

Chapter 5

Other NEPA Considerations

5.1 Introduction

This chapter presents the cumulative and indirect impacts of the WSX Alternative and WSX Alternative with optional Irvington Station. Additionally, the required federal permits for the WSX Alternative are summarized and the relationship between the short-term uses of the environment and long-term productivity is discussed. Finally, the irreversible or irretrievable commitment of resources is described.

5.2 Cumulative Effects

The implementing regulations for NEPA, which are provided in the CEQ Regulations (40 CFR Sections 1500–1508) define *cumulative effects* as the combined effects of independent projects and the proposed action on the environment. Cumulative effects refer to those effects

...that result from the incremental impact of a proposed action when added to other past, present and reasonably foreseeable future actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. (40 CFR 1508.7)

5.2.1 Approach

There are two approaches to identifying related past, present, and future actions and their impacts: the “list” approach, where actions are identified on an individual basis, and the “projection” approach, where the analysis of cumulative impacts is based on a summary of projections in an adopted general plan or related planning document. In this EIS, both approaches have been used. Projections resulting from transportation modeling have been incorporated into the analysis of cumulative impacts for the transportation, air quality, and energy resource areas. For all other resource areas, the list approach has been used.

Table 5-1 on the following page identifies a list of approved, pending, and reasonably foreseeable potential developments within the City of Fremont that were included in this cumulative analysis. These projects were identified in consultation with city staff. The table also includes other reasonably foreseeable projects in the project area. For purposes of the cumulative analysis, the city’s grade separations project is also assumed. Figure 5-1 shows the location of the projects considered for purposes of cumulative impacts analysis.

The methodologies for analyzing cumulative impacts are discussed below under the separate resources sections.

5.2.2 Silicon Valley Rapid Transit Corridor Project

The cumulative analysis also includes the Silicon Valley Rapid Transit Corridor (SVRTC) project, which would extend BART service from BART's proposed future terminus at Warm Springs through Milpitas, downtown San Jose and Santa Clara in Santa Clara County. The Santa Clara Valley Transportation Authority (VTA) has prepared a draft EIS/EIR to comply with NEPA and CEQA for the SVRTC project. FTA is the lead agency under NEPA, and VTA is the lead agency under CEQA. The VTA Board of Directors certified the Final EIR on December 9, 2004. VTA intends to prepare a Supplemental EIR and a revised Draft EIS on a modified SVRTC project. FTA has indicated that a Record of Decision (ROD) by FTA on the WSX project will need to precede a ROD on the SVRTC project.

