5.0 ENVIRONMENTAL CONSEQUENCES
CHAPTER 5.0

ENVIRONMENTAL CONSEQUENCES

This chapter provides a summary of the potential environmental consequences of the alternatives proposed for the Mid-Coast Corridor. Detailed technical information may be found in the supporting environmental technical reports available at MTDB’s offices, 1255 Imperial Avenue, Suite 1000, San Diego, California. Those documents are hereby incorporated by reference into this AA/DEIS/DEIR. In cases where those reports differ from this document, this document supersedes, as it was prepared subsequent to the technical reports and contains the most up-to-date information.

Environmental consequences and their significance are discussed for the following:

- land use and economic development;
- neighborhoods;
- safety and security;
- visual and aesthetic resources;
- air quality;
- noise and vibration;
- ecosystems;
- water resources;
- cultural resources;
- parklands;
- energy;
- construction; and
- hazardous materials.

For each of the above-listed discipline areas, this chapter considers whether a significant adverse impact might occur, what if any, mitigations are available, and whether any significant adverse impacts would remain after mitigation. Direct, indirect and cumulative impacts are considered. Construction impacts and appropriate mitigation are discussed where applicable. Environmental consequences relative to transportation/traffic are documented in Chapter 4.0, Transportation Impacts.

As stated previously, while the California Environmental Quality Act (CEQA) requires that each effect having a "significant impact" be identified in an environmental impact report (EIR), the National Environmental Policy Act (NEPA) does not. In this DEIS/DEIR document, reference to "significant impact" is made to fulfill this requirement under CEQA, pursuant to standards of California law. No representation as to significance made in this document represents an assessment as to the magnitude of such an impact under the requirements of Federal Law. Under NEPA, no such determination need be made for each environmental effect. (The fact that an environmental impact statement, EIS, is being prepared for this project under NEPA represents the Federal Highway Administration's assessment that, overall, this project has a "significant impact" on the quality of human environment).

5.1 LAND USE AND ECONOMIC DEVELOPMENT

This section presents a summary of the Land Use and Economic Development impacts associated with transportation improvement alternatives proposed for the Mid-Coast Corridor. Detailed technical information can be found in the following support technical reports on file at MTDB’s offices, which are incorporated into this document by reference.
• *Land Use Technical Report*, January 1993;
• *Economic Development Report*, November 12, 1993; and

The No-Build Alternative is the base case for the expected land use and economic conditions in 2005. Improvements associated with the No-Build Alternative have been funded. Since the components of this alternative have already been approved or programmed, no impacts specific to the Mid-Coast Corridor are expected. Any impacts would be mitigated by measures prescribed as part of the component projects.

### 5.1.1 Regional Impacts

San Diego County and the Mid-Coast Corridor are considered to have growing economies with steady growth predicted over the entire planning horizon. Although the rate of growth for the region is slow and steady, it is expected to be much lower than the high growth experienced during the 1980's in which the region grew by more than 30 percent. Employment growth between 1990 and 2015 is forecast at 13,000 jobs per year. During the 1980's this annual rate was 36,000. About 60 percent of the new jobs created are forecast to have lower wage rates than the typical manufacturing job, and will be gained primarily in the service sector. Slower population growth is expected as a result of this lower rate of growth in employment. Per capita income is declining for the region also.

The State of California's recovery from the current recession is lagging behind the national recovery. Housing prices continue to decline (especially in Southern California), housing construction is depressed and taxable sales have been flat since 1991. Given this statewide and long-term regional outlook and taking into consideration market characteristics, none of the proposed alternatives would likely result in changes to the regional land use pattern beyond current regional planned and forecast growth.

### 5.1.2 Corridor Level Impacts: Displacements and Relocations

Direct impacts to land use in the Mid-Coast Corridor would be in the form of relocations or displacements associated with the acquisition alignment right-of-way. All action alternatives under consideration would have insignificant direct land use impacts. Displacements and relocations for each alternative are discussed below. There are no impacts to prime, statewide or local important farmlands under any of the alternatives. This point was verified in a letter from the U.S. Department of Agriculture dated December 2, 1994.

#### 5.1.2.1 No-Build Alternative

No specific displacements and/or relocations would occur with the No-Build Alternative. No impacts would result.

#### 5.1.2.2 TSM Alternative

The TSM Alternative would require the commitment and use of a total of 4.9 hectares (12.2 acres) of land. This land would be used to relocate and improve the University Towne Centre (UTC) Mall Transit Center and construct three park-and-ride (P&R) facilities. The effects of this action are discussed below.

**Impacts**

A potential site for relocation of the UTC Mall Transit Center is located on the southwest end of the mall. The site currently serves as a parking area for the mall. The UTC Mall has future expansion plans for this same site. Those plans include a three-level, 22,080 square-meter (240,000 square-foot) major retail store and a five-level parking
garage. Thus, use of this site for relocation of the UTC Mall Transit Center would adversely affect proposed future retail uses and associated parking requirements.

The TSM Alternative also would include relocation and improvement of three P&R facilities. A description of these proposed redevelopment actions is provided below.

**Carmel Valley P&R Lot** - The Carmel Valley P&R Lot would be relocated within California Department of Transportation (Caltrans) property adjacent to I-5. It would be expanded to provide room for both bus stops and parking facilities. Adequate Caltrans land is available within the freeway envelope and the planned SR-56 Interchange area. No land use impacts are anticipated. Caltrans plans illustrate a possible lot under the SR-56 ramps to I-5. The existing Caltrans-owned lot would be used for construction of the interchange. This is not a planned Caltrans improvement.

**Gilman Drive P&R Lot** - The Gilman Drive P&R Lot would be relocated to the east side of the I-5 interchange at La Jolla Colony Drive on vacant land that is part of the right-of-way for the freeway and the AT&SF Railroad. The remnant parcel has limited utility and is traversed by the informal head of a bicycle/jogging trail. There would be no impacts to adjacent uses, because the triangular site is bounded on all sides by existing transportation facilities. The relocated lot could serve as an access point to the Rose Canyon trail system in off-commuting hours. The existing lot is more difficult to access and abandonment would be coordinated with Caltrans. A total of 0.3 hectare (1.0 acre) of Caltrans ROW would be required.

**Balboa Avenue P&R Lot** - The Balboa Avenue P&R Lot would be moved from its currently constrained location near the southbound freeway entrance ramp to a parcel of land between Morena Boulevard and the AT&SF Railroad just east of I-5. The 1.3 hectares (3.1 acres) parcel is owned by the City of San Diego. This future site is zoned commercial. No land use impacts would occur. The relocated Balboa Avenue facility would be capable of serving several bus routes, in comparison to the existing facility which is not on any bus route and is small in size.

**Significance of Impacts**

The ownership arrangements at UTC Mall are such that each major tenant owns a portion of the site near their facility. In addition, all major tenants are bound through a "Reciprocal Easement Agreement" to gain approval for any modifications on Mall common areas. The proposed site for the relocated UTC Mall Transit Center, located in the southwest quadrant, is on land owned by The Broadway Department Store. Plans call for future expansion of the UTC Mall into the southwest quadrant to accommodate an additional major tenant. Major reconstruction of the quadrant would include structure parking placed below existing grade with lower level entries to The Broadway and the new anchor tenant.

Constraints on the availability of parking spaces on Mall property is a significant factor affecting redevelopment of this site as a new UTC Mall Transit Center location. The number of available parking spaces is limited. Most major shopping malls have parking space-to-floor area ratios of 5.0 to 5.5 spaces per 92 square meters (thousand square feet) of building area. The UTC Mall ratio is 4.5 spaces per 92 square meters (thousand square feet). Because of the limited amount of available parking, shared use parking would not be possible. Structure parking would be needed to support a relocated UTC Mall Transit Center.

There would be no significant adverse impacts associated with relocation and redevelopment of the three P&R facilities.
Mitigation Measures

Relocation of the UTC Mall Transit Center to the southwest quadrant of the UTC Mall would require a design precluding the loss of parking capacity. A structure to support not only the transit center but also provide additional parking spaces for mall and transit patrons would be required (refer to Figure 2-15). Access would be via Genesee Avenue to the west driveway of the Mall. The transit center would need to be placed below the existing grade of the parking lot for two primary reasons:

- Visual obstruction of the major tenants by an elevated structure would not be permitted because of the lease/ownership arrangements of the Mall; and
- A below grade facility would allow parking for Mall customers to be replaced on top, returning the site to the pre-existing condition and physically separating Mall operations from transit center operations.

Figure 2-15 (Chapter 2, Alternatives Considered) depicts the conceptual layout of the transit center, which integrates transit center operations with the future lower level expansion of the Mall. This simplifies both projects. Parking would be provided at the lower level for transit patrons. Circulation ramps would facilitate access to the lower level transit center by autos, buses, and pedestrians. Knock-out panels would be incorporated along the east wall of the lower level, providing connections to the area of future mall expansion.

While the impacts associated with the three P&R facilities would not be significant, certain mitigation measures would have beneficial effects. MTDB would coordinate relocation/redevelopment of the Carmel Valley P&R Lot with Caltrans to preserve the necessary right-of-way in the design of the I-5/I-805/SR-56 interchange. Land acquisition for the Balboa Avenue Park-and-Ride would be carried out pursuant to MTDB's agreement with the City of San Diego for the property.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.1.2.3 TSM/Commuter Rail Alternative

The TSM/Commuter Rail Alternative would include all the developments associated with the TSM Alternative plus commuter rail stations at Nobel Drive and Balboa Avenue. A total of 9.2 hectares (22.7 acres) of land would be needed with this alternative. The Nobel Drive Commuter Rail Station would be immediately east of Genesee Avenue, just north of the existing AT&SF Railroad line. The Balboa Avenue Commuter Rail Station would be located in the southwest quadrant of the Balboa Avenue/Morena Boulevard interchange. Approximately 80 parking spaces would be added to the Sorrento Valley Commuter Rail Station which is currently under construction by NCTD.

Impacts

Construction of the Nobel Drive Commuter Rail Station would require acquisition of two parcels of publicly held open space totalling 3.8 hectares (9.3 acres) and a 0.2 hectare (0.6 acre) privately-held parcel. The station at Balboa Avenue would require acquisition of additional area next to the AT&SF Railroad line for a 305 meter (1,000 foot) platform. The additional parking at Sorrento Valley Commuter Rail Station would be placed along Sorrento Valley Road on property currently owned by NCTD.
Significance of Impacts

**Nobel Drive Station** - The provision of a Nobel Drive Commuter Rail Station generally is consistent with policies and plans adopted by the City of San Diego and the University Community. Specific TSM-related improvements have been identified in the University City Community Plan and incorporated in the TSM and TSM/Commuter Rail Alternative including programs for ridesharing, flexible work hours, and parking management; regional rail service provided by the commuter rail project; and integration of transit improvements. The University City Community Plan does not specifically identify the Nobel Drive Station site as a possible commuter rail transfer point, but acknowledges the need for such a facility in the University Community. The construction of the station would increase access between University City and the region and facilitate multi-modal travel between diverse land uses located in University City.

The taking of the two parcels at Nobel Drive is not considered a land use impact, per se, because the City of San Diego has no plans to formally develop the parcels for future recreational use. However, the smaller parcel of 0.91 hectares (2.25 acres) is officially designated as a mitigation site for the "Renaissance La Jolla" residential condominium project on the north side of Nobel Drive and the larger parcel (2.8 hectares/7.05 acres) is officially designated open space. The taking of the two parcels would represent a permanent conversion of open space to transportation uses. Approximately 0.3 hectares (0.8 acre) of the mitigation site parcel would be needed and would be reestablished elsewhere.

The University City Community Plan identifies Rose Canyon as an important open space and as a "Trail Through Nature" in the primary pedestrian network. The Rose Canyon Recreation Council was formed to take a more active role in managing the use of all open space areas within the Rose Canyon area. Taking of this open space for the Nobel Drive Station is not considered to have a significant adverse impact on land uses in the station area nor the continued enjoyment and use of the Rose Canyon Open Space Preserve south of the AT&SF Railroad tracks. In addition, the informal bike and hiking trail would be relocated to avoid interference with station traffic and pedestrian activity. In proportion to the size of the remaining area, the two parcels are insignificant. Therefore, no significant adverse impacts would occur with respect to land use or development patterns. However, potentially significant adverse effects may be related to use of the parcels as open space/parkland (see Section 5.10, Parklands).

**Balboa Avenue Station** - This station would be developed in the southwest quadrant of the Balboa Avenue/Morena Boulevard interchange. This site would be accessed from Morena Boulevard. Additional right-of-way would be required from the City of San Diego. This land is considered to be excess right-of-way and would cause no significant adverse impacts. No mitigation would be required.

**Mitigation Measures**

The Nobel Drive Station site plan (see Figure 2-17) shows the existing informal bike and hiking trail would be relocated to avoid interference with station vehicular traffic and allow for pedestrian access to the station from the high density residential apartments to the east and west of the station site. The bike and hiking path would be realigned to the west of the existing riparian area, providing formal bicycle and pedestrian circulation and connections to Nobel Drive and the station. In addition, a spur of the bike and hiking trail would be located at both ends of the station parking lot to serve as convenient trail heads for weekend use.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.
5.1.2.4 Commuter Rail Tunnel Alternative

The Commuter Rail Tunnel Alternative would require 7.4 hectares (18.3 acres) of additional right-of-way when compared to the No-Build Alternative. All facilities in the TSM Alternative are included as well as new property to place the south portal leading into Rose Canyon and the north portal leading into Soledad Creek Canyon.

Impacts

South Portal - This portal would be placed in public open space adjacent to Genesee Avenue. The open space currently contains a major sewer line/easement. The property is owned by the adjacent homeowners association. About 0.2 hectares (0.6 acres) is needed to construct the portal and trackway from Rose Canyon. The parcel is part of a steep slope of the embankment of Genesee Avenue (north/south running) and Decora Street (east/west running) and is not usable for human activities because of the topography. No impacts are expected due to relocation at this site.

North Portal - This location is adjacent to the AT&SF tracks in Soledad Creek Canyon, east of the terminus of Roselle Street. The portal will be placed in a very steep side slope which rises about 46 meters (150 feet) to the developable properties at the top of the canyon. At the portal and track elevation, the site is not usable for human activities. The portal and trackway will require about 0.4 hectare (1.0 acre) at this location.

Since this portal will have a lower elevation than the south portal, construction of the tunnel will be staged from this point. A parcel of about 1.6 hectares (4.0 acres) will need to be used temporarily for access and staging. This parcel is situated at the cul-de-sac at the east end of Roselle Street and is currently vacant. Adjacent uses are low rise warehouse/commercial/office. After construction, the parcel would be returned to developable condition. Depending upon maintenance requirements of the tunnel, an access road may be needed to connect with Roselle Street through this site. No impacts relative to relocation would result.

Significance of Impacts

No significant impacts of the tunnel portals were identified.

Mitigation Measures

None required.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.1.2.5 HOV Lane Alternative

The HOV Lane Alternative would require a total of 6.7 hectares (16.6 acres) of additional right-of-way when compared to the No-Build Alternative. With the exception of the areas listed below, along with the P&R lots and transit centers described in the TSM Alternative, the proposed improvements would be contained within the existing or planned freeway right-of-way. Where noise walls have been identified, additional right-of-way may be necessary to place these walls, however, identification of wall location is pending further design. No other displacement of residences or businesses would occur.
Impacts

Pacific Highway Overcrossing - To accommodate the Pacific Highway HOV drop ramps, the Pacific Highway overcrossing would be relocated approximately 6 meters (20 feet) south of the present location for the southern terminus of the HOV lanes. The existing Pacific Highway/Fiesta Island Road overcrossing would be demolished and the abandoned right-of-way would be exchanged for the right-of-way necessary for the new alignment. In an effort to minimize land requirements and harm to Mission Bay Park, the west approach will be built on an embankment with retaining walls to limit encroachment to the Park. The west abutment of the overcrossing has been pushed west to allow a two lane circulation road, connecting the north and south sides of the west approach and providing a future park road between the two parking lots (see Figure 2-22, Alternatives Considered). The revised design requires a 0.3 hectare (0.7 acre) property take from Mission Bay Park on the south side of Fiesta Island Drive and a 0.4 hectare (1.0 acre) property abandonment to Mission Bay Park from the north side of Fiesta Island Drive, resulting in a 0.1 hectare (0.3 acre) net return to the Park. This design was developed to address concerns expressed by the City of San Diego Parks and Recreation Department. There would be no change in the size of the roadway.

I-5: Tecolote Road to Clairemont Drive - To accommodate the HOV lanes in this section, 0.53 hectare (1.30 acres) of additional privately owned right-of-way would be required. No displacements or relocations would result.

Southbound Auxiliary Lanes - To accommodate a standard cross section between the southbound exit-ramp to Mission Bay Drive and SR 52, 0.42 hectare (1.04 acres) of additional right-of-way was needed. The new right-of-way is into the west slope. No relocation impact resulted.

I-5/I-805 Interchange Direct Connector - To accommodate direct HOV connector lanes through the I-5/I-805 interchange, an additional 8.8 meters (29 feet) of right-of-way will be required. This expanded footprint will impact the driveway of one structure on the west side of the interchange. Two right-of-way takes to the west side of the freeway, approximately 1,100 meters (3,600 feet) north of Los Penasquitos Creek will be required for the HOV direct connectors. The expanded footprint will require approximately 1.05 hectares (2.60 acres). The additional right-of-way required for I-5/I-805 HOV will be required as part of Stage 2A of the I-5 widening project.

Significance of Impacts

The right-of-way required for the relocated Pacific Highway overcrossing would be acquired from the Mission Bay Park. There would be a 0.1 hectare (0.3 acre) land abandonment to Mission Bay Park. Section 4(f) concerns are detailed in Appendix G. However, "consideration under Section 4(f) is not required when the federal, state, or local officials having jurisdiction over a park, recreation area, or refuge determine that the entire site is not significant. In the absence of such a determination, the Section 4(f) land would be presumed to be significant. The administration would review the significance determination to assure its reasonableness." The City of San Diego Parks and Recreation Department has jurisdiction over the affected parcels. The Parks Department has stated the proposed improvements to the park access and parking areas related to the redesign of the Pacific Highway overcrossing offsets the potential impacts to parkland. Property is returned in excess to the park, making impacts not significant. Section 4(f) clearance is required.

No significant impacts result from the SB Auxiliary Lanes between SR-52 and Mission Bay Drive.
Mitigation Measures

The revised design of the Pacific Highway overcrossing incorporates adequate mitigation such that no further harm would occur to Mission Bay Park. The design incorporates access improvements and retaining walls to minimize right-of-way requirements as requested and approved (May 3, 1994 correspondence from City of San Diego Park and Recreation Department to MTDB) by the City of San Diego Parks and Recreation Department and more than offsets impacts. No further mitigation would be required.

Any private property acquisition would be carried out according to State and Federal requirements specifying the following compensation and relocation procedures:

- Code of Civil Procedure (Section 1263.320a) regarding fair market value compensation;
- California Government Code (Chapter 16, Section 7260 et seq.) regarding location; and
- Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

Permits Required

The HOV Lane Alternative would most likely be implemented by Caltrans, thus Caltrans would need to apply for a coastal permit review by the City of San Diego for realignment of the Pacific Highway and the HOV lanes between (1) I-8 and Balboa Avenue and (2) Genesee Avenue and Del Mar Heights Road.

5.1.2.6 LRT Alternative

Table 5-1 summarizes the total right-of-way required for the LRT Alternative. It shows area by segment location and ownership -- public and private. The table includes a summary of right-of-way needs associated with the two LRT alignment options, including stations. It does not include area from the AT&SF right-of-way, since it is owned by MTDB.

Impacts of the LRT Alternative on land use are discussed below. Right-of-way and land use impacts are presented first for the South Segment, because there is only one LRT alignment/station option for this segment. Impacts for the North Segment then are presented, first for the LRT I-5 Alignment Option then for the LRT Genesee Alignment Option.

South Segment - San Diego River to Gilman Drive Station

Impacts

This segment is located entirely within or alongside the AT&SF Railroad right-of-way. Zoning along the segment is primarily industrial and commercial. A total of 2.88 hectares (7.12 acres) of additional right-of-way would need to be acquired, of which 0.6 hectare (1.5 acres) in the vicinity of Jutland Drive would be from private ownership. No displacements or relocations would occur.

There are six stations included in the South Segment of the LRT Alternative. These stations are located at: Old Town Transit Center, Tecolote Road, Clairemont Drive, Balboa Avenue, Jutland Drive, and Gilman Drive. Right-of-way and land use impacts associated with these stations are discussed below.
Old Town Transit Center - This is an existing facility; therefore, there are no impacts for consideration in this AA/DEIS/DEIR.

Tecolote Road Station - This station would be developed under the existing Tecolote Road overcrossing of the AT&SF Railroad, Morena Boulevard, and I-5. Site development would extend south and north of Tecolote Road adjacent to the west side of Morena Boulevard. Additional right-of-way will be required to accommodate 80 P&R spaces, an automobile drop-off/circulation lane, and two small shelters for each platform.

Clairemont Drive Station - This station would be developed under the existing Clairemont Drive overcrossing of the AT&SF Railroad, Morena Boulevard, and I-5. Site development would extend south and north of Tecolote Road adjacent to the west side of Morena Boulevard. Additional right-of-way will be required to accommodate 100 parking spaces and two small shelters for each platform.

Balboa Avenue Station - This station would be developed in the southwest quadrant of the Balboa Avenue/Morena Boulevard interchange. The site would be accessed from Morena Boulevard. Additional right-of-way will be required to accommodate bus and automobile drop-off/circulation lanes, 320 P&R spaces, a large shelter for bus transfer patrons, and two small shelters for each platform.

Jutland Drive Station - This station would be developed just west of Morena Boulevard at the west end of Jutland Drive. Additional right-of-way will be required to include bus drop-off/circulation lane, 50 P&R spaces, one large shelter for bus transfer patrons, and two small shelters for each platform. Acquisition of privately owned land would amount to 0.6 hectare (1.5 acres).
Gilman Drive Station - The Gilman Drive Station would be developed south of the Gilman Drive/La Jolla Colony Drive interchange with I-5, between the northbound freeway off-ramp and the AT&SF Railroad right-of-way. The LRT I-5 Gilman Drive Station site would require additional right-of-way for 70 new P&R spaces, an automobile drop-off lane, and two small shelters for each platform. Use of this right-of-way would require the rerouting of the Rose Canyon bicycle trail. The bicycle trail is located in the I-5 right-of-way. No other displacements or relocation would be necessary.

Significance of Impacts

No significant adverse impacts would result.

Mitigation Measures

The impacts to site access identified previously would be mitigated by MTDB working with affected properties to maintain site circulation patterns and assist in reconfiguring existing access. Landscaping would be retained where possible or replaced with comparable plantings. Any private property acquisition would be carried out according to State and Federal requirements specifying the following compensation and relocation procedures:

- Code of Civil Procedure (Section 1263.320a) regarding fair market value compensation;
- California Government Code (Chapter 16, Section 7260 et seq.) regarding location; and
- Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act.

Rerouting the Rose Canyon bicycle trail at the Gilman Drive Station site would be coordinated with City, Caltrans, and community officials by MTDB. These consultations would ensure selection of the most suitable routing/site for this facility. The trailhead can be located between the northbound exit ramp from I-5 and the station/parking area. Costs incurred in the relocation would be the responsibility of MTDB.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

North Segment - Gilman Drive to Judicial Way

The North Segment falls primarily in the University City Planning Area. There are two alignment options defined for the North Segment, which begins north of the Gilman Drive Station. The LRT I-5 Alignment Option would follow I-5 north to the UCSD then turn east to follow Executive Drive to Judicial Drive. The LRT Genesee Alignment Option would follow the AT&SF Railroad line northeast along Rose Canyon turning north on Genesee Drive then east on Executive Drive. Displacements and relocations for the LRT I-5 and LRT Genesee Alignment Options are discussed separately below.

LRT I-5 Alignment Option

Impacts

For the LRT I-5 Alignment Option, 13.67 hectares (33.77 acres) of additional right-of-way would be required, of which 6.72 hectares (16.61 acres) would be from private ownership. All right-of-way required would be partial acquisitions. No relocations or displacements would occur. Right-of-way would not affect existing structures. Right-of-way would be from vacant land, private open space, and State of California right-of-way.
Fifteen driveways along Executive Drive would be impacted, causing minor circulation changes, but no relocations. Specifically, access from Executive Drive to the office uses would be impacted through restriction of left-turns into and out of driveways. Some frontage landscaping would also be affected. This issue is discussed further in Chapter 4.0, Transportation Impacts, Section 4.2.4.

There are four stations included in the LRT I-5 Alignment Option for the North Segment. These stations would be located at: Nobel Drive/La Jolla Village Square, UCSD, Genesee Avenue/Executive Drive, and Judicial Drive/Executive Drive. Right-of-way and land use impacts associated with these stations are discussed below. The location and design of the Gilman Drive and Judicial Drive Stations are common to both alignment options in the North Segment.

**Nobel Drive/La Jolla Village Square Station** - The station would be located in the southwest quadrant of the Nobel Drive and I-5 overcrossing in the La Jolla Village Square retail mall and requires land from the shopping center. Conceptual site plans include a park-and-ride facility and space for 10 bus bays along with the elevated LRT platforms. Room for these station components would be coordinated with La Jolla Village Square. Currently a parking lot occupies the proposed station site. Approximately 7,636 square meters (83,000 square feet) of surface area would be needed to accommodate this station, including the bus bays and a park-and-ride lot.

**UCSD Station** - The UCSD Station would be within the I-5 right-of-way under the future Gilman Drive overcrossing of I-5. There would be no parking provided at this station. There would be bus and automobile drop-off/circulation lanes and two small shelters for each platform. No displacements or relocations would occur with development of this station. Approximately 0.34 acres of Caltrans right-of-way would be required.

**Genesee Avenue/Executive Drive Station** - This station would consist of a platform on both sides of the Genesee Avenue intersection on Executive Drive. As documented in Section 5.10, Parklands, the Genesee Avenue/Executive Drive Station would require right-of-way from the northwest quadrant of the Weiss/Mandell-Eastgate City Park. The park is City of San Diego dedicated parkland. Any property required from the park would be considered a significant adverse impact according to Section 4(f) of the U.S. Department of Transportation Act of 1964. This impact is further documented in Section 5.10, Parklands.

**Towne Centre Drive Station** - This station, to be located at the future Judicial Drive/Executive Drive, is common to both the LRT I-5 and LRT Genesee Alignment Options. The station would serve as the terminal station for the LRT Alternative. A small amount of right-of-way would be required for station facilities. No displacements or relocations would occur.

**Significance of Impacts**

The acquisition of right-of-way, and the redesign of access to the office uses from Executive Drive all represent less than significant adverse impacts. No buildings would need to be displaced or relocated; however, some inconvenience may result from the reconfiguration and redesign of site access in University City. Nonetheless, such inconvenience does not represent an impact of significance that would reduce the ability to occupy these sites for the intended office uses.

A significant adverse impact would result with development of the Genesee Avenue/Executive Drive Station, because its development would involve the taking of designated parkland. No significant adverse effects would result from development of the other stations along the LRT I-5 Alignment Option.
Mitigation Measures

The impacts to site access identified previously would be mitigated by MTDB working with affected properties to maintain site circulation patterns and assist in reconfiguring existing access. Landscaping would be retained where possible or replaced with comparable plantings. Any right-of-way acquisition would be carried out according to State of California and Federal requirements regarding compensation and relocation procedures listed previously.

While impacts are not considered significant at the Nobel Drive/La Jolla Village Square Station, measures are proposed that would have beneficial effects. With construction of a joint-use parking structure, displaced parking spaces would be replaced on the upper level and bus bays placed on the bottom level. MTDB has contacted the new owners of La Jolla Village Square to discuss station plans and begin to coordinate with the owner's expansion plans.

If the LRT I-5 Alignment is carried into the "Preliminary Engineering" phase of the FTA project development process, further study and consultations with the appropriate agencies would be required to certify that the proposed alignment includes all possible planning to minimize harm and that there is no feasible or prudent alternative to the taking of parkland at the Genesee Avenue/Executive Drive Station site. Mitigation measures could include reducing the traffic carrying capacity of Executive Drive to one general traffic lane in each direction or acquiring property from the south side of Executive Drive.

Unmitigable Impacts Remaining

No unmitigable impacts would remain in relation to development of the LRT line and four of the five stations proposed for the LRT I-5 Alignment Option. No unmitigable impacts would remain at the Genesee Avenue/Executive Drive Station site unless no other feasible and prudent alternative exists to taking right-of-way from the Weiss/Mandell-Eastgate City Park. Such a taking would require the completion of requirements set forth in Section 4(f) and the concurrence of the U.S. Secretary of Transportation.

LRT Genesee Alignment Option

Impacts

The LRT Genesee Alignment Option would require 6.56 hectares (16.20 acres) of additional right-of-way, of which 2.81 hectares (6.95 acres) would be acquired from private owners. All right-of-way required would be partial acquisitions. No relocations or displacements would occur. Right-of-way requirements would not affect existing structures. Right-of-way would be required from vacant land, private open space, and state right-of-way.

Eleven driveways along Executive Drive could be impacted, causing minor circulation changes, but no relocations. Access from Executive Drive to the office uses would be impacted through restriction of left-turns into and out of the driveways. The driveways are used primarily by employees who are expected to adapt to the change in left turn access. Some frontage landscaping would also be affected. This issue is further covered in the Chapter 4.0, Transportation Impacts, Section 4.2.4.

There are three stations included in the LRT Genesee Alignment Option for the North Segment. These stations are located at: University Towne Centre, Genesee Avenue/Executive Drive, and Towne Centre Drive. The location and design of the Towne Centre Drive Station is common to both alignment options in the North Segment. Impacts for this station are discussed above under the LRT I-5 Alignment Option. Right-of-way and land use impacts associated with the University Towne Centre and Genesee Avenue/Executive Drive stations are discussed below.
University Towne Centre (UTC) Station - The UTC Station, located just north of Nobel Drive, would be a below-grade or subway station; therefore, no relocations or displacements would be associated with its development. An agreement or easement with owners of the UTC Mall to locate the station would be needed. Initial discussions held with the owner and general staff indicate that this will be acceptable.

Genesee Avenue/Executive Drive Station - This station consists of depressed platforms in the middle of Executive Drive east of Genesee Avenue. In order to maintain traffic carrying capacity of the intersection, right-of-way would be required from the northwest quadrant of the Weiss/Mandell-Eastgate City Park. The park is considered City of San Diego dedicated parkland. Any property taken from the park would be considered a significant adverse impact according to Section 4(f) of the U.S. Department of Transportation Act of 1964. This impact is discussed further in Section 5.10, Parklands and previously for the LRT I-5 Alignment, Genesee Avenue/Executive Drive Station.

Significance of Impacts

The acquisition of right-of-way, and the redesign of access to the office uses from Executive Drive all represent less than significant adverse impacts. No buildings would need to be displaced or relocated; however, some inconvenience may result from the reconfiguration and redesign of site access in University City. Nonetheless, such inconvenience does not represent an impact of significance. No impacts would reduce the ability to occupy these sites for their intended office uses.

Mitigation Measures

Any impacts resulting from site access restrictions would be mitigated by MTDB working with the affected properties to maintain site circulation patterns and assist in reconfiguring existing access. Landscaping would be retained where possible or replaced with comparable plantings. Any right-of-way acquisition would be carried out according to the following State and Federal requirements regarding compensation and relocation procedures as previously mentioned.

If the LRT Genesee Alignment is carried into the "Preliminary Engineering" phase of the FTA project development process, further study and consultations would be required to certify that the proposed alignment includes all possible planning to minimize harm and that there is no feasible or prudent alternative to the taking of parkland at the Genesee Avenue/Executive Drive Station site. Mitigation measures could include reducing the traffic carrying capacity of Executive Drive to one general traffic lane in each direction or acquiring property from the south side of Executive Drive.

Unmitigable Impacts Remaining

No unmitigable impacts would remain in relation to development of the LRT line and three of the four stations proposed for the LRT Genesee Alignment Option. For the Genesee Avenue/Executive Drive Station site, no unmitigable impacts would remain, unless no other feasible and prudent alternative exists to taking right-of-way from the Weiss/Mandell-Eastgate City Park. Such a taking would require the completion of requirements set forth in Section 4(f) and the concurrence of the U.S. Secretary of Transportation.

5.1.3 Consistency With Local Plans

Impacts

Based on a review of the long-range planning guidelines and policies adopted by the City of San Diego for each community planning area, an assessment was made regarding the consistency of the project alternatives with
locally approved planning documents. All of the community plans contain general statements regarding transit improvements and are considered to be consistent with the alternatives being studied.

**Significance of Impacts**

No adverse significant impacts would result.

**Mitigation Measures**

While impacts are not significant, the community plans should be updated once a Locally Preferred Alternative (LPA) has been selected for the Mid-Coast Corridor Study.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

5.1.4 Coastal Zone Review and Other Affected Plans

**Impacts**

Improvements associated with the proposed alternatives have already been recognized in planning documents by the State of California and SANDAG. However, additional approvals, reviews, permits, and coordination with other agencies would be necessary to implement improvements associated with all alternatives. Agencies’ permits that may be required are shown in Table 5-2.

Several components of the transit and highway improvement alternatives fall in the Coastal Zone, which was established by the State of California to identify, protect, and restore natural, cultural, biological resources, and to protect public access to coastal resources. Coordination with the California Coastal Commission and the City of San Diego began in February 1994. Additionally, MTDB sent a written request to the California Coastal Commission (December 16, 1994) that they review and identify portions of the projects affecting the Coastal Zone and describe their impacts. The January 10, 1995 response (included in Appendix D) identified aspects of the project located within the Coastal Zone (including Mission Bay Park and Sorrento Valley) and the issues that need to be addressed in processing a coastal development permit. It further stated that these issues have been identified and addressed in the Mid-Coast AA/DEIS/DEIR. It has been determined that project components which fall in the Coastal Zone would need review by the City of San Diego, which has been authorized by the California Coastal Commission to act as its representative at the local level. In Mission Bay, the State of California maintains coastal permit jurisdiction. If the project is approved, then a coastal permit would be issued prior to construction. The required Coastal Consistency Certification will be completed after selection of the Locally Preferred Alternative (LPA) for the project. Table 5-3 summarizes the components of each alternative that fall into the Coastal Zone.

**Significance of Impacts**

Impacts to the Coastal Zone would be less than significant.

**Mitigation Measures**

Once an LPA has been decided upon, MTDB would participate in project review by the City of San Diego for compliance with coastal resource protection guidelines within Local Coastal Plans (LCP). In addition, MTDB would also participate in project review with California Coastal Commission through the Mission Bay area, because an LCP is not certified.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.
<table>
<thead>
<tr>
<th>Agency</th>
<th>Permit or Approval</th>
<th>Action Requiring Permit Or Approval</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Army Corps of Engineers</td>
<td>Section 404 Individual Permit</td>
<td>Discharge of dredged or fill material into waters of the US, including wetlands. USFWS approval.</td>
</tr>
<tr>
<td>US Army Corps of Engineers</td>
<td>Section 404 Nationwide Permit</td>
<td>Various</td>
</tr>
<tr>
<td>US Army Corps of Engineers</td>
<td>Section 10 Permit</td>
<td>Obstruction or alteration of navigable waters of the US.</td>
</tr>
<tr>
<td>Federal Transit Administration</td>
<td>National Historic Preservation Act Review</td>
<td>Application for a federal permit (404); preparation of EIS.</td>
</tr>
<tr>
<td>US Coast Guard</td>
<td>Section 9 Bridge Permit</td>
<td>Construction of bridges and/or causeways across navigable waters of the US.</td>
</tr>
<tr>
<td>US DOT (FTA and FHWA)</td>
<td>Section 4(f) Clearance</td>
<td>Any Federal DOT action involving the use of a publicly owned park, recreation area, wildlife, or water fowl refuge, or land from a historic site.</td>
</tr>
<tr>
<td>California Department of Fish and Game</td>
<td>Section 1601/1603 Streambed Alteration Permit</td>
<td>Any modification of a stream or waterway.</td>
</tr>
<tr>
<td>California State Historic Preservation Office</td>
<td>National Historic Preservation Act Review (Section 106)</td>
<td>Application for Federal assistance, permit, or license.</td>
</tr>
<tr>
<td>California Public Utilities Commission</td>
<td>Approval of Grade Separations/Crossings</td>
<td>Any modification or improvement of railroad grade crossings.</td>
</tr>
<tr>
<td>San Diego Regional Water Quality Control Board</td>
<td>Section 401 Water Quality Certification National Pollutant Discharge Elimination System Permit (NPDES)</td>
<td>Section 401 certification required before issuance of a Federal permit for any activity resulting in discharges into state waters. NPDES permit required for stormwater discharges for construction activities of 2 hectares (5 acres) or more.</td>
</tr>
<tr>
<td>SANDAG/APCD</td>
<td>Confirm TIP inclusion</td>
<td>Implementation of Federally funded transportation project. Construction of project in air quality non-attainment area.</td>
</tr>
<tr>
<td>City of San Diego</td>
<td>Section 4(f) Concurrency</td>
<td>Federal Department of Transportation (DOT) action requiring use of a City-owned park, recreation area, wildlife or waterfowl refuge or land from an historic site.</td>
</tr>
<tr>
<td>Jewish Community Center</td>
<td>Section 4(f) Concurrency</td>
<td>Federal DOT action requiring use of Weiss/Eastgate Park.</td>
</tr>
<tr>
<td>Caltrans</td>
<td>Encroachment Permit</td>
<td>Use of Caltrans Right-of-Way</td>
</tr>
<tr>
<td></td>
<td>Joint Use Agreement</td>
<td>LRT grade separated crossings; areas of longitudinal encroachment into state highway right-of-way.</td>
</tr>
<tr>
<td>California Transportation Commission</td>
<td>New Public Road Connection</td>
<td>Pacific Highway Drop Ramp</td>
</tr>
<tr>
<td>City of San Diego</td>
<td>Freeway Agreement</td>
<td>Pacific Highway Drop Ramp</td>
</tr>
<tr>
<td>FHWA</td>
<td>Design Exceptions</td>
<td>Non-Standard highway features for HOV alternatives.</td>
</tr>
<tr>
<td>SANDAG</td>
<td>Section 149 Streets and Highways Code approval.</td>
<td>Designated use of HOV lane.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Component</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSM</td>
<td></td>
</tr>
<tr>
<td>Relocate and expand park-and-ride facility at Carmel Valley Road.</td>
<td>Southeast quadrant of the I-5/Carmel Valley Road interchange.</td>
</tr>
<tr>
<td>TSM/Commuter Rail Alternative</td>
<td></td>
</tr>
<tr>
<td>Proposed parking at Sorrento Valley Station.</td>
<td>Underneath I-5/I-805 interchange.</td>
</tr>
<tr>
<td>HOV Lane</td>
<td></td>
</tr>
<tr>
<td>Redesign and rebuild Pacific Highway over I-5 freeway; demolish existing roadway.</td>
<td>Overcrossing I-5 freeway; southeast corner of Mission Bay Park which is</td>
</tr>
<tr>
<td></td>
<td>designated in its entirety as falling into the Coastal Zone.</td>
</tr>
<tr>
<td>Construct barrier-separated HOV lanes; Coastal Zone intrusion at two locations.</td>
<td>Between I-8 and Balboa Avenue.</td>
</tr>
<tr>
<td></td>
<td>Between south of Genesee Avenue and north of Del Mar Heights Road.</td>
</tr>
<tr>
<td></td>
<td>HOV lanes included as part of I-5/I-805/SR-56 interchange reconstruction</td>
</tr>
<tr>
<td></td>
<td>project by Caltrans, and the permit was approved by the Coastal Commission</td>
</tr>
<tr>
<td></td>
<td>on September 13, 1990. However, the HOV direct connection structure</td>
</tr>
<tr>
<td></td>
<td>bridging over Sorrento Valley was not contained in the application and</td>
</tr>
<tr>
<td></td>
<td>would require a separate determination to be concurred by the Commission.</td>
</tr>
<tr>
<td>LRT</td>
<td></td>
</tr>
<tr>
<td>Construct LRT tracks</td>
<td>Between I-8 and Balboa Avenue.</td>
</tr>
<tr>
<td>Construct stations at:</td>
<td></td>
</tr>
<tr>
<td>Tecolote Road</td>
<td>Coastal Zone boundary ends at eastern edge of railroad ROW; these three</td>
</tr>
<tr>
<td>Clairemont Drive</td>
<td>stations fall within the Coastal Zone.</td>
</tr>
<tr>
<td>Balboa Avenue</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** All project components falling within the Coastal Zone would need to be coordinated with the California Coastal Commission. Additionally, a permit review would need to be requested from the City of San Diego to examine if the components would adversely impact coastal resources within the Zone.

### 5.1.5 Employment Impacts

Impacts to employment were assessed by applying generation factors derived from the RIMS II economic impact model. Based on RIMS II model output, a sample project expending $100 million for construction would generate a total of 3,380 person-years of employment during the life of the project. For every person-year of employment created by the direct investment related to a project, 1.365 additional person-years of employment are created indirectly due to the multiplier effect.
5.1.5.1 No-Build Alternative

The No-Build Alternative is the baseline for growth and conditions projected for 2005 in the Mid-Coast Corridor. Corridor population is expected to grow from 232,000 in 1986 to 304,300 by 2005. Corridor employment between these same years is expected to grow from 117,400 to 168,200 full-time equivalent (FTE) positions. Forecasted economic growth already includes projects in the No-Build Alternative. The No-Build Alternative would have no adverse impact on forecasted economic growth.

5.1.5.2 TSM Alternative

**Impacts**

While some direct and indirect employment would be created by the investment of $39.2 million for capital facilities, the principal generator of employment for the TSM Alternative would be the expenditure of an additional $9.5 million annually on operational and maintenance (O&M) costs as compared to the No-Build Alternative. Approximately 1,200 direct and 1,650 indirect person-years of employment would be created by the capital expenditure. Transit operations would create approximately 320 direct and 430 additional indirect FTE positions compared to the No-Build Alternative.

**Significance of Impacts**

The economic impact of employment changes associated with the TSM Alternative is expected to be negligible in size and neutral in consequence. Money for most improvements would come from outside the local economy, through Federal and State funds, and would represent an overall net gain to the region. The employment created by the capital and O&M expenditures would represent a net increase of the total employment forecast for the San Diego region.

**Mitigation Measures**

No mitigation would be required.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

5.1.5.3 TSM/Commuter Rail Alternative

**Impacts**

Direct and indirect employment would be created by the TSM/Commuter Rail Alternative through an investment of $49.8 million for capital facilities and additional annual O&M expenditures of approximately $10.2 million as compared to the No-Build Alternative. Approximately 1,500 direct and 2,050 indirect additional person-years of employment would be created by the capital investment as compared to the No-Build Alternative. Transit operations would create approximately 345 direct and 470 additional indirect FTE employment as compared to the No-Build Alternative.
Significance of Impacts

The economic impact of employment associated with the TSM/Commuter Rail Alternative is expected to be negligible in size and neutral in consequence. Money for most improvements would come from outside the local economy, through Federal and State funds, and would represent an overall net gain to the region. The employment created by the capital and operational expenditures would represent a net increase of the total employment forecast for the San Diego region.

Mitigation Measures

No mitigation would be required.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.1.5.4 Commuter Rail Tunnel Alternative

Impacts

The Commuter Rail Tunnel Alternative capital costs are estimated to require approximately $311.3 million. An additional $10.5 million in O&M expenditures annually over the No-Build Alternative would be needed as well. The capital investment would result in 9,500 direct and 12,950 indirect person-years of employment as compared to the No-Build Alternative. Transit operations would create 310 direct and 420 indirect additional FTE as compared with the No-Build Alternative.

Significance of Impacts

Employment impacts associated with the Commuter Rail Tunnel Alternative would represent a net increase to the region. Construction would create a substantial amount of direct and indirect employment during the period of activity.

Mitigation Measures

No mitigation would be required.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.1.5.5 HOV Lane Alternative

Impacts

The HOV Lane Alternative capital costs are estimated to be approximately $145.4 million, and there would be an additional $11.2 million in annual O&M expenditures over the No-Build Alternative. Capital costs would create approximately 4,450 direct and 6,100 person-years of employment as compared to the No-Build Alternative. Transit operations would create approximately 370 direct and 500 additional indirect FTE employment as compared to the No-Build Alternative.
Significance of Impacts

Employment impacts associated with the HOV Lane Alternative would represent a net increase in the employment already forecast for the region.

Mitigation Measures

No mitigation would be required.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.1.5.6 LRT Alternative

Impacts

Compared to the No-Build Alternative, capital costs for construction of the LRT Alternative range from $328.2 million for the LRT I-5 Alignment Option to $341.1 million for the LRT Genesee Alignment Option. Construction expenditures would generate approximately 11,900 direct and 16,300 indirect additional person-years of employment compared to the No-Build Alternative. The incremental difference in annual O&M costs range from $13.5 million for the LRT I-5 Alignment Option to $12.2 million for the LRT Genesee Alignment Option. This level of annual O&M expenditures potentially would create an additional 1,070 FTE (450 direct and 620 indirect) employment as compared to the No-Build Alternative. The higher annual expenditures of the LRT I-5 Alignment Option would create an additional 1,180 FTE (500 direct and 680 indirect) of employment.

The LRT Alternative has the potential to create the most direct and indirect employment of the alternatives being considered. The impact of this employment added to the regional economy would be positive. The levels of possible employment would represent a net increase to the employment already forecast for the region by 2005 and included in the No-Build Alternative. Besides creating additional employment, the LRT Alternative would contribute non-local money to the regional economy.

Significance of Impacts

No adverse significant impacts would result.

Mitigation Measures

No mitigation would be required.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.1.6 Electric and Magnetic Fields

Impacts

Only the LRT Alternative could result in change in electric and magnetic fields. Both the LRT I-5 and LRT Genesee Alignment Options would use a system of overhead catenary wires and power substations. The catenary wires and
power substations of the LRT system would carry a maximum of 600 volts DC (0.6 kilovolts (kV)). This voltage is a fraction of that carried by common overhead power lines, which generally carry currents greater than 400 Kv. The closest structures to the catenary wires would be a warehouse in southern Rose Canyon. This warehouse is approximately 6 meters (20 feet) away. Also, there are some residences along Executive Drive that would be about 15 meters (50 feet) away.

Substations are used to convert the electricity (AC current) carried by larger public power lines into DC voltage used to operate the Light Rail Vehicles (LRVs). The conversion process results in complex transient magnetic fields. These magnetic fields operate at frequencies much higher than those of common overhead power lines. Similar to the overhead catenary, EMFs associated with the substations decay substantially with distance from the substation.

