

4.10 PUBLIC SAFETY AND SECURITY

4.10.1 Introduction to Analysis

This section considers the potential effect of the DNA project on the general safety and security of transit patrons; the potential auto, pedestrian, and/or transit accidents; and the possible effect of the project on the requirements for safety and security personnel. Public safety and security for the DNA project would be provided through a combination of private security and contractual agreements with local police, fire, and emergency services organizations. The *RT System Safety and Security Master Plan (2002e)* outlines the roles and responsibilities of RT for meeting the following regulations and guidelines that benefit public safety:

- California Occupational Safety and Health Administration Title 8 California Code of Regulations (1991);
- California Public Utilities Commission General Order 143B and 164B (1998);
- American Public Transit Association *Rail Safety Audit Program Manual* (1990);
- Federal Transportation Administration *Implementation Guidelines for State Safety Oversight of Rail Fixed Guideway Systems* (1996); and
- Federal Transportation Administration *Public Transportation System Security and Emergency Preparedness Planning Guide* (2003).

Accident potential for the DNA project has been evaluated based on the number of at-grade crossings. Additional research has been conducted to determine the comparative risk of accidents for exclusive versus mixed-flow operation.

The safety and security of transit patrons has been assessed by examining issues of general station or Park-and-Ride activity related to the location of the facility, and the degree of adequate access to facilities for security and safety personnel.

This section addresses Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, which requires every federal agency to ensure that its activities address disproportionate risks (environmental health and safety risks) to children. Environmental health risks are those risks attributed to products or substances that a child is likely to come in contact with or ingest, such as air, food, water, soil, and other products.

4.10.2 Environmental Setting

Public Safety

The California Public Utilities Commission (CPUC) regulates safety for public transit systems throughout California. The CPUC provides specifications for design details such as clearances, grade crossings, vehicle design, operating speeds, right-of-way standards, fire protection, and operating rules. The CPUC also oversees safety management programs for transit agencies such as internal safety audits, reporting of accidents, and development of

safety programs. RT uses CPUC criteria to design facilities to maintain safety and security design standards for Park-and-Rides, platforms, and other station facilities to assure patron safety.

Security for the existing light rail system consists of a combination of contracted law enforcement officers, RT transit officers, and contract private security guards. RT maintains a fixed-term contract with both the Sacramento City Police Department and Sacramento County Sheriff's Department. The contracts call for each department to provide officers/deputies and management personnel expressly dedicated to providing for the safety and security of RT's passengers, employees, and facilities. Currently, RT has 27 officers/deputies (17 Sacramento City Police Department officers and 10 Sacramento County Sheriff's Department deputies) who supplement the private security guards. These contracts are revisited periodically to evaluate staffing needs proportionate to service provisions. These law enforcement officers work closely with local law enforcement to prevent and respond to crimes and to address quality-of-life issues at Park-and-Ride facilities, at stations, and on light rail and bus vehicles.

The RT police force, as described above, responds to emergency calls and patrols the transit system. Security forces are also contracted to be present on the RT vehicles, at stations, and in Park-and-Ride lots to serve as a deterrent to criminal activities and to provide customer service. Security on light rail and bus vehicles is provided in the evenings, seven days a week. Currently, most of the security guards are deployed at Park-and-Ride lots and light rail stations. RT regularly provides training to police, fire, and local emergency room personnel before a new line goes into revenue service. There is also training which occurs on a quarterly basis.

Fire Protection

The Sacramento City Fire Department provides fire prevention and protection services for the City of Sacramento. The department has been providing service to the Natomas Fire District since 1986 on a contractual basis. The Natomas Fire District covers the Natomas area. The RT contract police force arranges to conduct quarterly training and safety review with local fire districts that service the transit lines. The Airport's own Metro Fire Department is responsible for any incident of fire at the Sacramento International Airport.

