periodic inspections of facilities and equipment to identify hazards on a proactive basis. Incident reports, injury and illness reports, and worker's compensation data bases are reviewed by the Manager, System Safety as another method of risk identification. In the investigation of serious accidents, safety committees are assembled utilizing various disciplines as committee members to develop a consensus determination of risk severity and causal factors. When required, outside assistance may be provided to the committee from contractors and manufacturers. Independent reviews may be obtained as necessary, to ensure objectivity. Risk identification and analysis are also applicable to the operations and maintenance activities of the system and include identification of risks involving construction and installation, inspection activities, punch lists, equipment modifications, design reviews, testing, analysis, and maintenance requirements.

HBLRTS safety analysis is both qualitative and quantitative, can be inductive and deductive, and consist of activities such as:

- Preliminary Hazard Analysis (PHA);
- Subsystem Hazard Analysis (SSHA);
- Fault Tree Analysis (FTA);
- Operating & Support Hazard Analyses (OHA);
- Interface Hazards Analysis (IHA);
- Failure, Mode, Effect & Criticality Analysis; and
- Safety Critical Items List (SCIL).

The inductive process involves the analysis of single system components to identify failure modes and effects on the total system or a part thereof, and of personnel actions. Failure modes are identified as conditions such as: fails to open, fails to close; opens and closes when not required; fails to act; acts improperly or at the wrong time; etc., or any combination thereof. The deductive hazard identification process involves defining an undesired event and deducing the combination of conditions or faults of the system and the causes necessary to produce that event. Experience from other transit systems can be sources of input information, which aid both the inductive and deductive processes.

These analyses are applicable to major subsystems as well as the HBLRTS as a whole and are used extensively during the operation of the HBLRTS.

12.3 Hazard Categorization

The hazard management process involves categorizing each hazard in terms of severity and probability of occurrence to determine the acceptability of the risk associated with a potential hazard, and the necessity of implementing corrective actions. Hazards are categorized in terms of **Hazard Severity (Figure 12-2),** and **Probability of Occurrence (Figure 12-3).** The risk assessment criteria, as adopted from the APTA Guidelines and MIL-STD-882E, are defined as follows:

Hazard Severity is a subjective measure of the worst credible mishap resulting from personnel error, environmental conditions, design inadequacies, and/or procedural deficiencies for systems, subsystems, or component failure or malfunction, and is categorized as follows:

Category I - Catastrophic
Could result in one or more of the following: death, permanent total disability, irreversible significant environmental impact, or monetary loss equal to or exceeding $10M.

Category II - Critical
Could result in one or more of the following: permanent partial disability, injuries or occupational illness that may result in hospitalization of at least three personnel, reversible significant environmental impact, or monetary loss equal to or exceeding $1M but less than $10M.

Category III – Marginal
Could result in one or more of the following: injury or occupational illness resulting in one or more lost work day(s), reversible moderate environmental impact, or monetary loss equal to or exceeding $100K but less than $1M.

Category IV Negligible
Could result in one or more of the following: injury or occupational illness not resulting in a lost work day, minimal environmental impact, or monetary loss less than $100K.

Hazard Probability is the probability that a specific hazard will occur during the planned life expectancy of the system element, subsystem, or component. It can be described subjectively in potential occurrences per unit, events, population, items, or activity, and is ranked as follows:

Once a hazard is identified, an analysis as to its potential severity and probability of occurrence is performed as prescribed herein.

Figure 12-2: Hazard Severity.

Severity / Probability	Hazard Categories			
	Catastrophic 1	Critical 2	Marginal 3	Negligible 4
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
F-Eliminated	Eliminated			

Figure 12-3: Probability of Occurrence

Description		Specific Item	Likely Frequency
FREQUENT	A	Likely to occur frequently in the life of an item	Continuously experienced
PROBABLE	B	Will occur several times in the life of an item	Will occur frequently
OCCASIONAL	C	Likely to occur sometime in the life of an item	Will occur several times
REMOTE	D	Unlikely but possible to occur in the life of an item	Unlikely but can reasonably be expected to occur
IMPROBABLE	E	So unlikely, it can be assumed occurrence may not be experienced in the life of an item	Unlikely to occur, but possible
ELIMINATED	F	Incapable of occurrence. This level is used when potential hazards are identified and later eliminated.	

12.4 Hazard Resolution

To determine what action to take to correct or to document acceptance of identified hazards, a system of determining the level of risk involved has been adopted. This risk assessment activity is incorporated in formal system safety analyses. In turn, this will enable management to properly understand the amount of risk involved relative to what it will impact (schedule, dollars, operations, etc.) to reduce the hazard to an acceptance level.

The Hazard/Risk Index, **Figure 12-4**, is the acceptance criteria utilized by the Safety Review Committee (SRC) for identified hazards based on estimated severity and probability of occurrence.

The SRC will take appropriate actions to reduce to the lowest level practical, the risk associated with the identified hazard. The methods utilized for eliminating or controlling hazards are listed in their ascending order of precedence, as follows:

- Design for minimum risk;
- Incorporate safety devices;

- Provide warning devices; and
- Develop special procedures & training.

Each of the methods identified above is defined as follows:

Design for Minimum Risk - From the first, design to eliminate hazards. If an identified hazard cannot be eliminated, reduce the associated risk to an acceptable level, as defined by the Risk Assessment Criteria, through design.

Incorporate Safety Devices If identified hazards cannot be eliminated or their associated risk adequately reduced through design, that risk shall be reduced to an acceptable level through the use of fixed, automatic, or other protective safety-designed features or devices. Provisions shall be made for periodic functional checks of safety devices.

Provide Warning Devices When neither design nor safety devices can effectively eliminate identified hazards or adequately reduce associated risk, devices shall be used to detect the condition and to produce an adequate warning signal to alert personnel of the hazard. Warning signals and their application shall be designed to minimize the probability of incorrect personnel reaction to the signals and shall be standardized within like types of systems.

Develop Procedures and Training Where it is impractical to eliminate hazards through design selection or adequately reduce the associated risk with safety and warning devices, procedures and training shall be used. However, without a specific waiver, no warning, caution or other form of written advisory shall be used as the only risk reduction method for Category I or II hazards. Procedures may include the use of personal protective equipment. Precautionary notations shall be standardized. Tasks and activities judged critical may require certification of personnel proficiency.

The Hazard Resolution process has the following objectives:

- To identify areas where hazard resolution may require a change in the system design or development of special procedures;
- To verify that hazards involving interfaces between two or more systems have been resolved; To verify that the resolution of a hazard in one system does not create a new hazard in another system; and
- To verify that required analysis is provided in a timely manner and identify where delinquent analysis is delaying hazard resolution.

Hazard resolution is not synonymous with hazard elimination. In the HBLRTS environment, there are some hazards that may be impossible to eliminate and other hazards that are highly impractical to eliminate. Reduction of risk to the lowest practical level is accomplished in a variety of ways, from protective and warning devices to redesign and special procedures. However, some hazards present unacceptable risks because of the severity and high probability and are eliminated.

Risk Analysis: Analyze Hazards and Identify Risks

Risk analysis is the process whereby hazards are characterized for their likelihood and severity. Risk analysis looks at hazards to determine **what** can happen and **when**.

This can be either a qualitative or quantitative analysis. The inability to quantify and/or the lack of historical data on a specific hazard do not exclude the hazard from the need for analysis. HBLRTS has developed a Hazard/ Risk Index to determine the level of risk and guide management in rendering risk decisions.

Risk Assessment: Consolidate & Prioritize Risks
Risk Assessment is generally defined as the process of combining the impacts of risk elements discovered in risk analysis and comparing them against some acceptability criteria.
Risk Assessment can include the consolidation of risks into risk sets that can be jointly mitigated, combined, and then used in decision making. Hazard resolution is not synonymous with hazard elimination.

In the HBLRTS environment, there are some hazards that may be impossible to eliminate and other hazards that are highly impractical to eliminate. Reduction of risk to the lowest practical level is accomplished in a variety of ways, from protective and warning devices to redesign and special procedures. However, some hazards present unacceptable risks because of the severity and high probability and are eliminated.

Figure 12-4: Hazard/Risk Index

Hazard Risk Index	Criteria by Index
1A, 1B, 1C, 2A, 2B	1 – Unacceptable-Must be Mitigated
1D, 2C, 3A, 3B	2 – Unacceptable-Management Decision Required
1E, 2D, 2E, 3C, 3D, 3E, 4A, 4B	3 – Acceptable with Management Review
4C, 4D, 4E	4 – Acceptable without Review

12.5 Corrective Action Plan

A Corrective Action Plan (CAP) is then developed with input from appropriate department functions, including those with expertise in specific disciplines necessary to evaluate and remedy the identified hazard(s).

The CAP includes a brief statement identifying or tying the CAP to the specifically identified hazard(s) and where appropriate, identifying the level of hazard presented. It will state the action to be taken, the departments or functions responsible for implementation and include the implementation schedule and means for verification upon final resolution. Upon NJDOT OSSO concurrence, the CAP is then implemented and tracked to close-out. The tracking schedule will be monitored by the Manager, System Safety to ensure completion Reporting of progress will be accomplished through the Monthly Report to the NJDOT OSSO and NJ Transit.

Validations and Control: Evaluate Results of Corrective Action Plan for Further Action
Validation and control begins with (1) the results of scheduled analyses on the effectiveness of actions taken including identification of data to be collected and identification of triggering events if possible; then developing a plan to review the data collected and (2) the status of each prioritized risk.

If the residual risk is acceptable, then documentation is required to reflect the hazard/risk to the system, and the rationale for accepting any residual risk. If unacceptable, an alternate action plan is needed, or a modification to the system/process, if necessary.

12.6 Coordination with NJDOT-OSSO

HBLRTS is responsible for reporting accidents, incidents and hazardous conditions in accordance with the requirements of the NJDOT-OSSO Standard, to NJ Transit, to the FTA, and to the NTSB (where required), in a timely manner, depending on the severity of the occurrence.

12.7 Hazard Tracking (Critical Items List)

During the process of developing the hazard analysis, Category I and Category II Hazards and associated risks are identified and are compiled into a Safety Critical Items List (SCIL) to provide the NJDOT-OSSO, and HBLRTS management visibility of these issues and for monitoring and control. Exhibit **12-5** illustrates our **SCIL.**

Figure 12-5: Safety Critical Items List (Typical)

SYSTEM ELEMENT: _____ REFERENCE INFORMATION: _____ SUBSYSTEM: _____ DATE: _____ PREPARED BY: _____						
ITEM NO.	**DESCRIPTION OF CONDITION**	**POTENTIAL CAUSE**	**ASSESSMENT: SEVERITY PROBABILITY**	**IMPACT ON OTHER SYSTEMS**	**CONTROL / MEASURES TO RESOLVE CONDITION**	**STATUS & DATE**

(NJT Board - 05/13/2020) EXHIBIT C 56809

13.0 SAFETY ASSURANCE

13.1 INTRODUCTION

An important element of our Safety Management and Performance Measurement System is **Safety Assurance**; it is intended to confirm the performance and effectiveness of our safety risk controls established under our safety risk management process to ensure that our organization meets or exceeds its safety objectives through the collection, analysis, and assessment of data concerning HBLRTS performance.

This section of the Safety Plan provides details of the specific day-to-day safety assurance activities.

13.2 SAFETY ASSURANCE PURPOSE, GOALS AND OBJECTIVES

13.2.1 Purpose

The purpose of this Section of the Safety Plan is to provide detailed Safety Assurance requirements identifying, evaluating, and minimizing safety risks throughout the operational life of HBLRTS, including all safety-related activities that occur during modification, extension, operation and maintenance of the system.

This section of the Safety Plan, and all succeeding sections, establishes guidance for implementing safety on a day-to-day basis. It serves as a blueprint by:

- Establishing the organization of safety activities and outlining employee responsibilities with respect to those activities;
- Promoting and maintaining safety and training programs as mandated by Federal and State regulatory agencies;
- Setting and implementing established safety goals, objectives, and practices;
- Providing the mechanisms for identifying and assessing safety hazards, during the operation and maintenance of the system;
- Providing the methods to eliminate, minimize, or control the identified critical or catastrophic hazards;
- Constantly improving the safety culture throughout the HBLRTS Organization;
- Defining the requirements and procedures for conducting standard safety audits.

Many other specific agreements, policies, procedures and memoranda of understanding have been incorporated herein by reference.

The operation and maintenance of HBLRTS requires continual safety activity throughout its operational life, including procurement of new systems, and modification and/or rehabilitation of existing safety-critical equipment and facilities.

The purpose of this Section of the Safety Plan is to provide Safety Assurance requirements for safety management and performance measurement activities that identify, evaluate, and minimize safety risks throughout the operational life of the HBLRTS. It identifies all safety-related activities that occur during the modification, extension, operation and maintenance of the system in the various municipalities in which it operates.

13.2.2 Goals

The goals of the Safety Plan are to implement safety programs that are measurable to maximize the highest reasonable level of safety for employees of HBLRTS, its subcontractors, customers, and the public. Achievement is accomplished in part, by the application of formal system techniques and methodologies that systemically identify, analyze, assess, and resolve hazards, accidents and incidents that may impact the levels of safety for HBLRTS.

13.2.3 Objectives

Specific objectives of this Section of the Safety Plan are:

1. Achieve a level of safety performance that meets or exceeds the operating experience of similar transit systems in the following areas by:
   - Analyzing employee and passenger injuries;
   - Analyzing accidents, incidents and hazardous conditions;
   - Training all employees in safety related programs and assure that safety certifications are updated and maintained; and
   - Instituting and measuring performance measures against established performance goals.
2. Increase and strengthen community involvement and participation in safety and security of system by:
   - Encouraging citizens to organize neighborhood watch programs for the areas surrounding the system; and
   - Involving and educating community organizations and schools in safety; and
3. Improve planning and projections for fiscal support needs by:
   - Tracking and analyzing historical data;
   - Coordinating and communicating closely with internal departments and external organization; and
   - Estimating, based on historical data and previous experience, future costs and system improvements on an annual basis.

13.3 SAFETY PLAN IMPLEMENTATION – TASKS AND ACTIVITIES

13.3.1 Overview

Implementation of this HBLRTS comprehensive and effective operational safety program are line responsibilities at HBLRTS. As such, the responsibility, authority and accountability for the effectiveness of safety flow from the direct line of the TFCRC President, CEO & Director, Rail Operations, thru the Safety Manager, to the Superintendents, Supervisors, and employees.

Safety Assurance, with respect to the implementation of this Safety Plan, includes specialized technical assistance (for example, through the performance of operational analysis or participation on the Rules Committee and in the administration of the efficiency checks program). Specific areas of concentration for Safety include:

(a) **Passenger Safety**. The proper discharge of duty by Supervisors and train operators is important to customer safety. The safety of passengers require adherence to operating rules and requirements, communication between HBLRTS and NJDOT-OSSO, safe train handling, and continued surveillance of equipment and right of way conditions. Hazardous or damaged equipment shall be immediately removed from revenue service.

(b) **Employee Safety**. HBLRTS provides all employees with a safe workplace. This extends to operational practices e.g. access to hazardous areas, as well as to the physical condition of HBLRTS. Employees are provided with continuous training with respect to their responsibilities and on knowledge of safety related documents such as the Rules for Conducting Transportation, the General Safety Rules, and the Special Instructions.

(c) **Life Safety**. The Life Safety effort for HBLRTS is coordinated by the Manager of System Safety and includes the active participation and support of line Superintendents/Managers. Coordination of response and training (including drills) is systematically performed with respondents from various Emergency Response agencies, as well as with appropriate statewide respondents.

(d) **Training of Emergency agency personnel** includes general familiarization of HBLRTS physical plant, review of OCC procedures, review of special hazards associated with electrified railways and participation in "table tops" exercises, as well as performance of full scale response drills within each jurisdiction. Joint protocols are developed with respondents which identify the "Command Post" for coordination.

13.3.2 Interdepartmental Coordination

HBLRTS communicates between internal departments and external agencies regarding matters of safety, as it is a vital component of safety and emergency preparedness. Verbal and written information are disseminated to departments and agencies appropriate to the nature of the issues and accompanied by adequate training for affected personnel.

All accidents, incidents, and hazardous conditions are reported internally and to NJDOT-OSSO, as required.

Additionally, HBLRTS has developed an Operating Plan, a Transportation Plan, a Fixed Plant Maintenance Plan, a Vehicle Maintenance Plan, Safety Rules, and Emergency Action Plans for the safe and efficient operation of the HBLRTS system. These plans are disseminated to the appropriate internal departments, and training is provided.

All employees of HBLRTS are responsible for performing their work safely and in accordance with established requirements for the protection of themselves, co-workers, patrons, facilities, and equipment.

Figure 13-3: provides a series of detailed System Assurance Matrices that identify each departmental activity and responsibility.

Figure 13 –3: Safety Assurance Activity & Responsibility Matrix

ITEM No.	Safety Assurance Activities	President/ CEO	NJDOT OSSO	Safety Dept.	Engineering	Quality Assurance	Operations Dept.	Maintenance Dept.	Training Dept.	Frequency
SAFETY ASSURANCE DETAILED ACTIVITIES										
1	Purpose	RC	RC	P	S	S	S	S	S	AR
2	Goals	A	RC	P	S	S	S	S	S	AR
3	Objectives	RC	RC	P	S	S	S	S	S	AR
4	Overview	RC	RC	P	S	S	S	S	S	AR
5	General Overview and History	RC	RC	P	S	S	S	S	S	AR
6	Scope of Services	RC	RC	P	S	S	S	S	S	AR
7	Physical Plant	RC	RC	P	S	S	S	S	S	AR
8	Operations	RC	RC	P	S	S	S	S	S	AR
9	Maintenance	RC	RC	P	S	S	S	S	S	AR
10	Integration of Safety	RC	RC	P	S	S	S	S	S	AR
11	Safety Line Authority	A	RC	P	S	S	S	S	S	AR
12	Annual Safety Plan Review	A	A	P	S	S	S	S	S	AR
13	Safety Plan Control & Update Procedures	RC	RC	P	S	S	S	S	S	AR
14	Review and Approval by NJDOT	A	A	P	S	S	S	S	S	AR
15	Safety Plan Change Management	A	A	P	S	S	S	S	S	AR
16	Overview	RC	RC	P	S	S	S	S	S	AR
17	System Safety Activities	RC	RC	P	S	S	S	S	S	AR
18	System Safety Methodology	RC	RC	P	S	S	S	S	S	AR
19	Operational Safety	RC	RC	P	S	S	P	S	S	AR
20	Operational Safety Documents	RC	RC	P	S	S	P	S	S	AR

Table Legend:

P - Primary Responsibility; **S** - Support Responsibility; **RC** - Review and Comment; **A** – Approval;
K: Knowledgeable-All responsible parties maintain knowledge and skills as required.

Frequency:

M - Month **Q** - Quarter **Y** – Year **AR** - As Required

(NJT Board - 05/13/2020)
EXHIBIT C
56813

Figure 13 –3: Safety Assurance Activity & Responsibility Matrix

ITEM No.	Safety Assurance Activities	President/ CEO	NJDOT OSSO	Safety Dept.	Engineering	Quality Assurance	Operations Dept.	Maintenance Dept.	Training Dept.	Frequency
	SAFETY ASSURANCE DETAILED ACTIVITIES									
21	Safety & Other Committees	A	RC	P	RC	RC	RC	RC	RC	AR
22	Public Awareness Program	RC	RC	S	RC	RC	RC	RC	RC	AR
23	System Safety Program Verification	A	A	P	RC	RC	RC	RC	RC	AR
24	Safety Responsibility of Other Departments	RC	RC	S	RC	RC	RC	RC	RC	AR
25	Safety Responsibility Matrix	RC	RC	P	RC	RC	RC	RC	RC	AR
26	Overview	RC	RC	P	RC	RC	RC	RC	RC	AR
27	Hazard Identification and Analysis	A	A	P	RC	RC	RC	RC	RC	AR
28	Hazard Categorization	RC	RC	P	RC	RC	RC	RC	RC	AR
29	Hazard Resolution	A	A	P	RC	RC	RC	RC	RC	AR
30	Corrective Action Plan	A	A	P	RC	RC	RC	RC	RC	AR
31	Hazard Tracking (Critical Items List)	A	A	P	RC	RC	RC	RC	RC	AR
32	Coordination with the NJDOT-OSSO	A	A	P	RC	RC	RC	RC	RC	AR
33	Safety Certification program	A	A	P	RC	RC	RC	RC	RC	AR
34	Certifiable Elements	RC	RC	P	RC	RC	RC	RC	RC	AR
35	System Integration	RC	RC	S	RC	RC	P	S	RC	AR
36	Commissioning	RC	RC	S	RC	RC	P	P	RC	AR
37	Start-Up	RC	RC	S	RC	RC	P	P	RC	AR
38	System Activation	RC	RC	S	RC	RC	P	P	RC	AR
39	Safety Certification	RC	RC	P	RC	RC	S	S	RC	AR
40	Operation Demonstration	RC	RC	P	RC	RC	P	P	RC	AR

Table Legend:

P - Primary Responsibility; **S** - Support Responsibility; **RC** - Review and Comment; **A** – Approval
K: Knowledgeable-All responsible parties maintain knowledge and skills as required.

Frequency:

M - Month **Q** - Quarter **Y** – Year **AR** - As Required

(NJT Board - 05/13/2020)
EXHIBIT C
56814

Figure 13 –3: Safety Assurance Activity & Responsibility Matrix

ITEM No.	Safety Assurance Activities	President/ CEO	NJDOT OSSO	Safety Dept.	Engineering	Quality Assurance	Operations Dept.	Maintenance Dept.	Training Dept.	Frequency
	SAFETY ASSURANCE DETAILED ACTIVITIES									
41	Acceptance Testing	RC	RC	S	RC	P	S	P	S	AR
42	Inspections	RC	RC	S	RC	P	S	P	S	AR
43	Data Acquisition	RC	RC	P	RC	S	S	S	S	AR
44	Data Analysis and Tracking	RC	RC	P	RC	S	S	S	S	AR
45	Access to Data	RC	RC	P	RC	S	S	S	S	AR
46	Accident/Incident Investigation Criteria	A	A	P	RC	RC	RC	RC	RC	AR
47	Accident/Incident Investigation Procedures	A	A	P	RC	RC	S	S	RC	AR
48	Internal Notification Procedure	A	RC	P	RC	RC	RC	RC	RC	AR
49	Supervisory Investigation	RC	RC	S	RC	RC	S	S	RC	AR
50	Accident/Incident Investigation Team	RC	RC	P	RC	RC	S	S	RC	AR
51	External Notification Procedure	A	A	P	RC	RC	RC	RC	RC	AR
52	NJDOT-OSSO	A	A	P	RC	RC	RC	RC	RC	AR
53	NTSB and FTA	RC	S	P	RC	RC	RC	RC	RC	AR
54	Accident/Incidents Reports and Documentation	A	A	P	RC	RC	S	S	RC	AR
55	Reports to NJDOT OSSO	A	A	P	RC	RC	RC	RC	RC	AR
56	Corrective Action Resulting from Investigations	A	A	P	RC	RC	S	S	RC	AR
57	Coordination with NJDOT-OSSO	A	A	P	RC	RC	RC	RC	RC	AR
58	Responsibilities for Emergency Preparedness	RC	RC	P	RC	RC	RC	RC	RC	AR
59	Interdepartmental Coordination	RC	RC	P	S	S	S	S	S	AR
60	External and Interagency Coordination	A	RC	P	RC	RC	RC	RC	RC	AR

Table Legend: **P** - Primary Responsibility; **S** - Support Responsibility; **RC** - Review and Comment; **A** – Approval
K: Knowledgeable-All responsible parties maintain knowledge and skills as required.

Frequency:

M - Month **Q** - Quarter **Y** – Year **AR** - As Required

(NJT Board - 05/13/2020)
EXHIBIT C
56815

Figure 13 –3: Safety Assurance Activity & Responsibility Matrix

ITEM No.	Safety Assurance Activities	President/ CEO	NJDOT OSSO	Safety Dept.	Engineering	Quality Assurance	Operations Dept.	Maintenance Dept.	Training Dept.	Frequency
	SAFETY ASSURANCE DETAILED ACTIVITIES									
61	Coordinating Schedule with Emergency Organizations	RC	RC	P	RC	RC	RC	RC	RC	AR
62	Fire/Life Safety Committee (F/LSC)	RC	RC	P	S	S	S	S	RC	AR
63	Emergency Exercises	RC	RC	P	RC	RC	S	S	RC	AR
64	Emergency Procedures	RC	RC	P	S	RC	S	S	RC	AR
65	Emergency Operating Response Procedures	RC	RC	P	RC	RC	S	S	RC	AR
66	Emergency Training	RC	RC	P	RC	RC	S	S	RS	AR
67	Familiarization Training	RC	RC	P	RC	RC	RC	RC	RC	AR
68	Internal Audit Overview	A	RC	P	RC	S	S	S	S	AR
69	Scope of Audit Activities	RC	RC	P	RC	S	S	S	S	AR
70	Organizational Units	RC	RC	S	RC	RC	S	S	S	AR
71	Organizational Functions	RC	RC	S	RC	S	S	S	S	AR
72	Internal Audit Process	A	A	P	RC	S	S	S	S	A
73	Integrity of the Audit Process	RC	RC	P	RC	RC	RC	RC	RC	A
74	Audit Cycle/Schedule	RC	A	P	RC	RC	RC	RC	RC	A
75	Audit Checklists and Procedures	RC	A	P	RC	RC	RC	RC	RC	A
76	Audit Reporting	A	A	P	RC	RC	S	S	S	A
77	Annual Audit to NJDOT OSSO	A	A	P	RC	S	S	S	S	A
78	Coordination with NJDOT OSSO	A	A	P	RC	S	S	S	S	A
79	Audit Completeness	A	A	P	RC	S	S	S	S	A
80	External Audits	A	A	S	RC	S	S	S	S	A

Table Legend: **P** - Primary Responsibility; **S** - Support Responsibility; **RC** - Review and Comment; **A** – Approval
K: Knowledgeable-All responsible parties maintain knowledge and skills as required.

Frequency:

M - Month **Q** - Quarter **Y** – Year **AR** - As Required

(NJT Board - 05/13/2020)
EXHIBIT C
56816

Figure 13 –3: Safety Assurance Activity & Responsibility Matrix

ITEM No.	Safety Assurance Activities	President/ CEO	NJDOT OSSO	Safety Dept.	Engineering	Quality Assurance	Operations Dept.	Maintenance Dept.	Training Dept.	Frequency
	SAFETY ASSURANCE DETAILED ACTIVITIES									
81	Annual Report to NJDOT-OSSO	A	A	P	RC	RC	RC	S	RC	A
82	Overview	RC	RC	P	RC	S	RC	RC	RC	AR
83	Review of HBLRTS Rules and Procedures	RC	RC	P	RC	S	P	RC	RC	AR
84	Ensuring Rules Compliance	RC	RC	P	RC	S	P	P	S	AR
85	Operations & Maintenance Compliance Techniques	RC	RC	P	RC	RC	S	S	RC	AR
86	Supervisory Personnel Compliance Techniques	RC	RC	S	RC	RC	P	P	RC	AR
87	Compliance Documentation & Corrective Action	RC	RC	S	RC	RC	P	P	RC	AR
88	Facilities & Equipment Subject to Inspection	RC	RC	S	RC	RC	S	S	RC	AR
89	Categories of Maintenance	RC	RC	RC	RC	RC	RC	P	RC	AR
90	Types of Maintenance (Safety Critical)	RC	RC	P	RC	RC	RC	P	RC	AR
91	Equipment Inspections	RC	RC	S	RC	RC	S	P	RC	AR
92	Preventive Maintenance Inspection Schedules	RC	RC	RC	RC	RC	RC	P	RC	AR
93	Vehicle Maintenance Plan	RC	RC	S	RC	RC	RC	P	RC	AR
94	Maintenance Inspection Checklist Requirements	RC	RC	S	RC	RC	S	P	RC	AR
95	Inspection/Hazard Management Coordination	RC	RC	S	RC	RC	S	S	RC	AR
96	Systems and Facilities Subject to Maintenance Audits	RC	RC	P	RC	S	S	S	RC	AR
97	Failure & Corrective Maintenance	RC	RC	S	RC	RC	S	P	RC	AR
98	Audit/Inspection Findings & Resolution	RC	RC	P	RC	RC	P	P	RC	AR
99	Maintenance Program Monitoring	RC	RC	S	RC	RC	S	P	RC	AR
100	Maintenance of Way	RC	RC	S	RC	RC	RC	P	RC	AR

Table Legend: **P** - Primary Responsibility; **S** - Support Responsibility; **RC** - Review and Comment; **A** – Approval
K: Knowledgeable-All responsible parties maintain knowledge and skills as required.

Frequency:

M - Month **Q** - Quarter **Y** – Year **AR** - As Required

(NJT Board - 05/13/2020) EXHIBIT C 56817

Figure 13 –3: Safety Assurance Activity & Responsibility Matrix

ITEM No.	Safety Assurance Activities	President/ CEO	NJDOT OSSO	Safety Dept.	Engineering	Quality Assurance	Operations Dept.	Maintenance Dept.	Training Dept.	Frequency
	SAFETY ASSURANCE DETAILED ACTIVITIES									
101	Shelter Stop, Station and Parking Lot Maintenance	RC	RC	RC	RC	RC	RC	P	RC	AR
102	Maintenance Audit Checklists	RC	RC	S	RC	S	S	P	RC	AR
103	Overview	RC	RC	RC	RC	RC	RC	RC	RC	AR
104	Employee Safety Training	RC	RC	P	RC	RC	S	S	P	AR
105	Safety/Industrial Hygiene Training & Education	RC	RC	P	RC	RC	S	S	S	AR
106	Operations Related Safety Training	RC	RC	P	RC	S	P	S	P	AR
107	Vehicle Operator Training & Qualifications	RC	RC	S	RC	RC	P	RC	P	AR
108	Vehicle Supervisor & Controller Training & Qualifications	RC	RC	S	RC	RC	P	P	P	AR
109	Maintenance Personnel Training & Qualifications	RC	RC	S	RC	RC	S	P	P	AR
110	Safety Critical Training & Certification Compliance	RC	RC	S	RC	RC	P	P	P	AR
111	Contractor Safety Training	RC	RC	P	RC	RC	S	S	S	AR
112	Maintaining Training Records	RC	RC	S	RC	RC	S	S	P	AR
113	Training Requirements Compliance	RC	RC	S	RC	RC	P	P	P	AR
114	Overview-Design Requirements	RC	RC	S	P	S	S	S	S	AR
115	Design Requirements	RC	RC	S	P	S	RC	RC	RC	AR
116	Design to Minimize Damage and Injuries	RC	RC	P	P	S	S	S	RC	AR
117	System Safety Design Techniques	RC	RC	P	S	S	S	S	RC	AR
118	General Design Support	RC	RC	S	P	S	S	S	RC	AR
119	Codes and Standards	RC	RC	S	P	S	S	S	RC	AR
120	Configuration Management	RC	RC	S	P	S	S	S	RC	AR

Table Legend: **P** - Primary Responsibility; **S** - Support Responsibility; **RC** - Review and Comment; **A** – Approval

K: Knowledgeable-All responsible parties maintain knowledge and skills as required.

Frequency:

M - Month **Q** - Quarter **Y** – Year **AR** - As Required

(NJT Board - 05/13/2020)
EXHIBIT C
56818

Figure 13 –3: Safety Assurance Activity & Responsibility Matrix

ITEM No.	Safety Assurance Activities	President/ CEO	NJDOT OSSO	Safety Dept.	Engineering	Quality Assurance	Operations Dept.	Maintenance Dept.	Training Dept.	Frequency
	SAFETY ASSURANCE DETAILED ACTIVITIES									
121	Computer Software Configuration Management	RC	RC	S	P	S	S	S	S	AR
122	Change Control Process	RC	RC	S	P	S	S	S	S	AR
123	Change Authorization	A	RC	S	P	S	S	S	S	AR
124	Change Control Board	A	R	S	P	S	S	S	S	AR
125	System Change and Operations Review Committee	RC	RC	S	P	S	S	S	S	AR
126	Employee Safety Program	RC	RC	S	S	S	P	P	P	AR
127	Occupational Safety & Health Program	RC	RC	P	S	S	S	S	S	AR
128	Industrial Hygiene Program	RC	RC	P	S	S	S	S	S	AR
129	Personal Protective Equipment Program	R	RC	P	S	S	S	S	S	AR
130	Medical Surveillance Program	R	RC	S	S	S	P	P	S	AR
131	Contractor/Subcontractor Environ. Safety and Health Program	RC	RC	P	S	S	S	S	S	AR
132	Contractor Safety Program	RC	RC	P	S	S	S	S	S	AR
133	Right-Of-Way Worker Protection	RC	RC	P	S	S	S	P	P	AR
134	Required Safety Program Compliance	RC	RC	S	S	S	P	P	S	AR
135	Safety Committees	RC	RC	P	S	S	P	P	S	AR
136	Environmental Protection Program	RC	RC	S	S	S	S	P	S	AR
137	Hazardous Waste Management Program	RC	R	S	S	S	S	P	S	AR
138	Waste Water Abatement Plan	RC	R	S	S	S	S	P	S	AR
139	Drug and Alcohol Program	A	RC	S	S	S	S	P	P	AR
140	Employee Assistance program	A	RC	S	S	S	S	P	P	AR

Table Legend: **P** - Primary Responsibility; **S** - Support Responsibility; **RC** - Review and Comment; **A** – Approval
K: Knowledgeable-All responsible parties maintain knowledge and skills as required.

Frequency:

M - Month **Q** - Quarter **Y** – Year **AR** - As Required

(NJT Board - 05/13/2020) EXHIBIT C 56819

Figure 13 –3: Safety Assurance Activity & Responsibility Matrix

ITEM No.	Safety Assurance Activities	President/ CEO	NJDOT OSSO	Safety Dept.	Engineering	Quality Assurance	Operations Dept.	Maintenance Dept.	Training Dept.	Frequency
	SAFETY ASSURANCE DETAILED ACTIVITIES									
141	Drug and Alcohol Abuse Training & Education training	A	RC	P	S	S	S	S	P	AR
142	Employee Assistance program	A	RC	S	S	S	P	P	S	AR
143	Drug and Alcohol Abuse Training & Education training	RC	RC	S	S	S	P	P	P	AR
144	Procurement Process	A	RC	P	S	S	S	S	S	AR

Table Legend:

P - Primary Responsibility; **S** - Support Responsibility; **RC** - Review and Comment; **A** – Approval
K: Knowledgeable-All responsible parties maintain knowledge and skills as required.

Frequency:

M - Month **Q** - Quarter **Y** – Year **AR** - As Required

(NJT Board - 05/13/2020)
EXHIBIT C
56820

13.4 MANAGEMENT STRUCTURE

13.4.1 Overview

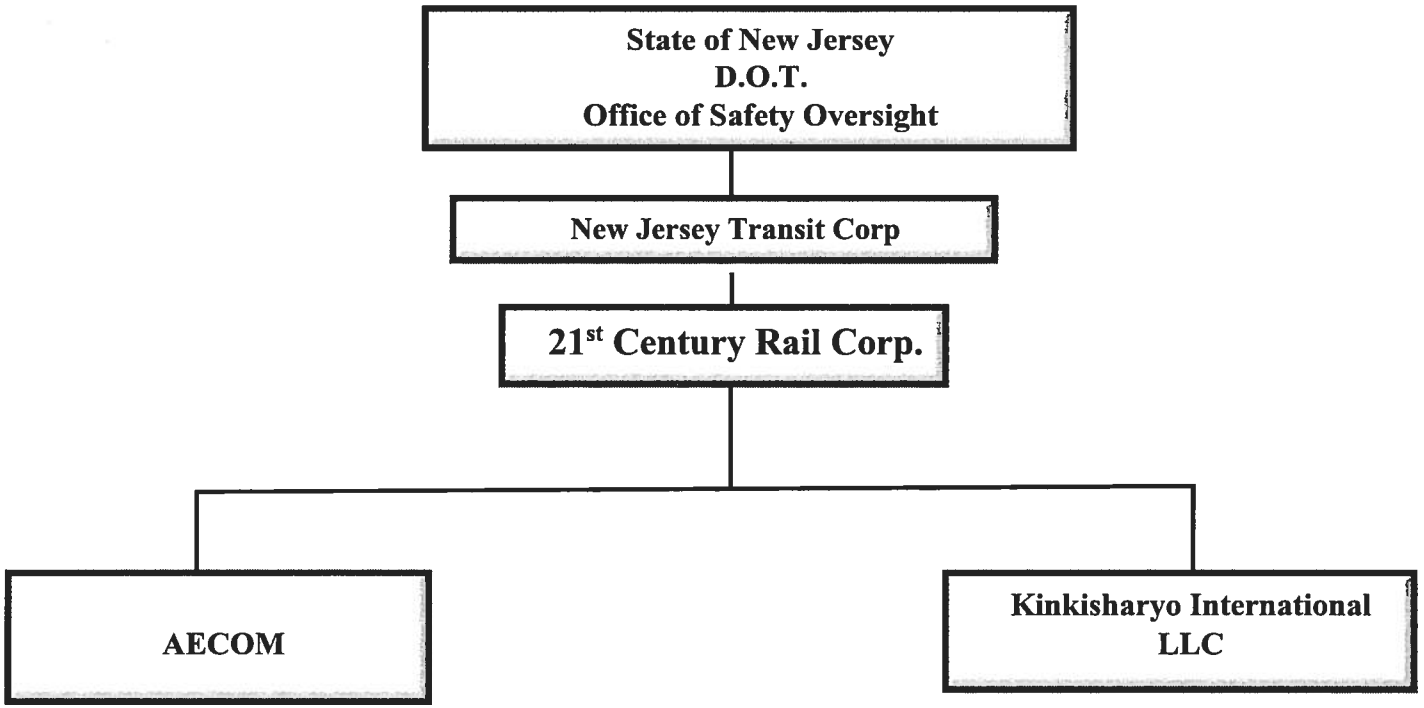
TFCRC, the Design-Build-Operate-Maintain Contractor of the HBLRTS, is comprised of two partners (AECOM and Kinkisharyo International LLC). NJ Transit (NJT) is the owner of the HBLRTS and administrator of the design, build, operate, and maintain (DBOM) contract through the NJ Transit Light Rail and Contract Services, located in Newark, New Jersey. All official communication between TFCRC and the NJ Transit organization, NJ Transit's consultants, or agencies, which regulate or provide oversight of NJ Transit activities, is through NJ Transit Light Rail and Contract Services. The TFCRC office, located in Jersey City, NJ, maintains close liaison, including daily communication/liaison with other departments within the NJ Transit organization, which have an involvement in HBLRTS activities. These groups within NJ Transit typically include police, fare collection, system safety, and service planning and risk management.

All employees of HBLRTS are responsible for performing their work safely and in accordance with established procedures for the protection of themselves, co-workers, patrons, facilities, and equipment, as described in the Rules and Instructions for Conducting Transportation (TFC-RI-1) and Safety Rules (TFC-SS-10).

Figure **13-4-1** illustrates the Interagency/Intercompany Relationship.

Figure **13-4-2** provides our Organization Chart.

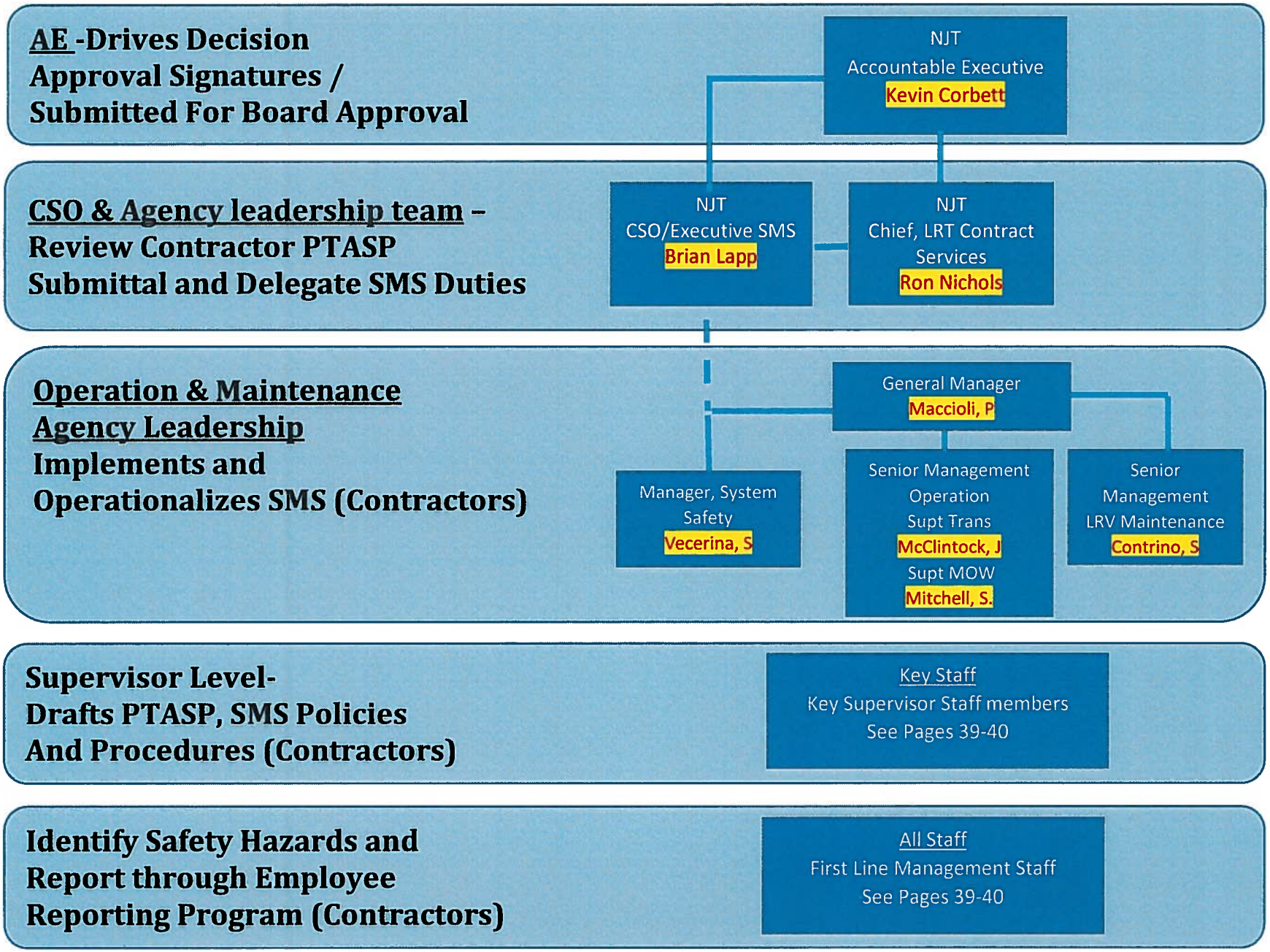
Figure 13-4-1: Interagency/Intercompany Relationship Chart



(NJT Board - 05/13/2020)
EXHIBIT C
56822

March 2020

Roles and Responsibilities – Overview
HBLR

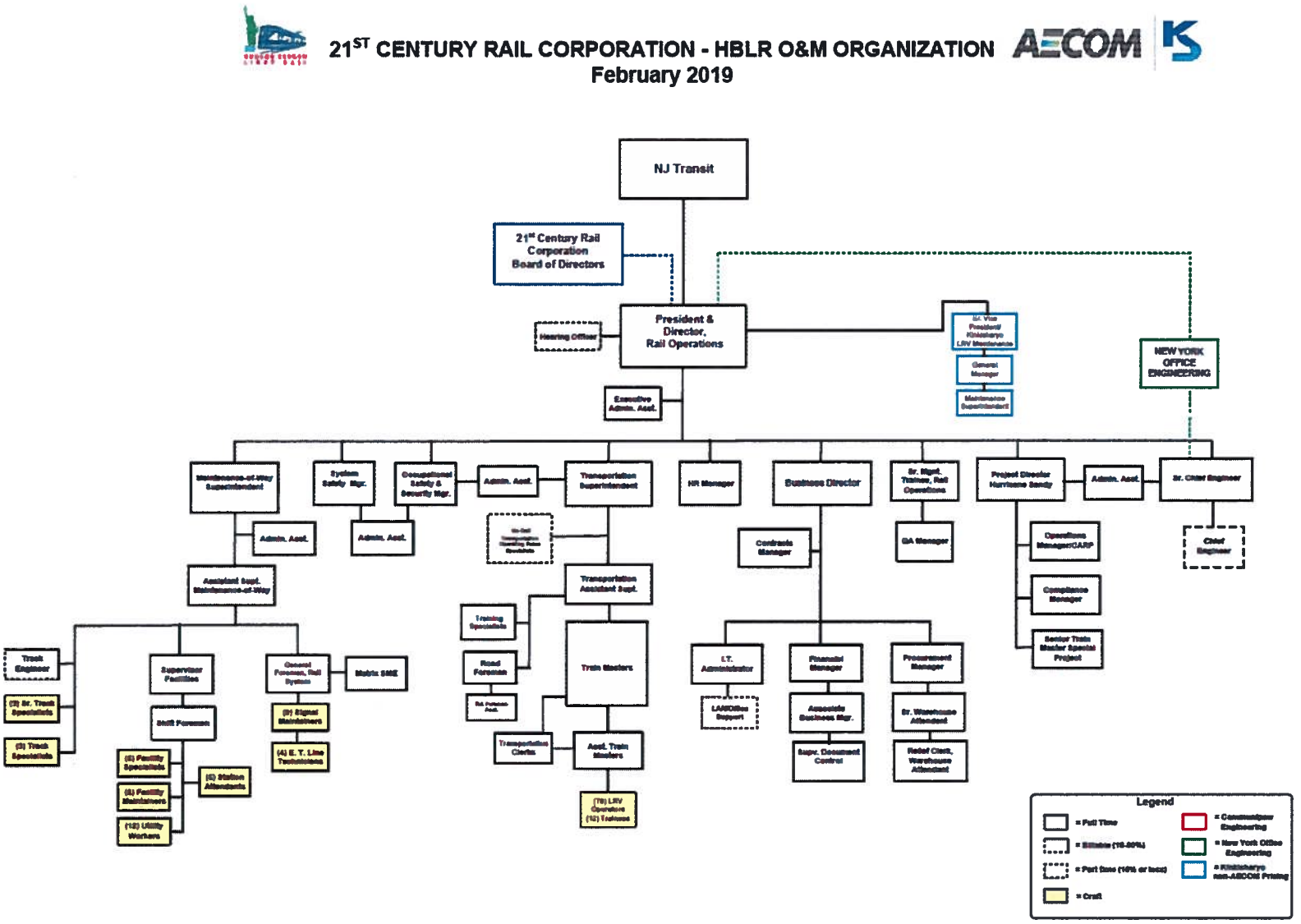


(NJT Board - 05/13/2020)

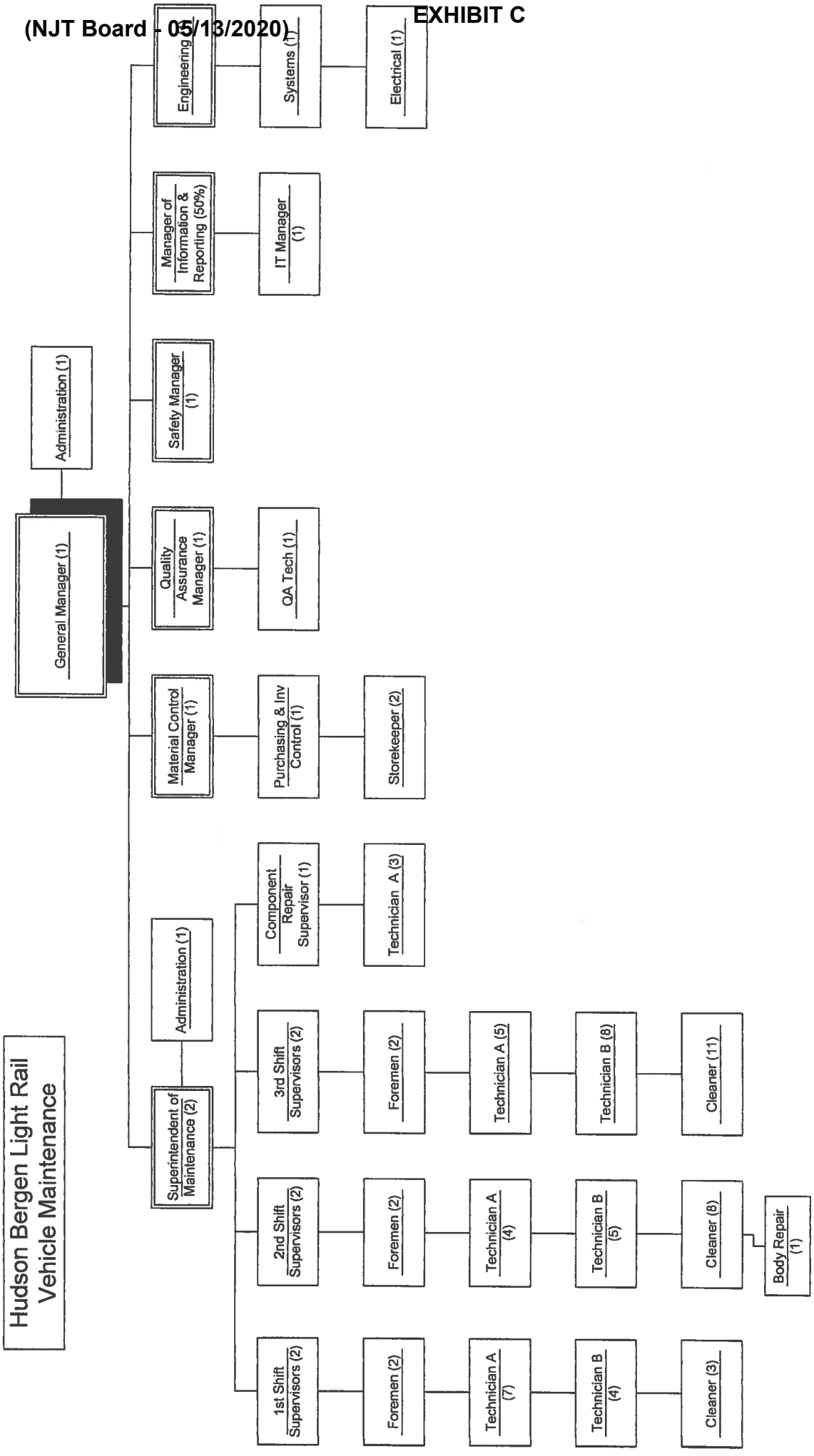
EXHIBIT C

56823

Figure 13-4-2: 21st Century Rail Corporation Organization Chart



(NJT Board - 05/13/2020)
EXHIBIT C
56824


Hudson Bergen Light Rail
Vehicle Maintenance
General Manager (1)
Administration (1)
Engineering (1)
Systems (1)
Electrical (1)
Manager of Information & Reporting (50%)
IT Manager (1)
Safety Manager (1)
Quality Assurance Manager (1)
QA Tech (1)
Material Control Manager (1)
Purchasing & Inv Control (1)
Storekeeper (2)
Superintendent of Maintenance (2)
Administration (1)
Component Repair Supervisor (1)
Technician A (3)
3rd Shift Supervisors (2)
Foremen (2)
Technician A (5)
Technician B (8)
Cleaner (11)
2nd Shift Supervisors (2)
Foremen (2)
Technician A (4)
Technician B (5)
Cleaner (8)
Body Repair (1)
1st Shift Supervisors (2)
Foremen (2)
Technician A (7)
Technician B (4)
Cleaner (3)

13.4.2 Scope of Operational Services

The first segment of MOS-1 (i.e., IOS-1) began revenue operations during April 2000. Extensions IOS-2A and IOS-2B segments began revenue operations during November 2000 and April 2001 respectively. The final segment of MOS-1 (i.e., IOS-3) to Hoboken Terminal began revenue operations during September 2002. S-21 Extension of MOS-2 Segment from 34th Street Shelter Stop in Bayonne to 22nd Street Shelter Stop in Bayonne began revenue operations during November 2003. Regular Revenue Operations from Hoboken Terminal to Lincoln Harbor Shelter Stop (and special service operations as required to Port Imperial Ferry Shelter Stop) began during September 2004. Revenue Service to Port Imperial Ferry Shelter Stop began in October 2005. Regular Revenue Service to Bergenline Avenue Station (in the Light Rail/Weehawken Tunnel) and Tonnelle Avenue Shelter Stop began in February 2006.

