Environmental Analysis Summary

The San Francisco Bay Area Rapid Transit District (BART) is conducting the Seismic Retrofit of Aerial Structures and Stations along the Concord, Richmond, Daly City and Fremont Lines Project (Proposed Project). (See Figure 1.) The Proposed Project will be implemented as part of the overall BART Earthquake Safety Program. The objective of the program and the Proposed Project is to strengthen the original BART system operating facilities to protect passengers and preserve the BART system during a major earthquake. Construction of the original BART system concluded in 1972. BART system extensions built since the 1989 Loma Prieta earthquake employed more stringent and up-to-date seismic criteria and do not require upgrades.

The Proposed Project is subject to the National Environmental Policy Act (NEPA), due to the use of federal funds for some project components. The Federal Highway Administration (FHWA), as federal lead agency, has determined that the project potentially may qualify to proceed under a Categorical Exclusion (CE) from NEPA. At FHWA's request, for purposes of making a final CE determination, BART is preparing a series of environmental technical study reports. The preliminary results of those studies, which have not yet been finalized, are summarized in this document. Based on the final results of the technical studies, FHWA will determine whether a CE is appropriate for the Proposed Project.

The Proposed Project is exempt by statute from the California Environmental Quality Act (CEQA).

Figure 1—BART System Map

Project Description

The Proposed Project will seismically retrofit BART aerial structures and stations along approximately 21 miles of the BART system (see Figure 2). Portions of the BART aerial structures, including overcrossings of roadways, along the Concord, Richmond, Daly City and Fremont BART lines will be improved under the Proposed Project.

The seismic retrofits will typically consist of:

- Expanding the footings on which the piers are placed by adding concrete or strong fiber matting, and in some locations:
- Strengthening the concrete piers (columns) which support the BART aerial structures (guideways on which the BART tracks are fixed) by encasing the piers with a strong fiber wrapping or a steel jacket;
- In some locations, reinforcing the below-ground column foundations by installing additional piles;
- Strengthening the connection of the piers to the BART aerial guideways by installing seat extenders or shear keys, both of which are devices which allow the entire structure to move without the pier separating from the aerial guideways; and/or
- Installing frames or shear walls with openings between two-column bents at stations to control their movement in a seismic event.

The proposed retrofit improvements are illustrated in Figure 3 through Figure 5.

Electrical power substations and gap breaker stations are dispersed throughout the BART alignment. Substations provide power to BART trains and gap breaker stations segment the electrical power distribution so that portions of the BART alignment can be taken off-line for maintenance and repair. Some substations and gap breaker stations sit above aerial structure foundations and may need to be temporarily or permanently relocated to complete seismic retrofit improvements. Relocation of these facilities will be done as part of the Proposed Project. All relocated substations and gap breaker stations will remain within BART right-of-way and within the limits studied for the Proposed Project.

Summary of Draft Environmental Technical Studies

Environmental technical studies are being prepared to document the potential for the Proposed Project to have impacts to the physical, natural and socio-economic environment. The following studies are being prepared using Caltrans and FHWA guidance:

- Noise and Vibration Technical Report
- Initial Site Assessment and Preliminary Site Investigation (hazardous material-contaminated soil)
- Location Hydraulic Study (floodplains)
- Natural Environment Study and Biological Assessment
- Right-of-Way Impacts Assessment
- Recreation Impacts Summary and Section 4(f) Evaluation