Significance of Impacts

Recently, there has been concern about health and biological risks associated with proximity to both power wires and other facilities which emit electromagnetic fields (EMFs). However, potential electromagnetic impacts from the catenary wires are low due to the low voltage carried by the wires. Potential effects of EMFs have been associated with considerably higher voltage than that associated with the catenary wires of the LRT system, and there is a tendency for EMFs to dramatically drop in potency as the distance from the source of emittance increases. In addition, no conclusive evidence has yet been demonstrated to show the specific links between EMFs and health and biological risks. Therefore, no adverse significant impacts would result.

Much remains unknown about the potential effects of EMFs emitted by power substations used for the LRT system. No detailed research has been done on the effects of substation EMFs, but there is early speculation that substation EMFs may pose a greater effect on people due to the potency of magnetic fields. Field measurements of an MTDB substation by San Diego Gas and Electric staff indicated EMFs drop to ambient levels within 15 meters (50 feet) of the substation. The impact of substation EMFs is less than significant.

Mitigation Measures

While no significant impacts would result, mitigation measures are proposed that would have beneficial effects. Mitigation measures would include locating substations a minimum of 15 meters (50 feet) from sensitive uses.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.1.7 Cumulative Land Use and Economic Development Impacts

5.1.7.1 No-Build Alternative

Individual project impacts associated with the No-Build Alternatives have already been mitigated. Cumulative impacts associated with these project are not considered to be significant.

5.1.7.2 TSM Alternative

Impacts

TSM improvements are not expected to create adverse cumulative impacts to the Mid-Coast Corridor. While selected locations would be subjected to the construction of new transit and P&R facilities, these impacts would
be site specific and are considered less than significant. Additionally, many of the sites are already zoned or planned to include these facilities, and the necessary right-of-way has been preserved. Of the new facilities, only the UTC Transit Center may further impact the existing retail mall with a possible increased demand for parking spaces by shoppers.

**Significance of Impacts**

No significant adverse impact would result.

**Mitigation Measures**

Coordination with the mall management would mitigate adverse cumulative impacts to the mall. No mitigation would be required.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

5.1.7.3 TSM/Commuter Rail and Commuter Rail Tunnel Alternatives

Cumulative land use and economic development impacts of the Commuter Rail Alternatives are similar to those for the TSM Alternative.

5.1.7.4 HOV Lane Alternative

**Impacts**

The HOV lanes, without the direct connectors proposed north of Sorrento Valley by Caltrans, have been cleared as part of the I-5 Widening and Interchange Improvements in San Diego, FEIS, March 1991 at the I-5/I-805/SR-56 junction. The addition of the HOV direct connectors have been added and are included in the HOV Lane Alternative for the Mid-Coast Corridor. The I-5 Widening and Interchange Improvements Project cleared in the March 1991 FEIS would require up to 46 hectares (114 acres) of land dedicated to the I-5 right-of-way. The Caltrans design includes sufficient right-of-way to incorporate the HOV lanes. The additional right-of-way needed for the I-5/I-805 HOV will be acquired as part of Stage 2A of the I-5 widening project. No significant cumulative impacts would occur.

Improvements proposed at the I-5/I-805/SR-56 interchange received permit approval from the California Coastal Commission on September 13, 1990. The HOV lanes were included in the definition of the project as approved by the Commission. However, direct connectors to the HOV lanes bridging over Sorrento Valley were not presented as part of the previous application and, therefore, require a separate determination of concurrency by the Commission. The I-5 Widening and Interchange Improvements Project also is within a City LCP and is considered in conformance with that action.

**Significance of Impacts**

The construction of HOV lanes and accessory structures in relation to the I-5 freeway are not expected to create any cumulative impacts to adjacent land uses as all necessary right-of-way has been preserved. Access along the roadways and freeway sections impacted by construction actions would not be affected during construction as the existing roadway would remain open until the new lanes are completed. No significant adverse impact would result.
**Mitigation Measures**

No mitigation would be required.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

**5.1.7.5 LRT Alternative**

**Impacts**

Service operations of the LRT Alternative would result in up to 16 trains in both directions during peak-hours. Coupled with commuter rail and Amtrak operations, 21 trains could operate through the Mid-Coast Corridor in any given peak-hour. This level of operations under the LRT Genesee Alignment Option effectively could divide the Rose Canyon Open Space and reduce the current unauthorized access across the railroad tracks.

At La Jolla Village Square (LRT I-5 Alignment Option), the Nobel Drive Station would occupy the northeast corner of the shopping center. A similar situation would occur with respect to the LRT Genesee Alignment. The UTC Station would be located in the southwest corner of the UTC Mall, which a proposed expansion area. LRT service would be on the lower level of a new parking structure in the southwest corner of the Mall. One other major development near the UTC Station in University City on the LRT Genesee Alignment is the Costa Verde site. This site currently is slated for high-rise residential uses for elderly persons.

Future development is planned along Executive Drive from Regents Road to east of Judicial Drive. Because of the University Community Plan and the Facilities Benefit Assessment District (FBA) that is in place, the vacant parcels already have been programmed for allowable uses and intensities, including required road improvements. Either of the two LRT alignment options would assist in meeting travel demand conditions that have been previously set.

**Significance of Impacts**

The AT&SF Railroad right-of-way was acquired by MTDB. For liability reasons, MTDB most likely will be fencing the right-of-way through Rose Canyon. Because trains already operate in Rose Canyon, additional train operations are not considered to be a significant adverse impact. Now that MTDB owns the AT&SF Railroad right-of-way, pedestrian crossings could be considered prior to fencing of the right-of-way.

The capacity of the LRT Alternative could be used to meet travel demand management requirements of the shopping centers. Joint planning and coordination activities at the two shopping centers would result in mutually beneficial impacts. Service provided by the LRT Genesee Alignment Option would be beneficial to future residents of high-rise residential development proposed at the Costa Verde site.

An increase in intensity of the development projects along Executive Drive would not be induced by the construction of LRT facilities and provision of transit service to the area. Development of the LRT system could make the projects more attractive to lessees, but these projects are still subject to FBA requirements which stipulate up-front payments for other transportation facilities.
Mitigation Measures

Grade-separated pedestrian crossings would be installed at three locations for the LRT Genesee Alignment Option in Rose Canyon. Grade-separated pedestrian crossings would mitigate the impacts to pedestrian access in Rose Canyon resulting from fencing along the LRT Genesee Alignment Option. Pedestrian safety would be enhanced considerably, and operations on the rail line would benefit with resolution of this safety issue.

Station site/design plans would be coordinated with planned expansion of the two shopping centers. Planning would integrate LRT facilities with the function and structure of the shopping environments. Coordinated planning activities would seek to establish important pedestrian linkages between the shopping environments and LRT services. Coordination also would assist in identifying parking loss/replacement opportunities.

Unmitigable Impacts Remaining

No significant cumulative impact would remain.

5.2 NEIGHBORHOODS

Information contained in the Neighborhood's Section is summarized from the Neighborhood Impacts Report, February 1994 technical support document on file in MTDB's offices. This report is hereby incorporated into this AA/DEIS/DEIR by reference.

Overall, implementation of any of the proposed Mid-Coast Corridor alternatives would create both positive and negative neighborhood impacts. Implementation of the LRT Alternative, in particular, would improve access to commercial, residential, student-related facilities, and shopping opportunities within the San Diego region. Potential neighborhood impacts relative to visual and aesthetics, noise and vibration, and safety and security are discussed in later sections of this chapter.

5.2.1 Barriers To Social Interaction

5.2.1.1 No-Build, TSM, TSM/Commuter Rail, Commuter Rail Tunnel and HOV Lane Alternatives

Impacts

The No-Build, TSM, TSM/Commuter Rail, Commuter Rail Tunnel, and HOV Lane Alternatives would not impose any additional barriers to social interaction. No impacts would result.

Significance of Impacts

No significant adverse impacts would result.

Mitigation Measures

No mitigation would be required.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.
5.2.1.2 LRT Alternative

Impacts of the LRT Alternative on neighborhood cohesion, safety, and social interaction within the Mid-Coast Corridor would be minimal, because the proposed facilities and services primarily would be placed within existing rail, freeway, and street rights-of-way. Overall, implementation of the LRT Alternative would improve access to commercial, residential, student-related facilities, and shopping opportunities within the San Diego region. In addition, the LRT Alternative would have the potential to reduce automobile congestion and associated emissions. Implementation of the LRT Alternative would not impact neighborhood cohesion and would be considered a beneficial impact. Its implementation would be consistent with the adopted Community Plans in the Mid-Coast Corridor. Potential impacts associated with each alignment option are discussed below.

LRT I-5 Alignment Option

Impacts

Neighborhood disruption could occur with respect to residences immediately east of I-5, between Gilman Drive and Charmant Drive (La Jolla Colony) and west of I-5 (3416 Via Sonoma). In these locations, the proposed LRT I-5 Alignment Option would encroach within 21 meters (70 feet) of residences. Development of LRT facilities would require the construction of a series of retaining walls and extensive modification of the landscaped buffer (east side of I-5 only) currently protecting the residences from adverse impacts associated with I-5.

Significance of Impacts

No adverse significant impacts would result; however, certain mitigation measures would have beneficial effects.

Mitigation Measures

Potentially negative effects on residences would be mitigated through the use of landscape screening, replacement of landscaping, and landform grading on both the La Jolla Colony and I-5 sides of the track. The impact on existing retaining walls also can be reduced through the careful design relating to the quality and scale of modified walls. A series of shorter walls (crib or stress-wall) separated by plant materials would be utilized if the walls are large (over 1.8 meters (6 feet) high and over 60 meters (200 feet) long), in the I-5 ROW or seen by I-5 commuters.

Manufactured slopes would vary between 1:1 and 4:1 to create a natural meandering appearance. All return slopes would be blended back to existing slopes.

All removed plant material would be replaced at a ratio of 1.25 to 1 to allow for normal plant mortality and to offset the difference between the size of current and replacement plant materials. The size of replacement trees and shrubs would be approximately 50-75% of the current size of the existing trees and shrubs. Ground cover and lawn areas would be replaced at a 1 to 1 ratio with 100% coverage in 2-3 years.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.
LRT Genesee Alignment Option

Impacts

The AT&SF right-of-way would be fenced adjacent to the Rose Canyon Open Space Preserve (this fencing may occur prior to the project). The fencing would result in a physical barrier between residential neighborhoods and the Open Space Preserve. The barrier would restrict access to the Open Space Reserve by residents of the area.

Significance of Impacts

No adverse significant impacts would result, because access across the AT&SF Railroad right-of-way currently is considered unlawful trespassing and is posted as such. However, no physical barriers exist to stop pedestrians from crossing the right-of-way into the Open Space Preserve. Nevertheless, certain beneficial actions would be implemented to minimize potentially negative effects of the fencing.

Mitigation Measures

While the impacts of fencing are not considered significant, the following mitigation measures would have beneficial effects. Rose Canyon access restrictions could be effectively mitigated through the installation of grade-separated pedestrian crossings. This concept is discussed in Section 5.1, Land Use and Economic Development, above. Specific locations and design would be finalized during Preliminary Engineering.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.2.2 Impacts of New Developments

Impact

Large-scale new developments resulting directly from implementing any of the proposed Mid-Coast Corridor alternatives are not anticipated. Development would occur with or without the proposed alternatives. Locational decisions for minor developments which would occur may be influenced by the presence of an LRT station or bus transit center. For example, with proper zoning, a convenience store may find it more profitable to locate near a LRT station or bus transit center. It is not expected that such developments would be of sufficient magnitude to significantly affect any neighborhood.

Three station sites in the Mid-Coast LRT project have the potential for higher intensities around them: Clairemont Drive, La Jolla Village Square (additions under construction) and University Towne Centre. Discussions have been held with all these property owners/developers to identify opportunities for joint development. Other opportunity areas could be identified over time as community plans are updated. Ultimate approvals of community plan updates and specific development projects must come from the City of San Diego. MTDB does not have authority over local land use decisions.

The City of San Diego has demonstrated support for mixed use, transit-supportive development through approval of Transit-Oriented Development Design Guidelines (August 4, 1992). Per these guidelines, efforts would be made to improve the land use mix and design of developments, and their orientation to transit. In addition, MTDB has published joint development guidelines in its Designing for Transit handbook to assist in this effort.
None of the other project alternatives are expected to have potential for influencing the urban form of the surrounding areas and neighborhoods.

**Significance of Impacts**

No significant adverse impact would result.

**Mitigation Measures**

No mitigation would be required.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

5.2.3 Public Facilities and Services

5.2.3.1 No-Build and TSM Alternatives

**Impacts**

The No-Build and TSM Alternatives would not have a direct effect on schools, churches, hospitals, community centers, parklands, or other community services.

**Significance of Impacts**

No significant adverse impact would result.

**Mitigation Measures**

No mitigation would be required.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

5.2.3.2 TSM/Commuter Rail Alternative

**Impacts**

Construction of the Nobel Drive Commuter Rail Station would require acquisition of two parcels of publicly held open space within the vicinity of the Rose Canyon Recreation Area, totalling 4.0 hectares (9.9 acres).

**Significance of Impacts**

The provision of a Nobel Drive Commuter Rail Station generally is consistent with policies and plans adopted by the City of San Diego and the University Community. Specific TSM-related improvements have been identified in the University Community Plan and incorporated in the TSM/Commuter Rail Alternative including programs for ridesharing, flexible work hours, and parking management; regional rail service provided by the commuter rail project; and integration of transit improvements. The University City Community Plan does not specifically identify...
the Nobel Drive Station site as a possible commuter rail transfer point, but acknowledges the need for such a facility in the University Community. The construction of the station would increase access between University City and the region and facilitate multi-modal travel between diverse land uses located in University City.

The taking of the two parcels at Nobel Drive is not considered a significant adverse impact relative to community facilities because the City of San Diego has no plans to formally develop the parcel for future recreational use. However, the smaller parcel of 0.91 hectares (2.25 acres) is officially designated as a mitigation site for the "Renaissance La Jolla" residential condominium project on the north side of Nobel Drive and the larger parcel (3.10 hectares/7.65 acres) is officially designated open space. Approximately 0.3 hectare (0.8 acre) of the mitigation site parcel would be needed. The taking of the two parcels would represent a permanent conversion of open space to transportation uses.

The University City Community Plan identifies Rose Canyon as an important open space and as a "Trail Through Nature" in the primary pedestrian network. The Rose Canyon Recreation Council was formed to take an active role in managing the use of open space areas within Rose Canyon. Taking of this open space for the Nobel Drive Station would not constitute a significant adverse impact to community facilities. In proportion to the size of the remaining area, the two parcels are insignificant. However, potentially significant adverse effects may be related to use of the parcels as open space/parkland (see Section 5.10, Parklands).

**Mitigation Measures**

The Nobel Drive Station site plan (see Figure 2-16) shows the existing informal bike and hiking trail would be relocated to avoid interference with station vehicular traffic and allow for pedestrian access to the station from the high density residential apartments to the east and west of the station site. The bike and hiking path would be realigned to the west of the existing riparian area, providing formal bicycle and pedestrian circulation and connections to Nobel Drive and the station. In addition, a spur of the bike and hiking trail would be located at both ends of the station parking lot to serve as convenient trail heads for weekend use.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

5.2.3.3   **Commuter Rail Tunnel Alternative**

**Impacts**

The Commuter Rail Tunnel Alternative would result in no adverse impacts to neighborhoods.

**Significance of Impacts**

No significant adverse impacts would result.

**Mitigation Measures**

No mitigation would be required.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.
5.2.3.4  HOV Lane Alternative

*Impacts*

The HOV Lane Alternative would result in no adverse impacts to neighborhoods.

*Significance of Impacts*

No significant adverse impacts would result.

*Mitigation Measures*

No mitigation would be required.

*Unmitigable Impacts Remaining*

No unmitigable impact would remain.

5.2.3.5  LRT Alternative

*Impacts*

The LRT Alternative includes an alignment in the center of Executive Drive at Genesee Avenue. Additional right-of-way would be required from the open turf and proposed future expansion area at the southeast corner of the Weiss/Mandell-City Eastgate Park to implement the proposed LRT alignment, while maintaining roadway capacity.

*Significance of Impact*

The taking of a portion of the open turf and proposed future expansion area would be a significant adverse impact to the University City neighborhood. The taking also would constitute a significant adverse impact under Section 4(f) (see Section 5.10, Parklands). Development of the LRT system along Executive Drive would affect the setting of the Weiss/Mandell-City Eastgate Park. However, because Executive Drive already is an established transportation facility, secondary effects of LRT operations would not constitute a significant adverse impact.

*Mitigation Measures*

Currently, Executive Drive, between Regents Road and Towne Centre Drive, is striped for two general traffic lanes (one general traffic lane in each direction). However, the existing curb-to-curb cross section would permit future striping for four general traffic lanes (two general traffic lanes in each direction). Maintaining the current right-of-way along Executive Drive and reducing the future traffic carrying capacity by removing the opportunity for one more general traffic lane in each direction between Regents Road and Genesee Avenue would allow the LRT to operate within the median of Executive Drive without requiring additional right-of-way. This, however, represents a potentially significant impact on traffic and circulation in the area.

Any change to the traffic carrying capacity would need to be coordinated and approved by the appropriate City of San Diego departments. Since reducing the future traffic carrying capacity of Executive Drive will not be acceptable to the City of San Diego, other mitigation proposals must be investigated. One possibility would be acquiring property exclusively from the south side of Executive Drive to avoid impacts to the park.
Unmitigable Impacts Remaining

No unmitigable impacts would remain, unless no other feasible and prudent alternative exists to taking some of the parkland on the north side of Executive Drive. Such a taking would require the completion of requirements set forth in Section 4(f) of the U.S. Department of Transportation Act of 1964 and the concurrence of the U.S. Secretary of Transportation.

5.2.4 Cumulative Neighborhood Impacts

5.2.4.1 TSM, TSM/Commuter Rail, Commuter Rail Tunnel, and HOV Lane Alternatives

Impacts

The TSM, TSM/Commuter Rail, Commuter Rail Tunnel, and HOV Lane Alternatives would cause no adverse cumulative impacts to neighborhoods within the Mid-Coast Corridor. Improved transit services of the type proposed under these alternatives would provide improved regional access to neighborhood facilities and would be considered a beneficial regional impact.

Significance of Impacts

No significant adverse impact would result.

Mitigation Measures

No mitigation would be required.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.2.4.2 LRT Alternative

Impacts

The LRT Alternative would require additional right-of-way from the north and south sides of Executive Drive, between Regents Road and the future Judicial Drive. This additional right-of-way would be a significant adverse cumulative impact in the vicinity of the Weiss/Mandell-Eastgate City Park.

Significance of Impacts

If the mitigation measures stated previously are implemented, adverse cumulative impacts to the neighborhood would be mitigated to a level below significance.

Mitigation Measures

See mitigation measures stated previously.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.
5.3 SAFETY AND SECURITY

This section presents a summary of the potential impacts of the alternatives related to security, seismic safety, and the provision of emergency services (Hazardous Materials issues are discussed in Section 5.13). The following were used as inputs:

- MTDB and Caltrans procedures and design criteria;
- Analysis of Crime Trends for MTDB and SDTI, September 1992; and

5.3.1 No-Build Alternative

The projects in the No-Build Alternative have been programmed and their impacts have been considered in previous documentation. No additional impacts specific to the Mid-Coast Corridor are expected.

5.3.2 TSM Alternative

Impacts

The park-and-ride lots included in this alternative have the potential for security impacts to the vehicles and people using them. They would be patrolled by the City of San Diego Police Department. Three of the lots (Carmel Valley Road, Gilman Drive, and University Towne Centre) are relocations or expansions of existing facilities; the lot at Balboa Avenue would be new.

The new and expanded bus services would be secured using measures similar to those in place today (e.g., driver radio capability, plain clothes officers on-board, video cameras). No security impacts are expected.

The park-and-ride lots would be designed to MTDB and Caltrans specifications. No adverse impacts related to seismic safety are expected. No emergency services would be affected.

Significance of Impacts

No significant impacts would occur.

Mitigation Measures

None required.

Unmitigable Impacts Remaining

None.

5.3.3 TSM/Commuter Rail Alternative

Impacts

Impacts would be similar to the TSM Alternative. The only new element would be the addition of a commuter rail station at Genesee Avenue/Nobel Drive. The Balboa Avenue Commuter Rail Station would be similar to the park-and-ride lot in the TSM Alternative, with the addition of a passenger loading platform. Security would be provided by the City of San Diego Police and the security force of the commuter rail system. The station shelters would be
designed to conform to MTDB and State criteria for seismic safety. Emergency services would not be affected by the stations.

**Significance of Impacts**

No significant adverse impacts would result from this alternative.

**Mitigation Measures**

No mitigation measures would be required.

**Unmitigable Impacts Remaining**

None.

5.3.4 **Commuter Rail Tunnel Alternative**

**Impacts**

This alternative includes most of the elements of the TSM/Commuter Rail Alternative plus construction of a tunnel under North University City connecting Sorrento Valley and Rose Canyon. An underground station at UTC would be constructed instead of one at Nobel Drive. Impacts for this alternative would be similar to those for the TSM/Commuter Rail Alternative. Security forces would patrol the station at UTC. The tunnel would be constructed to withstand seismic events, and procedures would be instituted for inspection of the tunnel after an earthquake (see discussion under LRT Alternative), as well as for evacuation of the tunnel in an emergency. The alternative would have no effect on the provision of emergency services.

**Significance of Impacts**

No significant adverse impacts would result from this alternative.

**Mitigation Measures**

No mitigation measures would be required.

**Unmitigable Impacts Remaining**

None.

5.3.5 **HOV Lanes Alternative**

**Impacts**

This alternative includes all of the elements of the TSM Alternative, plus construction of HOV lanes in the median of I-5. Impacts would be similar to the TSM Alternative. The HOV lanes would not add any impacts on security since they would be patrolled as part of the security provided by the California Highway Patrol. The lanes would be designed to Caltrans criteria for seismic safety and would be inspected and repaired as needed after an earthquake. Since the HOV lanes would be separated by painted lines, emergency vehicles would have full access at any point, resulting in no adverse impacts to emergency services.
Significance of Impacts

No significant adverse impacts would result from this alternative.

Mitigation Measures

No mitigation measures would be required.

Unmitigable Impacts Remaining

None.

5.3.6 LRT Alternative

Impacts

Operations

Concern has been expressed regarding security issues related to this alternative. San Diego Trolley, Inc. (SDTI), the operator of the LRT system, and MTDB provide protection for passengers and property through a combination of efforts. Since SDTI began operation in July 1981, they have retained a private security contractor to provide protection. The force is uniformed and officers have the power of arrest. Most of the officers are armed and meet or exceed the licensing standards of the California Bureau of Collections and Investigative Services. In addition, fare inspection personnel employed by MTDB check passengers for proper fare payment and assist in maintaining security. Several actions have been taken recently in an effort to enhance security:

- The responsibilities of the security and fare inspection forces have been combined to allow both to check fares;
- Prepaid fare zones have been established at stations to allow the inspection of passengers before boarding to improve station and on-board security;
- MTDB has hired a management-level Transit Security Administrator to coordinate, promote and bolster security efforts;
- Through the efforts of the Security Administrator, there has been expanded liaison and coordination with municipal police forces and private security providers along the LRT lines;
- Plain clothes security officers have been deployed on both the LRT and bus systems; and
- How to "Ride Guides" have been distributed to inform riders of steps they can take to increase their own security while on the LRT.

A study recently completed by SANDAG (1992) compared crime rates in areas surrounding East Line trolley stations in 1987 and 1991, before and after the start of the East Line to El Cajon (Table 5-4). There were three levels of analysis: areas immediately surrounding trolley stations, a larger east suburban area, and the San Diego region. Despite the introduction of eight trolley stations, an average of 7,000 boardings daily, and 800 cars parked at any one time, the violent crime rate in areas immediately surrounding East Line stations increased less than rates for the east suburban area and region. Property crime rates decreased slightly more surrounding trolley stations than in the east suburban area, and slightly less than the regional rate.¹

¹ It is not known exactly why crime statistics are more favorable around trolley stations, but this may be attributable to the predictable presence of passengers, and the trolley's own security presence.
TABLE 5-4
ANALYSIS OF CRIME TRENDS 1987-1991*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>San Diego Region</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Violent Crime Rate</td>
<td>7.3</td>
<td>9.7</td>
<td>2.4</td>
<td>32.9%</td>
</tr>
<tr>
<td>Property Crime Rate</td>
<td>63.6</td>
<td>58.6</td>
<td>-5.0</td>
<td>-7.9%</td>
</tr>
<tr>
<td><strong>East Area</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Violent Crime Rate</td>
<td>5.1</td>
<td>6.5</td>
<td>1.4</td>
<td>27.5%</td>
</tr>
<tr>
<td>Property Crime Rate</td>
<td>49.9</td>
<td>47.1</td>
<td>-2.8</td>
<td>-5.6%</td>
</tr>
<tr>
<td><strong>Area Near Trolley Stations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Violent Crime Rate</td>
<td>7.1</td>
<td>8.1</td>
<td>1.0</td>
<td>14.1%</td>
</tr>
<tr>
<td>Property Crime Rate</td>
<td>54.8</td>
<td>51.4</td>
<td>-3.4</td>
<td>-6.2%</td>
</tr>
</tbody>
</table>

* Crime rate is crimes per 1,000 population.

A survey was also conducted on-board the trolley to identify passengers' perceptions of trolley security and crime. Riders rated the economy and crime as the major issues facing the region. Over three-quarters rated security at trolley stations "good" or "average". Eighty percent feel "safe" on-board the trolley. This percentage declined when asked their feelings on safety at trolley stations (63 percent felt "safe") but was higher than the proportion that feel safe at automatic teller machines or in downtown San Diego (54 percent and 47 percent, respectively). A slightly lower percentage of East Line riders rated trolley security "good" or "average" compared to South Line passengers. The study concluded that while there is some concern among passengers about station security, it may be more a reflection of concerns about crime regionwide.

Similar questions were posed in a 1993 resident opinion survey conducted on behalf of MTDB. Residents rank crime and the economy as the major issues facing the region. This is consistent with similar studies conducted in other west coast metropolitan cities. When asked their perceptions of safety at various public places, people generally perceive transit as safe as compared to ATMs or downtown San Diego. However, there are differences in the perceptions of safety on-board and at transit facilities between transit riders and non-riders. Seventy-five percent of residents who have ridden transit believe it is safe on-board and 56 percent believe it is safe at trolley stations and bus stops. Fewer non-riders perceive transit as safe; 48 percent believe on-board is safe and 39 percent believe facilities are safe. However, a large proportion of non riders are unfamiliar with service and did not have an opinion on safety.

**Design Considerations**

MTDB's LRT design criteria call for various features to enhance the security of LRT stations. One of the objectives for landscaping is "To provide a safe, secure, comfortable and attractive environment throughout the transit system, particularly at and along approaches to station entrances." In addition, waiting areas at bus stops and kiss-and-ride areas will be visually accessible for security reasons. Other security design-related features include the use of wrought iron fencing rather than solid walls to maintain the visibility of station platforms and other areas in the station, lighting, public telephones and chain link fencing along the right-of-way.
Seismic Safety

The LRT project would be built to MTDB design criteria which include provisions for seismic safety. MTDB requires project soils reports to identify known earthquake faults in the area, geologic-seismic features of the area, potential for liquefaction, depth of bedrock and recommended design acceleration at the site. All bridges, stations and maintenance buildings would be designed and built according to the most current seismic zone for design.

Emergency procedures are in place for responding to earthquakes. Tracks, bridges, and catenary are inspected for any structural problems and service is resumed as soon as it is safe to do so. Within minutes of an earthquake, train operators are ordered to slow trains to 15 mph while the operators make a visual inspection of the line, checking conditions of the rails, catenary system, signals, switches and substations. This is followed by a second inspection process where crews are deployed for a closer examination of the track. Each inspector walks a five mile section of the track to detect defects.

Emergency Vehicle Accommodation

Emergency services could be affected by at-grade LRT crossings by having minor response delays. The LRT I-5 Alignment has five at-grade crossings of existing streets (Gilman Drive, Regents Road, Genesee Avenue, Executive Way, and Towne Centre Road) and one crossing of a future street (Judicial Drive). The LRT Genesee Alignment would cross four existing streets (Genesee Avenue, Executive Way, and Towne Centre Drive) and one future street (Judicial Drive).

For the crossings at Gilman Drive and Regents Road on the I-5 Alignment, the LRT would have priority over traffic and the crossings would be protected by gates. Conversations with SDTI staff revealed that there have been no problems regarding emergency vehicle operations related to the gate-protected crossings on the South and East Lines. Crossings near stations of the South and East Lines have a design feature (known as nearside hold off) to delay the gates coming down while passengers are loading and unloading. This feature minimizes delays to cross traffic. This same feature would be part of the crossing protection at the proposed Gilman Drive Station.

For the Genesee Avenue Alignment, all of the crossings would be on-street operations controlled by traffic signals. The signals would be equipped with preemption systems to give first priority to emergency vehicles. There would be no effect on emergency vehicles since they would be given the green light as they approach the intersection. Thus, impacts to emergency vehicles are minimal and less than significant.

Significance of Impacts

No significant adverse impacts would result.

Mitigation Measures

No mitigation measures are necessary.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.
5.4 VISUAL AND AESTHETIC

This section presents a summary of the visual and aesthetic impacts associated with transportation improvement alternatives proposed for the Mid-Coast Corridor. Detailed technical information can be found in the Visual Impact Assessment, April 1994, support technical report on file at MTDB’s offices. The report is hereby incorporated by reference into this AA/DEIS/DEIR.

Visual impacts of the alternatives include both the objective visual resource change created by the alternatives and the subjective viewer response to that change. Five categories to assess visual impacts were identified and are listed below:

- Landform Quality;
- Visual Quality;
- Visual Resources;
- View Quality; and
- Neighborhood Character.

Appendix G of the State CEQA Guidelines states that "a project would normally have a significant effect on the environment if it would ... (a) conflict with adopted environmental plans and goals of the community where it is located; and (b) have a substantial, demonstrable negative visual effect". CEQA Section 15064 (B) states that "... the significance of an activity may vary with the setting ... an activity which may not be significant in an urban area may be significant in a rural area". This statement is particularly applicable to the determination of the significance of a visual effect.

Within each identified landscape unit (Landscape Units are identified in 3.0, Affected Environment, Figures 3-12 through 3-15), a candidate keyview was selected. Each candidate keyview was used as a visual aid in determining the significance of changes within each landscape unit. In the case where a significant impact was determined, a visual simulation was prepared to determine the extent of the expected impact. Contrasts to form, line, texture, color, value, and character were evaluated. The alternatives were assessed without major mitigation, and also with the recommended mitigation. An adverse, yet less than significant, impact rating was used to identify those impacts that are not, entirely by themselves, significant. However, if several less than significant impacts in one view were related to the visual change, the impact was considered to be significant.

Mitigation measures have only been recommended where significant impacts have been identified. Mitigation of impacts other than those defined as significant can be considered on a case by case basis during the preliminary engineering phase of the project and would be contingent on available funding.

Recommended mitigation measures include the following: landscape screening of key visual elements; replacement of damaged or removed landscaping (see Table 5-5); landform screening of proposed elements; landform grading of affected slopes; contrast and color matching of plant materials, retaining walls and other equipment; slight realignment of proposed elements to a location not as visually important; improved aesthetics of proposed elements such as retaining walls by designing walls with a textured surface, earth-tone color, and stepped for planting; and decrease the scale of project elements such as walls by utilizing a series of smaller walls. Retaining walls, wall type, size and location for each alternative are shown in Table 5-6.
<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Location</th>
<th>Typical Height</th>
<th>Typical Spread</th>
<th>Growth Rate</th>
<th>Size</th>
<th>Min. Height</th>
<th>Min. Spread</th>
<th>On-Center Spacing</th>
<th>Mit. Growth Rate*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arbutus unedo</td>
<td>●</td>
<td>15-30'</td>
<td>15-30'</td>
<td>Slow-Mod</td>
<td>15 gal</td>
<td>4-5'</td>
<td>3-4'</td>
<td>-</td>
<td>50%</td>
</tr>
<tr>
<td>Eucalyptus cladocalyx</td>
<td>●</td>
<td>45-75'</td>
<td>25-50'</td>
<td>Moderate</td>
<td>5 gal</td>
<td>4-5'</td>
<td>2-3'</td>
<td>-</td>
<td>50%</td>
</tr>
<tr>
<td>Jacaranda mimosifolia</td>
<td>●</td>
<td>25-40'</td>
<td>15-30'</td>
<td>Slow-Mod</td>
<td>15 gal</td>
<td>7-8'</td>
<td>2-3'</td>
<td>-</td>
<td>50%</td>
</tr>
<tr>
<td>Platanus racemosa</td>
<td>●</td>
<td>50-90'</td>
<td>30-50'</td>
<td>Rapid</td>
<td>15 gal</td>
<td>7-9'</td>
<td>2-3'</td>
<td>-</td>
<td>40%</td>
</tr>
<tr>
<td>Prunus lyonii</td>
<td>●</td>
<td>30-40'</td>
<td>20-30'</td>
<td>Moderate</td>
<td>15 gal</td>
<td>6-8'</td>
<td>3-4'</td>
<td>-</td>
<td>50%</td>
</tr>
<tr>
<td>Quercus agrifolia</td>
<td>●</td>
<td>30-60'</td>
<td>40-70'</td>
<td>Moderate</td>
<td>15 gal</td>
<td>6-8'</td>
<td>3-4'</td>
<td>-</td>
<td>50%</td>
</tr>
<tr>
<td>Schinus terebinthifolius</td>
<td>●</td>
<td>20-30'</td>
<td>20-30'</td>
<td>Moderate</td>
<td>15 gal</td>
<td>7-8'</td>
<td>2-3'</td>
<td>-</td>
<td>50%</td>
</tr>
<tr>
<td>Washington robusta</td>
<td>●</td>
<td>60-100'</td>
<td>10-12'</td>
<td>Rapid</td>
<td>15 gal</td>
<td>4-5'</td>
<td>-</td>
<td>-</td>
<td>20%</td>
</tr>
<tr>
<td>Adenostoma fasciculatum</td>
<td>● ●</td>
<td>5-12'</td>
<td>5-8'</td>
<td>Moderate</td>
<td>1 gal</td>
<td>8-10'</td>
<td>5-6'</td>
<td>6'-0'</td>
<td>75%</td>
</tr>
<tr>
<td>Arbutus unedo 'Compacta'</td>
<td>● ●</td>
<td>8-12'</td>
<td>8-12'</td>
<td>Slow-Mod</td>
<td>1 gal</td>
<td>12&quot;</td>
<td>12&quot;</td>
<td>10'-0&quot;</td>
<td>50%</td>
</tr>
<tr>
<td>Arctostaphylos spp.</td>
<td>●  ●</td>
<td>2'-4'</td>
<td>4'-6'</td>
<td>Moderate</td>
<td>1 gal</td>
<td>12&quot;</td>
<td>12&quot;</td>
<td>5'-0&quot;</td>
<td>70%</td>
</tr>
<tr>
<td>Baccharis sarothroides</td>
<td>●  ●</td>
<td>6-12'</td>
<td>4-8'</td>
<td>Rapid</td>
<td>1 gal</td>
<td>12&quot;</td>
<td>12&quot;</td>
<td>6'-0&quot;</td>
<td>90%</td>
</tr>
<tr>
<td>Ceanothus spp.</td>
<td>●  ●</td>
<td>3'-7'</td>
<td>4-10'</td>
<td>Mod-Rapid</td>
<td>1 gal</td>
<td>6&quot;</td>
<td>8&quot;</td>
<td>8'-0&quot;</td>
<td>90%</td>
</tr>
<tr>
<td>Eriogonum fasciculatum</td>
<td>●  ●</td>
<td>2'-3'</td>
<td>2'-3'</td>
<td>Rapid</td>
<td>1 gal</td>
<td>8-10&quot;</td>
<td>5-6&quot;</td>
<td>2'-0&quot;</td>
<td>90%</td>
</tr>
<tr>
<td>Heteromeles arbutifolia</td>
<td>●  ●</td>
<td>12'-18'</td>
<td>15-20'</td>
<td>Moderate</td>
<td>1 gal</td>
<td>12&quot;</td>
<td>8&quot;</td>
<td>15'-0&quot;</td>
<td>50%</td>
</tr>
<tr>
<td>Myoporum laetum</td>
<td>●</td>
<td>15-20'</td>
<td>15-20'</td>
<td>Rapid</td>
<td>5 gal</td>
<td>12-18&quot;</td>
<td>15-18&quot;</td>
<td>15'-0&quot;</td>
<td>75%</td>
</tr>
<tr>
<td>Nerium oleander</td>
<td>●</td>
<td>5-15'</td>
<td>5-15'</td>
<td>Mod-Rapid</td>
<td>1 gal</td>
<td>12-18&quot;</td>
<td>12&quot;</td>
<td>10'-0&quot;</td>
<td>90%</td>
</tr>
<tr>
<td>Nerium oleander 'Petite'</td>
<td>●</td>
<td>3-4'</td>
<td>3-4'</td>
<td>Mod-Rapid</td>
<td>5 gal</td>
<td>12&quot;</td>
<td>12&quot;</td>
<td>4'-0&quot;</td>
<td>90%</td>
</tr>
<tr>
<td>Prunus ilicifolia</td>
<td>●</td>
<td>15-20'</td>
<td>15-20'</td>
<td>Moderate</td>
<td>1 gal</td>
<td>12-18&quot;</td>
<td>12&quot;</td>
<td>15'-0&quot;</td>
<td>40%</td>
</tr>
<tr>
<td>Quercus dumosa</td>
<td>●</td>
<td>3-10'</td>
<td>6-8'</td>
<td>Moderate</td>
<td>1 gal</td>
<td>8-10&quot;</td>
<td>6-8&quot;</td>
<td>6'-0&quot;</td>
<td>75%</td>
</tr>
<tr>
<td>Rhamnus californica</td>
<td>●</td>
<td>8-10'</td>
<td>8-10'</td>
<td>Moderate</td>
<td>1 gal</td>
<td>6&quot;</td>
<td>8&quot;</td>
<td>8'-0&quot;</td>
<td>60%</td>
</tr>
<tr>
<td>Rhamnus crocea</td>
<td>●</td>
<td>6-8'</td>
<td>6-8'</td>
<td>Moderate</td>
<td>1 gal</td>
<td>8-10&quot;</td>
<td>5-6&quot;</td>
<td>6'-0&quot;</td>
<td>70%</td>
</tr>
<tr>
<td>Rhus integrifolia</td>
<td>● ●</td>
<td>6-15'</td>
<td>6-15'</td>
<td>Moderate</td>
<td>1 gal</td>
<td>6-10&quot;</td>
<td>8-12&quot;</td>
<td>12'-0&quot;</td>
<td>60%</td>
</tr>
<tr>
<td>Salvia spp.</td>
<td>●</td>
<td>2-5'</td>
<td>2-5'</td>
<td>Mod-Rapid</td>
<td>1 gal</td>
<td>8&quot;</td>
<td>8&quot;</td>
<td>3'-0&quot;</td>
<td>95%</td>
</tr>
<tr>
<td>Botanical Name</td>
<td>Location</td>
<td>Mature Size</td>
<td>Installation Requirements</td>
<td>Mit. Growth Rate*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>----------</td>
<td>-------------</td>
<td>--------------------------</td>
<td>-------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Caltrans ROW</td>
<td>Adj. Slopes</td>
<td>Typical Height</td>
<td>Typical Spread</td>
<td>Growth Rate</td>
<td>Size</td>
<td>Min. Height</td>
<td>Min. Spread</td>
<td>On- Center Spacing</td>
</tr>
<tr>
<td>Acacia redolens</td>
<td>●</td>
<td>3-12'</td>
<td>15-30'</td>
<td>Rapid</td>
<td>1 gal</td>
<td>4-6'</td>
<td>6-12''</td>
<td>20'-'0''</td>
<td>100%</td>
</tr>
<tr>
<td>Baccharis pilularis</td>
<td>●</td>
<td>2-3'</td>
<td>4-6'</td>
<td>Mod-Rapid</td>
<td>Flats</td>
<td>-</td>
<td>-</td>
<td>6'-0''</td>
<td>100%</td>
</tr>
<tr>
<td>Carpobrotus edulis</td>
<td>●</td>
<td>6-12''</td>
<td>24-30''</td>
<td>Rapid</td>
<td>Flats</td>
<td>-</td>
<td>-</td>
<td>12''</td>
<td>100%</td>
</tr>
<tr>
<td>Delosperma alba</td>
<td>●</td>
<td>6-12''</td>
<td>12-18''</td>
<td>Rapid</td>
<td>Flats</td>
<td>-</td>
<td>-</td>
<td>12''</td>
<td>100%</td>
</tr>
<tr>
<td>Lonicera japonica 'Halliana'</td>
<td>●</td>
<td>18-24''</td>
<td>24-48''</td>
<td>Rapid</td>
<td>Flats</td>
<td>-</td>
<td>-</td>
<td>12''</td>
<td>100%</td>
</tr>
<tr>
<td><strong>VINES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| * With proper installation and maintenance, plant materials should be able to reach this percentage of the mature plant size within a three year period.

Source: KTUA; February 1994
<table>
<thead>
<tr>
<th>Wall Type*</th>
<th>Maximum Height</th>
<th>Length</th>
<th>Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSM/COMMUTER RAIL RETAINING WALLS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>12'</td>
<td>600'</td>
<td>(1)</td>
</tr>
<tr>
<td>COMMUTER RAIL TUNNEL RETAINING WALLS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>30'</td>
<td>250'</td>
<td>209-212</td>
</tr>
<tr>
<td>R</td>
<td>30'</td>
<td>250'</td>
<td>212-215</td>
</tr>
<tr>
<td>R</td>
<td>20'</td>
<td>600'</td>
<td>635-641</td>
</tr>
<tr>
<td>HOV RETAINING WALLS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>35'</td>
<td>150'</td>
<td>261-262</td>
</tr>
<tr>
<td>R</td>
<td>20'</td>
<td>7850'</td>
<td>290-360</td>
</tr>
<tr>
<td>R</td>
<td>15'</td>
<td>1,100'</td>
<td>341-352</td>
</tr>
<tr>
<td>R</td>
<td>3'</td>
<td>2900'</td>
<td>425-450</td>
</tr>
<tr>
<td>S</td>
<td>12'</td>
<td>3150'</td>
<td>431-463</td>
</tr>
<tr>
<td>S</td>
<td>12'</td>
<td>2000'</td>
<td>440-460</td>
</tr>
<tr>
<td>S</td>
<td>12'</td>
<td>1550'</td>
<td>440-460</td>
</tr>
<tr>
<td>R</td>
<td>3'</td>
<td>850'</td>
<td>480-500</td>
</tr>
<tr>
<td>R</td>
<td>15'</td>
<td>200'</td>
<td>630-640</td>
</tr>
<tr>
<td>R</td>
<td>15'</td>
<td>300'</td>
<td>650-680</td>
</tr>
<tr>
<td>S</td>
<td>12'</td>
<td>500'</td>
<td>662-686</td>
</tr>
<tr>
<td>R</td>
<td>5.5'</td>
<td>5500'</td>
<td>700-750</td>
</tr>
<tr>
<td>S</td>
<td>12'</td>
<td>750'</td>
<td>739-746</td>
</tr>
<tr>
<td>S</td>
<td>12'</td>
<td>550'</td>
<td>755-760</td>
</tr>
<tr>
<td>LRT RETAINING WALLS - South Segment Alignment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>7'</td>
<td>800'</td>
<td>265-273</td>
</tr>
<tr>
<td>R</td>
<td>5'</td>
<td>1250'</td>
<td>324-336</td>
</tr>
<tr>
<td>R</td>
<td>5'</td>
<td>100'</td>
<td>347-348</td>
</tr>
<tr>
<td>R</td>
<td>8'</td>
<td>400'</td>
<td>385-389</td>
</tr>
<tr>
<td>R</td>
<td>8'</td>
<td>400'</td>
<td>489-493</td>
</tr>
<tr>
<td>R</td>
<td>16'</td>
<td>650'</td>
<td>500-506</td>
</tr>
<tr>
<td>R</td>
<td>10'</td>
<td>650'</td>
<td>511-516</td>
</tr>
<tr>
<td>R</td>
<td>15'</td>
<td>1000'</td>
<td>506-519</td>
</tr>
<tr>
<td>LRT RETAINING WALLS - I-5 Alignment Option</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>5'</td>
<td>300'</td>
<td>564-567</td>
</tr>
<tr>
<td>R</td>
<td>28'</td>
<td>350'</td>
<td>573-576</td>
</tr>
<tr>
<td>R</td>
<td>16'</td>
<td>200'</td>
<td>585-587</td>
</tr>
<tr>
<td>R</td>
<td>30'</td>
<td>300'</td>
<td>591-594</td>
</tr>
<tr>
<td>R</td>
<td>32'</td>
<td>500'</td>
<td>597-602</td>
</tr>
<tr>
<td>S</td>
<td>6'</td>
<td>2800'</td>
<td>575-603</td>
</tr>
<tr>
<td>R</td>
<td>20'</td>
<td>450'</td>
<td>608-612</td>
</tr>
<tr>
<td>R</td>
<td>16'</td>
<td>1475</td>
<td>608-623</td>
</tr>
<tr>
<td>R</td>
<td>15'</td>
<td>500'</td>
<td>619-623</td>
</tr>
<tr>
<td>R</td>
<td>8'</td>
<td>200'</td>
<td>637-639</td>
</tr>
<tr>
<td>R</td>
<td>20'</td>
<td>450'</td>
<td>650-655</td>
</tr>
<tr>
<td>R</td>
<td>20'</td>
<td>1150</td>
<td>650-662</td>
</tr>
<tr>
<td>R</td>
<td>26'</td>
<td>300'</td>
<td>667-669</td>
</tr>
<tr>
<td>S</td>
<td>6'</td>
<td>2000'</td>
<td>680-698</td>
</tr>
<tr>
<td>R</td>
<td>6'</td>
<td>400'</td>
<td>714-718</td>
</tr>
<tr>
<td>R</td>
<td>8'</td>
<td>400'</td>
<td>729-733</td>
</tr>
<tr>
<td>R</td>
<td>6'</td>
<td>500'</td>
<td>734-739</td>
</tr>
</tbody>
</table>
### TABLE 5-6

**RETYING WALLS**

<table>
<thead>
<tr>
<th>Wall Type*</th>
<th>Maximum Height</th>
<th>Length</th>
<th>Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRT RETAINING WALLS - Genesee Avenue Alignment Option</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>28'</td>
<td>550'</td>
<td>619-625</td>
</tr>
<tr>
<td>R</td>
<td>20'</td>
<td>600'</td>
<td>635-641</td>
</tr>
<tr>
<td>R</td>
<td>15'</td>
<td>500'</td>
<td>682-687</td>
</tr>
<tr>
<td>R</td>
<td>6'</td>
<td>400'</td>
<td>714-718</td>
</tr>
<tr>
<td>R</td>
<td>8'</td>
<td>400'</td>
<td>729-733</td>
</tr>
<tr>
<td>R</td>
<td>6'</td>
<td>500'</td>
<td>734-739</td>
</tr>
</tbody>
</table>

* R = Retaining Wall; S = Sound Wall

(1) Retaining walls would support the access/circulation roads into the Nobel Drive Station parking area from Nobel Drive.