MOS-1 Segment and S-21 Extension operate at five-minute peak headways on the mainline from Liberty State Park Shelter Stop in the south to Hoboken Terminal Shelter Stop in the north. The Westside and Bayonne Branches operate at 12-minute headways. The service from the Bayonne branch to Hoboken Terminal is also supplemented by Bayonne Flyers. The Flyers are currently scheduled at four (4) trains in the a.m. and p.m. weekday peaks. The MOS-2 service between Hoboken and Tonnelle Avenue Shelter Stops operates at approximately 15 minutes headway, seven days a week during base periods and 12 minutes headway during peak periods. All Peak service trains operating on the Tonnelle Avenue to Westside branch are either single or two-car trains (multiple units). Forty-two (42) cars are used for peak service.

Most of the ridership demand occurs during typical commuting hours, between 6:00 and 10:00 in the morning and 3:00 and 7:00 in the evening. The LRT system is currently in operation from 4:30 a.m. to 1:30 AM weekdays, and from 5:30 AM to 1:30 AM on weekends.

The system's design provides the ability for a 24-hour operation. The actual hours of operation are determined by NJ Transit.

The major travel routes include: the northern portion of the system between Hoboken terminal and Tonnelle Avenue Shelter Stop as well as the future extension to Meadowlands; and the proposed connection to a new segment operating between Englewood and Tenafly utilizing the former Erie Railroads' Northern Branch. This is in addition to the southern portion from Hoboken, extending to the terminal stations in Bayonne. The Trans-Hudson trips, defined as LRT passengers whose ultimate trip ends on opposite sides of the Hudson River, is expected to account for approximately one-half of the HBLRTS total ridership.

IOS-1 included the southern portion of the system to the 34th Street Shelter Stop in Bayonne, the West Side Avenue Line in Jersey City, and the combined area in-street running territory to the Exchange Place Shelter Stop at the north end. IOS-2A and IOS-2B continued north from the Exchange Place Shelter Stop to the Newport Shelter Stop. IOS-3 continued north from the Newport Shelter Stop to end operations at the Hoboken Terminal Shelter Stop. IOS-3 included double-track service and terminated at Hoboken in a three-track configuration. S-21 Segment extended the southern portion of the system from 34th Street Shelter Stop in Bayonne to 22nd Street Shelter Stop in Bayonne. MOS-2A segment includes the northern portion of the River Line from Hoboken Terminal to Port Imperial Ferry Shelter Stop in Weehawken. Similarly, MOS-2B Segment extends the HBLRS from Port Imperial Ferry Shelter Stop in Weehawken, NJ to Tonnelle Avenue in North Bergen, NJ.

The system initially operated in single-car consists during non-peak and two-car consists during peak hours. Operating in such a configuration, permits a "hot standby" (one or two car trains) within the Newport Pocket tracks (Pavonia Yard). Additional "gap" trains may be stored on Track-A between Brody and Horwich Interlockings (at "Three Roads"), as required, and during off-peak service hours on Track H4 at the Hoboken Station. If passenger demand exceeds capacity, additional LRV's are dispatched to make up a multiple unit (MU) configuration of two- or three-car consists.

In such a case, the hot standby car(s) within the Newport Pocket tracks are relocated to the Yard North lead track. As the majority of MOS-1 and S-21 shelter stops cannot accommodate train lengths exceeding two-car consists, a reduction in the headway is required if passenger demand exceeds the capacity of an MU operation at the initial base schedule headway.

MOS-2 shelter stops (majority of them) can accommodate train lengths exceeding two-car consists and as such Tonnelle Avenue trains will be two or three car trains. The MOS-2B segment contains a station within a tunnel. The Light Rail Tunnel (in Weehawken) is 4096 feet in length and 160 feet from street level. It is equipped with an emergency ventilation system, Station Attendant quarters and 3 high-speed elevators.

The Station Attendant's quarters are located at the plaza level within the TEC (Tunnel Emergency Command). Included in the TEC is an emergency panel and LCP (Local Control Panel) to monitor train movement in the event a response is warranted. A loop track is located at the extreme northern end of Tonnelle Ave. Shelter Stop to allow for trains to turn back. The loop is also used for train lay-up and storage.

A crew facility equipped with locker room facilities, office, break room and security tower is located at Tonnelle Ave. in North Bergen. This location is used for crew sign-ups and monitoring of pull-outs from Tonnelle Ave. Shelter Stop southward.

The MOS-2 service consists of service between Hoboken Shelter Stop and Tonnelle Avenue Shelter Stop and service between Westside Avenue Shelter Stop and Tonnelle Avenue Stop. General Order No. 03-06 places the entire MOS-2 segment "in-service" (Hoboken to Tonnelle Avenue). This entire segment is operated under the authority of the President, CEO & Director, Rail Operations, and is subject to TFCRC Operating Rules and maintenance of standards as delineated in this SSPP (TFC-SAF-1), Operating Plan (OP-1), the Employee Timetable (OP-2), and the Configuration Management Plan (OP-3) and other applicable documents.

MOS 3 extends from 22nd street to 8th street (including Danforth Yard) in Bayonne.

13.4.3 General Overview and History of the HBLRTS

The first segment of MOS-1 (i.e., IOS-1) began revenue operations during April 2000. Extensions IOS-2A and IOS-2B segments began revenue operations during November 2000 and April 2001 respectively. The final segment of MOS-1 (i.e., IOS-3) to Hoboken Terminal began revenue operations during September 2002. S-21 Extension of MOS-2 Segment from 34th Street Shelter Stop in Bayonne to 22nd Street Shelter Stop in Bayonne began revenue operations during November 2003.
Regular Revenue Operations from Hoboken Terminal to Lincoln Harbor Shelter Stop (and special service operations as required to Port Imperial Ferry Shelter Stop) began during September 2004. Revenue Service to Port Imperial Ferry Shelter Stop began in October 2005.

Regular Revenue Service to Bergenline Avenue Station (in the Light Rail/Weehawken Tunnel) and Tonnelle Avenue Shelter Stop began in February 2006.

MOS-1 Segment and S-21 Extension operate at five-minute peak headways on the mainline from Liberty State Park Shelter Stop in the south to Hoboken Terminal Shelter Stop in the north. The Westside and Bayonne Branches operate at 12-minute headways. The service the Bayonne branch to Hoboken Terminal is also supplemented by Bayonne Flyers.

The Flyers are currently scheduled at four (4) trains in the a.m. and p.m. weekday peaks. The MOS-2 service between Hoboken and Tonnelle Avenue Shelter Stops operates at approximately minute headway, seven days a week during base periods and 12-minute headway during peak periods. All Peak service trains operating on the Tonnelle Avenue to Westside branch are either single or two-car trains (multiple units). Forty-two (42) cars are used for peak service.
Most of the ridership demand occurs during typical commuting hours, between 6:00 and 10:00 in the morning and 3:00 and 7:00 in the evening.

The LRT system is currently in operation from 4:30 a.m. to 1:30 a.m. weekdays, and from 5:30 a.m. to 1:30 a.m. on weekends. The system's design provides the ability for a 24-hour operation. The actual hours of operation are decided by NJ Transit.

The major travel routes include: the northern portion of the system between Hoboken terminal and Tonnelle Avenue Shelter Stop as well as the proposed new segment operating to Englewood utilizing the former Erie Railroads' Northern Branch. This is in addition to the southern portion from Hoboken, extending to the terminal stations in Bayonne.

The Trans-Hudson trips, defined as LRT passengers whose ultimate trip ends on opposite sides of the Hudson River, is expected to account for approximately one-half of the HBLRTS total ridership.

IOS-1 included the southern portion of the system to the 34th Street Shelter Stop in Bayonne, the West Side Avenue Line in Jersey City, and the combined area in-street running territory to the Exchange Place Shelter Stop at the north end. IOS-2A and IOS-2B continued north from the Exchange Place Shelter Stop to the Newport Shelter Stop. IOS-3 continued north from the Newport Shelter Stop to end operations at the Hoboken Terminal Shelter Stop. IOS-3 included double-track service and terminated at Hoboken in a three-track configuration. S-21 Segment extended the southern portion of the system from 34th Street Shelter Stop in Bayonne to 22nd Street Shelter Stop in Bayonne.

MOS-2A segment includes the northern portion of the River Line from Hoboken Terminal to Port Imperial Ferry Shelter Stop in Weehawken. Similarly, MOS-2B Segment extends the HBLRTS from Port Imperial Ferry Shelter Stop in Weehawken, NJ to Tonnelle Avenue in North Bergen, NJ.

The system initially operated in single-car consists during non-peak and two-car consists during peak hours. Operating in such a configuration, permits a "hot standby" (one or two car trains) within the Newport Pocket tracks (Pavonia Yard). Additional "gap" trains may be stored on Track-A between Brody and Horwich Interlockings (at "Three Roads"), as required, and during off-peak service hours on Track H4 at the Hoboken Station. If passenger demand exceeds capacity, additional LRV's are dispatched to make up a multiple unit (MU) configuration of two- or three-car consists.

In such a case, the hot standby car(s) within the Newport Pocket tracks are relocated to the Yard North lead track. As the majority of MOS-1 and S-21 shelter stops cannot accommodate train lengths exceeding two-car consists, a reduction in the headway is required if passenger demand exceeds the capacity of an MU operation at the initial base schedule headway MOS-2 shelter stops (majority of them) can accommodate train lengths exceeding two-car consists and as such Tonnelle Avenue trains will be two or three car trains. The MOS-2B segment contains a station within a tunnel. The Light Rail Tunnel (in Weehawken) is 4096 feet in length and 160 feet from street level. It is equipped with an emergency ventilation system, Station Attendant quarters and 3 high-speed elevators. The Station Attendant's quarters are located at the plaza level within the TEC (Tunnel Emergency Command).

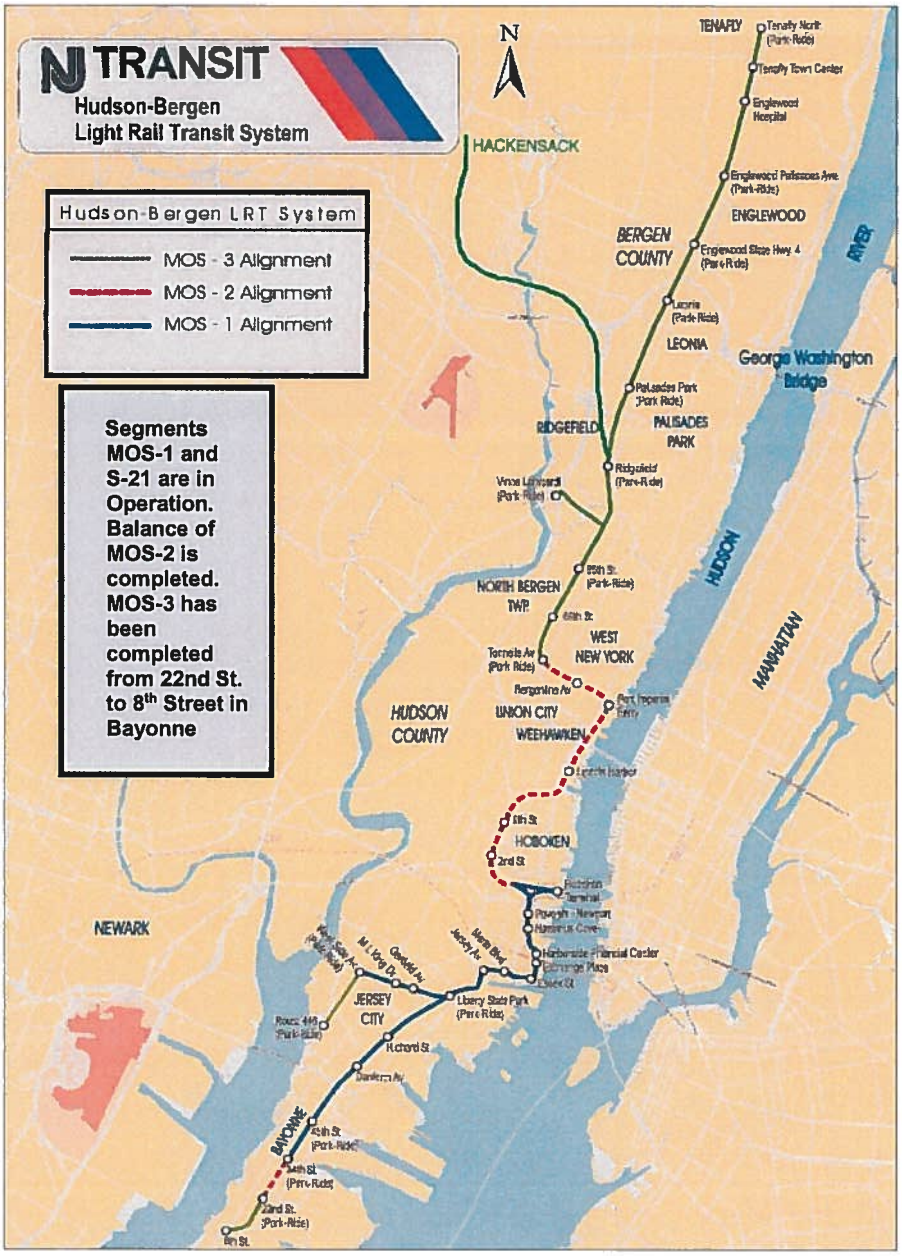
Included in the TEC is an emergency panel and LCP (Local Control Panel) to monitor train movement in the event a response is warranted. A loop track is located at the extreme northern end of Tonnelle Ave. Shelter Stop to allow for trains to turn back. The loop is also used for train lay-up and storage. A crew facility equipped with locker room facilities, office, break room and security tower is located at Tonnelle Ave. in North Bergen. This location is used for crew sign-ups and monitoring of pull-outs from Tonnelle Ave. Shelter Stop southward.

The MOS-2 service consists of service between Hoboken Shelter Stop and Tonnelle Avenue Shelter Stop and service between Westside Avenue Shelter Stop and Tonnelle Avenue Stop. General Order No. 03-06 places the entire MOS-2 segment "in-service" (Hoboken to Tonnelle Avenue).
This entire segment is operated under the authority of the President, CEO & Director, Rail Operations, and is subject to TFCRC Operating Rules and maintenance of standards as delineated in this Safety Plan (TFC-SP-1), Operating Plan (OP-1), the Employee Timetable (OP-2), and the Configuration Management Plan (OP-3) and other applicable documents.

MOS 3 from 22nd street to 8th street (including Danforth Yard), in Bayonne is fully operational and represents the operating system to date. Figure 13-4 provides an illustration of the HBLRTS alignment.

Engineering and planning activities are on-going, for extension of HBLRTS North of Tonnelle Avenue.

Figure 13-4: HBLRTS System Map



13.5 SAFETY CERTIFICATION OVERVIEW

As the operator of HBLRTS we are required to self-certify that the system is operationally safe to enter revenue service. Therefore, a safety certification program was developed and implemented for use upon completion of each operating segment and phase. Our Safety Certification Plan provides details of the program. HBLRTS's Safety Certification Plan is consistent with FTA's 'Handbook for Transit Safety and Security Certification" (FTA-MA-90-5006-02-01 of November 2002). Appendix B provides further details of the HBLRTS safety certification process.

13.5.1 Safety Certification Program

The goals of the safety certification program are to verify that identified safety requirements have been met and to provide evidence that the new operating segments/phases are safe for use in revenue service. Accordingly, the objectives of the safety certification program are to document that:

- Facilities and equipment have been constructed, manufactured, inspected, installed, and tested, in accordance with safety requirements in the design criteria and contract specifications;
- Operations and maintenance procedures and rules have been developed and implemented to ensure safe operations;
- Training documents have been developed for the training of operating personnel, and emergency response personnel;
- Transportation and maintenance personnel have been trained and qualified/certified;
- Emergency response agency personnel have been prepared to respond to emergency situations in or along the HBLRTS right-of-way;
- Safety-related system integration tests have been conducted; and
- Issue HBLRTS certification.

The Safety Certification process consists of the following major tasks beginning with criteria development and system design, and is completed prior to the commencement of revenue service:

- Develop a certifiable items list;
- Identify safety requirements for each certifiable element;
- Verify compliance;
- Issue Certificates of Compliance for each certifiable element; and
- Completion of Integrated Tests and Certification of the HBLRTS system as safe and secure.

Further details of Safety Certification are shown in Appendix B

13.6 TRAINING

13.6.1 Training and Certification Review/Audit

Audits of training will include the verification of employee training, certification, and retraining programs as appropriate. The audit will verify that the HBLRTS employee instructions and course contents meet the expectations of training and certification requirements. The content and presentation of the training programs are evaluated on a periodic basis. The courses are

conducted and documented with complete and accurate records. Records are maintained in a secure location by the Training Department.

13.6.2 Employee Safety Training

HBLRTS employee training is conducted for all operations and maintenance personnel to include the following:

- Safety/Industrial Hygiene Training and Education
- Operations Related Safety Training
  - Train Operator Training and Qualifications
  - Transportation Supervisor and Controller Training and Qualifications
  - Maintenance Personnel Training and Qualifications
  - Safety Critical Training and Certification Compliance

13.6.3 Safety/Industrial Hygiene Training and Education

The Operational Safety Manager provides training to HBLRTS employees in basic, safe work practices and hazard identification. Employees exposed to chemicals and/or physical agents receive training in industrial hygiene principles, use and care of personal protective equipment, and the hazards and safe handling methods associated with chemicals.

Employees whose job functions include exposure to special hazards receive additional training.

Instruction includes, but is not limited to, confined space entry, blood borne pathogen, HazCom, or other safety-specific training.

13.6.4 Operations Related Safety Training

Safety training is conducted on HBLRTS equipment, operating rules, and procedures. Copies of SOPs and rules are given to all HBLRTS operating personnel. The Manager, System Safety assists the Transportation Department in the formulation of training programs, SOPs, and rules. SRC is responsible for the review and approval of all operating rules and procedures and operations training programs, prior to their implementation.

All safety-sensitive positions directly engaged in rail operations or in Rail Operations Management are subject to random drug and alcohol testing, random safety checks, limitations on hours worked and certification/recertification on an annual basis. Additionally, personnel must pass an annual examination on the operating rules, safety rules and procedures. Each person who fails the annual examination is given special retraining. The preparation, administration, and maintenance of these examinations and related records are the responsibility of the employee's respective department.

All safety-sensitive positions directly engaged in rail operations or in Rail Operations Management are subject to random drug and alcohol testing, random safety checks, limitations on hours worked and certification/recertification on an annual basis.

Additionally, personnel must pass an annual examination on the operating rules, safety rules and procedures. Each person who fails the annual examination is given special retraining. The preparation, administration, and maintenance of these examinations and related records are the responsibility of the employee's respective department.

13.6.5 Train Operator Training and Qualifications

All new Train operators are given the Transit Vehicle Operator training course. This course covers rules, procedures, and actual vehicle operation. Each new train operator is certified by practical testing to validate operational readiness and knowledge of operating and safety rules and procedures. Annually each operator is given a refresher course on the rules and procedures and is re-certified by written and practical testing.

13.6.6 Transportation Supervision Training and Qualifications

Each Transportation Supervisor receives training in vehicle operations, including rules and regulations, efficiency checks, emergency response, accident/incident investigation, customer assistance, and vehicle maintenance troubleshooting.

The Safety Department coordinates with the Training department to train Transportation Supervisors in accident/investigation procedures performed in accordance with the HBLRTS SOP. Each supervisor is certified by both written and practical testing to validate operational readiness and knowledge of operating and safety rules and procedures. Annually each Supervisor is given a refresher course on the rules and procedures and is re-certified by written and practical examination. Controllers are qualified and certified.

Transportation Supervisors who have received additional training and certification in the areas of vehicle movements, including direct action and control of routes, coordination of emergency response and security activities, and coordination of construction and maintenance activities on the active railway are qualified as Controllers.

Controllers are certified by both written and practical testing to validate their operational readiness and knowledge of operating and safety rules and procedures. Annually each Controller is given a refresher course on vehicle movements, and emergency and operating rules and procedures, and is re-certified by written and practical examination.

13.6.7 Maintenance Personnel Training and Qualifications

Maintenance requirements, methods and procedures for HBLRTS equipment and systems described in manuals, handbooks, and other documentation developed for the training and certification of maintenance personnel. Use of personal protective equipment (PPE), emergency equipment, and safety instruction are included within the training program.

Maintenance Supervisors are responsible for ensuring Maintenance Personnel required to operate vehicles, hi-rail equipment, heavy equipment, or other specialized vehicles/ equipment/apparatus are certified by both written and practical testing (to document the employee's knowledge of safety and operating procedures and skill in the proper and safe operation and procedures).

Each employee is re-certified annually, in the proper and safe use of equipment/vehicles by written and practical examination.

13.6.8 Safety Critical Training and Certification Compliance

To ensure that compliance to training and certification of HBLRTS staff, the following is presented:

- The Training Department, with assistance from the Safety Department is responsible for operational training, including the training of new staff as assigned.

- Various levels of safety training are established for HBLRTS staff so that employees can effectively carry out their respective responsibilities. Employees receive safety training appropriate to their level of responsibility. Figure **13-5** below provides a matrix of Training, Including Emergency Responders

Figure 13-5: Safety Training Requirements

Courses	Staff Level				
	Emergency Responders	OCC Controller	Operator	Supervisor	HBLRTS Staff
HBLRTS Orientation	x	x	x	x	x
HBLRTS SOPs & EMPs	x	x	x	x	x
HBLRTS Safety Rules	x	x	x	x	x
HBLRTS Safety Systems	x	x		x	x
HBLRTS -Facilities & Vehicles	x	x	x	x	x
Roadway Worker Training	x[3]	x[3]	x[3]	x[3]	x[3]
Emergency Responder Training	x[1]	x		x[2]	
Incident Command Training	x[1]	x		x[2]	
Interagency Training[4]	x[4]	x			x[3]
CPR		x[3]	x[3]	x[3]	x[3]
First Aid		x[3]	x[3]	x[3]	x[3]
Hazardous Material Awareness		x		x	

1 Pre-qualified and not required
2 Supervisors designated as On-site incident coordinators
3 Selected Staff
4 Includes table tops, drills, functional and full-scale simulations

Hudson Bergen Light Rail has established a training curriculum to ensure basic level of safety-related competency for rail transit system auditing and oversight.

Additionally, HBLR Staff who are directly responsible for safety oversight will be required to complete applicable training requirements of 49 CFR Part 672 within three (3) years of their initial designation. Thereafter, refresher training shall be completed every two (2) years. Additionally, refresher training requirements which must include, at a minimum, one (1) hour of safety oversight training will be provided.

Required Curriculum over a Three-Year Period is as follows:

HBLR Staff (public transportation agency personnel) with direct responsibility for safety oversight of rail fixed guideway public transportation systems:

- One (1) hour course on SMS Awareness—e-learning delivery (all required participants)

- Two (2) hour courses on Safety Assurance—e-learning delivery (all required participants)
- Twenty (20) hours on SMS Principles for Transit (all required participants)
- TSSP curriculum (minus Transit System Security (TSS) course) (all required participants—credit will be provided if participant has a Course Completion Certificate of previously taken TSSP courses)
    - Rail System Safety (36 hours)
    - Effectively Managing Transit Emergencies (32 hours)
    - Rail Incident Investigation (36 hours)

13.6.9 Contractor Safety Training

The Safety Manager and System Safety Manager administer the Construction E, S&H Program when contractors' work affects HBLRTS operations, passengers, facilities, and personnel.

Contractors are required to comply with all applicable OSHA standards for the safety of employees as well as to safeguard HBLRTS employees, contractors, passengers and the public.

All contractors and subcontractors working on or interfacing with the HBLRTS are required to attend safety training prior to working on the operating system. This training course is developed jointly by the operating department and the Safety Department.

HBLRTS Operating and Safety Rules and Procedures are included in each contractor/Subcontractor contract, and these rules and procedures bind them while performing work on the HBLRTS.

13.6.10 Maintaining Training Records

All records of HBLRTS personnel training are retained in the Training Department, including training certification and re-certification. Training records are maintained indefinitely.

13.6.11 Training Compliance Requirements

The Training and Administration Managers report to the TFCRC President, CEO & Director, Rail Operations and is responsible for coordinating all training activities within the HBLRTS organization.

This includes the tracking of employee certifications and notification of their expirations, scheduling annual re-certification training, and analyzing historical training activities to improve the organization's time management without degrading the assurance of safety within the system. Instruction to employees will be provided by this individual in the areas of expertise. Subcontracted and other off-site training courses are be coordinated by the individual, including the development of courses, if necessary.

13.7 ACCIDENT INVESTIGATION PLAN

13.7.1 Overview

This section of the Safety Plan has been removed and is now contained in a stand-alone document entitled HBLRTS Accident Investigation Plan (TFC-AIP-1) Rev. 2 dated 11-1-2019. The Plan describes the process used by HBLRTS to conduct accident, incident and unacceptable hazardous condition investigations, and for notifying appropriate external agencies, including NJDOT-OSSO, the National Transportation Safety Board (NTSB), and the Federal Transit Administration (FTA). It includes a clear link between the accident/incident/hazard notification, investigation and reporting process and the hazard management process. Additionally, it addresses the process used by HBLRTS in the development of corrective action plans to prevent recurrences, and further, to coordinate review and approval of these plans with the NJDOT-OSSO.

13.8 HBLRTS PHYSICAL PLANT

The HBLRTS is comprised of 15 "individual elements" (e.g., the electrification system). Each is categorized as either a "system" or a "facility".

There are 7 systems and 8 facilities. These 15 elements are further broken down into sub-elements (such as the overhead contact system), of the electrification system.
Each sub-element is further divided into assemblies and then components. A full list of elements and sub-elements is provided in Figure **13-6.**

13.8.1 Vehicles

Rolling stock consists of all rail and highway-rail vehicles required for HBLRTS operations. The major subsystems of rolling stock are the Rail Vehicles and Maintenance of Way highway-rail (hi-rail) equipment.

Rail Vehicles

The HBLRTS vehicles are bi-directional and have been designed in two variations; one with 3-sections and one with 5-sections.

The 3-section vehicles are 92 feet in length, 70% low floor vehicle, double-articulated, approximately 105.5 inches wide, and 147 inches high, measured from top of rail.

The 5-section vehicles are 124.5 feet in length. 90% low floor, twice double-articulated.

The doors are 48 inches wide and each vehicle has passenger-to-operator communications, spaces for wheelchairs/strollers, accommodations for 68 seated passengers and the crush load of 240 passengers for the 3-section vehicle. The 5-section vehicle has 102 seats and room for 341 passengers at AW3 (crush load). The vehicle is compliant with the Americans with Disabilities Act (ADA).

Special Purpose Vehicles

The Shuttle Wagon is used to transfer Vehicles into non-powered sections of the Shop and in extenuating circumstances to rescue Vehicles stranded on the mainline. This type of vehicle can also be used over the road for routine maintenance inspections and servicing. Supervisors are qualified to operate the Shuttle Wagon after receiving certification training from the vendor.

Long-term maintenance and/or tear-downs require HBLRTS's subcontractors to supply the equipment. This is specified in the sub-contracts. Hi-rail equipped vehicles that may be used by subcontractors include:

- Hi-rail equipped vehicle with tower platform;
- Hi-rail equipped flatbed crane truck;
- Hi-rail equipped track inspection vehicle; and
- Hi-rail equipped maintenance vehicle

13.8.2 Integrated Control System

The Integrated Control System (ICS) is a state-of-the-art centralized Supervisory Control Data Acquisition (SCADA) system located in the OCC.

The primary purpose of the ICS is the supervision and control of the train movements, train control, traction power, and overhead catenary systems. It also provides the status of the Fire and Intrusion alarm systems.

13.8.3 Electrification

The purpose of the electrification system is to supply and distribute electric traction power for the operation of trains. It provides all related functions including conversion and switching of traction power, negative return, and auxiliary power.

Critical physical boundaries for the electrification system include substation connections to incoming utility power, connections at the rail-to-impedance bond leads and traction power bonding, connections to the auxiliary power equipment located in the train control, station, and shop systems. Critical equipment also includes line feed switches and jumpers. The most visible and critical interface for electrification is between the Overhead Contact System (OCS) and the vehicle pantograph.

The major subsystems within electrification include:

- Substation and power distribution, which includes all traction power feeder cables to the feeders on the OCS as well as return cable;
- Overhead Contact System (OCS), which includes catenary poles, overhead wire, sectionalizing bypass switches, pole-mounted disconnect switches, pole-mounted surge arresters, and cast-in-place foundations; and
- Stray current mitigation subsystem, which includes bonding and isolation.

Traction power substations are spaced along the right-of-way, approximately one mile apart. The substations have traction power rectification equipment and switch gear to supply 750 VDC power to the OCS. Normal operations can be maintained with one TPSS being inoperative/out of service.

The power distribution system conducts current from the traction power substation to the vehicle pantograph. The track system forms the return side of this circuit back to the substation.

The OCS provides consistent reliable service for a range of climatic conditions while presenting a low visual impact to the surrounding community. All metallic system elements that support the OCS are grounded.

Emergency Trip Stations (ETS) are located at each traction power substation and at the rail entrances to the Shop building. At the substations, the ETS are mounted on the building wall beside the entrance door. When the mushroom button is pushed, the track current to the catenary is de-energized and transfer tripping takes down adjacent substations. The ETS in the shop building act only on the single DC breaker supplying the Shop catenary. There are no ETS located at the passenger shelter stops or along the right-of-way.

ETS are intended for rapid de-energization of the system by maintenance or possibly Emergency Service personnel. It is not anticipated that the public will ever use these devices.

13.8.4 Track

The primary purpose of the Track System is to provide support and guidance to trains. The guidance also includes train routing at interlockings.
There are three general types of track and special appurtenances utilized on the HBLRTS system. These are:
Ballasted Track, consisting of 115 lb. AREA rail installed on mono-block concrete ties. The rail is fastened to the ties with a spring-loaded clip (Pandrol clip).
This type of track is utilized on the private right-of-way portions of the mainline. A modified form of ballasted track, utilizing wood ties, is used in selected yard areas and within interlockings.
Slab (Direct Fixation) Track, consisting of 115 lb. AREA rail fastened directly to cast-in-place track plinths. The rail rests on resilient plates which are in turn fastened to the plinths through the application of bolts. Special effort is made to provide for electrical isolation of the rail from the concrete. This type of track is used in selected areas of at-grade private ROW and viaduct structures.
Embedded Track, consisting of 115 lb. rail, which is directly supported on concrete and is then encased in a second pour.

Special effort is made to achieve isolation of the rail. This type of track is primarily utilized in locations where "in-street" running occurs. This portion of the HBLRTS track system is generally not provided with broken rail protection using track circuits.

Embedded track and slab track may appear similar but are dissimilar in their method of construction and in their method of accommodating train loads.

Related subsystem elements of the track include special appurtenances within interlockings such as turnouts and slip switches. Other special elements include guarded curve segments and station slab track segments.

Crossover tracks and pocket tracks are located at suitable locations to permit trains to turn back at both ends of the system and at selected mid-line locations. Terminal and pocket tracks are used for holding "hot spare" vehicles during peak hours, and will provide capability for temporary storage of malfunctioning trains and permit reverse running in contingency situations.

13.8.5 Operations Control Center (OCC)

This section describes the operational philosophy of the Operations Control Center.

It is the centralized control point for the entire system and it is staffed 24 hours a day, 7 days per week by qualified Controllers. The OCC controllers have primary responsibility for failure

response, notification to emergency response agencies, management, and other authorities as required by state or federal regulations.

It is operated under the direct authority of the Lead Controller who reports to the Transportation Superintendent who in turn reports to the President, CEO & Director, Rail Operations.

The OCC has authority over all transportation and maintenance activities that occur on or near the alignment.
Each workstation includes two-way radio systems, telephones, public address system, and other advanced control systems to provide Controllers with the ability to manage all operations by:

- Monitoring the direction and location of all trains;
- Monitoring and controlling all signals and switches;
- Monitoring and controlling all traffic signals in street running sections;
- Monitoring and controlling the traction power system;
- Monitoring and responding to all fire and intrusion alarms;
- Monitoring and responding to all elevator alarms as well as remote control operation of elevators;
- Monitoring and responding to the Call-for-Aid telephone and CCTV systems; and
- Implementing Emergency Management Procedures (EMPs), and Station" protocols when required.

The OCC controllers have primary responsibility for failure response, notification to emergency response agencies, management, and other authorities as required by state or federal regulations.

Figure 13-6: HBLRTS ELEMENT / SUB-ELEMENT LIST

	Rail Systems		*Civil & Facility Systems*	
1.0	**Vehicle**		8.0	**Administrative & Management**
		LRV		Systems Maintenance
		Work Equipment	9.0	**Traffic Operations Systems**
		Aux. Vehicles		Traffic Signal
2.0	**Electrification**			Bar Signal
		Substations & Power		Area Controllers
		Overhead Contact		Local Controllers
		Stray Current		Cable/Network
3.0	**Track**		10.0	**Stations & Shelter Stops**
		Ballasted Track		Entry Plaza
		Embedded Track		Platform Operations
		Direct Fixation		Stair Tower/Pedestrian Bridge/Elevators
		Special Trackwork		Parking
		Miscellaneous		Fire Alarm
4.0	**Train Control**			Local Communications CCTV
		Interlockings/Train Routing	11.0	**Right-of-Way**
		Train Separation/ATP		Drainage
		Signal Power		Fencing
		Wayside Equipment		Highway & Street Crossing
		Intrusion Detection		Station Slabs
		Carborne (Cab-signaling)		Structures
		Grade Crossing	12.0	**Tunnels**
5.0	**Communications**			Track Circuits
		Telephone		Ventilation
		Passenger Info System		Tunnel Floor
		Security		Emergency Egress/Ingress
		Communications Backbone		Structure
		Radio		Drainage
		SCADA		Electrical
6.0	**Integrated Control Systems**			Fire Protection/Alarm
		Work Stations/OCC	13.0	**Guideway**
		Software & Equipment		At-Grade
		Security Operations		Special
		Passenger Info Operations		Viaduct
		Tunnel Ventilation*	14.0	**Shop**
		Traffic Operations Interface Equipment		Electrical
7.0	**Fare Collection**			Mechanical/HVAC
		TVMs		Special Equipment
		Fare Collection Modem		Local Communications
		Software	15.0	**Yard**
		Validators		Access/Security
				Car Storage Bldg.

13.8.6 Train Control

The train control system provides the primary functions of train routing and train separation at all locations other than in the Yard and in-street running. This system also provides the functions of on-board speed enforcement.

Speed enforcement is applied for reasons of civil restrictions, train routing, and train separation and for protection against broken rails. The train control system is not deployed in in-street running territory.

The train operator must assure operation at the proper speed in these locations.

The Train Control system is designed to be Fail Safe, or Vital principles. These principles recognize a single fault, or a series of faults, and cause the system to adopt a safe state. The system, in response to a failure, prevents the movement of a stationary train or imposes a breaking action on a moving train which brings it to a stop independent of any operator action.

The Train Control system employed on the HBLRTS is an audio frequency track circuit-controlled system which displays the necessary commands in the vehicle cab. However, the train is manually controlled by an operator in response to these commands.

In the event that the operator is in violation of the cab signal commands, the operator will receive an audible warning to take action.

Failure to respond to cab displays will result in the system bringing the train to a safe condition automatically. The system provides full train protection and speed control in either direction on either track.

HBLRTS operation is bi-directional with reverse signaling. The available speeds for operation are in increments between 5 and 55-mph. Two additional speed control limits are available for specific circumstances, namely a 15-mph Yard speed and a 35-mph Street Running mode. Neither of these special modes is automatically enforced and therefore, the operator is entirely responsible for train separation and observance of speed limits. In addition to train speed and separation protection, the Train Control system ensures that conflicting routes cannot be set, either manually or automatically. Once a train is routed, all other conflicting moves are prevented by the logic incorporated into the wayside Central Instrument Houses (CIH).

These features are provided at interlockings, where conflicting train movements could be initiated. The interlockings are provided with wayside signals which indicate where a train must stand, indicate an event of restrictive indication, and indicate the route to be followed in the event of a permissive display.

Because non-compliance with a stop command at these locations would be dangerous, the wayside signals are enforced by a 5-mph approach speed when a restrictive aspect is displayed, and over running the signal location will cause the train to come to an immediate stop. The placement of the signal ensures that a train ignoring the restrictive command will stop short of the fouling point for other train movements.

The Communication System provides a link between signal locations and the OCC for supervision and control.

The Train Control System also includes Train-to-Wayside (TWC) communications, which provides for routing requests at interlockings and supplemental information regarding train location.

TWC devices are also located in street-running territory as a means of providing the OCC with information regarding train location. Train location provided by TWC is considered as non-vital and is not utilized by the Train Control System for any safety-critical functions.

Intrusion detection is installed on fencing where the adjacent freight line runs parallel to the system alignment.

This fence is equipped with detection devices that are activated if the fence is displaced more than 30-degrees to the vertical. Should this event occur, the tilt switch sends a warning to the Train Control System. This system shuts down the operations in the affected area.

13.8.7 Traffic Operating System

This system includes all traffic control software, computer hardware, and devices which control the movement of vehicles and road traffic across roadway and track intersections.

Traffic system equipment in the field, which includes bar signals, is used to convey a non-vital aspect to the train regarding the status of the intersection or crossings.

At certain locations the railway or highway configuration requires special rules on interpreting bar signals and wayside railroad signals that are in close relationship to each other. Such coordinated functionality is considered during the inspection and testing and preventive maintenance.

At the OCC, the traffic operating system includes a computer which indicates the status of crossings and is capable of exerting control of the intersection. Coordination of supervisory control of train movements and traffic is through the OCC Controllers.

13.8.8 Communications Infrastructure

The Communications System provides the infrastructure link between traction power, train control, traffic systems, and telephone systems in the field, and the indication, control, and communication functions available in the OCC.

Much of the indication, control, and communication functions available in the OCC are provided by the Integrated Control System (ICS).

The Remote Terminal Unit (RTU) provides the ICS with communications connection to the Station Platforms for the purposes of intrusion detection at Ticket Vending Machines, Communications Locker, Standalone Validators, Elevator Tower Rooms and fire detection equipment in Elevator Tower Rooms. A Passenger Information System (PIS) is used to communicate voice and data messages from the OCC to the Control Computer and vehicle radios and modems.

The Telephone Subsystem uses the Communications Backbone to connect field Emergency Trip Station Telephones, Emergency Telephones, and Domestic Telephones to the PBX located at the OCC.

The Passenger Information System (PIS) transmits voice and text messages from 20 Office to patrons on the trains and at shelter stops. The Call-for-Aid telephone connects patrons on the platforms directly with OCC.

13.8.9 Fare Collection and Ticket Vending Machines (TVMs)

This system consists of specialty equipment supplied and maintained by NJT. It includes ticket vending machines (TVMs) for collecting monies and dispensing and validating tickets. It also includes the off-site equipment necessary for systems maintenance.

13.8.10 Shelter Stops, Stations and Parking Areas

The Final Operating Systems will include 22 shelter stops and 2 stations. Figure 13-7 lists the following shelter stops and stations.

Included in shelter stops and stations are civil/structural components such as platforms.
In the event that a system element is permitted to operate with degraded performance, the report will note this is an outstanding maintenance activity(s).

Figure 13-7: Shelter Stops and Stations

Shelter Stop/Station	Parking	Elevator
Tonnelle Avenue	Yes	Yes
Bergenline Avenue Station	No	Yes
Port Imperial Ferry	No	Yes
Lincoln Harbor	No	No
9th/Congress Street	No	Yes
2nd Street	No	No
Hoboken	No	No
Newport	No	No
Harsimus Cove	No	No
Harborside	No	No
Exchange Place	No	No
Essex Street	No	No
Marin Blvd	No	No
Jersey Avenue	No	No
Liberty State Park	Yes	No
Garfield Avenue	No	Yes
Martin Luther King Drive	No	No
West Side Avenue	Yes	Yes
Richard Street	No	No
Danforth Avenue	No	Yes
45th Street	No	Yes
34th Street	Yes	Yes
22nd Street	Yes	Yes
8th Street Station	No	Yes

The track structure through the shelter stops/stations is considered part of the track, but has significant interface to the shelter stop/station (platform height and offset) through the vehicle and other rolling stock. Included in this area are the approach walkways, driveways, and special site work (e.g., landscaping) that is particular to the shelter stop/station. Park and Ride lots are considered a subsystem of the shelter stop/station. Fare collection and traffic equipment may be included in shelter stops/stations but are not considered part of this system.

13.8.11 Computerized Maintenance Management System (CMMS)

This system includes the Management Information Subsystem (MIS), the Maintenance Management Subsystem, payroll subsystems, and other subsystems which support administration. Included in this system are special dedicated hardware and peripherals, as well as software. The MIS in use is a specialized package referred to as CMMS.

Direct interface to operating systems is primarily via the OCC. Train delays or other critical operational events that are captured and logged by OCC are transferred to the MIS for further treatment and disposition. These items may, in turn, be passed on to other systems.

Reports are provided by the CMMS on maintenance actions taken, time between noted repairs and restoration, system element downtime, and materials, supplies, and other factors to keep the system element from service.

13.8.12 Right-of-Way

This system is composed of all at-grade, sub-grade and drainage structures. It also includes duct bank and buried conduit but does not include cable. Right-of-Way supports the track (the physical interface to ballasted track is at top of the sub-grade), and shelter stops/stations (interface is also at top of sub-grade). A secondary function of Right-of-Way is to provide drainage; this is not independent of the support function as adequate drainage is essential to the strength of the geo-structure. In recognition of this, particular attention is devoted to cleaning and maintenance of drainage facilities (e.g., ditches, catch basins, and culverts). Special attention is directed to inspection of fences and of drainage adjacent to or beneath the track structure.

13.8.12.1 Guideway

Guideways are part of the right-of-way, as are culverts, drainage pipes and short span bridges. The viaduct and the tunnel are each considered as separate systems, however, and are not considered part of the right-of-way.

This system also includes streets, pavers and curbs for in-street portions of the HBLRTS. Safety-related interfaces and Intrusion Detection and Warning (IDW) devices exist between the rights-of-way, human interfaces, and other systems.

Typical of these are signal preview and site lines, control of access to the track, and the guarded access to energized traction power subsystems.

13.8.12.2 Tunnel

A double track tunnel of approximately 1 mile in length exists as defined below.

It is designed to accommodate two tracks and equipped with electrical and mechanical systems to make it a vital part of the HBLRTS, (see Appendix A).

All tunnel systems meet the requirements of the National Fire Protection Association (NFPA) 130 – Standard for Fixed Guideway Transit and Passenger Rail Systems.

13.8.12.3 Guideway (Viaducts)

The guideway consists of special-built structures (viaducts), whose purpose is to elevate the tracks for distances longer than the length of a bridge. They grade separate the rail system from automotive traffic in portions of downtown municipalities. Direct fixation track is used on the viaducts.

Clearance is provided for individuals on the guideway structures for routine and emergency access and for limited clearance from train movement.
Interlockings exist on, or are immediately adjacent to, guideway sections.

13.8.13 Vehicle Maintenance, Storage Yard & Maintenance Shops

The HBLRTS Maintenance and Administration Building, vehicle storage yard and maintenance of way building comprise the area that provides maintenance and storage facilities in support of the HBLRTS.
These areas contain the various service, maintenance, repair support and administrative functions, (the Vehicle Service and Maintenance Shops, the Vehicle Storage Building, and substation).

The Main Shop includes the Paint Preparation and Car Body Repair, Paint Booth, Car Wash, Car Inspection, Car Maintenance/Repair, and Parts/Supplies. The Lower Mezzanine includes Administrative and a Bulk Storage Areas.

The Upper Mezzanine includes Administrative Areas, the OCC, and UPS.

The substation is sized to supply power for the yard catenary, yard lighting, and building requirements. The Yard consists of all of the right-of-way equipment and Yard operations are under the authority of the OCC.

Administrative, training, OCC, lunch rooms, toilets, and all locker rooms are ADA accessible.

The main entrance and elevator lobby are accessible. Mechanical rooms, storage spaces, and industrial working environments are not accessible as, by the job descriptions, a worker is required to climb ladders, and a wheelchair bound individual could not be employed in that position.

13.8.14 Special Equipment

Included in the Shop is special equipment dedicated to the maintenance of the Vehicles. This equipment includes: car wash, bridge/jib cranes, portable hoists, in floor car body/truck hoist, turntables, lubrication system, wheel truing machine, maintenance pits, and paint booth.

13.9 DESIGN AND CONFIGURATION MANAGEMENT

13.9.1 Design Requirement

System safety, fire/life safety, human factors, requirements, and user requirements for the operating system are included in procurement specifications and coordinated with all operational offices, which have interfaces with the procured facility, equipment, or system.
Consideration is given to the following safety requirements:

- Ensure compatibility with the safety features, design, and procedures of the existing HBLRTS;
- Incorporate "fail-safe" principles when failures would cause a catastrophe resulting in an injury/death to personnel, damage to equipment, or inadvertent operation of critical systems;
- Avoid, eliminate, or reduce identified safety hazards by design change, safety devices and parts or material selection. Composition of hydraulic fluids, lubricants, and other materials shall provide optimum safety characteristics and fire-resistant properties;
- Locate equipment components so that access by personnel during operation, maintenance, repair, or adjustment activities does not require exposure to hazards such as electrical shocks, burns, cutting edges, sharp points or dangerous or toxic materials;
- Design to minimize severe damage to equipment or injury to personnel stresses which might cause errors leading to an accident; and
- Provide suitable warning and cautionary notes in instruction for operation, maintenance, and repair, and distinctive markings for personnel protection on hazardous components, equipment, and facilities.

Specifications will include the requirement that contractors who provide systems, subsystems, or equipment that affect safe transit operations or passenger/employee safety, establish and maintain a safety program in accordance with an approved system safety program plan defines objectives, tasks, and procedures, schedules, and data submittals for the safety activities that are performed by the contractor.

The contractor's system safety program and supporting documentation are reviewed by the Manager, System Safety in conjunction with the President, CEO & Director, Rail Operations.

13.9.2 System Safety Design Techniques

Whenever practical the "fail-safe" principle is used in the design of safety-critical components and systems. The fail-safe designs ensure that any single point failure of a dynamic system will result in a condition that is known to be safe. Specific types of equipment and systems, such as vital relays, are considered fail-safe by their compliance with existing industry codes and standards when used appropriately in the design of a safety-critical system or subsystem.

Designs, which are equivalent to fail-safe, may be considered in the application of safety-critical designs when their fail-safe equivalence is proven by safety analysis and verification, in accordance with this Program.

Designs which are checked-redundant in their configuration may be utilized as fail-safe equivalent, provided these types of safety-design comply with design principles and the following checking process.

Common mode failures shall be eliminated by ensuring that the independence of the checked-redundant paths of the safety-critical system or components are maintained; and

The checking process is complete and frequently applied.

Critical system functions may utilize logic resident in software. When the application of software can directly affect the safety of the system, an evaluation is required utilizing the assessment techniques.
When software is employed to perform a function that demonstrates that it is directly applicable to system safety, the software is designed and developed in accordance with recognized national and international software standards applicable to critical systems.

13.9.3 General Design Support

The System Safety Manager participates as required in the design review process and provides support for system and subsystem designs and procurements in addition to delivery and/or installation. This support may include:

- Providing information and analysis pertinent to system and subsystem design; and
- Participating in design reviews where the safety and/or security of passengers, employees, facilities, vehicles, and equipment could be affected by the design of the system.