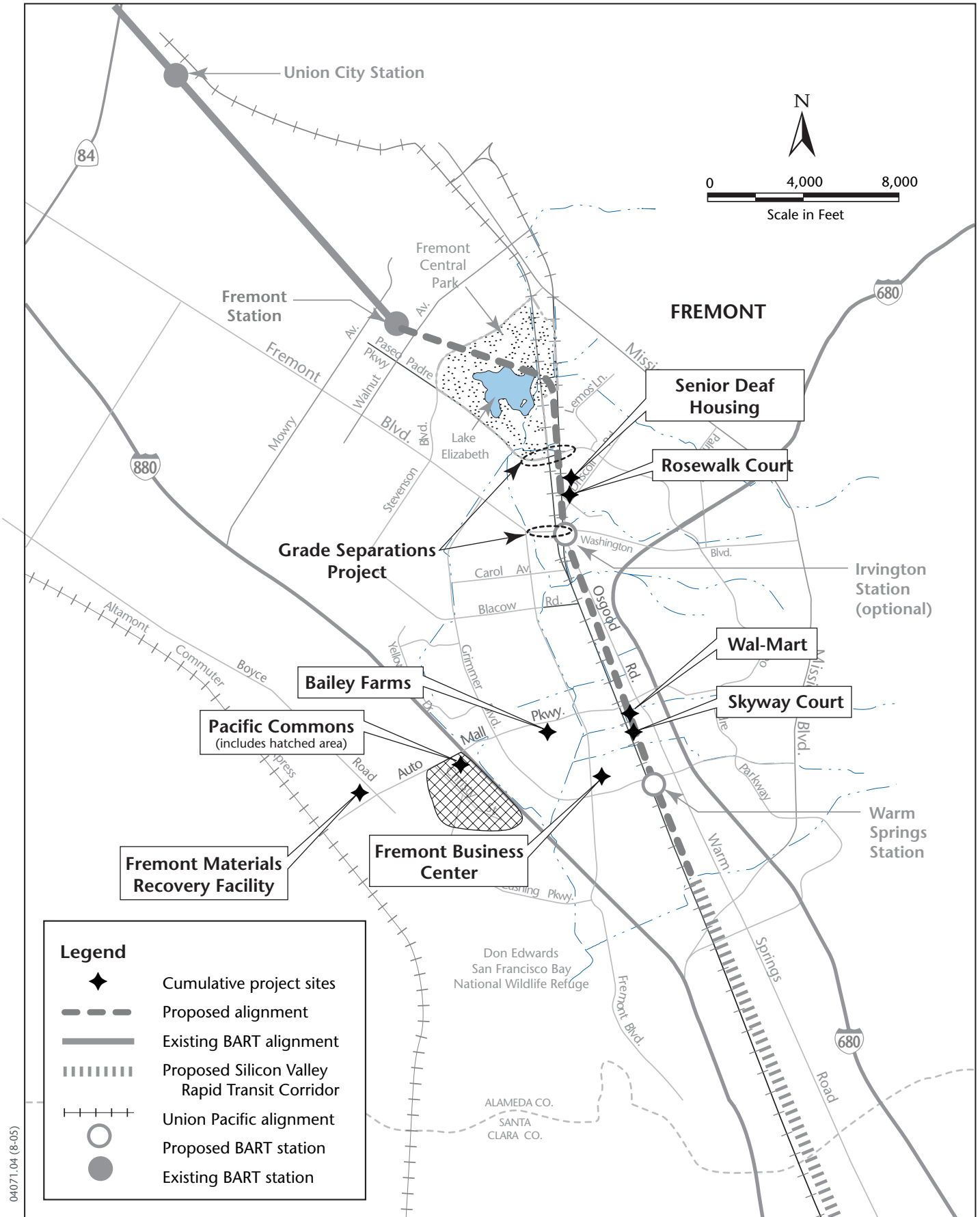
The SVRTC project is intended to address the growing need for transit to serve residents of the East Bay and beyond who work in Santa Clara County and Santa Clara County residents that work in the East Bay. Residential development in the East Bay coupled with significant job growth in the corridor cities has led to very high and increasing levels of traffic congestion on area freeways and roads.

In November 2001, VTA completed a Major Investment Study (MIS) that identified the BART Extension project as the Preferred Investment Strategy for the proposed SVRTC. The Preferred Investment Strategy consists of an approximate 16.3-mile extension of the BART system. The extension would begin at the proposed Warm Springs Station, extend along the Union Pacific Railroad line through Milpitas and continue to near 28th and East Santa Clara streets in San Jose. From there, BART would leave the railroad right-of-way, tunneling under downtown San Jose to the Diridon Caltrain Station. The proposed BART Extension would then turn north under the Caltrain line and terminate at grade in the City of Santa Clara near the Caltrain Station. The proposed BART Extension would include seven new stations in Santa Clara County: Montague/Capitol, Berryessa, Alum Rock, Civic Plaza/San Jose State University, Market Street, Diridon/Arena, and Santa Clara. The proposed extension would also include a future South Calaveras Station at Calaveras Boulevard. The SVRTC Final EIR provides a more precise description of station locations and alignment options.

