

3.12 SAFETY AND SECURITY

3.12.1 Introduction to Analysis

Increased criminal activity and impeded emergency vehicle access are concerns of communities within the North Metro corridor study area. Because of these concerns, existing and future safety and security issues in the North Metro corridor study area have been analyzed as they relate to passengers and the surrounding community. In particular, the likelihood of change to crime rates, the effects of the project on emergency response times, and safety related to pedestrians crossing the tracks have been evaluated in the North Metro corridor study area.

3.12.1.1 Summary of Results

Since the implementation of RTD's LRT system, crime on board vehicles and at stations has been statistically insignificant. The majority of offenses are nonviolent crimes such as trespassing and disorderly conduct on vehicles, and theft and vandalism of automobiles at stations.

Based on historic experience, the proposed North Metro Corridor Project would have no effect on crime in the North Metro corridor study area. Crime at the transit stations or on the transit vehicles is expected to reflect the crime activity of the surrounding communities, which would be similar to the No Action Alternative. Therefore, neighborhoods with high crime rates would continue to experience higher-than-average crime rates, with or without the proposed stations. As a result, crime rates higher than average are predicted at the proposed station located in Denver. This station would be monitored upon implementation, and more aggressive security measures may be needed at this location.

During the public involvement process, one of the key issues heard from the public was concern about pedestrian crossings of the alignments, especially for school-aged children. Although train frequencies along the alignment would be increased as a result of the Build Alternative, especially in the Northern Section, mitigation measures would address potential safety issues.

There is some concern of the potential safety risks of exposure to incidents at the Suncor refinery on the North Metro Corridor Project, especially for the A-3 alignment that runs between the two parts of the refinery along Brighton Boulevard. The preliminary safety analysis has not identified either a frequency or severity of incidents to preclude any of the Southern Section alignments. A more detailed safety analysis will take place in the FEIS phase.

According to the *Commuter Rail Maintenance Facility Supplemental Environmental Assessment to FasTracks Commuter Rail Corridors* (FTA and RTD 2009), which is a connected action, the facility would have no adverse direct or indirect impacts on local safety and security. Once operational, the CRMF would be fenced, lighted, and patrolled to prevent crime both during construction and operations. The CRMF would not increase or decrease crime or represent a safety hazard to surrounding neighborhoods. Emergency response times would not be affected by train movements to and from the CRMF because track leading into the CRMF would be constructed under 48th Avenue, where a grade separation currently exists.

3.12.1.2 Relevant Law

Requirements related to safety and security include the FRA requirements (49 CFR 200-268), the Federal Safety Oversight requirements (39 CFR 659), and the State Safety Oversight requirements (4 *Code of Colorado Regulations* 723-14).

3.12.2 Affected Environment

RTD Safety and Security Manual defines measures the agency takes to ensure the safety and security of its rail transit patrons and those indirectly impacted by its operations. The measures include a Safety and Security Department that provides on-board security staff during hours of rail operation and station target area security staff. Emergency telephones are located in station target areas, and closed-circuit television coverage is provided at designated stations, parking structures and lots, and in vehicles. The RTD security force works with the local police to control crime on board vehicles, along the corridor, at station target areas, and in parking facilities.

For implementation of the North Metro Corridor Project, RTD would convene a Fire and Life Safety Committee comprised of representatives from local law enforcement and emergency services. This committee would assist in the development of an emergency plan for the North Metro corridor study area and coordinate responses to various emergency situations. Design criteria contain guidelines for reducing crime at stations and parking facilities. These guidelines are to be followed unless a waiver is obtained from the RTD Safety and Security Committee. The North Metro Corridor Project would include security cameras and emergency telephones connected with the RTD Security Command Center, where they could be monitored by security personnel.

3.12.2.1 Station Target Area and On-board Crime

To determine the likely station target area and on-board crime, crime statistics were gathered for each of the communities and counties in the North Metro corridor study area for 2005 and are listed in Table 3.12-1.