13.9.4 Codes and Standards

The State of New Jersey and all the counties, cities and townships have adopted and use: The Building Officials and Code Administrators (BOCA), National Building Code, Uniform Construction Code of the State of NJ; and the Uniform Fire Code of the State of NJ.

The most relevant standard used by transit systems, is National Fire Protection Association (NFPA) 130, Standard for Fixed Guideway Transit Systems. NFPA-130 includes references to other fire codes that are appropriately identified.

These codes and Designs which are checked-redundant in their configuration may be utilized as fail-safe equivalent, provided these types of safety-designs comply with design principles and the following checking process:

- Encompass the system, subsystem, or components performing the safety critical function;
- Detects any failure in the subsystem which may degrade the integrity of the safety function. Where software is to be used to implement a system function, then software errors shall be considered as failures;
- Common mode failures shall be eliminated by ensuring that the independence of the checked-redundant paths of the safety-critical system or components are maintained; and
- The checking process is complete and frequently applied.

Critical system functions may utilize logic resident in software. When the application of this type of software can directly affect the safety of the system, it will require evaluation utilizing the risk assessment techniques.

When software is employed to perform a function that is demonstrated to be directly applicable to system safety, then the software is designed and developed in accordance with recognized national and international software standards applicable to critical systems.

13.9.5 Safety Design Review

Safety design reviews are an integral part of all acquisition processes for all HBLRTS facilities and equipment. Safety design reviews are conducted by the Manager, System Safety, in conjunction with the TFCRC President, CEO & Director, Rail Operations, to assess compliance of facility or equipment design with safety requirements and to ensure that the safety of existing HBLRTS facilities, systems, and equipment is not degraded by the addition of new facilities or equipment.

Safety reviews are an integral part of engineering design reviews and are held with participation of the System Safety Manager. Consideration is given to such items as:

- System interactions;
- Human factors;
- Environmental parameters;
- Isolation of energy sources;
- Material compatibility;
- Use and long-term storage of critical materials;
- Emergency responses, including emergency egress and rescue paths;
- Fire sources and protection;
- Equipment layout;
- Lighting requirements;
- Operational requirements; and
- Maintenance requirements.

The reviews maximize use of existing data, hazard and reliability analyses, and other applicable design analyses and information. Analyses or evaluations are conducted on test plans, procedures, and related test equipment; operational plans; procedures, and related operational support equipment; demonstration and evaluation plans, procedures, and related support equipment; and on maintenance plans, procedures, and related maintenance equipment.

Results of these analyses either verify the required safety level or require the implementation of changes to incorporate the necessary safety provisions.

13.9.6 Configuration Management

Configuration Management requirements are established in the HBLRTS *Configuration Management Plan (CMP)* and are included in major contracts to assure that changes to design of equipment and facilities are adequately documented and approved. Contractors are required to submit "as-built" drawings and update manuals and procedures. No changes to designs are allowed, after completion of design reviews.

The HBLRTS configuration management process uses baseline management to ensure that the technical baseline (as established at the time of Safety Certification), for Revenue Service is defined and controlled throughout the life of the system.

At specific points in time, selected documentation is formally designated and approved as part of the technical baseline. The operations and maintenance technical baseline is the final as-built documentation and system performance requirements.

Configuration Management includes certain specified contractual documents, operations and maintenance documents, and safety and security documents.

Computer software is essential and critical throughout the life cycle of the HBLRTS Project. Because of its significance, computer software is managed and controlled in accordance with a software management process or applicable procedures that implement the requirements of the applicable software standards.

The requirements of the CMP are applied as applicable to software and firmware used in the operations and maintenance of structures, systems and components.

This applies to software and firmware that is developed in-house, licensed or procured from a commercial vendor, obtained from another organization, or otherwise acquired and used in HBLRTS applications.

This includes the following general software categories and software validation and verification techniques:

- Validation and verification of scientific/engineering codes used to define, analyze, evaluate or verify safety functions includes;
- Verification and validation of custom software and firmware used to monitor and control safety-related plant conditions and operations;
- Verification of supplier standard software and firmware used to monitor and control safety-related conditions and operations (e.g. carborne equipment, braking and so on);
- Verification that changes to critical software and firmware does not affect safety of interfacing systems and functions; and
- Verification of proper use of computer operating systems used in conjunction with the software categories listed above.

13.9.7 Software Control, Access, and Protection

The Manager of Technology establishes controls and security measures for all software and computer systems, which permit authorized access, prevent unauthorized access, and prevent inadvertent alterations of the software.

Access will be granted only to authorized persons that can demonstrate a need. The physical computer storage media (documents, programs, and data) are protected during all phases of the software life cycle to prevent inadvertent damage or degradation. In addition, safeguards are established to provide for authorized back-ups stored remotely. Provisions are implemented for disaster recovery.

13.9.8 Process for Change - Configuration Control

The HBLRTS establishes policy, responsibility and procedures for Configuration Control to ensure continued design integrity of the HBLRTS system, subsystems, equipment and facilities.

Achieving this integrity requires that configuration changes to the system elements defined at the time of Safety Certification are properly coordinated, reviewed, approved and documented.

System changes are changes to the configuration and supporting and related supporting documentation that are precipitated by need for new or revised:

- Equipment extensions;
- Systems;
- Quality improvement initiatives;
- Unforeseen conditions discovered during operations;
- Maintenance activities which require a re-design of a system or its component(s); and
- Safety critical and other supporting documents.

System and/or element changes which affect design and/or operation and maintenance of HBLRTS are reviewed and recommendations made by the Rail Operations Group to the Change Control Board (described in **13.9.9** below) in accordance with the procedures established in the Configuration Management Plan.

13.9.9 Authority for Change

Change Control Board (CCB)

The Change Control Board (CCB) reviews, evaluates and manages the changes proposed to the baseline HBLRTS Configuration and related HBLRTS baseline operation. The CCB will make recommendations for the disposition of proposed changes.

The CCB consists of the following members:

- TFCRC President, CEO & Director, Rail Operations
- Director, Vehicle Maintenance
- Engineer
- System Safety Manager
- Transportation & Maintenance Managers and others as requested.

The TFCRC President, CEO & Director, Rail Operations has overall responsibility for the rail operations configuration management process and for chairing the HBLRTS Change Control Board (CCB).

Other internal organizations such as Project Administration (Contracts, Procurement, and Project Controls (PC) are responsible for supporting the CCB as required.
This will apply if a change in configuration:

- Causes a change or likely change to the Global Risk Profile of HBLRTS Operations. In this case, the System Safety Committee must review and concur.
- Causes a change to the Directives or Mandatory Criteria governing operations.

System modifications to the operating system or design extensions are controlled by a systematic review and approval process which includes representatives from:

- Fire/Life Safety Committee;
- Change Control Board; and
- Safety Review Committee.

System Change Review Committee (SCRC)

SCRC is responsible for overseeing the HBLRTS Commissioning activities including Systems Integration, Start-up, Rail Activation, Safety Certification, and Operation Demonstration. SCRC activities include:

- Planning and coordinating operational training,
- Simulating revenue service conditions, and
- Pre-revenue plans, rules and procedures for revenue service.

Additionally, the SCRC may identify changes to the Safety Plan and reviews to procedures, manuals and other documents pertaining to proposed system extensions.

These documents also provide the basis for certifying the HBLRTS System's readiness for revenue service. SCRC is comprised of the following staff members:

- TFCRC President, CEO & Director, Rail Operations, Chair;
- System Safety Manager;
- Superintendents of Transportation, Maintenance of Way;
- Superintendent, Vehicle Maintenance;
- Rules Examiner; and
- Start-up Manager.

Projects and modifications may require safety certification as determined by the Manager, System Safety Programs, or SCRC.

The process implemented as defined in the HBLRTS *Safety Certification Program is* to assure that a responsible engineer or manager has reviewed and approved all applicable safety documents for safety impact. It also assures that the department(s) responsible for the operation and maintenance of equipment and/or systems related to the modification has approved the safety and security certification certificates.

13.10 INTERNAL SAFETY AUDIT PROCESS

13.10.1 Overview

Audit Programs are conducted annually and are intended to accomplish verification of the safety program and that of contractors, whether constructing on-site or providing safety-critical equipment. HBLRTS verification of compliance is accomplished through the use of surveys, inspections, and analysis of injury and illness reports. In addition, contractors' safety programs are reviewed and approved by HBLRTS management.

The System Safety Manager will use the resources of appropriate staff proficient in the areas being audited for an objective assessment of its own responsiveness to the requirements of the Safety Plan.

The System Safety Manager is responsible for the implementation, scheduling and oversight of the safety audits while keeping in mind the independent nature of the audit process.

The results of an internal audit are reported to HBLRTS Management upon completion of the audit, with a draft report being submitted within 15 working days. The responsible department manager directs his staff for the preparation of a corrective action plan and schedule. A follow-up of the effectiveness of the corrective actions is performed within 30 calendar days of implementation.

13.10.2 Scope of Audit Activities

The scope of the internal safety audit process is to provide a mechanism for determining the effectiveness of the HBLRTS Safety Plan and to assess its level and quality of implementation. Specifically, internal safety audit objectives are to:

- verify that safety programs have been developed/implemented in accordance with Safety Plan requirements;
- assess the effectiveness of the HBLRTS safety management programs;
- identify program deficiencies;
- identify potential hazards in the operational system and weaknesses in maintenance activities;
- verify that corrective actions are being developed, implemented and tracked to closure to address deficiencies and potential hazards;
- recommend improvements to the rail transit agency Safety Plan;
- provide management with an assessment of the status and adequacy of the system safety program; and
- assure continuing evaluation of safety-related programs, issues, awareness and reporting.

Based on a careful review of these objectives and the activities addressed in the Safety Plan, HBLRTS organizational units and functions are as follows:

13.10.3 Organizational Units:

- Rail Operations
- Safety
- Engineering
- Transportation
- Operations Control Center (OCC)
- Train Operators
- Maintenance
- Training
- Procurement
- Human Resources
- Quality Assurance

13.10.4 Organizational Functions:

- Implementation;
- Schedule for follow-up;
- Close out of corrective action;
- Facility Inspections;
- Equipment Inspections;
- Maintenance Audits/Inspections;
- Rules/Procedure Review;
- Training and Certification Review Audit;
- Emergency Response Planning Coordination and Training;
- System Modification Review and Approval Process;
- Safety Data Acquisition/Analysis;
- Interdepartmental/Interagency Coordination;
- Configuration Management;
- Occupational Safety and Health;
- Hazardous Materials/Environmental Safety Program;
- Drug and Alcohol Abuse Program;
- Contractor Safety Coordination;
- Procurement; and
- Others as required by System Safety Manager.

13.10.5 Internal Audit Process

The following describes the Internal Audit Process:

Integrity of the Audit Process

The System Safety Manager, in consultation with line Management, selects the Audit Leader and Team proficient in the areas being audited, ensuring that the audit team does not include staff from the functions and/or units being audited. They ensure that all audits are conducted in a cooperative, professional manner, and include an administrative process for resolving problems or disagreements or findings.

13.10.6 Audit cycle/schedule

Both announced and unannounced audits are performed. Announced audits are scheduled and announced to minimize disruption of activities. Unannounced audits are performed as part of the audit process wherein only the System Safety Manager is informed. All audits will have concurrence of HBLRTS Management.

13.10.7 Audit Checklists and Procedures

Auditing teams utilize approved checklists in their audit. The checklists reflect the items and areas and the department being audited. The audited department is given the required opportunities to provide support documentation to the auditors to "close" the items on the checklist.

Auditors may choose a day to do spot checks of individual records, such as maintenance records or personnel qualification records. In all NJDOT Office of State Safety Oversight will be notified 30 days prior by the Manager, System Safety of upcoming Internal Audits.

13.10.8 Audit Reporting

The auditing group prepares an audit report which is provided to the System Safety Manager who in turn provides copies of the document to HBLRTS Management. Appropriate HBLRTS Management/Staff prepares responses to the audit. Audit teams are proficient in the areas being audited.

The System Safety Manager ensures that all audits are performed on a coordinated basis with full support of HBLRTS management.

Documents that will not be audited include confidential records and financial records, and other sensitive materials. Once an audit date and scope are established, all departments involved in the audit provide full cooperation to the auditors. Completed audits include findings, observations, open items, problem areas, corrective actions and a schedule for implementation of the corrective actions.

The audit report includes a summary of open items, areas of concern and the required corrective actions. Corrective actions, including a schedule for implementation are approved by HBLRTS Management and are tracked for compliance until close-out by the respective managers.

At the end of the audit the audit team briefs management concerning the areas of concern and recommended corrective actions.

13.10.9 Annual Audit Report to NJDOT-OSSO

Manager, System Safety with the assistance of HBLRTS management, responds satisfactorily to all identified problem areas, including a schedule to implement corrective actions. Copies of the final internal audit reports are submitted to NJDOT-OSSO as part of the annual report.

13.10.10 Coordination with NJDOT-OSSO

The HBLRTS coordinates its internal safety audits with NJDOT-OSSO through submittal of the annual and three-year internal safety review schedules, checklists, and annual and three-year audit reports.

13.10.11 Audit Completeness

The System Safety Manager ensures that all audits are performed on a coordinated basis with full support of HBLRTS management. Documents that will not be audited include confidential records and financial records, and other sensitive materials. Once an audit date and scope is established, all departments involved in the audit provide full cooperation to the auditors. Completed audits include findings, observations, open items, problem areas, corrective actions and a schedule for implementation of the corrective actions.

All internal safety audits are fully documented and reported to the NJDOT SSO and NJT immediately following the audit with the appropriate Certification letter to ensure that hazards are

subjected to the hazard identification and resolution process for action to include tracking until resolved. The findings of the audit are then prioritized and CAPS are developed in order to track and close any open findings. Monthly meetings will be held in order to track and close each of the CAPs. The President & CEO has the final determination for the development and implementation of CAPS.

13.10.12 External Audits

It is also important that periodic external reviews and audits are accomplished to continually evaluate safety programs. These external audits may be conducted by peer groups, NJDOT- OSSO, or other regulatory agencies.

NJDOT-OSSO staff is responsible for oversight of the safety program. Oversight may be achieved through review of various safety reports and witnessing of inspections, participation in training sessions, and the general observation of work practices and total program audits.

13.10.13 Annual Report to NJDOT-OSSO

An annual report including HBLRTS safety performance is submitted to NJDOT-OSSO. The report is submitted in a format as determined by NJDOT-OSSO. This report includes the overall safety performance, annual audit report, accident summary report, etc.

13.11 FACILITIES AND EQUIPMENT INSPECTION

13.11.1 State of Good Repair

The FTA (49CFR, Part 625, §625.5-Definitions), defines a state of good repair as **"the condition in which a capital asset is able to operate at a full level of performance"**.

At HBLRTS, a "State of Good Repair" means that HBLRTS has maintenance programs that ensure preventive maintenance is performed in accordance with clearly defined schedules, and "in service" failures are minimized by rehabilitating and/or replacing systems/equipment before they fail. More specific details are provided in the HBLRTS Asset Management (TAM) Plan.

Some typical illustrations of HBLRTS State of Good Repair are:

Poor State 0f Repair

Good State of Repair

Replacing CWR

The HBLRTS is considered in a state of good repair if it exhibits the following characteristics:

- Safety - Transit infrastructure and vehicles are well-maintained and replaced before their condition deteriorates to the point of presenting a safety risk.
- Quality Transit - Infrastructure and vehicles meet customer expectations for service and reliability.

HBLRTS primary objective is to institute maintenance programs that focus on the ability to ensure that vehicles, systems, facilities and equipment are available for operational service, and that they perform safely and reliably throughout their intended design life. To assure that inspections and tests are accomplished activities, as indicated below, are performed.

13.11.2 Facilities and Equipment Subject to Inspections

HBLRTS operating and maintenance facilities and equipment undergo a complete inspection by the Safety Department at least once a year to ensure the safety and health of employees. Hazards discovered during inspections are reported and follow the hazard resolution process.
Individual maintenance shops within the maintenance facilities are formally inspected monthly. These inspections are conducted using inspection forms, and include inspections to verify OSHA compliance, personal protective protection utilization, inspections of equipment, housekeeping inspections, inspections to verify industrial hygiene practices, etc. However, informal inspections may be conducted at any time. Inspection reports are issued which list the hazards and the safety and health problems found during the inspection. Follow-up inspections and reports are completed within 30 days. The department responsible for the inspected area is required to provide a schedule of corrective actions within 30 days. Follow-up inspections and reports are made 30 to 60 days after the initial inspection.

The Fixed Plant Maintenance Plan describes basic maintenance fixed plant elements of HBLRTS. The plan provides for the inspection, condition monitoring, routine servicing, preventive maintenance, and overhaul and replacement requirements for the system.

The Plan provides for maintenance of the fixed plant, and explains the technical, operational and organizational approach required to satisfy this doctrine.

The Fixed Plant Maintenance Plan is supported by lower level documents which provide technical requirements for specific systems. These include:

1. Standards for Inspection and Maintenance of Track and Way
2. Standards of Inspection and Maintenance of the Electrification System
3. Standards for Inspection and Maintenance of Communications and Signal Equipment

The goal of the maintenance plan is to ensure that the HBLRTS meets all safety, availability, and reliability requirements to achieve passenger satisfaction and comfort.
This plan ensures: 1) a high degree of continuity and consistency in routine maintenance activities, 2) a structured process for improving the productivity and efficiency of fixed systems functions, and 3) a fulfillment of FTA's Section 9 requirements.

13.11.3 Categories of Maintenance

Maintenance tasks are divided into four major categories.

- **Inspection and Test (I&T)**: Activities which are performed to determine and verify the condition or readiness of equipment, for example, monthly turnout inspection.
- **Preventative Maintenance (PM)**: Those maintenance activities that are performed on a schedule to ensure availability, safety or prolong the service life of facilities and equipment. PM activities are scheduled based on frequency of use (e.g., cycle, hours of use or pure elapsed time) and not from differences observed during I&T.
- **Corrective Maintenance (CM)**: These refer to demand responsive maintenance activities that are necessary because they affect operations or the safety of patrons or are in response to in-service failures, or to unsatisfactory conditions which are identified during inspections and testing (I&T).

- **General Maintenance (GM):** Those maintenance activities that are necessary to maintain service quality, such as graffiti removal.

13.11.4 Types of Maintenance (Safety Critical)

While inadequate or improper maintenance on any of the HBLRTS may potentially have safety implications, HBLRTS recognizes that failures or incorrect operation of certain systems may directly cause hazardous conditions. Such systems are designated as "Safety Critical Systems". The Safety Critical Systems include:

- Train Control
- Track
- Electrification
- Viaducts
- Right of Way (for fencing, the IDW, and drainage adjacent to track)
- Bridges
- Tunnel

Special requirements, including standards, employee certification, documentation, and quality assurance are imposed for these systems. Further details of equipment inspections and tests are described below.

13.11.5 Equipment Inspections

Equipment inspections are made in accordance with manufacturer guidelines, industry-accepted standards and practices.

- Track inspections conform to FRA standards, such as:
  - Walking inspections twice a week
  - Riding inspections by track inspectors twice a week;
  - Ultrasonic inspection once a year; and
  - Gage and other geometry measurements twice each year.

Receiving inspection inspects/tests all incoming materials and equipment to contract specifications and segregates defective materials in a non-conforming material hold area in accordance with Quality control procedures.

13.11.6 Preventive Maintenance Inspection Schedules

A sweep of the alignment is performed by the first train each morning. The yard & shop areas are inspected monthly.

Routine inspections of the structures, bridges, inverts, and aerial guideways are performed at established cycles using approved guidelines.

The system elements such as train control/signaling, grade crossing equipment, traction power, SCADA, and OCS are inspected at established cycles based on the manufacturer guidelines and industry experience. The period of these inspections may be varied based on climatic conditions, corrective maintenance demands, and length in service.

Vehicle inspections are made in accordance with industry-accepted procedures including periodic inspections specified by the LRV Running Maintenance and Servicing Manual and the Vehicle Heavy Maintenance Manual. Operators perform visual inspections and relevant systems checks prior to service-start.

13.11.7 Vehicle Maintenance Plan

Vehicle maintenance (VM) is divided into four areas: daily, preventive, program, and corrective. A brief description of each area is described below:

Daily Maintenance

Each car undergoes daily inspection and interior and exterior cleaning prior to release for service. The daily inspection check sheet is included in the Maintenance Plan for Vehicle Maintenance.

Preventive Maintenance

Preventive maintenance is a combination of periodic inspections and routine servicing with monthly, semi-annual, and annual intervals. During monthly inspections, any open or deferred work orders for minor repairs are performed. Bi-annual and annual preventive maintenance is based on equipment manufacturer's recommendations.

Program Maintenance

Program maintenance is primarily developed by Engineering with the support of equipment manufacturers, and consists of engineering changes, field modifications, seasonal programs, and overhauls.

Corrective Maintenance

Corrective maintenance consists of troubleshooting and repairing equipment in response to a reported malfunction, failure, defect, incident, or other abnormality. These abnormalities may be reported by train operators, OCC, inspection technicians, or quality inspectors.

Quality Assurance

The LRV Quality Assurance function ensures that Vehicle Maintenance processes, documentation and procedures are in place and properly utilized. LRV Quality assurance personnel monitor maintenance activity and documentation for completeness and accuracy.

The quality assurance function will include reliability and maintainability analysis to identify trends in equipment performance.

13.11.8 Materials Control

Materials Control is the management of all components and equipment, whether inventory spares or in repair, it is used in support of maintenance of Vehicles and equipment. Responsibilities of material control include:

- Inventory Management,
- Warehousing and Distribution,
- Shipping and Receiving,
- Unserviceable Tagging, Disposition and Restocking,
- Planning and Purchasing, and
- Expediting.

Materials Control will continuously monitor parts and equipment status and usage to identify shortages, potential shortages and optimize stocking requirements.

Engineering changes are design modifications established by equipment manufacturers or Engineering and affect form, fit, or function of a component or system. These modifications are typically effective for the entire fleet and future production and are documented using the Engineering Change Notice.

Field modifications may include an Engineering Change Notice established by equipment manufacturers or Engineering. These may affect the entire fleet and are documented by use of Field Modification Instructions. These are typically developed to illustrate the implementation of the Engineering Change Notice, address a quality defect, or clarify a servicing or repair procedure.

Seasonal programs are servicing procedures or temporary modifications utilized to address seasonal sensitivities. Seasonal inspection and servicing are typically performed during semi-annual inspections.

Some examples of seasonal programs are: air conditioning servicing for summer operations, alteration of cleaning procedures for winter operations, and coupler "bagging" to prevent snow and ice build-up.

Overhauls, or heavy maintenance, are performed on a program basis. Period and scope of overhaul programs are established using equipment manufacturers' recommendations, and data obtained during yearly inspections.

Overhauls are divided into major sub-component groups including, trucks, hydraulic brake equipment, HVAC units, air compressors, pantographs, and passenger doors.

Failures and defects are reported by train operators using a Vehicle Defect Report. OCC provides Incident Reports, and inspection technicians utilize Discrepancy Reports.

All reports are brought to the attention of the Vehicle Maintenance Supervisor, who is responsible for investigating, documenting, disposition, and correcting the abnormality.

13.11.9 Maintenance Inspection Checklist Requirements

Checklists are used for all maintenance actions using an automated system that provides checklists as part of issuance of a work order.

13.11.10 Inspection-Hazard Management Coordination

Results from facilities and equipment inspections and tests are closely coordinated with the hazard management process. Hazards identified during these inspections are integrated into the hazard management process for tracking until resolved.

13.12 MAINTENANCE AUDITS/INSPECTIONS

Effective maintenance is required for safe and efficient light rail operations. HBLRTS has adopted maintenance standards that make safety and availability the primary objectives of the system.

These goals will be met by the incorporation of preventive and corrective maintenance programs for all aspects of the system.

All Physical Plant, Fixed Systems and Vehicle Maintenance activities specified in the original equipment manufacturers' (OEM) or maintenance manuals are performed in a professional and timely manner. All requirements to maintain and enforce warranties, and to verify and document the functionality and performance of safety critical equipment, will be satisfied.

Implementation of maintenance activities is under the direction of the Superintendent of Maintenance of Way for fixed plant equipment as well as certain railroad and work equipment and the Superintendent of Vehicle Maintenance. These individuals coordinate their actions with the respective Operations Safety and Maintenance Safety Training Programs for employee development requirements.

13.12.1 Systems and Facilities Subject to Maintenance Audit

As previously stated, inadequate or improper maintenance on any of the HBLRTS may potentially have safety implications and HBLRTS recognizes that failures or incorrect operation of certain systems may directly cause hazardous conditions. Such systems are designated as "Safety Critical Systems". The Safety Critical Systems include:

- Vehicles
- Stations and Shelter Stops
- Train Control
- Track
- Electrification
- Viaducts
- Right of Way (for fencing, the IDW, and drainage adjacent to track)
- Bridges
- Tunnel

Special requirements, including standards, employee certification, documentation, and quality assurance are imposed for these systems.

13.12.2 Failure and Corrective Maintenance

It is the goal of HBLRTS maintenance to minimize system down time and maximize system availability.

Failure Correction is prioritized based first, on safety and then equipment availability. Under no circumstances is unsafe equipment permitted to remain in service. Essential corrective maintenance is not deferred beyond the next scheduled preventive maintenance examination.

Corrective Maintenance is generally performed in response to an "in-service" failure (referred to as a "service failure") or as a direct action following an unsatisfactory inspection and test. It may also require informal observation or vendor (supplier) directive.

13.12.3 Audit/Inspection Findings and Resolution

A log of failed or unsatisfactory inspection and test results and corrective action is maintained by the Superintendent of Maintenance of Way and for the Vehicles by the Superintendent of

Vehicle Maintenance and System Safety Manager for incorporation into the Hazard Management Process.
Where the results of the inspection and test activities are such that transportation services are adversely impacted (e.g., if track inspection determines that a speed restriction is required), the OCC is notified, and an entry made on the Service Failure Log. Any result of an inspection and test action which adversely impacts service availability is considered an "in service" failure.

13.12.4 Maintenance Program Monitoring

The maintenance program is monitored on a regular and frequent basis to identify trends in equipment performance.

This information is used to identify reliability improvement opportunities, such as the replacement of unreliable components based on life cycle cost analyses, etc. Reliability and maintainability data is also used to redefine maintenance intervals and maintenance cycles based on experience over the term of the Operations and Maintenance phase of the contract. These intervals are increased or decreased to provide more cost-effective maintenance.

Certain MOW and Fixed Plant maintenance activities are performed by subcontractors, while others are accomplished directly by HBLRTS staff. The coordination and management of both are the responsibility of the Superintendent of Maintenance of Way.

13.12.4.1 General Certification Process

The System Safety Certification process, outlined in Exhibit 5-1 is comprised of the following major tasks beginning with system design continuing to the start of revenue service:

- Identify safety and security critical system elements to be certified.
- Develop a certifiable items list.
- Identify safety and security requirements for each certifiable element.
- Verify and document compliance with safety and security related plans and procedures.
- Verify training programs and emergency preparedness procedures.
- Verify safety & security related testing, inspections, and issuance of temporary use notices (TUN) and occupancy permits.
- Develop the Hazard Management program and resolve potential hazards.
- Issue Certificates of Compliance for each certifiable element upon satisfactory completion.
- Issue HBLRS certification.

Upon entering revenue service, the hazard management process addresses operational as well as design and build issues. In addition, the Safety Review Committee reviews and evaluates all operational modifications that require recertification. In addition The Safety Certification Program is revised to incorporate all new segments.

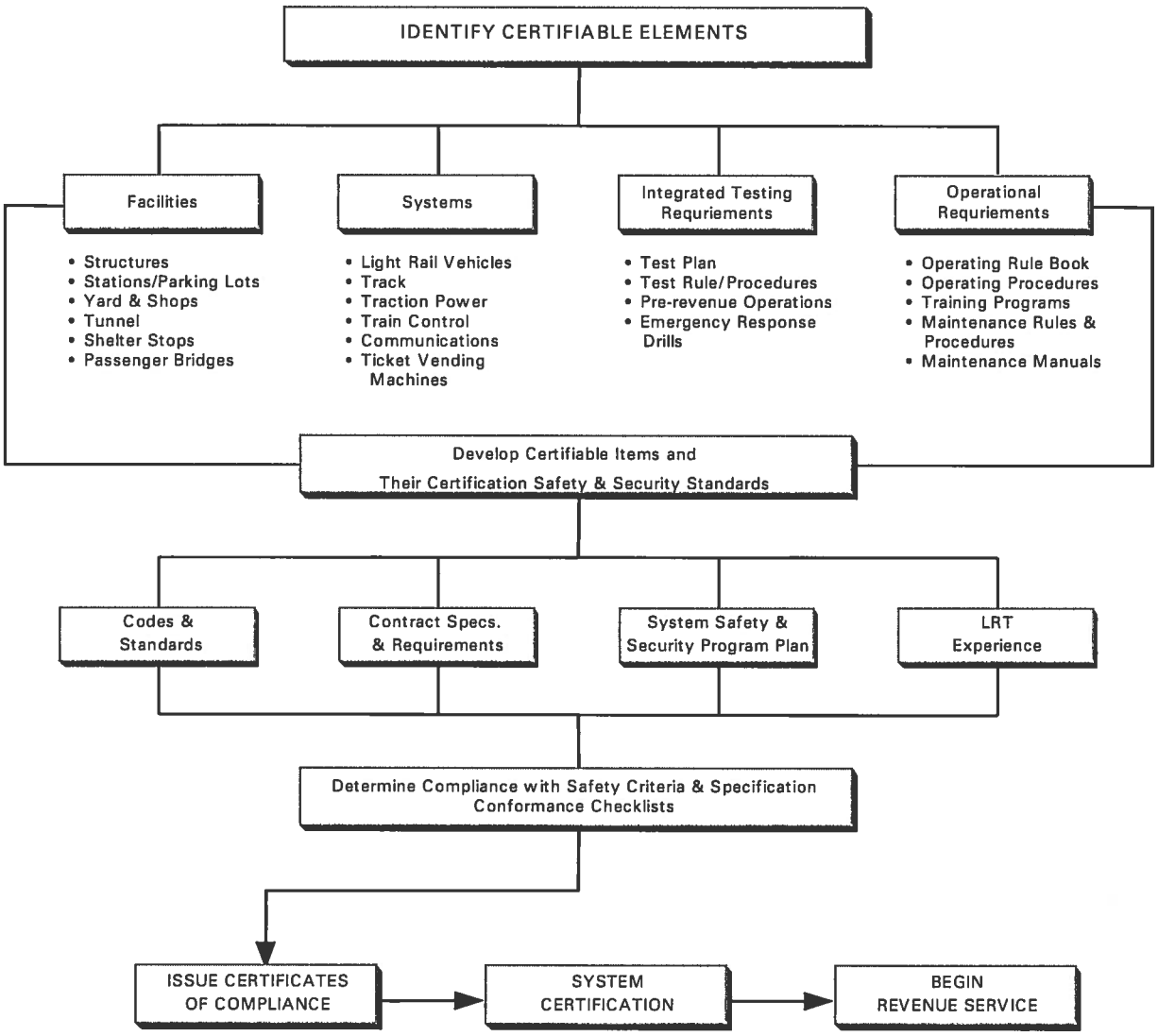
Certifiable Elements

Certifiable elements consist of systems, facilities, equipment, procedures, testing, programs, etc., which are critical to the safety and security of the HBLRS. The listing of equipment and sub-systems is known as the **Certifiable Items List** (CIL), Appendix I. Many of the major certifiable elements on the CIL are composed of numerous sub-elements (equipment and subsystems), that also require certification to complete the certification of a major certifiable element. The CIL is modified as necessary by the Safety Review Committee during the Safety Certification process.

The following criteria have been established for the Certifiable Items List:

- Systems - include light rail vehicle analysis for safety and security related testing before they are certified. To complete the certification process, all critical sub-elements must be verified for compliance to safety and security requirements.
- Facilities - include stats, shelter stops, vehicle storage building, yard, maintenance shop, and other fixed structures such as central instrument houses. Certifiable systems and equipment installed in a facility element are typically considered part of the facility such as: fire protection, lighting, elevators, CCTV, emergency ventilation systems and station communications.

EXHIBIT 5-1
The System Safety Certification Process



- Operational and integrated testing elements - includes system safety and security-related plans, procedures, and training programs. In addition, the list of safety critical integrated tests to be conducted during pre-revenue operations is incorporated into the list of certifiable elements as part of the certifiable item requirements.

Many of the certifiable elements may need to be duplicated a number of times for a certifiable element to be completed. For example, each light rail vehicle requires individual Safety Certification. There are also duplicate certifiable elements for traction power, trackwork, and train control. Each of these certifiable elements are divided into sub-elements.

Criteria Conformance Checklist

The purpose of Criteria Conformance Checklists is to provide a documented means of verifying that the safety and security related criteria requirements are reflected in the contract documents by the end of the final design phase to assure that:

- Design documentation contained the safety and security requirements identified in the Design Criteria
- Designs meet code and regulatory compliance
- Safety and security related comments during design are addressed and satisfactorily resolved.

The Criteria Conformance Checklists are developed primarily from Chapter 18, HBLRS Manual of Design Criteria. However, safety and security criteria specified in other chapters of the Manual of Design Criteria are also incorporated into the applicable checklists.

The Criteria Conformance Checklist, Exhibit 5-2, is used to identify each system, facility, and testing element and incorporates, as appropriate: fire life safety, system safety, and security related activities that impact safety and security. Criteria Conformance Checklists are not developed for plans, procedures, drills, or training programs. In addition, most station, shelter stops, elevated structures, tunnels, and at-grade sections are similar and were combined, as appropriate, in "typical" criteria conformance checklists.

These requirements then became the basis for developing the Specification Conformance & Operational Readiness checklists by referencing the applicable criteria and specifications. This approach enabled the design engineers to complete comprehensive, safety and security checklists once, (in lieu of several, separate checklists). It also permits safety and security staff to effectively move the process forward.

As part of the process, the Manager System Safety attaches a certification of criteria conformance to the final certification submitted.

EXHIBIT 5-2
Criteria Performance Certificate Form

HUDSON BERGEN LIGHT RAIL TRANSIT
SAFETY CERTIFICATION PROGRAM

CRITERIA CONFORMANCE CHECKLIST

REVIEWER_____ DATE_____

GROUP_____ REVIEW LEVEL_____

CERTIFIABLE ELEMENT:_____

SUB-ELEMENT:_____

CONTRACT NO:_____ REFERENCE:_____

Criteria ID	Description of Criteria	Yes	No	Document Reference/Remark

13.12.5 Maintenance of Way

Cleaning is performed regularly and frequently enough to assure that HBLRTS exhibits a neat and attractive appearance to customers at all times and eliminate customer and employee exposure to hazards.

Inspections and servicing, including the replacement of consumable items, are performed regularly and frequently enough to ensure that every element of the system is fully functional.

All stations, parking lots, landscaping, vegetation, track structures, yard & shop are maintained to HBLRTS standards.

13.12.6 Shelter Stop, Station and Parking Lot Maintenance

Shelter Stop and Parking Lots are maintained to exhibit a clean, neat, and attractive appearance that also promotes a safe and secure environment.
To keep the areas litter and graffiti free, a regular schedule for cleaning is implemented. There is immediate response to all reports of unsanitary conditions.

Litter pick-up at shelter stops/stations and parking is accomplished at least once each day. An adequate number of trash and recycling receptacles at each area is provided to encourage customers to deposit litter. Graffiti is to be removed or painted over before the start of the following day's operations or at a minimum, within 24 hours of discovery or notification. Shelter stops are thoroughly cleaned weekly.

During adverse weather conditions, shelter stops, platforms, footpaths, and parking lots are kept clear of snow and ice.

De-icing, sand, grit, or other suitable combination of materials is spread to prevent and/or limit slippery conditions on platforms and footpaths.

Shelter Stop/Station equipment is operational and is functionally checked daily. Defective lights are replaced within 24 hours of discovery or notification.

Landscaping is maintained to assure a neat and attractive appearance. Vegetation is controlled to ensure that weeds, tree branches, and other forms or vegetation are not allowed to obscure the visibility of signals, grade crossings, stations, signs, etc. Vegetation is prevented from growing in walkways, track areas, and close to the catenary.

Responsibility for maintaining the equipment falls upon Superintendent Maintenance of Way (MOW). Major repairs and service will be outsourced. Outsourcing is the responsibility of the Superintendent MOW.

13.12.7 Maintenance Audit Checklists

Maintenance Audit Checklists are used to document the maintenance audits conducted by System Safety and by maintenance employees to ensure uniform and complete audits. These checklists focus on adherence to schedule, application of standards and procedures, and record keeping.

13.12.8 Maintenance Hazard Identification and Tracking

Hazards discovered during maintenance actions are identified and entered into the HBLRTS Hazard Management Process for corrective action and tracking until resolved.

13.13 COMPLIANCE WITH LOCAL/STATE/FEDERAL REQUIREMENTS

13.13.1 Employee Safety Program

HBLRTS provides all employees with a safe workplace. This extends to operational practices e.g. access to hazardous areas, as well as to the physical conditions.
Employees are provided with continuous training with respect to their responsibilities in the HBLRTS Safety Program, as well as on safety related documents such as the Rules for Conducting Transportation, the General Safety Rules, and the Special Instructions.

13.13.2 Occupational Safety and Health Program

Occupational Environmental, Safety and Health (E, S&H) Program is a high priority for the. HBLRTS System Safety Manager is responsible for monitoring implementation of project E, S&H. Manager(s) for Rail Operations, LRV Maintenance and Construction ES&H are responsible for ensuring compliance with safety programs, all applicable OSHA standards and local codes. It is the responsibility of each department manager and supervisor to ensure a safe and healthy work environment for all employees under their direction. The HR & Labor Relations Manager has the responsibility for ensuring that employee information bulletin boards are posted and maintained.

13.13.3 Industrial Hygiene Program

HBLRTS conducts regular industrial hygiene studies such as air quality, noise level, hazardous materials, including wastes, and environmental stresses, to evaluate the degree of employee or patron exposure to chemical and physical agents encountered in the work environment, including the office environment.

The survey results are utilized to determine the necessary corrective action, including engineering and administrative controls and/or the required use of personal protective equipment. Reports of the industrial hygiene study are submitted to all affected departments.

Industrial hygiene studies are performed on a hazard priority basis to identify and eliminate exposures that exceed the Threshold Limit Value (TLV) and Permissive Exposure Level (PEL). The priority is established by the System Safety Manager through an evaluation of the work processes, including type of work performed, types of chemicals or hazardous materials used to which persons are exposed, frequency and duration of exposure, and number of employee (or patrons) exposed.

Examples of high priority exposures are:
- Airborne concentrations of lead, silica and other toxic particulates and aerosols
- Organic solvents
- Excessive noise levels

In addition, high priority is given to employee or patron concerns, and requests for evaluations from HBLRTS Risk Management or Safety.

13.13.4 Personal Protective Equipment Program

Appropriate personal protective equipment (PPE) are provided and its use required by HBLRTS personnel working on the system.

The use of PPE is evaluated for use by the respective Safety Superintendents (of Operations, Maintenance or Construction ES&H, as appropriate) prior to its purchase by the using organization. Management and supervisory personnel are responsible for providing the necessary PPE and enforcing its use by employees.

13.13.5 Medical Surveillance Program

Physical examinations are coordinated through the System Safety Manager to monitor the health and welfare of employees, and to identify workplace conditions which may jeopardize their safety and health.

13.13.6 Contractor/Subcontractor ES&H Programs

The intent of the HBLRTS Contractor/Subcontract E, S&H Programs is to enhance individual protection and public safety by fostering an awareness and concern for safety on the job site.

Implementation of Contractor/Subcontractor E, S&H requirements during construction, and those covered by the Federal and NJ State Occupational Safety and Health Administration, are the responsibility of HBLRTS and are included in the HBLRTS Construction E, S&H Program(s).

13.13.7 Contractor Safety Program

The System Safety Manager administers the Construction E, S&H Program when contractors' work affects HBLRTS operations, passengers, facilities, and personnel.

Contractors are required to comply with all applicable OSHA standards for the safety of their own employees as well as to safeguard HBLRTS employees, contractors, passengers and the public.

All contractors and subcontractors working on, or interfacing with the HBLRTS are required to attend safety training prior to working on the operating system.

This training course is developed jointly by the operating and safety departments, and reviewed by the System Safety Manager. HBLRTS Operating and Safety Rules and Procedures are included in each Contractor/Subcontractor contract, and these rules and procedures bind them while performing work on or about the operating system.

13.13.8 Roadway Worker Protection

HBLRTS has an established "Protection from Trains" policy for employees and contractors working on, or in close proximity to, rail transit-controlled property.
The Safety Manager, working with the Construction Manager oversees worker safety. Contractors are required to comply with all applicable State and Federal OSHA regulations for the safety of their own employees. All employees and contractors working on, or interfacing with the HBLRTS are required to attend safety training while working on the operating system. This training course is developed jointly by the operations department and system safety. The TFCRC used as guidance, the Federal Railroad Administration's regulation 49CFR214 for Roadway Worker Protection, APTA RT-S-OP-016-11 and NTSB Recommendation R-12-36 of 06-01-12.

13.13.9 Required Safety Program Compliance

Safety program requirements for compliance are an integral part of numerous HBLRTS committees that have been previously described or are as identified below. These committees establish the rules, procedures and guidance that must be complied with, for worker safety.

13.13.10 Safety Committees

HBLRTS has several safety committees to facilitate distribution of information and the proper resolution of safety issues.

The Safety Review Committee is the primary committee and it is supported by the Fire/Life Safety Committee, System Change and Operations Review Committee, Change Control Board, Employee Development & Safety Recognition Task Group, etc. The Manager, System Safety Programs is represented in these committees.

The scope and responsibilities of these committees are presented in the following sections. Unresolved and open issues that result from these supporting committees are forwarded to the Safety Review Committee for resolution.

Safety Review Committee (SRC)

The Safety Review Committee oversees all Safety activities for HBLRTS, conducts periodic meetings as necessary, and is responsible for:

- Reviewing documentation (evidence of conformance to safety requirement), assigning responsibilities for open issues and approvals of certification documentation, conducting site visits, and defining safety and security-related tests and analyses, as required.
- Determining whether to accept specific conditions or requiring corrective action(s), including determining the specific methods to mitigate the conditions or potential hazards.
- Providing recommendations to the TFCRC President, CEO & Director, Rail Operations regarding certification and noncompliance of system elements.

The SRC consists of the following members:

- TFCRC President, CEO & Director, Rail Operations
- Chief Engineer
- System Safety Manager
- The Safety Review Committee is chaired by the System Safety Manager

In addition to ensuring the employees' welfare, each HBLRTS manager and supervisor is responsible for having knowledge of, and enforcing compliance with, all applicable federal and state OSHA laws, standards and regulations.

13.14 HAZARDOUS MATERIALS PROGRAM

The fundamental requirements of the Federal and State of New Jersey Right-To-Know laws/standards are included in the HBLRTS Hazard Communication Program. The System Safety Manager enforces procedures that ensure compliance with the standards by employees of all departments.

Safety Data Sheets (SDS) for all chemicals and other hazardous materials that are being considered for purchase and use are reviewed and evaluated by the Manager, Occupational Safety for

approval, prior to use. The user will furnish the manufacturer's SDS for hazardous products, and information on the planned use and application methods. The procurement department ensures that the System Safety Manager has submitted written approval of requested materials prior to procurement.
HBLRTS trains its employees in the use of chemicals and hazardous materials. Follow-up is conducted on the field use of approved products to ensure that safe, proper handling methods are utilized.

13.14.1 Environmental Protection Program

As the operator of HBLRTS facilities and equipment, it is the responsibility of HBLRTS to minimize and control the generation of hazardous waste and pollutants to protect the environment.

HBLRTS management ensures that all facilities and equipment under its control and direction comply with all applicable NJDOT and federal environmental regulations.

The Manager, Occupational Safety is responsible for the coordination of hazardous waste manifests, storage, and removal and safe disposal of wastes from HBLRTS facilities, and for the maintenance of any required records.

The Manager, Occupational Safety performs routine environmental protection inspections throughout the HBLRTS sites to ensure compliance with applicable regulations. Procedures are established by the Manager, Occupational Safety and the Quality Assurance Manager to monitor and coordinate all environmental protection activities of HBLRTS departments.

Although OSHA stipulates that employees are responsible for complying with OSHA standards, HBLRTS considers that it is responsible for the employees' compliance. HBLRTS ensures that procedures are established by all departments that facilitate disciplinary action against those individuals who fail to comply with applicable OSHA laws, standards, and regulations.

Examples of types of employee actions that require disciplinary action are failure to use/wear required personal protective equipment, failure to follow appropriate chemical handling procedures, and the unauthorized modification of safety equipment and devices

The Spill Prevention, Control and Countermeasure (SPCC) Plan described in Waste Management & Spill Prevention Control/Countermeasure Plan is required by the US EPA Regulations 40 CFR 112.

The Plan is required to be available for implementation on-site to prevent oil spills, to control spills if they occur, and to employ the necessary countermeasures to contain the spill. It should be noted that the Vehicle Service and Maintenance Shop facility does not meet the criteria of a facility that "could reasonably be expected to cause substantial harm to the environment by discharging into or on the navigable waters or adjoining shorelines." The Shop is generally designed as an Unlimited Area and Low Hazard (S-2). The analysis was based on Uniform Construction Code of New Jersey. This is referenced in the Waste Management & Spill Prevention Control/Countermeasure Plan.

13.14.2 Hazardous Waste Management Program

The Manager, Occupational Safety administers the Hazardous Waste Management Program to ensure that all HBLRTS facilities minimize and control the generation of hazardous waste and

insure disposal in accordance with environmental regulations. Solvent and oil recycling programs are established to assist in maintaining the status of "Small Quantity Generator."

Hazardous materials storage areas are established for each facility, including designated accumulation storage areas. In addition, all employees having responsibility for the control and disposal of hazardous waste are appropriately trained to ensure compliance with environmental regulations. Hazardous material emergency responses are developed and implemented to deal with emergency situations.

13.14.3 Waste Water Abatement Program

The Manager, Occupational Safety maintains the Waste Water Abatement Program to ensure that all spills and concentrations of hazardous materials and in process waste water from HBLRTS facilities and equipment are controlled to minimize surface wash-off spillage in exterior areas. HBLRTS management is responsible for implementing the program for HBLRTS systems.

13.15 DRUG AND ALCOHOL PROGRAM

Maintenance of a Drug and Alcohol-free workplace is essential to the safety, reliability, and efficiency of HBLRTS operations. 21st Century, its partners, and sub-contractors are totally committed to this objective and support this. Employees of each partnering firm within the HBLRTS are covered by the respective Substance Abuse Control Programs.

The abuse of legal drugs, the misuse of alcohol, and/or the use of illegal drugs by HBLRTS employees poses a serious risk of harm to the health and safety of the public and to other employees.

Moreover, the use of illegal drugs, on or off duty, is inconsistent with the law-abiding behavior expected of all citizens, and with the special trust placed in such employees as public servants in the field of transportation.

The administration of the program is through the security office. The program provides for training of supervisors in the signs and symptoms of substance abuse; initial testing of employees and potential employees prior to placement in safety-sensitive positions; record-keeping of test results, and an employee drug information program.

The purpose of the Drug and Alcohol Policy/Program is to assure employee fitness for duty and to protect employees, customers, and the public from risk posed by worker use of drugs or alcohol.

It is noted that employees must inform their supervisors when using prescribed medication(s) that may alter their ability to perform their work.

This program is intended to comply with all applicable Federal regulations governing workplace drug and alcohol misuse in the transit industry.

Regulations issued by the U.S. Department of Transportation (DOT) and the Federal Transit Administration (FTA) mandate the use of urine drug testing and evidential breath alcohol testing for safety-sensitive positions. The policy sets forth HBLRTS drug and alcohol abuse program and the testing and reporting guidelines for safety-sensitive employees as required by those regulations, and for employees in non-safety-sensitive positions.

It is the goal of the Drug and Alcohol Program to prevent substance abuse; all persons covered by the policy are aware that violations of the policy will result in discipline, up to and including termination, or in not being hired. Employee disciplinary actions are coordinated with the Human Resources Manager or the Labor Relations Manager, as appropriate.

HBLRTS Drug and Alcohol Abuse Policy addresses:

a. Applicability of the Drug and Alcohol Abuse Program
b. Safety-Sensitive functions
c. Prohibited substances
d. Prescription drug use
e. Prohibited activity
f. Alcohol use
g. Compliance with testing
h. General provisions for drug and alcohol testing

Types of testing

- Post-offer/pre-employment
- Reasonable suspicion
- Post-accident/incident
- Random – safety-sensitive employees
- Return-to-duty
- Follow-up
- Methodology
- Substance Abuse Professional Evaluations
- Confidentiality
- Retests
- Notification of criminal or driving while intoxicated conviction

i. Employee absences
j. Employee Assistance Program
k. Education and training
l. Discipline
m. Return-to-Work requirements
n. Program administration

13.15.1 Employee Assistance Program

HBLRTS recognizes its commitment and responsibility to its employees by seeking to provide, through the Employee Assistance Program (EAP) and/or Substance Abuse Program (SAP), an opportunity for employees to deal with drug and alcohol-related problems.

Any employee who voluntarily requests assistance in dealing with a personal drug and/or alcohol problem may do so through the EAP and/or SAP in complete confidence and without jeopardizing his/her employment with HBLRTS solely because of the request for assistance.

Other treatment programs for drug and alcohol problems are available through the health and welfare provider selected by individual employees.

The immediate discontinuation of any involvement with alcohol or drugs is an essential requisite for participation in any treatment program.

Although employees are encouraged to receive help for drug or alcohol problems, participation in an EAP and/or SAP will not excuse an employee's failure to comply with the requirements of the Policy. Drug and Alcohol Abuse Program Administrator coordinates EAP and SAP with the Human Resources Manager

13.15.2 Drug and Alcohol Abuse Education and Training

It is the policy of HBLRTS that training and education programs are made available to all its employees. Supervisors, managers, and officials receive instruction on supervisory responsibilities, effects of alcohol and drug misuse, procedures of HBLRTS drug and alcohol program, and indicators of probable alcohol and drug misuse.