4.10.3 Impact Evaluation

The addition of light rail services as part of the DNA project will introduce more transit stations, buses, and light rail vehicles into the community. To protect the public, RT provides security forces to reduce risks at stations and on bus and transit vehicles. No statistical evidence exists, either nationally or locally, indicating that transit stations and Park-and-Ride lots represent more risk than other commercial activities that attract and congregate people. However, the presence of light rail will increase the opportunity for accidents between transit vehicles (bus or train) with an automobile or pedestrian. Station and track designs incorporate both RT and CPUC life-safety standards. RT works with the Natomas School District to ensure safety measures to protect children.

Methodology

Impacts to public safety and security resulting from the implementation of the DNA project were analyzed in a qualitative manner.

Significance Criteria

Implementation of the DNA project would have a significant impact on public safety and security if it:

- Has a greater negative impact on the safety and security of transit patrons than they would otherwise experience in public space;
- Results in increased auto, transit, and/or pedestrian accidents as compared with other transit modes; or
- Requires the hiring of additional police or fire protection personnel to maintain existing levels of service.

DNA Project Impacts

Station Safety and Security

Implementation of the DNA project south of the American River would require construction of four stations. Passengers would congregate at station platforms and at any parking area provided near the end-of-line station at Richards Boulevard, providing an opportunity for crime (Impact SS-1). Parked cars would potentially be exposed to theft or vandalism. However, this impact would be less than significant because RT security staff works to secure the public's personal safety at the Park-and-Ride locations, and all of the stations would have design features, such as good lighting, to deter crime. Furthermore, stations would be designed to incorporate applicable National Fire Protection Association Guidelines for Life-Safety and Fixed Guideway Transit and Passenger Rail Systems (NFPA Codes 101 and 130, respectively). RT's Comprehensive Safety Certification Program requires that its "life-safety standards" be incorporated into the design of the stations. These include measures such as fencing, close-circuit televisions, emergency telephones, and lighting to protect patrons from the track area; lighting as a deterrent to crime and to ensure good visibility in the station and parking areas; and, where walls are constructed, the use of transparent materials to provide better sight lines and reduce concealment areas.

Based on nationwide experience of transit agencies, special security at stations and Park-and-Ride lots is rarely required. In addition, RT adopted an ordinance that permits officers to remove people who remain at station locations after having passed up opportunities to ride in either direction. As such, implementation of the DNA project would not require increased staffing for local police within any of the affected municipalities. However, RT would consider increasing its security forces as demand dictates for the DNA project.

Accidents

The addition of at-grade crossings increases the risk of accidents between light rail vehicles and automobiles. As configured, the DNA project includes 39 at-grade crossings, which represent an increased potential for accidents, resulting in a potentially significant impact (Impact SS-2). To reduce this risk, all at-grade crossings would be protected, either by eliminating left-hand turns over the tracks, signaling intersections, and/or adding gate arms to comply with CPUC standards. RT experienced four at-grade reportable accidents systemwide in 2001 (FTA, 2001b). The National Transit Database Reporting Systems statistics on transit accidents nationwide for the years 1990 through 1999 proved that in comparing transit services incidents per 1,000 passengers, only the entirely exclusive, guideway bus system produced fewer incidents than light rail.

A second potential accident risk is represented by mixed-flow operation where trains would operate in the same travel lane as automobiles for a short distance along H Street, in the short tunnel on 7th Street under the freight track, and for approximately 2 miles on Truxel Road (Impact SS-2). Since RT has experienced higher accident rates where the light rail operates in mixed-flow conditions, this would be a potentially significant impact. The report, *Light Rail Service: Vehicular and Pedestrian Safety*, (Transportation Research Board, 2001), analyzes the accident history of 11 transit agencies across the United States. As shown in Table 4.10-1, experience in Sacramento suggests that a mixed-flow operation can be expected to have 0.30 accidents per year at each crossing versus 0.16 accidents per year per crossing in a semi-exclusive right-of-way. These values are lower than the average for the 11 systems analyzed, which are 0.54 and 0.17, respectively. While the report cites that "light rail accidents at any given grade crossing are rare events," the accident rate is approximately twice as high for mixed-flow operation as compared to semi-exclusive right-of-way operation in Sacramento. For the average of the 11 systems studied, it is greater than three times as high (0.54 versus 0.17).