Figure 2—Proposed Project Limits

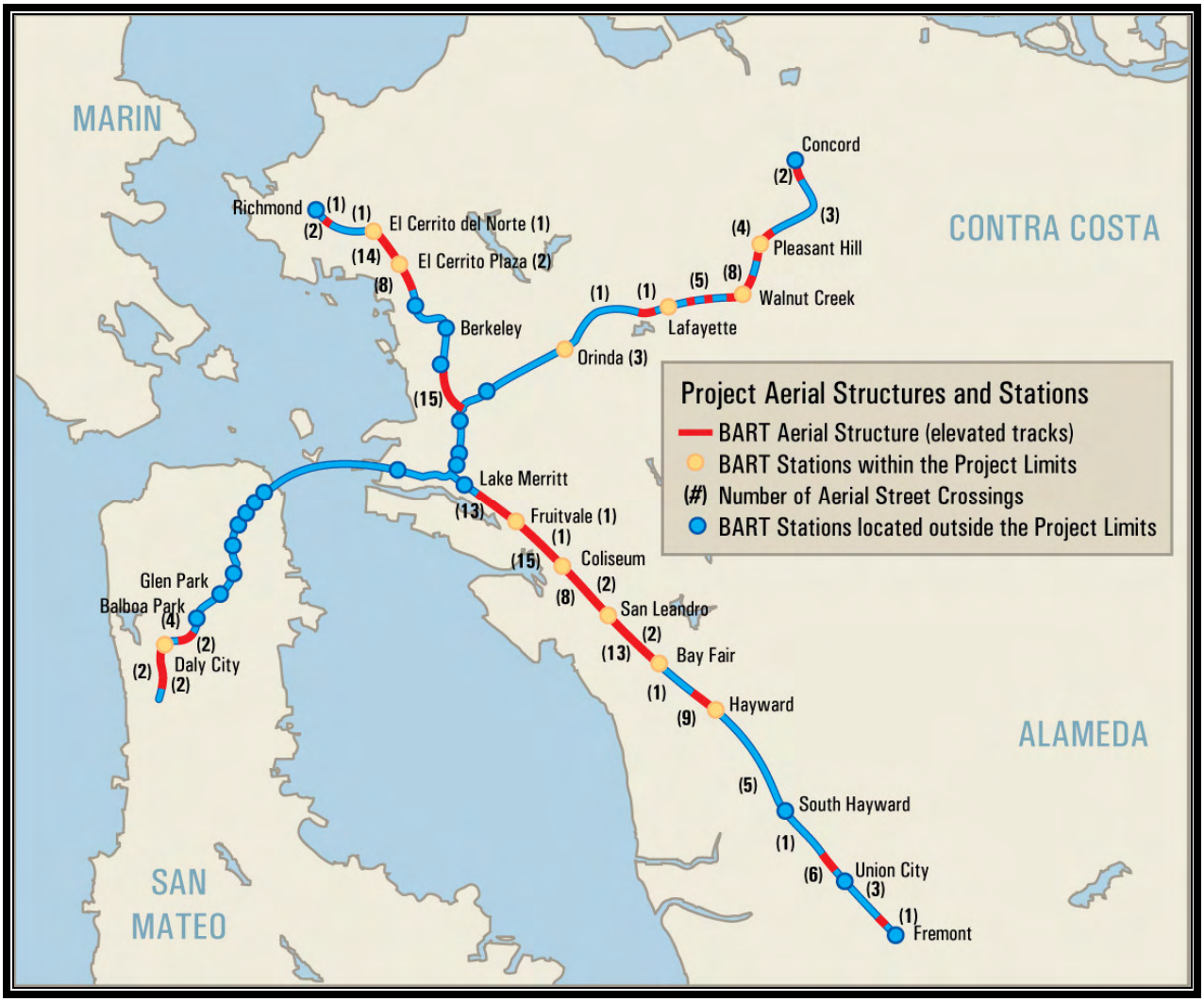


Figure 3—Typical