Employees receive information on the effects of drug and alcohol misuse and their effect on an individual's health, work, and personal life; signs and symptoms of drug and alcohol problems; and available methods of intervention.

13.16 PROCUREMENT

The Manager, Maintenance, and Construction, the System Safety Manager and other potentially affected departments perform safety and security reviews of procurement specifications, designs for facilities, equipment, or systems, which may affect the safety and security of employees and passengers. The maintenance program is monitored on a regular and frequent basis in order to identify trends in equipment performance. The review is performed to assure the incorporation of safety requirements in contract specifications and designs, and to assess compliance with the safety requirements through the testing and/or inspection of the facility, equipment, or system.

A system to control procured material, equipment, and/or services, with sufficient specification detail to meet design requirements is in place.

Applicable design bases and Quality Assurance program requirements are included or referenced in documents used for procurement of materials, parts, equipment, and/or services.

A materials procurement and inventory control program through the CMMS is used. This is comprised of the specification, purchase, inspection, storage, issue, and use of all spare replacement parts. All spare parts whether new or remanufactured are to be equal to or better than the original equipment parts. The spare parts inventory is monitored on a regular and frequent basis to ensure that there is an adequate and cost-effective spares inventory.

Procurement of new systems such as facilities, equipment, and light rail vehicles includes safety requirements in specifications, codes/standards and design reviews.

14.0 SAFETY PROMOTION

14.1 HBLRTS Safety Culture

14.1.1 Safety Culture Goal / Purpose

HBLRTS goal is to provide guidance, suggestions, and recommendations toward improvement in our safety culture, both to our employees and our passengers. Specifically, our goal is to

identify the transit industry's best practices of safety excellence and make recommendations to strengthen our safety culture.

HBLRTS safety culture is reflected by our actions, attitudes, and behaviors of our staff (managers, supervisors, and employees), concerning safety.

Our purpose is to ensure that staff understands that safety is a positive attribute; preventing injuries and saving lives, with improved productivity are positive outcomes. Safety is actively practiced and regarded as a critical core value by our staff

14.1.2 Philosophy Toward a Safety Culture

HBLRTS fully understands that safety culture is based on attitude and is structural, as it relates to both individuals and organizations. It requires recognition of safety issues, balancing them with appropriate action. Additionally, it is difficult to measure when the fundamental criterion for measuring safety is the absence of accidents and incidents.

Personal attitudes and HBLRTS commitment toward safety aid in identifying unsafe acts and conditions that are precursors to accidents and incidents.

Safety culture extends beyond adhering to procedures. All responsibilities important to safety must be implemented correctly, with alertness, careful thought and full knowledge, sound judgment, and a sense of accountability.

14.1.3 Safety Attitudes, Awareness and Ethics

Safety awareness and attitudes are important attributes that exist in an accident free environment for the HBLRTS. Procedures and good record keeping provide valuable information toward improving HBLRTS safety culture.

14.1.4 Safety Culture Implementation

HBLRTS considers four key elements that contribute greatly to our safety culture and important to implementation of our safety awareness. They are:

- Safety Training
- Communicating Safety
- Continued Safety Awareness
- Data Collection and Lessons Learned

Each of the key elements is integral to implementation of our everyday activities.

14.1.5 Safety Culture Training

HBLRTS places considerable effort toward our safety culture in every aspect of our training programs, including, hiring orientation, placing emphasis on safety in every training module, and continually monitoring safe practices in our employees every day work assignments.

Train Operators, Control center staff, and Maintenance personnel performing critical safety functions in their work are regularly certified and re-certified to ensure they continue to perform their work in a safe manner.
Specific details of our training activities are described in section 12 of this Safety Plan

14.1.6 Communicating Safety

HBLRTS employs several means of communicating safety to our employees, passenger, and the public in general. We communicate safety information through:

New hire orientation – During new hire orientation the importance of personal safety by providing information regarding the dangers of working on a transit system (electric power, working on the right- of-way, signaling, track and switch machines, train movements, slips, trips, falls, etc.), and emphasize that safety is their responsibility.
Formal job training – Training, specific to the work they are performing, stresses the importance of their personal safety, both in the classroom, and on-the-job training.
Signs – Numerous warning signs are throughout the HBLRTS to forewarn our employees and passengers of danger, or what to do in an emergency

Notices and Posters - HBLRTS recognizes its responsibility for keeping our employees and passengers out of harm's way and empowering them with the latest safety information. Proper signage is a necessity for HBLRTS. There are regulations, including emergency exit and evacuation signs and hazardous materials notices. Safety posters promote positive messages and practical instruction on how to work safely and respond to emergency situations. Posters are placed in lunchrooms, breakrooms and other employee locations to create a safer working environment
One-On-One Conversation – One-on-one conversations with individuals, be they employees or passengers with the purpose of informing them of the potential danger in their unsafe act.

14.1.7 Continued Safety Awareness

Employee safety is an essential element in improving productivity, quality, and minimizing workers' comp costs.
Most workplace accidents are the result of unsafe acts, not unsafe conditions. Employee safety promotions increase safety awareness. By integrating our safety promotion complements our training and education programs to enhance HBLRTS safety culture.

14.2 NON-PUNITIVE REPORTING

14.2.1 Historical Background for Confidential Non-Punitive Reporting

Common sense and practical experience command that the HBLRTS implement effective reporting systems by learning from smaller mishaps and incidents to preclude serious workplace accidents.

Confidentiality is clearly important in mediating the number of reports. Systems that have shifted to confidentiality show a substantial increase in willingness to report an incident or mishap, measured by the number of reports received.

The consensus is that fear of retribution, either by immediate superiors, by others in the employing organization, or by another agency, hinders a willingness to report incidents.

We all learn from the errors of others that have resulted in serious injury, but it is much better learning when it was just a mishap. The best initiative is to learn from mistakes.

14.2.2 Purpose

The primary purpose is to establish a policy toward maintaining the confidentiality of non-punitive Reporting, to continually improve HBLRTS's safety initiatives in preventing minor incidents from becoming major accidents, and to ensure that employees are not penalized for reporting potential hazardous conditions benefitting our organization's safety culture.

14.2.3 Confidential Non-Punitive Reporting Policy

HBLRTS's objective is to encourage a culture in which employees are comfortable and encouraged to bring safety and compliance concerns to the attention of management. Further, no person shall ever be penalized or retaliated against for bringing such information to the attention of management. To ensure this commitment, it is imperative that we have uninhibited reporting of all incidents and occurrences that compromise the safety of personnel, or operations.

Personnel are encouraged to accept responsibility for communicating information that could affect the integrity of safety and our service. Everyone must be assured that this communication will not result in reprisal. All HBLRTS personnel are advised that no disciplinary action will be initiated against anyone who discloses an incident or occurrence involving safety an compliance. HBLRTS implements a simple reporting process for reporting information concerning safety and compliance that is intended to protect the identity of anyone who provides information.

APPENDICES

APPENDIX A

WEEHAWKEN TUNNEL AND BERGENLINE AVENUE STATION*

1.0 INTRODUCTION

Appendix A provides a general informational overview of the various features of the Weehawken Tunnel and Bergenline Avenue Station. The design objectives are to address the life-safety concerns of the Hudson-Bergen Light Rail System (HBLRS) passengers and operating staff as well as those of emergency personnel responding to fires or other hazardous events. The systems discussed in this report, however, may also be used and assist in response to security infractions and acts of terrorism. Details of the tunnel systems are provided in "Weehawken Tunnel and Bergenline Avenue Station Fire and Life-Safety Report".

2.0 WEEHAWKEN TUNNEL ALIGNMENT

The HBLRS alignment for N30 Operating Segment begins approximately 150 feet south of the existing south (River) portal structure and ends approximately 50 feet beyond the north (North Bergen) portal.

The two HBLRS tracks enter the River portal on 12-foot track centers and remain at that spacing for approximately 2,150 feet northward. There is no center wall between the two tracks. The tracks are direct-fixation on a concrete slab. A maintenance walkway/duct bank, 36 inches wide, is provided on the exterior wall side of the right (northbound) track, designated track R-1. A duct bank, 24 inches wide, is provided on the exterior wall side of the left (southbound) track, designated track R-2.

When the alignment approaches the station platform area, the track centers widen to 49 feet. The 36-inch wide maintenance walkway and the 24-inch wide duct bank transition to the platform side of the track as the alignment approaches the platform area. In the track transition area, a walkway is provided on the platform side of each track. The walkways end in the station platform area. At the north end of the station, the track centerline spacing transitions from 49 feet back to 12 feet. A maintenance walkway is provided on the platform side of each track in the track transition area.

The final segment of tunnel alignment extends approximately 800 feet from the track transition area at the north end of the platform to the North Bergen portal. Tracks are direct-fixation on 12-foot centers. There is no center wall between the two tracks. A 36-inch wide maintenance walkway/duct bank is provided on the exterior wall side of the northbound track; a 24-inch wide ductbank is provided on the exterior wall side of the southbound track.

In the tunnel segments, south and north of the station, a clear area has been provided between the two tracks, which is the designated emergency egress walkways in the south and north tunnel segments. Ramps are provided in the tunnel transitional areas so as to provide unobstructed access from the emergency egress walkways to the station platform during an evacuation from the tunnel.

3.0 PORTAL STRUCTURES

3.1 River (South) Portal

The south portal of the Weehawken Tunnel is located at the toe of the Palisades escarpment, and operationally is referred to as the River Portal. Most of the original portal structure was demolished and reconstructed. A new parapet wall and concrete ditches have been built on top of the new portal walls to collect the surface water run-off.

A traction power substation (TPSS) is located approximately 300 feet south of the face of the portal. An 8-feet-high security fence enclosure is provided for the TPSS facility. A new maintenance access road, approximately 20 feet wide, has been constructed from the realigned Port Imperial Boulevard to the TPSS and the River portal. The road serves as a means of access to the River portal by firefighters and other emergency personnel.

Along the face of the portal, a six-feet-high parapet wall is provided so that the catenary wire, which carries 750 volts of direct current (v DC), may not be accidentally touched from the top of the portal structure.

3.2 North Bergen (North) Portal

The original metal structures at the north portal, now operationally called the North Bergen Portal, were completely demolished, and a new cut-and-cover concrete structure has been built. The surface water run-off is channeled away from the tunnel portal by proper grading and by constructing a hydraulic structure.

A traction power substation (TPSS) is located approximately 1,200 feet north of the face of the portal. An 8-feet-high security fence enclosure is provided for the TPSS facility. A new, 11-feet-wide maintenance access road and turnaround has been constructed from the vicinity of the TPSS to the North Bergen portal. The road's width is constrained by the terrain. The access road also serves as a means of access to the North Bergen Portal by firefighters and other emergency personnel.

Along the face of the portal, a six-feet-six-inch high parapet wall is provided so that the 750 v DC catenary wire may not be accidentally touched from the top of the portal structure.

4.0 STATION ARCHITECTURE

4.1 Station Configuration

The Bergenline Avenue Station is a center-platform station located beneath the intersection of Bergenline Avenue and 49th Street in Union City. The Station includes various support facilities on three levels: street/plaza level, basement level, and platform level.

4.2 Platform Level

The platform level consists of the station platform, elevator lobby area (which includes a Station Master's desk) electrical closet, a janitor's closet, and a track transition area with ancillary rooms at each end of the station.

A 280 feet long platform is provided to accommodate the length of a train with three light rail vehicles (LRVs). The width of the platform is approximately 39 feet. A one-foot thick center wall divides the platform longitudinally.

The platform center wall has three large openings, which are equipped with electrically operated retractable doors. During normal operating conditions, the platform doors will be open. The doors will be closed to isolate the side of the station platform in which a fire or smoke emergency is taking place (the incident platform) from the other side (non-incident platform), with provision for egress from or access to the incident platform after the retractable doors are closed.

The elevator lobby, located at the north end of the platform, provides access to the three elevators that connect the platform level to the station plaza at the street level. The opening between the elevator lobby and each platform is equipped with electrically operated roll-down doors. The roll-down door leading to the incident platform will be closed during an emergency.

The track transition areas, one at each end of the platform, each extend about 230 feet. In the void spaces between the two tracks, ancillary rooms have been provided, which include two-level tunnel ventilation fan rooms, motor control center rooms, clean agent FM200) room, valve room, ventilation air plenums, a signal room, a communications room, and traction power rooms.

4.3 Street Level

The station facility at the street level provides a plaza for waiting passengers and bus bays for pick-up and drop-off, an elevator shaft headhouse, and an elevator access area. The elevator shaft is part of a central shaft, about 39 feet in diameter, which houses three elevators, egress stairs, standpipes, water lines, and electrical and ventilation ducts. The elevators connect the headhouse to the platform at its northern end. A Fire Management/Station Master's Room, employee's restroom, first aid equipment room, and water

supply valve room are also provided as part of the plaza-level facilities. A total of six ventilation stacks are provided to serve the tunnel and station ventilation system.

4.3.1 Plaza Basement

The fire pump room for the standpipe charging system and the platform ventilation fans and their motor control equipment are located in the plaza basement, along with the egress corridor. In addition, the tunnel and the station ventilation ducts, electric cables, water lines, and standpipe and sprinkler lines will be routed through the basement level and into the central shaft.

4.3.2 Elevator Headhouse

The elevator headhouse is a three-story structure. The upper level houses the elevator machine room equipment. Pressurization fans and fan motor controls are located in the second floor pressurization room. The street level provides access to the elevators.

4.3.3 Ventilation Stacks

A total of six ventilation stacks are provided as a means of air intake and discharge for the ventilation fans. The stacks are located such that the short-circuiting of exhaust and supply airflow is avoided. The stacks are constructed of cast-in-place concrete slabs and walls with architectural bricks on the exterior faces. In conjunction with some of the ventilation stacks, emergency egress from the plaza basement level, an employee bathroom, a first aid equipment room, a Fire Management/Station Master's Room, and a water supply valve room are provided.

4.3.4 Utility Building

The Utility Building is a two-story structure at the southwest corner of the intersection of 49th Street and JFK Boulevard. The uninterruptible power supply (UPS) room, battery storage room, communications room, and mechanical equipment room are located on the upper floor. The electrical room and generator room are located on the lower level.

5.0 PASSENGER CIRCULATION

5.1 Vertical Circulation Analysis

Station passenger circulation and egress demand is based on patronage forecasts for the year 2030, and reflects the operation of a fully mature HBLRTS system at full design capacity with extensive feeder bus routes. The HBLRTS trains are assumed to operate at 3-minute headways in both directions during the passenger circulation analysis period. In order to account for possible introduction of 3-car trains on the northern segment of the HBLRTS, the alternate arrival of two-car and three-car trains at the Bergenline Avenue Station was considered for the vertical circulation analyses. Because of the considerable depth of the station (160 feet), three elevators are used to satisfy the vertical circulation demands during normal operations. However, the result of the vertical circulation analysis confirmed that with one elevator out of service, the remaining two elevators would provide adequate capacity during peak-period operations.

5.2 High-Speed Elevators

Three high-speed elevators are provided to handle the passenger circulation through the station. The elevators are designed to transport a minimum of 615 persons (490 persons boarding at one level and 125 persons boarding at the opposite level) during a 15-minute period, with only two (2) elevator cars

in operation. In a 3-minute period, two of the three elevator cars are capable of transporting over 100 persons from the platform to the street.

Each elevator has a capacity of 5,000 pounds, with a maximum load of 33 passengers. The elevator cars will run at 700 feet per minute, and will make the trip from plaza to platform, or vice versa, in approximately 20 seconds. The car doors are 4 feet 6 inches wide, allowing easy transfer of passengers on and off the elevators. With openings at both ends of the car, the cars load from one side and discharge from the other, for peak passenger transfer efficiency.

The elevators conform to ANSI A17.1, BOCA, and the State of New Jersey Administrative Code. The elevators are in compliance with the Federal Guidelines established by the Americans with Disabilities Act (ADA). The following features are incorporated in the specifications for the elevators:

- Firefighter's Control
- Call-for-Aid Telephone
- Fireman's Telephone Jack
- Light Ray Door Protection
- Vandal Resistant Fixtures
- CCTV Camera
- Public Address Speaker

6.0 EMERGENCY EGRESS

6.1 Emergency Egress from Tunnel

Every effort will be made to move a train experiencing an emergency condition out of the tunnel to one of the portals or other point of safety. However, an emergency involving a disabled train, such as a vehicle derailment, may require the evacuation of passengers from a train in the tunnel.

In such tunnel emergencies, the designated emergency evacuation path for the passengers is the space between the two tracks. When evacuating from the tunnel sections toward the platform area, passengers would follow the egress path to ramps located at the transition areas in the center section of the tunnel.

Conduits and drain lines are installed such that they do not protrude into the egress space. There are track wires that will cross the egress space at right angles which are ramped-over to maintain an unimpeded walkway. There are also maintenance walkways located on each side of the tunnel which may be used by fire department and other emergency personnel.

6.2 Emergency Egress from Station Platforms

Emergency evacuation of the passengers from the station platforms may become necessary in case of a trash fire on a platform, or if a vehicle with fire onboard is brought into the station. The designated evacuation path for the passengers is first from the incident platform through the retractable door openings to the non-incident platform, and then into the elevator lobby for assisted evacuation by the high-speed elevators. Both the non-incident side of the platform and the elevator lobby meet the NFPA 130 requirements as a point of safety, or zone of refuge, from which evacuation by elevator is permissible. Alternatively, evacuation may be effected from the non-incident platform by a rescue train. NFPA 130 requires all passengers from the incident platform to reach a point of safety in less than six minutes. The three sets of retractable doors in the platform center wall enable evacuation in far less than six minutes.

The closing of the retractable doors and the roll-down door on the incident side of the elevator lobby will physically isolate the incident platform from the non-incident platform and the elevator lobby, and create points of safety for the passengers. After the retractable doors have closed, should any passengers remain on the incident platform they may egress through the man-doors provided in each panel of the retractable doors to the point of safety.

The tunnel and platform ventilation fans and the pressurization fans are of the axial flow type with large airflow capacity at high pressure, which makes them comparatively noisy. While there is no legal limit on noise levels generated by the life-safety equipment used during an emergency, the fan noise may annoy people residing in the vicinity of the fan air intake and discharge areas if fans are tested frequently. It is also important that emergency response personnel are able to carry out effective communications during an incident. Therefore, an acoustical analysis was performed to determine the impact of the ventilation fan noise on the surrounding neighborhood and at the track and platform levels, and what if any noise mitigation measures were required. The result of this analysis indicated that sound attenuators on both sides of all tunnel ventilation, platform ventilation and pressurization fans are required to reduce the fan noise to acceptable levels. The resulting fan noise in the tunnel and station platform areas would be 86 dBA or less. During an emergency, a background noise of 86 dBA or less allows effective communications in raised voices or over a megaphone.

7.0 TUNNEL AND STATION VENTILATION

7.1 Fire and Life-Safety Codes

The design of the tunnel and station ventilation system meets the applicable requirements of NFPA 130. The supporting mechanical and electrical systems are designed in accordance with the requirements of NFPA 90 and NFPA 70, respectively, as applicable.

7.2 Goals and Objectives During an Emergency

The basic goals and objectives of the tunnel ventilation system during a fire emergency are:

- To assist in the safe evacuation of passengers from a disabled train and provide the fire department and other emergency personnel with safe access to the incident site, by controlling the movement of the hot, smoke-laden air.
- To remove smoke from the incident site.
- To supply fresh outside air in the evacuation path, and provide airflow in sufficient quantities that will prevent backflow of hot smoke and gases.

To assist in the evacuation of passengers, the emergency ventilation system is designed to direct fresh air into the faces of the exiting passengers, thereby clearing the evacuation path of smoke from a fire. Since the direction of evacuation depends on the location of a fire, the tunnel and platform ventilation system is designed with the capability of moving air in either direction. Ventilation fans are equipped with reversible motors capable of generating airflow in either direction. The emergency evacuation in a serious fire is also be aided by offering the patrons a sense of direction, since the resultant velocity of the oncoming fresh air would be in the range of 500 feet per minute (5.6 miles per hour).

When a vehicle which is on fire is brought into the station, the desired evacuation procedure would be to move the passengers to the non-incident platform, close all retractable doors in the center platform wall, close the elevator lobby door to the incident platform, and then evacuate the passengers by the high-speed elevators or by a rescue train or trains. However, such an orderly progression of events, especially during an emergency, may not always take place. It may become necessary to evacuate some

passengers using the high-speed elevators, and some by train. In order to keep the elevators smoke free, an elevator shaft pressurization system is provided. The function of the elevator pressurization fan is to prevent infiltration of smoke into the elevator shaft by pressurizing it with fresh outside air.

In the unlikely events of failure of all elevators during a fire emergency and an inability to utilize rescue trains, the evacuation of passengers may be carried out by escorting them through the tunnel to one of the portals. A last resort, because of their vertical rise of 160 feet, would be to use the egress stairs in the central shaft, reached through the elevator lobby. An open exit door at the platform level could cause the stairwell to act as a chimney for the smoke from the fire. Therefore, a stairwell pressurization system has been provided to prevent migration of smoke into the egress stairwell.

8.0 GENERAL – FIRE PROTECTION SYSTEMS

The fire protection systems to be provided for the Weehawken Tunnel and Bergenline Avenue Station include smoke and heat detectors, standpipes, automatic sprinklers, portable fire extinguishers and FM200 fire extinguishing systems. The tunnel is protected with a dry standpipe system. The platforms and the platform-level elevator lobby are protected with standpipe and sprinkler systems.

The ancillary spaces are protected with a sprinkler system, clean agent fire protection system, or fire detection and alarm system, as appropriate.

Portable fire extinguishers of appropriate rating are provided in the platform area, in the platform-level elevator lobby, and in all ancillary mechanical and electrical spaces.

8.1 Automatic Sprinkler Systems

The areas to be protected with automatic sprinkler systems include the station platforms, elevator lobby at the platform level, basement egress corridor, elevator shaft and Janitor's Room. All of these spaces, except the Janitor's Room, are unheated. The sprinkler systems for unheated spaces are pre-action dry type.

8.2 Standpipe Systems

The Utility Building, the plaza-level basement, the station platforms, and the tunnel sections are provided with dry standpipe systems. Air relief valves are provided at the ends of the lines and at high points for venting air from the system during charging.

The standpipe system is divided into the following subsystems:

8.2.1 Station Platform and Tunnel

A dry standpipe system is provided for the station platforms and the adjacent tunnel sections. In order to keep the fill time to less than 10 minutes, as required by NFPA 14, the tunnel and station standpipe system is divided into three zones: South (East) Tunnel Zone (Zone 1), Platform Zone (Zone 2), and North (West) Tunnel Zone (Zone 3). The estimated fill time for the longest zone (Zone 1) is less than 8 minutes. Each standpipe zone is provided with a separate fire department connection located on the exterior wall of the Valve Room at the plaza level. The South and North Tunnel Zones are also provided with a fire department connection at the respective portals. In addition to the fire department connections, each zone is provided with an electrically operated deluge valve connected to city water. These valves are located in the plaza-level Emergency Management Panel (EMP) in the Fire Management/Station Master's Room, to charge the dry standpipe system for the incident zone. With remote activation of these valves, the dry standpipe system are charged prior to the arrival of the fire department personnel. The dry-pipe valves are also operable manually from the plaza-level Valve Room.

The standpipe system for each zone consists of a fire main and hose valves. Each fire hose valve is provided with a nameplate to identify the associated standpipe zone. In the Tunnel Zones (1 and 3), the hose valves are surface-mounted and located at 200-foot spacing. The tunnel hose valves are equipped with two 2-1/2 inch valves. Each fire hose valve location (or "station") in the tunnel is identified by a violet light, and is equipped with an emergency telephone, a fireman's phone jack, and an electrical receptacle for use with the fire department's portable halogen lamps. The fire hose valves in the platform area are in recess-mounted cabinets and are not identified by violet lights. Each cabinet is equipped with two 2-1/2 inch hose valves. A 20-pound ABC fire extinguisher is located inside each cabinet.

The dry standpipe system for the required zone is activated upon a signal from either the 20 Office or the Fire Management/Station Master's Room at the plaza level. A manual override for each dry-pipe valve is provided in the plaza-level Valve Room to facilitate charging of the standpipe system when required. The fire department personnel pressurize the standpipe system when required. The fire department personnel pressurize the standpipe system using a surface hydrant and the fire department connection for the respective zone. In the event of a failure of the dry-pipe valves, the fire department connections can be used to charge and pressurize the standpipe system.

The dry standpipe system for each zone is designed for delivering a minimum of 500 gpm of water through two hose valves (250 gpm per valve), with a residual pressure of at least 65 psi at the most remote hose outlet.

8.2.2 Plaza-Level Basement Corridor and Elevator Headhouse

A dry standpipe system is provided for the plaza-level basement egress corridor and the elevator shaft ceiling and pit. A dry-pipe valve (motorized) is provided to charge the system upon detection of heat/smoke. The system will be pressurized by fire department personnel, when required, using a city water hydrant and the fire department connection provided in Vent Shaft No. 4 at the plaza level.

8.2.3 Utility Building

A dry standpipe system is provided in the stairwell of the Utility Building. A manifold on the roof is also provided. The dry system is charged when required using a city water hydrant and the fire department connection provided at the street level.

8.3 Portable Fire Extinguishers

A 20-pound dry chemical ABC fire extinguisher is provided in each fire hose valve and extinguisher cabinet at the platforms and in the plaza-level basement corridor. Portable fire extinguishers of the appropriate rating are also provided in cabinets in all electrical and mechanical rooms and in the Utility Building.

8.4 Fire Department Connections

Separate fire department connections (street Siamese) are provided for each of the standpipe and sprinkler system zones, through which local fire department personnel can pump water to charge and/or pressurize when required. The fire department connections are located in spaces that are easily accessible by fire department trucks. Fire department connections are clearly labeled to identify the system and the zone served.

A four-inch Storz connection is provided at the River and North Bergen tunnel portals connected to the south tunnel standpipe and the north tunnel standpipe zones, respectively. Fire department personnel may use the Storz connection to pressurize the respective tunnel standpipe zone. Because of the wall space limitation, Storz connections at the plaza-level Valve Room could not be provided.

8.5 Water Supply

The water supply to the station plaza is loop fed (i.e., connected to water mains in two streets), so that water is always available, even when the water main in one street is shut down for repair. Separate connections to the city water supply system are provided for the fire protection system and the domestic water system. Supervisory (tamper) switches on water supply valves are provided to monitor their positions. Street fire hydrants are provided within 150 feet of the fire department inlet connections (Siamese) to facilitate the charging of dry standpipes and sprinkler systems. Fire hydrants conform to the local fire department standards.

8.6 Clean Agent Fire Protection System

A clean agent (FM200) fire protection system is provided in the UPS Room and the Communications Room in the Utility Building, and the Communications Room at platform level.

8.7 Insulation and Freeze Protection

All wet fire lines that run through unheated spaces are heat traced and insulated. Drain valves are provided at low points on all fire mains. The drain valves on normally dry fire mains allow draining of these lines after their use.

8.8 First Aid Equipment Room

The plaza-level First Aid Equipment Room, located at Vent Stack No. 3, is utilized by the Union City Police Department's Emergency Medical Services (EMS) division.

9.0 ELECTRICAL SYSTEMS - INTRODUCTION

The design of the electrical systems takes into account applicable codes, specifically the life-safety-related codes, so that the design of the facilities' electrical systems meets the most stringent safety requirements.

9.1 Electrical Service and Power Distribution

Two independent (i.e., from separate sources), medium voltage (26.4 kV, 3-phase) electrical services from the Public Service Electric and Gas (PSE&G) Company supply power to two low voltage (480/277 volts, 3-phase) indoor-type power switchboards. The incoming electrical service feeds separate outdoor medium voltage load break interrupter switches and power transformers. The electrical service is extended to the indoor switchboards, located in the Utility Building Electrical Room at the station plaza level, with low voltage bus ducts.

9.2 Uninterruptible Power Supply System

The Uninterruptible Power Supply (UPS) system, located in the Utility Building, is designed to maintain electrical service to the emergency egress lighting and communications systems in case of power failure. The storage capacity of the UPS system is designed to provide power to the connected loads for 90 minutes.

9.3 Standby Power Generator

In addition to the dual, independent incoming utility power services, a natural gas-driven engine generator is provided to serve the critical loads in the station and tunnel, such as elevators,

pressurization fans, supervisory control and data acquisition (SCADA) system, and UPS loads. If the utility power source fails, the critical loads are automatically transferred to the standby generator.

9.4 Lighting System

The lighting system includes fluorescent, metal halide, and high-pressure sodium fixtures. The minimum illumination levels are in accordance with the recommendations of the Illuminating Engineering Society (IES) and the American Public Transportation Association (APTA). The lighting system is designed to provide higher daytime illumination levels at the River (south) and North Bergen (north) Portal entrance zones of the Weehawken Tunnel. Photocell and astronomic timer will control the supplemental daytime tunnel entrance zone lighting.

9.5 Emergency Lighting

The emergency lighting system is provided throughout the stairs, platforms, ancillary spaces, and the tunnel to enable safe egress by passengers and employees during a loss of the normal power supply. The emergency lighting system is fed from the UPS system and the standby generator. Following a power failure, the UPS system provides illumination during the momentary transfer from the utility company source to the standby generator. The minimum maintained illumination levels for emergency egress are in accordance with the applicable sections of NFPA 130, NFPA 101 and the APTA Guidelines for the Design of Rapid Transit Facilities.

9.6 Grounding

The grounding is designed in accordance with the requirements of the National Electric Code (NEC). The electrical service and facilities equipment are grounded. The neutrals of transformer secondaries are also grounded.

9.7 Motor Protection and Control

Each motor is provided with a controller and auxiliary devices that protect the equipment and perform the required functions. All motors are provided with magnetic overload protection. To ensure maximum availability for emergency duties, the tunnel and station ventilation fan overloads are set at the maximum NEC-allowed setting.

10.0 FIRE AND INTRUSION DETECTION AND ALARM SYSTEMS

10.1 Introduction

The Fire Alarm Control Panel is an integral part of the Fire Management Panel located in the Fire Management/Station Master's Room at the Station's plaza level. The Fire Alarm Control Panel monitors smoke/fire alarm indicating device status and initiates alarms for all system alarms. The monitoring of the fire alarm system is also provided at the 20 Office via the mechanical/electrical SCADA system. A dual, fully redundant fiber optics communications data network is provided between the Bergenline Avenue Station and the 20 Office to ensure the reliability of the life-safety systems. A Fire Alarm System Annunciator Panel is included in the Emergency Information Panel, located in the platform-level elevator lobby and at each tunnel portal, to provide status indication of the fire detection and alarm system.

The Intrusion Alarm Panel monitors system indicating device status and initiate alarms for all system alarms. The monitoring panel is located in the Fire Management/Station Master's Room at the

Station's plaza level. Monitoring of the intrusion alarm system is also provided at the 20 Office via the mechanical/electrical SCADA system. An Intrusion Alarm System Annunciator Panel is included in the Emergency Information Panel, located in the platform-level elevator lobby and at each tunnel portal, to provide status indication of the intrusion detection and alarm system.

10.2 Fire Detection and Alarms

The fire detection and alarm system is an electronically supervised, zoned fire detection, alarm, and control system. This system is microprocessor-based, and interfaces with manual alarm pull stations, smoke and heat detectors, sprinkler water flow switches, standpipe flow switches, bells, horns, and strobe lights.

The Fire Alarm Control Panel provides hardware and software to de-energize magnetic retractable platform fire door holders, release platform-level elevator lobby roll-down fire doors, and initiate the recall of elevators.

10.3 Intrusion Detection and Alarms

Entries into non-public spaces, including the tunnel portals, the central shaft egress stairway and equipment rooms at the plaza, basement and platform levels of the Bergenline Avenue Station, is detected and an alarm is transmitted to the 20 Office and the Fire Management/Station Master Room. Entries into the Utility Building are detected; however, the alarm inhibits after the proper authorization code is entered at the building entrance keypad. Upon determination that the entry is authorized, the alarm is acknowledged from either the 20 Office or the Fire Management/Station Master's Room, and the alarm cancelled. If a determination is made that the entry is unauthorized, the alarm is acknowledged and continue to display until the situation has been resolved.

11.0 SCADA AND COMMUNICATIONS SYSTEMS

11.1 Introduction

The supervisory control and data acquisition (SCADA) system provides the operating personnel at the 20 Office with an effective method of controlling and monitoring the various mechanical and electrical systems system-wide. The primary-control SCADA video display terminal (VDT) is provided at the OCC. The backup control VDT is provided in the Bergenline Avenue Station's Fire Management/Station Master's Room located at the plaza level.

11.2 Closed Circuit Television System

The Closed Circuit Television (CCTV) system allows personnel at the OCC to monitor activity at the tunnel. At the platform level, CCTV cameras are installed to monitor the elevator lobby (including the access doors to the egress stairwell), Call-for-Aid stations, and the platforms. Special emphasis is placed on observation of the platform retractable and elevator lobby roll-down fire isolation doors and the Call-for-Aid stations. At the plaza level, cameras are installed to observe the elevator lobby, Call-for-Aid stations, and fare vending areas. Cameras are installed to observe activity within each of the elevators. Cameras are also installed within the vicinity of each portal to monitor activity at each of the Weehawken portals. Video images from the cameras are transmitted to the OCC over the fiber optic network. At the Bergenline Avenue Station, video display units (VDUs) are installed in the plaza-level Fire Management/Station Master's Room, and at the platform-level Station Master desk in the elevator lobby. The Station Master uses these displays to monitor activities within the station complex.

11.3 Radio System

The radio system equipment for the Weehawken Tunnel and Bergenline Avenue Station receive and transmit 160 MHz, 450 MHz, 860 MHz, and 900 MHz signals. The 160 and 450 MHz radio signals are used by emergency responders. The operations and maintenance personnel use the 860-MHz signal. The 900 MHz frequency is used for the propagation of paging system and cellular telephone signals.

11.4 Public Address System

At Bergenline Avenue Station, public address (PA) system speakers are installed at the plaza and platform levels, and inside each elevator. At the plaza level, the speakers are installed in and around the elevator lobby, fare vending equipment areas, and along the walkway near the elevator lobby. At the platform level, speakers are installed along both platforms and in the elevator lobby. The platform-level speakers are connected to amplifiers installed in the platform-level Communications Room. To ensure that a single amplifier failure will not prevent any area at the platform level from receiving announcements, each speaker is alternately connected to a different amplifier than the speaker adjacent to it.

Microphones are installed at two locations in the station to provide the capability for announcements to be made locally. At the Emergency Management Panel in the Fire Management/Station Master's Room at the plaza level, the microphone allows the Station Attendant or emergency response personnel to make normal or emergency announcements. Similar capabilities are provided through installation of a microphone at the Station Master's Desk in the elevator lobby at platform level.

Microphones are also provided at the 20 Office, so that the announcements can be made to any or all parts of the station, including the elevators.

11.5 Telephone Systems

Telephones are provided on station platforms and in lobbies, walkways, elevators, equipment rooms, ticket vending machines, the egress stairway, and the tunnels. These telephone systems include: Call-for-Aid Telephones, Emergency Telephones, Standard (Employee) Telephones, Coin-Operated Telephones, and Emergency Response Personnel (ERP) Telephone Jacks.

11.5.1 Call-for-Aid Telephones

Call-for-Aid, hands-free, direct-connect telephones are primarily intended to provide patrons with answers to routine questions about schedules or fares. However, they can be used to report emergencies or other information. The Call-for-Aid phones are located in plaza- and platform-level elevator lobbies, both plaza-level fare vending areas, and elevators, and on both station platforms. They are highly visible. They are linked to the Fire Management/Station Master's Room at the plaza level, the Station Master's Desk at the platform level, and to the 20 Office.

11.5.2 Emergency Telephones

Emergency telephones connect directly with the 20 Office when the user lifts the telephone receiver. The failure of any of the emergency telephones is alarmed to the 20 Office. When the 20 Office is not available, the emergency telephones are routed to either the Fire Management/Station Master's Room or the Station Master's desk in the platform-level elevator lobby. Emergency telephones are provided in the tunnel at fire hose valve stations, at each blue light station in the tunnel and the track/platform transition areas, at the

Station Master's Desk in the platform-level elevator lobby, in the egress stairway, and in the Fire Management/Station Master's Room at plaza level.

11.5.3 Standard (Employee) Telephones

Standard telephones are a part of HBLRT's phone system. They are intended primarily for use by employees in the routine conduct of their business, but may also be used to report incidents or emergencies to the 20 Office. They are installed in easily accessible locations throughout the station complex, all ancillary spaces, and the Utility Building.

11.5.4 Coin-Operated Telephones

Coin-operated telephones are installed for the convenience of patrons. Their installation meets ADA requirements. They are connected to the local telephone switches. These telephones will be installed at the plaza and platform levels.

11.5.5 ERP Telephone Jacks

The ERP (or fireman's) telephone jack system is installed for the use of personnel from the North Hudson Regional Fire and Rescue (NHRF&R) Department, and other emergency response personnel using compatible sound-powered telephones. A fireman's telephone jack is installed at all emergency telephone boxes and at each elevator Call-for-Aid phone. These jacks enable responders to use their sound-powered telephones to communicate with each other between points in the station and/or tunnel, including inside the elevator cabs.

11.6 Mechanical/Electrical SCADA System

A mechanical/electrical SCADA system that integrates the following life-safety systems is provided: Electrical Power, Ventilation, Fire Management, Intrusion Detection, Elevator Controls, and Fire Detection and Suppression.

11.7 Emergency Management Panel

The Emergency Management Panel (EMP), located in the Fire Management/Station Master's Room at the plaza level, combines the Fire Alarm Control Panel, Intrusion Alarm Control Panel, Communications Panel, and SCADA/Environmental Control Panel. It also incorporates the controls for the elevators and the dry standpipe systems. The design has integrated these separate systems into one to provide a common man-machine interface. The EMP provides all the essential indications and controls for these systems. A telephone linking the Fire Management/Station Master Room at the plaza level, the platform-level Station Master's desk, and the 20 Office is also provided.

11.8 Emergency Information Panels

Emergency Information Panels (EIPs) are provided in the elevator lobby at the platform level, and at each portal of the Weehawken Tunnel. These panels provide system status indications similar to those in the Emergency Management Panel, but – with one exception - without controls. The one exception is that the EIP in the platform-level elevator lobby contains an Elevator Control and Indication Panel that provides elevator control capability identical to that in the Fire Management/Station Master's Room and at the 20 Office. A telephone, linking each EIP to the Fire Management/Station Master's Room at the plaza level and to the 20 Office, is also provided.

11.9 Visual Information System

Visual Information System (VIS) display signs are installed on both station platforms, in the platform elevator lobby, and in the elevator access area at the plaza level. The installation and the display lettering are designed to comply with ADA requirements. The VIS display signs carry general information displays, and also display a visual rendition of emergency and other special announcements carried by the public address system.

12.0 SIGNAL AND TRAIN CONTROL SYSTEM

The signal and train control system (TCS) incorporates Automatic Train Control (ATC) and wayside interlocking signals. The ATC system is designed as a cab signal system. It continuously informs the train operator, through in-cab displays, of the maximum safe allowable speed; maintain safe separation between trains; and prevent train overspeed, for civil speed restrictions.

13.0 TRACTION POWER SUPPLY NETWORK

Traction power for the LRVs is provided by a TES catenary network, normally energized at 750 volts DC. Traction power substations, located south and north of the River Portal (south) and North Bergen (north) tunnel portals, respectively, will feed the TES. The TES within the tunnel is divided into six zones, so that all or a portion of the catenary on one or both tracks can be de-energized, as required. The control of the catenary power feeds is provided remotely through the 20 Office, or locally from the substations, the two platform-level Traction Power Rooms, or – in an emergency – the blue light stations.

13.1 Blue Light Stations

Emergency blue light stations, meeting the requirements of NFPA 130, are provided for the tunnel and station platform areas. There are a total of eight (8) blue light stations, located at both tunnel portals, along the tunnel trainway in the platform transition zones, and at each end of each station platform in non-public areas.

The blue light stations include a means for de-energizing the catenary, an emergency telephone link to the 20 Office, a fireman's telephone jack, and a blue light. The catenary de-energizing mechanism is of such design that it will be difficult for trespassers or other unauthorized persons to de-energize the traction power system.

13.2 Traction Power Operating Procedures

The Operator of the HBLRTS will provide education and familiarization training to emergency responders. Similar training for MOW personnel include the methods of removal and restoration of traction power, including grounding of the catenary. These protocols are developed and adopted in coordination with all emergency responders, and the education and training provided, prior to the initial energization of the catenary system in the tunnel and station.

14.0 LIGHT RAIL VEHICLE CONFIGURATION

An HBLRTS train may include one, two, or – depending upon the location - three LRV cars. However, when cars are coupled there is no capability of passenger circulation from one car to another, as the LRVs have no end doors.

15.0 20 OFFICE (OPERATIONS CONTROL CENTER)

The Operations Control Center (20 Office) monitors and controls various systems and activities of the Weehawken Tunnel and Bergenline Avenue Station.

15.1 Communications System

15.1.1 Public Address

The public address (PA) system allows the initiation of voice and text messages at the station platform and the station plaza levels, and in the elevators (voice only). The Controller at the 20 Office will be able to advise the passengers of the safety procedures to be followed during a fire or other emergency, if one should occur.

15.1.2 Call-for-Aid Telephones

20 Office personnel are able to receive and respond to calls initiated at any Call-for-Aid telephone.

15.1.3 Emergency Telephones

Calls from the emergency telephones, including telephones at the tunnel blue light stations and fire hose valve stations, are automatically directed to the Controller's console at the 20 Office. The calling telephone extension is displayed, which identifies the location where the call is being initiated. HBLRTS has developed protocols that address when and how emergency telephone calls should be processed at the station's Fire Management/Station Master Room or the platform-level Attendant's Desk, instead of the 20 Office.

15.1.4 Standard (Employee) Telephones

Standard (employee) telephones are located throughout the station platforms, ancillary rooms, Utility Building, and the elevator headhouse. This telephone system allows communications with HBLR administrative Offices, and between the 20 Office, the station platform, and the Fire Management/Station Master Room at the station's plaza level.

15.1.5 External Telephones

The 20 Office is equipped with external telephone lines which enable rapid communications with emergency responders.

15.1.6 Two-Way FM Radio

Two-way FM radio is provided at the 20 Office and at the Fire Management/Station Master's Room via portable two-way FM radios that provide full coverage of the entire tunnel and station complex. The radio system is configured to allow communications between:

- HBLRTS operating personnel inside and outside the tunnel, and personnel at both the 20 Office and the Fire Management/Station Master's Room;
- Personnel at the 20 Office and the Fire Management/Station Master's Room; and
- Emergency response personnel, including those inside the tunnel and at the 20 Office, and at the Fire Management/Station Master's Room.

15.2 Train Control Signal System

The train control signal system equipment provides the capabilities of monitoring and controlling train traffic through the tunnel during both normal and emergency operating conditions. At the 20 Office, and at the Local Control Panel (LCP) in the station's platform-level Signal Room, signal indications, track circuit occupancies, and (only at the 20 Office) corresponding train identifications are displayed.

The Train Control System (TCS) design has been coordinated with the tunnel ventilation zones so as not to allow more than one train at a time between the platform and the portal on a given track. More than one train between the platform and a portal on the same track may, in a fire-related emergency, expose a following train to heat and smoke from a fire on a leading train. In an emergency requiring actuation of the tunnel ventilation fans, selection by the Controller of an emergency ventilation operating mode automatically selects a corresponding TCS emergency operating mode. The general effect causes the signals to display indications allowing trains, including the incident train, to proceed to a point of safety (the station platform or a tunnel portal), while preventing any additional trains from entering the tunnel. If the 20 Office is not operational, the signals can be controlled from the local control panel.

15.3 Traction Electrification System Control

The traction electrification system (TES) tunnel catenary is controlled remotely from the 20 Office. The VDUs for the integrated control (SCADA) system continuously monitor the status of the circuit breakers at each of the two traction power substations (TPSS) and the two platform-level Traction Power Rooms serving the tunnel. The TES equipment facilitates opening these circuit breakers to remove the power supply to the catenary on either one or both tracks from the two TPSS or the Traction Power Rooms. Thus, the 20 Office is able to sectionalize, by TES zone, power within the tunnel. Also, selection by the Controller of an emergency ventilation operating mode automatically identifies the catenary system zone or zones for the incident track where a fire emergency has occurred. This enables the Controller expeditiously to de-energize, if necessary, the affected TES zone or zones.

15.4 Ventilation System Control

The status of the tunnel ventilation system is continuously monitored from the OCC. The VDU for the tunnel ventilation system provides a graphic depiction of the tunnel and allow execution of the ventilation system operating commands. A ventilation control panel (VCP) is also provided in the Fire Management/Station Master's Room at the station's plaza level, which acts as a backup and essentially duplicate the control system at the OCC. The SCADA system facilitates the control of the ventilation system from either the OCC or the Fire Management/Station Master's Room, but never simultaneously from both.

The ventilation console VDU at the 20 OCC (and the station's Fire Management/Station Master's Room):

- Depicts the tunnel with ten (10) emergency ventilation zones;
- Displays which control panel is in control of the tunnel ventilation system;
- Monitors the status of the tunnel ventilation system and shows the current operating mode and emergency evacuation direction, if associated with the operating mode;
- Enables HBLRTS to define (or re-define) the emergency circumstances in terms of disabled train location and emergency evacuation direction; and

- Enables HBLRTS to initiate the most appropriate ventilation operating mode that automatically energize fans in their required mode, and bring dampers and platform doors into their required positions.

15.5 Fire Protection System Control

The initiation of fire suppression systems (sprinkler and clean agent) is reported, by zone, to the 20 Office and also to the Fire Management Panel (FMP) located in the Fire Management/Station Master's Room. Fire suppression systems are automatically initiated by the activation of smoke or heat detectors.

Each of the three zones of the dry standpipe system in the tunnel are provided with a separate initiation button at the OCC and the FMP at the Fire Management/Station Master's Room. Upon receiving a report of a fire, the Controller at the 20 Office (or the Station Master) is able to remotely activate the dry-pipe valve for the respective standpipe zone. The remote activation of the dry-pipe valve facilitates the charging of the dry standpipe for the incident zone before the fire department personnel arrive at the incident site.

15.6 Elevator Control

The OCC has the capability to remotely control each of the three elevators at the Bergenline Avenue Station. The elevator controls include the ability to: (i) Enable/disable individual elevators; (ii) Recall elevators to the street (plaza) level; and (iii) Display summary elevator alarms.

Up to two elevators also powered from the standby power supply system to make them operable during a power outage. The elevator controls allow selection of any two elevators. The standby power distribution system automatically sheds the third elevator from the distribution network once two elevators are selected. The third elevator is recalled to the plaza level before it is shed from the emergency power distribution network.

Identical elevator-control capabilities are also provided at two locations in the Bergenline Avenue Station. Elevator control and indication panels are provided as part of the Emergency Management Panel (EMP) in the Fire Management/Station Master's Room, and as part of the Emergency Information Panel in the platform-level elevator lobby.

16.0 BERGENLINE AVE. STATION OPERATIONS

Normal operations (i.e. "non-emergency conditions") of the Bergenline Avenue Station are described in the following paragraphs.

16.1 Passenger Flows

Passengers accessing the station purchase/validate tickets at street (plaza) level, then use an elevator to descend to the platform level of the station complex. Upon arrival at the platform level, the passengers alight from the elevator car and pass through the elevator lobby area to the appropriate platform. Under normal conditions, the elevator lobby doors and the doors in the platform center wall are open, facilitating the free movement of passengers between the elevator lobby and either platform. Passengers departing the station detrain and walk directly to the elevator lobby for an elevator car to street level.

Signs are posted in appropriate places at the plaza level to advise the passengers that the elevators and platform are "paid" areas, requiring patrons to have valid tickets before descending to the platforms.

16.2 Elevator Operations

The elevators are designed with doors at each end of the cab to enable quick unloading and loading. At the surface, one set of doors open first to encourage off-loading in one direction, while the opposite doors open after a slight delay for those entering the car. At the platform level, both doors open concurrently to allow passengers to sort themselves out according to their intended direction of travel.

16.3 CCTV Surveillance

CCTV surveillance of the plaza-level elevator entrance area, ticket vending machines (TVMs), platform-level elevator lobby, platform areas (including those adjacent to the platform center-wall doors), interior of the elevator cars, and the tunnel portals is provided. For the Station Master's use, a CCTV monitor is provided at two locations:

- Fire Management/Station Master's Room at the plaza level; and
- Station Master's Desk, located in the elevator lobby at the platform level.

The CCTV monitor at each location is designed to permit the Station Master to switch between the CCTVs located at the plaza level and those at the platform level.

The CCTV signals are also conveyed to the OCC to permit observation of the same areas, when desired or required.

16.4 Station Attendant

An Attendant i.e. Station Attendant is present at the Bergenline Avenue Station during revenue and his principal location is in the Fire Management/Station Master's Room at the plaza level, where a CCTV monitor is located. The Station Master will also make rounds throughout the station plaza and platform. The Station Master's principal duties are to:

- Provide remote (via CCTV) and on-site surveillance of the plaza, platform, elevator lobby, and elevator car interiors areas;
- Provide service-related information to passengers; and, during an emergency,
- Assume the role of HBLR Incident Coordinator (initially), and provide appropriate information to the OCC, emergency responders and other HBLRTS personnel upon their arrival and thereafter;
- Manually operate the standpipe release, when required;
- Manually control the elevators, when required; and
- Actuate the emergency ventilation fans, when required.

A secondary space for the Station Attendant, with monitor, is provided at the Station Attendant's Desk at the platform level. The desk's design includes lockable, horizontal panels that covers the monitors and the desk surface to prevent vandalism and provide a finished look when the Station Attendant is absent from this location. Elevator indications and controls are also be available to the Station Attendant at this location, in the wall-mounted Emergency Information Panel.