The SVRTC Supplemental EIR/Revised Draft EIS will also include an evaluation of the "New Starts Candidate Project." In order to improve the competitiveness of the SVRTC project in the New Starts process, VTA and the FTA agreed to analyze a segment of the SVRTC project with independent utility. This portion of the SVRTC project is from Warm Springs to Berryessa.

It should be noted that while VTA's funding approach is segmented, the project is not. VTA will be environmentally evaluating and constructing the entire 16.3-mile extension in one phase. Federal funds would support the portion of the project from Warm Springs to Berryessa, and state and local funding only would support the remainder of the extension from Berryessa to Santa Clara.

Generally, as provided in the CEQ NEPA regulations, when two actions are "connected" their environmental impacts should be evaluated together for NEPA purposes (40 C.F.R. section 1508.25(a)). Since the SVRTC alignment would commence at the end of the WSX Alternative alignment, the SVRTC project could not commence operation unless the WSX Alternative is



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Source: City of Fremont 2002; Jones & Stokes 2002.

Figure 5-1
Cumulative Projects

constructed and operating. However, the courts have recognized that linked regional transportation improvements are commonly carried out incrementally in a series of projects or phases, implemented in some cases by different agencies, rather than all at once. An individual transportation project may be separately reviewed under NEPA if it has “independent utility” (i.e., the project does not depend on connection to another project for its justification and need) and “logical termini” (i.e., termini at locations where there is access to the project, not isolated locations that only make sense when connected to the other project). However, a single project may not be improperly separated into phases or segments (referred to in NEPA cases as “segmentation”) with the intention of avoiding a full analysis of environmental impacts.

The WSX Alternative has independent utility and would effectively achieve its purpose and need as a stand-alone project. As the ridership, air quality, and energy analyses demonstrate (see Sections 4.2, *Transportation*, 4.14, *Air Quality*, and 4.15, *Energy*), the WSX alternative by itself would alleviate traffic congestion, improve air quality, and reduce energy consumption. Moreover, as discussed in Sections 4.8, *Land Use and Planning*, and 5.3, *Indirect Effects*, the WSX would independently generate opportunities for transit-oriented development and accommodate planned growth in a “smart growth” manner, in the vicinity of the Warm Springs and optional Irvington stations. The WSX Alternative could be constructed and operated to realize these benefits regardless of whether the SVRTC project were ever built. While completion of the SVRTC project would provide a further enhancement of those benefits, as demonstrated in the cumulative analysis presented below, the SVRTC Project is not necessary to achieve the benefits identified in Sections 4.2, 4.8, 4.14, 4.15 and 5.3. Accordingly, the WSX Alternative does not depend on combination with the SVRTC for its justification.

The WSX Alternative also has logical termini. The terminus at Fremont connects the project to the existing BART system, while the ridership and access analyses presented in Section 4.2, *Transportation*, justify the location of the other terminus at Warm Springs. Moreover, in 1988, long before the SVRTC project was contemplated, BART was directed by the California legislature to construct an extension with a terminus at Warm Springs; Pub. Util. Code 29034.7 provides that BART shall “proceed to commence construction of an extension of its facilities to Warm Springs,” subject to “appropriate federal and environmental approvals” and “to the extent that available funding permits.” In response to that directive, the BART Board adopted the original WSX project in 1992. The WSX Alternative presented in the 2003 SEIR and in this EIS is a revised and modified version of the 1992 Adopted Project, the principal modification being the shift to a subway under Fremont Central Park to avoid the adverse impacts of a conspicuous aerial alignment which was opposed by the City of Fremont and the local community. Nevertheless, the Warm Springs terminus remains unchanged and the WSX Alternative is essentially a realization of the 1992 Adopted Project with improvements to reduce environmental impacts and costs. By contrast, the SVRTC project is a new project proposed by a different agency, which has not been subjected to any previous environmental analysis or approval. Accordingly, it is clear that the terminus at Warm Springs was not selected in order to segment a single original Fremont-to-San Jose project into two parts and avoid a full analysis of environmental impacts.