Retrofit Activities

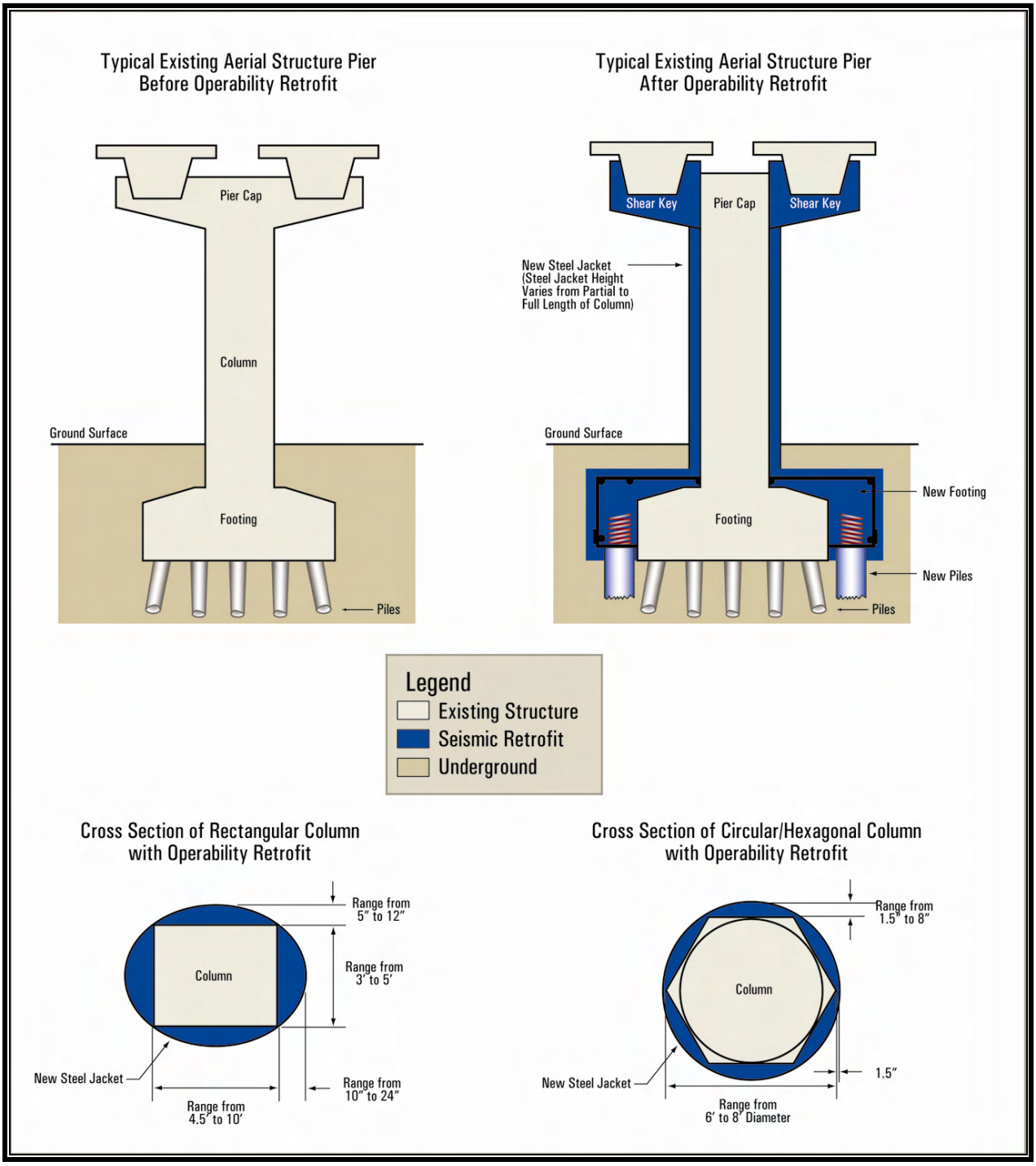


Figure 4—Typical Seat Extender