Source: KTUA; February 1994.

Recommended mitigation measures will require quality and quantity monitoring in order for the significance of the various impacts to be reduced to levels of insignificance. Once details of the facility engineering and design are available, a General Performance Monitoring Program required for mitigation should be formulated. Review of design and engineering plans for all project elements (walls, parking lots, stations, catenary poles, landscaping, etc.) must be conducted prior to the approval of any construction plans or specifications. Field monitoring would be limited to landscape materials used as mitigation for landscape replacement or screening. If the mitigation is not meeting the performance criteria for plant distribution, mortality, maintenance, screening, or size, corrective measures defined in the framework of the General Performance Monitoring Program would be implemented. Actions will be required to correct the deficiency within a two year period. The monitoring should be accomplished by the project biologist responsible for monitoring biological mitigation actions. An annual Biological Mitigation Monitoring Report should be prepared for each of the first five years of establishment. If corrective measures are needed, then additional monitoring should occur until performance criteria have been met.

The determination of the significance threshold is based on a change to the visual environment that is visible to a moderate level of viewers (1,000 or more) and that contains at least one of the following possible conditions:

- Permanently changes the landform character of an area and dominates the view by disrupting the unity of the visual scene.
- Clearly contrasts with the existing visual elements of a high quality landscape unit.
- Removes a large percentage of landscapes, structures, or landforms that make up the visual resources of the landscape unit.
- Blocks an existing view or landmark considered important by the community.
- Prevents the obtainment of a design or other aesthetic goal as part of an adopted community plan or other city approved document.

#### 5.4.1 No-Build Alternative

To assess visual impacts, the No-Build Alternative serves as the baseline. Impacts resulting from projects contained in the No-Build Alternative have already been mitigated.
5.4.2 TSM Alternative

Impacts

The majority of the elements in this alternative are considered to have an insignificant impact or no impact on the visual environment. The Balboa Avenue P&R Lot would be located in a developed area along a major roadway. The UTC Transit Center and P&R Lot would be located in the parking lot of an existing regional shopping center. The Carmel Valley P&R Lot would be sited in conjunction with the I-5/SR-56 Interchange proposed by Caltrans. The Gilman Drive P&R Lot is the only site considered to have any significant visual impacts.

Significance of Impacts

Reduction of the visual quality as a result of developing the Gilman Drive/La Jolla Colony Drive P&R Lot would be a significant impact to the visual environment for adjacent properties. This adverse impact on visual quality is due to the introduction of asphalt parking lots in an area that is currently in a relatively natural condition. The new paving would be in stark contrast with the natural setting. The Gilman Drive/La Jolla Colony Drive P&R Lot would result in the loss of visual resources (native vegetative cover or other landscaping) and a change in the character of the existing landforms. This would be a significant, long-term adverse impact.

Mitigation Measures

The replacement of removed plant materials and partial screening of paved areas with vegetation would reduce the significance of the impact. Evergreen trees and other native plant materials would be planted around the perimeter of the lot to lessen the visual impact. A clear zone between 30° and 60° above grade would be established to maintain sight clearances for security. Landform grading also would be used to minimize the contrast between the graded parking area and the surrounding landforms. Strategically placed low berms (maximum 30° high) could be used for partial screening, while still maintaining sight clearances for security. In some instances, it may be desirable to maintain clear views of the P&R Lot to allow freeway drivers to see other modes of transportation that are available.

Unmitigable Impacts Remaining

All impacts would be reduced to a short term, less than significant level.

5.4.3 TSM/Commuter Rail Alternative

Impacts

Visual elements and impacts of the TSM/Commuter Rail Alternative are similar to those discussed for the TSM Alternative, except that this alternative would include a station south of Balboa Avenue, a station west of Genesee Avenue at Nobel Drive, and expanded park-and-ride (approximately 80 spaces) at the Sorrento Valley Commuter Rail Station. With regard to the Balboa Avenue Station, impacts would be similar to the LRT Alternative (discussed in Section 5.4.4.1) except that the station platform would be somewhat longer than that proposed under the LRT Alternative. In addition, because the layout of the park-and-ride lot and bus lane facilities would be similar to that proposed under the TSM Alternative, visual impacts of those facilities would also be similar. Development of the Nobel Drive Station would require a 183 meter (600 feet) retaining wall to support the access roadway. The station would have a station platform, bus and automobile drop-off/circulation lanes, and 250 P&R spaces. In addition, circulation requirements for the station would require removal of a portion of the landscaped median on Nobel Drive and installation of a traffic signal.
The visual and aesthetic character of the area would impact an open space and recreational area that has a moderate visual quality. Visual qualities of the area also would be degraded by the removal of a portion of the landscaped median on Nobel Drive. Although the neighborhood area predominantly is characterized by paved roadways and residential development, these improvements do not extend into Rose Canyon as extensively as the proposed Commuter Rail Station. The visual resources of Rose Canyon would be impacted by disruption and removal of the natural chaparral and riparian vegetation. These resources are responsible for the majority of the visual character and quality of the Rose Canyon Open Space Reserve. Riparian vegetation is relatively rare in San Diego County.

With regard to the expanded Sorrento Valley Station, the area has a moderate visual quality and is not visible from surrounding uses. No visual impacts would result from the expansion of the Sorrento Valley Commuter Rail Station.

**Significance of Impacts**

Rose Canyon provides the community and adjacent neighborhoods with a scenic view corridor that extends from La Jolla on the west to the NAS Miramar property on the east. With the exception of the railroad tracks and utility lines, development is limited to the upper slope areas of the canyon. The lower portions of the canyon consist of gently rolling hills, riparian corridors, native chaparral, and recreational trails. Development of the commuter rail station at the Nobel Drive site would have a significant impact on the landform quality, visual quality, visual resources, and view quality of Rose Canyon. The landform quality of the canyon area will be significantly changed by the construction of the retaining wall, and the cut and fill grading required for the parking lot and access drive. This change will contrast and detract from the existing landform character.

The removal of a portion of the median landscape and installation of a traffic signal on Nobel Drive will not have a significant visual impact on the community. A traffic signal currently exists at the intersection of Towne Centre Drive and Nobel Drive, and the removal of the median landscape could be offset by new plant material at the entrance to the Commuter Rail Station.

No significant visual impacts would result from the expansion of the Sorrento Valley Commuter Rail Station.

**Mitigation Measures**

Landform impacts would be mitigated through the use of landform grading to allow the graded slopes to blend back into the existing slopes. The impact of the retaining wall would be minimized through the design quality (integral color, texture, and visually compatible materials) and scale of the wall.

Overall visual quality, visual resources, and view quality impacts can be mitigated to a level less than significant through the use of plant materials to (1) replace removed slope plantings and riparian vegetation and (2) partially screen the parking lot and access drive. Replacement and screening landscaping would include native shrubs and indigenous tree species planted in randomly spaced groupings. Shrubs should include 1 and 5 gallon sizes, and trees should be a minimum of 15 gallon size. Removed plant material should be replaced at a ratio of 1.25 to 1 to allow for normal plant mortality and to offset the difference between the size of the current and replacement plant materials. Replacement plant materials should obtain 75% of the size of the existing materials within a five year period. Refer to Table 5-5 for additional information on the recommended plant materials.

**Unmitigable Impacts Remaining**

All impacts would be reduced to a short term, less than significant level.
5.4.4 Commuter Rail Tunnel Alternative

**Impacts**

Visual impacts associated with the Commuter Rail Tunnel Alternative would be identical to those documented for the TSM/Commuter Rail Alternative except the Tunnel Alternative replaces the Nobel Drive Station with an underground station at UTC. Visual impact associated with the Tunnel Alternative would be exclusively related to the south and north portal locations where the trains would enter/exit the tunnel. The most significant adverse impact would be the south portal location, in the vicinity of Station 635+00 to Genesee Avenue. In this segment, a retaining wall would be necessary to allow the tracks to transition from the canyon bottom to the tunnel portal. In this area the tunnel portal would have a significant adverse impact on the landscape quality, visual quality, visual resources, view quality, and neighborhood character. The retaining wall also would not be in conformance with the community goals expressed in the University Community Plan. Vegetation removed due to construction of project elements also represents a significant impact.

Impacts associated with the north portal location in North University City, between Station 210+00 and 220+00, would be less than significant due to moderate visual quality and the intense commercial development already occurring in the area. The area's sensitivity to change is rated as moderate.

**Significance of Impacts**

The introduction of the retaining wall, south tunnel portal and removal of vegetation in this segment would be considered a significant, long term adverse impact.

Impacts associated with the north tunnel portal would be less than significant.

**Mitigation Measures**

The south tunnel portal and retaining wall would be mitigated through the use of replacement landscaping (Mitigation #2), blending of manufactured slopes, contrast and color matching of the wall to blend with the surrounding landscape, screening of the wall, enhancement of the design characteristics of the wall and a reduction in scale, wherever possible.

Although not considered a significant impact, minor impacts associated with the north tunnel portal should be mitigated through the use of replacement landscaping (Mitigation #2), blending of manufactured slopes, contrast and color matching with the surrounding landscape.

**Unmitigable Impacts Remaining**

Impacts would be mitigated to a level below significance (short term).

5.4.5 HOV Lane Alternative

**Impacts**

Significant visual impacts will result from the construction of the HOV lanes in the I-5 corridor. The I-5 corridor is a scenic visual resource with a large number of viewers, approximately 200,000 ADT. Visually significant elements as a result of the HOV lane additions include the center median barriers, retaining and sound walls, and the removal of center median Oleanders and other mature plant materials in the center median and Caltrans right-of-
way. A discussion of the specific impacts by corridor segment is provided after the specific plant removal and project element mitigations listed below.

**Specific Plant Removal/Project Element Mitigations**

The following is a description of the recommended mitigation measures:

Mitigation #1: Raised planter pockets will be constructed at specified overcrossings where the highway design and safety standards will allow. Specific requirements include:

- Nerium oleander "Petite" (5 gallon size at 4 feet on center) or other plan materials approved by the Caltrans Landscape Architecture Department will be planted in the raised planters.
- The design of the raised planters will meet the same design criteria for the jersey barriers as stated in Mitigation #4.

Mitigation #2: Plant materials removed from the center median and right-of-way will be replaced within the Caltrans right-of-way designated in the Landscape Replacement Study at the following ratios:

- Plant two new trees and shrubs for every one Oleander removed from the center median (2:1). Forty percent of the new plants should be one gallon shrubs and sixty percent should be 15 gallon trees.
- Plant five 15 gallon trees for every one tree removed (5:1) and two 1 gallon shrubs for every shrub (other than center median Oleanders) removed (2:1) from the center median and right-of-way.
- Plant groundcover from flats as needed for erosion control.
- Refer to Table 5-5 for recommended tree and shrub species.
- Right-of-way replacement areas must be within the cone of vision of the highway driver and must not currently meet Caltrans standards for enhanced highway planting.
- Plant materials must reach the mitigation growth rate as shown on Table 5-5 within 3 years.

Mitigation #3: Retaining and sound walls located within landscape units with a high visual quality will be designed to meet the following criteria:

- All walls will be finished with a formliner surface that has a natural rock texture or other natural appearing texture, blending in with the color and texture of the adjacent slope. The texture and surface will be selected by the Caltrans Landscape Architecture Department.
- Stepped walls will be utilized when space is available to provide variety in the grade of the slope. Single retaining walls will be utilized when existing trees can be preserved and Caltrans safety criteria are met.
- A 5 foot wide soil bench (minimum width) will be provided at the top of retaining walls over 10 feet high to allow for the planting of vines and installation of an irrigation system to allow plant establishment. Shrubs and vines will also be planted at the foot of all walls to provide screening of the walls.

Mitigation #4: Design of the center median jersey barriers will meet the following criteria:

- Jersey barriers will be enhanced with patterns and integral color. These will be selected by the Caltrans Landscape Architecture Department.
- The top of the barriers will also be enhanced to incorporate glare reduction materials, vertical fins, visual screens or art pieces including sculpture, color, patterns, textures and symbols that meet the safety standards. The design of these enhancements will be a collaboration between an artist, community representatives, a licensed landscape architect, the project engineer, and staff from Caltrans and the City of San Diego. All improvements must meet federal and state highway safety criteria. If they cannot meet these criteria, then the Caltrans Landscape Architects and Project Engineers will develop additional mitigations.
5.4.5.1 Segment 1 - Pacific Highway to Mission Bay Drive Interchange (Computer Simulation/Figure 5-1)

Impacts

A significant impact to visual quality and visual resources would occur in this segment with the construction of the Pacific Highway drop structure, construction of a 12’ high sound wall (just north of Tecolote Road, between Morena Boulevard and Asher Street), and the removal of the landscaping in the median and right-of-way of the freeway. The existing landscaping in the median buffers the views of opposing traffic, screens road elements, softens the massive scale of the freeway, reduces glare, hides trash buildup, and increases the visual quality of the area. This segment exists in a landscape unit with high visual quality, is adjacent to a major park, and contains a very large number of viewers. Partially offsetting the impact of Oleander removal are the views of Mission Bay that would be opened up to northbound I-5 drivers.

Significance of Impacts

The addition of the Pacific Highway drop structure, sound wall, and the removal of landscaping in the median and right-of-way in this segment are significant, long term adverse impacts.

Mitigation Measures

The impact of the drop structure can be reduced through enhanced design of the walls and concrete supports (color and texture) associated with the ramp. Mitigations for the sound wall include landscape screening, utilizing enhanced design features (color, texture), and minimizing the height of the wall (Mitigation #3). The use of transparent materials in the construction of the wall is recommended in areas where Mission Bay is visible. Mitigation #2 is recommended for the Oleander removal, as well as Mitigation #4 to improve the appearance of the center median jersey barriers which will displace the Oleaners. The design of the center median barrier in this segment adjacent to Mission Bay must be monitored by the Caltrans Landscape Architect to ensure that views of Mission Bay by northbound I-5 drivers opened up by the Oleander removal are preserved, and that the view of southbound drivers is enhanced. The right-of-way landscape removal can be offset by utilizing Mitigation #2. Planter pockets (Mitigation #1) are recommended at the Pacific Highway overcrossing, if the design of the drop ramp will permit this construction. The mitigated impacts are simulated in Figure 5-1.

Unmitigable Impacts Remaining

Major adverse unmitigable impacts are at this time considered to remain with the removal of oleanders from the center median. However, if this alternative is selected as the locally preferred alternative, a detailed visual study and mitigation plan would be developed as part of the final environmental document. The study is reasonably expected to yield mitigation measures which would lessen the adverse impact.

5.4.5.2 Segment 2 - Mission Bay Drive Interchange to Rose Canyon Creek

Impacts

The removal of plant materials from the center median and right-of-way would be a significant adverse visual impact. However, this segment is not immediately adjacent to the recreational use and high visual quality areas of Mission Bay Park and, therefore, does not have as many people with long-term views of the freeway, although the number of highway drivers is high. Two 12’ high sound walls are proposed for this segment that would have significant visual impacts.
Significance of Impacts

The removal of landscaping in the median and right-of-way, and construction of the sound walls in this segment would be a significant long term adverse impact.

Mitigation Measures

Mitigation #2 and 4 are recommended for center median Oleander removal and replacement with jersey barriers. Impacts of the right-of-way landscape removal can be mitigated by #2. Mitigations for the sound wall include landscape screening, utilizing enhanced design features (color, texture), and minimizing the height of the wall (Mitigation #3).

Unmitigable Impacts Remaining

Major adverse unmitigable impacts are at this time considered to remain with the removal of oleanders from the center median. However, if this alternative is selected as the locally preferred alternative, a detailed visual study and mitigation plan would be developed as part of the final environmental document. The study is reasonably expected to yield mitigation measures which would lessen the adverse impact.

5.4.5.3 Segment 3 - Rose Canyon Creek to Gilman Drive (Cross Section/Figure 5-2)

Impacts

Impacts in this segment of I-5 between SR-52 and Mission Bay Drive include the reduction in size of the sloped center median planting area and subsequent loss of plant material, including Oleanders, various trees (approximately 88 trees), and groundcover; the construction of higher retaining walls within the center median; and regrading of the slope on the west side of I-5 adjacent to the southbound lanes and installation of two soil-nailed retaining walls. The majority of new cut slopes along the south right-of-way are proposed to be steeper than 2:1 and will be too steep to accept landscaping. Herbaceous vegetation on the slope will be lost. In addition, rock catch ditches and containment fences will be required at the base of these steeper slopes. The proposed soil nail wall will be approximately 3.4 meters (11 feet) tall and 304.8 meters (1,000 feet) long. The reduction in size of the center median between the north and southbound lanes, and the construction of the retaining walls in the center median creates a more urban atmosphere in an area that has a semi-natural positive scenic quality. Additionally, the improvements, particularly on the northbound lanes, could create a tunnel effect by visually limiting the distant views of the drivers within the corridor.

The addition of two retaining walls in the right-of-way will also add to the urban atmosphere of the corridor. However, the southern retaining wall occurs in an area that already has highly visual structures such as the Mission Bay Drive overpass, and the height of the northern retaining wall (3 to 4.6 meters/10 to 15 feet), is relatively small when compared to the height of the surrounding slopes. The regrading of the slopes in the right-of-way between the two retaining walls will require the removal of trees and other native plant materials.

Construction of these project elements would have a significant, long term visual impact on the visual quality by introducing urban elements into an area that has a moderate to high visual quality and high sensitivity to change (Rose Canyon slopes); on visual resources by removing much of the introduced and native planting within the corridor; and on view quality by the alteration of the scenic transportation viewshed and view corridor.
Significance of Impacts

The removal of plant materials and construction of retaining walls in this segment would be a significant, long term adverse impact.

Mitigation Measures

Mitigation for the loss of median landscaping and the regrading of the slope would include Plant Removal/Replacement Mitigation #2, in the adjacent right-of-way. Existing trees which meet the Caltrans safety criteria must be preserved when possible since the reduced width of the center median from 88 feet at its widest point to 36 feet will not allow for the planting of new trees within the center median. Approximately 427 linear meters (1,400 linear feet) of Oleanders would also be removed from the center median. The replacement jersey barriers must meet the criteria of Mitigation #4. Additional replacement planting will occur in the adjacent right-of-way at the rate of two new trees and shrubs for every one Oleander removed from the median (2:1) (Mitigation #2). Forty percent of the new plants should be one gallon shrubs and sixty percent should be 15 gallon trees. Also, groundcover from flats will be needed for both erosion control and to help lessen the visual impacts. Incorporation of texture and patterns on the proposed retaining walls would help to reduce the scale of the walls and add visual interest (Mitigation #3). Vines and shrubs should also be planted adjacent to the retaining walls to screen the walls and lessen their visual scale. Planted crib walls or a series of stepped walls with planting should be used to reduce the scale of the walls. Single walls should be utilized when existing trees can be preserved. All wall surfaces would be treated with anti-graffiti materials. A cross section of this visual mitigation concept is shown as Figure 5-2.

Mitigation for the loss of plant materials in the west right-of-way as a result of the grading and the construction of the retaining walls includes the planting of five trees for every one removed (5:1), and the planting of groundcover from flats as needed for erosion control (Mitigation #2). Due to the steep slopes that may be created by the cut operations (0.5:1 to 1.5:1), hydroseeding techniques utilizing native plant materials may be required for soil stability in these areas. The soil nailed retaining walls in the west right-of-way must meet the criteria of Mitigation #3.

Unmitigable Impacts Remaining

Adverse impacts would remain. However, for the removal of the median landscape and the regrading of the slope, these impact would be short term, less than significant. The retaining walls in the center median and right-of-way would be less than significant, long term impacts.

5.4.5.4 Segment 4 - Gilman Drive to Nobel Drive and Segment 5 - Nobel Drive to the Carmel Mountain Road Overpass (Computer Simulation/Figure 5-3)

Impacts

Transit development actions in these two segments have similar impacts: the construction of the HOV travel lanes would require the removal of the Oleander shrubs in the median and additional plant materials in the right-of-way. Also, three 12' high sound walls adjacent to the freeway and private development would create significant visual impacts. The most significant visual impact in Segment 5 is the construction of the Interstate 5/805 Connector Ramps. The remaining portions of the HOV lanes from Genesee Avenue north to the Carmel Mountain Road overpass have been assessed under the I-5 Widening and Interchange Improvements FEIS, March 1991. Impacts identified in this document include permanent land form change as a result of new cut slopes, fill slopes, structures, and retaining walls. These impacts can be reduced to a level below significance by erosion control, landscaping, rounding tops of graded slopes, and by designing aesthetically pleasing bridges and walls.
MID-COAST CORRIDOR

ALTERNATIVES ANALYSIS/DRAFT ENVIRONMENTAL IMPACT STATEMENT/DRAFT ENVIRONMENTAL IMPACT REPORT STUDY

Metropolitan Transil Development Board
San Diego, California

NOT TO SCALE

Figure 5-2
I-5 Mid-Coast HOV Alternative
Typical Section Between SR-52 and Mission Bay Dr.
Visual Mitigation Concept

Source: BRW, Inc., November 1, 1994
Significance of Impacts

The removal of landscaping in the median and right-of-way in these segments is considered a significant, long term adverse impact. The sound walls are also considered significant, as is the I-5/I-805 connector ramp. The addition of the two proposed connecting structures would block high quality distant views and alter the visual character to that of a semi-urban area by introducing visual elements that are normally associated with the urban core of large cities. Because the existing distant views would be blocked by the structures, foreground views of the freeway would become predominant. The resulting view quality would be lowered. However, once the connector ramps are built, the distant views from drivers utilizing these ramps would be improved because of the higher elevation.

Additionally, the construction of the connector ramps and the removal of the center median and right-of-way planting will have significant impacts on the visual resources by the introduction of an elevated concrete structure into an area where all current improvements are at grade or below the view level of the driver.

Mitigation Measures

The impact of the connector ramps on the view quality is considered significant and unmitigable because of the alterations to the distant or sight line views and skyline forms, particularly from the standpoint of the southbound drivers who currently have sight line views of the bluffs that occur between the Torrey Pines Mesa and Sorrento Valley landscape units. Partially and fully obstructed views of Torrey Pines State Reserve will also occur for northbound drivers on Interstate 805 where the median is walls, not just columns.

The impact of the ramp structures on the visual resources can be partially mitigated through the use of enhanced design elements, such as colored and textured concrete and other enhanced design elements. The impact of the plant material removal in the right-of-way can be mitigated by Plant Removal/Mitigation #2. The mitigated impacts are simulated in Figure 5-3.

Mitigation #2 is recommended for the center median Oleander removal, as well as Mitigation #4 to improve the appearance of the center median jersey barriers which will displace the Oleanders. The visual impacts of the sound walls can be reduced by Mitigation #3.

Unmitigable Impacts Remaining

Adverse, short term, less than significant impacts would remain for the right-of-way plant material removal and sound walls. Significant, unavoidable impacts would remain for the view quality of the Interstate 5/805 Connector Ramps. The only alternative to the impact on the view quality would be not to build the connector ramps.

Major adverse unmitigable impacts are at this time considered to remain with the removal of oleanders from the center median. However, if this alternative is selected as the locally preferred alternative, a detailed visual study and mitigation plan would be developed as part of the final environmental document. The study is reasonably expected to yield mitigation measures which would lessen the adverse impact.

5.4.6 Light Rail Transit (LRT) Alternative

Specific Plant Removal/Replacement Mitigations

The Landscape Replacement Study identifies a variety of mitigation measures to offset the loss of plant materials. Refer to Table 5-5 for recommended plant materials. Mitigations include the following:
Mitigation #1: Caltrans Right-of-Way

- Plant five 15 gallon trees for every one tree removed (5:1)
- Plant two 1 gallon shrubs for every one shrub removed (2:1)
- Plant groundcover from flats and 1 gallon containers as needed for erosion control (1:1)

Mitigation #2: General Areas

- Plant trees and shrubs at a ratio of 1.25 to 1 to allow for normal plant mortality and to offset the difference between the size of the current and replacement plant materials. Trees should be a minimum of 15 gallon size (Eucalyptus - 5 gallon), shrubs 1 and 5 gallon size, except where noted under specific segments.
- Plant groundcover from flats and 1 gallon containers as needed for erosion control (1:1).

5.4.6.1 South Segment - Old Town Transit Center to Gilman Drive

The South Segment was subdivided into the following six sub-segments for purposes of the visual analysis:

- Sub-segment 1 - Old Town Transit Center to Friars Road;
- Sub-segment 2 - Friars Road to Tecolote Road;
- Sub-segment 3 - Tecolote Road to Clairemont Drive;
- Sub-segment 4 - Clairemont Drive to Balboa Avenue;
- Sub-segment 5 - Balboa Avenue to north end of Santa Fe Street; and
- Sub-segment 6 - North end of Santa Fe Street to south of Gilman Drive.

The majority of impacts associated with the South Segment would be less than significant or there would be no impact. The lack of significant impacts is due to the location of the alignment adjacent to the existing AT&SF right-of-way and the predominance of industrial land uses in the South Segment. Of the six sub-segments identified above, visual impacts would occur in Sub-segments 4, 5, and 6. These visual impacts are discussed below.

Sub-segment 4 - Clairemont Drive to Balboa Avenue

Impacts

Because of the change in elevation and the visibility to Mission Bay Park, visual changes in this area would be more noticeable than elsewhere in the segment. Significant impacts to the visual quality of the area would include the retaining walls and substations in the right-of-way which would be visible from the freeway and Mission Bay Park. There are a number of residences in this segment with views of Mission Bay and some residents are concerned that the catenary system would disrupt the views from the homes. However, there are a number of utility poles and wires already existing in this area, thereby lessening the visual contrast of the new catenary system to an adverse, but less than significant level, i.e., the addition of catenary would not appreciably degrade their view. Also, the track in this area would be at a lower grade than Morena Boulevard, minimizing visual impacts.

Significance of Impacts

Impacts of the retaining walls and substations are significant, long term impacts.

Mitigation Measures

Mitigation for the retaining walls would include the use of colors and materials that would blend with the surrounding character, and the design of the smallest wall possible. Elements that add texture and scale to these walls would
be incorporated. The substation would be screened with evergreen plant materials (trees and shrubs), and of colors and materials to blend with the surrounding environment would be used. The screening would provide 90-100% screening coverage within a three-year period. Refer to Table 5-5 for recommended plant materials.

**Unmitigable Impacts Remaining**

Long-term significant adverse impacts would be reduced to a level of below significance. Short term impacts would remain for the substation and retaining walls.

**Sub-segment 5 - Balboa Avenue to the north end of Santa Fe Street**

**Impacts**

The majority of the elements in this segment would pose no major impacts because most of the right-of-way is in an industrial area and is screened by existing plant materials and slopes. However, the park-and-ride lot proposed at Jutland Avenue would impact the visual quality of the area, and the retaining walls would be visible from the freeway and some of the adjacent businesses. Therefore, the visual quality and visual resources of this area would be adversely impacted due to its location in a natural open space. The flyover, allowing the LRT to cross from one side of the AT&SF tracks to the other side, would also impact the visual quality of the area would be adversely impacted due to its location in a natural open space. However, because of the relatively low number of viewers in this area and the surrounding industrial land uses, the impact would be less than significant.

**Significance of Impacts**

The park-and-ride lot and retaining walls have significant, long term impacts.

**Mitigation Measures**

The use of plant materials to replace the existing materials and partially screen the paved areas would help reduce the significance of the impacts (Plant Removal/Replacement Mitigation #2) Evergreen trees and other native plant materials would be planted around the perimeter of the lot to lessen the visual impact of the entire lot while still maintaining sight clearances for security. Refer to Table 5-5 for recommended plant materials. A clear zone between 30" and 60" above grade would be maintained for visual access. Landform grading would also be used to minimize the contrast between the graded parking area and the surrounding landforms. Strategically placed low berms (maximum 30" high) would be used for partial screening while still maintaining site clearances for security. In some instances, it may be desirable to maintain clear views of the park-and-ride lot to allow freeway drivers to see other modes of transportation that are available.

The effects of the retaining wall would be reduced by landscape screening, replacement of the lost native vegetation, and an appropriate use of colors, textures, and materials in the design of the wall.

**Unmitigable Impacts Remaining**

All significant adverse impacts would be reduced to short term, below a level of significance with the proposed mitigations.
Sub-segment 6 - North end of Santa Fe Street to south of Gilman Drive

Impacts

Significant adverse impacts in this segment would be associated with the retaining walls and their effect on the landform and visual quality of these relatively natural areas. The visual sensitivity of portions of Rose Canyon and San Clemente Canyon increase the level of significance of these proposed elements. The substation also would impact the visual quality of the natural character of the area.

Significance of Impacts

The introduction of retaining walls and a substation into this sensitive segment would result in a significant, long term adverse impact.

Mitigation Measures

Proposed mitigation for the retaining walls include decreasing the scale of the walls and ensuring the highest design quality, through use of colors, textures and landscape screening. The substation would be screened with evergreen plant materials (trees and shrubs); colors and materials to blend with the surrounding environment would be used. The screening would provide 90-100% screening coverage within three years. Refer to Table 5-5 for recommended plant materials.

Unmitigable Impacts Remaining

Adverse impacts would be reduced to a short term level of insignificance with the proposed mitigations.

5.4.6.2 North Segment - South of Gilman Drive to Future Judicial Drive

Significant adverse impacts are associated with proposed development of the LRT Alternative in the North Segment, particularly the LRT Genesee Alignment Option. The North Segment was subdivided for visual analysis into smaller segments according to the two alignment options (LRT I-5 and LRT Genesee) under consideration north of Gilman Drive. Visual impacts that would occur in subsegments are discussed below by alignment option.

LRT I-5 Alignment Option

The majority of impacts associated with this alignment option are rated at an impact level of insignificant or less than significant. These ratings are based on: (1) proximity of the alignment to I-5 and major arterial streets (specifically, Nobel Drive and La Jolla Village Drive) and (2) the commercial developments west of I-5, including La Jolla Village Square.

The LRT I-5 Alignment Option was subdivided into the following seven sub-segments for visual analysis purposes:

- Sub-segment 1 - South of Gilman Drive to La Jolla Colony Drive;
- Sub-segment 2 - La Jolla Colony Drive to I-5 Overcrossing (Computer Simulation/Figure 5-4);
- Sub-segment 3 - I-5 Overcrossing (Computer Simulation/Figure 5-5);
- Sub-segment 4 - I-5 Overcrossing south of Nobel Drive to the I-5 Overcrossing north of the proposed Gilman Drive Bridge and LRT station;
- Sub-segment 5 - I-5 Overcrossing;
- Sub-segment 6 - I-5 Overcrossing to Regents Road; and
- Sub-segment 7 - Regents Road to Judicial Drive.
**Figure 5-4**
LRT I-5-
La Jolla Colony Dr.
to I-5 Overcrossing

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### Neighborhood Character

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### NOTES:

- **Projected Elements**
  1. Park & Areas
  2. Utility Corridors
  3. Street Corridors
  4. Vegetation
  5. Grading
  6. Highways
  7. Roads
  8. Signs
  9. Construction
  10. Electrical Transmission
  11. Bridges & Bike Lanes
  12. Caltrans Poles & Wires

- **Impact Ratings**
  2. Significant, Mitigable
  3. Significant, Mitigable
  4. Moderate, Mitigable
  5. No Impact
  6. Cumulative

- **Duration of Impact**
  1. Short-Term
  2. Long-Term

- **Viewer Groups**
  1. Neighborhood Groups
  2. Commercial Areas
  3. Educational Institutions
  4. Industrial Districts
  5. Single Family Residents
  6. Multi Family Residents
  7. Office Worker Viewer
  8. Commercial Customers

- **Mitigations**
  1. Landscape screening
  2. Pedestrian connectivity
  3. Landscaping grading
  4. Landscaping matching
  5. Right-of-way grading
  6. Compensatory matching

**MID-COAST CORRIDOR**
ALTERNATIVES ANALYSIS / DRAFT ENVIRONMENTAL IMPACT STATEMENT / DRAFT ENVIRONMENTAL IMPACT REPORT STUDY

Metropolitan Transit Development Board
San Diego, California
Figure 5-5
LRT 1-5
I-5 Overcrossing

View Before (Long Term With Mitigations)

View After (Long Term With Mitigations)
Adverse visual impacts would occur in Segments 2, 4, 5, 6 and 7. The most significant impacts were identified in Segment 2 — the area between I-5 and Charmant Drive in La Jolla Colony; Segment 6 — the UCSD student housing area, and Segment 7 — Regents Road to Judicial Drive.

Sub-segment 1 - South of Gilman Drive to La Jolla Colony Drive

**Impacts**

Significant adverse impacts in this segment are associated with the P&R facility, affecting the visual quality of this relatively undisturbed area, and the loss of plant material due to route alignment. The existing visual quality of this area is high. The number of viewers is moderate but the sensitivity to change is high due to the presence of the undisturbed vegetation and the gently rolling terrain. The bike trail is used extensively by cyclists, joggers, and walkers.

**Significance of Impacts**

Expansion of the P&R Lot, and removal of plant material both in and beyond the Caltrans right-of-way in this segment would create an adverse impact.

**Mitigation Measures**

The use of plant materials to replace the existing materials and partially screen the paved areas would help to reduce the significance of the impacts (Plant Removal/Replacement Mitigations #1 and 2). Evergreen trees and other native plant materials would be planted around the perimeter of the lot to lessen the visual impact of the entire lot while still maintaining sight clearances for security. A clear zone between 30° and 60° above grade would be maintained for visual access. Landform grading would also be used to minimize the contrast between the graded parking area and the surrounding landforms. Strategically placed low berms (maximum 30° high) may be used for partial screening while still maintaining site clearances for security. Refer to Table 5-5 for recommended plant materials.

**Unmitigable Impacts Remaining**

Adverse impacts would be reduced to a level of insignificance (short term) with the described mitigations.

Sub-segment 2 - La Jolla Colony Drive to I-5 Overcrossing, (Computer Simulation/Figure 5-4)

**Impacts**

The visual quality, visual resources, and neighborhood character would be significantly impacted by the construction of the LRT track, catenary system, series of walls (retaining and sound), grading, and removal of existing plant materials. Adverse impacts are the result of the close proximity of the alignment to housing units, the grading necessary to allow the trolley to cross over I-5, the visibility of the walls, and the removal of the existing landscape from the slope. The proposed changes to the landform quality and the visual landscape resources would be seen not only from the La Jolla Colony residential side, but also from the drivers on I-5. These impacts are incompatible with the visual element of the University Community Plan. A significant adverse impact to the landform would be associated with the proposed grading along this section of I-5 and La Jolla Colony. The existing form is curvilinear in nature, even though much of it was graded when the freeway and the adjacent development was constructed. In this context, i.e., the number of viewers related to both the freeway and the residential areas, the sensitivity of the viewers, and the existing character of this landform, the project would result in a major contrast with the proposed improvements.
Significance of Impacts

Significant, long term adverse impacts would result in this segment from construction of the LRT track, presence of the catenary system, the series of walls, grading, and removal of plant materials.

Mitigation Measures

Impacts would be mitigated through the use of landscape screening, replacement of landscaping, and landform grading on both the La Jolla Colony and I-5 sides of the track. The impact of the retaining and sound walls can also be reduced through the design quality (color and texture) and scale of the walls. Walls visible from the I-5 corridor should utilize mitigation #3 from the HOV alternative. When possible, a series of shorter walls (crib or stress-wall) separated by plant materials would be utilized. Manufactured slopes would vary between 1:1 and 4:1 to create a natural meandering appearance. All return slopes would be blended back to existing slopes. All removed plant material would be replaced according to Plant Removal/Replacement Mitigations #1 and 2. Replacement plant materials should obtain 75% of the size of the existing materials within a five-year period. Refer to Table 5-5 for additional information on the recommended plant materials. Groundcover and lawn areas would be replaced at a 1 to 1 ratio with 100% coverage within one year. Fence material would consist of black vinyl coated galvanized chain link fabric with black post/support systems. Mitigated impacts are shown in Figure 5-4.

Unmitigable Impacts Remaining

The above mitigations would reduce adverse impacts to a level less than significant. The LRT track and catenary system would have long term impacts, and the remainder of the impacts would be short term.

Sub-segment 3 - I-5 Overcrossing (Computer Simulation/Figure 5-5)

Impacts

The proposed bridge crossing would have a significant impact on the visual quality of the area. Other impacts would be considered less than significant if the bridge is designed in accordance with the University Community Plan objectives to preserve vistas associated with the community open spaces.

Significance of Impacts

Significant, long term impact would result from the construction of the bridge.

Mitigation Measures

Mitigation measures include the use of plant materials to screen the bridge structure where it reaches grade at the slope. Any existing plant materials removed should be replaced according to Plant Removal/Replacement Mitigation #1. Refer to Table 5-5 for recommended plant materials. Bridge materials should include earth-toned colors and textured surfaces where appropriate. The bridge should also be designed in accordance with the University Community Plan objectives. Mitigated impacts are shown in Figure 5-5.

Unmitigable Impacts Remaining

The above mitigations would reduce adverse impacts to a level less than significant.
Sub-segment 4 - I-5 Overcrossing south of Nobel Drive to the I-5 Overcrossing north of the proposed Gilman Drive Bridge and LRT Station

This sub-segment takes into consideration the University Community Plan. The University Community Plan (January 1990) states that numerous canyons, hillsides, bluffs, and other unique landforms within the University area provide a unique character, link the community and provide visual amenities which separate and define urban areas. The goals of the community plan are: to preserve the open space and vistas associated with San Clemente Canyon, Rose Canyon and other primary canyons; and to maximize the view opportunities from the high rise office and residential towers and roof tops. Impacts to this sub-segment are discussed below.

Impacts

LRT Track and Catenary - The LRT track and catenary would have an impact on this segment of the alignment, particularly in the areas near Cape La Jolla Gardens, Nobel Drive and La Jolla Village Drive. Once the track crosses Interstate 5 from the east side of the freeway to the west side, it will remain elevated by retaining walls at approximately 6 meters (20 feet) above grade at the south end of Cape La Jolla Gardens as the track parallels the freeway, and lowers to approximately 3 meters (10 feet) above grade at the north end of Cape La Jolla Gardens. Near the La Jolla Village Square shopping center and across Nobel Drive, the track will be placed on a bridge, with a height of approximately 4.6 meters (15 feet) above Nobel Drive. The track will be at grade between Nobel Drive and La Jolla Village Drive. A 365.8 meters (1,200 foot) long bridge will span the La Jolla Village Drive/Interstate 5 interchange. This bridge will be approximately 5.5 meters (18 feet) above La Jolla Village Drive. The maximum height over the interchange will be approximately 9.1 meters (30 feet). The track will be at grade on the north side of the interchange and continue at grade to the proposed Gilman Drive bridge.

The LRT and catenary have the potential for visual impacts for the following reasons:

- Visual Quality: the LRT will contrast with the moderate visual quality rating of the landscape unit.
- Visual Resources: landscape resources will be removed during construction.
- View Quality: the skyline character created by the silhouette of the Mormon Temple will be disrupted for viewers on the west side of Interstate 5. The Temple also serves as a public visual landmark within the area. Approximately 20 units within the Cape La Jolla complex face the proposed LRT alignment. Although there will also be impacts on the transportation viewshef and landscape unit view corridors, the length of viewing time for drivers will be less than two minutes and these elements will not block views or contrast with the visual character of the freeway corridor.
- Neighborhood Character: the proposed improvements will contrast with the existing character of the neighborhood outside of the immediate freeway corridor. It will also introduce out-of-scale physical elements, particularly in the area of the Cape La Jolla Gardens project.

Additional Project Elements - Other project elements such as the retaining walls, substation and LRT station at Gilman Drive would also have impact on this segment of the alignment for the following reasons:

- Visual Quality: the retaining walls would be visible from Interstate 5 and would contrast with the moderate visual quality of the area.
- Neighborhood Character: the substation would contrast with the neighborhood character by introducing an industrial looking "box" into a highly visible location within the landscape unit. A typical substation includes a 3.7 meters (12 foot) wide by 7.6 meters (25 foot) long by 3.0 meters (10 foot) high brown metal structure on a concrete pad, surrounded by a chainlink fence. The substations can be screened but not relocated due to engineering criteria requiring substation to be placed at specific intervals along the line.
• Visual Resources: the Gilman Drive station would impact the visual resources by removing existing plant material during construction of the station.

**Significance of Impacts**

**LRT Track and Catenary** - Based on the Significance Threshold described in Section 5.4, the LRT Track and Catenary would have a significant long term impact on the Visual Resources by removing existing resources, and on the Neighborhood Character by contrasting with the aesthetic and visual goals of the University Community Plan by partially obstructing view opportunities. Impacts on the Visual Quality would be considered adverse, but less than significant since the landscape unit has a moderate, rather than a high visual quality.

The View Quality impact within the landscape unit affecting the commercial, office and hotel viewers, as well as the freeway and surface street driver, would be considered adverse but mitigable and not significant due to the short viewing duration and moderate visual quality of the blocked views. However, the View Quality of the residents in the Cape La Jolla Gardens project will be significantly impacted due to the location of the elevated track and catenary within their foreground cone of vision, particularly from the second and third level living units. Although the number of viewers who will be directly impacted by the presence of the trolley is small (less than 50), the fact that the sensitivity of these viewers is high and the track structure is in the foreground will make this significant. Their views eastward consist of the Mormon Temple and La Jolla Colony, and these views will be disrupted. The view eastward from the ground level in the Cape La Jolla Gardens complex is already blocked by the existing sound and garage walls that parallel Interstate 5. Most of the ground floor development is limited to garages.

**Additional Project Elements** - Significant, long term Neighborhood Character and Visual Resource impacts would result from the construction of the retaining walls, the substation and the Gilman Drive Station. These elements would remove existing resources and contrast with the goals of the University Community Plan. The Visual Quality impacts would be adverse, but less than significant since the landscape unit has a moderate visual quality.

**Mitigation Measures**

The result of the mitigation measures will vary depending on the viewer group and their location. This is most evident in the case of the view quality impacts where the impacts on the Cape La Jolla Garden residents will remain significant, even with mitigations, while the impact on the freeway drivers and other viewers in the landscape unit will be adverse but mitigable with enhanced design elements.

**LRT Track and Catenary** - The Visual Quality impacts, particularly those resulting from the elevated tracks from Nobel Drive to La Jolla Village Drive can be lessened by incorporating aesthetically pleasing elements into the design of the above grade structures. These design elements include the use of planted stress or crib walls where retaining walls are required. The bridge decks will utilize smooth lines. These measures will reduce the impacts to below a level of significance.

The Visual Resources impacts can be mitigated by replacing the removed landscape resources utilizing Plant Removal/Replacement Mitigations #2. This would require the planting of five 15 gallon trees and two one gallon shrubs for every tree and shrub removed. This will reduce the impacts to below a level of significance.

The Neighborhood Character impacts can be lessened by incorporating aesthetically pleasing elements into the design of the above grade structures. These elements are discussed under the visual quality mitigation measures above. This will reduce the impacts to below a level of significance.

The View Quality Impacts within the Cape La Jolla Garden complex will remain significant. The impacts can be lessened, but not entirely mitigated, by incorporating a dense screen of plant materials within the limited amount
of land between the Cape La Jolla Garden units and the elevated LRT tracks. There is an average of 50 to 75 feet from the residential units to the property line wall, and an average of 5 to 20 between the wall the the proposed LRT track alignment. Screening plant materials will be located in this 5 to 20 foot space. Although this will not resolve the view blockage from the upper levels of the residences to foreground views of the Temple and La Jolla Colony, it will soften and partially block the view of the tracks and catenary.

The View Quality impacts on the freeway drivers and other viewers within the landscape unit are adverse but mitigable with the recommended enhanced design features.

Additional Project Elements - The Visual Resource impacts can be reduced by the replacement of removed resources at the rate of five 15 gallon trees for every one tree removed and two one gallon shrubs for every one shrub removed. Replacement plant materials would obtain 75% of the size of the existing materials within a three-year period. This will reduce the impacts to below a level of significance. The Neighborhood Character and Visual Quality Impacts associated with the retaining walls and substation would be minimized through the design quality and scale of the walls. Integral color, surface material, forms, or other art work would be used to improve the aesthetics of these walls and should meet the mitigation requirements of HOV Mitigation #3 since the walls will be visible to I-5 drivers. The substation will be fully screened with trees, shrubs and vines.

Unmitigable Impacts Remaining

The mitigations would reduce the impacts of the retaining walls, plant material removal, substations and elevated tracks to a level below significant. The LRT track structure would remain a long term impact, but the remainder of the project elements would be short term. The impact of the elevated track on the Cape La Jolla development will remain significant, although the implementation of the mitigations will slightly lessen the significance. The proximity of the residential units to the LRT is too close to fully remove the impact.

Sub-segment 5 - I-5 Overcrossing

The proposed bridge crossing would have a significant impact on the visual quality of the area. Other impacts would be considered less than significant if the bridge is designed in accordance with the design intent established by UCSD for future construction in the area.

Significance of Impacts

Significant, long term impact would result from the construction of the bridge.

Mitigation Measures

Mitigation measures include the use of plant materials to screen the bridge structure where it reaches grade at the slope. Any existing plant materials removed should be replaced according to Plant Removal/Replacement Mitigation #1. Refer to Table 5-5 for recommended plant materials. Bridge materials should include earth-toned colors and textured surfaces where appropriate.

Unmitigable Impacts Remaining

The above mitigations would reduce adverse impacts to a level less than significant (short term).
Sub-segment 6 - I-5 Overcrossing to Regents Road

Impacts

The LRT catenary and the retaining and sound walls would have a significant impact on the landform quality, visual quality, and visual resources of the area, due to the grading necessary for the tracks and walls, the existing moderate visual quality of the area, and the disturbance of the native vegetation. The catenary system also would have a significant impact on the visual quality.

Significance of Impacts

Adverse, long term significant impacts would result from the retaining wall and the overhead catenary system.

Mitigation Measures

Adverse Impacts would be reduced through the use of landscape and landform screening, landscape replacement, and landform grading. Replacement landscaping would include native shrubs and some indigenous tree species, based on Plant Removal/Replacement Mitigation #2. Trees would obtain a height of 2.4-3.1 meters (8-10 feet) within a three-year period. Since there is open space around this segment of the alignment, the impact of the catenary system can also be reduced by landscape screening. The impact of the retaining wall would be minimized through the design elements (color and texture), scale of the wall, and use of plant materials for screening.