TABLE 3.12-1. EXISTING ANNUAL CRIME STATISTICS BY MUNICIPALITY/COUNTY — 2005

Municipality/ County	Agency	Homicide	Rape	Robbery	Burglary	Auto Theft
Denver	City and County of Denver Police Department	61	322	1,424	7,318	7,769
Adams	Adams County Sheriff's Department	5	23	81	835	1,010
Commerce City	Commerce City Police Department	5	5	19	403	370
Thornton	Thornton Police Department	1	69	61	672	751
Northglenn	Northglenn Police Department	0	2	28	258	311

Source: SchoolDigger, 2007a, 2007b, 2007c, and 2007d; City of Northglenn, 2007a; City Data, 2007; The Disaster Center, 2009.

These figures are categorized according to standards used by the Federal Bureau of Investigation's Uniform Crime Reporting Program, a program that is used to standardize and track the reporting of crime. In general, areas of more intense urban uses experience higher crime, as shown in Table 3.12-2.

TABLE 3.12-2. SUMMARY OF CRIME RATES RELATIVE TO POPULATION

Municipality/County	Agency	Total Serious Crimes ¹	2005 Population	Crimes Per 1,000 People
Denver	City and County of Denver Police Department	16,894	564,552	30
Adams	Adams County Sheriff's Department	1,954	399,426	5
Commerce City	Commerce City Police Department	802	30,146	27
Thornton	Thornton Police Department	1,554	103,487	15
Northglenn	Northglenn Police Department	599	33,695	18

Source: U.S. Department of Justice, 2005; SchoolDigger, 2007a, 2007b, 2007c, and 2007d.

Note:

¹Serious crimes consist of homicide, rape, robbery, burglary, and auto theft.

Evaluating the change in crime is important because the crime occurring in and around transit stations is similar to the crime in the surrounding area, and more intense security measures may be implemented, if necessary. Armed and uniformed officers patrol transit vehicles, park-n-Rides, and stations. This service increases proportionately with increased transit service.

Crime records for existing park-n-Ride locations in the North Metro corridor study area and current transit stations system-wide were examined to assess the safety and security of patrons under current conditions. The existing Commerce City Station located at 7195 Brighton Boulevard, the Thornton Station located at 8700 Grant Street, the 104th Avenue Station and Washington Street Station located at 10275 Washington Street in Thornton, and the Wagon Road Station at 600 West 120th Avenue in Westminster are the only park-n-Rides within the North Metro corridor study area. The facilities have a total of 2,513 parking spaces. In general, theft and vandalism are negligible and difficult to isolate to these locations. System-wide, there was only one vandalism incident and 51 theft incidents, according to RTD statistics for 2005 (RTD 2007).

Existing crime statistics are available for bus operations and are negligible, according to RTD statistics for 2005. Crime potential for the proposed new stations is anticipated to be similar. Crime on-board RTD's existing LRT vehicles for 2004 and 2005 is displayed in Table 3.12-3. Disorderly conduct was the most common offense on vehicles. Threats were the second most recorded offense over the two years.

TABLE 3.12-3. CRIME ON BOARD RTD LIGHT RAIL TRANSIT VEHICLES

Incidents On-board Light Rail Transit Vehicles	2004	2005
Alcohol Offense	2	0
Arson	0	1
Assault	2	5
Disorderly Conduct	11	5
Drug Offense	3	0
Forgery/Counterfeit	0	0
Fraud	0	0
Sex Offense	0	1
Theft	0	2
Transit-specific Crime	2	1
Trespassing	1	0
Threats	7	5
Weapons Offense	2	0
Vandalism	0	1
Total Crime Incidents	30	21

Source: RTD, 2007.

Note:

RTD = Regional Transportation District

3.12.2.2 Public Services — Police, Fire, and Emergency

Police, fire, and emergency services information was provided by various agencies and companies throughout the North Metro corridor study area. A summary of the existing public safety services within the two sections is presented in Table 3.12-4.