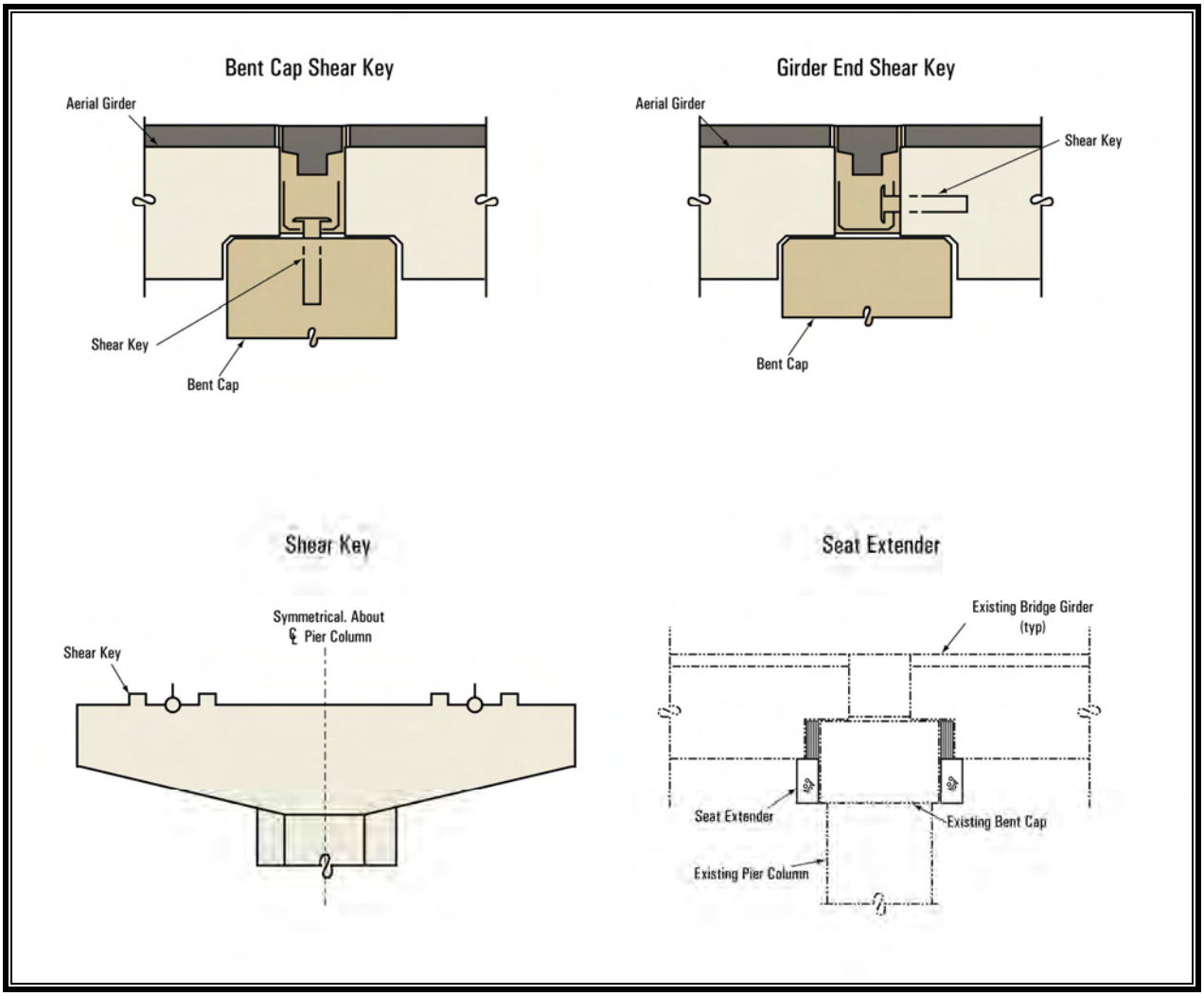
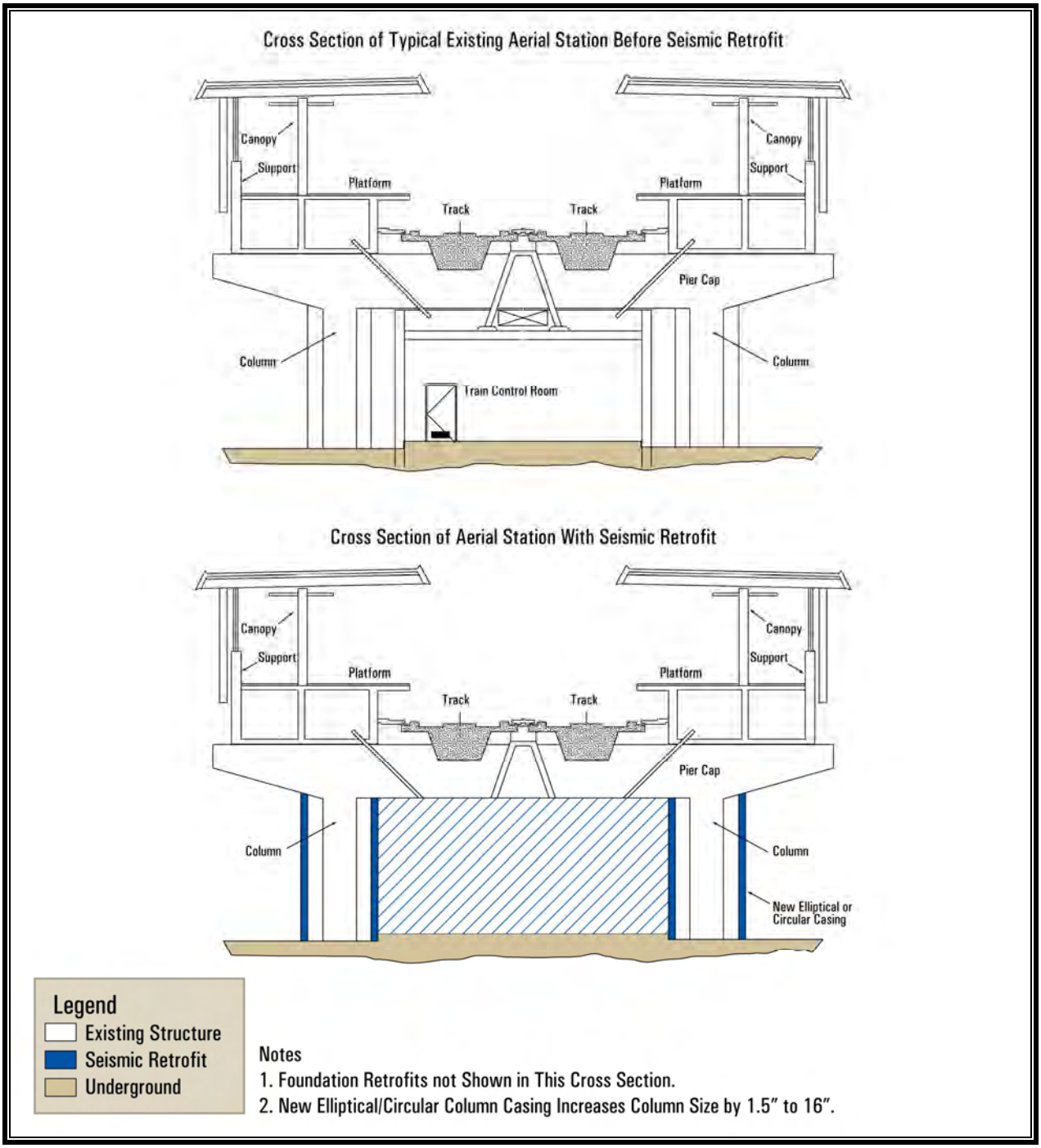