16.5 Train Operations

To accommodate the patronage forecast for the year 2030, it is necessary to schedule peak direction trains at three-minute headways during the peak of the peak. For planning purposes, it is assumed that trains operating in the off-peak direction are also scheduled to run on three-minute headways during

this period. However, to preserve operational flexibility, design headways of close to 90 seconds should be possible.

Consideration of emergency evacuation scenarios and related ventilation system operational requirements results in a situation wherein one southbound train could be at the Bergenline Avenue Station platform while another train is running on the track segment south of the station. The lead train must clear the River (south) portal into the next interlocking signal block before the next train is dispatched from the station. For northbound moves, the lead train must arrive at the station platform before the next train can enter the River (south) portal. This method of operation is controlled by the train control system. Since the running time from a stopped state at the station to the River (south) portal is approximately 90 seconds, the operating headway is maintained.

17.0 FIRE AND LIFE-SAFETY

17.1 Introduction

If a fire occurs in the confined environment of the tunnel or the station platform, the emergency egress will be either by walking toward the appropriate portal, by elevators, or by a rescue train. Use of the egress stairway, which has a vertical rise of 160 feet, is impractical and, if ever used, will be under the direct control of emergency rescue personnel. Any delay in responding to a fire, no matter how small, could cause confusion, which may lead to panic and may eventually result in a major catastrophic event. Therefore, a fire and life-safety plan should be an integral part of the overall operations of the HBLRTS. The fire and life-safety plan for HBLRTS is coordinated with Operating Personnel, local fire departments, police, and other emergency personnel.

17.2 Fire Detection and Alarms

Smoke detectors are not provided in the tunnel, as arcing from the traction power system could set them off. Therefore, in the tunnel, train operators are the primary means of fire detection. An operator observing a fire or other undesired event reports it to the 20 Office by radio or emergency telephone. The station platform is equipped with CCTV, which allows the Station Master and/or 20 Office to monitor and verify conditions in the station. A passenger may also report an incident to the 20 Office, using the Call-for-Aid telephones located in the station platform areas or emergency telephones located at the extreme ends of the station platforms. The Call-for-Aid phones provided in the elevator cars and at the plaza level may also be used for reporting a fire or other emergency.

17.3 20 Office (Operations Control Center) Equipment

The 20 Office is staffed continuously and serves as the "nerve center" for communications for the HBLRTS. The status of the ventilation and fire protection systems are monitored continuously. All alarms for system status changes and security violations are transmitted to the 20 Office for 24-hour surveillance.

The Controller's console at the 20 Office includes the following fire and life-safety systems:

- Weehawken Tunnel and Bergenline Avenue Station map with the ventilation system and standpipe system zones clearly color-coded.
- Closed-circuit TV for the platforms and related elevator lobby, interior of the elevator cars, station plaza, and tunnel portals.
- Emergency telephones within the tunnel and at the portals, at the ends of the station platforms, and in the egress stairway.

- Fire standpipe system controls.
- Tunnel and station ventilation system controls.
- Call-for-Aid telephones on station platforms, in the platform-level elevator lobby, at the plaza, and inside elevators.
- Elevator status indications and controls.
- Power status indications and controls.

17.4 Charging of Tunnel Standpipe System

Standpipes in all three tunnel sections and station standpipe zones normally remain dry. When a fire is reported, the 20 Office, in consultation with the person reporting it, determines its location. Upon determination of the location of the fire, the 20 Office remotely activates the dry-pipe valve for the appropriate zone, which releases water and fills the standpipe in the incident zone. Thus, the remote activation of the respective dry-pipe valve from the 20 Office charges the standpipe system before fire department personnel arrive at the incident site. The standpipe system can also be charged from the Emergency Management Panel, located in the Fire Management/Station Master's Room.

Only one standpipe zone is charged initially. However, the standpipe control system allows charging of additional zones if required, and as requested by fire department personnel.

17.5 Activation of Emergency Ventilation System

The tunnel and station ventilation system is primarily controlled from the 20 Office with monitoring and control capability provided from the Emergency Management panel (EMP) located in the Fire Management/Station Master's Room, and monitoring only capability from the Emergency Information Panels (EIP). The ventilation control console VDU at the 20 Office, as well as the EMP and EIP, depicts the tunnel with ten (10) emergency ventilation zones.

18.0 INCIDENT REPORTING

18.1 Introduction

The key to minimizing injury to personnel or property damage is effective incident control, reporting and management.

The HBLR Incident Coordinator initially is the senior operating staff member present at the incident site, such as the Station Master or a train operator. This staff member coordinates with the 20 Office for incident response and establishment of evacuation methods and routes. Once on the scene, the appropriate fire department, police, or other emergency response official assumes the responsibility of Incident Commander.

18.2 Incident Reporting

Incidents occurring on the HBLRTS are reported to the 20 Office Controllers. Controllers handle tunnel- and station-related incidents, including making required notifications.

HBLRTS personnel report most of the incidents to the 20 Office over the radio communications system. HBLRTS personnel or passengers may also report incidents using the Call-for-Aid or emergency telephones or standard telephones.

Other incidents may be reported via automatic detection and annunciation systems. These include fire or smoke alarms, sprinkler alarms, elevator alarms, intrusion alarms, etc.

Malfunctions of mechanical or electrical systems are reported by alarms annunciated by the SCADA System.

18.3 Notification to Emergency Personnel

The Controller at the 20 Office notifies the appropriate HBLRTS, NJT, NJDOT and emergency personnel staff. These may include:

- Local Fire Departments
- Local Police
- Emergency Medical Services (EMS)
- Other Appropriate Emergency Response Agencies
- NJ Transit Police
- NJDOT
- HBLRTS Operations Staff
- HBLRTS Maintenance Staff
- etc.

18.4 Train Control

During an emergency, the Controller at the 20 Office performs one or more of the following train control functions, as appropriate:

- Stop all other trains from entering the tunnel and/or approaching the incident train;
- Allow trains already in the tunnel in front of the incident train to proceed (or stop), as appropriate;
- Allow trains already in the tunnel on the opposite track to proceed (or stop); as appropriate; and/or
- Organize a rescue train to evacuate passengers, if appropriate.

The Controller at the 20 Office coordinates the removal of traction power with the on-site HBLR Incident Coordinator and the emergency responders' Incident Commander. The required train movements should be completed before traction power is removed in power zones other than the one occupied by an incident train.

18.5 Traction Power Removal

The Controller at the 20 Office performs the following functions with respect to the traction electrification system (TES), as appropriate and safe:

- Monitor the status of the traction power distribution system, and report any loss of power (due to tripped breakers) to the Incident Coordinator and the Incident Commander. Availability of traction power may affect the choice of response to an incident, or the method of evacuation of passengers.
- De-energize traction power when appropriate for the incident, such as a short circuit, broken catenary, an electrical fire, or a person in contact with the catenary.
- Coordinate de-energizing traction power with the Incident Coordinator and the Incident Commander. It may be safer to allow operational trains to move away from an incident rather than strand them in the tunnel, requiring evacuation of additional passengers.

- Coordinate sectionalizing of traction power with the Incident Coordinator and the Incident Commander, by removing power from the tunnel TES zone in which the incident train is located while leaving the rest energized.

Re-energize the traction power system (when it is safe) in consultation jointly with affected emergency response agencies.

APPENDIX B

SUMMARY PROTOCOL FOR SYSTEM SAFETY CERTIFICATION

I. Introduction

Hudson-Bergen Light Rail System (HBLRS) is a transit system being deployed and operated through a Design, Build, Operate, and Maintain (DBOM) process in New Jersey's Hudson and Bergen Counties. As a transit system, HBLRS must comply with the requirements of the Federal Transit Administration (FTA) and those of the Safety Oversight Agency for the State of New Jersey, in that the DBOM contractor must self-certify the safety and security readiness of HBLRS for public use.

The guidelines for State Safety Oversight and HBLRS safety certification are available through the office of the Manager of System Safety. It is essential that senior management in the design/build organization, the LRV supplier and maintainer, and the rail operations units be aware of these guidelines.

II. Objective

The objective of this protocol is to summarize the method by which the HBLRS Project Team satisfies the regulatory and contractual requirements which pertain to safety and security. This includes the development of hazards analyses and the formulation, modification, control and signing of Safety Certification Checklists and Verification Reports leading to the final safety certification.

III. System Safety Process and System Safety Certification

The HBLRS System Safety process encompasses equipment and systems, as well as operational and engineering processes, training and qualification of employees, and public and customer safety and security.

The HBLRTS Safety Plan is a high level document for the Hudson-Bergen Light Rail Transit System. The System Safety Program Plan requires that the System and extensions be "certified and verified safe (through the safety certification process) for revenue service", as well as providing a basis for assuring the safety of operational segments. Safety Certification process is documented in the Safety Certification Program Plan (SCP, TFC-SC-1). TFC-SC-1 document complies with the requirements of the FTA and the State Safety Oversight. The development and implementation of these Plans are the primary function of HBLRS's Manager of System Safety.

The Manager of System Safety is directly responsible for the maintenance of an active system safety program. It is noted here that system safety is all- encompassing and addresses the Planning, Design, Systems Integration, Configuration Management, Construction and Commissioning, as well as Operations and Maintenance.

System Safety extends to construction safety, office safety, operating safety and personnel safety; these actions are delegated directly to the Environmental, Safety and Health (ES&H) Manager for Design/Build activities, to the Superintendent of Operations Safety

for Rail Operations, and to the Manager of Safety for the Vehicles Group for related activities within the shop.

The HBLRS System Safety Program (TFC-SAF-1) and the Safety Certification Program (TFC-SC-1) require the Safety Review Committee to continually participate in the Safety Certification and the System Safety review process. To this end, the Committee reviews the Safety Certification documents provided by the Engineering, Construction, Commissioning and Rail Operations Groups and certify that all safety requirements have been successfully accomplished.

The Safety Certification process, as it pertains to the Design/Build activities, culminated in the initial certification of the core system, as well as the certification of each new extension for revenue ready operation and the verification of continued safe and secure operation for revenue service.

IV. Safety Certification and Certification Checklists

The Safety Certification process collectively verifies through supporting documentation the safety readiness of the System (core system plus each additional extension). A major activity within the certification process is the completion of the Safety Certification Checklists. Safety Certification Checklists are a primary element within the safety certification process. The checklists provide the basic tool for certifying that the rail system is in compliance with identified safety-related regulatory and specification requirements, and with the System Safety Program Plan.

During the development of the Safety Certification Checklists it is essential to differentiate between quality requirements, life cycle issues, commercial issues and items which are truly safety-critical. Furthermore, Safety Certification Checklists apply only to certification for normal revenue operations and are not pertinent to operations that are required for testing or for operator qualification over extensions. In such cases of "interim" or "test", Temporary Use Notice Notices (TUN's), with the appropriate operational or engineering, restrictions and mitigations serve as the basis for testing or for operation qualification.

The designer of record, in coordination with the Manager, System Safety, prepares the initial draft of the Safety Certification Checklists and submits these to the Safety Review Committee for review and approval prior to implementation. The approved checklists will be distributed as a controlled document by the Manager, System Safety.

The Checklists have the following components:

a. Design

The engineering professional who is responsible in charge of that design element (i.e., subsystem element, area or section) is responsible for completing the Safety Certification Checklist sign-off from a design perspective. Within the TFCR organization this is normally the Project Engineering Manager (PEM), or Systems Manager.

The required designs are performed under the seal of a Professional Engineer indicating that the design complies with appropriate codes and specifications (including, but not limited to NJ Transit's MODC, and relevant FRA and AREMA requirements) as well as functional/operational requirements.

The engineering sign-off shall be the basis for the design checklists completion, with the exception of special hazards, such as those due to operations, maintenance, or public impact. Such special configurations or operating circumstances require the preparation of a preliminary or operating hazard analysis. The primary purpose of the hazard analyses performed during design is to identify special certification checklist requirements, i.e., those which exceed what is normally included under the professional engineering sign-offs.

b. Construction/Installation
The responsibility for completing the Safety Certification Checklist sign-off from a construction/installation perspective normally rests with the HBLRTS General Construction Manager in coordination with the Chief Engineer and the Manager of System Safety. Certification by the construction group documents that the work identified in the checklist has been completed in accordance with the design and specification requirements. The construction work being certified includes those activities carried out by the direct hire staff and by the subcontractors.

c. Commissioning
The responsibility for completing the Safety Certification Checklist sign-off from a commissioning perspective rests with the Start-up Manager in coordination with the Manager of System Safety. Certification for commissioning shall include verification of such items as environmental design, operating parameters, integrated system testing and operating staff training (where directly related to safety).

d. Rail Operations
Certification for rail operations readiness is provided by the designated Activation Manager (superintendent level or above as designated by the President, CEO & Director, Rail Operations,) and shall relate to operational readiness, including such items as operating documents (employee timetable, special instructions, rule books), maintenance practices, training, and public awareness.

e. Revisions to the Safety Certification Checklists
Changes (as necessary) to the checklists are originated by the responsible manager as designated above, and will be reviewed internally within Twenty-First Century Rail, prior to discussion and approval by the Safety Review Committee.

Modifications to the System after the System has been certified may require modification to the checklists and/or require re-certification of an element in the System. Control of System Configuration changes or modifications to the System will follow SSPP Section 4.8 Configuration Management and SSPP Section 4.9 Configuration Control.

V. Maintenance of Documentation

The Manager, System Safety will also be responsible for maintenance of Safety Certification documents during the safety certification process. Upon completion of the safety certification process the documentation will be maintained in archival storage by the HBLRTS Document Control unit.

APPENDIX C
DEFINITIONS

- **Alternatives Analysis** means the first developmental phase in the multi-modal transportation planning and analysis process required for New Starts Projects to receive Federal funds. During this phase, local and regional officials develop and adopt a locally preferred alternative, which the metropolitan planning organization (MPO) then incorporates into its financially constrained long-range plan. This phase concludes with the request to enter preliminary engineering.
- **Construction** means the project phase that begins with the development, fabrication, or building of an engineered design and concludes with the delivery of the completed project. This phase includes the inspection, review, and testing of the delivered project and concludes with the determination that the delivered project meets the engineering specification.
- **Contractor** means an entity that performs tasks required on behalf of the oversight or rail transit agency. The rail transit agency may not be a contractor for the oversight agency.
- **DHS** means the Department of Homeland Security.
- **Final Design** means the third developmental phase required for New Starts Projects to receive Federal funds. During this phase, the project sponsor takes the formalized concept and engineering development and finalizes them in the plans, specifications, and FTA C 5800.1 Page I-3 8/1/2007
- **Final Verification Report** means the report developed to document the results of safety and security certification for the project. This report is also called the Safety and Security Certification Verification Report (SSCVR).
- **Fire/Life Safety Committee** means the committee that serves as a liaison between the recipient and the fire jurisdictions and emergency response agencies (police, EMS, etc.) throughout the project k. FRA means the Federal Railroad Administration, an agency within the U.S. Department of Transportation.
- **FTA** means the Federal Transit Administration, an agency within the U.S. Department of Transportation.
- **Hazard** means any real or potential condition that can cause injury, illness, or death; damage to or loss of a system, equipment, or property; or damage to the environment. For rail transit agencies, the term "hazard" must be defined in the rail transit agency's hazard management process.
- **Hazard Analysis** means formal analysis performed to identify and classify hazards for the purpose of their elimination or control. Examples include preliminary hazard analysis (PHA), systems hazard analysis (SHA), and a variety of reliability analyses, including Failure Modes Effects and Criticality Analysis (FMECA).
- **Hazard Resolution** means the analysis and subsequent action taken to reduce, to the lowest level practical, the consequences associated with an identified hazard.
- **Integrated Testing** means activities typically performed as part of construction to identify, plan, and conduct tests to evaluate integration of the delivered and accepted project into planned revenue operations. This phase concludes with verified documentation of compatibility between system elements.
- **Passenger** means a person who is on board, boarding, or alighting from a transit vehicle for the purpose of travel.

- **Pre-revenue Operations** means activities typically performed at conclusion of construction to verify the functional capability and readiness of the system as a whole. It concludes with verified documentation of readiness for revenue operations.
- **Program Standard** means a written document developed and adopted by the State oversight agency, that describes the policies, objectives, responsibilities, and procedures used to provide rail transit agency safety and security oversight.
- **Preliminary Engineering** means the second developmental phase required for New Starts Projects to receive Federal funds. During this phase, project sponsors investigate the merits of all potential configurations and designs in greater detail. The results of this phase provide the basis for subsequent funding and implementation decisions. This phase concludes with the request to enter final design.
- **Reliability, Maintainability, Availability & Dependability Plan** means a plan for measuring the state of good repair/maintenance of the system.
- **Revenue Service** means the time when transit vehicles are available to the general public and there is an expectation of carrying passengers. These passengers either directly pay fares or are subsidized by public policy or contractual arrangement.
- **Safety** means freedom from harm resulting from unintentional acts or circumstances.
- **Safety Plan** means a document developed by the transit agency, describing safety performance, both qualitative and quantitative, including policies, objectives, responsibilities, and procedures.
- **Safety and Security Change Review Board** means the committee that reviews, evaluates, and manages the changes proposed to the project's documents for safety and security impacts. This body also makes recommendations for the disposition of proposed changes.
- **Safety and Security Design Criteria** means criteria intended to provide guidance to the design team to support the definition of systems, sub-systems, and components, the development of performance requirements, and the final specification of the engineered system.
- **Safety and Security Operations Review Committee** means the committee responsible for overseeing commissioning activities, including systems integration testing, start-up, activation, final safety and security certification, and operations and maintenance demonstration.
- **Safety and Security Requirements** means a listing of safety and security codes, regulations, rules, design procedures, standards, recommended practices, handbooks, and manuals prepared to provide guidance to designers in the development of safety and security design criteria and project specifications and bid documents.
- **Safety Review Committee** means the committee that oversees the accomplishment of the safety and security objectives for each project development phase; this committee may receive the final safety and security certification and Final Verification Report.
- **SSCP (Safety and Security Certification Plan)** means the document that describes the process used to verify that safety and security related requirements are incorporated into a project, thereby demonstrating that it is operationally ready for revenue service and safe and secure for passengers, employees, emergency responders, and the general public.
- **Security** means freedom from danger or threat.
- **SSOA** (State Safety Oversight Agency) means the entity, other than the rail transit agency, designated by a State or several States
- **State** means a State of the United States, the District of Columbia, Puerto Rico

- **Security & Emergency Preparedness Plan** means a document developed by the transit agency describing its security and emergency preparedness policies, objectives, responsibilities, and procedures while in revenue service.
- **TSA** means the Transportation Security Administration, an agency within the Department of Homeland Security.
- **Vulnerability** means the characteristics of passengers, employees, vehicles, and/or facilities that increase the probability of a security event.
- **Vulnerability Analysis** means a systematic analysis performed to identify vulnerabilities and make recommendations for their elimination or mitigation during revenue and nonrevenue operation

APPENDIX D
ABBREVIATIONS USED

ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ATP	Automatic Train Protection
CCTV	Closed Circuit Television
CMP	Configuration Management Plan
DBOM	Design, build, operate, and maintain (contract)
EAP	Employee Assistance Program
EOP	Emergency Operating Procedures
ETS	Emergency Trip Station
F/LSC	Fire/Life Safety Committee
FTA	Federal Transit Administration
HBLRTS	Hudson-Bergen Light Rail Transit System
Hi-Rail	Maintenance of Way highway-rail equipment
ICS	Integrated Control System
IDW	Intrusion Detection and Warning
IOS	Initial Operating Segment
ITP	Integrated Test Program
MIS	Management Information Subsystem
MOS-2	Minimum Operable Segment (S-21, N-15, 25, 30, 40)
MoW	Maintenance of Way
MSDS	Material Safety Data Sheet
NJT	New Jersey Transit
NJDOT	New Jersey Department of Transportation
NJDOT-OSSO	New Jersey Department of Transportation- Office of Safety Oversight
NTSB	National Transportation Safety Board
OCC	Operation Control Center
OCS	Overhead Contact System
OEM	Original Equipment Manufacturer
OSHA	Occupational Safety and Health Administration
OSSO	Office of State Safety Oversight
PA	Public Address
PPE	Personal Protective Equipment
RMAD	Reliability, Maintainability, Availability & Maintainability
SCADA	Supervisory Control and Data Acquisition
SCORC	System Change and Operations Review Committee
SEPP	Security and Emergency Preparedness Plan
SMS	Safety Management System
SMPM	Safety Management & Performance Measurement
SOPs	Standard Operating Procedures
SRC	Safety Review Committee
TLV	Threshold Limit Value
TVM	Ticket Vending Machine
TWC	Train-to-Wayside Control

APPENDIX E
EMERGENCY NOTIFICATION LIST

Internal Emergency Notification List

Department	TFCRC Number(s)
20 Office*	Bell: (201) 209-2555
President/CEO, Director Rail Operations	Off: (201) 209-2580
Transportation Department	Bell: (201) 209-2530
Maintenance of Way Department	Bell: (201) 209-6514
LRV Maintenance	Bell: (201) 209-2507
LRV Maintenance Safety	Bell: (201) 209-2527
ICS/SCADA Maintenance	Bell: (201) 209-2529
Human Resources	Bell: (201) 209-6503
Security	Bell: (201) 209-2155
System Safety	Bell: (201) 209-6532
Rail Operations Safety	Bell: (201) 209-2575
Operations Manager	Bell (201) 209-6510
Sr. Management Trainee	Bell (201) 209-6506
Chief Engineer	Bell (201) 209-2585
Quality Engineer	Bell (201) 209-6549

(Note, all Internal and Emergency Notifications and Contacts may be made through the OCC (201-209-2555) for TFCRC Personnel on this list.)

UNUSUAL OCCURRENCES REQUIRING

TELEPHONE NOTIFICATION

Notification	**Day Phone Numbers/ Cellular**
EXTERNAL	
Police Dept.	(201)547-5477 (Jersey City) (201)858-6900 (Bayonne) (201) 420-2100 (Hoboken) (201) 865-1111 (Union City) (201) 295-5000 (West NY) (201) 392-2100 (North Bergen) (201) 863-7800 (Weehawken)
Fire Dept.	(201)963-2400 (Jersey City) (201)858-6005 (Bayonne) (201) 420-2004 (Hoboken) (201) 864-4400 (Union City) (201) 601-3554 (West NY) (201) 601-3542 (North Bergen) (201) 863-6500 (Weehawken)
EMS	(201)547-5477 (J.C.) (201)858-1200 (Bayonne) (201) 420-2100 (Hoboken) (201) 348-5818 (Union City) (201) 295-5000 (West NY) (201) 392-2100 (North Bergen) (201) 863-7800 (Weehawken)
NJT Police	Bell: (201) 714-2023 Cell: (973) 207-9012
NJT Superintendent Light Rail Operations (HBLR)	Bell: (201)209-2544 Cell: (201) 259-0798
NJT Acting Chief Light Rail and Contract Services	Bell: (973)491-7840 Cell: (862)849-0715 Home: (908) 822-0981 Fax: (973) 491-7417
NJT Safety	Bell: (973)491-7843 Cell: (973) 286-9856
NJDOT OSSO	Bell: (609)530-3848 Fax: (609) 530-6397

UNUSUAL OCCURRENCES REQUIRING

TELEPHONE NOTIFICATION (Cont'd)

Notification	Day Phone #s/ Cellular/Pager
EXTERNAL (Cont'd)	
NJT Public Relations	Bell: (973)491-7842 Cell: (973) 558-2016
NJTRO (For Emergencies Affecting Hoboken Terminal)	(800) 242-0236-NJTPD (201) 246-2780,2781,2782 (Chief Dispatcher) - ROCC at Meadowlands (201) 420-6357,6307 (Ferry) (201) 216-6551 (PATH)
Isabel Amando PA (Tunnels & Bridges)	(201) 216-2911
OSHA (Employee Fatality, Safety will Notify)	(973) 263-1003 (800) 321-6742
NTSB 24-hour Notification Line	(202) 314-6290
EPA National Response Center	(800) 424-8802
NJDEP Department of Environmental Protection	(877) 927-6337
AECOM Employee Assistance Program (EAP)	(866) 501-7962

APPENDIX F
LIST OF FIGURES

Figure 2-0: Safety Performance Management Framework
Figure 5-0: Safety Goals and Objective
Figure 7-1: Safety Plan Activity & Responsibility Matrix
Figure 12-2: Hazard Severity
Figure 12-3: Probability of Occurrence
Figure 12-5: Safety Critical Items List (Typical)
Figure 13-3: Safety Assurance Activity & Responsibility Matrix
Figure 13-4: HBLRTS System Map
Figure 13-4-1: Interagency/Intercompany Relationship.
Figure 13-4-2: 21st Century Rail Corp. Organization Chart.
Figure 13-5: Safety Training Requirements
Figure 13-6: HBLRTS Element/Sub-Element List
Figure 13-7: Shelter Stops and Stations

APPENDIX G
HOURS OF SERVICE

Hours of Service – Program

1. A Covered Service employee must have a Required Off-Duty Period of at least 10 consecutive hours immediately preceding the report time for a new Work Tour.

2. During a Work Tour, an employee must not remain on duty for more than 12 consecutive hours, or 12 hours broken by Break Period.

3. When an employees' on duty period is broken or interrupted by Break Period, they may return to duty for the balance of the 12 hour on duty period. The total accumulation of on duty time and Break Periods during a single Work Tour must not exceed 16 hours.

4. When an employee works 14 consecutive days they must have a minimum of 2 consecutive days off prior to reporting for a new Work Tour.

5. Except in an emergency, an employee must not be disturbed during a Required Off-Duty Period.

6. Any commingled service must be included when calculating Total Time On-Duty.

7. Under extreme circumstances Hours of Service may be temporarily suspended. The OCC manager or designee shall, based on adverse operating, emergency conditions or situations beyond the control of HBLR, be empowered to declare an emergency, suspending any or all the Hours of Service requirements. This action shall be clearly communicated to all affected parties describing the reasons for the declaration, job classes affected, and the expected duration of the order. Return to normal operation shall occur as quickly as the situation allows.

8. HBLR and Covered Service employees will maintain Hours of Service records including: dates worked, Required Off- Duty Periods, on and off duty times, Break Periods, Work Tour totals, Total Time On Duty and days off. These records will be held for a period of 2 years. Records maintained by HBLR will be available for inspection by the proper authority during regular business hours. Managers will have access to HBLR's Hours of Service records in order to verify employees are properly rested prior to accepting an assignment.

Hours of Service – Definitions

Covered Service:
Operators -That portion of the employee's time on duty during which the employee is engaged in, or connected with, or affecting the movement of a train.

Controllers -That portion of the employee's time on duty during which the employee, by the use of an electrical or mechanical device, dispatches, reports, transmits, receives, or delivers an order related to or affecting the movement of a train.

Signal Maintainer - That portion of the employee's time on duty during which the employee is engaged in installing, repairing, or maintaining a signal system.

Supervisors - Under normal circumstances, Supervisors responsibilities are considered non-covered service not affected by Hours of Service rules. In circumstances where a Supervisor does perform Covered Service, such as performing the duties of an Operator, Controller or Signal Maintainer, that work is governed by the Hours of Service rules and may fall under the category of Commingled Service and subject to Hours of Service restrictions.

Commingled Service: When required by HBLR to perform any non-covered service that is not separated from Covered Service by a Required Off-Duty Period. Examples: Covered Service employees and Supervisors performing a combination of non-covered and Covered Service, including mandatory attendance at classes, hearings or investigations. Therefore, any non-covered service performed along with Covered Service without a Required Off-Duty Period will be treated as Covered Service when calculating Total Time on Duty for purposes of Hours of Service.

On Duty: Begins when the employee initially reports for a Work Tour after a Required Off-Duty Period, or they resume duty after a Break Period, at the time and location established by HBLR.

Required Off Duty Period: A minimum of 10 consecutive hours of rest immediately preceding the report time for a new Work Tour. Note: A Required Off-Duty Period of not less than 8 hours will be required prior to reporting for a mandatory class, hearing or investigation.

Work Tour (Shift): Total amount of time spent performing covered or commingled service plus any Break Periods, the total of which must not exceed 16 hours.

APPENDIX H
List of Stations

Bayonne Branch
- 8th Street
- 22nd Street
- 34th Street
- 45th Street
- Danforth Ave
- Richard Street

West Side Branch
- West Side Ave
- Martin Luther King
- **Garfield Ave**

RiverLine Branch
- Liberty State Park
- Jersey Avenue
- Marin Blvd
- Essex Street
- Exchange Place
- Harborside
- Harsimus Cove
- Newport
- Second Street
- Ninth Street
- Lincoln Harbor
- Port Imperial
- Bergenline Ave
- Tonnelle Ave

Hoboken Branch
- Hoboken

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Bombardier LLC

Public Transportation Agency Safety Plan (PTASP)
O&M

March, 2020

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

NEW JERSEY TRANSIT

Bombardier LLC

Southern New Jersey Rail Group

River LINE

PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

Revision 0

March 2020

_____ _____

Ronald Nichols — Date
Reviewed & Recommended
Chief, Light Rail & Contract Services

_____ _____

Brian Lapp — Date
Reviewed & Recommended
Chief, Office of System Safety

_____ _____

Kevin Corbett — Date
Reviewed & Recommended
New Jersey Transit, Accountable Executive

New Jersey Transit,
Executive Board's Approval Date _____ Date

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Part 1- EXECUTIVE POLICY STATEMENT

The River LINE (formerly known as Southern New Jersey Light Rail Transit System (SNJLRTS)), is owned by NJ TRANSIT, a state agency. It was designed and built, by the Southern New Jersey Rail Group, LLC, (SNJRG). SNJRG is contracted to operate and maintain the River LINE for NJ TRANSIT.

The mission of SNJRG is to provide safe, secure, reliable, courteous, efficient, and cost-effective services to our customers; while also minimizing unsafe conditions, vandalism, and property destruction of the River LINE's rail vehicles, motor vehicles, and facilities. Therefore, all SNJRG Employees and Subcontractors have a responsibility to promote the safety and security of customers, employees, property and the general public who may come in to contact with the River LINE.

As part of our commitment to safety, a Public Transportation Agency Safety Plan (PTASP) was developed and implemented for the River LINE. The overall goal of this PTASP (or simply Safety Plan) is to maximize the level of safety and security provided to customers, employees, and other individuals who come into contact with the River LINE, while minimizing costs associated with accidents, injuries, and security related threats.

It is the ongoing policy of SNJRG that:

- The System Safety Supervisor will ensure this PTASP has been developed, revised and successfully implemented within SNJRG operations.

- The PTASP meets the requirements set forth in Contract No. 13-015 between NJ TRANSIT and SNJRG; The PTASP, as a Contract Deliverable, is submitted to NJ TRANSIT upon revision, and, upon their approval, submitted to the New Jersey Department of Transportation (NJDOT) State Safety Oversight Agency (SSOA) for their approval;

- All SNJRG Departments, Employees, and Subcontractors are charged with the responsibility of ensuring compliance with the provisions of this PTASP. This will ensure the safety and security of customers, employees, and property, and bring attention to conditions perceived to negatively affect the safety and security of The River LINE.

SNJRG is committed to continually assuring the safety of The River LINE through the direct involvement of all personnel. Management and employees of SNJRG are dedicated to providing leadership in promoting system safety throughout the organization.

Southern New Jersey Rail Group

By:_____

General Manager, Southern New Jersey Rail Group

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Part 2- PTASP

1.0 INTRODUCTION & BACKGROUND

SNJRG's Public Transportation Agency Safety Plan (PTASP) has been developed in accordance with Federal Regulation (49CFR Part 673) and has been submitted for approval to NJ Transit's Office of System Safety and the accountable executive at NJ Transit. Upon approval, the PTASP is then submitted to the NJ Department of Transportation (NJDOT) State Safety Oversight Agency (SSOA).

This PTASP is intended to comply with all relevant state safety requirements (NJAC 16:53 E) and to comply with relevant local public safety regulations, industry accepted standards, and with applicable federal regulations promulgated by the FRA, FTA, NTSB & OSHA.

Reference **Appendix A** for the RTA's (New Jersey Transit) Roles and Responsibilities matrix and **Appendix B** for River LINE's site level Organizational Chart.

2.0 SAFETY MANAGEMENT & PERFORMANCE MEASUREMENT OVERVIEW

The goals of this PTASP are to implement a program that maximizes the highest reasonable level of operational safety for employees of the River LINE and its Subcontractors, the employees of NJ TRANSIT and its contractors, customers, and the general public, to minimize unsafe and criminal acts, and to maximize community involvement regarding safety and security of the River LINE.

A safety summary report is submitted to NJDOT-OSSO as part of the annual report (utilizing the FTA Standard Template). The report contains injury rate data regarding passengers, River LINE personnel, and public accidents and incidents. The report is the basis for the formulation of safety performance goals and objectives for the coming year. The report outlines the strategies for the achievement of the stated safety objectives.

Annual performance goals and objectives for Employee Injury reduction and Passenger Injury reduction have been incorporated into the NJT-wide performance goals process. These goals will be applied to each River LINE department. This will include key safety and security goals and objectives, milestones, and methods /accomplishments.

The River LINE has established current year performance measurement goals based on annual Critical Element Lagging Indicators from the previous year's data. The performance goals are established by review of events reported during the calendar year, which resulted in collision, fire, and customer injury and employee injury/loss time, etc. as defined, by FTA, NTD or OSHA reporting criteria. Occurrences are reviewed annually to establish new goals.

In accordance with 49 U.S.C. 5329, FTA requires each Public Transportation Agency Safety Plan to include safety performance targets based on the safety performance measures established by FTA in the National Public Transportation Safety Plan (NPTSP). In the NPTSP, 49 CFR 673.11 (a) (4), FTA is

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

adopting four initial safety performance measures: (1) Fatalities, (2) Injuries, (3) Safety Events, and (4) System Reliability. These measures are intended to focus transit agencies on the development of specific and reliable targets, as well as the actions each agency would implement to improve their own safety outcomes. Through the SMS process, FTA expects transit agencies to develop their own performance indicators and regularly monitor the performance of their systems to ensure that they are meeting their targets and improving safety outcomes. FTA expects transit agencies to evaluate their safety performances and determine whether they should change their safety performance targets at least annually when the transit agencies are reviewing and updating their Public Transportation Agency Safety Plans.

NJT Office of System Safety and Light Rail Contract Service Department will coordinate with the State and MPOs in selecting realistic safety performance targets and will make them available to Metropolitan Planning Organization (MPO) to aid the States and MPOs in the selection of their own performance targets and planning process.

Reference **Figure 2-1** for the Goals and Objectives that are reviewed annually.

US DOT-FTA's National Public Transportation Safety Plan provides (and explains) four Safety Performance Measures and an explanation of each of them.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Figure 2-1: Established Safety Goals and Objectives

2020 ESTABLISHED SAFETY GOALS AND OBJECTIVES			
		Calendar Year- 2019	
Goal # 1	Reportable Safety Events (NTD) -Reduce the number of Accidents and Incidents	# of Occurrences	Rate (Total Revenue Miles = 1229472)
Objective 1.A	Reducing the Number of Collisions to ≤ **10** per 1 Million Revenue Miles	**13**	**10.57**
Objective 1.B	Reducing the Number of Derailments to ≤ **1** per 1 Million Revenue Miles	**2**	**1.63**
Objective 1.C	Reducing the Number of Fire Occurrences to ≤ **1** per Million Revenue Miles	**2**	**1.63**
Objective 1.D	Reducing the Number of Evacuations for Life Safety Reasons to ≤ **2** per 1 Million Revenue Miles	**3**	**2.44**
Objective 1E	Reducing the Number off Runaway train Incidents to ≤ **1** per 1 Million Revenue Miles	**0**	**0.00**
Objective 1F	Reduce Total Safety Events to ≤ **20** per 1 Million Revenue Miles (Total Safety Events = Sum of Goals 1,2 & 3)	**25**	**20.33**
Goal # 2	**Fatalities - Reduce the Number of Fatalities and rate per total vehicle revenue miles:**		
Objective 2	Reduce the Number of Fatalities to ≤ **1** per 1 Million Revenue Miles	**1**	**0.81**
Goal # 3	**Injuries - Reduce the Number of Reportable Injuries and rate per total vehicle revenue miles:**		
Objective 3.A	Reducing the Number of Passenger Injuries to ≤ **3** per 1 Million Revenue Miles	**4**	**2.44**
Objective 3.B	Reducing the Number of Worker Injuries to ≤ **1** per 1 Million Revenue Miles	**1**	**0.81**
Goal # 4	**System Reliability – Mean Distance Between Major Mechanical LRT Failures**		
Objective 4	≥ **5%** Improvement in System Reliability MDBSF (based on previous year's NTD data)	**6199 monthly average**	**N/A**
Goal # 5	**Efficiency Check Program**		
Objective 5	Maintain Non-Compliance goal of ≤ **1.0 %** to Rules and Safety-Work Practices	**24 non-compliances**	**0.26%**
Goal # 6	**Reportable Safety Events- Other (SSOA) Reduce the number of Incidents & Occurrences**		
Objective 6	Reducing the Number of Stop Signal events to ≤ 1 per 1 Million Revenue Miles	**1**	**0.81**

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Notes: (Extracted from FTA's National Public Transportation Safety Plan, January 2017)

Notes 1: Measuring the number of fatalities over vehicle revenue miles, by mode, provides a fatality rate from which to assess future performance.

Notes 2: Measuring the number of injuries by mode, over vehicle revenue miles provides an injury rate from which to assess future performance.

Notes 3: Measuring the number of safety events by mode over vehicle revenue miles provides a safety event rate from which future performance can be compared.

Notes 4: This measure allows agencies to develop safety performance targets that are specific to their own fleet type, age, operating characteristics, and mode of operation.

Figure 2-1 provides quantifiable goals & objectives for calendar year **2020**, which are compiled by NJ Transit annually for reporting & analysis.

Specific objectives to attain each goal and their subtasks appear below:

a. Achieve and maintain a level of safety performance that meets or exceeds the operating experience of similar light rail transit systems by:
   - Tracking and analyzing employee injuries.
     A target of employee Lost-Time Injury frequency rate of **0** has been set for **2020**.
   - Accident Statistics are reviewed on a monthly basis for compliance with the above stated goals. Should the above stated goals not be met, an action plan shall be developed to address the injuries.
   - Tracking and analyzing LRV accidents and incidents;
   - Training all employees in safety related programs and ensuring that safety certifications are updated and maintained.

b. Increase and strengthen community involvement and participation in maintaining the safety and security of the system by:
   - Involving and educating community organizations and schools in light rail safety, including making safety-related literature and/or presentations available to 100 percent of the public-school districts through which the River LINE travels.

These objectives can be achieved, in part, by the application of analytical techniques to systematically identify, analyze, assess, and resolve the causes of accidents, incidents and hazardous conditions having an impact on the level of safety and security of the River LINE. A database is used to track and analyze accidents, injuries, incidents, and hazardous conditions. Hazardous conditions are tracked through Corrective Action Plans which are reviewed with NJT and the SSOA monthly.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

2.1 Overview of SNJRG's PTASP

SNJRG's PTASP is organized into four components. They are: Safety Policy, Safety Risk Management, Safety Assurance and Safety Promotion.

- **Safety Policy** defines who has responsibility, authority, and accountability for the goals of the organization.
- **Safety Risk Management** is the process of hazard identification and management of risk to acceptable levels. It describes how we identify hazards, how we assess the risks, and our process for controlling the risks.
- **Safety Assurance** is the day-to-day activities ensuring that risk controls and safety initiatives are maintained within acceptable levels.
- **Safety Promotion** is our continuing process of promoting safety within the SNJRG. Senior leadership continuously promotes a positive safety culture within our organization. Key components are personnel training and clear communication of lessons learned.

3.0 SNJRG ELEMENTS OF SAFETY MANAGEMENT & PERFORMANCE MEASUREMENT

SNJRG developed and maintains a PTASP in accordance with 49 CFR Parts 673 and the State of New Jersey Safety Administrative Code 16:53E.

NJ Transit's executive director is the "Accountable/Responsible Executive" for this PTASP.

The SNJRG General Manager , is ultimately responsibility for Safety Management and Performance Measurement, and for ensuring that personnel adhere to the requirements of this PTASP.

SNJRG's PTASP is under the control of the System Safety Supervisor, who reports directly to the General Manager. The program and the person administering it are independent of other departments to assure autonomy. The System Safety Supervisor is the local Chief Safety Officer for SNJRG.
The entire transit system's Chief Safety Officer is NJ Transit Office of System Safety.

It is intended to ensure that the integrity of the PTASP remains intact by regular surveillance, review and audit in accordance with Federal Regulations and State of New Jersey Safety Oversight Standards.

3.1 Safety Plan Purpose

The operation and maintenance of the River LINE requires continual safety and security activities throughout its operational life, including procurement of new systems, modification and/or rehabilitation of safety and security-critical equipment and facilities. The purpose of this PTASP is to

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

fulfill the directives of the Policy Statement by establishing formal requirements for identifying, evaluating, eliminating, minimizing or controlling safety and security risks and hazards throughout the operational life of the River LINE. This PTASP is intended to comply with all relevant state safety requirements and to comply with relevant local public safety regulations, industry accepted standards, and with applicable federal regulations promulgated by the FRA, FTA, NTSB & OSHA.

All River LINE personnel are required to be knowledgeable of the content of this PTASP as it applies to their specific area(s) of responsibility.

The scope of the PTASP is system-wide. The PTASP is applicable to the entire geographical extent of the River LINE, and to all SNJRG officers and employees including all officers, and employees of subcontractors.

3.2 Safety Plan and Supporting Programs

The purpose of River LINE's PTASP is to outline the systems and processes that the River LINE has established in accordance with 49 CFR Part 673 to provide safety management system guidance to all personnel.

All River LINE personnel are required to be knowledgeable of the content of this PTASP as it applies to their specific crafts and/or areas of responsibility.

River LINE's programs that support the PTASP are identified below.

- Security and Emergency Preparedness Plan
- Maintenance Plans and Procedures
- Operations Plans and Procedures
- Operations/Maintenance Training
- Emergency Planning and Response
- Accident/Incident Reporting, Investigation & Resolution
- Book of Operating Rules

4.0 SAFETY PLAN REVIEW AND MODIFICATION

4.1 General Description of the River LINE Safety Plan

The River LINE Safety Plan is a systemic and detailed process for the management of safety risks that integrates operations, maintenance, and technical systems with financial and human resource management, for all activities related to operation and maintenance of the River LINE.

Further, our Safety Management System provides goal setting, planning, and measurement of performance. It focusses on organizational rather than the conventional safety practices.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

It is woven into the fabric of our organization and is part of the overall safety culture the River LINE instills in all aspects of the organization.

River LINE's HSE slogan is: Stop, Think, Act.

4.2 Annual PTASP Review

The River LINE PTASP is reviewed for compliance with 49CFR, Part 673, and NJDOT State Safety Oversight Standards and Procedures.

The PTASP must be reviewed at least once each calendar year to determine if changes are required. This review will occur no later than June 30th of each calendar year. After the annual review has been conducted all revisions to the PTASP will be completed and submitted to NJ Transit Office of System Safety and the Office of Safety and Security Oversight (OSSO) no later than September 30th of each calendar year for review and approval by the OSSO. If after the annual review of the PTASP it is determined that no changes are required, the River LINE will submit a letter to the NJ Transit Office of System Safety and OSSO no later than June 30th of each year stating that the PTASP has been reviewed and that no changes are required at this time, The River LINE is required to submit the PTASP directly to NJ Transit Office of System Safety & the NJ Transit accountable executive for approval, and subsequently to the OSSO for review and approval.

The PTASP will be reviewed and updated to:

- reflect changes in organizational structure or system characteristics;
- review progress on tasks accomplished;
- refine and improve the current task descriptions and activities;
- identify new tasks required as the system grows or in response to new regulations; and
- identify additional or emerging safety- and fire/life safety-related tasks and responsibilities

4.3 PTASP Control and Update Procedures

The PTASP is designated as a controlled document within the River LINE. As such, it is subject to formal document control procedures.

This Safety Plan was developed under the authority of NJ Transit Office of System Safety, and is promulgated by the River LINE General Manager. The System Safety Supervisor is responsible

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

for amending this plan as required to ensure that its content is relevant and current with the latest Federal Transit Administration Regulations, and the NJDOT- Office of Safety Oversight Standards.

All recommended revisions to the PTASP are reviewed by the River LINE's executive management. Revisions, which are accepted, are forwarded to the General Manager, Superintendents and System Safety Supervisor, for approval and signature.

Once approved at the site level, revisions are submitted for approval to NJ Transit Office of System Safety and NJ Transit accountable executive.

4.4 Review and Approval by NJDOT Office of State Safety Oversight

Upon approval by the River LINE board and NJ Transit Office of System Safety/accountable executive, the revised PTASP is transmitted to NJDOT Office of State Safety Oversight (OSSO) for review and approval.

The NJDOT-OSSO reviews, comments on revisions, and once incorporated, are issued through the River LINE's document control process.

5.0 SAFETY MANAGEMENT AND PERFORMANCE MEASUREMENT

All SNJRG employees are empowered and expected to take an active and proactive role to assure the safety of all activities associated with the Operations and Maintenance of the River LINE.

The River LINE GM, Superintendents and System Safety Supervisor have jointly established the following processes to set and measure safety goals for all departments and employees.

- The Maintenance Department's performance goals are established through the review of Reliability Deficiencies, Maintenance Reports and Quality Audits. The Safety Management and Performance Measurement System database is utilized to determine the frequency, severity, and root causes of maintenance anomalies.
- The System Safety Department reports safety metrics to the General Manager, in monthly Key Performance Indicators reports.
- The Transportation Department's performance goals and objectives are established by review of; Accident, Incident and Hazardous Condition reports.
- Employee performance goals and objectives are established by review of employee injury, illness and loss time data and are reviewed annually for establishing new goals.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

6.0 MANAGEMENT OF SAFETY PLAN AND REGULATORY COMPLIANCE

Most of the procedures and standards that are used by the River LINE are mandatory by Federal Regulation and State Safety Oversight requirements. Whether they are FTA, FRA or State Safety Oversight Standard requirements, in the interest of safety, it is essential for all employees to adhere strictly to these policies and procedures. Audits are conducted to confirm compliance with policies and procedures.

To ensure regulatory compliance with this Safety Plan, the River LINE has developed and implemented a Quality Assurance Program in accordance with FTA Quality Management System Guidelines. The Quality Assurance Plan (QAP) has been developed to ensure the continued integrity of Safety and regulatory compliance.

It is accomplished by scheduled and random audits and surveillance of the Safety Plan processes and records. The audit includes, but not limited to:

- Accuracy and completeness of documentation of safety reports.
- Review of the corrective actions taken.
- Review of follow-up actions.
- Audit of controlled documents for currency.
- Reporting to the General Manager responsibility for the regulatory compliance program is assigned to jointly the Safety and Quality Assurance Department.

6.1 Safety Management System Activities

Figure 6-0 below illustrates the numerous tasks that SNJRG staff accomplish and are associated with the River LINE PTASP.

They are identified by Department having direct responsibility (P), supporting responsibility (S), and being knowledgeable (aware) of the activity (A).

Figure 6-0 Safety Management System Activities Matrix Figure

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

P=Primary Department responsible for the task **S=Secondary** Departments with a supporting role **A=Associate** Departments which need to read and be aware of the information.	**Administration**	**B&B**	**Procurement**	**Security**	**Quality Control**	**Operations**	**Maintenance**	**Safety**	**Training**	**Engineering**	**Human Resources**	**Store Room**
Administration Plan:												
Personnel Policy/Procedures												
Procurement	S	S	P	S	S	S	S	S	S	S	S	S
D/A Policy				S	A	S	A	S	A	A	P	A
Discipline Policy					A	A	A	A	A	A	P	A
Hiring				A	A	A	A	A	A		P	
Financial & Accounting Procedures:												
Subcontractor Policy		S	P	S	S	S	S	S	A	A	A	A
Operations:												
Immediate Action	S			S	S	P	S	S	S	S		
Operating Rules				A	A	P		A	A			
Training						P		A	S		S	
Certification						P			S		S	
Investigations						P		S			S	
Unusual Report					S	P		A				
Daily Log Report					S	P		A				
Public Awareness				S		P		S				
Maintenance:												
Vehicle												
Scheduled Maintenance & Inspections					S	S	P	S	A	S		S

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Unscheduled Maintenance					S		P	S	A	S		S
Immediate Action					A		P	A				
Certifications					A		P	A	S			
Data Recorders					A		P	S		S		
Modifications			S		S	S	S	S	S	P	S	S
Specifications			A		S	S	S	S		P		
Failure Analysis					S	A	S	S	S	P		
Investigations					S		P	S	S	S	S	
Track & Alignment:												
Scheduled Maintenance & Inspections		S			S	S	P	S	A	S		S
Unscheduled Maintenance		S			S		P	S	A	S		S
Immediate Action		S	S		S		P	S				S
Certifications		S			A		P	A	S			
Modifications		S	S		S		S	S	S	P	S	S
Specifications		S	A		S		S	S		P		
Failure Analysis		A			S	A	S	S	S	P		
Investigations		S			S		P	S	S	S		
Signaling:												
Scheduled Maintenance & Inspections					S	S	P	S	A	S		S
Unscheduled Maintenance		S			S		P	S	A	S		S
Immediate Action					S		P	S				
Certifications					A		P	A	S			
Data Recorders							P	S		S		
Modifications			S		S	S	S	S	S	P	S	S
Specifications		A	A		S	A	S	S		P		A

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Failure Analysis					S	A	S	S	S	P		
Investigations					S		P	S	S	S	S	
Control Room:												
Scheduled Maintenance & Inspections					S	S	P	S	A	S		S
Unscheduled Maintenance					S		P	S	A	S		S
Immediate Action					A		P	S				
Certifications					A		P	A	S			
Data Recorders					A		P	S		S		
Modifications			S		S		S	S	S	P	S	S
Specifications		S	A		S	S	S	S		P		A
Failure Analysis					S	A	S	S	S	P		
Investigations					S		P	S	S	S	S	
Buildings / Station Stops:												
Scheduled	A	P	A	A	S		S	S	S			S
Unscheduled	A	P	A	A	S		S	S	S	S		S
Immediate Action	A	P		S	S	A	A	S	A	A	A	S
Immediate Action					A		P	S				
Certifications					A		P	A	S			
Modifications		S		A	S		A	S		P		S
Specifications		S	A		S		A	S		P		A
Failure Analysis		S		A	S		A	S	A	P		
Investigations		P	A	A	S		A	S		S		
Environmental	S	P	A		S		S	S	A	S	A	A
Quality Assurance:												
Audit	S	S		S	P	S	S	S	S	S	S	S

Subject: List of procedures and processes needed to maintain safety throughout the system	Date:	Procedure Number:
	Approved:	

Configuration Management	S	S		S	P	S	S	S	S	S	S	S
Documentation Control	S	S		S	P	S	S	S	S	S	S	S
Procedures	S	S		S	P	S	S	S	S	S	S	S
Quality Control	S	S		S	P	S	S	S	S	S	S	S
Hazard Management												
Identification and Tracking	S	S	S	S	S	S	S	P	S	S	S	S
Training:												
Qualification Training					A			A	P			
Training Matrix					A			A	P			
Documentation									P			
Coordination									P			
Records					A			A	P			
Audits					S			S	P			
Requirements					A			A	P			
Hazardous Materials:												
Procurement	S		P				S	S		S		
Storage							S	S				P
Disposal	S						S					P
SDS		P					S	S				S
Right to Know							S	P				

6.2 Security & Emergency Preparedness

This PTASP describes only safety-related activities for the River LINE. The River LINE has a Security and Emergency Preparedness Plan (SEPP) describing all security and emergency preparedness-related activities, which is a separate document to the PTASP. The SEPP identifies all security and emergency preparedness activities for the River LINE.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

7.0 SNJRG ORGANIZATION & RESPONSIBILITIES

7.1 Individuals Responsibilities Related to this Safety Plan

This section provides organizational information and operating parameters for both those outside the organization that need to understand the River LINE, and those inside the organization that have clearly defined lines of authority and responsibility. Reference **Appendix B** for more detail.