TABLE 3.12-4. POLICE, FIRE, AND EMERGENCY SERVICE LOCATIONS BY SECTION

Police Station Location	Fire Station Location	Emergency Location
Southern Section — DUS Access to 84th Avenue		
Commerce City Police Department District 2 Adams County Sheriff's Office, Substation Building, 4201 East 72 nd Avenue, Commerce City	Denver Fire Department Station 9, 4400 Brighton Boulevard North Washington Fire District Station 31 North Washington Fire District Station 32 South Adams County Fire Protection District Station 1 South Adams County Fire Protection District Station 2	No hospitals were identified in this section

TABLE 3.12-4. POLICE, FIRE, AND EMERGENCY SERVICE LOCATIONS BY SECTION

Police Station Location	Fire Station Location	Emergency Location
Northern Section — 84th Avenue to 162nd Avenue Area		
Thornton Police Department, 9500 Civic Center Drive Northglenn Police Department, 11701 Community Center Drive	North Washington Fire District Station 31 Thornton Fire Department Station 1 Thornton Fire Department Station 2 Thornton Fire Department Station 4 Thornton Fire Department Station 5 Greater Brighton Fire Protection District Station 55 North Metro Fire Rescue District Station 63	North Suburban Medical Center, Thornton

Source: City and County of Denver, 2007; City of Northglenn 2007b; North Metro Corridor Project Team, 2007.

Note:

DUS = Denver Union Station

3.12.2.3 Railroad Crossing Information

Pedestrian crossing of the UP Railroad ROW, especially in the Northern Section, was a neighborhood and safety concern identified at public meetings. Information and analysis of pedestrian crossings and school walk boundaries is discussed and analyzed in Section 3.1.1, Social Impacts, Community Facilities, and Neighborhoods. Additional information on recreational trail crossings is provided in Section 3.6, Parklands and Recreation Areas.

3.12.2.4 Surrounding Industrial Uses

The North Metro corridor study area includes the heavy industrial portions of Commerce City. The principal industrial uses of interest from a safety perspective in this area are the Suncor refinery along Brighton Boulevard and Metro Wastewater. This Suncor interest is primarily focused on the potential safety risks of refinery “incidents” on the operations and safety of the North Metro corridor. Metro Wastewater’s current waste treatment process could introduce potential safety risks in the corridor. However, Metro Wastewater has indicated that they plan to phase out the current treatment method in the near future and replace it with a more benign process.

3.12.3 Impact Evaluation

Impacts to public safety and security are discussed below. This evaluation includes analysis of potential DMU or EMU vehicle technology impacts. When the technology impact is vehicle specific to public safety or security, it is described below in Results. Appropriate mitigation measures are described at the end of this section.

3.12.3.1 Methodology

Security and safety concerns can be grouped into station target area and on-board safety; police, fire, and emergency response; and surrounding industrial uses.

Station Target Area and On-Board Safety

Studies in areas before and after the introduction of a transit system suggest that stations are as safe as the surrounding commercial activity centers or other places where people congregate.

The observed frequency of crime at stations tends to mirror the crime of the surrounding area. The majority of these crimes are nonviolent acts such as vandalism and theft. Statistics for RTD's existing LRT system identify similar patterns of crime on-board vehicles, with crime on-board reflecting crime rates in the surrounding area.

For purposes of this analysis, the station target area and on-board safety category was evaluated by comparing the weighted average of crimes based on the total number of proposed parking spaces for the station. This was accomplished by calculating a crime index for each of the stations based on the number of parking spaces and crime rates of the surrounding areas. A station with a crime index above 1 would be considered higher than the North Metro corridor study area average crime rate, and a crime index less than 1 would indicate a station below the North Metro corridor study area average.