Figure 5—Station Retrofits



- Traffic and Parking Impacts Study
- Visual Impacts Study
- Historic Property Survey Report (archaeology and historic structures)

These studies have not yet been finalized, however, preliminary results are reported below.

Noise and Vibration

The potential for construction period noise impacts to result from Proposed Project construction activities will be documented in a Noise and Vibration Impact Assessment report. Preliminary results indicate that approximately 1,500 noise sensitive receptors are present along the alignments (primarily single-family and multiple-family residential units) within the Proposed Project area. Field surveys were conducted of the entire Proposed Project area to document locations of noise sensitive receptors. In addition, ambient noise conditions were monitored and documented at 20 locations within the Proposed Project limits to characterize the existing noise environment.

To avoid impacts to these receptors, BART will require contractors to implement construction period noise impact abatement measures. No long-term, permanent noise impacts will occur as a result of the Proposed Project.

The potential for vibration impacts from Proposed Project construction activities are also being evaluated. Based on the anticipated types of construction methods required for the seismic retrofit improvements and the durations of construction, no vibration impacts are expected to be caused by the Proposed Project.

Hazardous Materials

A survey to identify potential hazardous materials and wastes was conducted within and adjacent to the Proposed Project limits. An inventory of potential hazardous materials sites was identified in an Initial Site Assessment (ISA). Based on the conclusions on the ISA, a Preliminary Site Investigation (PSI) report is being prepared to soil and groundwater quality at 171 locations within the Proposed Project limits. The PSI will document further actions needed to manage excavated materials, ensure worker health and safety, and avoid impacts to BART employees, BART patrons, and adjacent communities. These actions will include adherence to standard provisions included by BART in construction contracts to minimize potential hazardous materials impacts during construction activities.

Location Hydraulics Study Report

The Location Hydraulic Study will summarize the Proposed Project's impacts on natural and beneficial floodplain values and measures to minimize floodplain impacts and restore and preserve the natural and beneficial floodplain values. The 100-year floodplains located within the limits of the Proposed Project were identified and impacts were assessed based on Caltrans and FHWA guidelines. Preliminary results indicate that only minor and temporary impacts will occur in the Federal Emergency Management Agency (FEMA) base floodplains and adjacent to these floodplains, and there will be no permanent or long-term impacts.

Natural Environment Study Report and Biological Assessment

A Natural Environment Study Report (NES) is being prepared to assess the potential impacts of the Proposed Project on biological resources. A Biological Assessment (BA) for the Proposed Project pursuant to Section 7 of the Endangered Species Act and a Wetland Delineation are being prepared pursuant to the requirements of Section 404 of the Clean Water Act and will be included as appendices to the NES.