Fire Protection and Emergency Medical Services

It is unlikely that a fire would occur at the stations because of their simple design and nonflammable construction materials. However, fire protection services would be provided for vehicles and at substations as required. Because of the concentration of passengers at the stations, the potential for increased demands for emergency medical services exists. Since the potential for fire is low, it is not anticipated that light rail would necessitate the hiring of additional fire protection personnel in any of the affected communities in the Corridor. While the stations may occasionally require first aid calls, the impact is considered negligible and directly comparable to other commercial operations such as neighborhood shopping centers.

Airport Impacts

The presence of light rail is not anticipated to have safety or security impacts at the Sacramento International Airport. Light rail systems using Overhead Contact Systems are supplied with Direct Current normally in the range of 750 to 1000 Volts. Direct Current does not contain the harmonic frequencies of 60 Hertz which could possibly interfere with other electrical systems adjacent to the rail line.

In light rail systems, another possible source of electrical interference is arcing between the Vehicle Pantograph (current collector) and the Overhead Contact system. Arcing, if it occurs

**Table 4.10-1
Summary of Accident Experience at LRT Crossings (Through 1996)**

LRT System	Average Total Accidents ^a	Semi-Exclusive ROW, Separate ROW, and Shared ROW (Protected by Curbs and Fences) (above 55 km/h)			Semi-Exclusive & Non-Exclusive ROW, Including Alignments Protected by Mountable Curbs, Striping, and/or Mixed-Flow Operation (below 55 km/h)		
		Average Annual Accidents ^a	Average Annual LRT Crossing-Years ^b	Average Annual Accidents per LRT Crossing-Year	Average Annual Accidents	Average Annual LRT Crossing-Years ^{b, c}	Average Annual Accidents per LRT Crossing-Year
Baltimore	29.8	0.8	18	0.04	29.0	21	1.38
Calgary	12.2	5.1	20	0.26	7.1	13	0.55
Dallas	6.0	2.0	22	0.09	4.0	14	0.29
Denver	34.0	0.5	2	0.25	33.5	29	1.16
Edmonton ^d	1.7	1.7	8	0.21	d	d	d
Los Angeles	50.7	10.7	28	0.38	40.0	56	0.71
Portland ^e	20.8	0.1	4	0.03	20.7	74	0.28
Sacramento	20.5	2.2	14	0.16	18.3	62	0.30
Saint Louis ^d	0.5	0.5	11	0.05	d	d	d
San Diego	28.5	5.9	43	0.14	22.6	42	0.54
San Jose ^e	25.2	0.2	3	0.07	25	59	0.42
Average	20.9	2.7	16	0.17	18.2	34	0.54

Notes:

^a Includes all semi-exclusive and non-exclusive right-of-way types (types b and c).

^b LRT crossing-years indicate the number of crossings that have LRV's operating through them for 1 year. One crossing-year is equal to one crossing in operation for 1 year. The average annual LRT crossing-years indicate the average number of crossings operating for an entire year, per year of operation. For most LRT systems (those which have not had any significant extensions), this figure is simply equal to the number of LRT crossings. For those systems that have implemented incrementally, this value differs from the actual total number of crossings. For example, at the San Diego LRT system along semi-exclusive right-of-way, type b.1 and b.2, 29 crossings have been in operation for 17 years (South Line), 25 crossings have been in operation for 9 years (East Line), and 13 crossings for about 0.5 year (North Line to Old Town and East Line extension to Santee). The total number of crossing-years is thus (29 crossings x 17 years) + (25 crossings x 9 years) + (13 crossings x 0.5 years) = 724.5 crossing-years. In 1996, the San Diego LRT system has been in operation for a total of 17 years. Therefore, the total number of crossing-years per year (or average annual LRT crossing-years) is 724.5 / 17 years = 43 average annual LRT crossing-years.