Unmitigable Impacts Remaining

Mitigation described above would reduce impacts to a level below significance. The track and catenary would remain long term, and the walls would be short term impacts.

Sub-segment 7 - Regents Road to Judicial Drive

Impacts

The character of the LRT changes dramatically at this point from the open spaces and surrounding residential development of north Rose Canyon to the urban setting of University City and the University Towne Centre commercial and business district. The track would be visible from both the street and the adjacent office buildings, impacting the visual quality, visual resources, and neighborhood quality. The proposed track ballast would contrast with the formal appearance of this urban area. The catenary system also would have a significant adverse impact on the visual quality and the neighborhood character by introducing an above-ground utility system in an area where all other utilities have been undergrounded. A great deal of attention has been given to the streetscapes and landscape treatments in this area to provide an uncluttered appearance in the public rights-of-way. The retaining walls also would have a significant impact on the visual resources of the existing median and the neighborhood character. Retaining walls may be necessary in portions of the center median, and also adjacent to the private property to accommodate the expanded right-of-way. This may result in the removal of the existing trees, shrubs, and ground covers along the street frontage.

Significance of Impacts

Significant, long term adverse impacts would result from the following:

- Ballasted track;
- Overhead catenary system;
- Introduction of a retaining walls in the existing street median; and
- Removal of the existing trees, shrubs, and ground covers along the street frontage.
Mitigation Measures

Mitigation for the impacts associated with the track, catenary system and walls are based on the LRT Design Criteria, MTDB, November 1992, and are as follows:

Paving materials would be used for locations where the tracks would be placed in the median of the street, and where noise is not an issue.

The catenary system is a vital element of the LRT and would always be visible. A low profile system would be utilized when possible. Catenary poles would be constructed of tapered galvanized steel and painted or finished with an integral or anodized color to complement the site furnishings of the adjacent stations or the surrounding architectural detail and to reduce maintenance. Catenary poles, light fixtures, and signage would be combined when possible to reduce the number of poles in the area.

All existing plant material in the right-of-way and on private property would be protected during construction. Plant materials affected by construction would be transplanted within the general location of the project, or boxed and maintained for future use. Street trees and shrubs would be replaced at a rate of 1.25 for every tree or shrub removed. The size of the trees at the time of planting would be between 50% and 75% of the size of the trees to be removed. The size of the replacement shrubs would be sufficient to equal the size of the existing shrubs within two years. Groundcovers and lawn would be planted to provide 100% coverage within one year. New or replacement trees shrubs, groundcovers and vines would match the existing plant palette. Prior to the beginning of construction, a survey of the existing plant materials would be completed to note the type, size, quantity and condition of existing plant material. Monthly monitoring of existing plant material adjacent to the construction site, and plant material transplanted for future use would be done to maintain the health of the plant materials.

Retaining walls in the right-of-way adjacent to private property would be designed to match the architectural character of the surrounding area. Special textures, colors, or materials would be used where appropriate. Natural colored, smooth finished concrete retaining walls would not be used unless this is the predominant material in the area. Any smooth surface walls used would be treated with an anti-graffiti coating to reduce maintenance costs.

Sidewalks, crosswalks, and site furnishings removed for the expansion of the right-of-way would be replaced to a level equal to their current condition. Coordinated site furnishings (color, style, type, etc.) would be used throughout the area.

Unmitigable Impacts Remaining

The described mitigation would reduce impacts to a level below significance. The track and catenary would remain long term, and the walls would be short term impacts.

LRT Genesee Alignment Option

The LRT Genesee Alignment Option would travel through several areas with distinct characteristics, including the open space areas of north Rose Canyon and the commercial/business district of University Towne Centre. The majority of the impacts in the north Rose Canyon area would be considered insignificant adverse impacts because of the presence of the existing AT&SF right-of-way, utility wires, and residences. The majority of the residences on the northern portion of Rose Canyon are located approximately 6 to 9 meters (20 to 30 feet) away from the canyon edge, thereby minimizing views of the proposed LRT tracks in the foreground. The residences on the southern edge of Rose Canyon are located, for the most part, beyond the immediate viewshed of the LRT track, again minimizing the visual impact.
The LRT Genesee Alignment Option was subdivided into the following five sub-segments:

Sub-segment 1 - South of Gilman Drive to La Jolla Colony Drive;
Sub-segment 2 - La Jolla Colony Drive to Sta. 635+00, (Computer Simulation/Figure 5-7);
Sub-segment 3 - Station 635+00 to Genesee Avenue, (Computer Simulation/Figure 5-8);
Sub-segment 4 - Genesee Avenue to La Jolla Village Drive; and
Sub-segment 5 - La Jolla Village Drive to Judicial Drive.

Adverse impacts would result in Segments 1, 2, 3, and 5. No impacts would result in Segment 4, because the LRT would be in a tunnel section and not visible.

Sub-segment 1 - South of Gilman Drive to La Jolla Colony Drive

Impacts

Significant, long term adverse impacts in this segment are associated with the P&R facility, affecting the visual quality of this relatively undisturbed area, and the loss of plant material due to route alignment. The existing visual quality of this area is high. The number of viewers is moderate but the sensitivity to change is high due to the presence of the undisturbed vegetation and the gently rolling terrain. The bike trail is used extensively by cyclists, joggers, and walkers.

Significance of Impacts

Expansion of the P&R Lot, and removal of plant material both in and beyond the Caltrans right-of-way in this segment would create an adverse impact.

Mitigation Measures

The use of plant materials to replace the existing materials and partially screen the paved areas would help to reduce the significance of the impacts (Plant Removal/Replacement Mitigations #1 and 2). Evergreen trees and other native plant materials would be planted around the perimeter of the lot to lessen the visual impact of the entire lot while still maintaining sight clearances for security.

A clear zone between 30" and 60" above grade would be maintained for visual access. Landform grading would also be used to minimize the contrast between the graded parking area and the surrounding landforms. Strategically placed low berms (maximum 30" high) may be used for partial screening while still maintaining site clearances for security. Refer to Table 5-5 for recommended plant materials.

Unmitigable Impacts Remaining

Adverse impacts would be reduced to a level of insignificance (short term) with the described mitigations.

Sub-segment 2 - La Jolla Colony Drive to Sta. 635+00, (Computer Simulation/Figure 5-6)

Impacts

This area is visible from the homes located on the northern and southern edges of Rose Canyon. The addition of LRT tracks, catenary system, and right-of-way fencing, and removal of existing vegetation would be a significant adverse impact. Because of the open space and natural character of the canyon, the sensitivity of viewers, and the importance of this open space to the character of community, the adverse impact would be considered significant. However, since an existing railroad and overhead utilities already impact the area, the severity of the adverse impact is lessened relative to its context. The proposed Regents Road bridge spanning Rose Canyon may affect the visual appearance of the canyon. However, this bridge has not yet been designed and the specific visual impacts are not known. The 168-meter (550-foot) long retaining wall would also have a significant adverse
Figure 5-6
LRT Genesee - La Jolla Colony Dr. to STA. 635+00

View After (Long Term With Mitigations)

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<tr>
<th>Project Elements</th>
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<td>6. Replacement of trees, shrubs, etc.</td>
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**MID-COAST CORRIDOR**
**ALTERNATIVES ANALYSIS/DRAFT ENVIRONMENTAL IMPACT STATEMENT / DRAFT ENVIRONMENTAL IMPACT REPORT STUDY**

Metropolitan Transit Development Board
San Diego, California
impact on the landform quality, visual quality, visual resources, view quality, and neighborhood character. The proposed substation would also impact the neighborhood character.

**Significance of Impacts**

The addition of LRT tracks, catenary system, retaining wall, and right-of-way fencing, and removal of existing vegetation would be a significant, long term adverse impact. The retaining wall in this area would be considered to cause a significant adverse impact on the landform quality, visual quality, visual resources, view quality, and neighborhood character. The proposed substation would also impact the neighborhood character but would not be considered to be a significant adverse impact.

**Mitigation Measures**

The impact of the tracks, catenary system, and right-of-way fencing can be mitigated through the use of well-placed, but randomly-grouped native shrubs to break-up the strong horizontal lines of the additional tracks, overhead lines, and fence. Native 1 and 5 gallon shrubs would be planted in small groupings of four to five plants per group. The random spacing of these groups would be not more than 61 meters (200 feet) nor less than 6 meters (20 feet). Within a three- to five-year period, these native shrubs would reach a height of 0.6-1.2 meters (2-4 feet). Vegetation removed due to construction of project elements should be replaced according to Plant Removal/Replacement Mitigation #2. Plant materials used for screening can also be used to meet requirements for Mitigation #2.

Fence structures would consist of black vinyl coated 2” x 2” chain link fabric with black posts and support systems.

The impacts of the retaining wall could be mitigated through the replacement of native vegetation disturbed during construction (Mitigation #2), the use of contrast and color matching to blend the wall into the surrounding landscape, a creative use of materials and methods to improve the aesthetics of the wall, and, where possible, minimizing the scale of the wall.

The substation would be screened with evergreen plant materials (trees and shrubs); colors and materials to blend with the surrounding environment would be useful. The screening would provide 90-100% screening coverage within three years. Mitigated impacts are shown in Figure 5-6.

**Unmitigable Impacts Remaining**

With the mitigation described, all impacts would be reduced to a level below significance. The track, catenary and fence would have a long term impact, and the retaining wall and substation would have a short term impact.

**Sub-segment 3 - Station 635+00 to Genesee Avenue (Computer Simulation/Figure 5-7)**

**Impacts**

The most significant adverse impact of this segment would be the retaining wall necessary to allow the tracks to transition from the canyon bottom to the tunnel portal, and the tunnel portal. Both would have a significant adverse impact on the landform quality, visual quality, visual resources, view quality, and neighborhood character. The wall also would not be in conformance with the community goals expressed in the University Community Plan. Vegetation removed due to construction of project elements also represents a significant impact.
Significance of Impacts

The introduction of the retaining wall, tunnel portal and removal of vegetation in this segment would be considered to be significant, long term adverse impact.

Mitigation Measures

The retaining wall and tunnel portal would be mitigated through the use of replacement landscaping (Mitigation #2), blending of manufactured slopes, contrast and color matching of the wall to blend with the surrounding landscape, screening of the wall, enhancement of the design characteristics of the wall and a reduction in scale, wherever possible.

Unmitigable Impacts Remaining

Impacts would be mitigated to a level below significance (short term).

Sub-segment 5 - La Jolla Village Drive to Judicial Drive

Impacts

In this segment impacts would be the same as for Segment 5 - La Jolla Village Drive to Judicial Drive, for the LRT I-5 Alignment Option.

Significance of Impacts

Significant, long term adverse impacts would result in this segment. Adverse impacts are documented under Segment 7 - Regents Road to Judicial Drive for the LRT I-5 Alignment Option.

Mitigation Measures

Mitigation measures would be the same as Segment 7 - Regents Road to Judicial Drive, for the LRT I-5 Alignment Option.

Unmitigable Impacts Remaining

All project elements would be reduced to long term impacts less than significant, with the exception of the plant material removal which would be a short term impact.

5.4.7 Cumulative Impacts

Major public projects identified within the visual corridor of the various alternatives include TransNet and the State Transportation Improvement Program projects (I-5/SR-56 interchange, Genesee/I-5 Interchange, La Jolla Village Drive/I-5 interchange, Nobel Drive/I-5 half diamond interchange). Other public projects in the Mid-coast Corridor include the Regents Road bridge over Rose Canyon and the UCSD bridge at Gilman Drive and I-5. These projects may result in slight degradation of visual quality in the area, but will generally not be considered as a cumulative significant impact with the proposed project. Two exceptions, however, do exist. First, the proposed project, along with other highway projects, will have a cumulative significant effect on the overall driving experience of the I-5 corridor from Oceanside to I-8. Secondly, the Rose Canyon landscape unit will be cumulatively impacted by the LRT, the proposed Regents Road Bridge, the Nobel Drive Station for the TSM/Commuter Rail and the Rose Canyon tunnel portal.
The impact of the construction of the HOV lanes within the Mid-Coast corridor, as well as other approved projects in the immediate area, will have a significant cumulative affect. In addition to the removal of the center median Oleanders, the changes in scenic quality in areas that have been designated as having a high visual quality will be significant when evaluated within the context of the scenic quality of the entire I-5 corridor. These high quality scenic resources within the I-5 corridor include Rose Canyon, San Clemente Canyon, Mission Bay, Torrey Pines, Los Penasquitos Lagoon, San Dieguito River Valley, San Elijo Lagoon, Batiquitos Lagoon, Agua Hedionda Lagoon, Buena Vista Lagoon, and the San Luis Rey River. Transnet and State Transportation Improvement Program projects in any of these areas, coupled with the loss of the median landscape resources, and probable adjacent private and public projects, would combine and create a cumulative impact that is considered to be significant. Final design control and mitigations however, may reduce this cumulative impact to less than significant. These design controls include:

- Minimal disturbance of natural landforms, vegetation and waterways;
- Revegetation of all disturbed areas by replacement with similar native vegetation;
- Replacement of introduced landscapes with similar quality and quantity within the view corridor;
- Incorporation of art and architecture in any proposed bridge or other major structure;
- Integration of natural materials, colors and textures that match the context of the surrounding area; and
- The control of view blockage from the I-5 corridor into areas designated as scenic or high visual quality.

The I-5 corridor serves as a scenic gateway to the metropolitan San Diego region. The corridor is often defined by its landscaped characteristics, particularly the center median Oleanders from Oceanside to Pacific Highway. The Oleanders currently in the center median provide several functional and aesthetic qualities. A large number of visitors and local drivers (200,000 ADT) recognize the Oleanders and even some of the sub-regions, such as Rose Canyon as unique San Diego landmarks, as well as gateways to the region. The Oleanders visually reduce the expanse of the freeway to both north and southbound drivers, provide glare reduction from the opposing lanes of traffic, increase the visual compatibility between the freeway and the surrounding viewshed, and hide some of the litter and debris that accumulates in the center median of the freeway. The loss of the Oleanders on a landscape unit basis has been determined to be a significant and unmitigable impact. This significance is magnified when the removal of the Oleanders within the Mid-Coast corridor is combined with the proposed removal of the Oleanders in the center median north from Del Mar to Oceanside. This landscape resource will be permanently removed, creating an impact that cannot be fully mitigated without the direct replacement of plant materials of similar visual qualities within the center median.

The impact of the LRT in Rose Canyon will also have a significant cumulative impact when evaluated in conjunction with the Regents Road bridge over Rose Canyon as well as the Rose Canyon tunnel portal and the TSM Nobel Drive commuter rail station. The LRT Genesee alignment through Rose Canyon and the Regents Road bridge have been depicted in the photo simulation shown in Figure 5-7. Individually, these two projects would have a mitigable significant impact. However, combined they may cumulatively impact the visual quality and character of Rose Canyon to a point where mitigation may not be able to reduce the impact to below a level of significance. If the mitigations are to be successful in reducing the impact, the following design issues must be addressed for the Regents Road bridge:

- Thin profile;
- Clear span with a minimal number of vertical supports;
• No grading fill into Rose Canyon;
• Minimal amount of grading; and
• Any necessary grading is blended into the existing landforms.

5.5 AIR QUALITY

This section presents a summary of the regional and local air quality impacts associated with transportation improvement alternatives proposed for the Mid-Coast Corridor. Detailed technical information can be found in the support technical report, *Air Quality Impact*, December 8, 1993, on file at MTDB's offices. That report is hereby incorporated by reference into this AA/DEIS/DEIR.

Additional analyses of project impacts for the year 2010 have been made at the request of Caltrans and the Federal Highway Administration and are presented in the report, *Supplemental Air Quality Impact*, January 1994.

Impacts were assessed at the regional and local microscale levels. Microscale work of specific sites consisted of several steps:

1. Initial analyses of critical intersections locations as defined in the traffic capacity studies; eight critical sites were identified for initial screening using 2005 traffic volumes.

2. The same microscale studies were conducted for the eight critical sites using 2010 traffic volumes to comply with FHWA and Caltrans requests.

3. Following the initial screening, further detailed studies were made of three locations where exceedances were found in the No-Build Alternative to define appropriate mitigations prior to assessing with-project impacts.

5.5.1 Regional Impacts

Two sources of regional pollutant emission impacts were considered in the analysis of impacts:

• Impacts related to auto/truck and urban bus vehicle miles traveled (VMT) and daily trips changes; and
• Impacts related to the electrical power generation associated with increased LRT VMT.

A discussion of these impacts follows.

5.5.1.1 Regional Emissions From Auto/Truck and Bus Travel

**Impacts**

Regional air quality impacts consist of the changes in pollutant emissions that would result from changes in daily VMT by passenger vehicles and buses and the number of daily trips by passenger vehicles. For the purposes of this assessment, region was defined as the entire San Diego Air Basin which includes all of San Diego County. Table 5-7 presents the daily automobile/truck trips and VMT and urban diesel bus daily regional VMT for 1990 and for the Mid-Coast Corridor alternatives in 2005. SANDAG 2005 No-Build forecasts indicate regional auto and truck VMT to increase by approximately 25%; urban bus VMT by approximately 60%; and auto and truck trips to increase by approximately 40%.

Compared to the 2005 No-Build Alternative, all of the study alternatives would decrease daily regional auto/truck VMT and trips, with the greatest decrease obtained with the HOV Lane Alternative. Urban bus VMT would increase for each of the study alternatives, with the greatest increase in the TSM, TSM/Commuter Rail, Commuter Rail Tunnel, and HOV Lane Alternatives. The emission impacts associated with these changes are summarized in Table 5-8. Table 5-8 shows that all of the project alternatives would reduce basin-wide emissions of all criteria pollutants with the exception of fine particulate matter (PM_{10}) and SO_{2} for the TSM, TSM/Commuter Rail, and Commuter Rail Tunnel Alternatives. The reduction in total pollutants compared to the No-Build Alternative would range from approximately 0.5 to 10.9 tons per day depending on the alternative.
### TABLE 5-7

**DAILY REGIONAL VMT AND VEHICLE TRIPS**

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Auto &amp; Truck VMT (x1000)</th>
<th>Urban Bus VMT (x1000)</th>
<th>Auto and Truck Trips (x1000)</th>
<th>Change from 2005 No-Build</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Auto &amp; Truck VMT (x1000)</td>
</tr>
<tr>
<td>1990</td>
<td>60,263.00</td>
<td>61.00</td>
<td>7,035.77</td>
<td></td>
</tr>
<tr>
<td>2005 No-Build</td>
<td>76,075.61</td>
<td>97.34</td>
<td>9,691.94</td>
<td></td>
</tr>
<tr>
<td>2005 TSM¹</td>
<td>75,994.06</td>
<td>106.75</td>
<td>9,686.54</td>
<td>-81.55</td>
</tr>
<tr>
<td>2005 HOV Lane</td>
<td>75,669.98</td>
<td>109.22</td>
<td>9,680.99</td>
<td>-405.63</td>
</tr>
<tr>
<td>2005 LRT I-5</td>
<td>75,951.26</td>
<td>105.39</td>
<td>9,683.80</td>
<td>-124.35</td>
</tr>
<tr>
<td>2005 LRT Genesee</td>
<td>75,959.08</td>
<td>104.54</td>
<td>9,684.29</td>
<td>-116.53</td>
</tr>
</tbody>
</table>

¹ Results for the TSM/Commuter Rail and Commuter Rail Tunnel Alternatives would be essentially the same.

**SOURCE:** California Air Resources Board; BRW, Inc., January 1993.

### TABLE 5-8

**DAILY REGIONAL POLLUTANT EMISSIONS**

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Total Emissions (tons per day)</th>
<th>Change from 2005 No-Build (tons per day)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CO     NO₂   ROG   PM₁₀   SOₓ</td>
<td>CO     NO₂   ROG   PM₁₀   SOₓ</td>
</tr>
<tr>
<td>1990</td>
<td>1,153.70 143.05 132.62 6.97  6.24</td>
<td></td>
</tr>
<tr>
<td>2005 No-Build</td>
<td>606.53   103.46  50.84  8.22  6.34</td>
<td></td>
</tr>
<tr>
<td>2010 TSM¹</td>
<td>606.26   103.46  50.84  8.24  6.35</td>
<td>-.8     0      0     +0.02  +.01</td>
</tr>
<tr>
<td>2005 HOV Lane</td>
<td>604.24   103.11  47.24  8.19  6.32</td>
<td>-2.29    -3.35  -3.6    -0.03  -0.03</td>
</tr>
<tr>
<td>2005 LRT I-5</td>
<td>605.80   103.40  47.33  8.22  6.34</td>
<td>-.73     -.06  -3.51  0.00    0.00</td>
</tr>
<tr>
<td>2005 LRT Genesee</td>
<td>608.83   103.40  47.32  8.22  6.34</td>
<td>-.69     -.06  -3.52  0.00    0.00</td>
</tr>
</tbody>
</table>

¹ Results for the TSM/Commuter Rail and Commuter Rail Tunnel Alternatives would be essentially the same.

CO - Carbon Monoxide  
PM₁₀ - Particulate Matter  
NO₂ - Oxides of Nitrogen  
SOₓ - Oxides of Sulfur  
ROG - Reactive Organic Gases

**SOURCE:** California Air Resources Board; BRW, Inc., January 1993.
The greatest reduction in regional emissions would result with the HOV Lane Alternative. The emission reductions resulting from the substantial decrease in daily auto/truck VMT under the HOV Lane Alternative (approximately 400,000 vehicle miles) more than off-sets the approximately 9,000 vehicle-mile increase in urban bus travel and associated emissions.

**Significance of impacts**

There would be no significant adverse reduction in regional air quality resulting from auto/truck and bus travel impacts under any of the proposed alternatives. A slight reduction in regional auto/truck and bus travel-related emissions would be expected for all alternatives.

**Mitigation Measures**

No mitigation would be required.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

**5.5.1.2 Regional Emission Impacts From Electrical Power Generation**

**Impacts**

To identify more fully the regional emission impacts of the study alternatives, the emissions resulting from the power generation required to support increased LRT operation have been quantified and are presented in Table 5-8. Increases in electrical power generation for the non-LRT alternatives would be minimal and have been assumed to be 0 in Table 5-9. As shown in the table, increases in regional pollutants associated with LRT power consumption and generation would be relatively small, but would slightly reduce the emissions benefits resulting from the auto/truck and bus emission reductions. Daily LRT power consumption would increase by approximately 10.8 and 10.6 megawatt-hours (MWh) in the LRT I-5 and Genesee Alignment Options, respectively. These increases translate to pollutant increases of between 2.0 and 5.0 pounds daily.

**Significance of Impacts**

No adverse impacts would result. Implementation of any of the Mid-Coast Corridor alternatives would reduce total basin-wide emissions.

**Mitigation Measures**

No mitigation would be required.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.
<table>
<thead>
<tr>
<th>Alternative</th>
<th>LRT VMT (Daily)</th>
<th>Power Consumption&lt;sup&gt;1&lt;/sup&gt; (MWh/day)</th>
<th>Pollutant Emissions (pounds/day)&lt;sup&gt;2,3&lt;/sup&gt;</th>
<th>Change from 2005 No-Build (pounds/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>CO</td>
<td>NO&lt;sub&gt;x&lt;/sub&gt;</td>
<td>ROG</td>
</tr>
<tr>
<td>1990 Existing</td>
<td>4,120</td>
<td>5.68</td>
<td>12.39</td>
<td>1.29</td>
</tr>
<tr>
<td>2005 No-Build</td>
<td>12,176</td>
<td>16.78</td>
<td>36.62</td>
<td>3.81</td>
</tr>
<tr>
<td>2005 TSM&lt;sup&gt;4&lt;/sup&gt;</td>
<td>12,176</td>
<td>16.78</td>
<td>36.62</td>
<td>3.81</td>
</tr>
<tr>
<td>2005 HOV Lane</td>
<td>12,176</td>
<td>16.78</td>
<td>36.62</td>
<td>3.81</td>
</tr>
<tr>
<td>2005 LRT I-5</td>
<td>13,896</td>
<td>19.16</td>
<td>41.79</td>
<td>4.35</td>
</tr>
<tr>
<td>2005 LRT Genesee</td>
<td>13,866</td>
<td>19.11</td>
<td>41.70</td>
<td>4.34</td>
</tr>
</tbody>
</table>

<sup>1</sup> Assumest power consumption of .00267 Mwh per LRT VMT including usage for traction, station lighting, auxiliary power, shops and offices. Unit is megawatt (1,000 kilowatts) per day.

<sup>2</sup> Assumes 30 percent of emissions-producing electrical power would be produced within the San Diego Air Basin (San Diego Gas and Electric, January 1993).

<sup>3</sup> Emission rates are from SDG&E projections for the year 2005, based on their current and anticipated emissions and sources. (Source: Mr. Jack Brunton, Environmental Services Manager SDG&E). Emission rates are:

<sup>4</sup> Results for the TSM/Commuter Rail and Commuter Rail Tunnel Alternatives would be similar.

1993:

- CO = 0.22 lbs/MWh
- NO<sub>x</sub> = 0.48 lbs/MWh
- ROG = 0.05 lbs/MWh
- TSP = 0.09 lbs/MWh
- SO<sub>x</sub> = 0.24 lbs/MWh

5.5.2 Local Impacts

5.5.2.1 Microscale Carbon Monoxide Impacts

*Impacts*

Carbon monoxide microscale modeling (using Caltrans' CALINE4 air quality model) was performed for eight intersection locations for the year 2005 scenario. At the request of Caltrans and the Federal Highway Administration, additional modeling was performed for the year 2010. Modeling sites were selected based on the magnitude of traffic impacts under various alternatives.

An initial screening of impacts was conducted at each location using a conservative, "worst case scenario." CALINE4 runs were made for both the No-Build and other study alternatives. For most standard four-leg intersections a total of 12 receptor locations were utilized, located along minimum building set back (6 meters [20 feet] from curb), corresponding to the head and estimated mid-point of the vehicle queue and at a location adjacent to each departure link opposite estimated approach queue mid-points. For each initial screening scenario, the highest CO value of all receptors was taken as the intersection maximum and is reported in Table 5-10.

The initial results of CO microscale modeling presented in Table 5-10 indicate that none of the project alternatives would result in new (not found in the No-Build Alternative) exceedances of either 1-hour or 8-hour state or federal air quality standards. Although the analysis of 2005 CO impacts indicates that existing (No-Build) violations would be aggravated slightly under the TSM, TSM/Commuter Rail, Commuter Rail Tunnel, and LRT I-5 Alternatives, no violations were found under the No-Build or any project alternatives in the 2010 analysis.

Because exceedances by the No-Build of the 8-hour standard were found in the initial screening, further detailed studies were conducted to identify mitigations for the No-Build condition. The mitigations were used to revise inputs to the "worst case" modeling work assumed in the initial screening.

Mitigations or changes which resulted from the detailed study were as follows:

Location 2. El Camino Real/Carmel Valley Road - Initial traffic analyses assumed a roadway network that was not fully defined in this area. This was because Caltrans and the City of San Diego were still involved in design refinements to the I-5/SR-56 interchange. Subsequent to the initial Mid-Coast studies, local service interchange was agreed to and included in the design/construction of SR-56 at Carmel Creek Road, roughly one-half mile east of El Camino Real. The interchange serves residential areas north and employment areas south (along Arroyo Sorrento Road), thus, substantially relieving El Camino Real. Based on revised traffic forecasts in the area, 2005 volumes at the El Camino Real intersection would drop by about 40 percent. Microscale models were re-run using these new volumes for the No-Build and TSM Alternatives. No exceedences were found for either alternative. Results are presented in Table 5.11.

Location 4. Regents Road/Nobel Drive - Traffic signal inputs were reviewed at this location with respect to refinements that would be used to optimize operations. The City of San Diego, especially in urban core areas such as North University City, has begun a process to upgrade signal coordination and individual intersection operations in compliance with the regional Congestion Management System. The G/C ratio (green to cycle) was adjusted to reflect the higher east/west flows at this location. In addition, signal coordination with adjacent intersections was reviewed and adjustments made to assume better platoon development and arrivals. Microscale models were re-run using the refinements for the No-Build and LRT I-5 Alternatives. No exceedences were found for either alternative. Results are presented in Table 5.11.
<table>
<thead>
<tr>
<th>Location</th>
<th>No-Build</th>
<th>TSM</th>
<th>HOV Lane</th>
<th>LRT I-5</th>
<th>LRT Genesee</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-Hour</td>
<td>8-Hour</td>
<td>1-Hour</td>
<td>8-Hour</td>
<td>1-Hour</td>
</tr>
<tr>
<td>Genesee Avenue/UTC Entry</td>
<td>11.2</td>
<td>6.6</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>El Camino Real/Carmel Valley Road</td>
<td>16.6</td>
<td>9.8</td>
<td>16.6</td>
<td>9.8</td>
<td>*</td>
</tr>
<tr>
<td>Villa La Jolla/Nobel Drive</td>
<td>11.2</td>
<td>6.6</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Regents Road/Nobel Drive</td>
<td>15.6</td>
<td>9.2</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Clairemont Drive/Denver Street</td>
<td>11.7</td>
<td>6.9</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Towne Centre Drive/La Jolla Village Drive</td>
<td>16.9</td>
<td>10.0</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Genesee Avenue/Nobel Drive</td>
<td>14.6</td>
<td>8.6</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>East Mission Bay Drive/Garnet Avenue</td>
<td>14.7</td>
<td>8.7</td>
<td>*</td>
<td>*</td>
<td>14.8</td>
</tr>
</tbody>
</table>

NOTES:

1. Federal Ambient Air Quality Standards (parts per million): 1-Hour = 35.0
   California Ambient Air Quality Standards (parts per million): 8-Hour = 9.0

2. 8-Hour concentrations calculated using a persistence factor of 0.59 (ratio of 8-Hour to 1-Hour concentrations as determined by SDAPCD Oceanside Station Monitoring Data).

3. * = traffic impacts insufficient to warrant CO analysis.

4. Impacts for the TSM/Commuter Rail and Commuter Rail Tunnel Alternatives would be similar.

5. Shaded areas show possible exceedances.

<table>
<thead>
<tr>
<th>Location (Alternative)</th>
<th>No-Build Alternative</th>
<th>Project Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Initial Screening</td>
<td>Revised G/C with Platooning 3</td>
</tr>
<tr>
<td></td>
<td>1-Hr 1</td>
<td>8-Hr 2</td>
</tr>
<tr>
<td></td>
<td>1-Hr</td>
<td>8-Hr</td>
</tr>
<tr>
<td>Town Center Dr./La Jolla Village Dr. (I-5 Westside LRT)</td>
<td>16.9</td>
<td>10.0</td>
</tr>
<tr>
<td>Regents Rd./Nobel Dr. (I-5 Westside LRT)</td>
<td>15.6</td>
<td>9.2</td>
</tr>
<tr>
<td>El Camino Real/Carmel Valley Rd. (TSM)</td>
<td>16.6</td>
<td>9.8</td>
</tr>
</tbody>
</table>

Notes:

1. Ambient Air Quality Standards:
   - California 1-Hr/8-Hr = 209.0 ppm
   - Federal 1-Hr/8-Hr = 35/9 ppm

2. 8-Hour concentrations are rounded to the nearest whole part per million (ppm) for comparison to air quality standards (see Note 1) but are presented here to the nearest 0.1 ppm to maintain consistency with previous drafts of this analysis.

3. Revisions to previous modeling consisted of the following:
   - La Jolla/Towne Centre
     - reapportionment of signal green time to more closely reflect traffic volumes by approach direction;
     - reduction in maximum vehicle idle times and the percentage of vehicles delayed per lane signal cycle to reflect some degree of vehicle platooning (previous modeling assumed uniform vehicle arrival over the course of each signal cycle).
   - Regents/Nobel
     - reapportionment of signal green time;
     - reduction of the percentage of vehicles delayed.
   - El Camino/Carmel Valley:
     - revision of background traffic volumes to reflect a new interchange; and
     - reapportionment of signal green time; and
     - reduction of the percentage of vehicles delayed.

Location 6. Towne Center Drive/La Jolla Village Drive - Similar to location 4, this site is also in North University City. Signal coordination along La Jolla Village Drive, which is the primary east/west arterial in the urban core, has been instituted to deliver well-organized platoons and to emphasize progression. Input refinements to the G/C ratio and signal coordination assumptions were made for the microscale models re-run. No exceedances were found in the No-Build or the LRT I-5 Alternative. Results are presented in Table 5.11.

**Significance of Impacts**

No adverse impact would result.

**Mitigation Measures**

No mitigation measures would be required.

**Unmitigable Impacts Remaining**

No unmitigable impact would remain.

5.5.2.2 Construction Impacts

During the construction phase of the project, nitrogen dioxide, carbon monoxide, hydrocarbons, oxides of sulfur, and particulate matter is emitted from construction equipment and exhausts of workers’ vehicles. These are considered short term emissions. Additional dispersion of particulate matter would occur through grading and vehicular travel on the unpaved areas. Air quality in the project area would not be significantly affected by construction emissions because of the relatively minor level of construction activity required for the project alternatives.

**Significance of Impacts**

Provided that standard dust control measures are utilized, no adverse impact would result.

**Mitigation Measures**

No mitigation measures would be required.

**Unmitigable Impacts Remaining**

No unmitigable impact would remain.

5.5.3 Conformity with State Implementation Plan

5.5.3.1 LRT Alternative

The Mid-Coast LRT alternatives are included in the current Regional Transportation Plan (RTP)(1990-1997) and current Regional Transportation Improvement Program (RTIP). The RTIP have been demonstrated by SANDAG to conform to the air quality implementation plan for the San Diego Air Basin. The carbon monoxide modeling results presented in Table 5-10 demonstrated that neither LRT alternative will cause any new violations of state or federal carbon monoxide standards in the year 2005. The supplemental analysis of carbon monoxide impacts discussed in Section 5.5.2 demonstrates that the LRT alternatives will neither cause nor contribute to any carbon monoxide violations in the year 2010. Based on these findings, the Mid-Coast LRT I-5 and LRT Genessee Alternatives satisfy Federal Clean Air Act conformity criteria.
5.5.3.2 TSM, TSM/Commuter Rail, Commuter Rail Tunnel and HOV Lane Alternatives

The TSM, TSM/Commuter Rail, Commuter Rail Tunnel and HOV Lane Alternatives are not included in the current conforming RTIP. The carbon monoxide modeling results presented in Table 5-10 demonstrates the TSM, TSM/Commuter Rail, Commuter Rail Tunnel and HOV Lanes Alternatives will not cause any new violations of state or federal carbon monoxide standards in the year 2005. The supplemental analysis of carbon monoxide impacts discussed in Section 5.5.2 demonstrates the TSM, TSM/Commuter Rail, Commuter Rail Tunnel and HOV Lane Alternatives will neither cause nor contribute to any carbon monoxide violations in the year 2010.

Project alternatives, with the exception of the LRT alternatives, are not included in the current conforming RTP and RTIP and thus do not meet certain Federal Clean Air Act conformity criteria. The following sections of the regulations must be met:

51.412 - The conformity determination must be based on the latest planning assumptions.

SANDAG, the MPO, will include the LPA in its next update of the RTP and RTIP and will rely upon the most current planning assumptions.

51.414 - The conformity determination must be based on the latest emission estimation model available.

The conformity determination will rely upon the most recent available emission estimation model. SANDAG uses a customized emission estimation model which applies emission factors obtained from the California Air Resources Board’s EMFAC 7F computer program. Emission factors vary by vehicle class and technology. The Mid-Coast Corridor AA/DEIR/DEIS utilized the EPA approved Mobile 5A emissions model and Caltrans’ CALINE4 air quality model for site specific measurements.

51.416 - The MPO must make the conformity determination according to the consultation procedures of this rule and the implementation plan revision required by Section 51.396.

SANDAG will make the conformity determination according to the consultation procedures of the EPA Conformity Rule and the implementation plan revision as required by Section 51.416.

51.424 - The project must not cause or contribute to any new localized CO or PM$_{10}$ violations or increase the frequency or severity of any existing CO and PM$_{10}$ violations in CO and PM$_{10}$ nonattainment and maintenance areas.

SANDAG is responsible for ensuring that projects included in the RTP and RTIP do not cause or contribute to any new localized CO or PM$_{10}$ violations or increase the frequency or severity of any existing CO and PM$_{10}$ violations in CO and PM$_{10}$ nonattainment and maintenance areas. The plan and RTIP which include the LPA will be analyzed in accordance with EPA rules prior to Federal approval of a FEIS for the project.

51.426 - The project must comply with PM$_{10}$ control measures in the applicable implementation plan.

The LPA will comply with PM$_{10}$ control measures in the implementation plan.
The project must eliminate or reduce the severity and number of localized CO violations in the area substantially affected by the project (in CO nonattainment areas).

No new localized CO violations were found under the No-build or any of the project alternatives for the year 2010.

SANDAG will include the locally preferred alternate (LPA) in its next update of the regional plan and in its next TIP. The plan and TIP which include the LPA will be analyzed for conformity in accordance with EPA rules prior to FTA/FHWA approval of a FEIS for the project.

5.5.4 Cumulative Impacts

A reasonable assessment of cumulative air quality impacts of the various project alternatives can be made by comparison of project impacts with the 2010 No-Build Alternative condition, which includes all other major planned transportation improvements for the Mid-Coast Corridor. Based on the impacts identified, it can be concluded that all project alternatives, with the exception of the TSM, TSM/Commuter Rail and Commuter Rail Tunnel Alternatives, would reduce the level of regional pollutants relative to the No-Build Alternative in 2005 and would, therefore, have no negative cumulative impacts on regional air quality.

Both the LRT Alternatives and the HOV Lane Alternative would reduce total regional emissions. The very slight increase in regional emissions attributable to the TSM, TSM/Commuter Rail, and Commuter Rail Tunnel Alternatives is not significant.

No cumulative local, microscale carbon monoxide impacts were identified for any of the alternatives. Despite very slight increases in CO concentrations at the most heavily affected intersections, no exceedances of state or federal air quality standards were projected for any of the alternatives that would not also occur under the 2005 No-Build Alternative. The supplemental analysis of 2010 carbon monoxide impacts indicates the cumulative impact of any of the alternatives would not result in violations of state or federal carbon monoxide standards. Project construction emissions would be temporary and can be reduced through various mitigation actions. The following general measures should be implemented to minimize potential local air quality impacts:

- All available dust control measures should be utilized during construction to minimize fugitive dust, including watering, providing truck wheel washers and covering fill material hauled in trucks; and
- Construction equipment should be tuned and in good working condition.
5.6  NOISE AND VIBRATION

The results of the noise and vibration impacts analysis are presented in this section. Detailed technical information can be found in the *Mid-Coast Corridor Noise and Vibration Report*, January 26, 1994, supporting technical report on file at MTDB’s offices. This report is hereby incorporated by reference into this AA/DEIS/DEIR.

5.6.1  Noise

A comparison of the existing and 2010 noise levels for project alternatives are presented in this section. In residential areas where mitigation in the form of sound barrier walls are proposed, notification of meetings or public hearings would occur during AA/DEIS/DEIR circulation. Detailed information showing locations, heights and type of barriers will be required in the preliminary engineering stage of project development.

5.6.1.1  No-Build, TSM, TSM/Commuter Rail, and Commuter Rail Tunnel Alternatives

*Impacts*

Table 5-12 compares existing noise levels to projected noise levels at locations for each of these alternatives. The primary source of increased noise from the No-Build, TSM, TSM/Commuter Rail, Commuter Rail Tunnel, and HOV Lane Alternatives is the projected increase in traffic volumes along I-5 and local streets. In evaluating traffic noise, the appropriate criteria for assessing noise impact generally are the FHWA Noise Abatement Criteria (see Section 3.6.1).

Under the No-Build Alternative projected increases in noise levels would be caused by an increase in traffic volumes along I-5, an increase in Amtrak service, and by the planned NCTD commuter train service. An increase in traffic on local streets would likely cause small increases in noise levels at some locations.

Compared to the No-Build, the TSM, TSM/Commuter Rail, Commuter Rail Tunnel, and HOV Lane Alternatives will involve increased bus traffic in the project area. The increased bus traffic would likely change peak hour noise levels by no more than 1 dBA $L_{eq}$, which would be less than or equal to the increase projected as a result of the No-Build. In addition to changes in traffic volumes, the alternatives would involve P&R and transit center improvements at some locations. No impact would be likely as a result of these improvements. Once detailed information is available concerning design and operating plans for these facilities, this data would be further reviewed to confirm that noise-producing operations would not be located near any noise-sensitive receivers.

Noise impacts resulting from the TSM/Commuter Rail Alternatives would result from train stop and start operations and associated P&R activities at the Nobel Drive (part of the TSM/Commuter Rail Alternative only) and Balboa Avenue (both TSM/Commuter Rail Alternatives) commuter rail stations. No adverse impacts would be anticipated at the UTC commuter rail station (part of the Commuter Rail Tunnel Alternative only) since the station platform would be located in subway and the parking and bus loading areas are not in a noise-sensitive location. For the Commuter Rail Tunnel Alternative, there could be localized impacts to people along the north rim of Rose Canyon if the train engineers are required to sound the horn before entering the tunnel portal. However, it is unlikely that they will be required to sound their horns. Localized impacts from the tunnel ventilation system are not expected since the system would not be located in any noise-sensitive areas.
<table>
<thead>
<tr>
<th>Location</th>
<th>Existing - Based on Measurement</th>
<th>Projected 2010 $L_{dn}$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$L_{dn}$</td>
<td>Peak Hourly $L_{eq}$</td>
</tr>
<tr>
<td>1. Littlefield and Morena (250'/76 m from I-5)</td>
<td>70*</td>
<td>71</td>
</tr>
<tr>
<td>2. McGraw south of Baker</td>
<td>70*</td>
<td>71</td>
</tr>
<tr>
<td>3. Toler Elementary School</td>
<td>63*</td>
<td>62</td>
</tr>
<tr>
<td>4. Intersection Paul Jones/Brandywine (400'/122 m from I-5)</td>
<td>64*</td>
<td>63</td>
</tr>
<tr>
<td>5. Santa Fe Trailer Park (300'/92 m from I-5)</td>
<td>63*</td>
<td>63</td>
</tr>
<tr>
<td>6. La Paz Townhouses (150'/46 m from I-5)</td>
<td>61</td>
<td>59</td>
</tr>
<tr>
<td>7. Married Student Housing</td>
<td>58</td>
<td>63</td>
</tr>
<tr>
<td>8. Tennis Courts</td>
<td>57*</td>
<td>59</td>
</tr>
<tr>
<td>9. SW corner of Towne Centre/Executive Drive</td>
<td>57*</td>
<td>59</td>
</tr>
<tr>
<td>10. Rose Canyon, Valencia neighborhood (800'/244 m west of Regents Road)</td>
<td>65</td>
<td>62</td>
</tr>
<tr>
<td>11. Rose Canyon, foot of Regents Road</td>
<td>63</td>
<td>57</td>
</tr>
<tr>
<td>12. Genesee Avenue north of Nobel</td>
<td>65*</td>
<td>68</td>
</tr>
<tr>
<td>13. Via Sonoma (50'/80 m from I-5)</td>
<td>69</td>
<td>66</td>
</tr>
<tr>
<td>14. Radisson Hotel, formerly La Jolla Village Inn (275'/84 m from I-5)</td>
<td>57*</td>
<td>59</td>
</tr>
<tr>
<td>15. UCSD Housing west of Gilman (200'/61 m from I-5)</td>
<td>66*</td>
<td>66</td>
</tr>
<tr>
<td>16. Rose Canyon, 100'/31 m east of Regents Road</td>
<td>65</td>
<td>58</td>
</tr>
<tr>
<td>17. Rose Canyon, 1200'/366 m west of Genesee</td>
<td>64*</td>
<td>58</td>
</tr>
<tr>
<td>18. Rose Canyon, 500'/153 m west of Genesee</td>
<td>64*</td>
<td>58</td>
</tr>
<tr>
<td>19. La Jolla Pt. Apts.</td>
<td>65</td>
<td>61</td>
</tr>
</tbody>
</table>

Note: All noise levels are expressed as dBA.
* Estimated based on short-term measurement.
** Applicable to Commuter Rail Tunnel only.
*** Not applicable to TSM and Commuter Rail Tunnel.
dBA = decibels
$L_{dn}$ = changes in daynight sound level
$L_{eq}$ = energy equivalent levels

Source: ICF Kaiser Engineers, Inc. and Harris, Miller, Miller & Hanson, Inc., May 1993.
Significance of Impacts

There would be no significant impacts related to the No-Build Alternative. Although projections indicate the TSM and both TSM/Commuter Rail Alternatives would not cause a significant change in ambient noise levels, it should be noted that noise level measurements indicate that many residential areas along I-5 already exceed the FHWA Noise Abatement Criteria. The TSM/Commuter Rail Alternatives could create potentially adverse localized noise impacts. The character of these impacts at two of the commuter rail stations is discussed below.

**Nobel Drive Station** - The Nobel Drive Station is only included in the TSM/Commuter Rail Alternative without the tunnel. This station would be designed to accommodate a maximum of 260 parking spaces and bus and automobile drop-off/circulation areas. The station area would be a minimum of 62 meters (200 feet) from residences in the north and 93 meters (300 feet) from residences to the west. Commuter rail activity would be concentrated around the AM and PM peak hour. No night or midday service is planned. A result of selecting this site for the station is that neighboring residential areas could experience some increased noise exposure because commuter trains, which would otherwise pass through, would stop at the station. The potential noise sources include:

- Horns sounded by train engineers as a warning to people on the platform - Although it is not uncommon for train horns to be sounded when trains approach a station, this should not be the standard practice on the NCTD commuter rail system.

- Braking noise - Modern train braking systems do not greatly increase noise levels as the train decelerates.

- The noise of accelerating locomotives - Tests of stationary locomotives connected to load cells have shown that under maximum load conditions, locomotive noise is approximately proportional to the throttle setting. Locomotives typically have eight throttle settings. Noise levels increase an average of about 2 dBA every time the throttle setting is increased one notch.

- Wheel/rail noise - The wheel/rail noise caused by the steel wheels rolling on steel tracks will be lower than for through trains because the trains will be traveling at relatively low speeds close to the station platform.

The principal noise impacts associated with commuter trains stopping at the Nobel Drive Station, assuming that horns are not used to warn patrons on the platform, would be noise caused as trains brake coming into the station and accelerate leaving the station. A worst case is represented by trains accelerating at maximum throttle setting as they leave the station. Based on testing of the F59PH locomotives, similar to those planned for use by NCTD, the noise level at 31 meters (100 feet) under maximum acceleration is 87 dBA. A worst case scenario is that every locomotive operates under maximum power leaving the station. The $L_{\text{max}}$ from the accelerating trains is estimated to be 72 dBA at the residences closest to the commuter rail platform. Assuming the noise would last for approximately 30 seconds for every train, the equivalent $L_{eq}$ would be 50 to 55 dBA. Based on an existing $L_{eq}$ of 65 dBA, the threshold for noise impact with the draft FTA criteria is an $L_{eq}$ of 61 dBA, well above the worst case projection. No significant noise impacts are projected to occur.