Preliminary results indicate that, within the study area, biological resources are limited to three isolated wetlands, a number of drainages and small creek channels, some of which support riparian habitat, open water and fisheries habitat in Alameda Creek, and potential avian nesting habitat. The U.S Army Corps of Engineers (ACOE) conducted a field visit on April 22, 2007 and determined that only on e wetland are within the project area is subject to ACOE jurisdiction. That wetland would not be affected by the project. The study area was evaluated for the potential to support species, which are afforded protection under the State or Federal Endangered Species Acts, including California steelhead, California tiger salamander, Alameda whip snake, California red-legged frog, Congdon's spikeweed, and western leatherwood.

Preliminary results of the NES indicate that the Proposed Project's effects to the natural environment and biological resources in the study area would be limited to temporary construction-related disturbance to vegetation, riparian habitats, avian nesting habitats, and locally occurring wildlife. Effects to these resources will be avoided by either scheduling construction to occur when the species in question is not present, fencing the resources to prevent intrusion by construction equipment or personnel, and restoration or enhancement of riparian habitat or trees that cannot be avoided. With implementation of the avoidance and minimization measures specified in the NES, the Proposed Project would have the potential to temporarily affect but is not likely to adversely affect biological resources in the study area.

Habitat Assessments are being prepared as part of the BA for two species, California tiger salamander and California red-legged frog. Preliminary results indicate that there is no suitable habitat for these species in the project area and that the Proposed Project would have no effect on these species.

Right-of-Way Impacts Report

A Right-of-Way (ROW) Impact Assessment Technical Study report is being prepared to document what adverse effects (if any) the Proposed Project would have on properties adjacent to project construction. The Proposed Project is not expected to cause any permanent property impacts, but may create short-term effects during construction through inconveniences caused by temporary loss of property use, alternate access, and roadway detours required to accommodate the temporary construction. No permanent residential or non-residential displacements would result from the Proposed Project.

Recreational Facilities Impact Assessment and Section 4(f) Evaluation

A field survey of the project alignment was conducted and a Programmatic Section 4(f) Evaluation is being prepared combined with the Recreational Facilities Impact Summary, which documents the proposed retrofit activities at each park site. Recreational facilities within the Proposed Project limits are listed in Table 1.

Table 1—Recreational Facilities Within the Proposed Project Limits

Resource	BART Line where Facility is Located	Type of Temporary Impact
Concord Skate Park	Concord Line	Closure of portion of seating/viewing area
Informal trail near Concord Skate Park	Concord Line	Pathway detour
Concord Landscape path	Concord Line	Pathway detour
Walnut Creek Bikeway	Concord Line	Bikeway detour
Iron Horse Regional Trail	Concord Line	Trail detour
Walter Costa Trail	Concord Line	Trail detour
Las Trampas-Briones Regional Trail	Concord Line	Trail to remain open and fenced from construction
Kennedy Park	Fremont Line	Closure of one or more picnic tables and a horseshoe pit
Alameda Creek Trail	Fremont Line	Construction vehicles intermittently crossing path. Narrowing of path under bridge on both sides of river.
Cayuga Park	Fremont Line	Closure of play area and portion of ball field Removal of vegetation for construction access
Ohlone Greenway	Richmond Line	Detour of portions of greenway including trail and recreational facilities

Source: Section 4(f) Evaluation, 2007

The preliminary Recreational Facilities Impact Assessment and Section 4(f) Evaluation describes the potential impact at each of these recreation sites and identifies measures to minimize disruption of recreational activities. Detours have been identified for affected trails and pathways and fencing to separate construction activities from surrounding recreational facilities will be provided at park sites.

Traffic and Parking Impacts Study

A Traffic Technical Study report is being prepared to analyze Proposed Project related traffic impacts. The proposed project will not result in long-term changes to traffic; therefore the traffic analysis considered construction period impacts that could result from lane closures or traffic detours required for construction workers, vehicles and equipment to access the aerial structures and stations during seismic retrofit construction.

The construction period traffic analysis assumed a worst-case construction scenario for morning and evening peak periods in which the entire length of a BART line (e.g., Fremont Line or Concord Line) would be under construction and all lane closures and traffic detours along the entire length of the line would be underway simultaneously. However, it is anticipated that contractors will work on discrete sections of each line thereby avoiding extensive lane closures and detours.

Intersection level of service was evaluated at 110 intersections, including six under Caltrans jurisdiction. The study intersections were selected because they are most likely to be affected by project construction activities. The preliminary results of the analysis indicate that the proposed project construction could have construction period traffic impacts at six of the 110 intersections (see Table 2).

