4.13 Safety and Security

A. INTRODUCTION

The safety and security of rail passengers, pedestrians, transit operator personnel, and contractor employees has been considered in this section in the context of maintaining and protecting existing and proposed commuter rail operations and passenger stations.

B. EXISTING CONDITIONS

NEW JERSEY

FRANK R. LAUTENBERG STATION

This station is owned and operated by NJ TRANSIT. It affords passengers a transfer from NJ TRANSIT Main Line/Bergen County, and Pascack Valley lines to NEC trains bound for Manhattan or Newark, New Jersey. The station is protected with a fire alarm system, fire extinguishers and smoke detectors. Closed-circuit television (CCTV) camera surveillance and emergency call-for-aid stations are located on station platforms and inside the passenger station. The station platforms and station itself are well lit, and equipped with emergency lighting. Station platforms are ADA-compliant, with appropriate tactile warning strips. Escalators with emergency shut-offs provide access to and from station platforms, and require purchase of a ticket to open the turnstiles located in the station.

NEC TRACKS

The track alignment in this portion of the project area is surrounded by industrial buildings and wetlands. NJ TRANSIT and Amtrak have provided operating crews with security awareness information and training related to security along the NEC right-of-way.

NJ TRANSIT as an organization has policies and protocols in place to react to security threats and emergency situations, including alternative service plans for the NEC if it is unable to operate through the North River Tunnels or into PSNY. NJ TRANSIT, PANYNJ, and Amtrak work together to coordinate their approach to security threats and emergencies.

HUDSON RIVER

Over the past decade, increasing concerns relating to fire/life safety issues in PSNY and the rail tunnels leading to and from New Jersey and New York have been addressed by Amtrak, NJ TRANSIT and LIRR.

Specific to the ARC alignment/project area, the following fire/life/safety initiatives were/are being undertaken:

- Updating of Wayside communications throughout both North River Tunnels, completed in November 2004.
- Replacement of lighting throughout the North River Tunnels.
- Replacement of ladders in both North River Tunnels on each side of a passing train. On each bench wall, which is no higher than the track, ladders are situated approximately 300 feet apart, which can be used to evacuate passengers to track level.

- Installation by Amtrak of third rail power in the North River Tunnels between PSNY and Bergen Interlocking, located just west of the existing tunnels portal. This improvement would enable use of LIRR equipment, which is powered by a 600-volt DC third rail system, to rescue a disabled passenger train in the tunnels, if catenary power would not be available.
- Construction of a dry standpipe system in the North River Tunnels. "Phase 1" construction of the standpipe infrastructure has been completed. A supervisor system, which consists of compressed air, has been installed as "Phase 2."
- Installation of CCTV cameras at the west end portal of both North River Tunnels and the entrance to the Weehawken Shaft.
- Reconditioning of floodgates that were originally installed in the east end (PSNY) of the North River Tunnels.

NJ TRANSIT as an organization has policies and protocols in place to react to security threats and emergency situations, including alternative service plans for the NEC if it is unable to operate through the North River Tunnels. NJ TRANSIT, PANYNJ, and Amtrak work together to coordinate their approach to security threats and emergencies.

NEW YORK

Amtrak and NJ TRANSIT passenger trains operate in PSNY, powered by a 12 kV electrical catenary system. LIRR trains are powered by a 600-volt DC third rail system. Fire protection in the station consists of fire alarms, smoke detectors, standpipe systems and fire extinguishers. PSNY has an established Incident Command Center utilized by emergency response personnel and railroad management in the event of a station fire or emergency.

PSNY consists of three station levels; passengers utilize a combination of stairways, elevators and escalators as means of access and egress from street to track level. Emergency egress and access to Level B is also possible through the LIRR concourse. Elevators are not fire-hardened, and cannot be used as a means of egress in a fire emergency.

Security in PSNY is predominately the responsibility of Amtrak and Metropolitan Transportation Authority (MTA) Police, supported by New York City Police – Transit Division (NYPD) and NJ TRANSIT police. Police presence consists of regular patrols throughout the station at each level. CCTV is utilized in critical access and egress areas and ticket offices. National Guard troops have been deployed at PSNY since 9/11 to supplement local law enforcement personnel.