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1 Source: P.S. Luk, GO Transit, Toronto, Canada
Balboa Avenue Station - The Balboa Avenue Station would be constructed between I-5 and Morena Drive. The station will accommodate 250 P&R spaces and bus drop-off/circulation area. Station activity areas would be approximately 92 meters (300 feet) from the closest residence. Activity at the Balboa Avenue Station would be concentrated around AM and PM peak-hour service. No night activity would occur. It is not likely that adverse noise impacts would result from commuter train operations at the Balboa Drive Station, because the freeway/arterial system surrounding the station causes a high ambient noise level.

Assuming that horns are not used to warn patrons on the station platform, the only additional noise would be caused as trains brake entering the station and accelerate leaving the station. Based on an estimated $L_{eq}$ of 68 dBA, the threshold for noise impact with the draft FTA criteria is a train $L_{eq}$ of 63 dBA, well above the worst-case projection. No significant adverse noise impacts are projected to occur at this station.

The Balboa Avenue Station, for all alternatives, including the LRT and HOV, would require existing Balboa Avenue traffic destined to southbound Morena Boulevard to be redirected to the northbound loop-ramp. This increase in traffic at the loop-ramp would cause an increase in noise levels of about 2 dB from the EB-NB ramp and about 1 dB increase in overall peak $L_{eq}$ (Table 5-13). Although this is a small change, the projected noise levels are close to the FHWA noise abatement criteria of 67 dB $L_{eq}$.

### TABLE 5-13
MORENA BOULEVARD/BALBOA AVENUE INTERCHANGE NOISE PROJECTIONS  EXISTING VS. YEAR 2010 CONDITIONS

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Projected Peak Hour $L_{eq}$ (dB)</th>
<th>Increase Relative to Existing (dB)</th>
<th>Increase Relative to No-Build (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EB-NB Ramp</td>
<td>NB-EB Ramp</td>
<td>Total</td>
</tr>
<tr>
<td>Existing (based on 1988 traffic counts)</td>
<td>61.3</td>
<td>61.4</td>
<td>64.4</td>
</tr>
<tr>
<td>No-Build, 2010</td>
<td>63.2</td>
<td>63.1</td>
<td>66.2</td>
</tr>
<tr>
<td>TSM/HOV, 2010</td>
<td>65.0</td>
<td>63.1</td>
<td>67.2</td>
</tr>
<tr>
<td>LRT I-5/Genesee, 2010</td>
<td>65.3</td>
<td>63.1</td>
<td>67.3</td>
</tr>
</tbody>
</table>

$dB = $ decibels  
$L_{eq} =$ energy equivalent level  

Source: HMHP; December 17, 1993.

**Mitigation Measures**

No mitigation would be required for the Nobel Drive Station.

For the Balboa Avenue Station, installation of a sound barrier along the northbound loop-ramp may be required to reduce noise exposure caused by the traffic circulation change to the residences closest to the ramp. Since the projected noise level is so close to the NAC, it is recommended that a decision on mitigation be delayed to preliminary engineering, when further evaluation would be conducted.

No other mitigation would be required for the No-Build, TSM, TSM/Commuter Rail, and Commuter Rail Tunnel Alternatives.

5-82
Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.6.1.2 HOV Lane Alternative

Impacts

The assessment of noise impacts for the HOV Alternative incorporates the information included in the I-5 Widening and Interchange Improvements in San Diego, FEIS, March 1991, for the I-5/I-805 Interchange. The HOV Alternative would involve all of the changes described for the TSM Alternative, as well as construction of HOV lanes in the median of I-5 from the Carmel Mountain undercrossing, south to the vicinity of I-8. Since this alternative would increase the capacity of I-5, all noise from traffic on I-5 should be evaluated as project noise, using the FHWA Noise Abatement Criteria. As shown in Table 5-12, the short-term and 24-hour noise measurements performed along I-5 indicate that $L_{eq}$'s caused by highway traffic, measured in the noisiest hour of the day, are above the FHWA Noise Abatement Criterion of 67 dBA at a number of locations. Although the projected noise levels for the HOV Alternative are approximately the same as the levels projected for the No-Build and TSM Alternatives, for this alternative, noise impact is projected wherever I-5 traffic noise exceeds the FHWA NAC criteria. Table 5-14 shows HOV Alternative noise impacts at sensitive residential locations within 76 to 92 meters (250 to 300 feet) of I-5 under projected 2010 $L_{eq}$ levels.

<table>
<thead>
<tr>
<th>Location</th>
<th>Existing, based on measurement</th>
<th>Projected 2010 $L_{eq}$</th>
<th>Noise Wall required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Little &amp; Morena (250' from I-5)</td>
<td>70*</td>
<td>71</td>
<td>Yes</td>
</tr>
<tr>
<td>2. McGraw south of Baker</td>
<td>70*</td>
<td>71</td>
<td>Yes</td>
</tr>
<tr>
<td>3. Toler Elementary School</td>
<td>63*</td>
<td>62</td>
<td>No</td>
</tr>
<tr>
<td>5. Santa Fe Trailer Park (300' from I-5)</td>
<td>63*</td>
<td>63</td>
<td>No</td>
</tr>
<tr>
<td>6. La Paz Townhouses (150' from I-5)</td>
<td>61</td>
<td>59</td>
<td>No</td>
</tr>
<tr>
<td>7. Married student housing</td>
<td>58</td>
<td>63</td>
<td>No</td>
</tr>
<tr>
<td>13. Via Sonoma (50' from I-5)</td>
<td>69</td>
<td>66</td>
<td>Yes</td>
</tr>
<tr>
<td>14. Radisson Hotel, formerly La Jolla Village Inn (275' from I-5)</td>
<td>57*</td>
<td>59</td>
<td>No</td>
</tr>
<tr>
<td>15. UCSD housing west of Gilman (200' from I-5)</td>
<td>66*</td>
<td>66</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Note: All noise levels expressed as dBA (decibels); estimated based on short-term measurements
$L_{eq}$ = changes in daytime sound level
$L_{eq}^{n}$ = energy equivalent levels


Assuming the project would cause a peak hour increase of 1 dBA $L_{eq}$ to the existing noise level (based on a 20 percent increase in traffic on I-5), it would cause a noise impact at many noise sensitive locations east and west
I-5, including Receivers 1, 2, 13, and 15. Based on the measurements and the preliminary projections, the noise impact zone for residential buildings extends approximately 76 to 92 meters (250 to 300 feet) east and west from the edge of the freeway. Adequate mitigation of the noise impact projected for Receivers 1, 2, 13, and 15 could be provided by construction of approximately 1,830 lineal meters (6,000 lineal feet) of noise barrier walls. Locations of proposed sound barrier walls are shown in Figures 5-8 through 5-12. Assuming an average barrier height of 3.7 meters (12 feet), and a cost of $216 per square meter ($20 per square foot), barriers cost is estimated at $1,440,000. Details of the height, length and location of sound walls for all Mid-Coast Project Alternatives were presented in Table 5-6.

**Significance of Impact**

Future peak hour noise levels are expected to increase by 1 dBA L_{eq} following construction of the HOV Alternative. This increase would be primarily from traffic along I-5. Based on the measurements, existing noise exposure exceeds the FHWA Noise Abatement Criteria at residential buildings that are within 76 to 92 meters (250 to 300 ft) of the edge of the roadway. This includes approximately 50 residential buildings. The FHWA Criteria state that noise abatement must be evaluated whenever the peak hourly L_{eq} approaches or exceeds 67 dBA, irrespective of whether the proposed construction would be responsible for a significant increase in noise exposure. This means that although the increase in noise exposure due to construction of the HOV lanes would be small, abatement should be considered to mitigate the existing noise impacts.

**Mitigation Measures**

Adverse noise impacts could be mitigated by constructing approximately 1,830 meters (6,000 feet) of 3.7-meter (12-foot) high noise barrier in the locations shown on Figures 5-8 through 5-12. Total cost is estimated at $1.44 million.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

**5.6.1.3 LRT Alternative**

Noise impacts associated with the LRT Alternative are discussed below. The discussion is organized by geographic segment. The South Segment is presented first, followed by the North Segment. Two alignment options are considered for the North Segment.

**South Segment - San Diego River to Gilman Drive**

**Impacts**

A comparison of the existing and future noise levels for this alternative is shown in Table 5-15. Because of noise from traffic on arterial roadways, I-5, and existing Amtrak and freight trains, the proposed FTA noise impact criteria would not be exceeded in this segment.

**Significance of Impacts**

No significant adverse impacts would occur.
Mitigation Measures

No mitigation would be required.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

North Segment - Gilman Drive to Genesee Avenue

LRT I-5 Alignment Option

Impacts

Table 5-16 presents a comparison of existing and projected noise levels at noise-sensitive locations with implementation of this option. The I-5 Alignment Option would be expected to cause noise levels that exceed the impact criteria at four locations: La Paz Townhouses, Via Sonoma Townhouses, Radisson Hotel, and UCSD married student housing (along Miramar Street).

The potential for noise impacts from wheel squeal was also assessed. Because the San Diego Trolley light rail vehicles are all equipped with resilient wheels, there is less potential for wheel squeal noise on short-radius curves than is the case when solid steel wheels are used. Local operating experience has shown that turning radii greater than 152 meters (500 feet) would not cause wheel squeal. There are three locations along this alignment where wheel squeal could occur. One is at the curve near the UCSD undergraduate housing where the alignment passes over I-5. The tracks are about 82 meters (270 feet) from the closest noise sensitive receptor. This curve has a 92-meter (300-foot) radius. Due to the distance from the receptor and the already high noise levels from I-5, it is not likely that wheel squeal would be a significant adverse source of community noise at this site. The second site (part of the LRT Genesee Alignment Option) is located where the alignment turns in a 31-meter (100-foot) radius through the intersection of Executive Drive and Towne Centre Drive. The curve is approximately 46 meters (150 feet) from the townhouses located at the southwest corner of the intersection. This radius curve is small enough that wheel squeal would cause a significant adverse impact. The last site is where there is an "S" curve east and west of Executive Way, on Executive Drive. The east end of the curve is about 30 meters (100 feet) from the townhouse complex at the southwest corner of Executive Drive and Towne Centre Drive. The curve radius is 153 meters (500 feet), which should be large enough not to cause wheel squeal.

Final design and initial construction of the Cape La Jolla Townhomes has occurred since the noise and vibration analysis was performed for the AA/DEIR/DEIS. The development is west of I-5 just north of the Via Sonoma Townhomes, measurement Site 13. The I-5 Alternative would pass within approximately 21 meters (70 feet) of the closest unit.

Whenever grade crossings are located within 46 meters (150 feet) of noise sensitive receivers, there is a potential for noise impacts due to warning bells. For the I-5 Alignment Option, there is one location where an at-grade crossing is a concern. It is located at the intersection of Miramar Street/Executive Drive and Regents Road; noise sensitive locations are just beyond the 46-meter (150-foot) noise contour. A noise impact could occur from warning bells and/or if the train operators are required to sound the train whistles as a warning before grade crossings. The extent of this impact would primarily depend upon the whistle noise levels and how long and how often the whistles would be sounded. The other two locations (Gilman Drive/La Jolla Colony Drive, and proposed Gilman Drive/UCSD east campus) are beyond the 46 meter (150 foot) noise contour.
### TABLE 5-15

**NOISE IMPACT OF LRT ALTERNATIVE - SOUTH SEGMENT**

<table>
<thead>
<tr>
<th>Location</th>
<th>Existing, Based on Measurement</th>
<th>Project 2010 $L_{dn}$</th>
<th>$L_{dn}$ Increase with LRT</th>
<th>Impact Limits for LRT $L_{dn}$</th>
<th>Proj. LRT $L_{dn}$</th>
<th>Degree of Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Littlefield and Morena (250’ from I-5)</td>
<td>$L_{dn}$: 70* Peak Hourly $L_{eq}$: 71</td>
<td>No Build: 71</td>
<td>LRT: 57</td>
<td>Rel. to Exist: 1</td>
<td>Impact: 65</td>
<td>Severe: 69</td>
</tr>
<tr>
<td>3. Toler Elementary School</td>
<td>$L_{dn}$: 63* Peak Hourly $L_{eq}$: 62</td>
<td>No Build: 64</td>
<td>LRT: 65</td>
<td>Rel. to Exist: 2</td>
<td>Impact: 65</td>
<td>Severe: 70</td>
</tr>
<tr>
<td>4. Intersection Paul Jones/Brandywine (400’ from I-5)</td>
<td>$L_{dn}$: 64* Peak Hourly $L_{eq}$: 63</td>
<td>No Build: 68</td>
<td>LRT: 60</td>
<td>Rel. to Exist: 3</td>
<td>Impact: 61</td>
<td>Severe: 65</td>
</tr>
<tr>
<td>5. Santa Fe Trailer Park (300’ from I-5)</td>
<td>$L_{dn}$: 63* Peak Hourly $L_{eq}$: 63</td>
<td>No Build: 65</td>
<td>LRT: 66</td>
<td>Rel. to Exist: 3</td>
<td>Impact: 60</td>
<td>Severe: 65</td>
</tr>
</tbody>
</table>

*Note:* All noise levels are expressed as dBA

| Source: ICF Kelsey, Inc. and Harris, Miller, Miller, & Hanson, Inc. 1993 |

### TABLE 5-16

**NOISE IMPACT OF LRT ALTERNATIVE - NORTH SEGMENT**

**I-5 OPTION**

<table>
<thead>
<tr>
<th>Location</th>
<th>Existing, Based on Measurement</th>
<th>Projected 2010 $L_{dn}$</th>
<th>$L_{dn}$ Increase with LRT</th>
<th>Impact Limits for LRT $L_{dn}$</th>
<th>Proj. LRT $L_{dn}$</th>
<th>Degree of Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>15. UCSD Housing west of Gilman (200’ from I-5)</td>
<td>$L_{dn}$: 66* Peak Hourly $L_{eq}$: 66</td>
<td>No Build: 67</td>
<td>LRT: 59</td>
<td>Rel. to Exist: 2</td>
<td>Impact: 62</td>
<td>Severe: 67</td>
</tr>
</tbody>
</table>

*Note:* All noise levels are expressed as dBA

| Source: ICF Kelsey, Inc. and Harris, Miller, Miller, & Hanson, Inc. 1993 |
Significance of Impacts

La Paz Townhomes - Significant adverse impacts would be expected at the La Paz Townhouses. Included with the La Paz Townhomes is the housing along Charmant Drive, north of the La Paz complex. Although the La Paz and Charmant Drive residences are adjacent to I-5, the steep slope up to the freeway and other features of the terrain provide an effective sound shield from much of the traffic noise. At-grade sections of the alignment along the east side of I-5 would be within 21 meters (70 feet) of the closest residences. This area would fall into the FTA "Severe" Impact zone. According to the proposed FTA criteria, the degree of impact to the La Paz Townhouses would be "severe" since the criteria would be exceeded by 6 dBA at this location. The $L_{max}$ projections for most of the same residences exceed the applicable APTA limit by about 5 dBA.

Via Sonoma Townhomes/Raddison Hotel/UCSD Married Housing - Based on the FTA criteria, the degree of impact at these locations would be categorized as "impact". The criteria would be exceeded by 3 dBA at the UCSD married student housing and 3 dBA at the Via Sonoma Townhouses. An exceedence of 1 dBA would be expected at the Radisson Hotel. No $L_{max}$ exceedence would occur at these three locations.

Based on a field survey of the Via Sonoma Townhouses, it appeared that they were built to provide sufficient outdoor-indoor sound insulation (no exposed areas or windows facing I-5) to minimize noise intrusion from I-5. The outdoor areas are shielded from the traffic noise and would be similarly shielded from the LRT noise. Therefore, measures to mitigate noise at this location are not warranted. For the Radisson Hotel, only the end rooms on the east wing would be in the impact zone. Given that the outdoor space does not appear to be used for noise sensitive activities and the hotel room windows are normally closed, the noise impact would not be sufficient to justify mitigation. At the UCSD Married Housing, relatively low-levels of existing noise were measured. The FTA criteria indicates that an adverse noise impact would occur at this location; the APTA criteria was not exceeded.

Cape La Jolla Subdivision - Although a noise measurement has not been performed at this site, the measurement site at the Via Sonoma Townhomes is within about 61 meters (200 feet) of the area on the Cape La Jolla site where noise impact is most likely. The measurement $L_{dn}$ at the Via Sonoma units was 69 dBA. With the slightly greater distance between the freeway and the Cape La Jolla living areas, existing noise exposure is estimated to be $L_{dn}$ 67 dBA at the southern part of the subdivision and $L_{dn}$ 64 dBA at the northern end. These projects assume some shielding of freeway noise by the terrain. The effect of the 2.2 to 2.4 meters (7 to 8 feet) sound wall along the west property line has not been included because there is a line-of-sight view over the wall at the top floors of the Cape La Jolla units.

The noise impact assessment is summarized in Table 5-17. These projections are for the second and third floors of the Cape La Jolla units assuming that there would be a clear view of the tracks from these floors. Noise levels on the ground floors and in the outdoor spaces will be lower because of the attenuation provided by the sound wall at the east property line of the subdivision. The projections indicate that noise from LRT operations would be likely to exceed the draft FTA noise impact limits at the units on the east side of the subdivision. The table also shows that LRT noise levels would be higher at the southern end of the subdivision. This is because trains operating on elevated structures tend to be 3 to 5 decibels louder than trains operating on at-grade tie-and-ballast track. The higher noise for elevated structures is largely caused by the low acoustic absorption of the elevated structure concrete decks compared to track ballast. The result is that LRT noise at the southern end of the subdivision is projected to exceed the impact threshold by 4 dBA, while at the northern end, the projected level is right at the impact threshold. Note that the project $L_{max}$ levels do not exceed the APTA design goals. This area would fall into APTA Community Category V, "Industrial/Highway Corridor." The applicable APTA limits on $L_{max}$ are 85 dBA for multi-family dwellings and 80 dBA for single-family dwellings.
TABLE 5-17
NOISE PROJECTIONS AT CAPE LA JOLLA SUBDIVISION

<table>
<thead>
<tr>
<th>Location</th>
<th>Existing $L_{dn}$*</th>
<th>LRT Civil Stations</th>
<th>Distance to Track CL</th>
<th>FTA Impact Limit ($L_{dn}$)</th>
<th>LRT Noise Projections**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$L_{dn}$</td>
</tr>
<tr>
<td>Southern End</td>
<td>67 dBA</td>
<td>607-609</td>
<td>70 ft</td>
<td>63 dBA</td>
<td>67 dBA</td>
</tr>
<tr>
<td>Northern End</td>
<td>64 dBA</td>
<td>609-612</td>
<td>85 ft</td>
<td>61 dBA</td>
<td>61 dBA</td>
</tr>
</tbody>
</table>

Notes:
- * Extrapolated from measurements at Via Sonoma Townhomes.
- ** Projections at southern end are for train on bridge structure, which is assumed to be 5 dBA louder than trains on at-grade track.

Wheel Squeal - As noted previously, there are three locations where wheel squeal may be a cause of concern. The 92-meter (300-foot) radius curve near the UCSD undergraduate housing would not cause a significant impact primarily due to its distance from the receptor and the already high noise levels occurring from I-5. Wheel squeal impacts, however could occur at the other two locations. One location is where the alignment turns in a 31-meter (100-foot) radius through the intersection of Executive Drive and Towne Centre Drive. The curve is approximately 46 meters (150 feet) from the townhouses located at the southwest corner of the intersection. This radius curve is small enough that wheel squeal would cause a significant adverse impact. The other site is where there is an "S" curve east and west of Executive Way, on Executive Drive. The east end of the curve is about 31 meters (100 feet) from the same townhouse complex, located at the southeast corner of Executive Drive and Towne Centre Drive. The curve radius is 153 meters (500 feet), which should be large enough not to cause wheel squeal.

At-Grade Crossings - At the Miramar Street/Executive Drive and Regents Road intersection, noise sensitive receivers are just beyond the 150 noise contour. Noise impacts in this area could occur from warning bells and/or if the train operators are required to sound the train whistles as a warning before grade crossings. The extent of this impact would primarily depend upon the whistle noise levels and how long and how often the whistles would be sounded. Adverse impacts are not considered significant.

Mitigation Measures

La Paz Townhomes - The construction of 854 lineal meters (2,800 lineal feet) of 1.8-meter (6-foot) high sound barrier would effectively mitigate noise impacts in this area. The location of this sound wall is shown in Figure 5-10. Cost to construct this barrier is estimated at $336,000.

Via Sonoma Townhomes - The FTA proposed criteria would be exceeded by 3 dBA at the Via Sonoma Townhouses. For reasons stated previously, measures to mitigate noise at this location are not required.

Radisson Hotel - Noise levels would exceed criteria by 1 dB only at the hotel rooms located at the end of the east wing of the Radisson Hotel. As discussed above, the noise impact is not sufficient to justify mitigation.

UCSD Married Housing - The proposed FTA criteria would be exceeded by 3 dBA at the UCSD married student housing located closest to the tracks. A 610 meter (2,000 lineal foot) sound barrier located south of
the tracks (Figure 5-11) would be sufficient to eliminate noise impacts to 15 buildings. Cost for this should barrier is estimated at $240,000.

Cape La Jolla Subdivision - A sound barrier along the west side of the LRT tracks could be very effective at reducing LRT noise below the impact threshold. The top of the sound walls should be at least 1.2 meters (4 feet) above the top of rail on the I-5 bridge structure and 24 meters (8 feet) above the top of rail once the track is back at-grade on the west side of I-5. A wall on the I-5 bridge structure has already been recommended to reduce noise exposure at the Via Sonoma Townhomes. To reduce noise exposure at the Cape La Jolla subdivision, the wall should be extended from civil station 608 to 613, a total length of 152 meters (500 feet). Assuming an 8 foot high wall and a total cost of about $20/sq. foot for the wall, the total cost of the wall would be about $80,000.

The draft FTA noise impact criteria include two levels of impact. Noise mitigation is to be evaluated if the first level is exceeded, but other factors such as cost effectiveness and amount of outdoor/indoor sound insulation should be considered when deciding whether mitigation is appropriate. If the second level is exceeded, noise mitigation should be included unless it is particularly unfeasible or is not cost effective. Since only the first level is exceeded here, there is some discretion about the noise mitigation. Because of the existing noise exposure from the freeway, the Cape La Jolla units have been designed to have greater than normal outdoor/indoor sound insulation.

Wheel Squeal - As noted, there are two locations where noise from wheel squeal could occur. One site is located where the alignment turns in a 31-meter (100-foot) radius through the intersection of Executive Drive and Towne Centre Drive. The curve is approximately 46 meters (150 feet) from the townhouses located at the southwest corner of the intersection. Two options would be effective in reducing the noise levels at this location: Installation of wheel lubricators which basically squirt a small amount of grease on every passing wheel, or construction of a noise barrier between the sound source and the receiver. The other site is where there is an "S" curve east and west of Executive Way, on Executive Drive. The east end of the curve is about 31 meters (100 feet) from the townhouse complex at Executive Drive and Towne Centre Drive. The curve radius is 153 meters (500 feet), which should be large enough not to cause wheel squeal. Although noise impacts are not anticipated at this location, mitigation as noted above would also prove effective at this location.

At-Grade Crossings - While no significant impacts would result, mitigation measures would have beneficial effects. At the Miramar Street/Executive Drive and Regents Road intersection ceramic bells should be used and should sound only when gates are on the way down or on the way up. Bells would be silent during the stationary down phase of the gate operation. Whistles from trains could be an unmitigable impact.

Unmitigable Impacts Remaining

At the Miramar Street/Executive Drive and Regents Road intersection, noise impacts from trains whistles could remain as an unmitigable adverse impacts. This impact, however, is not considered significant.

LRT Genesee Alignment Option

Impacts

A comparison of existing and future noise levels is shown in Table 5-18. An increase in noise levels that would occur with the planned Regents Road bridge over Rose Canyon was not considered in this analysis. The projected noise levels would not exceed the proposed FTA impact criterion at any locations within Rose Canyon. This is primarily due to the number of freight train passbys occurring during the night and NAS Miramar aircraft.
<table>
<thead>
<tr>
<th>Location</th>
<th>Existing, Based on Measurement</th>
<th>Projected 2010 $L_{dn}$</th>
<th>$L_{dn}$ Increase with LRT</th>
<th>Impact Limits for LRT $L_{dn}$ (1)</th>
<th>Proj. LRT $L_{dn}$</th>
<th>Degree of Impact (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$L_{dn}$</td>
<td>Peak Hourly $L_{eq}$</td>
<td>No Build</td>
<td>LRT</td>
<td>No-Build + LRT</td>
<td>Rel. to Exist</td>
</tr>
<tr>
<td>9. SW corner of Towne Centre/Executive Drive</td>
<td>57*</td>
<td>59</td>
<td>57</td>
<td>61</td>
<td>62</td>
<td>5</td>
</tr>
<tr>
<td>10. Rose Canyon, Valencia neighborhood (800’/244 m west of Regents Road)</td>
<td>65</td>
<td>62</td>
<td>66</td>
<td>59</td>
<td>66</td>
<td>2</td>
</tr>
<tr>
<td>11. Rose Canyon, foot of Regents Road</td>
<td>63</td>
<td>57</td>
<td>64</td>
<td>57</td>
<td>65</td>
<td>2</td>
</tr>
<tr>
<td>12. Genesee Avenue north of Nobel</td>
<td>65*</td>
<td>68</td>
<td>65</td>
<td>N/A</td>
<td>65</td>
<td>0</td>
</tr>
<tr>
<td>16. Rose Canyon, 100’/31 m east of Regents Road</td>
<td>65</td>
<td>58</td>
<td>66</td>
<td>59</td>
<td>67</td>
<td>2</td>
</tr>
<tr>
<td>17. Rose Canyon, 1200’/366 m west of Genesee</td>
<td>64*</td>
<td>58</td>
<td>65</td>
<td>56</td>
<td>66</td>
<td>2</td>
</tr>
<tr>
<td>18. Rose Canyon, 500’/153 m west of Genesee</td>
<td>64*</td>
<td>58</td>
<td>65</td>
<td>58</td>
<td>66</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: All noise levels are expressed as dBA. (1) Based on Proposed FTA Criteria (See Section 3.6) * Estimated based on short term measurement. 

Source: ICF Kaiser Engineers, Inc. and Harris, Miller, Miller & Hanson, Inc. 1993.

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overflight operations, thus raising the field measured $L_{eq}$ in the area. The $L_{eq}$ increase with the LRT Alignment Option would be expected to increase by 2 dBA over the existing environment. The only area where the impact criterion would be exceeded is on Executive Drive east of Genesee Avenue. A condominium complex is located on the southwest corner of Executive Drive and Towne Centre at that location.

The potential for noise impacts from wheel squeal was also assessed. As noted previously, the San Diego Trolley light rail vehicles are equipped with resilient wheels; reducing the potential for wheel squeal noise on short-radius curves. There are three locations along this alignment where wheel squeal could occur. One site is located where the alignment turns in a 31-meter (100-foot) radius from Genesee to Executive Drive. Although this is a small enough radius curve to cause wheel squeal, the land use in this area is not sensitive to noise. The second site (common to the LRT I-5 Alignment Option) is located where the alignment turns in a 31-meter (100-foot) radius through the intersection of Executive Drive and Towne Centre Drive. The curve is approximately 46 meters (150 feet) from the townhouses located at the southwest corner of the intersection. This radius curve is small enough that wheel squeal would cause a significant adverse impact. The last site (also common to the LRT I-5 Alignment Option) is where there is an "S" curve east and west of Executive Way, on Executive Drive. The east end of the curve is about 31 meters (100 feet) from the townhouse complex at Executive Drive and Towne Centre Drive. The curve radius is 153 meters (500 feet), which should be large enough not to cause wheel squeal. One at-grade crossing with gate protection is proposed for the LRT Genesee Alignment Option at the intersection of Genesee Avenue and Executive Drive. No noise-sensitive receptors are located within 46 meters (150 feet) of that crossing.

**Significance of Impacts**

**Rose Canyon Area** - Within Rose Canyon, the area of concern concentrated on the first row of residences on the north rim of the canyon. Due to existing late night and early morning passes by of AT&SF freight trains, and aircraft overflight operations from NAS Miramar, field measured $L_{eq}$ is relatively high, thus the LRT Alignment Option within Rose Canyon would produce no significant impacts based on the FTA noise impact criteria. As mentioned previously the $L_{max}$ (APTA) criteria is exceeded at Site 17 and Site 18. However, due the existence of other diesel powered locomotives in this area, the $L_{eq}$ or FTA criteria is considered the most valid measure of impact. No significant adverse impact would occur.

**Condominiums, Southwest Corner Executive/Towne Centre Drive** - The noise impact would exceed criteria by 4 dBA in this area. FTA categorizes the degree of impact as "impact". Noise impacts at this locations would also slightly exceed the $L_{max}$ criteria.

**Wheel Squeal** - There are three locations along LRT Genesee Alignment Option where wheel squeal could occur. One site is located where the alignment turns in a 31-meter (100-foot) radius from Genesee to Executive Drive. Although this is a small radius curve, the land use in this area is not considered sensitive to noise. Wheel squeal would not cause a significant adverse impact at this location. Wheel squeal impacts, however, could occur at the other two locations. One location is located where the alignment turns in a 31-meter (100-foot) radius through the intersection of Executive Drive and Towne Centre Drive. The curve is approximately 46 meters (150 feet) from the townhouses located at the southwest corner of the intersection.

This radius curve is small enough that wheel squeal would cause a significant adverse impact. The other site is where there is an "S" curve east and west of Executive Way, on Executive Drive. The east end of the curve is about 31 meters (100 feet) from the same townhouse complex located at the southwest corner of Executive Drive and Towne Centre Drive. The curve radius is 153 meters (500 feet), which should be large enough not to cause wheel squeal.
Grade Crossing - No significant adverse impacts would result from at-grade crossings.

Mitigation Measures

Rose Canyon Area - No mitigation would be required.

Condominiums, Southwest Corner Executive/Towne Centre Drive - For the condominiums at the southwest corner of Towne Centre and Executive Drive, three mitigation options are possible. Depending on the specific layout of the track in this area of the condominiums, sufficient noise reduction may be achieved through speed reductions to 40 kph (25 mph). Another option would be a sound wall placed at the property boundary along Executive Drive. The wall would need to be about 122 meters (400 feet) in length and would afford protection to two buildings. However, it may not be feasible for a sound barrier to provide sufficient noise reduction since the LRT is in the Executive Drive right-of-way. A third option would be to improve the outdoor-indoor sound insulation of the units facing Executive Drive. The primary expense would probably come from replacing the existing windows with sound-rated windows. Further analysis would be undertaken during preliminary engineering to determine which is the best option to implement to mitigate adverse impacts to the condominiums.

Wheel Squeal - As noted, there are two locations (both are common to the LRT I-5 Alignment Option) where noise from wheel squeal could occur. One site is located where the alignment turns in a 31-meter (100-foot) radius through the intersection of Executive Drive and Towne Centre Drive. The curve is approximately 46 meters (150 feet) from the townhouses located at the southwest corner of the intersection. Two options would be effective in reducing the noise levels at this location: Installation of wheel lubricators which basically squirt a small amount of grease on every passing wheel or construction of a noise barrier between the sound source and the receiver. The other site is where there is an "S" curve east and west of Executive Way, on Executive Drive. The east end of the curve is about 100 feet from the townhouse complex at Executive Drive and Towne Centre Drive. The curve radius is 153 meters (500 feet), which should be large enough not to cause wheel squeal. Although not anticipated at this location, mitigation as noted above would also prove effective at this location.

At-Grade Crossings - No mitigation would be required.

Unmitigable Impacts Remaining

No unmitigable adverse impact would remain.

5.6.2 Vibration

The potential for ground-borne vibration is presented in this subsection.

5.6.2.1 No-Build, TSM, TSM/Commuter Rail, and HOV Lane Alternatives

Impacts

None of these alternatives are expected to result in any ground-borne vibration impacts. Traffic, even heavy trucks and buses, rarely create perceptible ground-borne vibration unless they are operating very close to buildings or there are irregularities, such as potholes or expansion joints, in the roadway. The pneumatic tires and suspension systems of normal automobiles, trucks and buses are sufficient to eliminate most ground-borne vibration forces.
Significance of Impacts

No significant adverse impacts would occur.

Mitigation Measures

No mitigation would be required.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.6.2.2 Commuter Rail Tunnel Alternative

Impacts

Table 5-19 presents the projected ground-borne vibration and noise levels for three areas where impact would be possible. The information for this subsection comes from the technical memo, Noise and Vibration Assessment, Commuter Rail Tunnel Alternative, June 27, 1994 and is hereby incorporated by reference into this AA/DEIS/DEIR. The criteria included in the draft FTA Guidance Manual limit levels of ground-borne vibration in residential areas to 80 Vdb where there are fewer than 70 daily train operations. Note that the term VdB is used for vibration velocity to avoid confusion with noise decibels (dB). In addition to the perceptible building vibration, ground-borne vibration can also be perceived as an audible low-frequency rumbling noise caused by sound waves radiated from vibrating walls, floors, and ceilings. The ground-borne noise impact threshold for commuter rail systems is 43 dBA according to the draft FTA Guidance Manual. The data presented in Table 5-18 indicates that there will be no exceedances of the criteria.

Significance of Impacts

Although no exceedances of the criteria are expected, the levels at the three locations assessed would be well into the perceptible range, and it should be expected that at least some of the residents of the buildings above the tracks would feel the ground-borne vibration or hear the ground-borne noise from commuter rail operations in the tunnel.

Mitigation Measures

The projections indicate that ground-borne noise and vibration levels would be only within a few decibels of the threshold criteria. If this alternative becomes the Locally Preferred Alternative, then more detailed investigations would be conducted during final design. If it is determined that adverse impacts would be likely, then mitigation measures specific to the particular site would be formulated and implemented to minimize such effects.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.
TABLE 5-19
GROUND-BORNE VIBRATION AND NOISE LEVEL PROJECTIONS
COMMUTER RAIL TUNNEL ALTERNATIVE

<table>
<thead>
<tr>
<th>Location</th>
<th>Distances, feet&lt;sup&gt;(1)&lt;/sup&gt;</th>
<th>Projected Ground-Borne Vibration and Noise Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Depth to Top of Rail</td>
<td>Horizontal Distance</td>
</tr>
<tr>
<td>North rim of Rose Canyon, west of Genesee</td>
<td>55</td>
<td>80</td>
</tr>
<tr>
<td>Nobel Terrace units along Nobel Drive</td>
<td>70</td>
<td>60</td>
</tr>
<tr>
<td>Southeast corner of Nobel and Genesee</td>
<td>75</td>
<td>50</td>
</tr>
</tbody>
</table>

<sup>(1)</sup> Distances from closest building to the near track centerline, top of rail.

VdB = vibration decibels

Source: Harris, Miller, Miller & Hanson, Inc., June 1994.

5.6.2.3 LRT Alternative

**Impacts**

Wilson, Ihrig & Associates has performed measurements of ground-borne vibration caused by San Diego Trolley trains. Even at the closest measurement position, the data at tie-and-ballast track was only slightly over the impact limit of 72 VdB. The embedded track data averaged 3 to 4 VdB higher than the tie-and-ballast track data. This difference could be due to variations in geology and track condition and may not represent the difference between vibration levels with embedded and ballasted track.

Even allowing a 5 VdB safety factor, these data indicate that ground-borne vibration is unlikely to exceed the impact limits for residential land uses at distances greater than 15 meters (50 feet) from the track. It appears that all residential buildings along both of the LRT Alignment Options are more than 15 meters (50 feet) from the tracks.

**Significance of Impacts**

Because all the residential buildings are located more than 15 meters (50 feet) from the tracks, no significant adverse impacts are anticipated. However, it should be noted that much of the University City area consists of the Linda Vista Formation with smaller areas of Ardath Shale and the Scripps Formation. All of these formations, particularly the Ardath Shale, have characteristics that are sometimes found to correlate with efficient propagation.

**Mitigation Measures**

Although considered not likely, there is potential for ground-borne vibration in some localized areas within University City, particularly the area between the Gilman Drive and the Genesee Avenue I-5 off-ramps. If one of the LRT alignment options is the selected alternative, more detailed investigations would be conducted during Preliminary Engineering. It is possible that measuring vibration caused by existing freight and passenger trains would provide
sufficient information to determine whether there would be any real possibility of ground-borne vibration problems. If it is determined that adverse impacts would be likely, then mitigation measures specific to the particular site would be formulated and implemented to minimize such effects.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

**5.6.3 Cumulative Impacts**

The predominant future noise source within the Mid-Coast Corridor is I-5 traffic. I-5 is an eight lane freeway currently carrying an average 14,300 vehicles per hour (two way) *(FEIS: I-5 Widening and Interchange Improvements in San Diego, Caltrans, March 1991)* during peak hour operations. In the heaviest direction of peak flow, the existing four lanes carry an average of 8,600 vehicles per hour, or 2,150 vehicles per hour per lane. I-5 freeway forecasts indicate that I-5 volumes will increase approximately 20% in 2010 assuming Caltrans proposed freeway improvements. For the areas bordering I-5, this traffic change is not expected to result in an peak hour \( L_{eq} \) of more than 1-2 dBA. For the areas that border arterials in University City, the corresponding peak hour \( L_{eq} \) is more dramatic due to major traffic volume increases on major arterials, generally increasing 3-4 dBA. Site 11, along Regents Road near Rose Canyon, is unique in that it currently is a dead end street with almost no noise generated from traffic volume. The City of San Diego, "Circulation Element of the General Plan" indicates that a future 4-lane bridge would be constructed connecting north and south University City. When constructed, year 2010 traffic volumes are projected at 45,000 ADT, significantly raising noise levels within the 15-31 meter (50-100 foot) noise contour.

CEQA §15130 "Cumulative Impacts", requires that cumulative impacts be discussed when they are significant. Cumulative noise and vibration impacts associated with the Mid-Coast Corridor transportation improvement alternatives are discussed below.

**5.6.3.1 TSM, TSM Commuter Rail, Commuter Rail Tunnel and HOV Alternatives**

Neither the TSM, TSM/Commuter Rail, Commuter Tunnel nor the HOV Alternative would cause adverse cumulative impacts to the Mid-Coast noise environment. In isolated areas the implementation of transit centers could cause minor cumulative noise impacts due to the additional frequencies of buses during peak periods. These noise increases are considered minor and would not contribute adversely to the overall corridor noise environment.

**5.6.3.2 LRT Alternative**

**South Segment - San Diego River to Gilman Drive**

Within the south segment of the Mid-Coast Corridor the overwhelming noise source is projected to be from traffic associated with I-5 and major arterial roadway traffic. Noise levels for the LRT would cause minor impact to an already adverse noise environment established by I-5 and adjoining major arterial roadways. In addition, within the AT&SF right-of-way additional noise from AMTRAK, commuter rail, and AT&SF freight service would occur. The additional noise from LRT trains is considered minor and would not have an adverse cumulative impact to the noise environment.
North Segment - Gilman Drive to Genesee Avenue

LRT I-5 Alignment Option

Within the north segment of the Mid-Coast Corridor the overwhelming noise source is from traffic associated with I-5. As indicated previously, the LRT I-5 Alignment Option would have adverse noise impacts to isolated sensitive receptors within the north segment. Considered cumulatively, however, the overall addition of the LRT I-5 Alignment Option to the noise environment would be considered minor and not an adverse cumulative impact.

LRT Genesee Alignment Option

For the LRT Genesee Alignment Option, the overwhelming noise source is from traffic associated with I-5, arterial traffic within University City, future noise associated with the Regents Road bridge over Rose Canyon, aircraft flyovers associated with NAS Miramar operations, and increased rail activity associated with AT&SF freight service, commuter rail, and Amtrak operations. Additional noise from LRT trains would not cause an adverse cumulative impact.

5.7 ECOSYSTEMS

This section presents a summary of the approximate biological impacts associated with transportation improvement alternatives proposed for the Mid-Coast Corridor. Specific impact acreage is considered to be approximate and may change depending on the LPA and preliminary engineering/final design.

Detailed technical information can be found in the Biological Resources Report and Impact Analysis Technical Report for the Mid-Coast Corridor AA/DEIS/DEIR, San Diego County, California, January 17, 1994, the TSM/Commuter Rail Environmental Analysis, November 1994, and the Memorandum Biological Technical Report, January 1995, all of which are on file at MTDB’s offices. These reports are hereby incorporated by reference into this AA/DEIS/DEIR.

It should be noted that a letter from MTDB to the U.S. Fish and Wildlife Service (dated December 20, 1994) requested that they review the information provided to ensure that all listed or proposed endangered species have been addressed. The U.S. Fish and Wildlife Service concurred that all listed or proposed endangered species have been addressed in a letter to MTDB dated January 11, 1995 (included in Appendix D). The letter also pointed out the need for updated surveys. As discussed with Fish and Wildlife staff, MTDB will conduct such surveys as part of the Final Environmental Impact Statement/Preliminary Engineering effort for the Locally Preferred Alternative (letter from MTDB dated January 18, 1995).

5.7.1 Transportation System Management (TSM) Alternative

Impact

There are no direct or indirect impacts to native plant communities associated with the TSM Alternative because construction would be limited to existing roadways and disturbed areas. The construction of park-and-ride lots associated with this alternative would not affect natural vegetation or sensitive biological resources. No state- or federally-listed or endangered plant or animal species would be affected.

Significance of Impact

No significant impacts would occur.
**Mitigation Measures**

No mitigation measures would be required.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

**5.7.2 TSM/Commuter Rail Alternative**

**Impact**

**General**

Impacts of this alternative would be caused by construction of a station at Nobel Drive and the addition of parking at the Sorrento Valley Commuter Rail Station. The impacts of each facility are described below.

**Nobel Drive Station**

Both direct and indirect impacts would result from the development and operation of a station at this location. Table 5-20 presents the estimated direct impacts to plant communities/habitat types. The major potential indirect effect of operation of the station would be curtailment of wildlife movement, but this would not be considered significant given that human use of the station would be generally limited to peak hour periods.

One sensitive plant species listed by the California Native Plant Society (CNPS) was found in the Nobel Drive Commuter Rail Station area (Artemisia palmeri-San Diego sagewort). If the station is developed north of the railroad tracks, a substantial loss of planted San Diego sagewort would occur (i.e., this species was included in a native seed mix used on this property). One species listed by the California Department of Fish and Game (CDFG) as a species of special concern (Accipter cooperi-Cooper’s hawk) has also been found in the area; however, other species are expected to occur there. An individual Cooper’s hawk was observed in the study area; however nesting is highly unlikely. The project would reduce foraging area but probably would not eliminate a nest site.

<table>
<thead>
<tr>
<th>Plant Community/Habitat Type</th>
<th>Direct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disturbed coastal sage scrub</td>
<td>2.4/1.0</td>
</tr>
<tr>
<td>Broom baccharis scrub</td>
<td>0.6/0.2</td>
</tr>
<tr>
<td>Southern willow scrub*</td>
<td>1.1/0.5</td>
</tr>
<tr>
<td>Sycamore alluvial woodland*</td>
<td>0.04/0.01</td>
</tr>
<tr>
<td>Disturbed habitat</td>
<td>1.9/0.8</td>
</tr>
<tr>
<td>Developed</td>
<td>1.4/0.6</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>7.4/3.0</strong></td>
</tr>
</tbody>
</table>

* Wetland habitat types

Significance of Impact

The loss of disturbed (revegetated) coastal sage scrub would have to be mitigated because this area was a component of the completed Five Creeks (Renaissance La Jolla) mitigation for significant impacts to wetlands. Approximately 0.3 hectare (0.8 acre) of the mitigation site would be affected, comprised of coastal sage scrub and southern willow scrub, and would have to be relocated elsewhere. The coastal sage scrub on the project site is of relatively low quality. A total of 0.5 hectare (1.2 acres) of wetland habitat types are directly affected. The loss of revegetated and enhanced southern willow scrub and sycamore alluvial woodland is significant and would need to be mitigated. This area also was a component of the completed Five Creeks (Renaissance La Jolla) mitigation. The southern willow scrub is of relatively high quality, but young and developing. The loss of disturbed habitat and developed land is not considered significant.

With regard to loss of San Diego sagewort, this may be considered a significant impact in a natural situation. However, because this species is not of high sensitivity and its use in the revegetation program apparently had no bearing on loss elsewhere, it is not considered significant. The potential impacts to the Cooper's hawk are also not considered significant since it is unlikely that this hawk nests in the area and, therefore, it is unlikely that a nest would be eliminated by the project. The indirect impacts expected because of the potential for curtailment of wildlife movement would also not be significant given that human use of the Nobel Drive Station would be generally limited to peak hour periods.

Mitigation Measures

Biological impacts of the construction and operation of the station would be mitigated by revegetation of southern willow scrub, sycamore alluvial woodland, and coastal sage scrub, accompanied by dedication of open space to a suitable habitat management agency. About 0.5 hectares (1.2 acres) of wetlands would be directly affected. A 2:1 mitigation ratio is normally required by California Department of Fish and Game. The mitigation activities could be directed anywhere in the vicinity of the project site. The Navy has indicated a willingness to provide NAS Miramar property for mitigation since the Miramar Station was dropped from consideration in October 1993. However, Rose Creek would be the most desirable location.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

Sorrento Valley Station

Two habitats (disturbed habitat and disturbed wetland) exist in the proposed expansion area north of the existing station, between the tracks and Sorrento Valley Boulevard. The disturbed habitat is graded and filled and supports virtually no vegetation. The disturbed wetland habitat exists in a ditch that parallels the tracks and road. It lacks obvious natural hydrology, but supports a number of wetland indicator species including arroyo willow (Salix lasiolepis), mule fat (Baccharis salicifolia), wild heliotrope (Heliotropium curassavicum), and prairie bulrush (Scirpus robustus). Other facultative wetland species include alkali mallow (Malvella leprosa), Bermudagrass (Cynodon dactylon), curly dock (Rumex crispus), cocklebur (Xanthium strumarium), and alkali weed (Cressa truxillensis). Despite the presence of the wetland indicators, the area apparently is disturbed repeatedly to control the height of growth, and the area is of low value to wildlife and sensitive species.

No sensitive species were observed or are expected to occur in the parking expansion area.
**Significance of Impact**

Loss of about 0.04 hectare (0.1 acre) of disturbed wetland habitat would be considered a significant adverse impact.