Table 2: Intersection Level of Service (LOS) Summary

BART Line	City	Intersection	Existing LOS	Predicted LOS with Proposed Project
Morning Peak Period				
Concord	Walnut Creek	N. California Blvd. & N. Main/Pine St.	A	F
Richmond	Oakland	MLK Blvd. & SR-24 on-ramp	C	F
Fremont	Oakland	E. 12th St. & 25th Ave.	E	F
		E. 12th St. & 21st Ave.	D	E
Evening Peak Period				
Concord	Walnut Creek	N. California Blvd. & N. Mail/Pine St.	C	F
Richmond	Oakland	MLK Blvd. & SR-24 on-ramp	B	F
Fremont	Oakland	San Leandro Blvd. & Marina Blvd.	C	E
		E. 12th St. & 23rd Ave.	B	E

Source: Traffic Technical Study, 2007

At these six locations, additional traffic control measures beyond those typically used by contractors would be required. These additional measures could include the use of manual traffic control (flaggers), detouring of traffic, adjusting construction period work hours, and isolating the seismic retrofit construction at specific piers so that upstream and downstream intersections are not affected by re-routed traffic. BART and its contractors will implement these measures as appropriate at these six locations.

In addition to the 110 intersections, 42 roadway segment crossings were studied to determine if the Proposed Project would reduce roadway capacity or create temporary traffic operational impacts. The preliminary results of the analysis indicate that Project impacts could be mitigated to at least maintain service levels.

The traffic analysis also considered the potential for construction impacts to affect transit, pedestrian/non-motorized traffic and parking. The preliminary results of the analysis indicate that although there would be temporary impacts to bus transit routes along the Proposed Project alignment, signage could be used to direct patrons to temporarily relocated stop locations. BART and its contractors will provide signage and will notify transit operators in advance of necessary temporary relocations.

BART and its contractors will avoid pedestrian/non-motorized facility impacts by providing temporary detour routes and signage to identify the temporary detours.

Temporary restriction or removal of on-site parking within BART station parking lots and on-street parking along the alignment will be required. To avoid parking impacts, BART and its contractors will relocate parking to alternate sites or parking facilities in surrounding areas as needed. Construction period parking management will be coordinated through the development of a construction traffic management plan which BART will prepare prior to project construction.

Visual Impacts Assessment

A visual impact assessment is being prepared to determine if visual impacts would result from the Proposed Project. Preliminary results of the study indicate that permanent visual impacts would not occur because of the minor visual changes from installing column jackets, pier keys or other above-ground seismic safety improvements. Some visual changes would result from the loss of vegetation and trees during construction and through the growing period until replacement vegetation reaches mature size. Approximately 150 trees will be removed and 50 trees will be trimmed to allow for construction access and activities. The project includes measures to ensure adequate restoration to pre-project conditions, including clean-up, re-grading, and re-vegetation. BART will coordinate replacement tree planting with local agencies.

For aerial stations, shear walls with openings or moment frame improvements would be used in locations where shear walls would otherwise block existing views outward from the stations.

The Proposed Project does not include the addition of lighting or other features that would increase sources of light and/or glare. However, should conditions arise where artificial lighting is necessary, such as to avoid rush hour lane closures or other special construction purposes, lighting would be directed inward toward the construction site to minimize glare or lighting that could affect nearby residences or motorists traveling on adjacent roadways.

Finally, no public art would be permanently impacted by the Proposed Project, but public art at Cayuga Park will require temporary relocation during construction and murals at two roadway undercrossings in the Richmond would be protected during construction and BART would assist the City in restoration of the murals should damage result from the earthquake safety improvements.

Historic Properties Survey Report

A cultural resources investigation is being prepared to determine if archaeological or historical resources would be affected by the Proposed Project. The cultural resources technical analysis documents the historical context for the purposes of identification and evaluation of cultural resources within the Area of Potential Effect (APE) based on the results of research on pre-historic and historic resources in the area, consultation with the Native American Heritage Commission and with local groups interested in the history and preservation of the area included in the APE, and archaeological and architectural field surveys.

An APE was established for the project which generally follows the existing BART right-of-way line or the proposed construction limits, whichever is wider. Preliminary results indicate that no archaeological resources listed or eligible for listing on the National Register of Historic Places are identified within the APE. One historic structure, an earthquake cottage located at 16 DeLong Street in San Francisco, adjacent to the Daly City BART line, was identified within the APE. No impacts to cultural resources are expected to result from the Proposed Project.