

A. INTRODUCTION

This chapter identifies safety and security considerations related to the design and operation of the East Side Access Project's Preferred Alternative, including new tunnels, stations, and redeveloped yards. In addition, it considers the effects of an increased number of trains traversing at-grade crossings throughout the Long Island Rail Road (LIRR) system, as a result of the Preferred Alternative. These effects include the potential for an increased number of train/motor vehicle collisions and train/pedestrian collisions. Construction-related safety and security considerations are described in Chapter 17, "Construction and Construction Impacts."

A System Safety and Reliability Assurance program has been developed for the Preferred Alternative, framed on principles established by the American Public Transit Association for construction of new underground systems. The objective of the program is to define key requirements and constraints to facilitate a structured, effective, and efficient safety program for the operation of the proposed new service into Grand Central Terminal (GCT).

The program includes the following:

- Definition of roles and responsibilities for an ongoing safety management organization.
- Identification, assessment, documentation, and management of safety hazards.
- Fire/life safety protection policy and criteria.
- Methods to ensure that local, state, and federal standards and regulations are met and that adequate documentation is readily available for approval by regulatory bodies, as required.
- Process and criteria for management of safety issues through specifications, design, construction, testing, and verification.
- Procedures to ensure required level of safety for the vehicle and wayside systems and for each of their subsystems.
- Procedures to ensure proper integration of safety documentation into the overall system.
- Procedures to guide the oversight of the vehicle procurement to ensure that applicable standards for fire/smoke retardation and egress are provided and that hazards are practically mitigated.
- Procedures to guide the oversight of the systems design efforts to ensure that applicable standards for annunciation, detection, and automatic system response to life safety threats are provided and the overall system reliability meets program goals.
- Guidelines for developing a safety certification program that will verify the inclusion of safety-related items in the design, testing, and operation of the system and set the framework for the successful safety management system in revenue operations.

Specific measures that would be implemented into the design of the tunnels, tracks, yards, and stations associated with the East Side Access Project are discussed below.

B. TUNNEL SAFETY MEASURES

The project's new tunnels would incorporate the safety and reliability policies of the LIRR and the fire/life safety codes and standards of the State of New York and the National Fire Protection Association (NFPA) 130, 72, 101, 241. The safety measures expected to be provided in the tunnels are typical for new underground rail systems in North America and would include seven primary features, discussed below. Fire/life safety, security and ventilation systems would be monitored and controlled from an Operations and Control Center as defined in NFPA 130.

FIRE DETECTION AND ALARM

A fire detection and alarm system would be provided to automatically detect a fire/smoke incident and notify the authority having jurisdiction and the planned control center. The proper actions would then be undertaken by control center staff to ventilate the vicinity of the incident and to provide a means of egress as smoke-free as possible for passengers and access for emergency services.

EMERGENCY VENTILATION FOR SMOKE CONTROL

Emergency ventilation systems would be provided to remove smoke from each tunnel area quickly and efficiently. The emergency ventilation systems would be controlled from the planned control center with alternate means provided from a local Fire Management Panel (FMP) accessible by the fire services. These systems would be powered from both commercial and local emergency sources to ensure complete availability when needed.

EMERGENCY LIGHTING

Emergency lighting would be provided in the tunnels to maintain a minimum level of illumination along the path of exit from an incident area. This emergency lighting would be backed up by an emergency power source to ensure complete availability when needed.

EMERGENCY EXITS

Emergency exits would be provided to allow rapid egress to the surface from any point in the tunnels. The emergency exits would be illuminated and ventilated to provide a means of egress as smoke-free as possible from the tunnels. In addition, signage directing passengers and crews to the appropriate emergency exits would be installed.

FIRE STANDPIPE AND HOSE SYSTEMS

Tunnel fire standpipe systems would be provided per NFPA 130, so as to provide water supply throughout the tunnels, if needed by the fire department. Temporary fire standpipe systems would be provided in tunnels under construction for fire department use, in the case of a fire emergency.

EMERGENCY COMMUNICATIONS

Developed in consultation with local police and fire services, emergency telephone networks and radio communications would be provided throughout the tunnels and stations. In this

manner, all emergency services personnel responding to an incident in the tunnels would have reliable and independent means of communicating with their command centers and supervisory staff.

BLUE LIGHT STATIONS

At locations along the new tunnel tracks, “blue light” stations would be provided. These are stations that would provide authorized personnel with the capability to communicate with the Operations and Control Center, and to disconnect traction (third-rail) power, so that, in the event of an emergency, passengers and crew may exit the trainway in safety.

C. YARD SAFETY MEASURES

The greatest level of public safety can be provided by controlling and restricting public access to railroad yards. The following measures could potentially be taken at each yard for public safety and security reasons:

Yard A/Arch Street Yard, which would include vehicle storage operations and a maintenance shop, would be a 24-hour operation. It is currently grade-separated from all surrounding public areas. A low-level security lighting system could be provided for areas of the yard that would not be active at night. A security patrol may be required during nighttime hours.