**Mitigation Measures**

Wetland impacts would be mitigated through revegetation of an area in the project vicinity which would support approximately 0.04 to 0.12 hectare (0.1 to 0.3 acre) of similar or higher value habitat. Loss of wetland habitat may require a federal Clean Water Act Section 404 permit (administered by the U.S. Army Corps of Engineers) and a Streambed Alteration Agreement (administered by the California Department of Fish and Game).

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

**5.7.3 Commuter Rail Tunnel Alternative**

**Impact**

Impacts of this alternative would be caused by construction of the tunnel portals and the addition of parking at the Sorrento Valley Commuter Rail Station. The impacts and mitigation for the Sorrento Valley Commuter Rail Station would be the same as those described for the TSM/Commuter Rail Alternative.

The south tunnel portal is located within the triangle formed by Genesee Avenue, Decora Street and the AT&SF tracks through Rose Canyon. Two staging area options (A and B) for the north portal are being considered. Staging Area Option A gains access from Sorrento Valley Road across Sorrento Valley Creek using a temporary bridge. The principal advantage of this site is the easy access to Sorrento Valley Road and I-805. Staging Area Option B gains access from Roselle Street (a long cul-de-sac) which leads to Sorrento Valley Boulevard and the I-5 interchange. From a biological standpoint, this option would be preferable because no temporary crossing of the creek would be needed; however, this option could disrupt traffic and warehouse/commercial business activity along Roselle Street.

Table 5-21 shows the areas of habitat that would be affected by the portals. A total of 1.01 hectares (2.5 acres) of habitat, including 0.24 hectare (0.6 acre) of wetland, would be affected by the south portal. For the north portal, Staging Area Option A would affect about 1.94 hectares (4.8 acres) of habitat. Option B would affect approximately 2.62 hectares (6.54 acres) of habitat. This total includes approximately 0.77 hectare (1.94 acres) of wetland for Staging Area Option A and 0.80 hectare (2.04 acres) of wetland for Staging Area Option B.

Both north portal staging area options contain about 17 individuals of one sensitive species, San Diego sagewort (*Artemisia palmeri*), which are present in disturbed and remnant cismontane alkali marsh. No sensitive species were found in the area of the south portal during the survey. Both north portal options are potential habitat of the endangered least Bell’s vireo (*Vireo bellii pusillus*), although none were observed, and no historic records of least Bell’s vireo are known. The south portal area is potential habitat of the threatened California gnatcatcher (*Polioptila californica*) and the endangered least Bell’s vireo (*Vireo bellii pusillus*), although neither species was observed during the field survey, and no historic records of use by these species are known.
TABLE 5-21
IMPACTS TO NATURAL HABITATS
IN THE VICINITY OF THE NORTH AND SOUTH PORTALS
COMMUTER RAIL TUNNEL ALTERNATIVE

<table>
<thead>
<tr>
<th>Habitat</th>
<th>South Portal (Acres/Hectares)</th>
<th>North Portal Option A (Acres/Hectares)</th>
<th>North Portal Option B (Acres/Hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern willow scrub*</td>
<td>0.6/0.24</td>
<td>1.8/0.7</td>
<td>1.9/0.8</td>
</tr>
<tr>
<td>Cismontane alkali marsh*</td>
<td>0.1/0.04</td>
<td>0.1/0.04</td>
<td></td>
</tr>
<tr>
<td>Sycamore Alluvial woodland*</td>
<td>0.04/0.016</td>
<td>0.04/0.016</td>
<td></td>
</tr>
<tr>
<td>Disturbed coastal sage scrub</td>
<td>0.2/0.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exotic trees/disturbed/or ruderal habitat</td>
<td>1.7/0.69</td>
<td>2.9/1.17</td>
<td>4.5/1.82</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>2.5/1.01</td>
<td>4.8/1.93</td>
<td>6.54/2.62</td>
</tr>
</tbody>
</table>

* Wetland habitat types
** Note that the total portal area impacts equal the summation of either the south portal plus Option A or the south portal plus Option B.

Source: Dake & Associates, August 1994

**Significance of Impact**

Loss of southern willow scrub (north and south portals), sycamore alluvial woodland (north portal only), disturbed cismontane alkali marsh (north portal only), and disturbed coastal sage scrub (south portal only) would be considered a significant adverse impact and would have to be mitigated by revegetation of an area near the project site to support similar habitat. If occupied by California gnatcatchers and/or least Bell’s vireo, the loss of habitat needed to sustain these species would be considered significant.

**Mitigation Measures**

Revegetation would be needed near the project site to mitigate for the loss of wetlands including southern willow scrub, disturbed cismontane alkali marsh, and sycamore alluvial woodland. An upland site near the project would also need to be revegetated to mitigate for the loss of disturbed coastal sage scrub due to the construction of the south portal. Loss of wetland may require a federal Clean Water Act Section 404 permit and a Streambed Alteration Agreement.

Prior to construction, focused sensitive species surveys should be conducted for the California gnatcatcher and the least Bell’s vireo. All surveys should follow protocols suggested by the USFWS if available. If California gnatcatcher, a federally-listed threatened species (note that the species has recently been "de-listed" by Judge Sporkin's ruling), and the least Bell’s vireo, a state- and federally-listed endangered species, occurs in the area or would be affected by the project, then an incidental take permit from the USFWS would be needed. If either bird species uses habitat that would be affected, then MTDB would be required to adhere to the consultation requirements of the Federal Endangered Species Act. If U.S. Department of Transportation funds would be involved, a consultation, under Section 7 of the Act would be necessary between USFWS and the U.S. Department of Transportation. The USFWS would likely require mitigation in the form of off-site habitat acquisition and/or revegetation, management, and maintenance.
Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.7.4 High-Occupancy-Vehicle (HOV) Lane Alternative

Impact

General

The habitat for this alternative is similar to that described for the TSM/Commuter Rail Alternative. In addition, a small number of native shrubs including California sagebrush (Artemisia californica), flat-top buckwheat (Eriogonum fasciculatum), and broom baccharis (Baccharis sarothroides) occur in the potentially-affected area. These impacts would be similar to that described for the TSM Alternative.

Pacific Highway Overcrossing

The area southwest of the current intersection of I-5 and Fiesta Island Road is comprised of highly disturbed baccharis scrub dominated by broom baccharis (Baccharis sarothroides). Few native plants occur other than two-dozen individuals each of broom baccharis and flat-top buckwheat (Eriogonum fasciculatum); the rest of the flora is comprised of English ivy (Hedera helix), non-native grasses and eucalyptus trees. The remaining areas to be disturbed were either completely devoid of native vegetation or were covered by ornamental plantings.

Five species of wildlife were observed in the area including mourning dove, loggerhead shrike, California horned lark, side-blotched lizard, and brush rabbit. The federal category 2 candidate loggerhead shrike was observed resting approximately 60 meters (200 feet) north of where disturbance will occur. A flock of federal category 2 candidate California horned larks was observed feeding in the barren northwestern section of the study area. Despite the occurrence of the two sensitive wildlife species, no significant adverse impacts are expected to occur because of the highly disturbed nature of the site overall.

Significance of Impact

No significant adverse impacts would occur.

Mitigation Measures

No mitigation measures would be required.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

I-5/I-805 HOV Direct Connector

Only one of the structures for the I-5 HOV Lane Direct Connector has not previously been environmentally cleared in other environmental documents. The ecosystem impacts of the other structures were discussed and their impacts mitigated in the I-5 Widening and Interchange Improvements in San Diego, FEIS, March 1991 and the I-5 Widening and Interchange Improvements Project Environmental Addendum/Re-Evaluation, May 1994. Therefore, this discussion focuses on the one structure not previously cleared. This structure would cause shading impacts over Los Penasquitos Creek.
About 0.04 hectare (0.1 acre) each of freshwater marsh and southern willow scrub, 0.12 hectare (0.3 acre) mule fat scrub and 0.6 hectare (1.6 acres) of cismontane alkali marsh would lie directly beneath the proposed structure resulting in a total of 0.8 hectare (2.1 acres) of shading impact.

Light-footed clapper rails (*Rallus longirostris levipes*) have been documented (Caltrans, unpublished results) for the marsh near the intersection of Carmel Valley Road and Sorrento Valley Road. Light-footed clapper rails occur almost exclusively in pickleweed (*Salicornia virginica*) dominated coastal salt marshes and have not been recorded from the upper end of Los Penasquitos Lagoon near the proposed HOV connector structure. The marsh is more than one mile from the structure; thus, impacts to this species are not expected.

**Significance of Impact**

The structure does not appear to constrict further the identified Los Penasquitos wildlife corridor. No significant impact is anticipated.

**Mitigation Measures**

A qualified wildlife biologist should be consulted regarding the final design of the structure. In particular, dry substrate should be reserved for wildlife usage so wildlife are not required to swim when utilizing the corridor. Because the structure will cover nearly 46 meters (150 linear feet) of the corridor, lighting fixtures may be needed to facilitate wildlife flow (i.e., solar powered lights such as those used under Highway 52).

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

**5.7.5 Light Rail Transit (LRT) Alternative - South Segment and I-5 Alignment Option**

**Impact**

Implementation of this alignment potentially would result in a direct impact on approximately 1.2 hectares (3.075 acres) of native and non-native plant communities and habitats. Indirect impacts of this alternative include approximately 1.3 hectares (3.2 acres). Direct sensitive habitat impacts that result from removal and indirect sensitive habitat impacts resulting from noise, vibration, lighting and the activity of the LRT are presented in Table 5-22. For any portion of the LRT Alternative within 15 meters (50 feet) of a natural terrestrial community or within 31 meters (100 feet) of a wetland community, that portion of the community within 15 or 31 meters (50 or 100 feet) of the alternative was determined to be indirectly affected.

A total of 0.15 hectare (0.375 acre) of wetland would be directly affected. Wetlands are recognized locally and regionally as scarce highly productive and valuable wildlife habitats. The impacts to wetlands would be significant. The impacts to Diegan Coastal Sage Scrub (0.97 hectare/2.40 acres) would not be significant because the potentially-impacted areas currently are small patches isolated by existing roads and the AT&SF line, and these areas contain few sensitive species all of which are of low or moderate sensitivity. The impacts to native grasslands would also be insignificant because project implementation would result in a small incremental reduction of this habitat type in the region. The loss of disturbed habitat (raptor foraging habitat) would also be a locally insignificant impact for the same reason as native grasslands.

Four sensitive plant species listed by the California Native Plant Society (CNPS) have been found in the project area. San Diego sagewort, *Artemisia palmeri*, is an occasional component of the vegetation in portions of northern Rose Creek and Sorrento Valley. About 250 plants would be affected at southern Regents Road. San Diego
TABLE 5-22
DIRECT AND INDIRECT IMPACTS TO PLANT COMMUNITIES
OF THE LRT I-S ALIGNMENT OPTION (Acres/Hectares)\(^1\)

<table>
<thead>
<tr>
<th>Plant Community/Habitat Type</th>
<th>Direct</th>
<th>Indirect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diegan coastal sage scrub</td>
<td>2.4/1.0</td>
<td>3.2/1.30</td>
</tr>
<tr>
<td>Southern willow scrub(^1)</td>
<td>0.258/0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Southern cottonwood willow riparian forest(^1)</td>
<td>0.033/0.01</td>
<td>0.0</td>
</tr>
<tr>
<td>Coastal freshwater marsh(^1)</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Disturbed coastal brackish marsh(^1)</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Disturbed wetland(^1)</td>
<td>0.084/0.03</td>
<td>0.0</td>
</tr>
<tr>
<td>Perennial (native) grassland</td>
<td>0.3/0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Disturbed habitat (raptor foraging habitat)</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>(Total Wetland Impacts)</td>
<td>0.375/0.15</td>
<td>0.0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3.075/1.2</td>
<td>3.2/1.3</td>
</tr>
</tbody>
</table>

\(^1\) Wetland habitat types
\(^1\) All areas rounded to 0.1; trace amounts not necessarily shown.

Source: Dudek & Associates, May 1993

sagewort is relatively widely distributed in San Diego County, and the project would not affect large populations; therefore, impacts to this species would not be significant. Spiny rush, *Juncus acutus* var. *sphaerocarpus*, has been observed in one location near Balboa Avenue. Because of the low sensitivity of the spiny rush and the small number of plants at this site, potential impacts to this small population are considered to be not significant. Ashy spike-moss, *Seliginella cinerascens*, has been found in small patches in native grasslands in the Regents Road section. Regionally ashy spike-moss is found in sufficient numbers and distributed widely enough that its potential for extinction is very low.

No species of wildlife recognized as threatened or endangered by the USFWS or California Department of Fish and Game (CDFG) were detected within the project area. However, several species recognized as Category 2 candidates by the USFWS and/or as "species of special concern" by CDFG occur within the project area. Invertebrates including salt marsh skipper or *Panoquina errans* and Hermes copper or *Lycaena hermes* are listed by both the USFWS and CDFG. Although the skipper's host plant, coastal salt-grass (*Distichlis spicata*), may occur in a few of the drainages throughout the project area, the salt marsh skipper is an unlikely resident and impacts would not be significant. No examples of the Hermes copper were observed and because its host plant (redberry or *Rhamnus crocea*) was not observed, it is highly unlikely that it occurs in the area; therefore, impacts would not be significant.

Two reptiles, orange-throated whiptail, *Cnemidophorus hyperythrus beldingi*, and San Diego horned lizard, *Phrynosoma coronatum blainvillei*, are both listed by the USFWS. The San Diego horned lizard is also listed by the CDFG. Impacts to the orange-throated whiptail would not be significant since it may have limited distribution within the project area. A survey showed a lack of whiptail observations in the southern sections of the project area indicating either a lack of animals or a low population. The known distribution of San Diego horned lizards includes a broad range of habitats. However, they may occur within the chaparral, coastal sage scrub or disturbed habitats.
within the project area. The loss of these habitats represents a potential incremental reduction of the habitat for this species regionally. Even if present, it is not considered a significant direct impact.

The northern harrier or *Circus cyaneus hudsonius,* and yellow-breasted chat or *Icteria virens* are two birds in the project area listed by the CDFG as sensitive. Neither has official rare, threatened or endangered status with state, or federal agencies. An incremental loss of foraging habitat may occur as a result of the project, but this loss would not be considered significant given the low sensitivity status of the northern harrier. Also, no nesting areas were identified within the project area and no direct impacts are expected. The yellow-breasted chat usually is restricted to dense riparian growth, and is an indicator of valuable wooded wetland habitat. The direct loss of the required wetland habitat of this species would not be significant because regional chat populations are healthy and the amount of population loss due to this project is small. Also, the loss has been previously accounted for under impacts to riparian habitat. This species was observed in the Rose Creek and Regents Road areas.

Three bird species found in the project area have federal status as candidates or threatened. These include the California gnatcatcher, *Polioptila californica californica;* coastal cactus wren, *Campylorhynchus brunnicepilus sandiegensis;* and southern California rufous-crowned sparrow, *Aimophila ruficeps lambi.* The California gnatcatcher is a threatened species. However, as noted previously, this species has recently been "de-listed" in the courts. The other two birds are Category 2 candidates. Implementation of this alternative would not result in the direct loss of any habitat known to be occupied by these species. Potential indirect impacts would generally include the isolation of existing or potential habitat patches; however, this would not occur as a result of this project.

Wildlife management agencies are generally concerned that wildlife continue to have the ability to move between the remaining open spaces in coastal San Diego County. No formal wildlife corridors have been identified within the project area; however, it is possible that because the LRT would cross several drainages, the ability of wildlife to move between habitat patches may be compromised. Species of most concern within San Diego County are generally the larger mammals such as mule deer or *Odocoileus hemionus fuliginata,* coyote or *Canis latrans,* mountain lion or *Felis concolor,* and bobcat or *Felis rufus.* No mountain lions, mule deer or bobcats have been documented in the area (ERA 1991) and are unlikely to occur in the area except as rare vagrants. However, coyotes are present within the area.

The LRT would cross what may be local wildlife corridors in four locations: Rose Creek (0.8 kilometers [0.5 miles] south of Jutland Avenue); Rose Creek (immediately south of Jutland Avenue); Rose Creek (0.8 kilometers [0.5 miles] north of Jutland Avenue); and Gilman Drive. Additionally, the LRT would parallel natural habitat in many places, potentially disrupting the ability of animals to move up or down the canyons.

The first two Rose Creek areas mentioned would require animals moving in this area to travel either through dense riparian habitat, along the railroad tracks, through industrial parks, or on streets. Coyotes, bobcats and mountain lions apparently prefer to move along dirt roads rather than through dense vegetation, so it is just as likely that they would travel along the tracks or existing streets. For the Rose Creek area north of Jutland Avenue, the railroad bridge spans well above the invert elevation of the creek and allows easy wildlife passage. Immediately to the north is a driveway servicing industrial buildings east of the tracks. This driveway accommodates the stream flow with dual multiplated arches. Freshwater marsh vegetation grows inside each. They are short, high and wide, which make them relatively non-threatening to wildlife. For Gilman Drive, animals using this corridor (between the canyon that parallels Gilman Drive to the northwest and Rose Canyon) must depart natural habitat at the Gilman off-ramps, pass under I-5, negotiate La Jolla Colony traffic and the existing AT&SF railroad to access Rose Canyon. The LRT would occur between the I-5 northbound off-ramps and La Jolla Colony Drive.

Additionally, fencing of the LRT could restrict movement of some animals, or confine animals to the trackbed should they enter the area. Because the primary vegetation cover that is expected to be used by terrestrial wildlife occurs
in the drainages, and the drainages are well accommodated by bridges, it is most likely that fences parallel to the tracks would have little effect on local or regional animal movements.

**Significance of Impact**

The evaluation of whether or not an impact to a particular biological resource or biological system is significant must consider both the resource itself and the role of that resource in a regional context. For purposes of the assessment of significance of impacts for all the alternatives under consideration, a project may have a significant effect on the environment if the project has the potential to: (1) substantially degrade the quality of the environment; (2) substantially reduce the habitat of a fish or wildlife species; (3) cause a fish or wildlife population to drop below self-sustaining levels; (4) threaten to eliminate a plant or animal community; (5) reduce the number or restrict the range of a rare or endangered plant or animal; or (6) eliminate important examples of the major period of California history or prehistory. Impacts may be important locally because they result in an adverse alteration of existing site conditions, but may be considered not significant because they do not contribute substantially to the permanent loss of that resource regionally. The severity of an impact is the primary determinant of whether or not that impact can be mitigated to a level below significant.

For this alternative, the impacts to wetlands would be significant. Wetlands are recognized locally and regionally as scarce, highly productive and valuable wildlife habitats. Impacts to the other habitats would not be significant because the quantities are small and dispersed over a large area.

With regard to sensitive plant and animal species, no significant impacts are expected. The potential effect of the LRT on regional and local wildlife corridors and on the movement of wildlife species is also not expected to be significant.

**Mitigation Measures**

The loss of nearly 0.15 hectare (0.375 acre) of wetland habitat would require coordination with the U.S. Army Corps of Engineers pursuant to their authority under Section 404 of the Clean Water Act, and the CDFG pursuant to their authority under Section 1600 of the California Fish and Game Code. Because the amount of wetland fill would be less than 0.4 hectare (one acre), a nationwide permit from the Corps may not be required. A Streamcourse Alteration Agreement from the CDFG is required for projects that disturb (by vegetation removal and/or filling) any amount of wetland habitat. Both agencies normally require mitigation for losses of wetland habitat. The "no net loss" policy calls for a 1:1 replacement; that ratio may be higher depending on the quality of the habitat affected, the quality of the mitigation offered, and the amount of time between impact and completion of mitigation.

Mitigation usually consists of creation of the same type of wetland, or wetland of greater value to wildlife. The ratio of creation to impact would be lower for disturbed wetlands that are affected and also lower when superior mitigation is proposed. In any event, a detailed mitigation plan would be developed (if this alternative is selected) and coordinated with the Corps and CDFG. The plan would include the identification, ownership, and management of the mitigation site, methods of wetland creation/restoration/revegetation, and provisions for monitoring and maintenance. Offsite and/or onsite mitigation could be considered for this project. Successful offsite mitigation programs have been implemented on several of the major streams in western San Diego County, including the San Diego River upstream of Mission Valley. Because the impact areas would be small, a combination of onsite channel widening, revegetation and enhancement may be adequate compensation for this project. Potentially available enhancement measures would include onsite removal of exotic plant species such as pampas grass (*Cortaderia atacamensis*), eucalyptus (*Eucalyptus* sp.), tamarisk (*Tamarix* sp.), castor-bean (*Ricinus communis*), and giant cane (*Arundo donax*) and stream stabilization. A mitigation plan and potential off-site mitigation areas are presented in Section 5.7.8, Section 404 Coordination.
A detailed Revegetation Plan and Erosion Control Plan would be incorporated into the design specifications. The plan would include erosion control measures and revegetation to minimize potential erosion and downstream sedimentation during grading and clearing activities. Such measures could include berming of construction areas, use of straw bales, silt fences, or sedimentation basins to minimize sediment from surface runoff, and other standard erosion control measures. Specifications and sedimentation control measures would be developed by an engineer in coordination with a biologist familiar with the goals of the project. Revegetation of graded and cleared areas would occur in early fall, prior to the expected periods of heavy rainfall. The Revegetation Plan would maximize the use of native species, particularly those naturally occurring in the project vicinity.

A mitigation monitoring plan would be developed to fulfill the requirements of CEQA, as amended by AB 3180 and would include performance standards and corrective measures to be implemented would monitored mitigation measures fail to meet those standards.

Sensitive habitat areas that exist adjacent to the construction areas would be flagged and/or fenced to prevent unintentional damage by construction activities.

MTDB is considering building pedestrian track crossings that could be placed either below or above the tracks. Such crossings could be used by some wildlife species to enhance mobility.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

5.7.6 **Light Rail Transit (LRT) Alternative - South Segment and Genesee Alignment Option**

About 4.9 hectares (12.0 acres) of native and non-native plant communities and habitats would be directly affected, and 5.7 hectares (14.0 acres) would be indirectly affected with implementation of this alternative. Table 5-23 presents the direct and indirect impacts to plant communities under this alternative.

A total of 0.16 hectare (0.4 acre) of wetland would be affected directly and 2.4 hectares (5.7 acres) would be affected indirectly by this alternative. Wetlands are recognized locally and regionally as scarce highly productive and valuable wildlife habitats. The impacts to wetlands would be significant. The impacts to Diegan Coastal Sage Scrub and to disturbed habitat (raptor foraging habitat) would not be significant (discussed in Section 5.7.3). The impacts to native grasslands would also not be significant because project implementation would result in a small incremental reduction of this habitat type in the region.

Three of the same sensitive plant species found along the other LRT alignment also occur in the project area of this alignment. They include San Diego sagewort, spiny rush, and ashy spike-moss. These plants are found in the same locations as described for the other LRT alignment. In addition, ashy spike-moss is also found in the native grassland north of the existing AT&SF tracks. Impacts to these sensitive plant species would not be significant for reasons cited in Section 5.7.3.

No species of wildlife recognized as threatened or endangered by the USFWS or CDFG were detected within the project area. However, the same species discussed in Section 5.7.3 which are recognized as Category 2 candidates by the USFWS and/or as "species of special concern" by the CDFG occur within the project area. These include the salt marsh skipper, Hermes copper, orange-throated whiptail, San Diego horned lizard, northern harrier, and yellow-breasted chat. No significant impacts to these species would be expected. Three bird species are either considered threatened by the USFWS or are candidates for listing. These include the same three birds as enumerated in Section 5.7.3: California gnatcatcher (listed as threatened), coastal cactus wren, and southern California rufous-crowned sparrow. There would be no impacts to these birds, for reasons previously stated.
TABLE 5-23
DIRECT AND INDIRECT IMPACTS TO PLANT COMMUNITIES OF THE LRT GENESEE ALIGNMENT OPTIONS (Acres/Hectares)'

<table>
<thead>
<tr>
<th>Plant Community/Habitat Type</th>
<th>Direct</th>
<th>Indirect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diegan coastal sage scrub</td>
<td>3.1/1.3</td>
<td>3.9/1.6</td>
</tr>
<tr>
<td>Southern mixed chaparral</td>
<td>0.0</td>
<td>0.4/0.2</td>
</tr>
<tr>
<td>Southern willow scrub*</td>
<td>0.268/0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Southern cottonwood willow riparian forest*</td>
<td>0.033/0.01</td>
<td>0.0</td>
</tr>
<tr>
<td>Coastal freshwater marsh*</td>
<td>0/0</td>
<td>0.0</td>
</tr>
<tr>
<td>Disturbed coastal brackish marsh*</td>
<td>0/0</td>
<td>0.0</td>
</tr>
<tr>
<td>Mule fat scrub*</td>
<td>&lt;0.01/0.01</td>
<td>0.0</td>
</tr>
<tr>
<td>Disturbed wetland*</td>
<td>0.099/0.04</td>
<td>0.0</td>
</tr>
<tr>
<td>Perennial (native) grassland</td>
<td>0.3/0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Disturbed habitat (raptor foraging habitat)</td>
<td>8.2/3.3</td>
<td>1.4/0.6</td>
</tr>
<tr>
<td>Total Wetland Impacts</td>
<td>(0.41/0.16)</td>
<td>(0.0)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>12.0/4.9</td>
<td>5.7/2.4</td>
</tr>
</tbody>
</table>

' Wetland habitat types
1 All area rounded to 0.1; trace amounts not necessarily shown.


Significance of Impact

The impacts to wetlands would be significant. Wetlands are recognized locally and regionally as scarce, highly productive and valuable wildlife habitats. Impacts to the other habitats would not be significant.

With regard to sensitive plant and animal species, no significant impacts are expected. The potential effect of the LRT on regional and local wildlife corridors and on the movement of wildlife species is also not expected to be significant.

Mitigation Measures

Similar to the LRT I-5 Alignment Option, the loss of 0.16 hectares (0.41 acre) of wetland habitat would require coordination with the U.S. Army Corps of Engineers pursuant to their authority under Section 404 of the Clean Water Act, and the CDFG pursuant to their authority under Section 1600 of the California Fish and Game Code. Because the amount of wetland fill would be less than 0.4 hectare (one acre), a nationwide or individual permit from the Corps may not be required. A Streambed Alteration Agreement from the CDFG is required for projects that disturb (by vegetation removal and/or filling) any amount of wetland habitat. Both agencies normally require mitigation for losses of wetland habitat. A detailed mitigation plan would be developed (if this alternative is selected) and coordinated with the Corps and CDFG. Section 404 Coordination is discussed in Section 5.7.8.
A detailed Revegetation Plan and Erosion Control Plan would be incorporated into the design specifications. The plan would include erosion control measures and revegetation to minimize potential erosion and downstream sedimentation during grading and clearing activities.

A mitigation monitoring plan would be developed to fulfill the requirements of CEQA, as amended by AB 3180 and would include performance standards and corrective measures to be implemented would monitored mitigation measures fail to meet those standards.

Sensitive habitat areas that exist adjacent to the construction areas would be flagged and/or fenced to prevent unintentional damage by construction activities.

MTDB is considering building pedestrian track crossings that could be placed either below or above the tracks. Such crossings could be used by some wildlife species and enhance their mobility.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

### 5.7.7 Cumulative Impacts

The project is located in an area that has been the object of urban development for many years. Development proceeds in accordance with adopted Community Plans and subject to CEQA. Active projects occur throughout the project area and have similar or greater effects on biological resources. Any of the project alternatives would contribute to cumulative impacts associated with ongoing urbanization of the San Diego coastal area.

The disturbance of natural habitats including 3.0 hectares (7.5 acres) of direct impact under the TSM/Commuter Rail Alternative; 3.0 hectares (7.4 acres) of direct impact under the Commuter Rail Tunnel Alternative under North Portal Option A, 3.6 hectares (9.0 acres) under Option B; shading impacts of 0.8 hectare (2.10 acres) under the HOV Alternative which include 1.0 hectare (2.4 acres) for the South Portal; 1.2 hectares (3.0 acres) of direct and 1.3 hectares (3.2 acres) of indirect impact under the LRT South Segment/I-5 Alignment; and 4.9 hectares (12.0 acres) of direct and 2.4 hectares (5.7 acres) of indirect impact under the LRT South Segment/Genesee Alignment will contribute incrementally to the historical disturbance of these habitats and species. Specifically, within the last ten to fifteen years, habitat losses in the University City-La Jolla area have been pronounced. These historic losses have caused several of the regional habitat types, particularly wetlands and coastal sage scrub, to become the focus of preservation/management planning efforts (e.g., the State of California Natural Communities Conservation Planning process). However, the cumulative impacts associated with this project are not significant because the disturbance amount is small, and the acreage of the natural habitats remain relatively large (Hix 1990).

### 5.7.8 Section 404 Coordination

As part of the coordination efforts under the Federal Clean Water Act Section 404, MTDB conducted further analysis of impacts to wetlands. Response letters (included in Appendix D) from the Army Corps of Engineers (October 21, 1994), the Environmental Protection Agency (August 31, 1994), and U.S. Department of Fish and Wildlife (June 28, 1994) concurred with the project purpose and need and recommended pursuing the selection of a locally preferred alternative, on the basis that candidate mitigation sites be identified in an addendum to the Biological Resources Report. After reviewing additional information regarding mitigation sites, the Environmental Protection Agency concluded in the January 17, 1995 letter (included in Appendix D) that its concerns had been resolved. The letter also stated that additional data regarding site geology and hydrology would be needed in the Final EIS. The National Maritime Fisheries Service also gave project concurrence verbally (August 24, 1994). This section outlines the mitigation program which was developed by the consulting biologist and evaluates two potential off-site mitigation locations. The mitigation program outlined below was developed for the worse case scenario, Commuter Rail Tunnel, North Portal Option B, and thus can be applied to the Mid-Coast Project Alternative ultimately selected as the locally preferred alternative.
Mitigation Program and Assessment of Potential Off-Site Mitigation Areas

A mitigation program was developed based on the known potential environmental impacts to sensitive wetland habitats for all project alternatives. Two potential off-site mitigation areas were identified and assessed in the Draft Memorandum Biological Technical Report (January 1995). The following criteria were used in evaluating potential candidate mitigation sites:

- Proximity to Impacts - the site should be as near as possible to Mid-Coast Corridor
- Size - the site should be of sufficient size to allow for the enhancement/restoration of sensitive plant and wildlife species
- Feasibility of Restoration - Through grading and/or manipulation of vegetation, the site must be able to support self-sustaining jurisdictional habitat
- Value of Restoration - Enhancement/restoration must improve biological conditions with respect to jurisdictional habitat appreciably
- Cost - the land and restoration costs must be acceptable to MTDB
- Security and Defensibility - a site that is near other mitigation sites, preserved areas or constrained lands is more likely to be successful
- Availability - the present owner will sell the property or grant an easement

Two sites were identified as meeting these criteria in a search of southwest San Diego County: 1) Lakeside, in the San Diego River floodplain, and 2) the Tijuana River Valley. Table 5-24 compares the two sites in terms of the above criteria.

The general mitigation program, or revegetation plan, developed applies to both sites. The general design principle is to convert disturbed upland habitat into jurisdictional wetland habitat of greater value through excavation, export of soils and planting. Because the Mid-Coast Corridor transects a diversity of wetland types, it may not be practical to provide like-kind compensation for all types. The emphasis will be on quality native jurisdictional habitat.

MTDB proposes to create approximately 2.5 hectares (5.92 acres) of jurisdictional wetland habitat from disturbed upland habitat. Compensation would be at a ratio of 3:1 for southern willow scrub and sycamore woodland, and 1:1 for cismontane alkali meadow. This assumes the worst case scenario of the Commuter Rail Tunnel, North Portal Option B. This habitat should function as coastal freshwater marsh and southern willow scrub similar to that which occurs adjacent to project alignments, and should receive use by bird and mammal species currently present in adjacent riparian habitat areas. Revegetation will likely require 5 to 10 years to approach characteristics of mature willow woodland. Within 2 years it will be apparent whether the revegetation efforts will be successful. Cost estimates assumed a conservative 3:1 mitigation ratio for southern willow scrub and sycamore alluvial woodland and 1:1 for cismontane alkali meadow, should final wetland mitigation negotiations require a higher mitigation ratio.

The proposed final success criteria will determine the completion of MTDB's mitigation responsibilities. The criteria will be considered to be met if the vegetation is self-sustaining. These criteria are:

- Target functions and values: To create southern willow scrub and coastal freshwater marsh habitat similar to or of greater quality than that found within Mid-Coast Corridor. In addition, it should function as a foraging and nesting habitat for a variety of birds that are present in the coastal river valleys.
- Target hydrological regime: The Lakeside area is dry during most of the year; surface water is present only after substantial rainfall. The mitigation area will be flooded seasonally after grading and bringing the area within 0.6 meters (2 feet) of current groundwater level and contiguous with the main river channel. The Tijuana site is subject to infrequent flooding. Removal of the berm and lowering the site by 0.9 meters (3 feet) will subject the area to infrequent flooding and allow vegetation to access permanently moist soil.
- Target jurisdictional area: To create 2.5 hectares (5.92 acres) of jurisdictional wetland habitat.
### TABLE 5-24

**SECTION 404 COORDINATION**

**COMPARISON OF POTENTIAL OFF-SITE MITIGATION AREAS**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Lakeside (San Diego River)</th>
<th>Tijuana River Valley</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Lies entirely within the San Diego River floodplain, immediately east of the Highway 67 bridge north of Lakeside, County of San Diego</td>
<td>Northern edge of floodplain in Tijuana Valley, City of San Diego</td>
</tr>
<tr>
<td>Size</td>
<td>7.9 hectares (19.0 acres)</td>
<td>2.2 hectares (5.3 acres)</td>
</tr>
<tr>
<td>Security/Defensibility</td>
<td>The site is identified by the Multiple Species Conservation Plan (MSCP) Habitat Evaluation Model as having &quot;very high&quot;, &quot;moderate&quot; and &quot;disturbed lands&quot;; at least two active mitigation areas are adjacent to site; jurisdictional habitat and sensitive species in area will likely constrain future land development.</td>
<td>Near Tijuana River County Open Space Preserve, Tijuana Estuarine Research Reserve and Border Field State Park but separated by vacant land; largely agricultural area; off-site and on-site mitigation projects have been done; MSCP designates a large amount of land as &quot;very high&quot; sensitivity.</td>
</tr>
<tr>
<td>Existing Biological Conditions</td>
<td>Primarily undisturbed lower area dominated by aquatic habitats; heavily disturbed, nearly barren upland which would be converted to wetland habitat.</td>
<td>Currently in agricultural production; thus, lacks significant biological and wetland value.</td>
</tr>
<tr>
<td>Hydrology</td>
<td>Formerly sand and gravel extraction site - two levels exist. Lower level is groundwater pond, conveys seasonal runoff, supports open water, freshwater marsh and dense willow, mule fat and Fremont cottonwood thickets. Upper level is above the ordinary high water mark (4.6 meters (15 feet) above groundwater); doesn't appear to be subject to seasonal flooding; vegetation is disturbance associated upland species.</td>
<td>Protected from flooding by 3.0 meters (10 feet) berm; overlaid by 0.9 meter (3 feet) of imported soil; removal of berm places area within floodplain of Tijuana River (note: active planning for flood protection in this river valley may alter predicted hydrology).</td>
</tr>
<tr>
<td>Soils</td>
<td>Riverwash, typically sandy and gravelly, excessively drained and rapidly permeable; and Tujunga sand, deep, excessively drained sands that form on alluvial fans and floodplains. Soils on upper terrace appear suitable.</td>
<td>Fill soils overlay dominant Chino Silt Loam (hydric soil) occupying outer floodplain; Tujunga sand occupies the active river course; most wetland habitat occurs Tujunga sand although willow-dominate wetlands occur in Chino Silt Loam. Chino Silt Loam is valuable for agriculture.</td>
</tr>
<tr>
<td>Cost</td>
<td>$877,610</td>
<td>$639,780</td>
</tr>
</tbody>
</table>

* Based on conservative mitigation ratio of 3:1 for southern willow scrub and sycamore alluvial woodland and 1:1 for cismontane alkali marsh; includes land, construction plans and bidding assistance, grading, plant procurement, planting, monitoring (5 years), and maintenance (5 years).

Source: Dudek & Associates; December 1994
Success is expected for the Lakeside and Tijuana sites. Lakeside has successful revegetation programs underway adjacent to the site. Soils and hydrology, as modified, appear appropriate for such mitigation at the Tijuana site.

Construction plans, species to be planted, the planting plan and procedures for planting are outlined in the Memorandum Biological Technical Report. Irrigation will be used to establish vegetation and will be temporary in nature. Within six (6) weeks of completion of site preparation and planting, MTDB will submit an as-built status report to the appropriate regulatory agencies.

Furthermore, it is typical for the Clean Water Act Section 404 permits to require maintenance and monitoring for five (5) years. The primary effort of maintenance will be during the first few seasons of growth, focusing on the creation of self-sustained vegetation. A maintenance management plan outlining maintenance activities and guidelines will be developed prior to the implementation of the revegetation plan for the locally preferred alternative.

Monitoring will consist of periodic field checks during the spring by a qualified biologist to assess percent cover, size of individuals, and use of vegetation by wildlife species. Fall monitoring will be done to assess plant mortality. Permanent vegetation sampling stations will be established at appropriate locations. A report outlining the results of the monitoring surveys shall be submitted to the Department of Planning and Land Use of the County of San Diego, the U.S. Army Corps of Engineers, and the U.S. Fish and Wildlife Service by December 1 of each year. When the success criteria are believed to have been met, MTDB will notify the Corps in writing, accompanied by a final report.

### 5.8 WATER RESOURCES

This section presents a summary of the water resource impacts associated with transportation improvement alternatives proposed for the Mid-Coast Corridor. Detailed technical information can be found in the Water Resources, January 26, 1994, support technical report on file at MTDB’s offices. That report is hereby incorporated by reference into this AA/DEIS/DEIR.

#### 5.8.1 Surface Water

Impacts and associated mitigation measures related to surface water are the same for the TSM, TSM/Commuter Rail, Commuter Rail Tunnel, HOV Lane, and LRT Alternatives. Impacts are discussed below.

**Impact**

Long-term water quality impacts and increased runoff would be a consequence of the addition of impervious surfaces associated with facility construction and paving of new park-and-ride lots, roadway lanes and ramps, and new station sites, associated with the TSM, TSM/Commuter Rail, Commuter Rail Tunnel, HOV Lane, and LRT Alternatives. The HOV Alternative would add more pavement to the freeway cross-section which would result in increased runoff on the freeway into the drainage facilities. Isolated locations would change from permeable surfaces to impermeable pavement surfaces. This would increase the storm water runoff in the local basin 1.5 to 2 times the predeveloped condition. Construction of new storm drainage facilities would be required as part of the new facilities. Those facilities would be sized and located during final design in such a manner so as to ensure that the 100-year design storm runoff is adequately directed offsite and into appropriate downstream drainage facilities. These measures would serve to reduce impacts below a level of significance.

The Commuter Rail Tunnel Alternative would require the removal and replacement of a railroad timber bridge. Care would be taken during removal to minimize the amount of debris falling into the water to minimize water quality impacts. Construction of the new bridge will not alter the course or carrying capacity of the existing creek.

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Significance of Impact

No significant adverse impacts would result.

Mitigation Measures

To mitigate the potential impacts resulting from an increase in runoff, construction of new storm drainage facilities would be constructed as part of the new facilities and would be addressed in detail during preliminary engineering of the LPA. The final design would include a review of the capacities of the downstream drainage facilities that would be burdened by the increased runoff. Those facilities exceeding maximum capacities as a direct result of the new facility would be upsized accordingly. Initial studies of the proposed facilities indicate that the increased runoff resulting from the construction of the new parking lots could be handled by the downstream facilities. However, a more in-depth analysis will be done as part of preliminary engineering. On-site storm detention to attenuate the increased peak runoff to below the predeveloped condition will also be used as appropriate or required to mitigate run-off. Permits from the U.S. Army Corps of Engineers and possibly the U.S. Coast Guard will be required for the new bridge construction under the Commuter Rail Tunnel Alternative. The conditions connected with the issuance of these permits will ensure that surface water impacts are minimized. These measures would mitigate the impact to below a level of significance.

Unmitigable Impacts Remaining

With mitigation described above, no unmitigable impacts would remain.

5.8.2 Increase in Non-Point Source Pollutants

The potential for non-point source pollutant impact would occur for all the build alternatives. Impacts are discussed below.

Impact

As bus mileage for each alternative increases, non-point source pollutant load would increase proportionately for those pollutants directly related to the use of buses. However, the increase would be almost imperceptible since the total load would be spread out over the entire Mid-Coast Corridor. Any area-wide impact directly attributable to any alternative would be below a level of significance.

There also would be local impacts resulting from the concentration of motor vehicles and buses at park-and-ride lots and at ramp metering locations. Petroleum-based fuel, oil, and lubricants would deposit over time in these areas of concentration. The increase in urban pollutants that would occur in these localized areas can be mitigated below significance by ensuring that MTDB and other responsible agencies with jurisdiction comply with the SWRCB's requirements for storm water quality as included in recent National Pollution Discharge Elimination System (NPDES) permitting requirements (Clean Water Act).

The operation of the LRT, TSM/Commuter Rail, and Commuter Rail Tunnel Alternatives would result in new non-point source pollutants in the study area. The potential impact of these alternatives would be concentrated where the transit vehicles are to be stopped for extended periods, i.e., at sidings, stations, and, for the LRT Alternatives only, the expanded LRT maintenance facility.

Potential impacts related to the maintenance facility expansion are covered in the Mitigated Negative Declaration for that project. The Mitigated Negative Declaration, Rail Yard/Maintenance Facility Master Plan and Expansion,
October 1991 — its findings, conclusions, recommendations and mitigation measures — is incorporated by reference into this document. That document finds that maintenance facility impacts are mitigable to an insignificant level.

The sidings and station sites are other potential source of non-point source pollutants. The potential impacts related to non-point source pollution at these sites are considered below a level of significance due to the small areas in question. Also, MTDB’s current procedures for maintenance and cleaning of the LRVs substantially reduces the amount of pollutants that originate from the LRVs.

**Significance of Impact**

The net increase in urban non-point source pollutants as a result of any of the proposed alternatives would be negligible, and impacts would be below a level of significance. Since increases in transit vehicle trips would directly correlate to decreases in automobile trips, the total pollutant load essentially would remain constant or may decrease overall. Also, any potential increases would be spread out over the entire study area and be inconsequential to any of the individual local drainage basins. No significant adverse impacts would result.

**Mitigation Measures**

The U.S. EPA, pursuant to the Clean Water Act in 1972, requires mitigation of potential impacts resulting from non-point source discharges of pollutants. Recently legislation at all levels of government have been passed to enforce the requirements of the Clean Water Act. According to the SWRCB, non-point sources for pollution have been classified into the following three groups: pollution resulting from storm water runoff and other non-point sources at industrial sites, pollution resulting from storm water runoff from construction sites, and all other non-point sources located in municipalities.

The SWRCB also has recently issued a general statewide permit for non-point source pollution associated with storm water runoff at construction sites. The general permit directly affects construction of any of the proposed “build” alternatives. MTDB and Department of Transportation would be required to comply with this new regulation. Compliance with the requirements of the permit include developing a Storm Water Pollution Prevention Plan (SWPPP) and monitoring. Compliance with both requirements would be sufficient mitigation to reduce the potential impacts below a level of significance.

In addition, the SWRCB, through its San Diego Regional Quality Control Board, has issued a permit for municipal storm water discharges naming the City of San Diego as permittee. This empowers the City to develop and implement programs to identify and eliminate illegal and illicit discharges to municipal storm water conveyance systems, develop and implement best management practices (BMP’s) to reduce pollutants in storm water and urban runoff, and develop and implement monitoring programs. All of these measures would help reduce the potential impacts associated with non-point source pollutants below a level of significance. MTDB and the Department of Transportation would be required to comply with City of San Diego requirements and legislation related to the City’s position as permittee for the municipal storm water discharge permit.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.
5.8.3 Encroachment Into FEMA Defined Floodway

This section addresses the impacts of the Build Alternatives on FEMA defined floodways within the Mid-Coast Corridor. As guidance for the evaluation of impacts, 23 CFR 650, Subpart A Section 650 was used in part. Section 650.111 calls for location hydraulic studies to be performed with detailed engineering design drawings. Such drawings were prepared only for the HOV Alternative crossing of Sorrento Valley to locate pier placements. Section 650.111 lists five location considerations to be examined for floodplain encroachments:

1. Risks associated with implementation of the action.
2. Impacts on the natural and beneficial floodplain values.
4. Measures to minimize impacts associated with the action.
5. Measures to restore and preserve the natural and beneficial floodplain values impacted by the action.

However, to the extent possible, the impacts of each alternative with respect to the five location considerations is included in the discussions which follow.

5.8.3.1 TSM and TSM/Commuter Rail Alternatives

Impact

The park-and-ride lot at Carmel Valley Road is partially located within the fringe area of the FEMA-defined floodway for Carmel Valley Creek. As part of the project approval for the I-5/SR-56 and I-5/I-805 widening, a thorough review of those construction impacts on flooding and other concerns along Carmel Valley Creek was performed. As mitigation for the impacts that are anticipated as a result of those projects, the Carmel Valley Restoration and Enhancement Project (CVREP) was developed. It is essential to note that for the CVREP to succeed, all adjacent projects (including the park-and-ride lot at Carmel Valley Road) must be coordinated with the enhancement plan. The park-and-ride lot falls outside the northerly limit for the CVREP channel enhancement.

With respect to the location considerations of 23 CFR 650, the park-and-ride site was evaluated as follows:

1. The risks associated with this site are very low. The parking lot will be substantially out of the floodplain. A determination during preliminary design could be made that the southwestern edge that is within the floodplain should not be improved because of adverse impacts to the floodplain. The reduction of spaces would not affect this site since it is proposed to be built in stages anyway.

2. The natural/beneficial floodplain values would not be affected at this site because the facility would be a flat parking area with limited raised areas. The only structures would be simple bus shelters located in the areas outside the CVREP and floodplain boundary.

3. No incompatible development in the floodplain would occur as a result of the parking lot construction.

4,5. Discussion of mitigation is presented below.

Significance of Impact

Less than significant.
Mitigation Measures

No mitigation would be required.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.8.3.2 Commuter Rail Tunnel Alternative

Impact

The impacts of this alternative are identical to the TSM and TSM/Commuter Rail Alternatives with regard to the park-and-ride lot at Carmel Valley Road. In addition, the trackway for the commuter rail line will exit the north portal of the tunnel at Soledad Creek Canyon. Approximately 183 meters (600 feet) north of the portal, the two tracks will cross over Soledad Creek on a short bridge.

Soledad Creek is a low volume tributary to Penasquitos Creek and Los Penasquitos Lagoon. The existing single track railroad bridge at this location is about 18.3 meters (60 feet) long and is an open tie, timber bridge. This bridge would be replaced with a new double track, open tie bridge in the same location.