A composite crime index was then developed by adding the individual crime indices for each station. Because similar types of crime at stations and on-board vehicles can be anticipated with new transit service, evaluating crime by using parking spaces as a surrogate for the potential exposure to crime allowed comparison of the different stations. For example, a station with fewer spaces but in a higher crime area would reflect a higher potential exposure to crime (composite crime index) than a station with more spaces in a lower crime area. By identifying those proposed stations in higher crime areas, the stations can be compared to each other and more aggressive crime prevention measures can be considered.

Police, Fire, and Emergency Response

Impacts to police, fire, and emergency services can result during construction of a rail transit system if major roadways are closed due to bridge or other facility construction, or if extensive detours require significant out-of-direction travel and increased response times. Increased train frequency at at-grade crossings may affect response times in both the short and long term. These impacts affect not only the transit-related facilities, but also the surrounding neighborhoods. All of the existing crossing locations would remain the same, at grade, except for 104th Avenue and 120th Avenue. Two new grade-separated crossings would be constructed in these locations.

Surrounding Industrial Uses

Potential risks and impacts of the Suncor refinery on the North Metro Corridor Project have been identified and assessed in a very preliminary manner via discussions with Suncor and with RTD Safety Managers. Some past incidents at the refinery have required the closure of nearby roadways and railroad facilities.

3.12.3.2 Results

No Action Alternative

The No Action Alternative assumes the existing and committed improvements, as defined in Chapter 2, Alternatives Considered, would be implemented by other projects.

Direct Impacts

There would be no direct safety and security impacts as a result of the No Action Alternative.

Station and On-Board Safety Impacts

Increases in station area crime at the North Metro corridor station target areas would likely mimic existing conditions. Because the roadway improvement projects would not include stations, there would be no impacts on stations and no on-board safety impacts.

Police, Fire, and Emergency Response Time Impacts

Police, fire, and emergency services may be adversely affected by increased response times during peak hours due to increased congestion in the North Metro corridor study area, especially at 104th Avenue and 120th Avenue, because there would be no grade-separated intersection under the No Action Alternative.

Indirect Impacts

Implementation of the No Action Alternative would have no indirect impacts to safety and security.

Temporary Construction Impacts

Construction of the No Action Alternative roadway improvement projects may represent an element of driver risk during construction as lane closures, detours, and the movement of construction-related vehicular traffic present an added challenge to drivers. Police, fire, and emergency services may be adversely affected in the immediate vicinity of project construction by increased response times due to these construction activities. Traffic control plans would be developed by the construction contractors selected to perform the work.

Cumulative Impacts

Future safety and security statistics by neighborhood would remain comparable to existing trends with implementation of the No Action Alternative.

Build Alternative

Direct Impacts

Station and On-Board Safety Impacts

For the Build Alternative, on-board crime is expected to be similar to existing operating transit crime statistics and proportionate to increases in transit service in all sections. Using the crime rate per thousand persons and the anticipated number of parking spaces at each station, the crime index, or potential exposure to crime, was determined. This information is presented in Table 3.12-5.

TABLE 3.12-5. STATION CRIME INDICES FOR THE BUILD ALTERNATIVE FOR 2030

Station Target Area	Station Option	Number of Parking Spaces	Crime Index ¹
Build Alternative			
Southern Section — DUS Access to 84th Avenue			
Coliseum/Stock Show (Denver)	Coliseum/Stock Show South	120	3.60
	Coliseum/Stock Show North	120	3.60
Commerce City	68 th Avenue	300	1.50
	72 nd Avenue South	300	1.50
Northern Section — 84th Avenue to 162nd Avenue Area			
88 th Avenue (Thornton)	88 th Avenue	500	2.50
	88 th Avenue Welby Road Relocation	500	2.50
104 th Avenue (Thornton)	104 th Avenue	550	2.75
112 th Avenue (Northglenn/Thornton)	112 th Avenue Parking West of York Street	300	1.50
	112 th Avenue Parking East of York Street	300	1.50