At Highbridge Yard, a security fence along the perimeter of the facility, closed circuit television (CCTV), and a low-level security lighting system could help secure the yard during non-operating hours.

Fresh Pond Yard and Blissville or Maspeth Yard (which would be operated by New York & Atlantic Railway) would be 24-hour operations and would not require a high level of security. Fencing around the perimeter of the yards would be provided as needed, but security lighting would probably not be provided. At *any new storage yards* on Long Island, fencing would be provided, as needed, along the perimeter of the yards.

D. SUNNYSIDE STATION SAFETY MEASURES

Since 90 percent of the passengers alighting and boarding trains at Sunnyside station would arrive and depart by foot, safety and security considerations at the new station include areas on sidewalks and streets providing access to the station, in addition to areas within the station itself.

STATION SAFETY

Sunnyside station is being designed in accordance with LIRR Station Design Guidelines, the requirements of the Americans with Disabilities Act (ADA), and applicable fire and safety codes. All public station areas, including the station headhouse, pedestrian walkways, platforms, elevators, ticket windows and public restrooms, would be able to accommodate customers in wheelchairs and those who are visually impaired. Emergency exits, sprinklers, and fire extinguishers would be provided where required by the applicable codes. A ventilation system for the station would cool the inside of the station during the summer, and provide adequate air-flow throughout the year.

STATION SECURITY

Sunnyside station would be designed to minimize areas of personal isolation and to promote a secure environment. The following concepts would be applied:

- A design that provides for a phased closure of station spaces, correlating to time of day and service needs. Station access points would be limited and controlled to facilitate clustering of customers for security.
- The internal passageways would enable LIRR customers to circulate between the station headhouse/mezzanine and the three platforms without having to traverse Skillman Avenue or Queens Boulevard.
- The station would be configured to promote visibility from the street and throughout the station.
- Clear sightlines and open spaces throughout the station would be provided. Hiding spaces and blind corners, which tend to encourage loitering and other miscreant activities, would be avoided.
- Materials that are vandal-resistant and that wear well would be used to resist damage and promote a sense of order throughout the station. A poorly maintained station signifies disarray, which could lead to negative customer perceptions of safety.
- Lighting would be provided to serve as a source of illumination and architectural treatment, and to promote a sense of personal safety.

TRAFFIC AND PEDESTRIAN ACCESS

The designated vehicular drop-off and pick-up area along the north sidewalk of Skillman Avenue (approximately 150 feet west of the Queens Boulevard and Skillman Avenue intersection) would deliberately be located away from the intersection to maintain adequate traffic flows on the heavily utilized Queens Boulevard bridge and to avoid the congested intersection of Queens Boulevard and Skillman Avenue. The jersey barrier that is to be constructed by the New York City Department of Transportation (NYCDOT) to prevent jaywalking on the bridge would also effectively prevent pick-ups and drop-offs at the Sunnyside station headhouse, ensuring that cars do not block active traffic lanes.

In conjunction with NYCDOT, the Queens Boulevard bridge sidewalk fencing, which is currently a combination of a sheet metal wall and low railing (and which currently provides little visibility down to the tracks below), would be replaced by a new artistically designed open fence to promote visibility and security between the street and the proposed station. It would also create a sense of pedestrian linkage between the Sunnyside station and the Queens Plaza subway station and linkage to sites of potential development to the north and west of Queens Plaza.

The design of the fence and pedestrian walkway would accommodate the concerns of involved parties, such as LIRR, Amtrak, NYCDOT, the New York City Department of City Planning, and others involved with Long Island City commercial development initiatives. Coordinated design efforts are under way and are expected to continue during preliminary and final design of the project.

E. GRAND CENTRAL TERMINAL SAFETY MEASURES

MEZZANINE SAFETY AND SECURITY

As at the new Sunnyside station, new concourse and mezzanine areas in GCT would be ADA-compliant and accessible to the visually impaired. While new concourse and mezzanine spaces within GCT would most likely be open approximately 20 hours per day, from 6 AM to 2 AM, the design of the terminal would not preclude a 24-hour-a-day operation. Many of the same safety concepts as those applied at the new Sunnyside station—clear sight lines, no blind corners, vandal-resistant materials, access control, intrusion detection, CCTV—would be incorporated into new spaces in GCT.

PLATFORM SAFETY AND SECURITY

All public areas in both Option 1 and Option 2 would be designed to comply with applicable NFPA-130 fire safety codes. These areas would include platform areas, which would comply with three relevant NFPA-130 requirements: evacuation time, evacuation distance, and exit width. Sufficient vertical circulation would be provided from all platforms to remove all passengers from platforms within four minutes and to a point of safety within six minutes in the event of an emergency; the maximum travel distance to an exit from any point on the platform would be no greater than 300 feet; and exits would be designed to comply with NFPA-130 standards for calculating minimum exit widths. These compliance measures would also apply to Option 2, where the new LIRR platforms would be located approximately 90 feet beneath the new LIRR concourse.