NJ TRANSIT as an organization has policies and protocols in place to react to security threats and emergency situations, including alternative service plans for the NEC if it is unable to operate into PSNY. NJ TRANSIT, PANYNJ, LIRR, Metro-North Railroad, MTA, and Amtrak work together to coordinate their approach to security threats and emergencies. The Penn Station Security Task Force (PSSTF) assesses threats and vulnerabilities at PSNY, conducts drills, and coordinates safety and security activities of the various stakeholders. A Fire Life Safety Committee ensures appropriate coordination among emergency responders and agencies within PSNY.

C. FUTURE NO BUILD CONDITIONS

The North River Tunnels are almost one hundred years old, and would continue to need infrastructure improvements relating to tunnel structure, catenary, communications, signals and track to maintain and secure this major transportation corridor. As ridership demands increase, additional trains would be

required to meet this demand in an already congested operation. Safety and security demands would require continued improvements for safe train operations, including communications and train movement. The safety and security of passengers utilizing NEC stations would also become more difficult as station congestion increases. It is assumed that security would be provided by the respective agencies and patrols identified for existing conditions.

NEW JERSEY

SECURITY THREATS AND VULNERABILITIES

Security measures identified in Existing Conditions would continue to be in place. No significant additional Security Threat and Vulnerability analyses would be required.

EMERGENCY OPERATIONS PLANS, PROCEDURES, AND ACTIVITIES

No additional operational plans or procedures would be required.

HUDSON RIVER

SECURITY THREATS AND VULNERABILITIES

Rehabilitation and upgrades of safety and security elements of the North River Tunnels, as identified for Existing Conditions, would continue, as financing becomes available.

EMERGENCY OPERATIONS PLANS, PROCEDURES, AND ACTIVITIES

Emergency evacuation procedures for the North River Tunnels would continue to be reviewed and assessed, as rehabilitation and upgrade work in the tunnels progresses.

NEW YORK

SECURITY THREATS AND VULNERABILITIES

No significant additional Security Threat and Vulnerability analyses would be required. The PSSTF would continue to assess threats and vulnerabilities at PSNY, conduct drills, and coordinate safety and security activities of the various stakeholders operating in the station. The Fire Life Safety Committee would continue to ensure coordination among emergency responders and agencies.

EMERGENCY OPERATIONS PLANS, PROCEDURES, AND ACTIVITIES

No additional operational plans or procedures would be required.

D. LONG-TERM IMPACTS OF THE BUILD ALTERNATIVE

BACKGROUND

Emergency Preparedness Committees have been established by NJ TRANSIT for New Jersey and New York to ensure the appropriate coordination and response of each municipal emergency response agency in communities around the project. These Emergency Preparedness Committees are chaired by NJ TRANSIT. The Committees provide guidance and input into the design and eventual construction, testing and operation of the proposed tunnels and NYPSE, as well as Frank R. Lautenberg Station. These committees play an important role in the development of design criteria, construction and operation plans/procedures, tabletop exercises and emergency field exercises in preparation for revenue service. The Emergency Preparedness Committees will continue to serve in this capacity through to revenue service, at which point NJ TRANSIT operations will assume their functions and coordinate with the existing PSNY Fire Life Safety Committee and Amtrak.

To ensure that effective plans, procedures and rules are established in the event of an emergency, a System Security and Emergency Management Preparedness Program Plan (SSEMPPP) will be developed as part of the Build Alternative and instituted prior to the initiation of revenue service. This plan will identify the organizational structure responsible for emergency response. The plan will also contain information on emergency response protocol, security protocol, and evacuation plans and procedures in the event of a fire or security emergency. To further educate the emergency responders, a Fire Life Safety Report is being developed to explain the safety features in the proposed tunnels and station, the design specifics related to emergency access and egress, and the security and fire suppression systems.