The current trackway is above the 100-year floodplain according to FEMA maps. Preliminary design of the bridge replacement shows the trackway would remain above the 100-year floodplain to match grades to the west.

The bridge replacement would maintain the existing creek channel width. Wingwalls could be added to the bridge abutments to better direct creek flows. This would be an improvement over the existing condition. Additional water would not be contributed to the creek. Drainage from the tunnel will be retained on site and released to the creek consistent with historic flows or directed to the City sewer system if permits are obtained.

With respect to the location consideration of 23 CFR 650, the bridge replacement location was evaluated as follows:

1. The bridge will be replaced in the same location as the existing bridge. Since the bridge is already above the 100-year floodplain elevation, the risk of adverse impact to the floodplain associated with this action are very low.

2. The bridge will be a simply supported, single span bridge of less than 100 feet in length. The final design will need to maintain the existing channel and placement of the abutments will not affect the flow capacity of the drainage course.

3. No incompatible development would result because of the bridge replacement.

4, 5. Adjustment of the channel to better carry flows is a result of this action. This is because the channel is naturally lined at the bridge location, but several hundred feet west, the flows enter a lined channel. The natural channel could be better aligned to enter the lined section, thus improving flow characteristics and reducing the potential (although already slight) for ponding and overflow of the floodplain.
**Significance of Impact**

Positive improvements to the floodway in Soledad Creek could result with construction of the bridge replacement and associated structures.

**Mitigation Measures**

No mitigation would be required.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

**5.8.3.3 HOV Lane Alternative**

**Impact**

Construction of the I-5/I-805 HOV freeway to freeway connector over Los Penasquitos Creek and Soledad Canyon Creek are within the FEMA defined floodway.

**Significance of Impact**

The proposed additional bridge piers (that support the direct connector ramps to I-5) encroaching into Los Penasquitos Creek floodplain will be of such alignment and configurations that changes in water surface elevations are minimized and insignificant. The flood boundary maps were developed using roughness values which do not reflect the current field conditions. When analyzed incorporating appropriate roughness co-efficients, thus assuming the remaining vegetation remains intact, flooding problems may occur in this area. The flooding, however, should not effect the I-5/I-805 traveled way.

Caltrans completed an initial location study for the HOV direct connector crossing of Sorrento Valley. The location considerations of 23 CFR 650 were evaluated as follows:

1. The risks associated with placement of new piers into Sorrento Valley and the floodplain would not result in adverse impacts or increased risks of failure of the I-5 in the segment. The exact pier locations and the impacts of runoff with respect to actual channel conditions (i.e. roughness assessment taking into account existing vegetation and channel configuration, etc.) will be studied during preliminary engineering.

2. The placement of piers in the Sorrento Valley floodplain will add obstructions to the Los Penasquitos Creek floodway that could act to catch and hold debris and other materials, potentially causing damming or ponding.

3. The new bridge structure will not contribute to increased development within the floodplain.

4. Design of the structures and channel configuration will be undertaken to minimize the risks associated with floodplain encroachment and possible floodplain widening and diversion. The floodplain performance will be maintained or enhanced with these improvements.

5. The measures that could be used to restore the natural and beneficial values of the floodplain include better delineation of the flood channel and construction of piers to limit the longitudinal encroachment and improve the roughness coefficients through the area.
Mitigation Measures

No mitigation would be required.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.8.3.4 Light Rail Transit (LRT) Alternative

Impact

All new crossings of existing channels within the study area would be made via free-spanning bridges; no new piers would be placed into the existing floodways. As such, no impacts would result from the construction of new crossings. The impacts of the bridge construction over the San Diego River were previously assessed for the extension of the Mission Valley West LRT project (the Mission Valley West EIR, November 1991). Potential impacts to FEMA defined floodways were also addressed as part of that project. Permits for the bridge construction will be obtained as part of this Mid-Coast project prior to construction.

Two portions of the south segment of the alignment for the LRT Alternative may encroach into the Rose Creek channel in the area between stations 425+00 and 540+00 (between the southerly crossing of Rose Creek and SR-52). The typical section for this area would have a width of approximately 26 meters (85 feet) and includes two LRT tracks and the AT&SF track used by both the AT&SF and the proposed North County Transit District commuter rail line. It is assumed that the double-tracking for the commuter rail line would occur at some later date. In order to build the section as shown on the plans, minus the commuter rail track, there may be some encroachment into the existing channel.

For the most part, the alignment would be on the opposite side of the AT&SF track from the channel; however, there are some areas in which the LRT would be on the channel-side of the AT&SF tracks (between stations 425+00 and 540+00). In these areas there is a potential to encroach into the channel. These areas are as follows:

- Upstream of the southerly crossing of Rose Creek. Extending northerly and upstream from the bridge, the existing channel consists of an improved concrete-lined bottom and sides (trapezoidal channel section) for approximately 915 meters (3,000 feet). In light of this, the channel can be redesigned to ensure that it can carry the same capacity after construction as prior to construction of the LRT Alternative. There may be a requirement to purchase right-of-way along the east side of the channel to facilitate the widening. Channel redesign would be sufficient mitigation to offset the potential flooding along this stretch of the channel below a level of significance.

- Along stations 490+00 to 505+00. This area is at the northerly end of Santa Fe Street approximately 305 meters (1,000 feet) north of the northerly crossing, where the existing railroad and the proposed LRT alignment would join and run parallel to the channel once again. At this point, the proposed LRT would be on the east side of the existing AT&SF track, and would rise up to cross over the tracks and switch to the west side. To support this cross-over, retaining walls are shown immediately adjacent to the channel. According to the preliminary alignment plans, it appears that the final location of the retaining walls would be just outside the channel. However, to construct the walls, it may be necessary to conduct grading activities that would encroach into the west side of the channel.

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Significance of Impact

Encroachment would not be considered a significant adverse impact.

With respect to the location consideration of 23 CFR 650, the sites of the LRT bridges were evaluated as follows:

1. The risks associated with these sites are very low. The bridge over Rose Creek near station 425+00 and the bridge crossing of the Santa Fe Railway will both be substantially out of the floodplain. These crossings are along the existing railroad tracks which are above the 100-year event elevation. The elevation of the LRT tracks and bridges will be approximately the same as the railroad and will thus be out of the floodplain. Because of the available right-of-way and topographic features, including Rose Creek, the bridges must be located as indicated in this document.

2. The bridges used will be single-span and simply supported. The crossing of Rose Creek will use abutments located at the edges of the existing channel. The floodplain will not be affected. The crossing of the AT&SF tracks will use a retaining wall with embankment to rise above the tracks before crossing on a single span bridge. This crossing will take place totally out of the floodplain with no impacts to the channel.

3. No incompatible uses will result from construction of these bridges since they are within the railroad right-of-way.

4. Design of the bridges, abutments, retaining walls and channel configuration will be undertaken to minimize the risks associated with floodplain encroachment and possible floodplain widening and eversion. The floodplain performance will be maintained or enhanced with these improvements.

5. The measures that could be used to restore the natural and beneficial values of the floodplain include better delineation of the flood channel and construction of abutments to limit the longitudinal encroachment and improve the roughness coefficients through the area.

Mitigation Measures

Activities would be timed so the construction encroachments occur during the dry season; construction operations would be timed so the total elapsed time of encroachment into the channel is minimized; no temporary or permanent storage or deposition of materials into the channel would be allowed; and the westerly channel side slope would be returned to its original "natural" condition as soon as possible after the retaining wall is built. To achieve this, a revegetation plan would be incorporated into this project. This vegetation plan addresses water quality/flood control only. It would be coordinated with any vegetation specified in the ecosystems section of this AA/DEIS/DEIR. The vegetation plan would incorporate like species of plants to ensure that the channel capacity is maintained. The channel capacity aspect of the vegetation plan would be reviewed and approved by a qualified civil engineer prior to construction. These mitigating measures would reduce any potential impact below a level of significance.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.
5.8.4 Cumulative Impacts

As with all urbanization, peak storm water runoff flows would continue to increase until buildout. It would be necessary to upgrade undersized facilities based on flooding impacts. Current design techniques assure that facilities constructed today would handle ultimate design flows based on conditions at buildout. However, there would be a cumulative impact of increased runoff as development continues. This cumulative impact would be mitigated as the study area's storm drainage system is extended and improved.

A recent shift in the philosophy of governing agencies has resulted in more stringent requirements to detain increased runoff on-site and release it to the existing storm drain system at flow rates equal to or less than predeveloped rates. This is a cumulative impact mitigating measure in itself and significantly helps to protect both the capacity of natural stream channels as well as biological resources, by maintaining existing stream characteristics. It also serves to extend the capacity of the existing storm drain system.

Although there may be some localized impacts to surface and groundwater quality, new regulations requiring NPDES permitting would work to improve, or at a minimum hold steady, the region's water quality. It is the intent of MTDB and the Department of Transportation to comply with the new requirements for non-point source pollution control.

Significance of Impact

No significant adverse impacts would result.

Mitigation Measures

No mitigation would be required.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.9 CULTURAL RESOURCES

This section presents a summary of the cultural resource impacts associated with transportation improvement alternatives proposed for the Mid-Coast Corridor. Caltrans and FHWA interest is limited to state right-of-way and improvements immediately outside of the ROW where the LRT alternative leaves the ROW. Detailed technical information can be found in the Phase I Historic Properties Inventory of The Mid-Coast Corridor Transportation Alternatives, San Diego, California, January 19, 1994, support technical report on file at MTDB's offices. That report is hereby incorporated by reference into this AA/DEIS/DEIR. The significance or importance of prehistoric and historic archaeological resources has been assessed with regard to several criteria, including research value to the scientist, educational/aesthetic/cultural value to the community at large, and value to Native Americans.

Native American significance can include religious spiritual beliefs/artifacts/features, a spiritual place, artifacts for spiritual healing, or features such as cairns or rock art (pictographs and/or petroglyphs), or places at which ceremonies were and/or are conducted. In addition, physical remains that include cremations and/or burials are significant to Native Americans, and these values are protected under both state and federal law.

The cultural resources within the area of potential effect for the Mid-Coast Corridor study were evaluated pursuant to Section 106 and to CEQA Appendix K. Section 106 of the NHPA requires federal agencies, or any undertakings
that receive federal funding or permits, to take into account the effects of the proposed undertaking. The effects to be evaluated are those upon properties included in or eligible for the National Register of Historic Places. According to CEQA and Sections 106 and 110 of NHPA, it is necessary to identify all cultural resources and to evaluate or assess their importance or eligibility. SHPO confirmation of the eligibility determination will take place before the FEIS is processed. Documentation of this coordination will be included in the FEIS. A summary of cultural resources for each alternative under study is presented in Table 5-25.

At this stage of environmental review, not all of the cultural sites in each of the proposed alternatives have been assessed for National Register eligibility as required under Section 106 of the National Historic Preservation Act. However, it is not appropriate at this stage of environmental analysis to conduct field excavations on all of the sites given that not all of them may be affected depending upon which alternative is ultimately selected. Assuming that one of the No-Build, TSM or HOV alternatives is selected, there would be no adverse effects to any National Register eligible site or significant resource.

For the various segments within the Light Rail Transit alternative, both the South Segment and the Genesee Segment have eligible sites that will require evidence or data recovery excavations. Site MC-1 within the South Segment requires excavation and evaluation of National Register eligibility prior to the final design stage. All of the other sites or locales of sensitivity are historic resources that appear on early maps and for which the field survey produced negative information or they are prehistoric sites that have been assessed as not eligible but for which monitoring is recommended to ensure that deeply buried resources are not impacted.

The construction scenario developed for the LPA will be developed during the Preliminary Engineering/FEIS project phase and will include construction observation by a qualified archaeologist to ensure avoidance of impacts and proper recovery of any finds. If resources are found, archaeological testing, development of a data recovery plan and procedures for proper recovery will be undertaken. In areas where there is a high likelihood for the presence of resources, sufficient time will be allocated in the construction schedule to allow for the investigation and recovery of any material discovered during construction.

A qualified archaeologist would be on site during work performed by paleontologists to assist in the identification of cultural remains. If a substantial archaeological deposit is discovered, the significance of the deposit and the eligibility for National Register will be determined. The proper repository for significant specimens is one of the most important elements in the mitigation of any impacts to resources. The significance of the materials will determine the appropriate repository. This decision will be made by the project archaeologist/paleontologist.

5.9.1 Historic and Archaeological Resources

5.9.1.1 No-Build Alternative

Potential impacts to cultural resources have been mitigated for those projects that may have an effect and there would be no additional impacts as a result of this alternative.
<table>
<thead>
<tr>
<th>Alternative</th>
<th>Resource Number</th>
<th>Location of Site</th>
<th>Condition</th>
<th>Status</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSM/TSM Commuter Rail/Commuter Rail Tunnel</td>
<td>H-3</td>
<td>Within APE</td>
<td>Disturbed</td>
<td>Does not qualify for NRHP</td>
<td>No further work</td>
</tr>
<tr>
<td></td>
<td>H-6</td>
<td>Within APE</td>
<td>Disturbed</td>
<td>Does not qualify for NRHP</td>
<td>No further work</td>
</tr>
<tr>
<td></td>
<td>CA-SDI-197</td>
<td>Outside impact area</td>
<td>Disturbed</td>
<td>Does not qualify for NRHP</td>
<td>No further work</td>
</tr>
<tr>
<td></td>
<td>CA-SDI-531</td>
<td>Outside impact area</td>
<td>Destroyed</td>
<td>Does not qualify for NRHP</td>
<td>No further work</td>
</tr>
<tr>
<td></td>
<td>CA-SDI-982</td>
<td>Outside impact area</td>
<td>Mismatched</td>
<td>Does not qualify for NRHP</td>
<td>No further work</td>
</tr>
<tr>
<td></td>
<td>CA-SDI-1,103</td>
<td>Outside impact area</td>
<td>Disturbed</td>
<td>Does not qualify for NRHP</td>
<td>No further work</td>
</tr>
<tr>
<td></td>
<td>CA-SDI-4,605</td>
<td>Outside impact area</td>
<td>Destroyed</td>
<td>Not important under CEQA</td>
<td>No further work</td>
</tr>
<tr>
<td></td>
<td>CA-SDI-4,627</td>
<td>Outside impact area</td>
<td>Intact</td>
<td>Not NRHP (Laylander 1986)</td>
<td>No further work</td>
</tr>
<tr>
<td></td>
<td>CA-SDI-8,121</td>
<td>Outside APE</td>
<td>Mismatched</td>
<td>Unknown</td>
<td>No further work</td>
</tr>
<tr>
<td></td>
<td>CA-SDI-9,288A</td>
<td>Within APE</td>
<td>Destroyed</td>
<td>Not important under CEQA</td>
<td>No further work</td>
</tr>
<tr>
<td></td>
<td>CA-SDI-10,143</td>
<td>Outside impact area</td>
<td>Intact</td>
<td>Does not qualify for NRHP</td>
<td>No further work</td>
</tr>
<tr>
<td></td>
<td>MC-I-1</td>
<td>Within APE</td>
<td>Disturbed</td>
<td>Does not qualify for NRHP</td>
<td>No further work</td>
</tr>
<tr>
<td></td>
<td>MC-I-2</td>
<td>Within APE</td>
<td>Disturbed</td>
<td>Does not qualify for NRHP</td>
<td>No further work</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LRT</th>
<th>South Segment</th>
<th>Resource Number</th>
<th>Location of Site</th>
<th>Condition</th>
<th>Status</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MC-1</td>
<td>Within APE</td>
<td>Disturbed</td>
<td>Destroyed</td>
<td>Unknown</td>
<td>No further work</td>
</tr>
<tr>
<td></td>
<td>MC-2</td>
<td>Within APE</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
<td>No further work</td>
</tr>
<tr>
<td></td>
<td>H-3</td>
<td>Within APE</td>
<td>Disturbed</td>
<td>Destroyed</td>
<td>Unknown</td>
<td>No further work</td>
</tr>
<tr>
<td></td>
<td>H-4</td>
<td>Within APE</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
<td>No further work</td>
</tr>
<tr>
<td></td>
<td>H-5</td>
<td>Within APE</td>
<td>Unknown</td>
<td>Does qualify for NRHP</td>
<td>Unknown</td>
<td>Monitoring of construction Data recovery</td>
</tr>
<tr>
<td></td>
<td>CA-SDI-12,560H</td>
<td>Within APE</td>
<td>Intact</td>
<td>Does qualify for NRHP</td>
<td>Unknown</td>
<td>Monitoring of construction Data recovery</td>
</tr>
<tr>
<td></td>
<td>CA-SDI-12,558</td>
<td>Within APE</td>
<td>Intact</td>
<td>Does not qualify for NRHP</td>
<td>Unknown</td>
<td>Monitoring of construction Data recovery</td>
</tr>
<tr>
<td></td>
<td>CA-SDI-12,557</td>
<td>Within APE</td>
<td>Intact</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Monitoring of construction Data recovery</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LRT I-5</th>
<th>Resource Number</th>
<th>Location of Site</th>
<th>Condition</th>
<th>Status</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CA-SDI-11,783H</td>
<td>Within APE</td>
<td>Intact</td>
<td>Does not qualify for NRHP</td>
<td>Monitoring of construction No further work</td>
</tr>
<tr>
<td></td>
<td>CA-SDI-12,559</td>
<td>Within APE</td>
<td>Intact</td>
<td>Does not qualify for NRHP</td>
<td>Monitoring of construction No further work</td>
</tr>
<tr>
<td></td>
<td>MC-I-2</td>
<td>Within APE</td>
<td>Disturbed</td>
<td>Does not qualify for NRHP</td>
<td>Monitoring of construction No further work</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LRT Genesee</th>
<th>Resource Number</th>
<th>Location of Site</th>
<th>Condition</th>
<th>Status</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CA-SDI-10,437</td>
<td>Within APE</td>
<td>Intact</td>
<td>Does not qualify for NRHP</td>
<td>Monitoring of construction</td>
</tr>
<tr>
<td></td>
<td>CA-SDI-11,783H</td>
<td>Within APE</td>
<td>Intact</td>
<td>Does not qualify for NRHP</td>
<td>Monitoring of construction</td>
</tr>
<tr>
<td></td>
<td>CA-SDI-12,556</td>
<td>Within APE</td>
<td>Intact</td>
<td>Does not qualify for NRHP</td>
<td>Monitoring of construction</td>
</tr>
<tr>
<td></td>
<td>CA-SDI-12,559</td>
<td>Within APE</td>
<td>Intact</td>
<td>Does not qualify for NRHP</td>
<td>Monitoring of construction</td>
</tr>
</tbody>
</table>

APE - Area of Potential Effect  
NRHP - National Register of Historic Places  
CEQA - California Environmental Quality Act  
Source: Ogden Environmental
5.9.1.2 TSM, TSM/Commuter Rail, Commuter Rail Tunnel Alternatives

Impact

For the TSM and both TSM/Commuter Rail Alternatives, the Balboa park-and-ride facility is the only area of potential impact. The site contains the remains of structure H-3. The recent age (not eligible for historic classification) of the site and lack of unique or significant features as well as the recent grading disturbance make this site ineligible for nomination to the National Register of Historic Places, and the resource does not qualify as important under CEQA criteria.

Significance of Impact

No significant adverse impacts would result.

Mitigation Measures

No mitigation would be required.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.9.1.3 HOV Lane Alternative

Impact

Construction impacts to the cultural resources for the HOV Lane Alternative include grading and paving of the I-5 median as well as bridge construction in the Sorrento Valley area and road widening in the La Jolla Colony area. Five cultural resources (H-3, H-6, CA-SDI-9,288A, MC-I-1, and MC-I-2) are present within the area of potential effect and none of the five resources are currently eligible for nomination to the National Register of Historic Places.

One concern is an alluvial area in the vicinity H-6 in Sorrento Valley where buried prehistoric remains may be present. Pursuant to CEQA, this area is recommended for monitoring during construction to ensure buried cultural deposits are not present. If any prehistoric remains are found, recovery is recommended.

Significance of Impact

The HOV Lane Alternative could potentially impact five cultural resources, one of which (H-6) may be significant.

Mitigation Measures

Construction monitoring to protect site H-6 in Sorrento Valley is proposed.

Unmitigable Impacts Remaining

Assuming mitigation for site H-6, no unmitigable impacts would remain.
5.9.1.4 LRT Alternative

Impacts to cultural resources from the LRT Alternative would result from both the rail construction and the development of stations and park-and-ride facilities. Impacts related to each portion of the alternatives are described below and summarized in Table 5-23. Levels of significance, mitigation measures, and unmitigable impacts remaining are prepared for the LRT Alternative as a whole and presented after the impacts have been described.

South Segment

Impact

Site MC-1 was identified within the area of potential effect. This site had not been previously identified. Recent investigation of this site indicates that it has been destroyed by construction activity from another governmental agency and is no longer a concern.

Sites CA-SDI-12,557, CA-SDI-12,558, and CA-SDI-12,560H have also been identified along this portion of the APE. Impacts could also occur to the historic structures at H-2, H-4, and H-5. These are the locations of historic structures and buried cultural remains that may be eligible for nomination to the National Register of Historic Places. Historic resource H-3, also included in this segment of the alternative, is not eligible for the National Register of Historic Places.

LRT I-5 Alignment Option

Impact

Two cultural resources (CA-SDI-11,783H and CA-SDI-12,559) would be affected by construction of the alignment. Both CA-SDI-11,783H and CA-SDI-12,559 have been tested by Smith (1992) and determined not to qualify as important under CEQA or Section 106. Isolate MC-I-2 is also within the LRT I-5 Alignment Option but does not qualify as significant.

LRT Genesee Alignment Option

Impact

Cultural resources affected by the LRT Genesee Alignment Option include sites CA-SDI-10,437, CA-SDI-11,783H, CA-SDI-12,556, and CA-SDI-12,559. Sites CA-SDI-10,437, CA-SDI-11,783H, and CA-SDI-12,559 have been tested by Smith (1992) and determined not to qualify as important under CEQA or Section 106. Site CA-SDI-12,556 has been determined eligible for nomination to the National Register of Historic Places.

Significance of Impact

Direct and indirect impacts would result from the selection of the LRT Alternative. The LRT Alternative would impact 14 cultural resources, 10 of which are considered significant or potentially significant. The LRT Alternative would result in significant adverse impacts to cultural resources.
Mitigation Measures

Pursuant to Section 106, coordination relative to significance and appropriate mitigation would occur with the SHPO during the Preliminary Engineering Phase of the project development process. Monitoring during construction would be required at sites H-2, H-5, H-6, CA-SDI-41, CA-SDI-10,437, CA-SDI-11,783H, and CA-SDI-12,558.

Avoidance or data recovery would be undertaken for cultural resources CA-SDI-12,556, CA-SDI-12,557, and CA-SDI-12,560H, which have been recommended as being eligible by Smith 1992 for nomination to the National Register of Historic Places.

Mitigation measures as stated would reduce impacts below a level of significance.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.9.2 Paleontological Impacts

Impact

Impacts to significant paleontological resources occur when earth work activities, such as large excavation projects, cut into geological deposits (formations) within which fossils are buried. These impacts are in the form of physical destruction of fossil remains. Since fossils are the remains of prehistoric animal and plant life, they are considered to be nonrenewable. Therefore, such impacts are significant under NEPA and CEQA guidelines.

The rock and soil units within the study area have been assigned a paleontological potential which indicates a likelihood of fossil discovery during development work. This is not a measure of importance of the individual fossils because it is impossible to gauge in advance what fossils are present at a site or to measure their significance until they have been excavated, collected, cleaned, and studied. All fossils are assumed to be significant to the regional resource data base. Therefore, for the purpose of environmental impact studies, paleontologists measure the potential for discovery of any fossil remains.

For all alternatives under consideration, sites in the Mid-Coast Corridor indicate a range from a high potential to a moderate paleontological potential. Grading on the sites could expose fossil material. However, the grading that would expose fossils would also destroy them. This would be a significant adverse impact on regional paleontological resources. Proper mitigation measures can reduce these adverse impacts to an insignificant level.

Significance of Impact

There is the potential for significant adverse impacts.

Mitigation Measures

The following measures are required to reduce the adverse impacts of development to an insignificant level and to protect the paleontological resources of the area. These mitigation measures are drawn from past efforts and have proven successful in protecting the paleontological resources while allowing timely completion of developments in San Diego County.

- A qualified Paleontologist will be retained to monitor the sites during excavation of formations rated high and/or moderate potential. These formations include Ardath Shale and Scripp formation (high resource
significance) and Linda Vista formation (moderate resource significance). This Paleontologist will salvage exposed fossils, and if necessary direct or divert grading activities to accomplish this goal.

- In areas where fossils are abundant, full-time monitoring and salvage efforts would be undertaken.

- To salvage microvertebrates it would be necessary to collect matrix for processing through fine screens. The archivists will in particular require matrix samples to be processed. A series of matrix samples will be collected. If microvertebrates are present, an additional matrix will be collected. To facilitate grading, matrix would be stockpiled to one side of the project at the direction of the Paleontologist.

- All fossils and their contextual stratigraphic data will go to an institution with research interest in the materials such as the San Diego Museum of Natural History.

- Provisions for preparation and identification of any fossils collected will be made before donation to a suitable repository.

**Unmitigable Impacts Remaining**

Implementation of the stated mitigation would reduce impacts to a level below significance.

### 5.9.3 Coordination With The State Historic Preservation Office (SHPO)

The SHPO was informed of the Mid-Coast Corridor Study through direct correspondence and the study Notice of Preparation. Preliminary impact assessments have been prepared for all alternatives using the Area of Potential Effect and taking into account historic sites on or considered eligible for the *National Register of Historic Places*. These assessments would be further advanced in the FEIS and as part of the Section 106 process of NHPA.

When the locally preferred alignment for this project has been selected, the consultation process with the SHPO and the Advisory Council on Historic Preservation (ACHP) would continue. Preliminary historic and archaeological inventories would be submitted and a request for concurrence in determinations of potential eligibility would be made. Additional archival and historic research would be undertaken to document eligibility issues and a final eligibility determination would be sought from the SHPO and the ACHP. Consultation with the SHPO would determine the necessity of additional archaeological surveys, studies, and field work. Once agreement is reached on which resources are eligible for the *National Register of Historic Places*, more specific impact assessments would be prepared. These impact assessments would reflect additional design performed in preliminary engineering and would be much more detailed than the abbreviated estimates provided herein. All resources within the APE for the preferred alternative would be placed in one of three categories; No Effect, No Adverse Effect, and Adverse Effect with discussions presented in accordance with procedures outlined in 36 CFR 800 (Protection of Historic Properties). The SHPO and ACHP would be asked to review these impact reports and to concur in the determination of effects.

For the resources where an effect would be determined to be adverse, the SHPO, the ACHP, and FTA would develop a Memorandum of Agreement (MOA) or several memoranda detailing a mitigation plan for each affected structure and archaeological resource. Mitigation can include construction techniques to preserve resources, agreements to photographically record structures destined for demolition and recovery of archaeological resources. The MOA can also specify usage of certain materials in station design and other facilities. The noise and vibration measures necessary to protect structures during construction and operation would also be identified in the MOA. The specific mitigation measures for each resource would depend on the type and level of impact anticipated as well as the feasibility and cost of proposed mitigation.
Information about this process, including a detailed discussion of impacts from the locally preferred alternative on eligible resources and a copy of the signed Memorandum of Agreement would be presented in the Final EIS.

5.9.4 Cumulative Impacts

Direct and indirect cumulative impacts to cultural resources would result from selection of the HOV and LRT Alternative. These impacts can be mitigated to a level below significance through avoidance or data recovery and monitoring. Although cumulative long-term effects to the cultural resources database would occur as a result of the selection of the LRT Alternative, they would be mitigated below a level of significance through avoidance or data recovery.

Significance of Impact

Significant adverse cumulative impacts would result from implementation of the LRT Alternative.

Mitigation Measures

Impacts can be mitigated to a level below significance through avoidance or data recovery.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.10 PARKLANDS

This section presents a summary of the U.S. Department of Transportation, Section 4(f) impacts for 2005 associated with transportation improvement alternatives proposed for the Mid-Coast Corridor. Detailed technical information can be found in the Parklands, January 26, 1994, support technical report on file at MTDB's offices. That report is hereby incorporated by reference into this AA/DEIS/DEIR.

Pursuant to Section 4(f) of the United States Department of Transportation Act (Public Law 89-670-80 Statutes 931), the Secretary of Transportation shall not approve any transportation project which requires the use of any publicly owned land from a public park, recreation area, or wildlife and water fowl refuge of national, state, or local significance as determined by federal, state, or local officials having jurisdiction thereof, or any land from an historic site of national, State or local significance as so determined by such unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such project includes all possible planning to minimize harm to such area resulting from such use. 23 CFR §771.135 Section (c) 4(f) (49 U.S.C. 303), of the Federal Register, August 28, 1987 (Appendix B), goes on to state that "consideration under Section 4(f) is not required when the federal, state, or local officials having jurisdiction over a park, recreation area, or refuge determine that the entire site is not significant. In the absence of such a determination, the Section 4(f) land would be presumed to be significant. The administration would review the significance determination to assure its reasonableness."

Early coordination, formal correspondence and meetings were established with the City of San Diego, County of San Diego, the California Department of Transportation, and other appropriate governmental agencies to assure complete site identification. In addition to obtaining information on existing parks and recreation areas, investigations were made regarding any future park improvement or new recreational areas that are in the planning stages. In this way a determination can be made of the baseline condition for 2005. A separate Section 4(f) evaluation has been prepared and is included in Appendix G.
5.10.1 Section 4(f) Property Impacts

5.10.1.1 No-Build Alternative

Impact

The No-Build Alternative is considered the baseline condition in which to evaluate Section 4(f) parkland impacts. No adverse impacts would occur for the No-Build Alternative.

5.10.1.2 TSM Alternative

Impact

The expansion of park-and-ride lots and the implementation of transit centers would cause no adverse impacts to parklands.

Significance of Impacts

No significant impacts would result.

Mitigation Measures

No mitigation would be required.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.10.1.3 TSM/Commuter Rail Alternative

Impact

The proposed site for the Nobel Drive Commuter Rail Station would be north of the AT&SF right-of-way and north of the Rose Canyon Open Space Preserve. No acquisition of this preserve would be required. However, acquisition of two other parcels, owned by the City of San Diego, and located between Nobel Drive and the Rose Canyon Open Space Preserve would be necessary (Figure 5-13).

Parcel B, a 2.9 hectare (7.05 acre) parcel, is currently zoned open space. Parcel C contains 0.91 hectare (2.25 acres) and is also zoned open space. A determination regarding whether these properties are subject to Section 4(f) will need to be made. Parcel C is identified as a mitigation site for the Renaissance La Jolla Property.

Significance of Impact

Any right-of-way acquired from these properties is considered a significant adverse impact.

Mitigation Measures

If the TSM/Commuter Rail Alternative is selected for implementation, use of these properties would require coordination with the University City Planning Group, the City Department of Parks and Recreation and approval from the City of San Diego City Council. Input from the Rose Canyon Recreation Council will also be sought. If
these properties are determined to be subject to Section 4(f), then a Section 4(f) statement would be prepared. The statement would discuss why there is no feasible and prudent alternative to the use of such land and include measures to minimize harm. Alternate open space areas would be provided as replacement for these properties.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

5.10.1.4 **Commuter Rail Tunnel Alternative**

**Impact**

The Commuter Rail Tunnel alignment would operate within the operating railroad right-of-way to a point approximately 366 meters (1,200 feet) west of Genesee Avenue, where the alignment would transition away from the Rose Canyon Open Space Preserve (north) to tunnel under Genesee Avenue. Implementation would not require the acquisition of any portion of the Open Space Preserve. The alignment would have no direct impact on the Rose Canyon Open Space Preserve.

**Significance of Impact**

No significant impact would result.

**Mitigation Measures**

No mitigation would be required.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

5.10.1.5 **HOV Lane Alternative**

The HOV Alternative includes exclusive HOV drop-ramps from Pacific Highway to I-5. The construction of drop-ramps at this location would cause the existing Pacific Highway overcrossing to be reconstructed and its redesign would cause impacts to Mission Bay Park, creating a Section 4(f) concern. Justification for including the Pacific Highway overcrossing in the HOV Lane Alternative is addressed in a technical memorandum titled *Description of and Justification for the Drop-Ramp to Pacific Highway for the HOV Alternative; Mid-Coast AA/DEIS/DEIR; #221-8911, February 9, 1994*, prepared by BRW, Inc. A copy of the memorandum is on file at MTDB’s offices. Observations and conclusions of the report are presented below:

- The drop-ramp would substantially improve intersection levels-of-service at three locations on Tecolote Road and Sea World over the No-Build Alternative. Two of the intersections are at the interchange ramps with I-5. Lower volumes at these locations would reduce congestion and the likelihood of back-ups on to the I-5 mainlanes.

- A substantial volume of MOV’s would attempt to exit or enter the HOV lanes via the Tecolote Road/Sea World Drive interchange with I-5. Without the drop-ramp, these volumes would need to cross the four mainlanes to complete the movements. Results of the analyses show a serious degradation in mainline operations with reductions in travel speeds and mainlane levels of service.
• Benefits to MOV passengers are great with the drop-ramp in place. Annual travel time savings of over 75,000 hours are estimated for weekday trips. Because of the range of weekend attractions in Mission Bay Park, savings to weekend users would accrue as well.

**Impact**

To accommodate the Pacific Highway HOV drop ramps, the Pacific Highway overcrossing would be realigned as it crosses over I-5 for the southern terminus of the HOV lanes. The existing Pacific Highway/Fiesta Island Road overcrossing would be relocated approximately 6 meters (20 feet) south of the present location for the southern terminus of the HOV lanes. The existing Pacific Highway Fiesta Island Road overcrossing would be demolished and the abandoned right-of-way would be exchanged for the right-of-way necessary for the new alignment. In an effort to minimize land requirements and harm to Mission Bay Park the west approach will be built on embankment with retaining walls to limit encroachment to the Park. The west abutment of the overcrossing has been pushed west to allow a two lane circulation road, connecting the north and south sides of the west approach and providing a future Park's road between the two parking lots. The revised design requires a 0.3 hectare (0.7 acre) property take from Mission Bay Park on the south side of Fiesta Island Drive and a 0.4 hectare (1.0 acre) property abandonment to Mission Bay Park from the north side of Fiesta Island Drive; for a 0.1 hectare (0.3 acre) property net return to the Park (see Figure 5-14). This design was developed to minimize any harm to the Park and address concerns expressed by the City of San Diego Parks and Recreation Department relative to the Mission Bay Park Master Plan. In a letter dated 3 May 1994 to MTDB, the City of San Diego Park and Recreation Department has accepted the Pacific Highway Realignment concept.

Proposed right-of-way acquisition would not directly impact any recreational uses; however, any right-of-way required from the Mission Bay Park is considered a potentially adverse impact. However, the City of San Diego Parks and Recreation Department has stated that the revised design offsets any potential impacts to the park; thus, Section 4(f) clearance is not required.

**Significance of Impacts**

Less than significant.

**Mitigation Measures**

The revised design results in a net gain of 0.1 hectare (0.3 acre) to the park. No mitigation is needed as the City has stated that the revised design offsets any potential impacts. If retaining walls are in Caltrans ROW and larger than 2 meters (6 feet) high by 65 meters (200 feet) long, the face must be substantially screened by vegetation or vegetated.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

5.10.1.6 LRT Alternative

Adverse impacts to parklands would result from implementation of the LRT Alternative.
LEGEND

- Existing Roadways
- Existing R-O-W
- Proposed Pacific Highway Relocation
- Proposed R-O-W
- Impact Area

MID-COAST CORRIDOR

ALTERNATIVES ANALYSIS/DRAFT ENVIRONMENTAL IMPACT STATEMENT/DRAFT ENVIRONMENTAL IMPACT REPORT STUDY

Metropolitan Transit Development Board
San Diego, California

Figure 5-14
HOV Lane Alternative Impacts to Mission Bay Park

Scale: 1" : 400'
LRT I-5 Alignment Option

Impact

For the LRT I-5 Alignment Option, impacts would occur to the Weiss/Mandell-Eastgate City Park (Figure 5-15). Park uses along Executive Drive are limited to tennis, parking, and open turf areas. The open turf areas are planned for future park facility expansion. This LRT Alignment Option would require the acquisition of right-of-way from the south side of the Weiss/Mandell-Eastgate City Park. The right-of-way required would directly impact the parking, existing open turf area, and future park expansion in the southwest quadrant of the park. This impact would be considered a significant direct adverse Section 4(f) impact and is documented in a letter from the City of San Diego Park and Recreation Department dated 3 May 1994. Should this alternative be carried into preliminary engineering, further study would be required to certify that the proposed alignment included all possible planning to minimize harm and that there is no feasible or prudent alternative to the use of this land.

The M.L. Lawrence Jewish Community Center (whose facilities have been incorporated into the Weiss/Mandell-Eastgate City Park) offers day school and evening programs for children and adults. This LRT Alignment Option would provide improved transit access to the park and the programs offered by the M. L. Lawrence Jewish Community Center.

Significance of Impact

Any right-of-way acquired from the Weiss/Mandell-Eastgate City Park is considered a significant adverse impact.

Mitigation Measures

If this alternative is carried into preliminary engineering, further study would be conducted to determine if other feasible alternatives exist to avoid impacts to the park such as acquiring land from the south side of Executive Drive. Reducing the traffic carrying capacity of Executive Drive is another option that was considered to avoid impacts. Currently Executive Drive, between Regents Road and Towne Centre Drive, is striped for two general traffic lanes (one general traffic lane in each direction). However, the existing curb-to-curb cross section would allow for the planned future Executive Drive to be striped for four general traffic lanes (two general traffic lanes in each direction). Maintaining the right-of-way along Executive Drive and reducing the future traffic carrying capacity (removal of one general traffic lane in each direction) of Executive Drive between Regents Road and Genesee Avenue would allow the LRT to operate within the median of Executive Drive without requiring additional right-of-way from the park. However, the City has indicated that removal of traffic lanes is not possible. Therefore, purchase of right-of-way will likely be necessary to accommodate the LRT alignment.

Acquisition of land from the south side of Executive Drive will first be considered to avoid impacts to the park. If this is not possible, then a small strip of park land may need to be acquired as shown in Figure 5-15. This would be a Section 4(f) impact. The land needed does not constitute a considerable portion of the park nor does it currently contain any major recreational facilities such as tennis courts or playfields. The area would be put into pre-project condition after construction is complete, with the exception of the portion needed for the LRT project. Additional landscaping could serve as more of a buffer to the highway and LRT track. If it is determined that there is no other practicable alternative to acquiring parkland, then appropriate mitigation measures would be determined during preliminary engineering to minimize impacts to the maximum possible extent.

Unmitigable Impacts Remaining

No unmitigable impacts would remain if the parkland is avoided.
LRT Genesee Alignment Option

For the LRT Genesee Alignment Option, impacts would occur to the Weiss/Mandell-Eastgate City Park and the Rose Canyon Open Space Preserve.

Impact

Weiss/Mandell - Eastgate City Park uses in this area are limited to an open turf area. The LRT Genesee Alignment would require the acquisition of a small amount of right-of-way from the southwest corner of the Weiss/Mandell-Eastgate City Park (Figure 5-14). The right-of-way required would not directly impact any currently active recreational uses however may impact future planned expansion. As previously stated, any right-of-way acquisition from the park is unacceptable to the City of San Diego Park and Recreation Department. This impact would be considered a significant direct adverse Section 4(f) impact to the park. Should this alternative be carried into preliminary engineering, further study would be required to certify that the proposed alignment includes all feasible planning to minimize harm and that there is no feasible or prudent alternative to the use of the land.

Significance of Impact

Any right-of-way acquired from the park is considered a significant adverse impact.

Mitigation Measures

If this alternative is carried into preliminary engineering, further study would be conducted to determine if other feasible alternatives exist to avoid impacts to the park such as acquiring land from the south side of Executive Drive. Reducing the traffic carrying capacity of Executive Drive is another option that was considered to avoid impacts. Currently Executive Drive, between Regents Road and Towne Centre Drive, is striped for two general traffic lanes (one general traffic lane in each direction). However, the existing curb-to-curb cross section would allow for the planned future Executive Drive to be striped for four general traffic lanes (two general traffic lanes in each direction). Maintaining the current right-of-way along Executive Drive and reducing the future traffic carrying capacity (removal of one general traffic lane in each direction) of Executive Drive between Regents Road and Genesee Avenue would allow the LRT to operate within the median of Executive Drive without requiring additional right-of-way from the park. However, the City has indicated that removal of traffic lanes is not possible. Therefore, purchase of right-of-way will likely be necessary to accommodate the LRT alignment.

Acquisition of land from the south side of Executive Drive will first be considered to avoid impacts to the park. If this is not possible, then a small strip of park land may need to be acquired as shown in Figure 5-15. This would be a Section 4(f) impact. Note that less right-of-way would be required for this option than for the LRT I-5 Alignment Option. The land needed does not constitute a considerable portion of the park nor does it currently contain any major recreational facilities such as tennis courts or playfields. The area would be put into pre-project condition after construction is complete, with the exception of the portion needed for the LRT project. Additional landscaping could serve as more of a buffer to the highway and LRT track. If it is determined that there is no other practicable alternative to acquiring parkland, then appropriate mitigation measures would be determined during preliminary engineering to minimize impacts to the maximum possible extent.

Unmitigable Impacts Remaining

No unmitigable impacts would remain if the parkland is avoided.
**Impact**

The Genesee LRT Alignment Option would operate within an operating railroad right-of-way to a point approximately 366 meters (1,200 feet) west of Genesee Avenue, where the LRT alignment would transition away from the Rose Canyon Open Space Preserve (north) to tunnel under Genesee Avenue. Implementation would not require the acquisition of any portion of the Open Space Preserve. The LRT Alignment Option would have no direct impact on the Rose Canyon Open Space Preserve.

Indirect adverse impacts would occur due to pedestrian access restrictions caused by the fencing of the right-of-way. The Rose Canyon Open Space Preserve, in the vicinity of the LRT Alignment, is heavily used by hikers, walkers, joggers, and mountain bicyclists. Fencing of the LRT tracks would restrict access across the railroad tracks and into the Open Space Preserve from some residential areas within North University City. Access across the AT&SF right-of-way is currently unlawful trespassing. However, no physical barriers exist to stop pedestrians from illegally crossing the right-of-way into the Open Space Preserve. Access restrictions are considered to be an indirect adverse impact. However, since access across the AT&SF property is currently considered to be unlawful trespassing, this impact is not considered significant.

**Significance of Impact**

No significant adverse impact would result.

**Mitigation Measures**

Access across the AT&SF right-or-way is currently considered unlawful trespassing and is posted as such by the AT&SF Railroad. However, no physical barriers to stop pedestrians from crossing the right-of-way into the Open Space Preserve exist. In addition, the AT&SF Railroad does not enforce trespassing across the right-of-way. However, to mitigate any pedestrian access restrictions, pedestrian crossing of the railroad tracks are proposed in the vicinity of SR-52, Regents Road, and Genesee Avenue. Specific locations would be determined during preliminary engineering.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

5.10.2 Cumulative Impacts

5.10.2.1 TSM Alternative

The TSM Alternative would cause no adverse cumulative impacts to parklands within the Mid-Coast Corridor. In relation to past, present, and reasonably anticipated future projects, impacts associated with the TSM Alternative are not considered cumulatively significant. No mitigation would be required.

5.10.2.2 TSM/Commuter Rail Alternative

The proposed site for the Nobel Drive Commuter Rail Station would be north of the AT&SF right-of-way and north of the Rose Canyon Open Space Preserve. No acquisition of this preserve would be required. However, acquisition of other parcels located between Nobel Drive and the Rose Canyon Open Space Preserve would be necessary (Figure 5-13).
In relation to past, present, and future projects the acquisition of these parcels are considered to be cumulatively significant. Parcel B, a 2.9 hectare (7.05 acre) parcel, is currently zoned open space. Parcel C contains 0.91 hectare (2.25 acres) and is also zoned open space. Parcel C is identified as a mitigation site for the Renaissance La Jolla Property.

5.10.2.3 Commuter Rail Tunnel Alternative

In the vicinity of the tunnel transition near Genesee Avenue, the Commuter Rail Tunnel alignment would require the acquisition of a minor amount of private open space. In relation to past, present, and future projects the acquisition of this small area is considered to be cumulatively insignificant.

5.10.2.4 HOV Lane Alternative

The reconstruction of the Pacific Highway overcrossing would result in a 0.1 hectare (0.3 acre) right-of-way surplus to Mission Bay Park. In relation to past, present, and reasonably anticipated future projects, any possible adverse impacts associated with the HOV Lane Alternative are not considered cumulatively significant. No mitigation would be required.

5.10.2.5 LRT Alternative

The LRT Alternative would have a significant direct adverse impact to the Weiss/Mandell-Eastgate City Park for both the LRT I-5 and LRT Genesee Alignment Options. Assuming an avoidance alternative would be selected and in relation to past, present, and reasonably anticipated future projects, adverse impacts associated with the LRT Alternative are not considered cumulatively significant. No mitigation would be required.

5.11 ENERGY

Consideration of energy usage among the alternatives includes operational/maintenance energy and the energy required for construction. Operational and maintenance energy would include fuel and electric power consumption for the operation and maintenance of automobiles, buses, and the LRT line. Construction energy would be primarily associated with the construction of the Commuter Rail (Tunnel) and LRT Alternative, and the capital project components of the HOV Lane, TSM, and TSM/Commuter Rail Alternatives.

Impact

In comparison to the No-Build Alternative, all project alternatives would result in a decrease in auto vehicle miles traveled in the Corridor and in the region, and, a corresponding decrease in fuel consumption. The decrease in daily regional VMT, as compared to the No-Build Alternative, would range from 36,600 for the TSM Alternative, to approximately 65,610 for the HOV Lane Alternative. The LRT Alternative would be 57,910 for the LRT I-5 and 54,720 for the LRT Genesee Alignment Options. This translates to a modest reduction of between 0.1 percent and 0.5 percent in the daily consumption of gasoline for automobile operation in the region.

Operating and maintenance energy is also required for the buses associated with each of the alternatives. The No-Build Alternative would have the lowest energy consumption in these categories. The HOV Lane Alternative would increase bus VMT by about 30,400 miles a day in the Corridor (Corridor) as compared to the No-Build Alternative. This would be an increase in bus operating energy of about 50 percent in the Corridor. The TSM Alternatives (TSM, TSM/Commuter Rail, and Commuter Rail Tunnel) would have a slightly lower increase in bus operating energy. The LRT Alternative would increase bus operating energy by about 35 percent as compared to the No-Build Alternative but would require less bus operating energy than the TSM Alternatives.

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Energy would be required for the operation and maintenance of the rail system in the LRT Alternative. Electric power would be used to power the vehicles. Additionally, there would be other relatively minor power requirements for such items as stations and fare collection. The electric requirements would not impact upon San Diego Gas & Electric's ability to supply power to its customers.