In addition, an EIS must include an analysis of cumulative impacts of the project together with other past, present, and reasonably foreseeable future actions, regardless of which agency undertakes such actions (40 C.F.R. section 1508.7). Whether projects are independent or related does not affect the requirement to include them in such cumulative analysis. NEPA thus requires an analysis of cumulative impacts of the WSX Alternative and the SVRTC together, in the event that both projects are adopted, in precisely the same way it requires analysis of the cumulative impacts of the WSX

Alternative and any other wholly unrelated project in the vicinity. Those cumulative analyses are provided in the following sections.

Table 5-1. Approved and Proposed Developments in the City of Fremont

Development	Location	Size	Description
Approved Development			
Deaf Senior Retirement Corporation	Driscoll Road, south of Valero Road	51 (dwelling units)	Project involves amending the <i>City of Fremont General Plan</i> to allow development of up to 51 units of affordable rental housing for deaf seniors. The <i>General Plan</i> amendment changed the land use designation of the site from medium-density residential 6.5 to 10 dwelling units per acre to medium-density residential 18 to 23 units per acre. The site is currently developed with a church and parking area. The proposed housing is under construction on a 2.25-acre portion of the undeveloped field to the rear of the property.
Skyway Court	Skyway Court/Osgood Road	103,000 sq. ft.	Project includes four one-story light industrial buildings totaling approximately 103,000 square feet, and associated landscaping, parking, and circulation, and abandonment of a utility easement, on a 23.5-acre site.
Pacific Commons	West of I-880, south of Auto Mall Pkwy	8,316,000 sq. ft.	Project is within the Pacific Commons Planned District (approximately 840 acres). Project includes a retail center, expansion of the auto mall, rezoning two parcels from the Pacific Commons Planned District to the Auto Mall Planned District, wetlands preserve (391 acres), 60 acres of parks and open space (retention ponds), and a train station.
Wal-Mart	Osgood Road near Skyway Court	197,000 sq. ft.	Project involves development in two phases. Phase I involves development of a Wal-Mart store and garden center, with associated improvements on about 13.6 acres of the site. Phase II involves development of the remaining 3 acres of the site as industrial use.
Rosewalk Court	Adjacent to the east side of the proposed W SX alignment at 2869 Driscoll Road north of Washington Boulevard	13 single-family units	Redevelopment of an existing detached single-family parcel into 13 single-family detached planned units. Now under construction.
Proposed Development			
Bailey Farms	Auto Mall Pkwy near Technology Drive	176,000 sq. ft.	Project includes six new one-story general industrial buildings totaling approximately 175,500 square feet. Five of these buildings have already been approved, with the sixth scheduled for a later submittal date.
Fremont Business Center	Fremont Blvd/Old Warm Springs Boulevard	92,000 sq. ft.	Project includes five new general industrial buildings totaling approximately 92,000 square feet.

Development	Location	Size	Description
Fremont Materials Recovery Facility	Boyce Road near Auto Mall Parkway	1,700,000 sq. ft.	Proposal to develop an industrial use for disposal and treatment of solid waste.
Paseo Padre Estates	Paseo Padre Parkway adjacent to and east of Central Park	19.1 (acres)	Project would involve change in land use designation from open space to medium-density residential. The new designation would allow 6.5–10 dwelling units per acre. With this change in land use designation, the 19.1-acre parcel could be developed with approximately 124 to 191 residential units. A general plan amendment and zoning change request are required. A previous request was not approved, and a second application was made in August 2003. That request is pending. The City of Fremont deemed the second application incomplete in October 2003.
Transit and Infrastructure Projects			
Silicon Valley Rapid Transit Corridor (SVRTC) Project	Warm Springs in Fremont, Alameda County to Milpitas, San Jose and Santa Clara in Santa Clara County	16.3-mile BART extension	This BART extension would extend the system from the proposed Warm Springs Station through the cities of Milpitas, San Jose and Santa Clara. The proposed extension would include seven new BART stations in Santa Clara County. Currently, VTA anticipates that project construction will start in 2008 and revenue service will begin in 2015.
City of Fremont Grade Separations Project	Washington Boulevard and Paseo Padre Parkway, City of Fremont		Project involves constructing two railroad grade-separated crossings. An automobile underpass is planned for Paseo Padre Parkway between Gomes Road and Hancock Drive, and an automobile overpass is planned for Washington Boulevard between Bruce Drive and Roberts Avenue. The city's grade separations project will include relocation of the former SP railroad tracks.