Southern New Jersey Rail Group (SNJRG) (which has the Design-Build-Operation- Maintenance responsibility for RiverLINE Light Rail Transit system, RiverLINE) operate under the contract by NJ TRANSIT.

In accordance with the organizational structure in **Appendix A**, the related roles and responsibilities of NJ TRANSIT's Accountable Executive, Chief Safety Officer and Chief, Light Rail and Contract Services with respect to contractual relationship of NJ TRANSIT With SNJRG-RiverLINE is detailed below.

New Jersey Transit's President and Chief Executive Officer, who is the Accountable Executive, ensures that NJ TRANSIT's light rail contracted operators complies with the requirements as described under 49 CFR 673 and designate a Chief Safety Officer in accordance with 49 CFR 673.23(d)(2).

The Chief Safety Officer of New Jersey Transit's Office of System Safety/SMS Executive, Deputy Chief, Office of System Safety and staff of Office of System Safety (OSS) monitors the safety performance of RiverLINE through evaluating safety data from accident/injury occurrences, unacceptable hazardous conditions, threats and rules/ procedure violations. The data is obtained from RiverLINE's Operations and other reporting mechanisms. OSS performs audits, surveillances and inspections and participates in Safety Certification, safety meetings, etc. The Chief Safety Officer who leads the NJ TRANSIT's Office of System Safety reports directly to NJ TRANSIT's President and CEO (Accountable Executive). The Chief Safety Officer is adequately trained and does not serve in any RiverLINE's operational or maintenance activities.

Chief, Light Rail and Contract Services and his staff provides safety oversight of RiverLINE Operations and Maintenance activities and supports RiverLINE in achieving its SMS objectives. The Chief, Light Rail and Contract Services reviews RiverLINE**'s** safety and SMS policies and procedures. Evaluates and verifies the operational readiness of new systems, monitors safety implications of proposed system modifications prior to implementation. Chief, Light Rail and Contract Services directly interacts with the Office of System Safety in RiverLINE**'s** safety performance monitoring to determine trends.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

7.1.1 General Manager

The General Manager has overall responsibility for operation and maintenance performance of the River LINE, and additionally, is responsible for the safety of River LINE customers, SNJRG employees, contractors and others involved with the River LINE system. The General Manager is also responsible for providing a sound customer relationship with NJ TRANSIT through formal activity reporting and regular interface meetings.

7.1.2 System Safety Supervisor

The System Safety Supervisor reports to the General Manager. The System Safety Supervisor is responsible for assessing, reviewing, revising and implementation of the System Safety Program Plan as required and annually as a minimum. The System Safety Supervisor is also responsible for the day to day training administration for all site personnel and employee safety and has direct access to Bombardier Director, Health Safety and Environment, and to the SNJRG General Manager.

7.1.3 Quality Manager/ Continuous Improvement Specialist

The Continuous Improvement Specialist reports directly to the General Manager and has direct access to Bombardier's Corporate Quality Director. The Continuous Improvement Specialist is responsible for all day-to-day quality assurance and continuous improvement activities, including implementation and maintenance of the O&M quality system.

7.1.4 Superintendent of Transportation

The Superintendent of Transportation and Service Delivery reports to the General Manager. The Superintendent of Transportation and Service Delivery is responsible for all day-to-day LRV operational activity including direction of the Assistant Superintendent of Transportation and Service Delivery, Supervisors of Train Operations, Train Controllers, Trainmasters and Train Operators and ensures that the system is in compliance with the Operating Rules, Operating Procedures, Timetable, Special Instructions and Bulletin Orders. The Superintendent of Transportation and Service Delivery sits on the System Safety Committee as a voting member.

7.1.5 Superintendent of Contracts and Administration & Procurement

The Superintendent of Contracts, Administration and Procurement reports to the General Manager. The Superintendent of Contracts, Administration and Procurement is responsible for facilities, buildings, bridges and culverts, and all day-to-day administrative, material management and contract and purchasing activity. The Superintendent of Contracts, Administration and Procurement sits on the System Safety Committee as a voting member.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

7.1.6 Superintendent of Maintenance of Way

The Superintendent of Maintenance of Way reports to the General Manager. The Superintendent of Maintenance of Way is responsible for all day-to-day maintenance activity including maintenance of track, signal/traffic control systems and quality control. The Superintendent of Maintenance of Way sits on the System Safety Committee, as a voting member.

7.1.7 Superintendent of Maintenance of Equipment

The Superintendent of Maintenance of Equipment reports to the General Manager. The Superintendent of Maintenance of Equipment is responsible for all day-to-day maintenance activity including maintenance of the LRVs, quality control, and shop activities. The Superintendent of Maintenance of Equipment sits on the System Safety Committee, as a voting member.

7.1.8 Assistant Superintendent of Transportation

The Assistant Superintendent Transportation and Service Delivery reports to the Superintendent of Transportation and Service Delivery. The Assistant Superintendent of Transportation and Service Delivery is responsible for directing the operation of train service on The River LINE by interacting with train operators, controllers, STO's, and TM's and for maintaining operations department rule compliance, performing the function of Quality Control, and coordinating with other operating agencies. The Assistant Superintendent sits on the System Safety Committee as a voting member.

7.1.9 Human Resources

The Human Resources Advisor reports to the General Manager and Bombardier Transportation Corporate Human Resources. He/she is responsible for Administering Human Resources Policy and administration of the Drug and Alcohol Program.

7.1.10 Material Supervisor

The Material Supervisor reports to the Superintendent of Contracts and Administration. The Material Supervisor is responsible for managing the warehouse and inventory control functions.

7.1.11 Signal/Track Supervisors

The Signal/Track Supervisors report to the Superintendent of Maintenance of Way. The Signal/Track Supervisors are responsible for the day-to-day supervision of the inspection and maintenance of the track and signals, traffic control systems, and quality control.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

7.1.12 LRV Maintenance Supervisor
The Maintenance Supervisor reports to the Superintendent of Maintenance of Equipment. The Maintenance Supervisor is responsible for the day-to-day supervision of the inspection and maintenance of the LRVs and related equipment and quality control.

7.1.13 Lead Field Service Engineer
The Lead Field Service Engineer reports to the Superintendent of Maintenance of Equipment. The Lead Field Service Engineer is responsible for the day-to-day supervision of the Engineering support and quality control.

7.1.14 Bridge and Building Supervisor
The Bridge and Building Supervisor reports to the Superintendent of Contracts and Administration. The Bridge and Building Supervisor is responsible for the day-to-day maintenance of all buildings, bridges, right-of-way and culverts.

7.1.15 Train Operators
Train Operators report to the Trainmaster. The Train Operators have overall responsibility for the safe operation of the train.

7.1.16 Trainmaster
A Trainmaster reports to the Assistant Superintendent of Transportation and Service Delivery. The Trainmaster **i**nteracts with Train Operators. Maintains Operations department's rule compliance through regular observations and tests. Interacts with Supervisor Train Operations and Controllers. Ensures adherence to Operating Procedures. Responds to site of incident or accident immediately upon notification by Control Center. Directs the training and continued qualification of Train Operators.

7.1.17 Train Controllers
The Train Controllers report to the Supervisor of Train Operations, who supports the Train Controllers on each shift. Train Controllers provide safe reliable and comfortable service to our customers by directing LRT Operations, through radio and signal communication. Train Controllers problem solve non-routine situations by developing and implementing temporary operating solutions during service interruptions. Coordinate freight operations. Coordinate emergency operations with trainmaster and emergency response personnel.

7.1.18 Supervisors of Train Operations
Supervisors of Train Operations report to the Superintendent of Transportation and Service Delivery. To provide safe, reliable, service to our customers directs the Trainmasters and Controllers in the operation of the SNJLRTS System. This person also has the responsibility for

Subject: List of procedures and processes needed to maintain safety throughout the system	Date:	Procedure Number:
	Approved:	

the Safety and on-time performance of these trains and to act in emergency situations to ensure the proper emergency personnel and supervision are notified in the event of an incident or accident

7.1.19 Security Supervisor
The Security Supervisor function is handled by the Road Foreman of Engines, and reports to the Superintendent of Transportation.

7.1.20 Technicians
Technicians are responsible for the day to day maintenance of the system including track, signal facilities and vehicles.

7.1.21 Road Foreman - Engines
The Road Foreman, as required by 49 CFR, Part 240, is responsible for scheduling of engineers and conductors, performing functions of locomotive engineers, and directs training/testing and qualification of Locomotive Engineers and Conductors. This position also handles the functions of the Security Supervisor
.

8.0 INTEGRATION OF SAFETY
The overall responsibilities for safety of the River LINE, and its operations and maintenance rest with the SNJRG General Manager. The System Safety Supervisor reports directly to the General Manager for all safety program activities.

SNJRG recognizes there is a clear relationship between the quality and the safety of a product. For this reason, the Continuous Improvement Specialist works closely with the System Safety Supervisor to identify, resolve, and mitigate hazardous conditions. This requires the Continuous Improvement Specialist to be knowledgeable in all aspects of the safety program.

The System Safety Supervisor is supported by the "Employee/ Management Safety Committee", (drawn from various departments within SNJRG).

8.1 Lines of Authority for Safety
System safety is the responsibility of every employee and subcontractor working on the River LINE. The commitment toward safety extends from senior management through to all levels of employees and subcontractors. As such, every member of the organization is a de facto member of the "System Safety Unit".

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

The head of the "System Safety Unit" is, by definition, the System Safety Supervisor who, as seen in **Appendix B**, reports directly to the General Manager. Safety and security information is disseminated within the Rail Group O&M Organization via internal memorandums and committee meetings. Safety and security information is disseminated to subcontractors via procedure SAFE-SNJ-013 Contractor Safety Program.

8.2 Safety Activities of the SNJRG

This section describes the SNJRG safety activities required to implement the safety program for the River LINE. The System Safety Supervisor has the authority and responsibility for day-to-day implementation of the safety program and ensuring that the PTASP is appropriately and adequately implemented across all SNJRG operations.

This responsibility includes:

- Safety of customers,
- SNJRG employee safety,
- Management of hazardous materials, and hazardous conditions
- Safety training for SNJRG employees, and
- Safety training for contractors visiting the site.

8.3 Safety Committees

8.3.1 Employee/ Management Safety Committee

The Employee/ Management Safety Committee perform safety reviews and inspections of the work place as part of their normal duties and transmit safety information to the General Manager.

The Employee/ Management Safety Committee present safety non-compliance items and recommendations to River LINE Management. The Employee/Management Safety Committee attends regularly scheduled meetings with the System Safety Supervisor to discuss observed or potential hazards. The System Safety Supervisor is responsible for participating in the Employee Management Safety Committee. He provides guidance to the committee, and ensures that committee decisions meet all guidelines.

All SNJRG employees are empowered and expected to take an active and proactive role to assure the safety of all activities associated with the Operations and Maintenance of the River LINE.

8.3.2 System Safety Committee

The System Safety Committee (SSC)oversees all Safety activities for River LINE, conducts monthly meetings, and is responsible for:

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

- Reviewing documentation, assigning responsibilities for open issues and approvals of certification documentation, conducting site visits, and defining safety and security-related tests and analyses, as required.
- Determining whether to accept specific conditions or requiring corrective action(s), including determining the specific methods to mitigate the potential hazards. After internal determination, all corrective action plans will be submitted to SSO for approval.
- Providing recommendations to the General Manager regarding certification and noncompliance of system elements.

The SSC consists of the following members:

- General Manager
- Superintendent, Transportation and Service Delivery
- Assistant Superintendent, Transportation and Service Delivery
- Superintendent of Maintenance
- Superintendent of Maintenance of Way
- Lead Field Service Engineer
- System Safety Supervisor
- Superintendent, Contracts and Administration
- Superintendent, Light Rail Operations – NJ TRANSIT

The System Safety Committee is chaired by the System Safety Supervisor.

In addition to ensuring the employees' welfare, each River LINE manager and supervisor is responsible for having knowledge of, and enforcing compliance with, all applicable federal and state OSHA laws, standards and regulations. This is in addition to FRA Regulations.

Although OSHA stipulates that employees are responsible for complying with OSHA standards, SNJRG considers that it is responsible for the employees' compliance. SNJRG ensures that procedures are established by all departments that facilitate disciplinary action against those individuals who fail to comply with applicable FRA Regulations, OSHA laws, standards, and regulations.

Examples of types of employee actions that require disciplinary action are failure to use/wear required personal protective equipment and/or failure to follow appropriate chemical handling.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Part 3- SAFETY MANAGEMENT SYSTEM

9.0 SAFETY, RISK MANAGEMENT AND ASSESSMENT

9.1 Safety and Risk Management Overview

System Safety is the application of hazard management techniques to achieve an optimum level of safety throughout the entirety of the River LINE system.

SNJRG's methodology provides a systematic means of identifying, analyzing, assessing and resolving the cause(s) of accidents, incidents and hazards within the River LINE that could impact the safety of the system. The application of hazard identification methods during the River LINE life-cycle phases and to all system elements permits the timely identification, elimination, minimization or control of hazards. System safety activities include trend analysis, failure reporting and accident rate analysis.

Risk is the impact of an undesired event in terms of event severity and event likelihood. Throughout this process, hazards are identified, risks analyzed, assessed, prioritized, and results documented for decision-making. The continuous loop process provides for validation of decisions and evaluation for desired results and/or the need for further action. A systematic approach to process improvement requires proactively searching for opportunities to improve the process at every step, not simply identifying deficiencies after an undesired event. Risk Management has been defined as the process by which Risk Assessment results are integrated with political, social, economic, and engineering considerations for decisions about need/methods for risk reduction

SNJRG implements a formal process of hazard management to systematically identify, evaluate, and mitigate potential hazards associated with the engineering and operation of the River LINE for passengers, employees, and the general public. All known hazards identified are categorized as to their potential severity and probability of occurrence, analyzed for potential impact, and resolved by design, procedure, warning device, or other methods so that they fall within the prescribed level of risk acceptable to NJ Transit and the NJDOT SSOA.

The purpose of this methodology is to provide management with appropriate information regarding the risk of hazards. This information includes identifying hazards and faults, the probable causes and effects, and recommended resolution action(s). By evaluating these causes, conditions, and any combination thereof, together with the resolutions available, informed management decisions can be made. This methodology is the underlying rationale for all hazard determinations and recommended resolution actions, whether formal analyses are conducted or informally performed.

Hazard management is the responsibility of River LINE's System Safety Supervisor and consists of three elements: **Hazard Identification, Hazard Resolution, Corrective Action and Hazard Reporting.**

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

9.2 Hazard Identification

The identification and resolution of hazards associated with the River LINE during operation & maintenance is essential to the continued safety of the system. SNJRG uses a comprehensive identification process including all available data.

Representative examples of hazard identification data are:

- Incident, accident and Injury Investigations (including near miss), NTSB reports/debriefings;
- FRA Inspections/Defect Reporting;
- Service Failures (right-of-way), Mechanical;
- System Failures; and
- Chronological Reviews

Representative examples of identification methods are:

- Monthly GM Inspection rides/signal rides, Trainmaster rides, efficiency checks, audit;
- Fall/Spring walks, random observations, walk-arounds, employee safety committee, rules committee;
- Industry news, APTA/AREMA/Other
- Track & bridge inspections, C&S test and inspections; and
- Train Operator training and workshops

9.2.1 Identification Process

The identification of real and potential hazards is the initial step in the system safety process.

SNJRG considers that all information has the potential of identifying hazards. An ongoing process to compile and review the information in a timely and structured manner is essential. SNJRG has identified a number of key areas that contribute to the identification process, as cited below and detailed in the following sub sections.

- Communication - with control center, communication links, work orders, committee meetings,
- Inspections - vehicle, facility, and alignment,
- Audits - safety and safety critical systems,
- Accident/Incident Investigations,
- Maintenance records, and
- Acceptance testing

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

9.2.2 Communication for Hazard Identification

Control Center Communication –

- All employees are required to report any unusual conditions as they occur or are witnessed during their normal operation to the Control Center at (856) 580 5657 or (856) 580 5656.
- The OCC has the ability to communicate directly with Conrail and NJ TRANSIT Control Centers, NJ TRANSIT Police, public safety agencies, and other agencies coming in contact with the River LINE.

Established communication links

- Links are established through safety team members and contractors working throughout the River LINE. All SNJRG personnel are encouraged to report hazards they observe. The System Safety Supervisor is the central point of contact for all reporting, in addition to the normal management chain. The Phone number is (856) 580-5620. The Fax number is (856) 580-5623.
- Work orders and other formal task authorizations are captured within the Maximo data base for review.

Committee Meetings --

System Safety Committee Meetings –
The SSC encourages the reporting of hazard related issues by all members and personnel involved with the River LINE.

Employee/ Management Safety Committee-
The E/MSC encourages the reporting of hazard related issues by all employees to members of the committee as well as supervisors.

9.2.3 Inspections for Hazard Identification

Inspections of facilities, equipment, alignment, signals, and highway grade crossings are part of the scheduled maintenance plans. Inspection reports are reviewed for maintenance impact and Corrective Action Plans are developed to resolve and mitigate hazards. System failures and trends are monitored by the SNJRG System Safety Supervisor and appropriate technical specialists.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

9.2.4 Audits for Hazard Identification

Safety Audits

The results of safety and other SNJRG audits are reviewed for potential hazards.

Safety Critical Systems

Audits of safety critical equipment and systems are performed internally and externally to identify potential hazards.

9.2.5 Investigations for Hazard Identification

Investigations into the probable cause and other contributing factors of accidents and incidents, unacceptable hazardous conditions, and repetitive failures are conducted. Trends are identified, monitored, and corrective actions instituted.

These investigations are an important part of the hazard identification process in determining the root causes of the hazardous condition.

9.2.6 Maintenance Records for Hazard Identification

Maintenance records generate useful potential hazard information. The tracking, monitoring, and recording of this information are an important tool throughout the life of the River LINE. Maintenance records are retained at the CLRC, and in the Maximo and Documentum data base systems.

9.2.7 Acceptance Testing for Hazard Identification

Acceptance testing conducted during the start-up phase of the contract provided SNJRG with valuable information into the dynamic conditions of the system. The hazards identified during this process were analyzed and monitored to identify potential hazards. This process continues for all new systems and subsystems, as they are procured and installed.

9.2.8 External Hazard Identification

SNJRG encourages the reporting of potentially hazardous conditions by customers, neighbors, local municipality representatives and other interested parties.

SNJRG, in conjunction with NJ TRANSIT, has an active outreach program to facilitate the reporting of such issues, which are retained and acted upon by the System Safety Department.

9.2.9 Classification of Hazards

Once the hazards are identified, they are categorized by the System Safety Department and reviewed by the System Safety Committee (SSC).

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

The hazards are categorized using MIL-STD-882E. The System Safety Committee identifies the appropriate level of review for each severity and risk level.

Where required, specific hazard review teams, led by the System Safety Supervisor, are assembled to determine measures to either resolve, or reduce the risk of the hazard. This process provides the level of experience necessary to resolve the identified hazards.
Hazard Severity- Once the hazards are identified, the severity is classified in accordance with **Figure 9-1.**

Figure 9-1

Hazard Severity Categories

Description	Category	Definition
CATASTROPHIC	1	Could result in one or more of the following: death, permanent total disability, irreversible significant environmental impact, or monetary loss equal to or exceeding $10M.
CRITICAL	2	Could result in one or more of the following: permanent partial disability, injuries or occupational illness that may result in hospitalization of at least three personnel, reversible significant environmental impact, or monetary loss equal to or exceeding $1M but less than $10M.
MARGINAL	3	Could result in one or more of the following: injury or occupational illness resulting in one or more lost work day(s), reversible moderate environmental impact, or monetary loss equal to or exceeding $100K but less than $1M.
NEGLIGIBLE	4	Could result in one or more of the following: injury or occupational illness not resulting in a lost work day, minimal environmental impact, or monetary loss less than $100K.

Hazard Probability -- The probability that a hazard occurs during the planned life expectancy of the system can be described in potential occurrences per unit of time, events, items, or activities. **Figure 9-2** shows how the probability ranking is established.

Figure 9-2
Hazard Probability Levels

Description	Level	Specific Item	Fleet/Inventory
FREQUENT	**A**	Likely to occur frequently	Continuously experienced

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

PROBABLE	**B**	Will occur several times in the life of an item	Will occur frequently
OCCASIONAL	**C**	Likely to occur sometime in the life of an item	Will occur several times
REMOTE	**D**	Unlikely but possible to occur in the life of an item	Unlikely but can reasonably be expected to occur
IMPROBABLE	**E**	So unlikely, it can be assumed occurrence may not be experienced	Unlikely to occur, but possible
ELIMINATED	**F**	Incapable of occurrence. This level is used when potential hazards are identified and later eliminated.	Incapable of occurrence. This level is used when potential hazards are identified and later eliminated.

Identification of Level of Severity - SNJRG makes use of the risk-based approach when determining the action required addressing identified hazards. Risk is defined as the combination of severity and probability. In line with the FTA Hazard Analysis Guidelines for Transit Projects Final Report January 2000, SNJRG has adopted the following level of severity categories to guide their hazard resolution activities. **Figure 9-3** defines the level of severity.

Figure 9-3
Classification into Level of Severity Categories

Frequency of Occurrence	**Hazard Categories**			
	Catastrophic (1)	**Critical (2)**	**Marginal (3)**	**Negligible (4)**
(A) Frequent	**High**	**High**	**Serious**	**Medium**
(B) Probable	**High**	**High**	**Serious**	**Medium**
(C) Occasional	**High**	**Serious**	**Medium**	**Low**
(D) Remote	**Serious**	**Medium**	**Medium**	**Low**
(E) Improbable	**Medium**	**Medium**	**Medium**	**Low**
(F) Eliminated	**Eliminated**			

Acceptability of Hazards – The acceptability of a hazard is based on the risk category. **Figure 9-4** defines this relationship.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Figure 9-4 Determination of Hazard Acceptability

	1A,1B,1C,2A,2B
	1D,2C,2D,3A,3B, 3C
	1E,2E,3D,3E,4A,4B
	4C,4D,4E, F

1- Unacceptable
2- Unacceptable (Management Decision Required)
3- Acceptable With Review By Management
4- Acceptable Without Review

Where required, SNJRG implements additional analysis to determine the hazard severity and probability categorization, leading to a risk categorization. Hazard Analysis can be qualitative and quantitative, and inductive and deductive.

The deductive hazard identification process defines an undesired event, deduces the combination of conditions or faults of the system and the cause or causes necessary to produce that event. The inductive process involves the analysis of single system components to identify failure modes and effects on a total system or a part there of, and of personnel actions.

Once classified, hazards that are identified are communicated to the SSO in the monthly report as well as in quarterly meetings held by the SSO.

9.3 Hazard Resolution

The System Safety Supervisor reviews all hazards together with their risk classification and any recommended corrective actions. This information is presented to the SSC as the safety approval body for SNJRG. Hazards are tracked in the system safety committee meeting minutes until resolved as well as entered into the monthly SSO report and safety database.

Figure 9-5 below presents the Hazard Tracking Log.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Figure 9-5 Hazard Tracking Log

Hazard Tracking Log							
No.	**Description**	**Date Identified**	**Source**	**Assessment Results**	**Recommendations**	**Responsibility**	**Status**

Key:

- **No**. – refers to the number assigned to the hazard by the River LINE.
- **Description** – refers to a brief narrative summary of the hazard – what it is; where it is located; what elements it is comprised of; etc.
- **Date Identified** – refers to the date the hazard was identified at the River LINE.
- **Source** – indicates the mechanism used to identify the hazard, i.e., operator report, near-miss, accident investigation, results of internal safety or security audit, rules compliance or training program, maintenance failure, facility or vehicle inspection, trend analysis, formal hazard analysis, etc.
- **Assessment Results** – refers to the hazard severity and hazard frequency ratings initially assigned to hazard by the River LINE.
- **Recommendations** – refers to the actions recommended by the River LINE to address the hazard and to bring it into a level of risk acceptable to management.
- **Responsibility – refers to the person or group responsible for the action**
- **Status** – refers to the status of the recommendations. Status may be designated as: not started, open, in progress, or closed.

The SSC takes appropriate actions to reduce to the lowest level practical, the risk associated with the identified hazard.

The methods used for eliminating of controlling hazards are identified in their order of precedence:

- Design to eliminate hazard
- Incorporate safety devices
- Provide warning devices
- Develop procedures and training

The final resolution to a hazard is processed according to the River LINE Configuration Management plan.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

9.4 Corrective Action Plans

The System Safety Supervisor is responsible for the preparation and tracking of all Corrective Action Plans within the scope of the hazard management program, including the Hazard Tracking Log, which monitors all significant hazards until they are closed out. Corrective Action Plans are drafted to address the findings of internal accident investigation, which identify causal and contributing factors requiring correction, as well as to address safety audit findings, inspection results and any other mechanism which identifies hazards.

All Corrective Action Plans are submitted to NJT and NJDOT-OSSO for review approval. Each Corrective Action Plan identifies the required actions, the schedule for implementation and the department responsible for implementation.

The status of Corrective Action Plans are communicated to NJ TRANSIT and the SSO in the monthly report. Once a Corrective Action Plan has been implemented, the System Safety Supervisor will periodically assess and monitor the efficacy of the implementation.

9.5 Reporting

The River LINE is responsible for reporting hazardous conditions and Corrective Action Plans in accordance with the requirements of the NJ DOT Fixed Guideway Safety Oversight Standard to NJ TRANSIT, NJDOT, FTA, the NTSB, and FRA where applicable, in a timely manner.

SNJRG's Accident and Incident Investigation procedure (SF-SNJ-17) clearly identifies which incidents and hazards will be investigated and when written incident investigation reports will be submitted for review and concurrence. The reports include information of the most probable cause, other contributing causal data, Corrective Action Plans, and schedule for implementing action. The report must be submitted to the OSSO no later than 30 days after the incident or hazard was discovered.

Hazards shall be reported in a monthly report to the SSO so that the SSO may be knowledgeable about hazards and Corrective Action Plans. The monthly reports must be submitted to the SSO no later than the 15th of each month. The corrective actions shall be reported with the anticipated date of the correction being implemented. That initial corrective action implementation date shall not be deleted in subsequent monthly reports. Should the implementation date change, that changed implementation date shall be added to subsequent reports.

All hazardous conditions, including but not limited to those listed in SNJRG's Accident and Incident Investigation procedure (SF-SNJ-17), must be reported to the SSOA within two hours of

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

the hazard by telephonic notification, followed by the submission of NJDOT **Form – OSSO-A&IR-1-F23** to the SSOA by the close of the following business day.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Part 4- SAFETY ASSURANCE

10.0 SAFETY ASSURANCE

10.1 INTRODUCTION

An important element of our Safety Management and Performance Measurement System is Safety Assurance; it is intended to confirm the performance and effectiveness of our safety risk controls established under our safety risk management process to ensure that our organization meets or exceeds its safety objectives through the collection, analysis, and assessment of data concerning River LINE performance.

This section of the Safety Plan provides details of the specific day-to-day safety assurance activities.

10.2 SAFETY ASSURANCE PURPOSE, GOALS AND OBJECTIVES

10.2.1 Purpose

The purpose of this Section of the Safety Plan is to provide detailed Safety Assurance requirements identifying, evaluating, and minimizing safety risks throughout the operational life of River LINE, including all safety-related activities that occur during modification, extension, operation and maintenance of the system.

10.2.2 Goals

The goals of the Safety Plan are to implement safety programs that are measurable to maximize the highest reasonable level of safety for employees of the River LINE its subcontractors, customers, and the public. Achievement is accomplished in part, by the application of formal system techniques and methodologies that systemically identify, analyze, assess, and resolve hazards, accidents and incidents that may impact the levels of safety for the River LINE.

10.2.3 Objectives

Specific objectives of this Section of this PTASP are:

1. Achieve a level of safety performance that meets or exceeds the operating experience of similar transit systems in the following areas by:
   - Analyzing employee and passenger injuries;
   - Analyzing accidents, incidents and hazardous conditions;
   - Training all employees in safety related programs and assure that safety certifications are updated and maintained; and
   - Instituting and measuring performance measures against established performance goals
2. Increase and strengthen community involvement and participation in safety and security of the system by:

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

- Involving and educating community organizations and schools in safety; and
- Involving and education community emergency responders in safety

3. Improve planning and projections for fiscal support needs by:
   - Tracking and analyzing historical data;
   - Coordinating and communicating closely with internal departments and external organization(s); and
   - Estimating, based on historical data and previous experience, future costs and system improvements on an annual basis.

10.3 SAFETY CERTIFICATION OVERVIEW

10.3.1 Safety Certification Program

The River LINE undertakes modifications and/or extensions of the system from time-to-time, or procurement of new systems and facilities that require safety and security certification. Examples include: new rail systems and extensions, the acquisition and integration of new rail vehicles and safety critical technologies into existing service and major safety critical redesign projects, excluding functionally similar replacements.

In addressing these projects, the goals of the River LINE safety certification program are to verify that identified safety and security requirements have been met and provide evidence of system modifications, or major equipment repairs are safe and secure for use in revenue service.

For each such project, the River LINE will develop a Safety and Security Certification Plan (SSCP) during the preliminary design phase of the project. Prior to revenue service, a Safety and Security Verification Report (SCVR) was developed, documenting compliance with the SSCP.

The River LINE process used in implementing the safety certification program includes the following:

1. Develop a certifiable items list;

2. Identify safety and security requirements for each certifiable element;

3. Verify compliance;

4. Issue Certificates of Compliance for each certifiable element; and

5. Issue River LINE safety certification.

The System Safety Supervisor and Security Supervisor are responsible to ensure that all elements subject to safety and security certification are appropriately inspected, tested and verified by all

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

responsible parties. Further the Safety and Security Verification Report is prepared and submitted to the Safety Review Committee for approval prior to submitting to the SNJRG General Manager.

Final authority to approve the certification of River LINE projects, extensions, etc., rests with the General Manager, SNJRG and NJ TRANSIT.

10.3.2 Managing Safety in System Modification

Managing the safety aspects of system modifications is accomplished through Configuration Management, which is used to control changes to River LINE systems, subsystems, and processes during the manufacture, modification, or revision to original design specifications or processes using engineering analysis. The configuration management process ensures that safety and security considerations are an integral part of the process. SNJRG's System Safety Supervisor establishes policy, responsibility, and procedures for configuration management and control to ensure continued design integrity of River LINE, subsystems, equipment, software and facilities. Configuration changes to these elements are closely coordinated, reviewed, documented, approved and implemented to achieve the intended Configuration Management principles of "form, fit, and function".

System modifications or changes to system, subsystem, or processes are precipitated by the need for improvement, revision, modification, or technology enhancement, while maintaining form, fit and function. These modifications are applicable to:

- Equipment;
- Systems;
- Software;
- Service levels;
- Quality improvement initiatives;
- Unforeseen conditions discovered during operations;
- Maintenance activities, which require a redesign of a system or its components; and
- Change to the physical plant (i.e. new station stops)

System modifications and/or element changes which affect design and/or operation and maintenance activities are reviewed and recommendations made by the System Safety Committee (SSC), to evaluate potential safety and security impacts.

Some system modifications may require safety certification, as determined by the System Safety Supervisor, or the SSC. The process is performed as defined in the SNJRG Safety Certification Program assuring that a responsible engineer or manager has reviewed and approved all applicable documents for safety impact, and that the department responsible for operation and

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

maintenance of equipment and/or systems related to the modification receive approved safety certification certificates.

10.3.3 Configuration Management

Configuration Management is used to manage the integration of safety and security concerns into system designs and modifications. The Continuous Improvement Specialist establishes responsibility and procedures for configuration control to assure continued design integrity of the River LINE, its LRVs, subsystems, equipment, infrastructures, facilities safety-critical software and documentation.

Achieving and maintaining this integrity requires that configuration changes to these system elements are properly coordinated, reviewed, documented, approved, and implemented.

Configuration control activities are accomplished by the Field Service Engineering Staff**.** The Continuous Improvement Specialist conducts quality oversight through informal review and scheduled surveillance audits.

Configuration Management practices are governed by the Configuration Management Plan. Refer to Section 17 for further details of Configuration Activities. The Configuration Management plan is located with the Continuous Improvement Specialist and is available for review.

10.3.4 Safety Data Acquisition

It is the task of the System Safety Supervisor, to monitor the safety performance of River LINE operations. Selected data is accumulated and analyzed. This data includes injuries to customers, River LINE personnel, general public; potentially hazardous equipment failures; unacceptable hazardous conditions; and rules and procedure violations.

10.3.5 Data Acquisition Process

Information regarding accidents, incidents, hazardous and safety-related conditions and River LINE operations is obtained from several different reporting mechanisms. These include, but are not limited to: River LINE reports: accident/injury reports and investigations, incident reports, Daily Operations Summary, OCC logs, and Employee/ Occupational Injury reports, and crime/loss prevention surveys.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

10.3.6 Data Analysis and Tracking

Tracking of hazard–related data is used to identify trends. These trends are further analyzed and/or investigated to determine causal factors.

This is accomplished by interviews with personnel in the affected department(s) and analysis of pertinent documentation.

Identified hazards are categorized and submitted with corrective action recommendations (or requests for corrective action development). Further, continuous follow-up of corrective actions are accomplished until close-out through a hazard tracking log.

10.3.7 Access to Data

Safety data is disseminated internally to Management and all affected departments for information, tracking and corrective action. Additionally, a safety performance report is submitted to NJDOT SSOA and NJ TRANSIT Office of System Safety by River LINE both, upon occurrence of an incident or hazardous condition, and as part of the annual report. The annual report contains injury rate data regarding customers, River LINE personnel, and public accidents and incidents. The report is the basis for the formulation of safety performance goals and objectives for the coming year. The report outlines the strategies for the achievement of the stated safety and security objectives.

10.3.8 Interagency Coordination/Seminars, Information Exchange

Interagency coordination is accomplished by dissemination of safety and security related information internally within SNJRG and externally to NJ TRANSIT, NJDOT, NJ TRANSIT Police, FTA, FRA, OSHA, the NTSB, TSA, and other appropriate agencies.

SNJRG cooperates and coordinates with appropriate external agencies regarding safety-related recommendations, and to assure the continued safety of the River LINE and its environs.

SNJRG is authorized to liaise with external agencies regarding matters related to safety.

The System Safety Supervisor retains records of final decisions on recommendations made by the SSC, (including rationale for recommendations that are not accepted). Below lists some representative examples requiring interaction between SNJRG and external agencies.

- System improvements
- System Extensions
- Major modifications to the system

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

- Emergency Drills and after action reports
- Disasters
- System Schedule and Operational changes
- Results of Accident/Incident Investigations
- Results of an Audit
- Results of Emergency Drills
- Results of Inspections.

10.4 TRAINING

10.4.1 Training and Certification Review/Audit

Audits of training will include the verification of employee training, certification, and retraining programs as appropriate. The audit will verify that the River LINE employee instructions and course contents meet the expectations of training and certification requirements. The content and presentation of the training programs are evaluated on a periodic basis. The courses are conducted and documented with complete and accurate records. Records are maintained in a secure location by the System Safety Supervisor.

10.4.2 Employee Safety Training

Various levels of safety training are established for SNJRG staff so that employees can effectively carry out their respective responsibilities.

Employees receive safety training appropriate to their level of responsibility. **Figure 10-1**, Safety Training Requirements, indicates the minimal safety training requirements.

River LINE employee training is conducted for all operations and maintenance personnel to include the following:

- Safety/Industrial Hygiene Training and Education
- Operations Related Safety Training
- LRV Operator Training and Qualifications
- LRV Supervisor and Controller Training and Qualifications
- Maintenance Personnel Training and Qualifications
- Safety Critical Training and Certification Compliance
- Road Foreman Training and Certification Requirements of 49 CFR, Part 240

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Figure 10-1: **Safety Training Requirements**

Courses	Staff Level					
	Emergency Responders	OCC Controller	Operator	Locomotive Engineer/ Conductor	Supervisor	SNJRG Staff
River LINE Orientation	x	x	x	X	x	x
River LINE SOP's & EMP's	x	x	x	X	x	x
River LINE Safety Rules	x	x	x	X	x	x
River LINE Safety Systems	x	x		X	x	x
- Facilities	x	x	x	X	x	x
- Vehicles	x	x	x	X	x	x
Emergency Responder Training	x[1]	x		X	x[2]	
ncident Command Training	x[1]	x			x[2]	
Interagency Training[4]	x[4]	x				
CPR		x[3]	x[3]	X[3]	x[3]	x[3]
Blood-borne Pathogens						
First Aid		x[3]	x[3]	X[3]	x[3]	x[3]
azardous Material Awareness		x	x	x	x	

1 Pre-qualified
2 Supervisors designated as On-site incident coordinators
3 Selected Staff
4 Includes table tops, drills, functional and full-scale simulations

River LINE has established a training curriculum to ensure basic level of safety –related competency for rail transit system auditing and oversight.

Additionally, River LINE Staff who are directly responsible for safety oversight (namely the System Safety Supervisor) will be required to complete applicable training requirements of 49 CFR Part 672 within three (3) years of their initial designation. Thereafter, refresher training shall be completed every two (2) years. Additionally, refresher training requirements which must include, at a minimum, one (1) hour of safety oversight training will be provided.

Required Curriculum over a Three-Year Period is as follows:

- One (1) hour course on SMS Awareness—e-learning delivery (all required participants)
- Two (2) hour courses on Safety Assurance—e-learning delivery (all required participants)
- Twenty (20) hours on SMS Principles for Transit (all required participants)

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

- TSSP curriculum (minus Transit System Security (TSS) course) (all required participants—credit will be provided if participant has a Course Completion Certificate of previously taken TSSP courses)
- Rail System Safety (36 hours)
- Effectively Managing Transit Emergencies (32 hours)
- Rail Incident Investigation (36 hours)

10.4.3 Safety/Industrial Hygiene Training and Education

The System Safety Supervisor provides training to SNJRG employees in basic, safe work practices and hazard identification. Employees exposed to chemicals and/or physical agents receive training in industrial hygiene principles, use and care of personal protective equipment, and the hazards and safe handling methods associated with chemicals. Employees whose job functions include exposure to special hazards receive additional training. Instruction may include, but are not limited to: confined space entry, bloodborne pathogen, HazCom, or other safety-specific training.

10.4.4 Operations Related Safety Training

Safety training is conducted on River LINE equipment, operating rules, and procedures. Copies of SOPs and rules are given to all River LINE operating personnel. The System Safety Supervisor assists the Transportation Department in the formulation of training programs, SOPs, and rules. The SSC is responsible for the review and approval of all operating rules and procedures and of operations training programs, prior to their implementation. The Road Foreman-Engines assists the training department in training of locomotive engineers as required by 49 CFR Part 240 and 242.

All safety-sensitive positions directly engaged in rail operations or in Transportation Management, and signal employees are subject to random drug and alcohol testing, random safety checks, Hours of Service rules and certification/recertification on a bi-annual basis.

Additionally, these personnel must pass a bi-annual examination on the operating rules, safety rules and procedures. Each person governed by 49 CFR, Part 240, who fails the annual examination is given special retraining. The preparation, administration, and maintenance of these examinations and related records are the responsibility of the employee's respective department.

10.4.5 LRV Operator Training and Qualifications

All new LRV operators are given the LRV Operator training course. This course covers rules, procedures, safety rules, and actual LRV operation. Each new LRV operator is certified by both

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

written and practical testing to validate operational readiness and knowledge of operating and safety rules and procedures. Each operator is given a bi-annual refresher course on the rules and procedures, and is re-certified by written and practical testing.

10.4.6 LRV Supervisor Controller Training and Qualifications

Each Supervisor of Train Operations (STO) receives training in LRV operations, including rules and regulations, efficiency checks, emergency response, accident/incident investigation, customer assistance, and LRV maintenance troubleshooting.

The Safety Department coordinates with the Training department to train STOs in accident/investigation procedures performed in accordance with the SNJRG SOP. Each Supervisor is certified by both written and practical testing to validate operational readiness and knowledge of operating and safety rules and procedures. Annually each STO is given a recertification course on the rules and procedures, and is re-certified by written and practical examination.

Controllers are qualified and certified on Operating Rules, Safety Rules and have received additional training and certification in the areas of LRV movements, including direct action and control of routes, coordination of emergency response and security activities, and coordination of construction and maintenance activities on the active railway. Controllers are certified by both written and practical testing to validate their operational readiness and knowledge of operating and safety rules and procedures. Bi-Annually each Controller is given a recertification course on the vehicle movements, and emergency and operating rules and procedures, and is re-certified by written and practical examination.

10.4.7 Maintenance Personnel Training and Qualifications

Maintenance requirements, methods and procedures for River LINE equipment and systems are described in manuals, handbooks, and other documentation developed for the training and certification of maintenance personnel. Use of personal protective equipment (PPE), emergency equipment, and safety instruction are included within the training program.

Maintenance Supervisors are responsible for ensuring Maintenance Personnel required to operate LRVs, hi-rail equipment, heavy equipment, or other specialized vehicles/equipment/apparatus, are certified by both written and practical testing (in order to document the employee's knowledge of safety and operating procedures and skill in the proper and safe operation and procedures).

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

10.4.8 Safety Critical Training and Certification Compliance
To ensure that compliance to training and certification of River LINE staff, the following is presented:

The System Safety Supervisor, in concert with the Transportation Department, is responsible for operational training, including new staff as assigned.

10.4.9 Locomotive Engineer and Conductor Training and Certification
Specific operating rule training curriculum and classes are conducted in compliance with 49CFR, Part 240, and 242 123 (b) for Locomotive Engineers and Conductors, including certification of performance. This requirement is applicable to Locomotive Engineers and Conductors during the operation of River LINE work trains.

Various levels of safety training are established for SNJRG staff so that employees can effectively carry out their respective responsibilities.

Employees receive safety training appropriate to their level of responsibility. **Figure 10-1**, Safety Training Requirements, indicates the minimal safety training requirements.

10.4.10 Freight Railroad Employees Operating on The River LINE
Freight railroad employees operating on The River LINE, such as Conrail Shared Assets, must be qualified on the physical characteristics of the entire joint-use track. It is the responsibility of the freight railroad to verify that all of their employees operating on the River LINE are qualified. Employees are given a written examination on the operating rules and must achieve a score of at least 85 percent. When reporting for the examination, they must present their operating rules book, timetable and other instructions for inspection. Employees who fail this examination must take a second examination within 30 days. Employees who fail the second examination, or who fail to be reexamined within 30 days, are not qualified to perform service.

10.4.11 Contractor Safety Training
The System Safety Supervisor administers the Contractor HSE Program when contractors' work affects River LINE operations, customers, facilities, and personnel. Contractors are required to comply with all applicable OSHA and FRA standards for the safety of their own employees as well as to safeguard River LINE employees, contractors, customers and the public.

All contractors and subcontractors working on, or interfacing with the River LINE are required to attend On-Track Safety training prior to working on the operating system. This training course is developed jointly by the operating department and the System Safety Supervisor. River LINE

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Operating and Safety Rules and Procedures are included in each Contractor/Subcontractor contract, and these rules and procedures bind them while performing work on or about the operating system.

10.4.12 Maintaining Training Records

All records of SNJRG personnel training are retained by the Training Coordinator, including training certification and re-certification. All training and re-certification for Locomotive Engineers and Operators are maintained by the Road Foreman of Engines as required by FRA 49 CFR 240 and 242.

10.4.13 Training Compliance Requirements

The Training Coordinator/HSE reports to System Safety Supervisor and is responsible for coordinating all training activities within the Operation and Maintenance organization.

This includes the tracking of employee certifications and notification of their expirations, scheduling annual re-certification training, and analyzing historical training activities to improve the organization's time management without degrading the assurance of safety within the system. Instruction to employees will be provided by this individual in the areas of expertise. Subcontracted and other off-site training courses will be coordinated by this individual, including the development of courses, if necessary.

10.5 ACCIDENT/INCIDENT/HAZARDOUS CONDITION NOTIFICATION, INVESTIGATION, REPORTING

10.5.1 Overview

The River LINE, by virtue of its operational characteristics, is under the purview of several external agencies for the reporting of accidents, incidents and hazardous conditions.

Each agency has its own unique reporting requirements that must be complied with by the SNJRG, as the operator of the River LINE. Some representative examples are the National Transportation Safety Board (NTSB), Federal Railroad Administration (FRA), Federal Transit Administration (FTA), Occupational Safety and Health Administration (OSHA), State of New Jersey Department of Transportation (NJDOT), and New Jersey TRANSIT (NJT)

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

The NTSB has ultimate authority (49CFR, Part 800), over transportation safety and has the authority to conduct transportation-related investigations under specific criteria and issue recommendations for consideration and implementation under their governance.

Freight railroads and the River LINE jointly use sections of the River LINE right-of-way; these sections, by regulation, are under the jurisdiction of the FRA as required by 49CFR, Part 225.

The FTA, by virtue of 49CFR, Part 673, has certain specific requirements for the reporting of accidents, incidents and hazardous conditions.

NJDOT, Office of Safety Oversight has promulgated standards and procedures requiring, among other elements, the reporting of accidents, incidents and hazardous conditions.

NJT, as owner of the River LINE, has specific requirements for reporting accidents, incidents and hazardous conditions.
The River LINE also traverses a number of municipalities and counties between the cities of Camden and Trenton, each of which provides emergency response services to River LINE incidents and has local public safety ordinances and regulations.

10.5.2 Procedure and Applicable Regulation
SNJRG's procedure for Accident / Incident / Hazardous Condition Investigation and Report Preparation is a controlled document identified as SF-SNJ-17.

The purpose of SF-SNJ-17 is to establish comprehensive guidelines to notify and investigate accidents, incidents and hazardous conditions, and prepare the required reports in accordance with Federal Regulations (FTA, FRA, OSHA), and both NJ Transit & SSOA requirements for reporting.

Prompt notification, reporting thorough investigation of accidents/incidents/hazardous conditions are necessary to:

- Identify all the factors causing and contributing to the accident, incident, or unacceptable hazardous condition while minimizing disruptions to service.

- Determine the appropriate corrective action to prevent the accident, incident, from recurring and to control hazardous conditions

- Satisfy requirements for notification of external agencies including the jurisdictional emergency services, National Transportation Safety Board, Federal Railroad Administration, Federal Transit Administration, NJ State

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Safety Oversight Agency, NJ TRANSIT, CONRAIL, Environmental Protection Agency, and the Occupational Safety and Health Administration.

10.5.3 Applicable Documents / Regulations

External Documents:

- Contract Number 97CJ052 between NJ TRANSIT and SNJ Rail Group, LLC.
- State of New Jersey Safety Oversight Program, Office of Fixed Guideway, Rail Transit State Safety Oversight Program Standard, Revised March 5, 2018
- FTA Hazard Analysis Guidelines for Transit Projects, Final Report, January 2000.
- NTSB 49CFR, PART 840
- FRA 49CFR, PART 225
- FTA 49CFR, Part 673

Internal Documents:

- Emergency Preparedness Plan, Number EOP-SNJ-001
- Emergency Response Plan, Number EOP-SNJ-002
- Emergency Evacuation Procedure, Number EOP-SNJ-003
- Right of Way Fire Procedure, Number EOP-SNJ-004
- Bomb Threat Procedure, Number EOP-SNJ-005
- Fire or Smoke on LRT Car Procedure, Number EOP-SNJ-006
- Collisions Procedure, Number EOP-SNJ-007
- Train Evacuation Procedure, Number EOP-SNJ-008
- Non-Emergency Response Plan, Number SOP-SNJ-064
- Accident and Incident Investigation Procedure, Number SAFE-SNJ-017
- Notification Procedure, Number SOP-SNJ-065

10.6 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.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

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.

The River LINE 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.

10.6.1 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

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

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.

The GTW 2/6 LRV is also in operation in Europe. The service-proven design is manufactured by Bombardier Transportation in Switzerland and assembled in Germany.