NEW JERSEY

SECURITY THREATS AND VULNERABILITIES

Greater demands on emergency services and threat response capabilities would result from increased train service and frequency, especially within the proposed Palisades tunnels. Current security risk evaluation and mitigation activities would be applied to the Palisades tunnels. At present, NJ TRANSIT conducts periodic Threat and Vulnerability Analyses (TVA) and reviews of its system assets; any modifications due to the Build Alternative would require additional analyses at Frank R. Lautenberg Station, along mainline or ancillary trackage in New Jersey, and in the proposed Palisades tunnels. The TVA conducted would determine those threats that would be germane to the Build Alternative. They would also identify the degree to which expanding trackage and creating new tunnels would be vulnerable to such threats, and assist in determining those security elements that would be included in Build Alternative design to deter or mitigate identified threats. The applicable agency Security Committee would be responsible for implementation of this program, with safety and security managers playing primary roles in the SSEMPPP process. NJ TRANSIT would identify security vulnerabilities, resulting in the appropriate placement of CCTV camera surveillance and, in the case of the Palisades tunnels, intrusion detection systems.

EMERGENCY OPERATIONS PLANS, PROCEDURES, AND ACTIVITIES

Frank R. Lautenberg Station

The System Safety and Security process began during the planning phase and would continue through the life cycle of the Build Alternative. A Safety and Security Management Plan (SSMP) is being developed that defines the organization and approach used to address safety and security from Preliminary Engineering through construction. Explained in this plan is the formal process and approach to safety and security analysis. The SSMP would also delineate responsibilities for implementing and administering the safety and security programs for the project.

As part of the SSMP, a Safety and Security Certification Plan (SSCP) is being developed to outline the safety and security technical and management requirements for the project and the activities that would be performed for design verification, construction verification, acceptance testing, integrated testing operational readiness assessments, management of open items, and issuance of Final Certificates of Conformance and the Final Verification Report demonstrating operational readiness for the Build Alternative.

To evaluate safety of the Build Alternative, a Preliminary Hazard Analysis (PHA) and other related analyses would serve to identify potential hazards associated with the Build Alternative tunnels, as well as station and train operations. The PHA is currently being developed for the project. Project design engineers would then mitigate or protect against identified hazards in their design. The new construction would be divided into "Certifiable Elements," such as track, electrical systems and fire protection. It is the responsibility of the design engineer, with the assistance of the management team and Emergency Preparedness Committee, to ensure that federal, state, and local safety regulations, and safety design

criteria are met. These elements would be closely analyzed for design criteria, industry standards, and code compliance. Safety- and security-related requirements would then be placed on a checklist in accordance with the requirements of the SSCP, and would be used to verify that the design criteria meets applicable codes and regulations and that the Build Alternative has been constructed in accordance with the design criteria.

A project management team and Emergency Preparedness Committee have been established and would function through each phase of the Build Alternative to review design drawings and address safety-related issues. The design would comply with applicable safety requirements, including adhering to codes and regulations, operations and maintenance rules and procedures would be developed, and appropriate safety training programs would be implemented, as required by the SSCP. The Build Alternative would be constructed in accordance with the design drawings and specifications. If a given item is not completed, the item would be reviewed by the management team for an acceptable workaround or hazard mitigation prior to advancing into revenue service. The final document in the safety certification process would be the Safety Certification Verification Report (SCVR), which would include certificates of operational readiness for each certifiable element. Any workarounds for incomplete construction or open safety hazards would be listed in this report with the appropriate mitigation for revenue service. Open safety hazards or line items would be tracked to ensure completion at a later date. Certification would support improved integration of operational considerations into project design, which would offer opportunities in the following areas:

- Improved functionality of system design
- Promotion of effective and efficient use of resources
- Reduction in work-arounds and change orders during construction
- Reduction in hazards in service and maintenance activities

The process for the development of the security portion of the SSCP would be essentially analogous to the safety component of the SSCP, including the development of security-certifiable elements during construction, ultimately incorporated in the SCVR. However, instead of a PHA, a TVA is being conducted. Security measures at Frank R. Lautenberg Station would include CCTV camera surveillance and emergency call-for-aid stations on the new station platform.

Additional emergency services at Frank R. Lautenberg Station would include emergency lighting systems to accommodate new Build Alternative tracks and the new platform. Escalators similar to those already installed in the station would be needed. The management team would have to re-evaluate physical and operational security and safety measures and deployments, factoring in a new station platform (e.g., an additional station platform would also require tactile warning strips in compliance with ADA regulations).