TABLE 3.12-5. STATION CRIME INDICES FOR THE BUILD ALTERNATIVE FOR 2030

Station Target Area	Station Option	Number of Parking Spaces	Crime Index ¹
124 th Avenue/Eastlake (Thornton)	124 th Avenue	400	2.00
144 th Avenue (Thornton)	144 th Avenue West	400	2.00
	144 th Avenue East	400	2.00
	144 th Avenue Split	400	2.00
162 nd Avenue (Thornton)	162 nd Avenue West	1,100	5.50
	162 nd Avenue East	1,100	5.50

Source: North Metro Corridor Project Team, 2007.

Notes:

¹Crime Index = (county crimes per thousand people/1,000) * number of parking spaces.

DUS = Denver Union Station

Table 3.12-5 shows that the three proposed stations with the highest potential exposure to crime are the station options at 162nd Avenue, the Coliseum/Stock Show North and South, and 104th Avenue. The proposed stations with the lowest potential exposure to crime are the stations at the 68th Avenue and 72nd Avenue South area, and the 112th Avenue area.

Police, Fire, and Emergency Service Response Time Impacts

Reduced congestion in the North Metro corridor study area could reduce police, fire, and emergency service response times in some locations. With implementation of commuter rail service in the Northern Section (which is currently an inactive rail line), there would be increased traffic delays at railroad crossings. This could slightly increase emergency response times in some locations.

Surrounding Industrial Uses

The alignments proximity to Suncor could pose a safety or operational risk to the North Metro Build Alternative for the A-3 alignment along Brighton Boulevard and, to a lesser extent, to the B alignments on the west side of the refinery and on the east side of Metro Wastewater. The principal impact, as currently understood, would be a temporary closure of the passenger rail facility until such time as an incident has been cleared.

The analysis to date has not identified either a frequency or severity of incidents to preclude any of the Southern Section alignments. Again, a more detailed safety assessment will take place in the FEIS phase.

Shading/Icing Along Brighton Boulevard in Commerce City

Alignment A-3's elevated segment in Commerce City adjacent to the Suncor refinery would shade the parallel segment of Brighton Boulevard for part of the day. This shading in the winter months could result in additional icing of the roadway surface compared to the unshaded condition.

Indirect Impacts

Implementation of the Build Alternative is not anticipated to indirectly affect crime rates or emergency response times. Future neighborhood crime would be representative of the surrounding area, with or without the implementation of the Build Alternative.

Temporary Construction Impacts

The impact on emergency response times during construction is a potential concern with any major project when compared to the No Action Alternative. It is probable that there would be some reduction in traffic capacity at some point during construction. Traffic control plans would be developed for construction, and therefore mitigate potential impacts.

Connected Action – CRMF Fox North Site

According to the *Commuter Rail Maintenance Facility Supplemental Environmental Assessment to FasTracks Commuter Rail Corridors* (FTA and RTD 2009), the facility would have no adverse direct or indirect impacts on local safety and security. Once operational, the CRMF would be fenced, lighted, and patrolled to prevent crime both during construction and operations. The CRMF would not increase or decrease crime or represent a safety hazard to surrounding neighborhoods. Emergency response times would not be affected by train movements to and from the CRMF because track leading into the CRMF would be constructed under 48th Avenue, where a grade separation currently exists.

Cumulative Impacts

Future safety and security statistics by neighborhood would remain comparable to existing trends with the implementation of the Build Alternative with either DMU or EMU technology. There would be no cumulative impacts on emergency response times.

3.12.3.3 Avoidance and Minimization

The RTD design, construction, and operations standards for new transit systems, including the Build Alternative, incorporate several components and actions to make the systems safe and secure for transit patrons and the general public. A hazard identification, analysis, and resolution process is required for all transit engineering projects. Hazards are identified through a Preliminary Hazard Analysis (PHA) to define hazards and their effects. In addition, a safety certification process is required to verify that system elements comply with a formal list of safety requirements for the transit mode.