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 / 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

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

10.6.2 Integrated Control System- ARINC

The Integrated Control System (ICS) is a state-of-the-art centralized Supervisory Control Data Acquisition (SCADA) system located in the Control Center.

The primary purpose of ARINC is the supervision and control of the train movements, train control, and traction power.

10.6.3 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 Pandrel 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 turn 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 is electrically locked and manually operated.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

10.6.4 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.

10.6.5 Camden Light Rail Complex (CLRC) & Operations Control Center (OCC)
The CLRC is located at 700 Beideman Avenue, Camden, New Jersey south of the 36th Street station.

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 / 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 (as further described in section 3.5.3).

The OCC is under the direction of the Supervisors of Train Operations who report to the Superintendent of Transportation and Service Delivery.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

The two Supervisors of Train Operations oversee the controllers. The STO's 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. Monday through Sunday, first and second shifts have two controllers and one supervisor on duty. One transportation clerk handles the customer information management system on the first and second shifts.

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

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

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 are 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

10.6.6 Signal and Control System

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-Bliz 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 are 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 double-track 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.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Camden and Burlington street running segments have LRV bar signals to control the LRV 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.

10.6.7 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 138. 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 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)

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

- 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

10.6.8 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 211A,
- 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-O-Lakes Siding,
- Church Brick Siding,
- Stephen Chemical Siding
- Haines Yard

Subject: List of procedures and processes needed to maintain safety throughout the system	Date:	Procedure Number:
	Approved:	

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; and
- 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.

This section describes further details of the Southern New Jersey Light Rail Transit System. It includes a map of the system as well as descriptions of the important locations and functions throughout the system.

10.7 RIVER LINE OPERATIONS

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	MP0.0	Camden	MP 3.5	Pennsauken
Single Track	MP 3.5	Pennsauken	MP 5.0	Pennsauken
Double Track (Pennsauken siding)	MP 5.0	Pennsauken	MP 7.0	Palmyra
Single Track	MP 7.0	Palmyra	MP 8.7	Riverton
Double Track (Riverton siding)	MP 8.7	Riverton	MP 10.5	Cinnaminson
Single Track	MP 10.5	Cinnaminson	MP 11.8	Riverside
Double Track (Rancocas siding)	MP 11.8	Riverside	MP 14.0	Delanco
Single Track	MP 14.0	Delanco	MP 15.0	Edgewater Park

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

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
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 (Roebling 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

There are no branch lines or alternate routes.

10.7.1 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 at the 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).

10.7.2 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

Subject: List of procedures and processes needed to maintain safety throughout the system	Date:	Procedure Number:
	Approved:	

detect the condition of a Conrail engine, train, or equipment, including shifted loads, swinging doors, derailed equipment, etc., that may create a fouling hazard for LRT operations.

10.7.3 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 is 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.

10.7.4 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

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Stadium and the Sun Bank Arena. Freight service is not permitted at any time on either track between CP Cass and Trenton Station.

10.7.5 SCHEDULES, HEADWAY, AND RECOVERY

SNJRG is responsible, by contract, to operate revenue service for The River LINE. Additional service may be provided within the city of Camden to accommodate special events. Added recovery time is built into the turnback times at Trenton and WEC to enable a train arriving later than the published schedule to begin its return trip on time. Schedules are provided by NJ TRANSIT. Additional information regarding the operation of the system is provided in other operations documents.

10.8 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.

Subject: List of procedures and processes needed to maintain safety throughout the system	Date:	Procedure Number:
	Approved:	

- Failure analysis/Hazard analysis.
- Investigations, and
- Record keeping and documentation of maintenance trends.

The maintenance plans vary among (and within) the six elements of the infrastructure. Failure analysis, investigations, and record keeping/ documentation procedures are discussed in more detail in subsequent sections of this PTASP.

10.8.1 SAFETY-RELATED MAINTENANCE PHILOSOPHY

The maintenance philosophy for the River LINE is a preventive maintenance approach. The goal is to prevent problems from occurring, rather than waiting for problems to occur, and then taking corrective action. Recognizing that some level of corrective maintenance may be required, sufficient time is allowed in the schedule of preventive maintenance activities to perform corrective maintenance and other support activities.

The Maintenance Plans outline the preventive maintenance program for the River LINE. The maintenance plan is reviewed and updated, as the operation matures and the River LINE requires a change to the plan, for the successful continued implementation of the maintenance philosophy.

SNJRG operates and maintains the River LINE, providing all labor and services necessary to achieve the overall requirements of the system. All scheduled normal and preventive maintenance, unscheduled maintenance, scheduled heavy maintenance and overhaul, maintenance record keeping, and the maintaining of the spare parts inventory are included in the plan. Maintenance is scheduled to minimize disruption of the operating system.

10.8.2 Maintenance Task Matrix

The following table provides a task matrix indicating the individual responsibilities for safety-related maintenance efforts. Participation is indicated as primary, secondary, or associate. This matrix is not to be taken as exclusive. Participation by other groups within SNJRG and/or its subcontractors takes place whenever appropriate.

Exhibit 10-2
Safety-Related Maintenance Task Matrix

P= Primary (Responsible) S= Secondary, (Support) A= Associate (Be aware)	Quality Control	Operations	Maintenance	Safety	Training	Engineering
Vehicle						
Scheduled	**S**-Q1		**P**-M2	**S**-S1	**A**-A2	**S**-M5
Unscheduled	**S**-Q1		**P**-M2	**S**-S1	**A**-A2	**S**-M5

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Immediate Action		S-03	**P**-M2	**S**-S1		A-M5
Certifications			**P**-M2		**S**-A2	
Data Recorders			**P**-M2	**S**-S1		**S**-M5
Modifications	**S**-Q1	A-O2	**S**-M1,M2	**S**-S1	**S**-A2	**P**-M5
Specifications	**S**-Q1		**S**-M1,M2	**S**-S1	A-A2	**P**-M5
Failure Analysis	**S**-Q1	**A**-O1	**S**-M2	**S**-S1	**S**-A2	**P**-M5
Hazard Management/Tracking	**S**-Q1	**A**-O1	**S**-M2	**S**-S1	**S**-A2	**P**-M5
Investigations	**S**-Q1		**P**-M2	**S**-S1	**S**-A2	**S**-M5
Track and Alignment						
Scheduled	**S**-Q1		**P**-M4	**S**-S1	**A**-A2	**S**-M5
Unscheduled	**S**-Q1		**P**-M4	**S**-S1	**A**-A2	**S**-M5
Immediate Action		S-O3	**P**-M4	**S**-S1		A-M5
Bridges			**PM-4**		**A-A2**	
Certifications			**P**-M4	**A**-S1	**S**-A2	
Data Recorders			**P**-M4	**S**-S1		**S**-M5
Modifications	**S**-Q1	A-O2	**S**-M1,M4	**S**-S1	**S**-A2	**P**-M5
Specifications	**S**-Q1		**S**-M1,M4	**S**-S1	A-O2	**P**-M5
Failure Analysis	**S**-Q1	**A**-O1	**S**-M4	**S**-S1	**S**-A2	**P**-M5
Hazard Management/Tracking	**S**-Q1	**A**-O1	**S**-M2	**S**-S1	**S**-A2	**P**-M5
Investigations	**S**-Q1	A-O2	**P**-M4	**S**-S1	**S**-A2	**S**-M5
Signaling						
Scheduled	**S**-Q1		**P**-M3	**S**-S1	**A**-A2	**S**-M5
Unscheduled	**S**-Q1		**P**-M3	**S**-S1	**A**-A2	**S**-M5
Immediate Action		S-O3	**P**-M3	**S**-S1		A-M5
Certifications			**P**-M3		**S**-A2	
Data Recorders			**P**-M3	**S**-S1		**S**-M5
Modifications	**S**-Q1	**S**-O1	**S**-M1,M3	**S**-S1	**S**-A2	**P**-M5
Failure Analysis	**S**-Q1	**A**-O1	**S**-M3	**S**-S1	**S**-A2	**P**-M5
Hazard Management/Tracking	**S**-Q1	**A**-O1	**S**-M2	**S**-S1	**S**-A2	**P**-M5
Investigations	**S**-Q1	A-O1 & O2	**P**-M3	**S**-S1	**S**-A2	**S**-M5
Control Room						
Scheduled	**S**-Q1		**P**-M6	**S**-S1	**A**-A2	**S**-M5
Specifications	**S**-Q1	A-O1	**S**-M1,M3	**S**-S1		**P**-M5
Unscheduled	**S**-Q1	A-O1	**P**-M6	**S**-S1	**A**-A2	**S**-M5
Immediate Action		S-O1	**P**-M6		A-A2	A-M5
Certifications			**P**-M6		**S**-A2	
Data Recorders		P-O1	**S**-M6	**S**-S1		**S**-M5

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

P= Primary (Responsible) S= Secondary, (Support) A= Associate (Be aware)	**Quality Control**	**Operations**	**Maintenance**	**Safety**	**Training**	**Engineering**
Failure Analysis	**S**-Q1	**A**-O1	**S**-M6	**S**-S1	**S**-A2	**P**-M5
Hazard Management/Tracking	**S**-Q1	**A**-O1	**S**-M2	**S**-S1	**S**-A2	**P**-M5
Investigations	**S**-Q1	**A**-O1	**P**-M6	**S**-S1	**S**-A2	**S**-M5
Modifications	**S**-Q1		**S**-M1,M6	**S**-S1	**S**-A2	**P**-M5
Specifications	**S**-Q1		**S**-M1,M6	**S**-S1		**P**-M5
Buildings and Station Stops						
Scheduled	**S**-Q1		**P**-A1	**S**-S1	**S**-A2	
Unscheduled	**S**-Q1		**P**-A1	**S**-S1	**S**-A2	**S**-M5
Immediate Action	**S**-Q1	**A**-O1	**P**-A1	**S**-S1	**A**-A2	**A**-M5
Certification	**S**-Q1		**P**-A1	**S**-S1		**A**-M5
Modifications	**S**-Q1		**S**-M1,A1	**S**-S1		**P**-M5
Specifications	**S**-Q1		**S**-M1,A1	**S**-S1		**P**-M5
Failure Analysis	**S**-Q1		**S**-A1	**S**-S1	**A**-A2	**P**-M5
Hazard Management/Tracking	**S**-Q1	**A**-O1	**S**-M2	**S**-S1	**S**-A2	**P**-M5
Investigations	**S**-Q1		**P**-A1	**S**-S1		**S**-M5
Environmental	**S-Q1**		**P-A1**	**S-S1**	A-A2	**S-M5**

Legend:

A1-B&B Supervisor
A2-Training Coordinator
O1– Supt Transportation &Service Delivery
O2-Asst Supt Transportation &Service Delivery
O3- LRV Operators
M1-Material Supervisor
M2-Maintenance Supervisor
M3-Signal Supervisor
M4-Track Supervisor
M5-Lead FSE
M6-FSE Electronics
Q1-Quality Supervisor
S1-System Safety Supervisor

Preventive maintenance will be conducted using qualified technicians and carefully prepared repair and inspection procedures. The Maintenance Plans specify regular preventive maintenance checks to minimize operating failures. Safety related preventive maintenance tasks are not delayed beyond their scheduled time.

Corrective maintenance is normally performed during non-revenue operating hours, when possible, with minimal impact on normal system operations and required service levels. All maintenance, whether discovered during a preventive maintenance check or otherwise, is recorded in the Maximo system. These records constitute the basis for corrective action and are stored for failure data reporting for future updates of the preventive maintenance system.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

The reporting system for corrective maintenance incorporates a methodology to assign maintenance priorities to each failure requiring corrective maintenance. These categories are:

- Immediate response and restoration within 4 hours.
- Response and restoration within 8 hours.
- Response and restoration within 24 hours.
- Response and restoration exceeding 24 hours.

Site personnel respond immediately to any failure that could jeopardize safety and on-time performance, as reported by the Maximo system, Train Operator or other SNJRG Personnel.

The Train Operators are trained to diagnose and correct a number of vehicle failures in order to minimize delays.

A "real time" reporting of all outstanding corrective maintenance activities by priority code is implemented, with reports generated to management indicating clearance of corrective maintenance activities in accordance with their assigned priorities.

The OCC is the focal point for all reporting of malfunctioning or non-functioning equipment or facilities of the system. Control center personnel function as a "trouble desk" to receive, screen, assess, and act upon all reports. All operational incidents are reported to the OCC. The clerk logs the incident into the control center computer system and then generates a Work order Request within the Maximo system, containing all known defects and symptoms. All control center personnel are thoroughly trained in proper responses to reports received from all credible sources. This includes alarms from sensors, reports from on-line employees, public agencies, utilities, the public and any other reporting entity.

10.8.3 Fare Collection and Ticket Vending Machines (TVMs)

This system consists of specialty equipment supplied and maintained by NJT. It includes ticket vending machines (TVMs) for collecting monies and dispensing and validating tickets. It also includes the off-site equipment necessary for systems maintenance.

10.8.4 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 Avenue and Cooper's Street respectively) with

Subject: List of procedures and processes needed to maintain safety throughout the system	Date:	Procedure Number:
	Approved:	

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.

All station stops are lighted according to the standards of the Illuminating Engineering Society Handbook, the National Electric Safety Code, and local codes and ordinances. Building materials and finishes comply with the BOCA Basic Building Code and/or NFPA standards, as applicable.

Station Maintenance

Stations are maintained to exhibit a clean, neat, and attractive appearance that promotes a safe and secure environment. In order to keep the areas litter and graffiti free, a regular schedule for cleaning is implemented. This schedule meets or exceeds the criteria set forth in the contract between NJ TRANSIT and SNJRG stating that stations stops must be checked for functionality on a daily basis with required maintenance performed within 24 hours. The timeline for scheduled maintenance to station stops is stored in the Maximo Database. There is immediate response to all reports of unsanitary or unsafe conditions.

During adverse weather conditions, Stations including platforms, footpaths and SNJRLTS 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

Subject: List of procedures and processes needed to maintain safety throughout the system	Date:	Procedure Number:
	Approved:	

- 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.

10.8.5 Configuration Management

Configuration Management is used to manage the integration of safety and security concerns into system designs and modifications. The Continuous Improvement Specialist establishes responsibility and procedures for configuration control to assure continued design integrity of the River LINE, its LRVs, subsystems, equipment, infrastructures, facilities safety-critical software and documentation.

Achieving and maintaining this integrity requires that configuration changes to these system elements are properly coordinated, reviewed, documented, approved, and implemented.

Configuration control activities are accomplished by the Field Service Engineering Staff**.** The Continuous Improvement Specialist conducts quality oversight through informal review and scheduled surveillance audits.

Configuration Management practices are governed by the Configuration Management Plan. Refer to Section 17 for further details of Configuration Activities. The Configuration Management plan is located with the Continuous Improvement Specialist and is available for review.

10.8.6 Software Control, Access, and Protection

The River LINE has established policy, responsibility and procedures for Configuration Control, (Reference Configuration Management Plan), to ensure continued design integrity of the River LINE system, subsystems, equipment and facilities. Achieving this integrity requires that configuration changes to the system elements defined at the time of Safety Certification are properly coordinated, reviewed, approved, documented, and implemented.

System changes are changes to the configuration and supporting and related supporting documentation that are precipitated by need for new or revised:

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

- Equipment extensions;
- Systems;
- Quality improvement initiatives;
- Unforeseen conditions discovered during operations; and
- Maintenance activities which require re-design of a system or its component(s) and so on.

System and/or element changes which affect design and/or operational and maintenance of the River LINE are reviewed and recommendations are considered or implemented in accordance with the procedures established in the CMP.

Proposed changes to engineering drawings and documentation are documented on the Permanent Change Authorization (PCA) form, or Temporary Change Authorization (TCA) form by a Field Service Engineer and are reviewed and approved by the appropriate staff and the General Manager.

Changes determined to be Safety Critical by the System Safety Supervisor or the General Manager are submitted to the System Safety Committee for approval. After review by the System Safety Committee the PCA/TCA is evaluated for its acceptability toward service improvement, safety improvement, and elimination of hazard(s) and approved by the signers on the PCA/TCA form.

Changes determined by the System Safety Supervisor or the General Manager to affect the FRA Waiver for 49 CFR parts 219 to 239 are submitted to NJ TRANSIT for submittal to and approval by the FRA.

Proposed changes to System Safety & Security plans or related documents are initiated by the System Safety Supervisor or Security Supervisor.

Changes to O&M Plans and related procedures are initiated by the process owner with input from System Safety, Quality, and any other department head(s) related to the process.

10.8.7 TCA/PCA Authorization

Each of the following individuals reviews and evaluates the TCA/PCA proposed to the baseline River LINE Configuration and related River LINE baseline operation. Each individual must sign the TCA/PCA or make recommendations for modification or other disposition of the proposed changes. The required signatories are as follows:

Subject: List of procedures and processes needed to maintain safety throughout the system	Date:	Procedure Number:
	Approved:	

- General Manager
- Superintendent Maintenance of Way
- Superintendent of Maintenance of Equipment
- Lead Field Service Engineer
- System Safety Supervisor
- Superintendent of Transportation & Service Delivery
- Superintendent of Contracts and Administration
- Others, as Requested.

Each Lead Field Service Engineer has the responsibility to ensure that changes (once approved by all required signatories) are accurately incorporated into engineering documents. The General Manager has overall responsibility for the Configuration Management Plan.

10.8.8 Transportation Documents Change Authorization.

Changes to the Transportation documents are approved by the Rules Committee. The Rules Committee is chaired by the Rules Examiner/Assistant Superintendent of Transportation & Service Delivery. The Rules Committee meets as needed and is made up of the:

- Superintendent of Transportation & Service Delivery
- Superintendent of Maintenance of Way
- Assistant Superintendent of Transportation & Service Delivery
- System Safety Supervisor
- Field Service Engineer Signal

10.8.9 O&M Plans and Related Procedures Change Authorization.

Approval of proposed changes to O&M plans and related procedures are made by the General Manager and by the appropriate Superintendents.

11.0 Internal Audit Process

11.1 Overview

Internal safety audits are conducted annually and are intended to accomplish verification of both the River LINE's safety program and that of contractors, whether constructing on-site or providing safety-critical equipment. River LINE's verification of compliance is accomplished through the use of surveys, inspections, and analysis of injury and illness reports. In addition, contractors' safety programs are reviewed and approved by the River LINE.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

The System Safety Supervisor utilizes the resources of appropriate staff proficient in the areas being audited for an objective assessment of its own responsiveness to the requirements of the PTASP.

The System Safety Supervisor is also responsible for the implementation scheduling and oversight of the safety audits while keeping in mind the independent nature of the audit process.

The results of an internal audit are reported to the SNJRG Management upon completion of the audit, with a draft report being submitted within 15 working days. The SNJRG General Manager directs his staff for the preparation of a Corrective Action Plan and schedule. A follow-up of the effectiveness of the corrective actions is performed within 30 calendar days of implementation.

11.2 SCOPE OF ACTIVITIES

The scope of the internal safety audit process is to provide a mechanism for determining the effectiveness of the River LINE PTASP and to assess its level and quality of implementation. Specifically, internal safety audit objectives are to:

- verify that safety programs have been developed/implemented in accordance with PTASP requirements;
- assess the effectiveness of the rail transit agency's system safety programs;
- identify program deficiencies;
- identify potential hazards in the operational system and weaknesses in the system safety programs;
- verify that corrective actions are being developed, implemented and tracked to closure to address deficiencies and potential hazards;
- recommend improvements to the rail transit agency PTASP;
- provide management with an assessment of the status and adequacy of the system safety program; and
- assure continuing evaluation of safety-related programs, issues, awareness and reporting.

Based on a careful review of these objectives and the activities addressed in the PTASP, the River LINE organizational units and functions are as follows:

Organizational Units:

- Rail Operations
- System Safety
- Engineering

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

- Quality Assurance
- Security
- Transportation
- Operations Control Center (OCC)
- LRV Operators
- Maintenance of Way
- Maintenance of Equipment
- Training
- Procurement
- Human Resources

Organizational Functions:

- Implementation;
- Schedule for Follow-Up
- Close Out Of Corrective Action
- Facility Inspections
- Equipment Inspections
- Maintenance Audits/Inspections
- Rules/Procedure Review
- Training and Certification Review Audit
- Emergency Response Planning Coordination and Training
- System Modification Review and Approval Process
- Safety Data Acquisition/Analysis
- Interdepartmental/Interagency Coordination
- Configuration Management
- Occupational Safety and Health
- Hazardous Materials/Environmental Safety Program
- Drug and Alcohol Abuse Program
- Contractor Safety Coordination
- Procurement
- Others as Required by System Safety Supervisor

11.3 AUDIT PROCESS

11.3.1 Integrity of the Audit Process

The System Safety Supervisor in consultation with SNJRG line Management selects the Audit Leader and Team proficient in the areas being audited, ensuring that the audit team does not include staff from

Subject: List of procedures and processes needed to maintain safety throughout the system	Date:	Procedure Number:
	Approved:	

the functions and/or units being audited. They ensure that all audits are conducted in a cooperative, professional manner, and include an administrative process for resolving problems or disagreements or findings.

11.3.2 Audit Cycle and Schedule

Both announced and unannounced audits are performed.

- Announced audits are scheduled and announced to minimize disruption of activities. The safety and quality departments conduct audits together where the schedules require a safety and quality audit of the department or function. An audit schedule is developed and approved by the General Manager.
- Internal system safety audits occur on a three-year rotating schedule which addresses all of the required elements of 49 CFR Part 673.

- The 24 Elements to be audited against during a three year rotating schedule are listed below:
    1. Policy Statement and Authority for River LINE SMS Plan
    2. Goals and Objectives
    3. Overview of Management Structure
    4. PTASP Control and Update
    5. Implementation Activities and Responsibilities
    6. Hazard Management Process
    7. Safety Certification
    8. System Modification
    9. Safety Data Collection and Analysis
    10. Accident/Incident Investigation and Reporting
    11. Emergency Management Program
    12. Internal Safety Audits
    13. Rules Compliance
    14. Facilities and Equipment Inspections
    15. Maintenance Audits and Inspections
    16. Training and Certification for Employees and Contractors
    17. Configuration Management and Control
    18. Compliance with Local, State and Federal Requirements
    19. Hazardous Materials Program
    20. Drug and Alcohol Program
    21. Procurement Process
    22. Hours of Service

Subject: List of procedures and processes needed to maintain safety throughout the system	Date:	Procedure Number:
	Approved:	

23. Roadway Worker Protection Program
24. Minimum Document Submission to the NJDOT-OSSO

- Unannounced audits are conducted on safety critical systems, on repetitive failures and non-compliance items found during data downloads or field reports.

- Audits required by NJDOT (e.g. Annual Rail Group Internal Audits, FTA Triennial audit) or any audit as directed by NJ TRANSIT are conducted, if required.

11.3.3 Checklists and Procedures

Auditing teams utilize approved checklists in their audit. The checklists reflect the items and areas and the department being audited. The audited department is given the required opportunities to provide support documentation to the auditors so as to "close" the items on the checklist. Auditors may choose a day to do spot checks of individual records, such as maintenance records or personnel qualification records. In all cases the System Safety Supervisor assures the cooperative nature of the audit group and the audit process is maintained.

The Internal Audit Checklist and Three-Year Schedule shall be submitted to the NJDOT Office of State Oversight for approval. In addition, the NJDOT Office of State Safety Oversight will be notified 30 days prior by the System Safety Supervisor, of upcoming Internal Audits.

In advance of an audit, a checklist is prepared including:

- Reference number.
- Audit category (safety critical system, failure analysis, schedule, announced, and unannounced).
- Date of audit.
- Department audited and contact name.
- Auditor's names.
- Inspections and observations conducted.
- Reference criteria including that found in the PTASP, standard procedures, training manuals, operating rules, and maintenance procedures.
- Results, comments, and observations.
- Recommendations.
- Corrective actions, and
- Method of verification.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

11.3.3.1 Audit Responsibility
The System Safety Supervisor is responsible for the implementation and oversight of announced and unannounced safety audits during the operation and maintenance of the River LINE. The System Safety Supervisor selects the audit team leader and team, assuring that the audit team does not include staff with interests that may be in conflict with the audit duties.

11.3.4 Audit Reporting
The auditing group prepares an audit report which is provided to the System Safety Supervisor who in turn provides copies of the document to SNJRG Management. Appropriate SNJRG Management/Staff prepares responses to the audit. Audit teams are proficient in the areas being audited.

The System Safety Supervisor ensures that all audits are performed on a coordinated basis with full support of SNJRG management. Documents that will not be audited include confidential records and financial records, and other sensitive materials. Once an audit date and scope is established, all departments involved in the audit provide full cooperation to the auditors. Completed audits include findings, observations, open items, problem areas, corrective actions and a schedule for implementation of the corrective actions.

The audit report includes a summary of open items, areas of concern and the required corrective actions. Corrective actions, including a schedule for implementation are approved by SNJRG Management and are tracked for compliance until close-out by the respective managers. Disputed findings or discrepancies will be discussed at the closing meeting. An agreed upon timeframe will be discussed for resolution of the disputes before the findings are considered official.

At the end of the audit the audit team briefs SNJRG management concerning the areas of concern and recommended corrective actions.

11.3.5 Annual Audit Report to NJDOT Office of State Safety Oversight
The System Safety Supervisor, with the assistance of SNJRG management, responds satisfactorily to all identified problem areas, including a schedule to implement corrective actions. Copies of the final internal audit reports are submitted to NJ TRANSIT and NJDOT OSSO as part of the annual report. Annual Reports from the River LINE to the OSSO are due by February 12th of the year following the reporting year.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

11.3.6 Coordination with NJDOT Office of State Safety Oversight
The River LINE coordinates its internal safety audits with NJDOT OSSO through submittal of the annual and three-year internal safety review schedules, checklists, and annual and three-year audit reports. NJDOT-OSSO conducts external safety reviews every three years. SNJRG coordinates these activities with the NJDOT-OSSO.

The River LINE will submit directly to the SSO no later than January 30th of each calendar year a working schedule as to when and a list of which PTASP and SEPP/SSP elements are to be audited throughout the calendar year.

The River LINE will submit directly to the SSO at least 30 days prior to the scheduled internal safety and security audit the checklist and procedures to be used during the audit for review and approval by the SSO.

The River LINE will notify the SSO at least 15 days prior to the safety and security internal audit of the date that the audit will be conducted so that the SSO can, at his discretion, attend the audit to observe.

11.3.7 Audit Completeness
The System Safety Supervisor ensures all audits are performed on a coordinated basis with full support of SNJRG management. Documents that will not be audited include confidential records and financial records, and other sensitive materials. Once an audit date and scope is established, all departments involved in the audit provide full cooperation to the auditors. Completed audits include findings, observations, open items, problem areas, corrective actions and a schedule for implementation of the corrective actions.

All internal safety audits are fully documented and reported to ensure that hazards are subjected to the hazard identification and resolution process for action to include tracking until resolved.

All audits are completed as defined in auditing procedure **QA SNJ-007 Table 3.0-1** Surveillance, **QA SNJ-009**. These procedures are available for review at the CLRC.

12.0 FACILITIES AND EQUIPMENT INSPECTION

12.1 State of Good Repair

The FTA (49CFR, Part 625, §625.5-Definitions), defines a state of good repair as **"the condition in which a capital asset is able to operate at a full level of performance".**

River LINE system maintenance work includes State of Good Repair (SGR) activities on an as needed basis. Scope and specific details of tasks involved completely depends on the SGR work under

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

consideration. Maintaining River LINE transit system in a State of Good Repair (SGR) is a multi-task as well as a multi -disciplinary effort. In this process, System Safety activities such as:

- Identification of Engineering Systems (Rail Systems and Civil/Facilities Systems) that are to be maintained in a SGR;
- Configuration Management;
- Systems Management/Integration;
- Start-Up;
- Rail Activation;
- Safety Certification; and,
- Operational Demonstration,

all of which are related and lead back to sound revenue operations are considered. Not all elements are applicable in all cases. Similarly, elements of Quality Assurance and Quality Control that affect Safety of the System such as Design Control, Inspection and Testing, Nonconformance, etc., that have a critical role in maintaining River LINE in a SGR are considered. Incorporation of appropriate elements of System Safety and Quality Assurance programs in all River LINE SGR activities assures a safe, reliable and efficient NLR system. Throughout SGR activities, River LINE System Safety Supervisor will interface with the State Safety Oversight (SSO) Office. SSO may participate in key River LINE System Safety Committee meetings. SSO promulgates the State Safety Standards for compliance by River LINE.

12.2 FACILITIES AND EQUIPMENT SUBJECT TO INSPECTIONS

All River LINE operating and maintenance facilities and equipment undergo a complete inspection by Quality Assurance & Safety at least once a year to ensure the safety and health of employees. Please refer to Section 15 on how these inspections are carried out.

The Maintenance Plan describes the basic maintenance needs of fixed plant elements of the River LINE. The plan provides for the inspection, condition monitoring, routine servicing, and preventive maintenance, overhaul, and replacement requirements for the system. The Plan provides for maintenance of the fixed plant, and explains the technical, operational and organizational approach required.

The overall River LINE Maintenance Plan is supported by numerous lower level documents which provide technical requirements for specific systems. These include:

- Manual for Inspection, Maintenance and Construction of Track MW-4
- Plan for Inspection of Bridges and Culverts MW-5
- Special Instructions Governing Construction and Maintenance of Signals and

Subject: List of procedures and processes needed to maintain safety throughout the system	Date:	Procedure Number:
	Approved:	

Interlockings – S23
- Instructions for Making Test of Signal Apparatus –S27

The goal of River LINE maintenance plans is to ensure that the River LINE meets all safety, availability, and reliability requirements to achieve customer satisfaction and comfort.

These plans ensure: 1) a high degree of continuity and consistency in routine maintenance activities, 2) a structured process for improving the productivity and efficiency of fixed systems functions, and 3) a fulfillment of FRA and FTA's requirements.

12.2.1 Categories of Maintenance
Maintenance tasks are divided into four major categories.

- Inspection and test: activities which are performed in order to ascertain and verify the condition or readiness of equipment, for example, monthly turnout inspection.
- Preventative maintenance: those maintenance activities that are performed on a schedule to ensure availability, safety or prolong the service life of facilities and equipment. Preventive maintenance activities are scheduled based on frequency of use (e.g., cycle, hours of use or pure elapsed time) and not as a result of differences observed during inspection and test.
- Corrective maintenance: these refer to demand responsive maintenance activities that are necessary because they affect operations or the safety of customers or are in response to in-service failures, or to unsatisfactory conditions which are identified during inspections and testing.
- General maintenance: those maintenance activities necessary to maintain service quality, such as graffiti removal.

12.2.2 Equipment Inspections
Equipment inspections are made in accordance with manufacturer guidelines, industry-accepted standards and practices.

Track inspections conform to FRA 49 CFR 213 standards, such as:
- Walking inspections bi-annually;
- Riding inspections by track inspectors twice a week;
- Ultrasonic inspection once a year; and
- Gauge and other geometry measurements twice each year.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Receiving inspection inspects/tests all incoming materials and equipment to contract specifications and segregates defective materials in a non-conforming material hold area in accordance with Quality control procedures.

12.3 PREVENTIVE MAINTENANCE INSPECTION SCHEDULES

A sweep of the alignment is performed by the first train each morning. The yard & shop areas are inspected monthly.

Routine inspections of the structures, bridges, inverts, and culverts are performed at established cycles using approved guidelines.

The system elements such as train control/signaling, grade crossing equipment, and SCADA are inspected at established cycles based on the manufacturer guidelines and industry experience. The period of these inspections may be varied based on climatic conditions and corrective maintenance demands.

LRV inspections are made in accordance with industry-accepted procedures including periodic inspections specified by the LRV Running Maintenance and Servicing Manual and the LRV Heavy Maintenance Manual. Operators perform visual inspections and relevant systems checks prior to service-start.

12.3.1 LRV Maintenance Plan

LRV maintenance is divided into four areas: daily, preventive, program, and corrective. A brief description of each area is described below:

Daily Maintenance

Each car undergoes daily inspection and interior and exterior cleaning prior to release for service. The daily inspection check sheet is included in the LRV Maintenance Plan.

Preventive Maintenance

Preventive maintenance is a combination of periodic inspections and routine servicing with monthly, semi-annual, and annual intervals. During monthly inspections, any open or deferred work orders for minor repairs are performed. Bi-annual and annual preventive maintenance is based on equipment manufacturer's recommendations.

Program Maintenance

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Program maintenance is primarily developed by Engineering with the support of equipment manufacturers, and consists of engineering changes, field modifications, seasonal programs, and overhauls.

Corrective Maintenance

Corrective maintenance consists of troubleshooting and repairing equipment in response to a reported malfunction, failure, defect, incident, or other abnormality. These abnormalities may be reported by train operations, OCC, inspection technicians, or quality inspectors.

Quality Assurance

The Quality Assurance function ensures that LRV maintenance processes, documentation and procedures are in place and properly utilized, and is currently under the responsibility of the Continuous Improvement Specialist. Quality assurance personnel monitor maintenance activity and documentation for completeness and accuracy. The quality assurance function will include reliability and maintainability analysis to identify trends in equipment performance.

Materials Control

Materials Control is the management of all components and equipment, whether inventory spares or in repair, used in support of maintenance of infrastructure and LRVs. Responsibilities of material control include:

- Inventory Management,
- Warehousing and Distribution,
- Shipping and Receiving,
- Unserviceable Tagging, Disposition and Restocking,
- Planning and Purchasing,
- Warranty Enforcement, and
- Expediting

Material Control will continuously monitor parts and equipment status and usage to identify shortages, potential shortages and optimize stocking requirements.

Engineering changes are design modifications established by equipment manufacturers or Engineering and affect form, fit or function of a component or system. These modifications are typically effective for the entire fleet and future production and are documented using Permanent Change Authorization and/or Temporary Change Authorization forms.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Field modifications may include a Permanent Change Authorization, and are established by equipment manufacturers and/or River LINE engineering. These may affect the entire fleet, and are documented by use of Field Modification Instructions. These are typically developed to illustrate the implementation of the Permanent Change Authorization or Temporary Change Authorization, address a quality defect, or clarify a servicing or repair procedure.

Seasonal programs are servicing procedures or temporary modifications utilized to address seasonal sensitivities. Seasonal inspection and servicing are typically performed during semi-annual inspections. Some examples of seasonal programs are: air conditioning servicing for summer operations, alteration of cleaning procedures for winter operations, and coupler "bagging" to prevent snow and ice build-up.

Overhauls, or heavy maintenance, are performed on a program basis. Period and scope of overhaul programs are established using equipment manufacturers' recommendations, and data obtained during yearly inspections. Overhauls are divided into major sub-component groups including, trucks, hydraulic brake equipment, HVAC units, air compressors, and passenger doors.

Failures and defects are reported by train operators to the OCC who then enters the information into the Maximo system. All reports are brought to the attention of the LRV Maintenance Supervisor, who is responsible for investigating, documenting, disposition, and correcting the abnormality.

12.4 MAINTENANCE INSPECTION CHECKLIST REQUIREMENTS

Checklists are used for all maintenance actions using the Maximo system that provides checklists as part of issuance of a work order.

12.5 INSPECTION-HAZARD MANAGEMENT COORDINATION

Results from facilities and equipment inspections are closely coordinated with the hazard management process as defined in Section 6.0. Hazards identified during these inspections are integrated into the hazard management process.

13. MAINTENANCE AUDITS/INSPECTIONS

Hazards discovered during audits and inspections are reported using the hazard resolution process. Individual maintenance shops within the maintenance facilities are formally inspected on a monthly basis. These inspections are conducted using inspection forms, and include inspections to verify OSHA compliance, personal protective equipment utilization, inspections of equipment, housekeeping inspections, inspections to verify industrial hygiene practices, etc.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

However, informal inspections may be conducted at any time. Inspection reports are issued which list the hazards and the safety and health problems found during the inspection. Follow-up inspections and reports are completed within 30 days. The department responsible for the inspected area is required to provide a schedule of corrective actions within 30 days. Follow-up inspections and reports are made 30 to 60 days after the initial inspection.

Effective maintenance is required for safe and efficient light rail operations. SNJRG has adopted maintenance standards that make safety and availability the primary objectives of the system. These goals will be met by the incorporation of preventive and corrective maintenance programs for all aspects of the system.

All Physical Plant, Fixed Systems and LRV Maintenance activities specified in the original equipment manufacturers' (OEM) or maintenance manuals are performed in a professional and timely manner. All requirements to maintain and enforce warranties, and to verify and document the functionality and performance of safety critical equipment, will be satisfied.

Implementation of maintenance activities is under the direction of the Superintendent of Maintenance of Way for fixed plant equipment, certain railroad and work equipment. The Superintendent of Maintenance of Equipment is responsible for LRV Maintenance. These individuals coordinate their actions with the respective Operations Safety and Maintenance Safety Training Programs for employee development requirements.

13.1 SYSTEMS AND FACILITIES SUBJECT TO MAINTENANCE AUDIT

As previously stated, inadequate or improper maintenance on any of the River LINE systems could potentially affect safety. SNJRG recognizes that failures or incorrect operation of certain systems may directly cause hazardous conditions. Such systems are designated as "Safety Critical Systems". The Safety Critical Systems include:

- LRVs
- Buildings
- Stations
- Train Control
- Track
- Yards
- Right Of Way (For Fencing, and Drainage Adjacent To Track)
- Bridges
- Culverts
- Fire Suppression Systems

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

- HVAC and ventilation systems
- Backup emergency generators and redundant power sources
- Life safety systems

Special requirements, including standards, employee certification, documentation, and quality assurance are imposed for these systems.

13.1.1 Failure and Corrective Maintenance

It is the goal of SNJRG's maintenance philosophy to minimize system down time and maximize system availability.

Failure Correction is prioritized based first on safety and then equipment availability. Under no circumstances is unsafe equipment allowed to remain in service. Essential corrective maintenance is not deferred beyond the next scheduled preventive maintenance examination.

Corrective Maintenance is generally performed in response to an "in-service" failure (referred to as a "service failure") or as a direct action following an unsatisfactory inspection and test. On occasion it may also be required as a result of informal observation or vendor (supplier) directive, such as manufacturer notice/recall bulletins.

13.2 AUDIT/INSPECTION FINDINGS AND RESOLUTION

A log of failed or unsatisfactory inspection and test results and corrective action is maintained by the Superintendent of Maintenance of Way, Superintendent of Maintenance and the System Safety Supervisor for incorporation into the Hazard Management Process.

Where the results of the inspection and test activities are such that transportation services are adversely impacted (e.g., if track inspection determines that a speed restriction is required), the Control Center is notified, and an entry made on the Service Failure Log. Any result of an inspection and test action which adversely impacts service availability is considered an "in service" failure.

13.2.1 Maintenance Program Monitoring

The maintenance program is monitored on a regular and frequent basis in order to identify trends in equipment performance. This information is used to identify reliability improvement opportunities, such as the replacement of unreliable components based on life cycle cost analyses, etc. Reliability and maintainability data is also used to redefine maintenance intervals and maintenance cycles based on experience over the term of the Operations and Maintenance phase of the contract. These intervals are increased or decreased to provide more cost effective maintenance.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Certain MOW and Fixed Plant maintenance activities are performed by subcontractors, while others are accomplished directly by SNJRG staff. The coordination and management of both are the responsibility of the Superintendent of Maintenance of Way.

13.2.2 Maintenance of Way

The New Jersey Transit River LINE track infrastructure is maintained in accordance with 49 CFR Part 213 standards as well all pieces of on-track equipment and roadway maintenance machines. Landscaping and vegetation management is also performed to ensure the River LINE exhibits a neat and attractive appearance to customers always, and to eliminate hazards for customers and employees.

Inspections and servicing, including the replacement of consumable items and replacement parts, are performed regularly and frequently enough to ensure that every element of the system is fully functional at all times.

13.2.3 Station and Parking Lot Maintenance

Station and parking lots are maintained to exhibit a clean, neat, and attractive appearance that also promotes a safe and secure environment.

In order to keep the areas litter and graffiti free, a regular schedule for cleaning is implemented. There is immediate response to all reports of unsanitary conditions.

Litter pick-up at stations and parking areas is accomplished at least once each day. An adequate number of trash and recycling receptacles at each area is provided to encourage customers to deposit litter. Graffiti is to be removed or painted over before the start of the following day's operations or at a minimum, within 24 hours of discovery or notification. Shelter stops are thoroughly cleaned weekly.

During adverse weather conditions, stations, platforms, footpaths, and parking lots are kept clear of snow and ice. Deicer, sand, and grit, or other suitable combination of materials is spread to prevent and/or limit slippery conditions on platforms and footpaths.

Station equipment is operational at all times and is functionally checked on a daily basis. Defective lights are replaced within 24 hours of discovery or notification.

Landscaping is maintained to assure a neat and attractive appearance. Vegetation is controlled to ensure that weeds, tree branches, and other forms or vegetation are not allowed to obscure the

Subject: List of procedures and processes needed to maintain safety throughout the system	Date:	Procedure Number:
	Approved:	

visibility of signals, grade crossings, stations, signs, etc. Vegetation is prevented from growing in walkways and track areas.

Responsibility for maintaining the equipment falls upon Superintendent Maintenance. Major repairs and service will be outsourced. Outsourcing is the responsibility of the Superintendent of Maintenance of Way.

13.3 MAINTENANCE AUDIT CHECKLISTS

Maintenance Audit Checklists are used to document the maintenance audits conducted by System Safety and by maintenance employees to ensure uniform and complete audits. These checklists focus on adherence to schedule, application of standards and procedures, and record keeping.

13.4 MAINTENANCE HAZARD IDENTIFICATION AND TRACKING

Hazards discovered during maintenance actions are identified and entered into the hazard management process (section 6.0) for corrective action and tracking until resolved.

14.0 TRAINING AND CERTIFICATION REVIEW/AUDIT

14.1 OVERVIEW

SNJRG Operations personnel are trained and certified on The SNJLRTS Operating Rules and physical characteristics. In addition, the Superintendent of Transportation and Service Delivery, the Supervisors of Train Operations, the Controllers, the Assistant Superintendent Transportation and Service Delivery, and the Trainmasters of the River LINE are trained and certified on NORAC Operating Rules.

15.0 COMPLIANCE WITH LOCAL, STATE, FEDERAL REQUIREMENTS

15.1 EMPLOYEE SAFETY PROGRAM

SNJRG provides all employees with a safe workplace. This extends to operational practices e.g. access to hazardous areas; as well as to the physical condition of the River LINE. Employees are provided with continuous training by SNJRG and NJ TRANSIT with respect to their responsibilities in the River LINE Safety Program; as well as on safety related documents such as the SNJLRTS Operating Rules, Safety Rules, and the Timetable Special Instructions.

15.1.1 Occupational Safety and Health Program

SNJRG Occupational Health, Safety and Environmental (HSE) Program is a high priority for the River LINE. SNJRG's Training Coordinator/ Health, Safety & Environment (HSE) is

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

responsible for monitoring implementation of the HSE Program. The System Safety Supervisor, Operations, LRV Maintenance, and HSE are responsible for ensuring compliance with safety programs, all applicable OSHA standards and local codes. It is the responsibility of each department manager and supervisor to ensure a safe and healthy work environment for all employees under their direction. Human Resources has the responsibility for ensuring that employee information bulletin boards are maintained.

15.1.2 Industrial Hygiene Program

Industrial hygiene studies are performed on a hazard priority basis. SNJRG conducts industrial hygiene studies such as air quality, noise level, hazardous materials, including wastes, and environmental stresses, to evaluate the degree of employee or customer exposure to chemical and physical agents encountered in the work environment, including the office environment. The survey results are utilized to determine the necessary corrective action, including engineering and administrative controls and/or the required use of personal protective equipment. Reports of the industrial hygiene study are submitted to all affected departments.

Industrial hygiene studies are performed on a hazard priority basis to identify and eliminate exposures that exceed the Threshold Limit Value (TLV) and Permissive Exposure Level (PEL).

The priority are established by the River LINE System Safety Supervisor through an evaluation of the work processes, including type of work performed, types of chemicals or hazardous materials used to which persons are exposed, frequency and duration of exposure, and number of employee (or customers) exposed.

Examples of high priority exposures are:

- Airborne concentrations of lead, silica and other toxic particulates and aerosols
- Organic solvents
- Excessive noise levels

In addition, high priority is given to employee or customer concerns and requests for evaluations from NJ TRANSIT Risk Management or Safety.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

15.1.3 Personal Protective Equipment Program

Appropriate personal protective equipment (PPE) are provided and its use required by SNJRG personnel working on River LINE. The use of PPE is evaluated by the respective Superintendents and System Safety prior to its purchase by the using organization. SNJRG management and supervisory personnel are responsible for providing the necessary PPE and enforcing its use by employees.

15.1.4 Contractor/Subcontractor Environmental, Safety and Health Programs

The intent of the SNJRG Contractor/Subcontract HSE Programs is to enhance individual protection and public safety by fostering an awareness and concern for safety on the job site. Implementation of Contractor/Subcontractor HSE requirements during construction, and those covered by the Federal and New Jersey State Occupational Safety and Health Administration, are the responsibility of SNJRG and are included in the SNJRG's Construction HSE Program(s).

15.1.6 Contractor Safety Program

The System Safety Supervisor and Training Coordinator/HSE administer the Construction HSE Program when contractors' work affects River LINE operations, customers, facilities, and personnel. Contractors are required to comply with all applicable OSHA standards for the safety of their own employees as well as to safeguard River LINE employees, contractors, customers and the public.

All contractors and subcontractors working on, or interfacing with the River LINE are required to attend safety training prior to working on the operating system. This training course is developed jointly by the operating department and the System Safety Supervisor. River LINE Operating and Safety Rules and Procedures are included in each Contractor/Subcontractor contract, and these rules and procedures bind them while performing work on or about the operating system.

16.0 RULES COMPLIANCE/PROCEDURES REVIEW

16.1 OVERVIEW

Rules and Procedures compliance require clear and concise understanding (based on training), of River LINE and NORAC rules and procedures to minimize any confusion of their intent.

16.2 REVIEW OF RIVER LINE AND NORAC RULES AND PROCEDURES

Critical operational documents (which are subject to configuration management and formal document control procedures), are controlled operational documents are issued with SNJRG numerical identifiers and are categorized by functionality:

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

- Transportation, including safety & operating rules and procedures
- Rolling stock;
- System safety; and
- Fixed systems.

To help ensure the integrity of the maintenance system, the System Safety Supervisor conducts periodic audits and inspections of maintenance activities and monitors "in-service failures". In addition, the operating and safety rules are reviewed annually to determine effectiveness based on rules compliance data and regulatory changes.

16.3 ENSURING RULES COMPLIANCE

In accordance with FRA regulations 49 CFR 217 River LINE Managers and Supervisors conduct mandatory monthly Operational Safety Efficiency Checks to observe infractions in the areas of Customer Support, Service Quality, Transportation, Maintenance-of-Way, Safety, etc. These are unannounced observations performed by the Managers and Supervisors, and a report is presented at the monthly staff meeting, to the General Manager, the System Safety Supervisor, and Superintendents for appropriate action. For items that are deemed Category I or Category II Hazards, a Corrective Action Plan is developed, and they are entered into the Hazard Management Process, and tracked until closed.

16.4 OPERATIONS AND MAINTENANCE COMPLIANCE TECHNIQUES

SNJRG has developed its own requirements for assessing compliance with Rules, including the following:

- Evaluation Process: Job classifications and job functions are evaluated to determine the operations and maintenance staff subject to rules examination and evaluation.
- Organizational Responsibility: The Assistant Superintendent Transportation and Service Delivery (Rules Examiner) is responsible for all issues regarding procedure and compliance with operating rules.

He or she provides instruction to employees whose duties are in any way affected by the operating rules, and maintains records of periodic and special rules examinations. The Rules Examiner conducts field observation checks and classroom training to ensure understanding and compliance to the requirements of the operating rules.

In cases of an accident or violation of the operating rules, the Rules Examiner assists the investigation team in determining facts related to rules procedures. The Rules Examiner makes recommendations for additions, modifications, or deletions to the operating rules.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

16.5 SUPERVISORY PERSONNEL COMPLIANCE TECHNIQUES

Supervisory personnel are subject to the same compliance requirements as are operations and maintenance personnel, including rules examination and training at the supervisory level, and are subject to the same scrutiny by the Rules Examiner.

16.6 COMPLIANCE DOCUMENTATION AND CORRECTIVE ACTIONS

As indicated in Section 13.4, responsibility above, the Rules Examiner maintains records of periodic and special rules examinations.

Corrective action is taken for rules and procedures infractions, including re-training and re-certification, and/or progressive discipline.

16.7 HOURS OF SERVICE

Operator and Signal Technicians Hours of Service

Operators, Controllers and Signal Technicians will be governed by the Federal Railroad Administration Hours of Service act.

Per 49 CFR 228, the Hours of Service Rule, Operators and Signal Technicians will be permitted to perform service for no more than 12 hours. Prior to returning to work Operators who have worked 11:59 must have 8 hours rest. Operators who work 12 hours must have 10 hours rest. Signal Technicians are required to have 10 hours of rest under any circumstances prior to performing covered service.

Controllers Hours of Service

Controllers can perform service for no more than 9 hours in a tour and must have 15 hours rest prior to returning to duty.

In addition the FRA has issued the following amendment to 49 CFR 228 the Hours of Service rule:

The amendment focuses on the time of day assignments report for duty and the number of consecutive days a covered service employee can work without observing rest days. The amendment has not affected the maximum hours authorized, which remains at twelve, or 8/10 hours of rest.

Subject: List of procedures and processes needed to maintain safety throughout the system	Date:	Procedure Number:
	Approved:	

Amended HOS regulation defines work assignments as type 1 or 2:
Type 1: any shift with an on-duty time between 04:00 and 19:59
Type 2: any shift with an on-duty time between 20:00 and 03:59
The majority of River LINE shifts are "type 1." The exceptions being, any qualified operator/controller, signal technician, or work train crew member scheduled to sign up 8 PM or later.
Rest days required under amended regulation are as follows:
Type 1 – A covered service employee working 13 or more consecutive days in a period of 14 consecutive days on a "type 1" assignment must have 2 consecutive calendar days of rest prior to returning to duty.
Type 2 - A covered service employee working 6 consecutive days that include at least 1 "type 2" assignment is required to observe 24 consecutive hours of rest prior to returning to duty. Also, if a covered service employee works 13 days in any 14 day period they must observe 2 consecutive days of rest prior to returning to duty.