Mainline and Ancillary Tracks

Surveillance along the alignments by operating crews would continue. CCTV cameras and intrusion detection devices installed at bridges and at the proposed Palisades tunnels portal would provide enhanced security for the rail system. No modification to emergency services would be expected.

In addition, Life Safety Emergency Access Roads would be constructed parallel to, and just beyond, the outside edge of the mainline and tracks to provide a direct means of access during emergencies.

Palisades Tunnels

A System Safety approach would be applied for safety and security enhancements for the new Build Alternative tunnels. The Emergency Preparedness Committee would address safety-related issues relating to tunnels design, construction and operation, as outlined in the SSCP and SSMP.

Emergency services for the new Palisades tunnels would include ventilation systems that would be SCADA-controlled from the Station Operations Center (SOC) located in NYPSE, providing the means to move smoke and heat away from passengers and emergency responders in the event of a fire.[1] This condition would require training railroad operating personnel to activate the tunnels ventilation system functions based on the location of the fire. The tunnels would also be equipped with a standpipe system and multipurpose fire extinguishers located in appropriate areas. "Blue Light" stations would be located in designated areas within the tunnels in compliance with National Fire Protection Association (NFPA 130, 2007) and American National Standards Institute (ANSI) standards and regulations. These "Blue Light" stations would enable removal of electric traction power locally and provide a communication system to the SOC and emergency responders. Passengers would be provided a safe means of egress from within the tunnels in the event of an incident requiring train evacuation. This egress would be afforded by designated passageways constructed between the two tunnel tubes, for use when one of the tubes must be shut down for response to an emergency. Appropriate lighting systems would be installed for the full length of the system with emergency back up systems to facilitate tunnels maintenance and emergency response.

Fan plants/access shafts would be constructed in New Jersey and New York to provide emergency tunnels ventilation in the event of a fire, in addition to tunnels ventilation under normal operations.

HUDSON RIVER

SECURITY THREATS AND VULNERABILITIES

Greater demands on emergency services and threat response capabilities would result from increased train service and frequency, especially within the new Hudson River tunnels. The TVA would determine those threats that would be germane to the Build Alternative. They would also identify the degree to which expanding trackage and creating new tunnels would be vulnerable to such threats, and assist in determining those security elements that would be included in Build Alternative design to deter or mitigate identified threats. The applicable agency Security Committee would be responsible for implementation of this program, with safety and security managers playing primary roles in the SSEMPPP process. NJ TRANSIT would identify security vulnerabilities, resulting in the appropriate placement of CCTV camera surveillance and intrusion detection systems in the tunnels.

EMERGENCY OPERATIONS PLANS, PROCEDURES, AND ACTIVITIES

System safety measures would be required by the proposed Hudson River tunnels. The Emergency Preparedness Committee would address safety-related issues relating to tunnels design, construction and operation, as outlined in the SSMP and SSCP.

Emergency services for the new Hudson River tunnels would include ventilation systems that would be SCADA-controlled from the SOC located in NYPSE, providing the means to move smoke and heat away from passengers and emergency responders in the event of a fire. This condition would require training railroad operating personnel to activate the tunnels ventilation system functions based on the location of the fire. The tunnels would also be equipped with a standpipe system and multipurpose fire extinguishers located in appropriate areas. "Blue Light" stations would be located in designated areas within the tunnels in compliance with NFPA and ANSI standards and regulations. These "Blue Light" stations would enable removal of electric traction power locally and provide a communication system to the SOC and emergency responders. Passengers would be provided a safe means of egress from within the tunnels

[1] SCADA (Supervisory Control and Data Acquisition): A system that monitors and controls equipment through a central computer system at the SOC that receives inputs from remote sensors. In the case of tunnel ventilation equipment, sensors would detect a fire or smoke incident and communicate with the SOC, where the information would be displayed to its operators. A signal would be sent back through the system to operate the ventilation equipment in an appropriate emergency response.

in the event of an incident requiring train evacuation. This egress would be afforded by designated passageways constructed between the two tunnel tubes, for use when one of the tubes must be shut down for response to an emergency. Appropriate lighting systems would be installed for the full length of the system with emergency back up systems to facilitate tunnels maintenance and emergency response.