^c Includes all streets with traffic movements across LRT tracks.

^d The Edmonton and Saint Louis LRT systems do not have semi-exclusive or non-exclusive right-of-way where LRVs travel at speeds less than 55 km/h (types b.3, b.4, b.5, c.1, c.2, and c.3).

^e Accident rates for the Portland and San Jose LRT systems along semi-exclusive and non-exclusive right-of-way where LRVs travel at speeds less than 55 km/h account for accidents through 1994.

Source: Transportation Research Board, 2001

at all, would occur at relatively high speeds (greater than 65 mph) or as a result of poor ride quality due to badly maintained track. Neither of these conditions is anticipated for the new DNA line with reasonably close passenger station stops and new track.

Finally, there are several electrified transit systems that operate with passenger stations within airport terminals: Portland MAX and BART in San Francisco are two examples.

No impacts are anticipated at the terminal area because the station will be located over 300 feet from the terminal location. This is consistent with Federal Aviation Administration requirements that parked vehicles be a minimum of 300 feet away from terminal operations.

The proposed maintenance facility at Metro Air Park is not anticipated to increase the need for local security compared to current conditions. RT has not experienced vandalism at existing maintenance facility sites and this is not anticipated to change with new maintenance facility sites. The maintenance and vehicle storage facilities are planned to be fenced, screened, and will be located in industrial zoned areas.

Child Safety

The DNA project would pass near or at Natomas High School and Inderkum High School. These locations would be designed and modified with the assistance and input from the Natomas Unified School District, which is interested in providing additional transit access to their students. The design, per CPUC regulations, will include protective fencing and security personnel that would prevent children from accessing station locations near schools in an unsafe manner, or from entering maintenance facilities and construction sites. The project would not disproportionately expose children to health and safety risks (Impact-SS-3). This would be a potentially significant impact.

Mitigation Measures

The addition of stations, Park-and-Ride facilities, and light rail vehicles associated with implementation of the DNA project are anticipated to have a minor effect on public safety and security. RT would increase its security forces as dictated by demand; therefore, there would be no impact to the City Police force. Additionally, a newly adopted “anti-loitering” ordinance permits authorities to remove people not using transit from station locations and Park-and-Ride locations. When operated as a mixed-flow system, as is the case for the DNA project, the potential for accidents is considered an unavoidable impact.

Specific mitigation measures for the DNA project include:

- RT shall continue to evaluate transit police staffing needs and hire proportionate to the increase in transit service. RT would continue to include police and safety management personnel as participants in the design of the stations. In addition, to increase public safety and security, RT will implement applicable guidelines from the American Public Transit Association *Rail Safety Audit Program Manual* (1990) and the federal *Public Transportation System Security and Emergency Preparedness Planning Guide* (2003) (Mitigation MSS-1). After mitigation, this impact would be less than significant.

- In order to increase safety of at-grade crossing and mixed-flow operation of light rail transit, RT will implement traffic control measures (Mitigation MSS-2). However, impacts would remain significant and unavoidable. These traffic control measures would include
 - Traffic signal coordination
 - Improved sight distances
 - “No left turn” warning devices
 - Advance warning signs
 - Four-quadrant gate system
 - Adequate gate arm length

- Implementation of the following mitigation measures would reduce Impact SS-3 to a less-than-significant level:
 - RT will work with the Natomas Unified School District to provide safety education for school children (Mitigation MSS-3).

 - RT will involve the Natomas Unified School District with respect to station design and pedestrian crossings anyplace that children will have to cross the rail line to get to school (Mitigation MSS-3).

 - RT will participate with the Natomas Unified School District to provide school crossing guards as deemed necessary around at-grade crossings within school zones (Mitigation MSS-3).