17.0 ROADWAY WORKER PROTECTION

River LINE has an established FRA roadway worker protection program for employees and contractors working on, or in close proximity to, River LINE controlled property. The System Safety Supervisor oversees worker safety. Contractors are required to comply with all applicable OSHA and FRA standards for the safety of their own employees. All employees and contractors working on, or interfacing with the River LINE are required to attend safety training while working on the operating system. This training course is developed jointly by the operations department and system safety.

18.0 Required Safety Program Compliance

Safety program requirements for compliance are an integral part of numerous River LINE committees that have been previously described, or are as identified below. These committees establish the rules, procedures and guidance that must be complied with, for worker safety.

18.1 Safety Committees

The River LINE has established several safety committees to facilitate distribution of information and the proper resolution of safety issues.

18.2 System Safety Committee (SSC)

The System Safety Committee oversees all Safety activities for River LINE, conducts monthly meetings, and is responsible for:

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

- Reviewing documentation, assigning responsibilities for open issues and approvals of certification documentation, conducting site visits, and defining safety and security-related tests and analyses, as required.
- Determining whether to accept specific conditions or requiring corrective action(s), including determining the specific methods to mitigate the potential hazards. After internal determination, all corrective action plans will be submitted to SSO for approval.
- Providing recommendations to the General Manager regarding certification and noncompliance of system elements.

The SSC consists of the following members:

- General Manager
- Superintendent, Transportation and Service Delivery
- Assistant Superintendent, Transportation and Service Delivery
- Superintendent of Maintenance
- Superintendent of Maintenance of Way
- Lead Field Service Engineer
- System Safety Supervisor
- Superintendent, Contracts and Administration
- Superintendent, Light Rail Operations – NJ TRANSIT

The System Safety Committee is chaired by the System Safety Supervisor.

In addition to ensuring the employees' welfare, each River LINE manager and supervisor is responsible for having knowledge of, and enforcing compliance with, all applicable federal and state OSHA laws, standards and regulations. This is in addition to FRA Regulations.

Although OSHA stipulates that employees are responsible for complying with OSHA standards, SNJRG considers that it is responsible for the employees' compliance. SNJRG ensures that procedures are established by all departments that facilitate disciplinary action against those individuals who fail to comply with applicable FRA Regulations, OSHA laws, standards, and regulations.

Examples of types of employee actions that require disciplinary action are failure to use/wear required personal protective equipment, failure to follow appropriate chemical handling procedures, and the unauthorized modification of safety equipment and devices.

19. HAZARDOUS MATERIALS

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

The fundamental requirements of the Federal and State of New Jersey Right-To-Know laws/standards are included in the River LINE Hazard Communication Program. The SNJRG Safety Supervisor enforces procedures that ensure compliance with the standards by employees of all departments.

Safety Data Sheets (SDS) are available for employee review and use for all chemicals and other hazardous materials that are being considered for purchase and use are reviewed and evaluated by the System Safety Supervisor for approval, prior to use. The user will furnish the manufacturer's SDS for hazardous products, and information on the planned use and application methods. SDS's are kept and updated electronically on the kiosk in the shop area.

SNJRG trains its employees in the use of chemicals and hazardous materials. Follow-up is conducted on the field use of approved products to ensure that safe, proper handling methods are utilized.

19.1 Environmental Protection Program

As the operator of River LINE facilities and equipment, it is the responsibility of SNJRG to minimize and control the generation of hazardous waste and pollutants to protect the environment. SNJRG management ensures all facilities and equipment under its control and direction are in compliance with all applicable NJDOT and federal environmental regulations.

The System Safety Supervisor is responsible for the coordination of hazardous waste manifests, storage, and removal and safe disposal of wastes from River LINE facilities, and for the maintenance of any required records.

The System Safety Supervisor performs routine environmental protection inspections throughout all River LINE sites to ensure compliance with applicable regulations. Procedures are established by the System Safety Supervisor to monitor and coordinate all environmental protection activities of all River LINE departments.

The Spill Prevention, Control and Countermeasure (SPCC) Plan described in Waste Management & Spill Prevention Control/Countermeasure Plan is required by the USEPA Regulations 40 CFR 112. The Plan is required to be available for implementation on-site to prevent oil spills, to control spills if they occur, and to employ the necessary countermeasures to contain the spill. It should be noted that the LRV Service and Maintenance Shop facility does not meet the criteria of a facility that "could reasonably be expected to cause substantial harm to the environment by discharging into or on the navigable waters or adjoining shorelines." The Shop is generally designed as an Unlimited Area and Low Hazard S-2. The analysis was based

Subject: List of procedures and processes needed to maintain safety throughout the system	Date:	Procedure Number:
	Approved:	

on Uniform Construction Code of New Jersey BOCA. This is referenced in the Waste Management & Spill Prevention Control/Countermeasure Plan.

19.2 HAZARDOUS WASTE MANAGEMENT PROGRAM

The System Safety Supervisor administers the Hazardous Waste Management Program to ensure all River LINE facilities minimize and control the generation of hazardous waste and insure disposal in accordance with environmental regulations. Solvent and oil recycling programs are established to assist in maintaining the status of "Small Quantity Generator." Hazardous materials storage areas are established for each facility, including designated accumulation storage areas. In addition, all employees having responsibility for the control and disposal of hazardous waste are appropriately trained to ensure compliance with environmental regulations. Hazardous material emergency responses are developed and implemented to deal with emergency situations.

19.3 WASTE WATER ABATEMENT PROGRAM

The Superintendent of Maintenance of Way maintains the Waste Water Abatement Program to ensure that all spills and concentrations of hazardous materials and in process waste water from River LINE facilities and equipment are controlled to minimize surface wash-off spillage in exterior areas. SNJRG management is responsible for implementing the program for River LINE systems.

20 DRUG AND ALCOHOL PROGRAM

The administration of the Drug and Alcohol Policy/Program is the responsibility of Human Resources. The program includes training supervisors in the signs and symptoms of substance abuse, initial testing of employees prior to being hired, or their placement in safety sensitive positions; record-keeping of test results, and an employee drug information program.

The purpose of the Drug and Alcohol Policy/Program is to assure employee fitness for duty and to protect SNJRG employees, customers, and the public from the unnecessary risk posed by worker use of drugs or alcohol. This program is intended to comply with all applicable Federal regulations (49 CFR, part 653), governing workplace drug use and alcohol misuse in the transit industry.

Regulations issued by the U.S. Department of Transportation (USDOT) and the Federal Transit Administration (FTA) mandate urine drug testing and evidential breath alcohol testing for safety-sensitive positions. The policy sets forth SNJRG's drug and alcohol abuse program and the

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

testing and reporting guidelines for covered employees as required by those regulations and for employees in covered positions.

It is the goal of the Drug and Alcohol Program to prevent substance abuse. However, all persons covered by the policy should be aware that violations of the policy results in discipline, up to and including termination, or in not being hired.

SNJRG Drug and Alcohol Abuse Policy addresses:

- Applicability of the Drug and Alcohol Abuse Program
- Safety-Sensitive functions
- Prohibited substances
- Prescription drug use
- Prohibited activity
- Alcohol use
- Compliance with testing
- General provisions for drug and alcohol testing
- Types of testing
- Post-offer/pre-employment
- Reasonable suspicion
- Post-accident
- Random-safety sensitive employees
- Return-to-duty
- Follow-up
- Methodology
- Substance Abuse Professional Evaluations
- Confidentiality
- Retests
- Notification of criminal or driving while intoxicated conviction
  - Employee absences
  - Employee Assistance Program
  - Education and training
  - Discipline
  - Return-to-Work requirements
  - Program administration

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

21. PROCUREMENT

21.1 SAFETY/PROCUREMENT PROCESS

The System Safety Supervisor and other potentially affected departments perform safety and security reviews of procurement specifications, designs for facilities, equipment, or systems, which may affect the safety and security of employees and customers of the River LINE. The review is performed to assure the incorporation of safety requirements in contract specifications and designs, and to assess compliance with the safety requirements through the testing and/or inspection of the facility, equipment, or system.

A system to control procured material, equipment, and/or services, with sufficient specification detail to meet design requirements is in place. Applicable design bases and Quality Assurance program requirements are included or referenced in documents used for procurement of materials, parts, equipment, and/or services.

A materials procurement and inventory control program through "MAXIMO" is used. This is comprised of the specification, purchase, inspection, storage, issue, and use of all spare replacement parts. All spare parts whether new or remanufactured are to be equal to or better than the original equipment parts. The spare parts inventory is monitored on a regular and frequent basis to ensure there is an adequate and cost effective spare parts inventory.

Procurement of new systems such as facilities, equipment, and light rail vehicles includes safety requirements in specifications, codes/standards and design reviews.

Employee Assistance Program

SNJRG recognizes its commitment and responsibility to its employees by seeking to provide, through the Employee Assistance Program (EAP) and/or Substance Abuse (Program) Provider SAP, an opportunity for employees to deal with drug and alcohol-related problems. Any employee who voluntarily requests assistance in dealing with a personal drug and/or alcohol problem may do so through the Employee Assistance Program and/or SAP in complete confidence and without jeopardizing his/her employment with SNJRG solely because of the request for assistance.

Other treatment programs for drug and alcohol problems are available through the health and welfare provider selected by individual employees. The immediate discontinuation of any involvement with alcohol or drugs is an essential requisite for participation in any treatment program.

Drug and Alcohol Abuse Education and Training

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

It is the policy of SNJRG, that training and education programs are made available to all its employees. Supervisors, managers, and officials receive instruction on supervisory

responsibilities, effects of alcohol and drug misuse, procedures of SNJRG drug and alcohol program, and indicators of probable alcohol and drug misuse.

Employees receive information on the effects of drug and alcohol misuse and their effect on an individual's health, work, and personal life; signs and symptoms of drug and alcohol problems; and available methods of intervention.

PROCUREMENT

The Manager, Maintenance, and Construction, the System Safety Manager and other potentially affected departments perform safety and security reviews of procurement specifications, designs for facilities, equipment, or systems, which may affect the safety and security of employees and passengers. The maintenance program is monitored on a regular and frequent basis in order to identify trends in equipment performance. The review is performed to assure the incorporation of safety requirements in contract specifications and designs, and to assess compliance with the safety requirements through the testing and/or inspection of the facility, equipment, or system.

A system to control procured material, equipment, and/or services, with sufficient specification detail to meet design requirements is in place.

Applicable design bases and Quality Assurance program requirements are included or referenced in documents used for procurement of materials, parts, equipment, and/or services.

A materials procurement and inventory control program through the CMMS is used. This is comprised of the specification, purchase, inspection, storage, issue, and use of all spare replacement parts. All spare parts whether new or remanufactured are to be equal to or better

than the original equipment parts. The spare parts inventory is monitored on a regular and frequent basis to ensure that there is an adequate and cost-effective spares inventory.

Procurement of new systems such as facilities, equipment, and light rail vehicles includes safety requirements in specifications, codes/standards and design reviews.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

PART 5- SAFETY PROMOTION

22.0 SAFETY PROMOTION

22.1 River LINE Safety Culture Goal

River LINE's goal is to provide guidance, suggestions, and recommendations toward improvement in our safety culture, both to our employees and our passengers. Specifically, our goal is to identify the transit industry's best practices of safety excellence and make recommendations to strengthen our safety culture.

22.1.1 Safety Culture Purpose

River LINE's safety culture is reflected by our actions, attitudes, and behaviors of our staff (managers, supervisors, and employees), concerning safety.

Our purpose is to ensure that staff understand that safety is a positive attribute; preventing injuries and saving lives, with improved productivity are positive outcomes. Safety is actively practiced and regarded as a critical core value by our staff

22.1.2 Philosophy toward a Safety Culture

River LINE fully understands that safety culture is based on attitude and is structural, as it relates to both individuals and organizations. It requires recognition of safety issues, balancing them with appropriate action. Additionally, it is difficult to measure when the fundamental criterion for measuring safety is the absence of accidents and incidents.

Personal attitudes and River LINE commitment toward safety aid in identifying unsafe acts and conditions that are precursors to accidents and incidents.

Safety culture extends beyond adhering to procedures. All responsibilities important to safety must be implemented correctly, with alertness, careful thought and full knowledge, sound judgment, and a sense of accountability.

In November of 2016, the NJDOT established the Rail Safe Hotline, which allows transit workers to report safety concerns anonymously via telephone or fax 24-hours a day. Rail Safe posters are displayed on River LINE's properties (1-844-RAILSAFE).

22.1.3 Safety Attitudes, Awareness and Ethics

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

Safety awareness and attitudes are important attributes that exist in an accident free environment for the River LINE. Procedures and good record keeping provide valuable information toward improving River LINE's safety culture.

22.1.4 Safety Culture Implementation

River LINE considers four key elements that contribute greatly to our safety culture and important to implementation of our safety awareness. They are:

- Safety Training
- Communicating Safety and Safety Alerts
- Continued Safety Awareness
- Data Collection and Lessons Learned

Each of the key elements are integral to implementation of our everyday activities.

22.1.5 Safety Culture Training

The River LINE places considerable effort toward our safety culture in every aspect of our training programs, including, hiring orientation, placing emphasis on safety in every training module, and continually monitoring safe practices in our employees every day work assignments.

Train Operators, Control center staff, and Maintenance personnel performing critical safety functions in their work are regularly certified and re-certified to ensure they continue to perform their work in a safe manner.

22.1.6 Communicating Safety

The River LINE employs several means of communicating safety to our employees, passenger, and the public in general. We communicate safety information through:

New hire orientation — During new hire orientation the importance of personal safety by providing information regarding the dangers of working on a transit system (electric power, working on the right- of-way, signaling, track and switch machines, train movements, slips, trips, falls, etc.), and emphasize that safety is their responsibility.

Formal on the job training (OJT) — Training, specific to the work/craft they are performing, stresses the importance of their personal safety, both in the classroom, and on-the-job training.

Signs — Numerous warning signs are throughout the River LINE to forewarn employees and passengers of danger, or what to do in the event of an emergency.

Notices and Posters – River LINE recognizes its responsibility for keeping our employees and passengers out of harm's way. There are regulations, including emergency exit and evacuation

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

signs and hazardous materials notices. Safety posters promote positive messages and practical instruction on how to work safely and respond to emergency situations. Posters are placed in lunchrooms, breakrooms and other employee locations to create a safer working environment

Conversation Based Safety Tours — These tours are designed for top level management to engage in, preferably, group based safety conversations with all levels of employees in the organization. This is a much more proactive approach to safety, and communicates to all staff that safety is a central focus from all parts of the organization.

Safety-Observations — Safety observations are completed by employees, and are designed to both reinforce positive safety behaviors as well as identify potential hazardous situations.

22.1.7 Non-Punitive Reporting

Common sense and practical experience command that the River LINE implement effective reporting systems by learning from smaller mishaps and incidents to preclude serious workplace accidents.

Confidentiality is key in receiving timely reports, and will subsequently improve the quality of the reports. Reports made to

Personnel are encouraged to accept responsibility for communicating information that could affect a safe working environment for themselves and others. Personnel are trained that safety is everyone's responsibility and unsafe acts and/or conditions must be reported immediately so that they can be addressed/mitigated.

Refer to Section 22.1.2 above for the anonymous reporting tool available to all NJ RTA's.

22.1.8 Continued Safety Awareness

Employee safety is an essential element in improving productivity, quality, and minimizing workers' comp costs.

Most workplace accidents are the result of unsafe acts, not unsafe conditions. Employee safety promotions increase safety awareness. By integrating our safety promotion complements our training and education programs to enhance River LINE's safety culture.

Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

APPENDIX

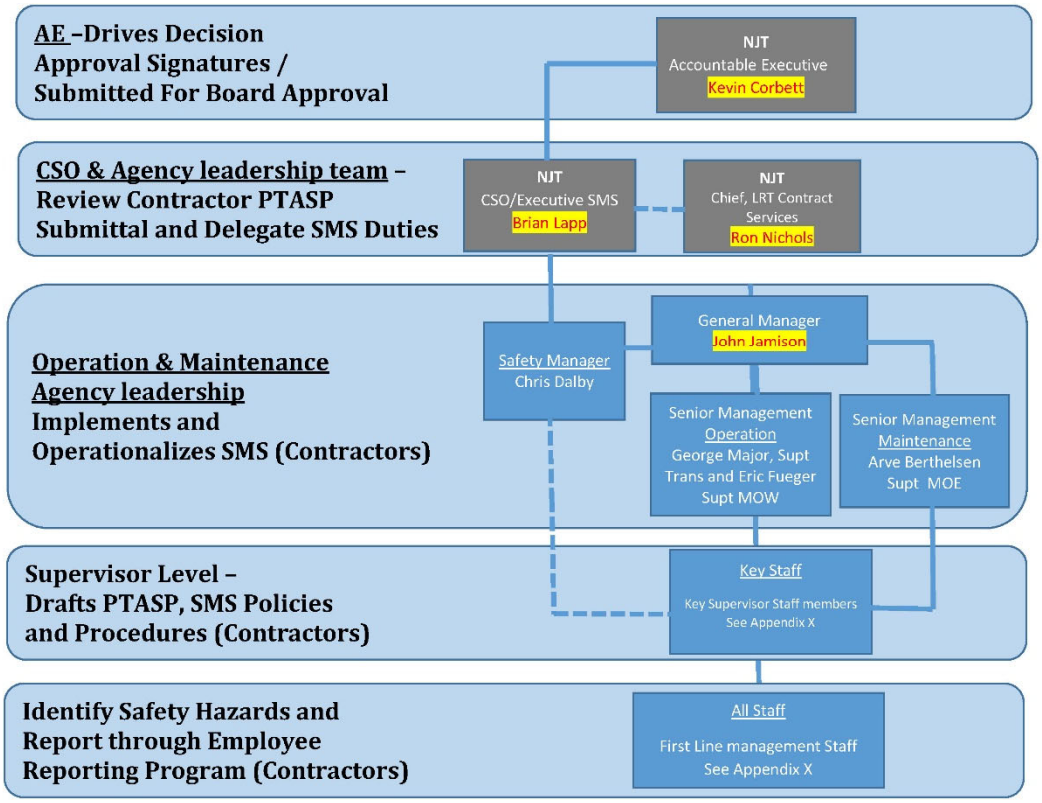
Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

APPENDIX A

NJ Transit Roles and Responsibilities

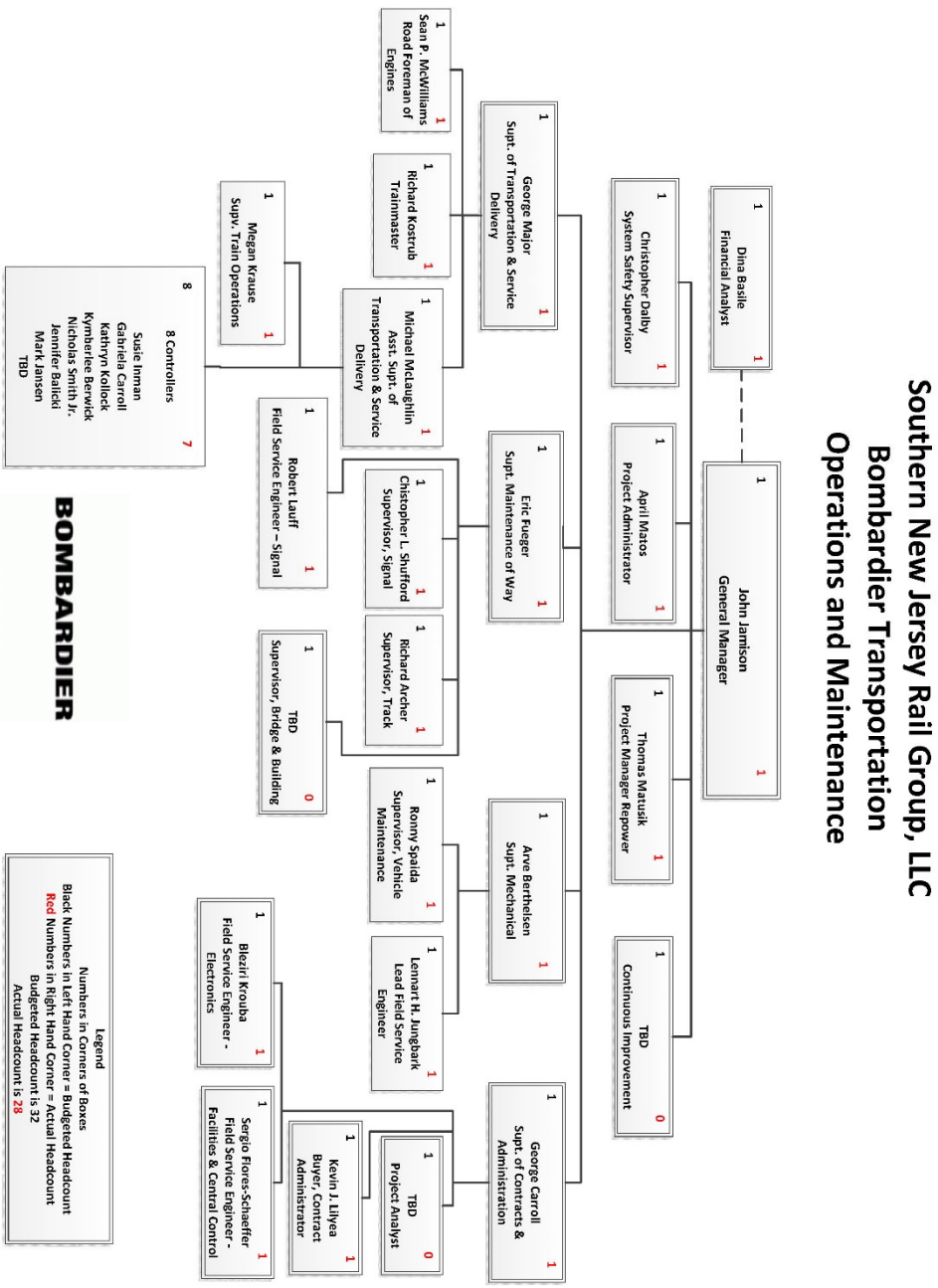
June 27, 2019

Roles and Responsibilities – Overview
River LINE



Subject: List of procedures and processes needed to maintain safety throughout the system	**Date:**	**Procedure Number:**
	Approved:	

APPENDIX B



ITEM 2005-28
PROCUREMENT BY EXCEPTION PURCHASE OF 728 MULTILEVEL WHEELS

NJ TRANSIT Rail Operations seeks authority to contract with Transit Sourcing Services, Inc. (TSS) for the purchase of 728 Wheels "B" Class 36" Multilevel (36" ML).

- NJ TRANSIT currently operates 429 Multilevel vehicles as part of its revenue service fleet.

- The total wheel count for the Multilevel Fleet is 3,432 (429 x 8).

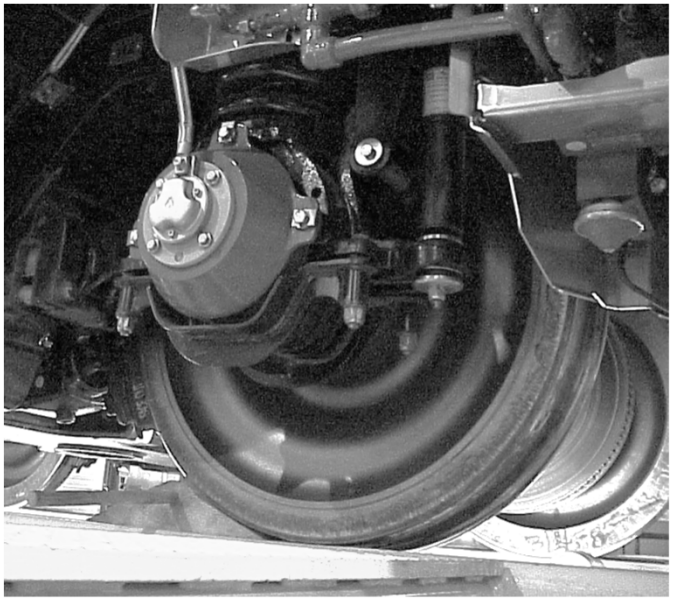
- The 36" Multilevel wheel is described as "B" Class – 36" Multilevel wheel, manufactured as per NJ TRANSIT Technical Specification COTS-0060 Rev. 3 dated March 30, 2014.

- The current inventory level has been depleted to 876 pieces. NJ TRANSIT Rail Operations recommends a minimum of 901 pieces, and a maximum 1600 remain in inventory at any given time, which is vital to the Commuter Rail Fleet (CRF).

ITEM 2005-28
PROCUREMENT BY EXCEPTION PURCHASE OF 728 MULTILEVEL WHEELS

Delivery Schedule

Month	Wheels Delivered
September 2020	80
October 2020	80
November 2020	120
December 2020	120
January 2021	120
February 2021	120
March 2021	92
Total	728



ITEM 2005-28: PROCUREMENT BY EXCEPTION: PURCHASE OF 728 MULTILEVEL WHEELS

WHEREAS, NJ TRANSIT currently utilizes four hundred twenty-nine (429) Multilevel vehicles as part of its revenue service fleet; and

WHEREAS, the total wheel count for the Multilevel fleet is 3,432 (429 x 8). The 36” Multilevel wheel is described as a “B” Class – 36” – Multilevel wheel; and

WHEREAS, the 36” Multilevel wheel is manufactured as per Technical Specification COTS-0060 Rev. 3 dated March 20, 2014; and

WHEREAS, the rate of consumption of the 36” Multilevel wheel under normal circumstances is approximately 95 per month. At this rate, the current inventory will be depleted in nine months, which will contribute to revenue service disruptions or reductions in service; and

WHEREAS, in accordance with N.J.S.A. 27:25-11(g)(3)(e), and N.J.A.C. 16:72-1.5(e)14, NJ TRANSIT Rail Operations (RO) seeks authority to contract with and issue a Purchase Order (PO), to Transit Sourcing Services, Inc (TSS) of Concord, North Carolina, for the purchase of seven hundred twenty-eight (728) wheel "B" class 36" Multilevel (36" WBML), to acquire major equipment used to provide public transportation or transit operations, vital to the operation of NJ TRANSIT's Commuter Rail Fleet (CRF); and

WHEREAS, a price competition was conducted amongst approved equipment providers for this item until an Invitation for Bids currently advertised can be completed;

NOW, THEREFORE, BE IT RESOLVED that the Chair or President & CEO is authorized to enter into a Procurement By Exception NJ TRANSIT Contract No. 20-625 with Transit Sourcing Services, Inc. (TSS, Inc.) Part Number 03293-34-100 a.k.a. NJ TRANSIT Part No. 29990000.NEW) in the amount not to exceed $763,672.00, plus five percent contingency, for a total contract authorization of $801,855.60, subject to the availability of funds.

NJTRANSIT
The Way To Go.

Trans-Hudson Network Planning Strategy Study

Phase II Authorization Request:
COVID-19 Response

May 13, 2020

TRANS-HUDSON NETWORK PLANNING STRATEGY BOARD ACTION

Staff seeks authorization to enter Phase II of NJ TRANSIT Contract No. 19-038 (Trans-Hudson Network Planning Strategy), with **AECOM** of **New York, New York**, for professional services over a 18-month period. Board authorization is sought for additional funding in the amount not to exceed **$925,000**, plus 5% contingency.

- Phase I of the contract was approved by the board in September 2019 as a set of tasks related to Trans-Hudson travel needs.

- Phase II has been amended to respond to the Coronavirus Pandemic and includes research and analysis, demand forecasting, and service and operations planning to assist the company with a return to service, data driven approach.

The overall contract has a funding cap of $4,048,082.92 plus 5% contingency. Phase I funding authorization totaled $625,000 plus 5% contingency. This request for additional funds will bring the total authorized amount to $1,550,000, plus 5% contingency.

TRANS-HUDSON NETWORK PLANNING STRATEGY RESPONDING TO COVID-19

IMMEDIATE ASSIGNMENTS: Align current service plan to emerging travel changes

- Develop data & analytics to address emerging changes in markets, demand, and customer needs.
- Re-envision network service delivery strategy (research, coordination).
  - In support of NJ TRANSIT Bus and Rail Service Planning, develop strategies to achieve less passenger crowding/improved customer comfort.
- Provide enhanced coordination through NJ TRANSIT Executive Policy Group with state and federal agencies, regional transit providers, and relevant parties to coordinate information.

TRANS-HUDSON NETWORK PLANNING STRATEGY RESPONDING TO COVID-19

NEAR-TERM ASSIGNMENTS (3 to 6 months): Recovery Planning

- Develop mobility options to respond to changing travel markets (frequency and travel patterns for business and service industry sectors, i.e., activity nodes by hospitals, warehouses, supply chain locations)
- Provide research and scenario planning for a range of economic recovery forecasts
- Develop phased “return to service” approach in response to changing conditions related to technology, projected demand scenarios, public confidence, and best practices in coordination with NJTRANSIT EPG
- On-call consultant planning support in anticipation of federal stimulus funding (ridership data, MPO coordination, NEPA coordination)

TRANS-HUDSON NETWORK PLANNING STRATEGY RESPONDING TO COVID-19

MID-/LONG-TERM ASSIGNMENTS (6 to 18 months): Evaluation and Improvement

- Monitor, support and recommend changes to implementation of "early-stage" service and infrastructure improvements
- Develop measures to improve system connectivity and promote transit based multi-modal commutation in a post-pandemic environment, including service patterns and coordination, and additional data points for customers through Mobility-as-a-Service (MaaS) framework
- Assess impact of operational changes such as rear-door bus boarding and similar operational changes
- A Phase III request will be made once the needs of our returning customers are clear and we can proceed with the study tasks originally defined

TRANS-HUDSON NETWORK PLANNING STRATEGY
TASK REALLOCATION TO SUPPORT COVID-19 RESPONSE

	Tasks/Studies	When Benefits Come Online	2020 Winter	2020 Spring	2020 Summer	2020 Fall	2021 Winter	2021 Spring	2021 Summer	2021 Fall	2022 Winter	2022 Spring	2022 Summer	2022 Fall
	Phase I Tasks - reworked to address immediate need													
1	As Needed Services Phase 1 includes Task 1 NY Penn Amtrak Coordination		★											
2	Program Oversight and Monitoring		★											
3	Fare Analysis (Trans-Hudson Only)							★						
4	New NYC Ferry Terminal Study		★					★						
5	Support Regional Partner Initiatives			★										
6	George Washington Bridge Bus Station Initiatives								★					
	Phase II Tasks - Pending Funding Authorization													
7	As Needed Services Phase 2				★									
8	NEW -COVID-19 Mobility Data Research/Economic and Ridership Analytics	immediate and near-term		★										
9	NEW - Regional and Stakeholder Covid-19/Recovery Coordination	immediate and near-term		★										
10	NEW - New Mobility Options	near and mid-term			★									
11	NEW - Shovel Ready Projects Identification and Grant Application	near and mid-term		★										
12	NEW - Reorienting NJ TRANSIT Service Strategy	near and mid-term				★								
13	Multimodal Hubs Initiatives									★				
14	Expand Hoboken Division Capacity							★						
15	Improve Bus-to-Rail Connections									★				

ITEM 2005-29: TRANS-HUDSON NETWORK PLANNING STRATEGY CONTRACT AWARD

WHEREAS, NJ TRANSIT seeks to add capacity, flexibility, and mobility to our customers traveling throughout the Trans-Hudson public transit network; and

WHEREAS, NJ TRANSIT also seeks to provide options to its customers that will improve NJ TRANSIT's ability to address current and growing Trans-Hudson demand in the near term while also improving reliability and service delivery; and

WHEREAS, authorization of additional funds for this Professional Services Contract at this time will provide NJ TRANSIT with the necessary support to address immediate needs stemming from the COVID-19 pandemic; and

WHEREAS, upon completion of a competitive procurement process, it was determined that AECOM of New York, New York, submitted the most qualified, responsive, and responsible proposal; and

WHEREAS, at the September 2019 Board meeting the NJ TRANSIT Board granted a Partial Budget Authorization in an amount not to exceed $625,000, plus five percent contingency to fund tasks to be performed under Phase I; and

WHEREAS, NJ TRANSIT's Office of Business Development assigned a 25 percent Category 3 Small Business Enterprise (SBE) goal for this contract, and NJ TRANSIT's Office of Business Development reviewed the bid and identified 25.394 percent SBE participation; and

WHEREAS, NJ TRANSIT and consultant team lead by AECOM Associates entered into a fully executed contract on December 5, 2019 with a budget of $4,250,487.07, and authorized funding in the amount not to exceed $625,000, plus five percent contingency; and

WHEREAS, NJ TRANSIT is requesting additional authorization for Phase II of the contract, in the amount of $925,000, plus five percent contingency; and

WHEREAS, the purpose of the Phase II portion of the contract is to focus on identifying and responding to immediate needs stemming from the COVID-19 pandemic over the next 18 months; and

WHEREAS, the State of New Jersey Transportation Trust Fund is the anticipated source of funding for this project; and

WHEREAS, work on three Phase I study tasks, designed to focus on mobility and capacity needs that were identified prior to the COVID-19, will be deferred and funding repurposed to support Phase II tasks; and

WHEREAS, the two non-study tasks; one that provides program oversight and tracking, and the other that allows the consultant to aid NJ TRANSIT in performing technical review and comment on projects being performed by other agencies that interact with NJ TRANSIT infrastructure or have the potential to impact NJ TRANSIT services will not be deferred; and

WHEREAS, funding is available;

NOW, THEREFORE, BE IT RESOLVED, that the Chair or President & CEO is authorized to fund an additional $925,000, plus five percent contingency under NJ TRANSIT Contract No. 19-038 with AECOM of New York, New York, for Trans-Hudson Network Planning Strategy services to allow commencement of phase II of the contract, subject to the availability of funds.

ITEM 2005-30: ANNUAL NOTICE OF MEETINGS AND DESIGNATION OF BOARD SECRETARY

WHEREAS, the New Jersey Transit Corporation, NJ TRANSIT Rail Operations, Inc., NJ TRANSIT Bus Operations, Inc., NJ TRANSIT Mercer, Inc., NJ TRANSIT Morris, Inc. have regular meetings of the Board of Directors; and

WHEREAS, pursuant to the Open Public Meetings Law, P.L. 1975, c.231, an annual notice of regular meetings of the Board of Directors must be disseminated; and

WHEREAS, Public Law 2018, chapter 162 requires the Board to hold a minimum of 10 public Board meetings per year and one-half of the total number of meetings shall be held in the evening; and

WHEREAS, the Annual Notice of Meetings must be prominently posted in one public place reserved for announcements of this type, transmitted to newspapers, filed with the Secretary of State, and transmitted to any person who requests it; and

WHEREAS, Public Law 2018, chapter 162 requires the annual designation of a Board Secretary by the NJ TRANSIT Board of Directors;

NOW, THEREFORE, BE IT RESOLVED that the Annual Notice of Meetings, Exhibit A, for all of the Board of Directors' meetings during Fiscal Year 2021 is adopted; and

BE IT FURTHER RESOLVED that the Annual Notice of Meetings shall be disseminated in accordance with the provisions of the Open Public Meetings Act, P.L. 1975, c.231 and Public Law 2018, chapter 162; and

BE IT FURTHER RESOLVED that Joyce J. Zuczek is designated as Board Secretary of NJ TRANSIT and its subsidiaries.

EXHIBIT A

ANNUAL NOTICE OF MEETINGS: FISCAL YEAR 2021

NEW JERSEY TRANSIT CORPORATION
NJ TRANSIT RAIL OPERATIONS, INC.
NJ TRANSIT BUS OPERATIONS, INC.
NJ TRANSIT MERCER, INC.
NJ TRANSIT MORRIS, INC.

In accordance with the "Open Public Meetings Act," P.L. 1975, c.231 and Public Law 2018, chapter 162 the above organizations will hold regular meetings, open to the public, on the second Wednesday of the month for the period July 1, 2020 through June 30, 2021, except as noted below. The Board shall hold a minimum of 10 public board meetings per year. One-half of the total number of meetings of the Board shall be held in the evening.

Unless otherwise indicated, meetings will be held at NJ TRANSIT's Corporate Headquarters in Newark, New Jersey. The meetings will convene in the Board Room at NJ TRANSIT's Headquarters, One Penn Plaza East, Ninth Floor, Newark, New Jersey.

The specific dates and times are as follows:

July 15, 2020 (3rd Wednesday)	6:00 p.m. Evening
August 2020	NO MEETING
September 9, 2020	9:00 a.m.
October 21, 2020 (3rd Wednesday)	6:00 p.m. Evening
November 12, 2020 (2nd Thursday)	6:00 p.m. Evening
December 9, 2020	9:00 a.m.
January 2021	NO MEETING
February 10, 2021	6:00 p.m. Evening
March 10, 2021	6:00 p.m. Evening
April 14, 2021	9:00 a.m.
May 12, 2021	6:00 p.m. Evening
June 9, 2021	9:00 a.m.

ITEM 2005-31: REQUEST FOR CONTINGENCY AMENDMENT IN CASE OF NEED FOR SOLE SOURCE SPARE PARTS FOR MAY AND JUNE 2020

WHEREAS, NJ TRANSIT requires maintenance services and supplies to support the operation of various major equipment; and

WHEREAS, it is necessary to obtain these required maintenance items and services from specific sources; and

WHEREAS, NJ TRANSIT is unaware of other sources for these services; and

WHEREAS, pursuant to N.J.S.A. 27:25-11(g)(3)(c) competitive procurement requirements may be waived in instances where only one source of supply is available; and

WHEREAS, pursuant to N.J.S.A. 27:25-11(g)(3)(c) competitive procurement requirements may be waived when more favorable terms can be obtained from a primary source of supply; and

WHEREAS, pursuant to N.J.S.A. 27:25-11(g)(3)(b) competitive procurement requirements may be waived for technical services; and

WHEREAS, pursuant to N.J.S.A. 27:25-11(g)(3)(e) competitive procurement requirements may be waived with specialty vehicles, and signal and fare collection systems;

NOW, THEREFORE, BE IT RESOLVED that the Chair or President & CEO is authorized to amend Board Item #1906-32 FY2020 Fiscal Year procurement-by-exception Waiver Authorization to enter into sole source contracts for the purchase of materials and services from approved vendors set forth in Exhibit A1 (subject to adjustments) as necessary to support Bus, Rail, and Light Rail operations at an amended cost not to exceed $30,800,000, subject to the availability of funds. The original authorization for this board item was $28,000,000. This increase represents a 10 percent increase to the original board authorization.

EXHIBIT A1
AMENDMENT TO FISCAL YEAR 2020 PROCUREMENT BY EXCEPTION
VENDORS REPLACEMENT PARTS AND SERVICES

	Vendor	City	State
1.	A. Stucki Company	Sharon	PA
2.	Alstom Signaling Inc.	West Henrietta	NY
3.	Alstom Train Life Services	Naperville	IL
4.	Alstom Transportation Inc.	Lisle	IL
5.	Anchor Brake Shoe Co	Park Ridge	IL
6.	Ansaldo STS USA	Batesburg	SC
7.	Axion Technologies	Quebec	Canad
8.	Bombardier Transit Corporation	Ontario	Canad
9.	Burlington Safety (SBE)	Burlington	NJ
10.	Clever Devices	Syosset	NY
11.	Cooper Bearings Inc.	Georgetown	DE
12.	Cubic Transportation Systems Inc.	Tullahoma	TN
13.	Cummins, Inc. dba Cummins Sales &	Bristol	PA
14.	D & W Diesel Inc.	Auburn	NY
15.	Elcon Inc.	Minooka	IL
16.	Electro-Motive Diesel (EMD)	LaGrange	IL
17.	Enecon USA Inc.	Medford	NY
18.	Foley Inc.	Piscataway	NJ
19.	Fuji Semec Inc.	Quebec	CAN
20.	Gardner Denver Inc.	Quincy	IL
21.	GE Transformer Services	Tallmadge	OH
22.	General Electric Energy Systems	Charlotte	NC
23.	HARSCO Track Technologies	Cayce-West Columbia	SC
24.	Henkles and McCoy	York	PA
25.	Hirail Corporation	Lisbon	IA
26.	HiTran Corporation	Flemington	NJ
27.	Hogan Manufacturing Inc.	Escalon	CA
28.	Hotstart Manufacturing, Inc.	Spokane	WA
29.	Hudson Machine Works Inc.	Brewster	NY
30.	Interstate-Mc Bee LLC	Cleveland	OH
31.	Jamaica Bearings	New Hyde Park	NY
32.	Kato Engineering	Mankato	MN
33.	Kinkisharyo International LLC	Jersey City	NJ
34.	Knorr Brake Corp/NYAB	Westminster	MD
35.	Luminator-A Mark IV Industries	Plano	TX

EXHIBIT A1
AMENDMENT TO FISCAL YEAR 2020 PROCUREMENT BY EXCEPTION
VENDORS REPLACEMENT PARTS AND SERVICES

	Vendor	City	State
36.	Lux Aeterna	Quebec	Canada
37.	Matrix Railway Corp (DBE)	West Babylon	NY
38.	McConway & Torley, LLC	Pittsburgh	PA
39.	Merak North America LLC	Westminister	MD
40.	Microphor Inc.	Willits	CA
41.	Mitsubishi Electric Power Products Inc.	Melville	NY
42.	Motive Equipment	New Berlin	WI
43.	National Electric Carbon Corporation	Greenville	SC
44.	National Railway Supply	Savannah	GA
45.	National Refrigerants Inc.	Philadelphia	PA
46.	New Jersey Electric Motors	Somerville	NJ
47.	Norfolk Southern	Altoona	PA
48.	Omega Industries Inc.	Vancouver	WA
49.	ORX Railway Corporation	Tipton	PA
50.	Pandrol USA	Bridgeport	NJ
51.	Panel Component & Systems	Stanhope	NJ
52.	Paragon Products	El Dorado Hills	CA
53.	Parkeon Transit Limited	Poole, Dorset	Englan
54.	Peaker Services Inc.	Brighton	MI
55.	Powerrail Distribution Inc.	Duryea	PA
56.	Powertech Controls Company Inc.	Ronkonkoma	NY
57.	Precision Transmission	Colmar	PA
58.	Progress Rail Services	Albertville	AL
59.	Qual-Tran Corporation	Blue Bell	PA
60.	Quester Tangent	SAANICHTON, B.C.	Canada
61.	Railhead Corporation	Aslip	IL
62.	Railroad Friction Prod	Laurinburg	NC
63.	Ram Motors And Controls	Camp Hill	PA
64.	Rocla Concrete Tie Inc.	Bear	DE
65.	Rocore	Paducah	KY
66.	Saft America Inc.	Cockeysville	MD
67.	Scantron Corporation	Irvine	CA
68.	Schweitzer Engineering Labs	Pullman	WA
69.	Semec Inc.	Quebec	Canada
70.	Sherwood Electromotion	Ontario	Canada
71.	Siemens Industry Inc.	Florham Park	NJ

EXHIBIT A1
AMENDMENT TO FISCAL YEAR 2020 PROCUREMENT BY EXCEPTION
VENDORS REPLACEMENT PARTS AND SERVICES

	Vendor	City	State
72.	Simmons Machine Tool Corp.	Albany	NY
73.	Southern Signaling and Communications	Jacksonville	FL
74.	Stavola Construction Materials	Bound Brook	NJ
75.	Stewart & Stevenson Power	Lodi	NJ
76.	Stewart & Stevenson Power	Piscataway	NJ
77.	The Aftermarket Parts Company LLC	Delaware	OH
78.	Transtech of S.C.	Piedmont	SC
79.	UKM Transit Products Inc.	Harleysville	PA
80.	United States Technologies Inc.	Fairlawn	NJ
81.	USSC LLC	Exton	PA
82.	UTCRAS LLC	Morton	PA
83.	Vapor Stone Rail Systems	Plattsburgh	NY
84.	Vossloh Track Material Inc.	Reading	PA
85.	Wabtec Global Service Center	Kansas City	MO
86.	Wabtec Passenger Transit	Spartanburg	SC
87.	Warner Radiator	Paducah	KY
88.	Westcode Inc.	Chadds Ford	PA
89.	Whiting Corp.	Monee	IL
90.	Winchester Industries Inc.	Winsted	CT
91.	Windowman Inc.	South Bend	IN

ITEM 2005-32: PERSONAL INJURY CLAIM OF TERRY MAHER

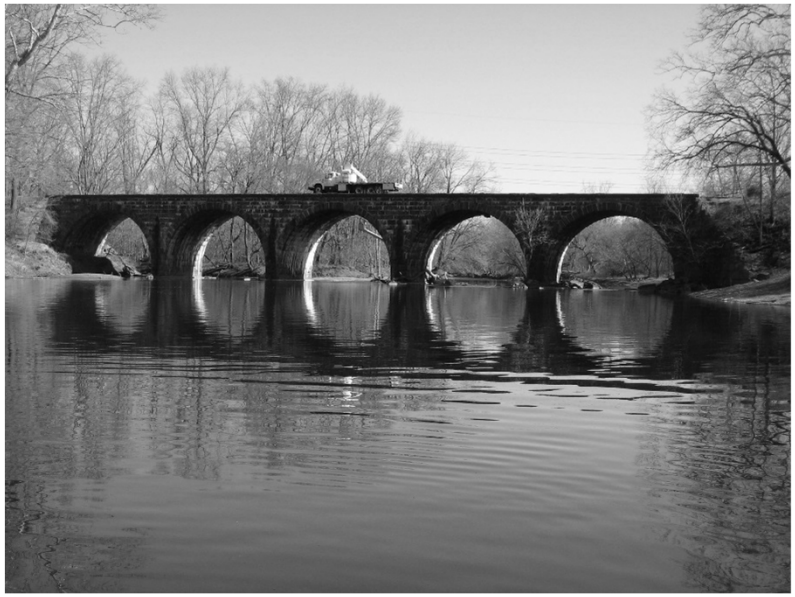
WHEREAS, Article VI, Section II of the By-Laws requires Board Authorization for settlement of claims in excess of $500,000; and

WHEREAS, Terry Maher has presented a claim with a probable settlement cost greater than $500,000; and

WHEREAS, staff has reviewed the claim and recommends settling this case out of court;

NOW, THEREFORE, BE IT RESOLVED that the Chair or President & CEO is authorized to settle the claim of Terry Maher through his attorney, at an amount discussed in executive session. The Attorney General has approved the proposed settlement, subject to the availability of funds.

ITEM 2005-33
CONSULTING SERVICES FOR IN-DEPTH INSPECTIONS, EVALUATIONS AND RATINGS OF UNDERGRADE RAILROAD BRIDGES, CONTRACT NO. 19-040



Seeking authorization to enter into three separate contracts with **Michael Baker Inc., HDR Inc, and Hardesty & Hanover** to perform in-depth inspections, evaluations and ratings of of 130 undergrade railroad bridges in an amount not to exceed $2,828,863.99, plus 5% for contingencies, subject to availability of funds.

- Source of Funds: State – TTF (Transportation Trust Fund)
- Total cost of $2.829M + 5% Contingency
- This project is vital to ensure NJ TRANSIT's continued compliance with the Federal Railroad Administration (FRA) regulations and NJ TRANSIT Bridge Management Program
- Data gathered will support NJ Transit's 5-year capital plan and its asset management strategy to ensure safe and reliable service for our customers

ITEM 2005-33: CONSULTING SERVICES FOR IN-DEPTH INSPECTIONS, EVALUATIONS AND RATINGS OF RAILROAD UNDERGRADE BRIDGES

WHEREAS, NJ TRANSIT is responsible for maintaining a total of 661 undergrade bridges of which 576 bridges are in active service, carrying trains over roadways, waterways, and other features; and

WHEREAS, these in-depth bridge inspections, evaluations and ratings are part of NJ TRANSIT's asset management strategy and its Bridge Management Program which emphasizes capital investments to restore critical aging infrastructure to a state of good repair and ultimately ensure safe and reliable service for our customers; and

WHEREAS, on June 14, 2019, a Request for Proposal (RFP) was advertised and thirteen (13) proposals were received from prospective consultants on July 26, 2019; and

WHEREAS, upon completion of a competitive procurement process, Michael Baker Inc., HDR Inc., and Hardesty & Hanover were found to be three (3) of the top six (6) technically ranked firms providing the best value to NJ TRANSIT and were selected to perform the in-depth inspections, ratings evaluations for the bridges to be inspected in 2020.

NOW, THEREFORE, BE IT RESOLVED that the Chair or President & CEO is authorized to enter into NJ TRANSIT Contract No. 19-040D with Michael Baker Inc. of Hamilton, New Jersey, 19-040E with HDR Inc. of Newark, New Jersey, and 19-040F with Hardesty & Hanover of West Trenton, New Jersey, to provide in-depth inspections, ratings and evaluations of 130 undergrade railroad bridges at a cost not to exceed $975,228.65, $1,096,281.51, and $757,353.83 for a total cost of $2,828,863.99, plus five percent for contingencies, subject to the availability of funds.

EXECUTIVE SESSION AUTHORIZATION

BE IT HEREBY RESOLVED pursuant to N.J.S.A. 10:4-12 and N.J.S.A. 10:4-13 that the Board of Directors of the New Jersey Transit Corporation hold an executive session to discuss personnel matters, contract negotiations, the status of pending and anticipated litigation, and matters falling within the attorney-client privilege, including, but not limited to the Lease of Two Hudson Place, Hoboken, New Jersey for the Relocation of NJ TRANSIT Employees Working in the Hoboken Terminal Long Hall, the Modification of Parking Covenant in Dover, New Jersey, and the Corporate Insurance Program Annual Renewal; and

BE IT FURTHER RESOLVED that it is expected that discussions undertaken at this executive session could be made public at the conclusion of these matters as appropriate.