Fan plants/access shafts would be constructed in New Jersey and New York to provide emergency tunnels ventilation in the event of a fire, in addition to tunnels ventilation under normal operations.

NEW YORK

SECURITY THREATS AND VULNERABILITIES

Greater demands on emergency services and threat response capabilities would result from increased train service and frequency, especially within the proposed Manhattan tunnels leading to NYPSE. The TVA would determine those threats that would be germane to the Build Alternative. They would also identify the degree to which expanding trackage and creating new tunnels would be vulnerable to such threats, and assist in determining those security elements that would be included in Build Alternative design to deter or mitigate identified threats. The applicable agency Security Committee would be responsible for implementation of this program, with safety and security managers playing primary roles in the SSEMPPP process. NJ TRANSIT would identify security vulnerabilities, resulting in the appropriate placement of CCTV camera surveillance and intrusion detection systems in the tunnels and NYPSE.

EMERGENCY OPERATIONS PLANS, PROCEDURES, AND ACTIVITIES

The addition of new tunnels, additional trackage, and new station capacity would require system safety and security measures. An SSCP would be developed to reduce the need to correct for hazards or vulnerabilities discovered after the system is operational, and an SSEMPPP would be developed to guide safety and security activities once expanded revenue service begins.

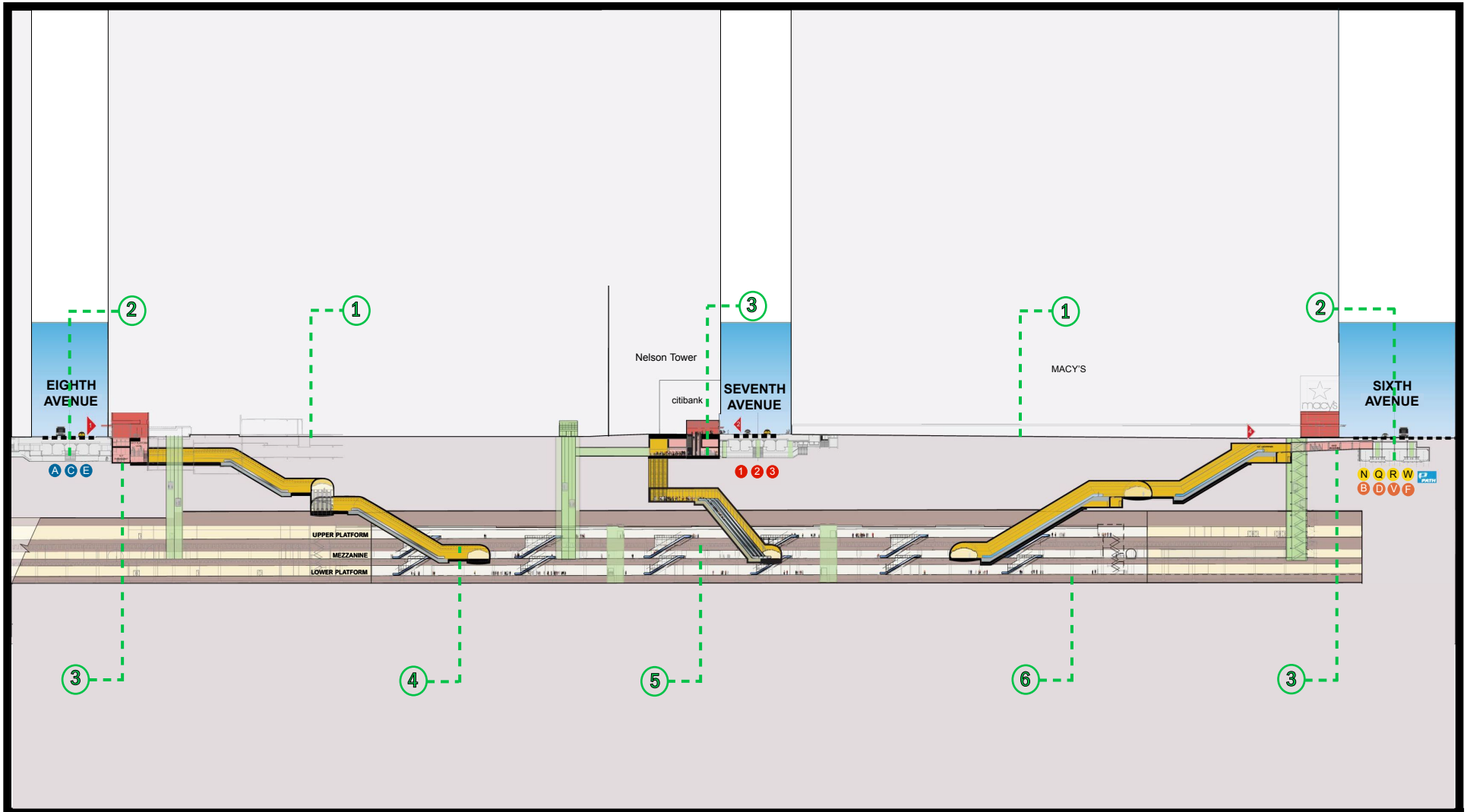
New York Penn Station Expansion

The safety and security of NYPSE would be enhanced through various design features. NYPSE would consist of three underground levels as shown on **Figure 4.13-1**:

- An upper platform level with three tracks serving one center and one side platform
- A lower platform level with three tracks serving one center and one side platform
- An intermediate mezzanine providing ticket vending, waiting space, horizontal and vertical circulation devices to and from the platform levels and the street entrances, and transit connections to PSNY and NYCT

Each of the three station levels would also contain non-public/ancillary equipment rooms and back-of-the-house operational facilities, including security/police personnel offices and detention cells.

Lighting would be provided consistent with American Public Transportation Association (APTA) standards at illumination levels associated with various functional activities to be accommodated within NYPSE.



Legend

1. Street Level
2. Subway Platform Level
3. Subway Connection Level
4. Mezzanine Level
5. Upper Platform Level