RTD will work with police, fire, and transportation agencies during project design to maintain reliable emergency access. Traffic control plans would be developed for construction which would minimize the impact to traffic and emergency response times.

Fencing or barriers would be provided along the proposed alignment and surrounding station target areas. These would be designed to be safety barriers to prevent trespassers, vehicles, trucks, and other roadway users from entering the trackway. They would also be designed to prevent road debris or plowed snow, slush, and ice from entering the trackway or station target areas. Safety measures would be incorporated on elevated sections to provide fall protection as well as adequate space for maintenance workers.

All stations would be designed with a minimum of two ingress and egress points. These points would facilitate safe and efficient evacuation of a station in 4 minutes or less (in accordance with the National Fire Protection Association 130 Standard).

Surveillance would include both personal and video surveillance. Video surveillance systems would be capable of transmitting real-time video to RTD via a fiber optic transmission backbone or other suitable transmission network. Personal surveillance would include uniformed officers who inspect transit stations on a recurring basis.

Emergency telephones would be installed on site. Emergency telephones would be consistent with existing RTD units and meet the performance requirements of RTD's existing emergency telephone network. Emergency telephones would cover station platforms, elevator waiting areas, stairwell entries, parking structures, pedestrian tunnels, and pedestrian bridges.

Crime Prevention Through Environmental Design (CPTED) would be incorporated in the entire design. The purpose of CPTED is to minimize potential threats and vulnerabilities to the transit system, facilities, and patrons and maximize safety and security through engineering and design. CPTED strategies would include:

- Maximizing the visibility of people, parking areas, patron flow areas, and building/structure areas
- Providing adequate lighting to minimize shadows
- Installing graffiti guards and removing graffiti when discovered
- Installing Mylar shatter guard protection for glass windows
- Landscaping to maximize visibility
- Installing gateway treatments, decorative fencing, perimeter control, and a minimum number of parking structure access points
- Coordinating and cooperating with municipalities to promote transit-friendly land uses
- Establishing maintenance programs to repair broken windows, pick up litter, and manage streetscapes and public spaces

Design elements and electronic technology would be used to ensure the transit platform area is safe and free of hazards. Representative measures include:

- Active and passive warning devices that alert persons of risks and hazards
- Light emitting diode flashing pedestrian warning signs that warn of an approaching train
- Pavement coloring and texturing to notify pedestrians of hazards and/or risk areas
- Pedestrian bafflers such as swing gates, automatic pedestrian gates, or Z-crossings to prevent pedestrians from entering the railway on platforms with poor sight distance

An internet-based local information network would be created to serve a variety of needs. It would provide promotional opportunities; real-time transit information; updates on construction, route closure alternative route information, and other transportation information and services (coordinated with state and regional Intelligent Transportation Systems projects).

RTD would work with local police and sheriff departments to plan for appropriate security forces and would increase the number of private security guards on patrol within the North Metro corridor, proportionate to the increase in service.

Additional measures would be undertaken during construction to minimize construction impacts for the traveling public. These measures would include:

- Producing Traffic Management Safety Reports and Traffic Control Plans for each phase of construction
- Accounting for the CO season (1 November through 1 March)

- Keeping transit operating at existing stops where possible
- Keeping bike and pedestrian facilities continuous
- Ensuring the contractor obtains permits and approvals by local governments for all detours
- Providing signage plans (sign continuity must be maintained and advance warning of any closure provided at least 7 days in advance)
- Providing pavement marking plans to maintain access and circulation in construction areas
- Providing temporary signalization plans in coordination with RTD, local agencies, and utility providers

3.12.4 Mitigation

No mitigation is required beyond adherence to RTD safety and security design standards. RTD has convened a Fire and Life Safety Committee that will assist in preparing an emergency plan and will coordinate responses to emergency situations.