F. AT-GRADE CROSSING SAFETY MEASURES

EXISTING CONDITIONS

The LIRR system currently has 302 at-grade crossings (299 for motor vehicles and 3 for pedestrians only), located on most segments throughout the system. All 302 crossings are equipped with active warning devices consisting of gates, lights, and bells. The warning devices are maintained in a state of good repair.

Areas where safety has been a particular concern because of trains moving at high speeds and the prevalence of at-grade crossings, some of which are heavily traversed by motor vehicles, include the following:

- The Main Line (between Jamaica and Hicksville) where there are eight at-grade crossings for motor vehicles and one pedestrian crossing;
- The Ronkonkoma Branch (between Hicksville and Ronkonkoma stations) where there are 27 at-grade crossings;
- The Port Jefferson Branch (between Hicksville and Port Jefferson), where there are 33 at-grade crossings; and
- The Port Washington Branch, where there is one at-grade crossing near Little Neck station.

There are no at-grade crossings between Penn Station and Jamaica or on the Babylon Branch between Jamaica and Babylon stations.

FUTURE CONDITIONS COMMON TO ALL ALTERNATIVES

The New York State Department of Transportation (NYSDOT), through its Mineola Grade Crossing Elimination Project, has plans to eliminate all eight motor vehicle at-grade crossings on the Main Line by the year 2014. The Mineola Grade Crossing Elimination Project is underway, being completed in preparation for the proposed construction of the Main Line Third Track Project (described in Section E of Chapter 1, "Project Purpose and Need," under "Other MTA Projects") that is scheduled to begin after 2004. The NYSDOT Project is needed due to the high volume of trains that operate on the Main Line today, and the heavily trafficked roadways that cross it. The grade crossings project is progressing ahead of the Main Line Third Track Project. It was initiated in 1999 and one grade crossing (at Herricks Road) has been eliminated. Three other grade crossings (Roslyn Road, Willis Avenue, and Main Street) are partially funded and scheduled to be addressed this year. The LIRR is currently collaborating with NYSDOT to advance the designs for the elimination of the remaining Mineola grade crossings. Completion of these grade crossing eliminations is dependent on funding.

PROBABLE IMPACTS OF THE PREFERRED ALTERNATIVE

As a result of the Preferred Alternative, train passbys would increase by up to 65 percent on most branches during peak hours. The number of trains traversing at-grade crossings operating in both directions during the peak hour would increase as follows:

- From 25 to 42 on the Main Line (an increase of 17);
- From 5 to 8 on the Ronkonkoma Branch (an increase of 3);
- From 3 to 4 on the Port Jefferson Branch (an increase of 1); and
- From 14 to 17 on the Port Washington Branch (an increase of 3).

No direct correlation between increased train passbys associated with the Preferred Alternative and potential grade crossing accidents can be made. While the volume of trains operating throughout the LIRR system has been steadily increasing, the number of safety incidents near at-grade crossings has declined significantly. The trend toward safer grade crossings along the LIRR right-of-way is expected to continue with an increased emphasis on programs that have been demonstrated to meet the railroad's targeted safety objectives. With the exception of the grade crossings on the Main Line (which will be addressed), the locations of concern would have relatively few train passbys with or without the Preferred Alternative. Furthermore, since the adjacent communities are accustomed to living near an active railroad, an increase in the number of accidents is not anticipated.

Nevertheless, the LIRR has the means of addressing potential increases in accidents near at-grade crossings through its TRACKS (Together Railroads and Communities Keeping Safe) System Safety Program. TRACKS is dedicated to addressing safety issues through civic groups, professional drivers, senior citizens, posters, schools, and community groups. In conjunction with Suffolk County Drug Abuse Resistance Education (DARE), Operation Lifesaver, and other partners, the program educates the public on the dangers of trespassing on railroad property and around the third rail, driving or walking around lowered gate arms, and not exercising proper caution at stations when boarding or leaving a train. Since the program's implementation more than two decades ago, the number of safety incidents near at-grade crossings has declined considerably.

Due to the complexity and geographical layout of the LIRR, many factors, which differ by location, affect safe crossings of railroad tracks. When identifying areas involving high incidents of

accidents or trespass, the LIRR takes action to improve conditions and prevent future incidents. The TRACKS System Safety Program is one component of the railroad's efforts. It strives to reach every educational facility within the particular area for the purposes of educating youth and building awareness about the dangers of railroad tracks and crossings. The TRACKS program, along with the cooperative efforts of the Police Department and the Right-of-Way Task Force, has been successful in the past at preventing accidents in targeted areas.

Employee and customer safety is and will remain critically important to MTA/LIRR. Over the past 5 years, safety on the LIRR has improved significantly due to the initiatives that have become standard operating practice at the LIRR. For example, between 1994 and 1999, customer injuries decreased by more than 38 percent to 4.63 per million, the lowest rate ever. Continued strong commitment on the part of the railroad to improve safety is evident from the goals set forth in the MTA/LIRR 2000-2004 Business Plan. Strategies to improve safety include increasing the number of Operation Lifesaver programs by 10 percent—which is estimated to reduce reportable grade crossing accidents by 10 percent. ❖