6. Lower Platform Level

Source: Transit Link Consultants, 2008 *Not to Scale*

Access to the Region's Core
Final Environmental Impact Statement

Figure 4.13-1
ARC Build Alternative
New York Penn Station Expansion: Cross-Section

NJTRANSIT The Way To Go.

Safety and security of rail patrons would be provided through an extensive system of CCTV strategically located and monitored in three security kiosks within the public areas of the station mezzanine, as well as at the non-public security center for NYPSE. Public address systems for both general and emergency announcements, as well as visual paging display systems, would also be provided throughout the station in the public and non-public areas. Emergency phones would be located throughout the complex. Extensive signage and graphics would accompany television monitors at key decision points with the capability of displaying remotely-activated messages associated with both normal and emergency operations.

Passenger access and egress would meet NFPA 130 (2007) standards. Two independent emergency stairs from each of the three primary station entry areas would be provided. One stairway would be dedicated to emergency egress and the other stairway would be dedicated for use by EMS and security personnel. Elevators would be incorporated into designated points of safety within NYPSE, and fire hardened to allow passengers to use the elevators in the event of a fire or smoke emergency, enhancing emergency evacuation from the lowest level in NYPSE.

State-of-the-art fire protection systems would be installed, providing for standpipe and sprinkler systems, an under-car mist system, and smoke detection and communication systems. "Blue Light" stations located at the station platform level or in the tunnels would facilitate traction power shut off and communication in the event of an electrical emergency or fire at track level. State-of-the-art ventilation systems, including the designated four fan plants, would enhance NYPSE's ability to remove smoke and fumes in the event of a fire at track level. The new tunnels would also enhance the ability to provide additional train service out of New York City in the event of a citywide emergency, or railroad operational problems in the North River Tunnels.

Storage tracks would be located on both the upper and lower levels of NYPSE at its western end to provide for storage of a rescue locomotive in the event of a train becoming disabled in the station or tunnels.

An Emergency Preparedness Committee would also be formed to work closely with the management team. This committee would consist of emergency responders and project management, providing input on design issues involving emergency response in PSNY.