In combining all sources of operational and maintenance energy, the HOV Lane Alternative would result in a small net decrease in regional transportation energy consumption, as compared to the No-Build Alternative. The TSM Alternatives would result in a smaller decrease in operational and maintenance energy consumption than the HOV Lane Alternative. The LRT Alternative would result in essentially no net change to energy consumption as compared to the No-Build Alternative. The small savings from a reduction in auto VMT would be offset by an increase in energy use for more bus service and the operation and maintenance of the LRT line.

Construction energy would be required for all of the alternatives. Construction of HOV Lanes, an LRT line, or a tunnel for commuter rail would require substantial amounts of energy compared to the No-Build Alternative. Construction of the two stations for the TSM/Commuter Rail Alternative would also require more energy when compared to the No-Build Alternative. Energy would be consumed for operating construction equipment, fabricating vehicles and materials, and transportation. The LRT Alternative would require more construction energy than the other alternatives. There would not be significantly different construction energy requirements between the two LRT alignment options.

**Significance of Impact**

The operations and maintenance energy impacts would not be significant. Construction of the HOV Lane, both TSM/Commuter Rail, or the LRT Alternatives would require substantial amounts of energy. However, construction energy impacts would be less than significant.

**Mitigation Measures**

No mitigation measures are required beyond normal construction practices.

**Unmitigable Impact Remaining**

No unmitigable impact would remain.

**5.12 CONSTRUCTION IMPACTS**

This section presents a summary of construction impacts associated with transportation improvement alternatives proposed for the Mid-Coast Corridor. Detailed technical information can be found in the following support technical reports on file at MTDB’s offices. These reports are hereby incorporated by reference into this AA/DEIS/DEIR.

- Traffic Impact, January 1994;
- Land Use, January 1993;
- Air Quality Impacts; December 1993;
- Neighborhood Impacts, February 1994;
- Water Resources, January 1994;
- Geotechnical Resources, December 1993;
- Draft Report, Feasibility Level Geotechnical Investigations For Mid-Coast Corridor AA/DEIS/DEIR, Commuter Rail Tunnel, June 1994.
- TSM/Commuter Rail Alternative Environmental Analysis, May 1994; and
Construction of the "build" alternatives would involve a number of activities. The following construction sequence would likely be used for the majority of the LRT, HOV Lanes, or TSM/Commuter Rail construction activity within the Mid-Coast Corridor. The analysis of construction impacts assumes this approach.

**Traffic Management Plan:** A traffic management plan would be developed and agreed upon by MTDB, the City of San Diego, the California Department of Transportation, and other appropriate agencies. The plan would include ways to maintain traffic, bus service, and pedestrian activity while allowing for the delineation of a construction area. The magnitude of traffic disruption would depend on the nature of the street and any local constraints. The construction activity would likely occur in segments, to provide adequate staging and construction areas. Segregation of a long work area would also result in a stable traffic pattern, minimizing the number of times motorists would need to adjust to change along the work corridor.

**Utility Relocation:** This would be the first activity and would involve localized excavation in the street to enable relocation of existing underground utilities and/or the burying of existing aerial utilities. The work would generally be undertaken by crews from the various utility owners.

**Foundations:** The LRT track bed foundation would generally consist of a 0.6-meter (two-foot) layer of crushed stone. Aerial sections of the LRT and HOV Lane Alternative would be constructed of reinforced concrete structures supported by single or dual piers.

**LRT Guideway:** The rail would be pre-welded at local staging areas and installed in sections up to 366 meters (1,200 feet) in length. Signals and electrical power lines would be installed along the rail line.

**Stations:** For the LRT and TSM/Commuter Rail Alternatives, on-street station construction would maximize the use of pre-cast elements to minimize disruption and accelerate on-site construction activity. Where necessary, additional construction work space would be segregated, in accordance with a traffic management plan to minimize disruption to traffic, pedestrian activity, and bus service.

**Commuter Rail Tunnel:** The overall length of the Commuter Rail tunnel would be about 3,080 meters (10,100 feet) of double bore tunnel. Shielded open face digger machines would be used for the tunnel excavation.

**Roadway Restoration:** Upon completion of any activity, the roadway would be restored.

### 5.12.1 Construction Impacts: Transportation and Circulation

The construction of the new Pacific Highway overcrossing would create accessibility impacts to Mission Bay Park and Sea World as a result of the temporary closure of the Tecolote Road/Sea World Drive overcrossing. Alternate travel paths will be established to maintain access to the multiple uses in Mission Bay Park and on the east side of the freeway. Traffic control plans which would route traffic through the Clairemont Drive interchange or south to I-8 to Ingraham Street would be developed during preliminary engineering work. In addition, local issues of clearly identified access to ensure safety for modes of transit other than the automobile will be addressed during preliminary engineering upon selection of a locally preferred alternative.

For the HOV Lane Alternative short-term transportation and circulation impacts to the main lanes along I-5 would occur. A detailed traffic control plan will be developed during design of the HOV lanes. With adherence to these procedures, and monitoring by Caltrans personnel, impacts to traffic operations will not be significant. Minor impacts could be expected with the installation of access facilities to transit centers (all build alternatives) and around construction staging areas.
Freight traffic will not be disrupted during construction of the tunnel for the Commuter Rail Tunnel Alternative. A track connection south of Rose Canyon will be created with a shoofly track to form a temporary mainline around the new tunnel mainline being constructed. There will also be a turnout at the Miramar Loop to allow freight traffic to bypass the tunnel construction. There will be two to four weeks of reduced travel speeds for freight traffic while the tunnel is being constructed. This procedure for maintaining freight traffic will be repeated at the north tunnel portal. Both the north and south portals will be constructed concurrently.

For the LRT Alternative, short-term transportation and circulation impacts would be expected because of construction of at-grade crossings, at-grade sections, LRT stations in University City, installation of access facilities to transit centers. Traffic impacts could also occur around construction staging areas. Short-term impacts would also be expected with the TSM/Commuter Rail and Commuter Rail Tunnel Alternative due to construction of the two stations and associated facilities. Construction of the tunnel and associated facilities will be undertaken 24 hours per day and seven days each week. The total construction is likely to require two to three years.

Streets would remain open to local traffic and property access (both pedestrian and vehicular) provided at all times. A construction staging plan would be developed which would schedule lane closures and the use of temporary traffic control devices. Temporary lanes, sidewalks, driveways, and bus stops would be set up where necessary. At-grade street crossings would be constructed sequentially and would involve temporary lane closures or detours. Detours would be kept to a minimum.

Construction staging areas would be secured to avoid vehicular or pedestrian conflicts. Staging areas would be located, where possible, in areas reserved for future station parking lots.

Significance of Impact

Development of a traffic management and construction staging plan would keep traffic and circulation impacts to a minimum. No significant adverse impact would result.

Mitigation Measures

A traffic management and construction staging plan would be developed.

Unmitigable Impact Remaining

No unmitigable impact would remain.

5.12.2 Construction Impacts: Accessibility

Access is to be maintained to the greatest extent possible for all alternatives. No accessibility impacts would result from the TSM and TSM/Commuter Rail Alternatives. The Commuter Rail Tunnel Alternative will have considerable construction traffic activity, especially trucks hauling excavated soils along Roselle Street and Sorrento Valley Road. However, trucks will use existing haul routes to the greatest extent feasible. Lane closures are not anticipated.

For the HOV Lane Alternative, the construction of the new Pacific Highway overcrossing would create accessibility impacts to Mission Bay Park and Sea World as a result of the temporary closure of the Tecolote Road/Sea World Drive overcrossing. Pedestrian access to Mission Bay Park, although fairly limited in the area, will be well-marked during construction in order to maintain an adequate level of access to the Park and surrounding areas. Specific impacts and mitigation to maintain accessibility in the vicinity of construction areas are discussed in Section 5.12.1, above.
The LRT Alternative would require construction of trackway alignment and stations within roadway rights-of-way in some areas of University City. This work would require closure of one or more lanes of traffic for extended periods of time.

Alternative routes for traffic in North University City exist and would be available to handle diverted traffic. Currently Genesee Avenue is the only roadway south across Rose Canyon, but Regents Road is scheduled to be extended on a bridge south to connect with Clairemont Mesa Boulevard prior to the start of LRT construction.

Traffic maintenance and control plans would be prepared during engineering design of the alternative. These plans would be based on City and State guidelines and procedures which would be followed by the contractor. Construction traffic control plans would be required of the contractor and reviewed and approved prior to construction activities.

MTDB has substantial experience constructing LRT lines in city streets. Construction is staged to affect only one or two blocks at a time. Contractors would be required to submit the control plans for review and approval in advance of construction activities. Impacts are not expected to be significant.

**Significance of Impact**

As indicated previously, a traffic management and construction staging plan would keep traffic and circulation impacts to a minimum for each construction site, activity or phase. No significant adverse impact would result.

**Mitigation Measures**

A traffic management and construction staging plan would be developed to clearly identify access and safety measures for all modes of travel.

**Unmitigable Impact Remaining**

No unmitigable impact would remain.

### 5.12.3 Construction Impacts: Neighborhoods

Anticipated short-term impacts to neighborhoods are primarily construction-related noise, dust, and traffic. In the Clairemont Mesa and University City neighborhoods, construction activities would have the potential for associated localized air quality and noise impacts due to the close proximity of the alignment and park-and-ride facilities to residential communities north of Balboa Avenue and in La Jolla Colony. Construction impacts related to the removal of tunnel muck, potential staging sites and construction traffic routes are more fully detailed in Section 5.12.7 - Geotechnical.

**Significance of Impact**

No significant adverse impact would result.

**Mitigation Measures**

Mitigation measures for possible noise impacts (temporary barriers, limiting hours of construction) and air quality impacts (emission control devices on construction vehicles, dust control measures) would limit the negative effects of construction. Conflicts from staging areas (traffic) could be mitigated by limiting the number of access points to construction sites.
Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.12.4 Construction Impacts: Air Quality

During the construction phase of study alternatives, nitrogen dioxide, carbon monoxide, hydrocarbons, oxides of sulfur, and particulate matters would be emitted from construction equipment and exhausts of workers' vehicles. These are considered short-term emissions. Additional dispersion of particulate matter would occur through grading and vehicular travel on the unpaved areas. Localized air quality in the project area could be significantly affected by construction emissions because of the level of construction activity required for the project alternatives.

Of the study alternatives, the greatest construction-related emissions would be associated with the HOV Lane Alternative, which would entail construction of approximately 14.6 kilometers (9.1 miles) of buffer-separated HOV lanes in I-5. The construction-related emissions associated with the HOV Lane installation would not be as severe as constructing a new highway. An existing prepared roadway right-of-way would be utilized, avoiding the grading-intensive preparation typically associated with new highway construction. Although the LRT Alternative would entail approximately 16.1 kilometers (10 miles) of LRT line construction, the associated construction emissions would be less that those associated with new roadway construction. The TSM/Commuter Rail Alternative would involve construction of two stations and associated facilities; however, impacts would be less than anticipated with implementation of either the LRT or HOV Lane Alternative. Construction emissions associated with tunnel construction for the Commuter Rail Tunnel Alternative would be greater than under the TSM or TSM/Commuter Rail Alternatives, but less than the HOV Alternative. The construction-related impacts of the LRT, TSM/Commuter Rail, Commuter Rail Tunnel, and HOV Lane Alternatives would not be significant due to the fact that none of the alternatives would require major fill. The TSM Alternative would entail very little construction activity and would generate the least construction-related emissions of all the project alternatives.

Significance of Impact

Implementation of any of the Mid-Coast Corridor study alternatives would not create any local exceedances of state or federal carbon monoxide standards not already exceeded.

Mitigation Measures

All traffic mitigation measures identified in the Construction Impacts: Transportation and Circulation, Section 5.12.1, would be implemented to reduce congestion and resultant localized CO concentrations. In addition, dust control measures, including watering, providing truck wheel washers, and covering fill materials hauled in trucks, would be used during construction to minimize fugitive dust. Construction equipment would also be tuned and in good working condition.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.12.5 Construction Impacts: Noise

The areas with the greatest potential impact from construction noise are the residential areas in University City. Under all the build alternatives, construction activities would occur near residential and commercial areas. Noise levels resulting from construction activities would vary depending on the type of equipment used, the number of
concurrent activities, and the distance to a particular receptor. Through proper noise control criteria adverse significant impacts would be avoided.

**Significance of Impact**

Possible adverse significant impact.

**Mitigation Measures**

The following methods are recommended to minimize construction noise impacts:

- Require that all engine-driven equipment have mufflers installed according to the manufacturers' specifications and that it be in good operating condition.
- Locate stationary construction equipment as far from sensitive noise receivers as possible.
- Shut off idling equipment.
- Notify nearby residents of the construction schedule and expected times and duration of maximum noise impacts.
- Consider the use of spread footings or cast in place piles instead of driven piles (if necessary).
- A sound curtain could be constructed to shield adjacent sensitive land uses from tunneling noise and vibration.
- Construct noise barriers early in the project to shield residents from construction noise.
- Travel hours for dump trucks removing tunnel muck should be restricted to prevent negative impacts to adjacent land uses.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

5.12.6 **Construction Impacts: Water Resources**

**Increased Erosion and Sedimentation**

During the construction of the facilities associated with the TSM, TSM/Commuter Rail, Commuter Rail Tunnel, HOV Lane, and LRT Alternatives there would be the potential for increased erosion and sedimentation while the site is denuded. This potential impact can be mitigated below a level of significance through compliance with the storm water permitting regulations.

Control of erosion and sedimentation during construction of any of the Build Alternatives located within the coastal zone will be actively managed and monitored by MTDB. Projects would use the EPA document, "Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters" as a guide in developing the preliminary and final plans and specifications for the project.
Floodplain

A portion of the LRT alternatives would be constructed within the 100-year Rose Creek floodplain. For the Commuter Rail Tunnel Alternative, a bridge will be constructed over Soledad Creek which is also within the 100-year floodplain. However, the bridge would be constructed above the floodplain elevation. Storm drainage ways would be maintained at all times during the construction period, and neither project would affect the efficiency of storm drainage systems.

Groundwater

A 3,080 meter (10,100 foot) double bore tunnel would be built for the Commuter Rail Tunnel Alternative. In the event that groundwater or perched water is encountered during construction, dewatering will be necessary.

Significance of impact

No significant adverse impacts would result.

Mitigation Measures

Impacts can be mitigated through the incorporation of appropriate construction site erosion control techniques. As of October 1, 1992, these erosion control measures are required as part of the SWRCB’s General Construction Activity Storm Water Permit (Part of the United State Environmental Protection Agency’s Clean Water Act). The permit is required for all storm water discharges associated with a construction activity that results in a land disturbance of 2.1 hectares (five acres) or more. All of the build alternatives would result in construction land disturbances of more than 2.1 hectares (five acres) and thus be subject to the State’s General Construction Activity Storm Water Permit.

In addition, various run-off and erosion control techniques would be used by MTDB and Caltrans, such as those recommended by the EPA in the Guidance document. They are as follows:

a. Write erosion and sediment control requirements into plans, specifications, and estimates for Federal aid construction projects for highways and bridges (FHWA, 1991) and develop erosion control plans for earth-disturbing activities.

b. Coordinate erosion and sediment controls with FHWA, AASHTO, and State guidelines.

c. Install permanent erosion and sediment control structures at the earliest practicable time in the construction phase.

d. Coordinate temporary erosion and sediment control structures with permanent practices.

e. Wash all vehicles prior to leaving the construction site to remove mud and other deposits. Vehicles entering or leaving the site with trash or other loose materials should be covered to prevent transport of dust, dirt, and debris. Install and maintain mud and silt traps.

f. Mitigate wetland areas destroyed during construction.

g. Minimize the area that is cleared for construction.

h. Construct cut-and-fill slopes in a manner that will minimize erosion.

i. Minimize runoff entering and leaving the site through perimeter and on-site sediment controls.

j. Inspect and maintain erosion and sediment control practices (both on-site and perimeter) until disturbed areas are permanently stabilized.

k. Divert and convey off-site runoff around disturbed soils and steep slopes to stables areas in order to prevent transport of pollutants off site.

l. After construction, remove temporary control structures and restore the affected area. Disposed of sediments in accordance with State and Federal regulations.
m. All storm drain inlets that are made operable during construction should be protected so that sediment-laden water will not enter the conveyance system without first being filtered or otherwise treated to remove sediment.

Mitigation measures would sufficiently mitigate the potential impacts below a level of significance. For the Commuter Rail Tunnel Alternative, some groundwater inflows during tunnel construction are anticipated. If the tunnels are excavated from the north portals, as currently envisioned, groundwater collected would flow naturally to the north portal. Alternatively, the tunnel reaches south of the station could be excavated up gradient from the south portal allowing groundwater to flow by gravity to the south portal. Groundwater seepage will need to be handled with a specifically designed program to prevent outfall to Soledad Creek. Collection facilities will be included in the construction work with settling ponds used, if necessary.

Prior to discharging the tunnel water off the construction site, small amounts of oil and hydraulic fluid from the tunnel boring machine and other construction equipment would likely have to be removed by oil skimmers in temporary settling ponds built near the portals. Secondary treatment of the discharge water may be required by the Regional Water Quality Control Board. Alternatively, groundwater could possibly be discharged into the City sewer system if the volumes are relatively low, and a permit is obtained from the City of San Diego.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.12.7 Construction Impacts: Geotechnical

Potential construction impacts and mitigation associated with geotechnical/seismic conditions are discussed below.

5.12.7.1 No-Build Alternative

Impact

Construction of the No-Build Alternative may result in geotechnical impacts related to those previously approved projects identified for construction within the next six years. These projects include the I-5/SR-56/I-805 interchange and three interchange modifications in the University City area as well as two other local road bridges; Regents Road over Rose Canyon and Gilman Drive over I-5. Construction of the I-5/SR-56 interchange and the Regents Road bridge would need to consider the presence of deep, relatively loose alluvial soils within Carmel Valley and somewhat within Rose Canyon. The alluvial soils are susceptible to settlement from the construction of embankments; liquefaction of these materials may occur in the presence of seismic ground motions. The proximity of faults within or adjacent to the study area would impact the aforementioned projects as potential safety hazards.

Significance of Impact

Potential significant adverse impact could occur.

Mitigation Measures

Potential methods of mitigation for the alluvial soils within Carmel Valley may consist of the placement of surcharge fills in conjunction with embankments. In order to accelerate settlement, pre-manufactured strip drains may be installed within the alluvial soils prior to embankment construction. Pile foundations would most likely be necessary to support structural loads at depths below the alluvial soils. Bridges and abutments in the proximity of study area faults would need to be seismically designed using appropriate site accelerations and locally adopted code and/or
design criteria. Incorporation of these standard engineering measures would assist in reducing the potential impacts resulting from construction to a level below significance.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

**5.12.7.2 TSM Alternative**

**Impact**

Construction impacts related to geotechnical conditions associated with the TSM Alternative, in addition to those discussed above, include the construction of park-and-ride lots at Balboa Avenue, Gilman Drive, and Carmel Valley Road. It is anticipated that grading would be required to create areas for the park-and-ride structures. Artificial fill and soils of the Scripps Formation and Bay Point Formation may be present at these sites. Slope stability of cut or fill slopes would need to be assessed.

**Significance of Impact**

Potential significant adverse impacts could occur.

**Mitigation Measures**

Exploratory borings would need to be excavated during preliminary engineering at the proposed park-and-ride sites to define the existing soil conditions. Remedial grading of fill soils may be necessary prior to the construction of settlement-sensitive improvements such as buildings, pavements, flatwork, etc. Earth retaining structures would likely be required where easement and property constraints do not permit the construction of fill or cut slopes. Additionally, areas of grade separation may require retaining walls. Earth retaining structures which have been successfully utilized in the area include concrete block walls, cribwalls, and reinforced walls. The additional information obtained during exploratory borings would be utilized to identify potential slope stability hazards. If slope stability hazards are present, additional slope stability measures would be incorporated into the final design. These may include the incorporation of buttresses, slope keys, benching, or other appropriate measures to assure an appropriate factor of safety (1.5 minimum) for the slope's stability. Incorporation of these measures would reduce potential adverse impacts to a level below significance.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

**5.12.7.3 TSM/Commuter Rail Alternative**

**Impact**

Impacts related to this alternative, in addition to those discussed in the No-Build and TSM Alternatives include the construction of stations at Nobel Drive and Balboa Avenue, along with the associated park-and-ride and bus access facilities, and added parking at the Sorrento Valley Commuter Rail Station. Cut-and-fill and grading activities would be required to develop the station sites. The Scripps Formation may be present in the University City area and alluvium soils are located within the Rose Canyon Creek drainage. The slope stability of cut or fill slopes would need to be assessed.
Significance of Impact

Potential significant adverse impacts could occur.

Mitigation Measures

Construction of crib retaining walls would adequately mitigate significant impacts resulting from slope cuts. The Nobel Drive Station would result in construction land disturbances of 2.1 hectares (five acres) or more thus triggering the need for a SWRCB General Construction Activity Storm Water Permit. The permit requires that appropriate erosion control techniques be used during construction. Incorporation of these measures would reduce potential adverse impacts below a level of insignificance.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.12.7.4 Commuter Rail Tunnel Alternative

Impact

Impacts related to this alternative include those discussed in the No-Build and TSM/Commuter Rail alternatives with the exception of the Nobel Drive Commuter Rail Station. The Commuter Rail Tunnel is planned to be constructed as a twin bore tunnel of 10,100 feet. The tunnel alignment would be contained in a 110 foot easement beneath Genesee Avenue. Depending on the site specific fill versus bedrock conditions beneath and west of Genesee Avenue, more or less effort would be needed to preserve the integrity of the road where the tunnels would pass underneath with areas of relatively low rock cover and where the road is close to potential portal cut slopes. Cut slopes above the portals would be about 50 feet high, but could vary depending upon specific site subsurface conditions and surface topography. A station about 31 meters (100 feet) deep will be provided at UTC.

The tunnel will travel through surface excavations in the Scripps Formation and Ardath Shale at lower depths. The tunnel excavation is anticipated to be technically feasible using shielded open face digger machines or shield full face tunnel boring machines. Both the north and south portals would involve permanent open cut excavations. For efficient tunnel construction, a minimum of 0.8 hectares (2 acres) are planned near the portals for temporary construction staging areas. The north portal site may require an approximate 152.4 meters (500 foot) approach ramp to connect it with a laydown area with sufficient room located in a vacant lot located north of Roselle Street. Starter and exist tunnels are assumed for about 15.2 meters (50 feet) in each portal of the main tunnels. The first 61.0 meters (200 feet) of the tunnel would be hand mined. Any necessary blasting would be scheduled to occur in a window of time agreeable to adjacent uses. Tunnel portal sites and staging areas would be adequately fenced to prevent unauthorized entry by the general public and those not associated with the construction. The preliminary sites have been selected in areas that do not appear to be affected by existing landslides; however, this will be confirmed with subsurface investigations if the project becomes the Locally Preferred Alternative. All Cal OSHA safety requirements will be complied with as part of the construction effort.

The Tunnel Boring Machine or TBM, would enter the starter tunnel at the north end and tunnel through to the south portal. The machine would be transported back to the north portal to dig the second tunnel. This activity is cost effectively scheduled for 24 hours seven days a week for approximately 60 months. A sound curtain could be constructed to shield adjacent sensitive land uses from tunneling noise and vibration.

All excavated tunnel material or muck would be carried out of the north end of the tunnel via dump trucks. The volume of rockspoil (tunnel muck) is estimated to be approximately 500,000 cubic yards. Tunnel muck would be
Conveyed out of the tunnel directly to dump trucks. Haul routes for trucks would be contained as much as possible to existing industrial areas. Travel hours for dump trucks could be restricted to prevent negative impacts to adjacent land uses. However, this would require areas near the north portal with sufficient space to temporarily stock pile the tunnel muck to accommodate the volume of muck to be accumulated during the periods of restricted truck traffic. There is a low possibility for the tunnel spoil to be contaminated. Thus, it is likely that the spoil would be desirable for fill at other sites. Appropriate spoil disposal sites will be identified during final design and the development of construction plans and specifications.

Vertical shafts would be necessary for tunnel ventilation units and the station. A mined underground station is proposed. These surface down excavations would be located as much as possible away from noise and vibration sensitive land use receptors. Vertical excavations would be made with equipment similar to a back hoe. Hours of construction for these elements could be restricted to prevent negative impacts to these receptors.

Some ground water inflows during tunnel construction are anticipated especially associated with fault and shear zones and occasional more permeable sand beds. Actual groundwater levels have been estimated based upon limited subsurface data and topographic considerations. Groundwater from the tunnels would naturally flow to the north portal where excavation is proposed. Prior to discharging the tunnel water off the construction site, small amounts of oil and hydraulic fluid from the TBM and other construction equipment would likely be removed by oil skimmers in temporary settling ponds built near the north portal. Secondary treatment of the discharge water may be required by the Regional Water Quality Control Board. Alternately, groundwater could possibly be discharged into the City sewer system if the volumes are relatively low and a permit is obtained from the City of San Diego.

Cal OSHA must review tunnel construction specifications prior to their issuing permits that allow tunnel construction to start. Based upon the existence of sedimentary rock in the tunnel areas, there is a potential for a gassy ground classification. Thus, tunnel construction would have to comply with potentially gassy ground Cal OSHA requirements. Although gassy ground is not anticipated to be encountered, care will be taken to investigate the potential for gas in the subsurface investigations for the project.

**Significance of Impact**

Potential significant adverse impacts could occur.

**Mitigation Measures**

Construction of the dual bore tunnel would be a major effort requiring several years to complete. Considerable technical work would be needed during engineering design to address issues of tunnel layout, structural sufficiency, and construction techniques/staging. Portal design and construction will need to consider slope stability. Retaining walls will likely be needed on either side of each portal. Cut slopes above each portal will need to extend up to 15.3 meters (50 feet) high with landscaping and other soil erosion techniques used to protect the slope.

Tunnel excavation will result in substantial amounts of clean fill material that will need to be hauled from the site since there are no suitable disposal sites located nearby. The material could be sold or exchanged for the hauling expense. In addition, the material will come from the Ardath Shale formation which has been used extensively in San Diego to produce good quality masonry bricks, providing another possible means for disposal. Mitigation measures for groundwater impacts are discussed in Section 5.12.6.

Tunnel construction would comply with Cal OSHA gassy ground requirements. Although gassy ground is not anticipated, care will be taken to investigate the potential for encountering gas, especially in the Ardath shale, if this alignment becomes the Locally Preferred Alternative.
Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.12.7.5 HOV Lane Alternative

Impact

Impacts associated with this alternative, in addition to those discussed in the No-Build and TSM Alternatives, include the construction of additional pavement in the median of Interstate 5, widening into the west side slope between SR-52 and Mission Bay Drive and the exclusive drop-ramps for buses at the Pacific Coast Highway overcrossing. It is anticipated that the majority of the soil within the median of I-5 would consist of artificial fill soil. Deep alluvial soils are likely to be present at the new Pacific Coast Highway and Sorrento Valley overcrossings. Settlement of the underlying alluvial soil should be anticipated in areas where fill soil would be placed for the construction of drop-ramp embankments. The proximity of faults within or adjacent to the study area would impact this alternative as a potential safety hazard.

Caltrans District 11 staff completed an evaluation of the widening into the west side slope as part of the PSR prepared for the auxiliary lane between SR-52 and Mission Bay Drive. The geologic assessment included an analysis of the geotechnical feasibility of modifying the slope. Current height of the slope exceeds 31 meters (100 feet) at 2:1 or less slope ratios. Caltrans has recommended that two soil-nailed walls be constructed. One wall (46 meters/150 feet in length) would be needed to stabilize the slope for an outcropping along the southbound off-ramp to Mission Bay Drive. The other wall would be built about 1,566 meters (5,100 feet) north of the first wall and would be about 336 meters (1,100 feet) in length. An additional .01 hectare (0.02 acre) of right-of-way is needed for slopes beginning about 824 meters (2,700 feet) north of the Mission Bay Drive off-ramp gore point.

Impacts to side slopes are possible, leaving unstable conditions with rock falling and slides possible as construction would commence along the west side of I-5. Geologic conditions indicate soils are generally stable, exhibiting a complex lithology of mudstone, shale, sandstone and conglomerate. These soils lend themselves well to cut slopes and typically can be stabilized at 1:1 or up to 0.5:1 ratios. Because these soil conditions are relatively common and design and construction techniques are in place by Caltrans and are widely known, the geologic impacts are not considered significant.

Significance of Impacts

Potential significant adverse impacts could occur.

Mitigation Measures

Periodic soil sampling and laboratory testing would be required along the median of Interstate 5 to determine pavement support characteristics of the existing subgrade. This testing would be performed during the preliminary engineering phase and during construction. Construction of the I-5/I-805 HOV direct connector would require soil stabilization treatment due to potential liquefaction and settlement north of the junction. Exploratory borings would need to be excavated during the preliminary engineering phase at the proposed drop-ramp location. It is anticipated that pile foundations would be required for the support of the proposed bridges located at the new Pacific Coast Highway and Sorrento Valley overcrossings. Surcharging of deep alluvial soils may be required at proposed drop-ramp embankments to mitigate future settlement. In order to accelerate settlement, pre-manufactured strip drains may be installed within the alluvial soils prior to embankment construction. Bridges and abutments or drop lanes in the proximity of study area faults would need to be seismically designed using
appropriate site accelerations and locally adopted code and/or design criteria. Incorporation of these measures would reduce the potential adverse impacts to a level below significance.

Detailed soils investigations will be conducted for the retaining wall, soil-nailed wall and slope easements if this becomes the Locally Preferred Alternative.

Unmitigable Impact Remaining

No unmitigable impacts would remain.

5.12.7.6 LRT Alternative

South Segment

Impact

Construction impacts associated with the LRT Alternative for the South Segment, in addition to those discussed in the No-Build and TSM Alternatives, include the construction of new bridges across drainage and existing spur tracks and the proximity of the Rose Canyon Fault. In addition, minor impacts are associated with space limitations within the AT&SF right-of-way between Clairemont Drive and Balboa Avenue. It is anticipated that cuts would be required to be made into existing slopes in this area exposing Bay Point formational soils. Excavated slopes and fill slopes constructed of materials derived from the Bay Point Formation are highly susceptible to erosion and surficial slope instabilities. Additionally, grading along Rose Creek to widen the existing track bed may impact the channel side slopes and the creek itself. The proximity of faults within or adjacent to the study area would impact this alternative as a potential safety hazard.

Significance of Impact

Potential significant adverse impacts could occur.

Mitigation Measures

Exploratory borings would need to be excavated during the preliminary engineering phase at each of the bridge locations and where station improvements are planned. It is anticipated that pile foundations would be required to support new bridges in the vicinity of the San Diego River, Tecolote Creek, and Rose Canyon. Surcharging of deep alluvial soils may be required at proposed bridge embankments to mitigate future settlement. In order to accelerate settlement, pre-manufactured strip drains may be installed within the alluvial soils prior to embankment construction.

Bridges and abutments would need to be seismically designed for relatively high site accelerations due to the proximity of the Rose Canyon Fault. Slope protection measures such as drainage provisions and landscaping performed in conjunction with the placement of a slope protection geotextile would be anticipated for cut slopes that expose Bay Point formational soils. Minor amounts of remedial grading may be required in areas where artificial fill and/or alluvium is encountered. Potential impacts to Rose Creek due to grading to widen the track bed are addressed in the Water Resources Technical Report for this project. Bridges and abutments and other related LRT structures in the proximity of study area faults would need to be seismically designed using appropriate site accelerations and locally adopted code and/or design criteria. Incorporation of these measures would assist in reducing the potential impacts resulting from construction to a level below significance.
Unmitigable Impact Remaining

No unmitigable impacts would remain.

North Segment - LRT I-5 Alignment Option

Impact

Impacts associated with the LRT I-5 Alignment Option in the North Segment, in addition to those discussed in the No-Build and TSM Alternatives, include the construction of new bridges, raised track sections, and several relatively high retaining walls. Bridges and/or raised track in Rose Canyon and in other isolated areas throughout the segment may encounter deep alluvial and/or artificial fill soil. In addition, excavations on the mesa tops may also expose dense, cemented formational soils within the Lindavista Formation. Cut slopes within the Scripps and/or Ardath Shale Formations may expose weak claystones and/or bedding planes creating slope instabilities. The proximity of faults within or adjacent to the study area would impact this alternative as a potential safety hazard.

North Segment - LRT Genesee Alignment Option

Impact

Geotechnical impacts associated with the LRT Genesee Alignment Option in the North Segment, in addition to those discussed in the No-Build and TSM Alternatives, include primarily the construction of a tunnel under Genesee Avenue. The proposed tunnel would encounter varying degrees of cemented formational soils of Scripps and Ardath Shale Formations. In addition, excavations on the mesa tops may expose dense, cemented formational soils within the Lindavista Formation. Cut slopes within the Scripps and/or Ardath Shale Formations may expose weak claystones and/or bedding planes creating slope instabilities. Minor geotechnical impacts, settlement, etc., are associated with the placement of new track where artificial fill soil may be encountered. The proximity of faults within or adjacent to the study area would impact this alternative as a potential safety hazard.

Significance of Impact

Potential significant adverse impacts could occur.

Mitigation Measures

Exploratory borings would need to be excavated during the preliminary engineering phase at each of the bridge locations, periodically along proposed sections of raised track, at proposed tunnel locations, where station improvements are planned and where slope stability is questionable (including relatively large retaining walls). It is anticipated that pile foundations would be required to support new bridges and/or raised track in the vicinity of Rose Canyon. Surcharging of deep alluvial soils may be required at proposed bridge embankments to mitigate future settlement. In order to accelerate settlement, pre-manufactured strip drains may be installed within the alluvial soils prior to embankment construction. Bridges and abutments would need to be seismically designed for relatively high site accelerations due to the proximity of the Rose Canyon Fault. Construction schedules would accommodate difficult digging conditions for tunnels through formational soil and foundation excavations in the Lindavista Formation. Minor amounts of remedial grading may be required in areas where artificial fill and/or alluvium is encountered. Bridges and abutments and other related LRT structures in the proximity of study area faults would need to be seismically designed using appropriate site accelerations and locally adopted code and/or design criteria. Incorporation of these measures would assist in reducing the potential impacts resulting from construction to below a level of significance.
Unmitigable Impact Remaining

No unmitigable impacts would remain.

Cumulative Impacts

The San Diego region is forecast to grow at a rapid rate with or without an improved transportation system. Alternatives proposed within the Mid-Coast Corridor are proposed in relationship to the growth projected and are part of the necessary infrastructure to accommodate future growth. Cumulative impacts related to geotechnical conditions would be reduced below a level of significance through compliance with locally adopted seismic design codes and standards, and, implementation of the mitigation measures stated herein.

5.12.8 Construction Impacts: Utilities

The potential for significant adverse impacts to utilities exists throughout the Corridor. All utility work in the Corridor is expected to be well within expected norms for roadway construction projects. Utility relocation costs are covered by an allowance at this level of design. Utility work associated with the tunnel LRT station at the University Towne Centre (UTC) Mall is likely to be more intense and would involve consolidating, protecting, or relocating all utilities running through the alignment. By contrast, the Commuter Rail Tunnel Alternative will be a dual-bore deep tunnel which should not affect utilities within University City except possibly at the south portal where a sewer line may need to be relocated and at the UTC Station to adjust site utilities.

Significance of Impact

Possible significant adverse impact.

Mitigation Measures

The location of subsurface utility lines would be identified as part of preliminary engineering. Facilities conflicting with the alignments would either be relocated prior to construction or maintained and protected in place during construction. Discussions would be held with affected utility operators to determine specific measures to minimize disruptions and maintain system integrity. MTDB policy is to share utility relocation expenses, but in cases where facility improvements are involved, financing would be subject to negotiation.

Unmitigable Impact Remaining

No unmitigable impact would remain.

5.13 HAZARDOUS WASTES

This section presents a summary of the potential hazardous waste impacts associated with transportation improvement alternatives proposed for the Mid-Coast Corridor. Detailed technical information can be found in the Hazardous Materials, January 17, 1994, support technical report on file at MTDB’s offices. That report is hereby incorporated by reference into this AA/DEIS/DEIR.

An assessment of potentially significant impacts resulting from releases of hazardous materials and wastes within the Mid-Coast Corridor was conducted. The analysis entailed a regulatory agency data record search and site survey of facilities that use, generate, transport, or store hazardous materials and/or wastes within 0.8 kilometer (one-half mile) of the alternatives being studied. The survey included an assessment of potentially significant
hazardous waste impacts resulting from the disturbance, transport, emission, and disposal of hazardous materials and/or wastes during construction and maintenance and operation the proposed alternatives. Mitigation measures are described to reduce potentially significant impacts associated with the Mid-Coast Corridor alternatives to a level below significance.

Potentially significant impacts associated with the TSM, TSM/Commuter Rail, Commuter Rail Tunnel, HOV Lane, and LRT Alternatives, due to the presence or potential presence of hazardous materials and/or wastes, were identified and are generally categorized in the following four areas.

- Disposal of utility poles coated with creosote and PCBs;
- Past/future releases of oils/greases from AT&SF trains into surface soils;
- Removal of Underground Storage Tanks (USTs) and fuel lines at a service station at SR-56/Carmel Valley Road; and
- Possible encounter of hazardous wastes from sources not anticipated.

Significant adverse impacts associated with the proposed alternatives resulting from past releases of hazardous materials and wastes are not expected. The majority of the facilities with identified releases have been mitigated through the removal of contaminated soils at their sources. Twenty two (22) sites were identified in the Mid-Coast Corridor. In the south segment, 19 sites experienced releases of hazardous materials and/or wastes, primarily from underground storage tanks (UST’s). Twelve sites were mitigated and are considered No Further Action (NFA). Seven sites are unresolved (UNR) and are being investigated by property owners as of July 1992 (no new information is available). In the center segment, two sites with UST leaks were identified at UCSD Scripps Benthic Lab and UCSD Mayer Hall. Impacts for these sites were classified as no impact. In the north segment, one site was identified and is UNR. The distance of these sites from Mid-Coast project alignments is considerable and no impacts are expected. Detailed information and locations of these sites can be found in the technical report and its appendices. Reference is made here and not included within the document because impacts are unlikely. With the implementation of appropriate mitigation measures, impacts due to unanticipated discoveries of hazardous wastes during construction activities would be less than significant. Impacts and mitigation are summarized below.

5.13.1 TSM, TSM/Commuter Rail, Commuter Rail Tunnel, and HOV Lane Alternatives

Impact

The TSM, TSM/Commuter Rail, Commuter Rail Tunnel, and HOV Lane Alternatives would have no significant direct or indirect adverse impacts on hazardous wastes within the Mid-Coast Corridor. Impacts as a result of the Chevron Station located at the Carmel Valley Road/I-5 interchange are the responsibility of Caltrans. Removal of the gas station took place as part of the SR-56 project. This area is in the vicinity of the Carmel Valley Park and Ride (Figure 2-11). There is a possibility that median soil removal may contain high percentages of heavy metals.

Significance of Impact

No significant adverse impact would result.

Mitigation Measures

If unanticipated sources of hazardous materials and/or wastes are encountered during construction activities, the following mitigation would be implemented:

- Notify San Diego Hazardous Materials Management Division (HMMD) and/or the San Diego Fire Department within 24 hours;
• Prepare a Work Plan and a Health and Safety Plan to characterize encountered contamination. Appropriate health and safety precautions as specified by Title 8 California Code of Regulations (Section 5194) of California Occupational Safety and Health (Cal/OSHA) must be followed;

• Implement Work Plan and Health & Safety Plan; and

• Properly identify and off haul any contaminated soils and/or groundwater encountered.

Unmitigable Impacts Remaining

No unmitigable impacts would remain.

5.13.2 LRT Alternative

Impact

The LRT Alternative within the south segment would have no significant direct or indirect adverse impacts due to hazardous wastes. Minor impacts may result due to the presence within the AT&SF Railroad right-of-way of utility poles that may contain creosote and PCB-containing "tacky" oils. Although not expected, minor impacts may also result if unanticipated sources of hazardous wastes are encountered during construction.

Significance of Impacts

No significant adverse impact would result.

Mitigation Measures

Appropriate mitigation for PCBs- and creosote-containing wastes would include handling of the utility poles with appropriate protective gloves and coveralls and appropriate off-haul to a hazardous waste disposal facility by a licensed waste off-hauler. If the poles are relocated rather than replaced, they may not be considered as hazardous waste, and therefore not be required to be disposed.

Analysis of the "tacky" oil on the utility poles would be performed to determine whether PCBs and metals are present and at what concentration. According to the California Department of Health Services (DHS) Guidelines (April 1991) for PCB handling, treatment and disposal, the utility poles may be a hazardous waste if a PCB concentration of 50 mg/kg, or greater, is present. As a hazardous waste, the poles would be subject to the Land Disposal Restrictions (LDRs) which require that the poles either be disposed of as hazardous waste at a disposal facility such as Kettleman Hills Landfill in Kettleman City, California, or incinerated at an approved facility outside California. LDRs may also apply to the utility poles and any wood debris containing creosote. (The concentration at which creosote is considered a hazardous waste is not developed yet.) LDRs for PCBs and creosote are subject to take effect in May 1992.

If unanticipated sources of hazardous materials and/or wastes are encountered during construction activities the following mitigation are proposed:

• Notify San Diego HMMD and/or the San Diego Fire Department within 24 hours;

• Prepare a Work Plan and a Health and Safety Plan to characterize encountered contamination. Appropriate health and safety precautions as specified by Title 8 California Code of Regulations (Section 5194) of California Occupational Safety and Health (Cal/OSHA) must be followed;
• Implement Work Plan and Health & Safety Plan; and
• Properly characterize and off haul any contaminated soils and/or groundwater encountered.

**Unmitigable Impacts Remaining**

No unmitigable impacts would remain.

5.13.3 Cumulative Impacts

Cumulative hazardous waste impacts associated with the Mid-Coast Corridor alternatives are discussed below.

5.13.3.1 TSM, TSM/Commuter Rail, Commuter Rail Tunnel and HOV Lane Alternatives

The TSM, both TSM/Commuter Rail, and HOV Lane Alternatives would have no significant adverse cumulative impacts to hazardous wastes within the Mid-Coast Corridor.

5.13.3.2 LRT Alternative

Cumulative hazardous waste impacts could result from the LRT Alternative due to the presence of utility poles within the AT&SF right-of-way. As previously addressed, these utility poles may have been treated with creosote and a PCB, containing “tacky” oil. Minor cumulative impacts may result due to the relocation of the utility poles and the respective power lines and transformers. These impacts are not considered significant. Mitigation measures for handling the utility poles are discussed above.

5.14 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USE OF RESOURCES AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Interstates 5, 8 and 805, and SR-52 are major traffic routes within the Mid-Coast Corridor providing access throughout the San Diego region. The lack of available traffic carrying capacity and the increase in population and job growth in the Mid-Coast Corridor and the San Diego region would generate future transportation demands that cannot be met by the existing highway and transit systems. To provide acceptable levels of mobility in the long-term, additional transit improvements are required. The TSM, TSM/Commuter Rail, Commuter Rail Tunnel, HOV Lane, and LRT Alternatives would help to reduce traffic congestion within the Mid-Coast Corridor. Any transit improvement would reduce vehicle miles traveled within the Corridor and throughout the region. In addition, implementation of a transit improvement alternative would assist in increasing the long-term economic productivity of the area in terms of providing greater access between employment centers, residential areas, educational centers, and downtown San Diego. The TSM Alternative would intensify the current short-term use of existing facilities, while the HOV Lane and LRT Alternatives provide long-term solutions for the future of the region. Both TSM/Commuter Rail Alternatives fall in between by somewhat intensifying short-term use of existing facilities; however these alternatives also provide long-term solutions but to a lesser degree than the LRT Alternatives.

5.15 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The alternatives analyzed require an irretrievable commitment of energy resources. Construction and operational activities would consume petroleum fuels, natural gases, and electricity. The LRT Alternative would reduce net fuel consumption in the Mid-Coast corridor by diverting automobile trips to transit trips. The TSM, TSM/Commuter Rail,
Commuter Rail Tunnel, HOV Lane, and LRT Alternatives all represent, in most cases, an irretrievable commitment of construction materials, funding, and human resources. Construction materials (such as steel, cement, lumber, and fabricated materials) once used cannot be retrieved. Financial resources committed to the proposed alternatives cannot be recovered. Human resources expended to design, construct, and operate the alternative transit systems are not recoverable. An irreversible commitment of land resources would occur because land, except in the case of joint development used for the selected alternative would then be unavailable for other uses such as parks, housing, or commercial development.

5.16 GROWTH INDUCING IMPACTS

The County of San Diego region has experienced ongoing population and economic growth for most of this century and growth is expected to continue. Between 1985 and 1995, the population in San Diego County would increase by 21 percent (448,900), and employment increased by 25 percent (227,000). Projections indicate that by 2005, the region would increase by 22 percent (569,300) while employment is projected to increase by 29 percent (326,900). By 2005, over 3 million people are expected to live in San Diego County. Growth trends of key population, housing, and employment indices for the most part are based on SANDAG Series 7 Regional Growth forecasts with some references to 1990 census data as appropriate. These forecasts were the most recent approved forecasts for the San Diego County area at the time of the development of this document and also serve as base inputs to the travel demand modeling efforts. The SANDAG Series 7 forecast is in the process of being revised and updated and will be published as the Series 8 demographic forecast when formally approved by SANDAG.

Section 15126(g) of the CEQA Guidelines defines growth inducement as "ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment." This section of the CEQA Guidelines also includes the removal of obstacles of growth as a source of growth inducement. In the past, major transit improvement projects have been found to influence regional development patterns, provide joint development opportunities, and affect public and private development programs as well as the regional economy and employment. However, as can be seen by the information presented in this DEIS/DEIR, the project area is an infill area, already planned for development, and projected to grow considerably over the next 20 years (especially the northern portion of the study area). A major transit improvement through the Mid-Coast Corridor has been planned as part of this growth in all of the major planning documents for the project area.

Because development of the Mid-Coast Corridor has been extensively planned with the idea of a major transit improvement, the alternatives considered as part of the Mid-Coast Corridor Study are not considered to be a driving force behind the development of the Corridor, i.e., any of the alternatives being considered would not "induce" the growth projected to occur in the Mid-Coast Corridor. There may be a readjustment in growth because of the increased access but it is not expected to be significant because of the limited amount of land available for development. No new housing, commercial or industrial developments are tied to the proposed alternatives although there is potential for joint development. The planned growth is expected to occur based on market demand over time regardless of whether or not these proposed alternatives are implemented. Therefore, no significant growth inducement would occur as a result of the implementation of any alternative under consideration.