PROPOSED TRAIN EQUIPMENT AND OPERATIONS

Dual-power locomotives, capable of operating in both diesel and electric modes, would be necessary to provide service through the proposed Build Alternative tunnels from non-electrified segments of the NJ TRANSIT rail network (i.e., Main/Bergen/Pascack Valley lines, Raritan Valley Line, outer limits of North Jersey Coast Line). As described in Chapter 2, NJ TRANSIT has undertaken a program to purchase, manufacture and test dual-power locomotives that operate with diesel and electric catenary power. This development process would include the preparation of a System Safety Plan in cooperation with the Federal Railroad Administration (FRA), the FTA, public safety agencies in New York City, New Jersey municipalities that have jurisdiction over the communities affected by ARC and the public. The System Safety Plan would be prepared prior to manufacture of the locomotives. This safety plan would be based on risk assessment and mitigation and would encompass the following:

- A risk assessment that contrasts the new design with existing single-power and dual-power locomotives.
- An assessment of the risk posed by the significant fuel load.
- A risk mitigation consideration that focuses on the strength of the fuel tank structure and the proven techniques that can be used to minimize any spillage in the event that the tank is breached.

- A fuel ignition risk assessment that takes into account the location of any third-rail installation relative to the tank.
- An assessment of the on-board means for fire detection and warning.
- An assessment of the standard on-board hand-held extinguisher means of fire suppression in contrast to the on-board suppression equipment included on the LIRR DM-30 locomotives.

Following the above guidelines, the locomotive System Safety Plan would be developed in full during the design phase with the manufacturer following the contract award. Furthermore, as with all new rail vehicle programs, the verification and validation of the safety aspects of the equipment would be a vital part of the test plan to be submitted to the FRA under 49CFR238.111, while the test procedures and results would become part of the Public Safety Record.

The safe use of dual-power locomotive-hauled trains with FRA-compliant vehicles operating within tunnels under the Hudson River and East River and PSNY and Grand Central Terminal has been standard practice for the LIRR, Metro-North and Amtrak for a number of years. Dual-power locomotive-hauled trains capable of operating in either diesel or electric third-rail propelled modes are used for Amtrak Empire service and operate through the Empire Tunnel. LIRR uses dual-power equipment on branches that operate from Long Island to New York City via the East River Tunnels. Metro-North uses dual-power equipment to operate through the Park Avenue tunnels to Grand Central Terminal.

Dual-power locomotive-hauled trains on the LIRR have been "fire hardened" by specialized construction of these diesel fuel tanks. Each tank is constructed of an outside casing of high-impact, puncture-resistant metal with a high temperature rated "flash-point" index. The inside casing is constructed of flame retardant materials designed to mitigate spillage.

A restriction is in place on "diesel-fuel-laden equipment" operating in the North River Tunnels. The restriction, self imposed by Amtrak, is for trains using operative diesel engines; not for dual-power trainsets operating in electric mode. The various railroads using dual-power technology have "self-regulated" their operation within the confines of tunnels, which would be applied to operation in the new Hudson River tunnels and NYPSE. The Fire Department of the City of New York (FDNY) is aware of the types of equipment operating into New York terminals, and has been coordinated with regarding design of dual-power equipment. NJ TRANSIT would continue to coordinate with FDNY regarding design and operation of such equipment in the proposed Hudson River and Manhattan tunnels.

E. MITIGATION

- NJ TRANSIT will continue to develop a Safety and Security Management Plan (SSMP) to define the organization and approach used to address safety and security from Preliminary Engineering through construction. The SSMP will include a Safety and Security Certification Plan (SSCP), the results of the Preliminary Hazard Analysis (PHA) and Threat and Vulnerability Analyses (TVA), and development procedures for the System Security and Emergency Management Preparedness Program Plan (SSEMPPP).
- NJ TRANSIT will develop a SSEMPPP prior to the initiation of revenue service. The SSEMPPP will identify the organizational structure responsible for emergency response and will contain information on emergency response protocol, security protocol, and evacuation plans and procedures in the event of a fire or security emergency.

- NJ TRANSIT will coordinate with New Jersey municipal fire departments, North Hudson Regional Fire and Rescue Company, emergency medical services, and New Jersey municipal police departments regarding operation of diesel fuel-laden equipment in the proposed Palisades and Hudson River tunnels.
- NJ TRANSIT will coordinate with FDNY, emergency medical services, and NYPD regarding operation of diesel fuel-laden equipment in the proposed Hudson River and Manhattan tunnels and NYPSE.