Source: City of Fremont 2002

5.2.3 Cumulative Impacts on Transportation

Cumulative Analysis of WSX Alternative with SVRTC

The transportation model, as discussed in Section 4.2 (Transportation), incorporates local and regional government projections of future background growth, land use and employment intensities and locations, along with programmed highway, street and transit improvements and the transportation consequences of other anticipated development projects for 2010 and 2025. Data from the Association of Bay Area Governments (ABAG) Projections 2000 data series were used to project ridership for 2010 and 2025, as this series was the only data set available at the time ridership forecasts were developed. Accordingly, the impact analyses presented above already account for cumulative impacts of the WSX Alternative together with other projects.

However, the projections of general regional growth and anticipated projects that are incorporated into the modeling analysis presented in Section 4.2 do not include the proposed SVRTC project. Additional modeling analysis was performed to evaluate the potential cumulative effects of the WSX Alternative plus SVRTC if it is adopted, as well as regional growth. Two scenarios were considered: (1) the WSX Alternative without the optional Irvington Station plus SVRTC, and (2) the WSX Alternative with optional Irvington Station plus SVRTC.

The transportation projections for this analysis were based on the MTC travel demand model, as modified by VTA for this action and SVRTC. Inputs to the model include local and regional government projections of land use and employment intensities and locations, as well as programmed highway, street, and transit improvements. The model output for 2010 and 2025 conditions was reviewed and adjusted as described in Section 4.2, *Transportation*.

Since the transportation impacts analyses in this EIS are based on the adopted regional land use forecasts for 2010 and 2025, the cumulative transportation impacts of all such developments are included, and additional analysis of potential cumulative effects of specific projects would be redundant. Accordingly, the following assessment presents the combined effects of future background growth in conjunction with the WSX Alternative (and optional Irvington Station) and SVRTC.

Rail Ridership

Table 5-2 lists the rail ridership for the two SVRTC scenarios. With implementation of the WSX Alternative plus SVRTC, there would be a nearly 200% increase in the overall ridership levels on the BART segment between the Union City and Fremont BART Stations. There would be a slight decrease (5%) in ridership on the ACE trains with implementation of the WSX Alternative. There would be a further decline in the ridership on ACE with implementation of the WSX Alternative with optional Irvington Station plus the two SVRTC options.

Table 5-2. 2025 Rail Ridership Summary

Station A (From)	Station B (To)	Mode	2025 No Build	2025 WSX Alternative	2025 WSX with Irvington Station	2025 WSX plus SVRTC ^a	2025 WSX with Irvington Station plus SVRTC ^a
Union City	Fremont	BART	18,100	22,800	23,400	52,400	52,300
Fremont	Irvington	BART	N/A	16,300 ^b	18,200	51,100 ^b	51,200
Irvington	Warm Springs	BART	N/A	N/A	15,900	N/A	52,400
Warm Springs	Montague/Capitol	BART	N/A	N/A	N/A	57,200	54,300
Alameda County/Santa Clara County Line (approx)		ACE	11,700	11,100	10,900	7,000	6,900
Alameda County/Santa Clara County Line (approx)		Capitol Corridor	2,800	2,100	2,100	1,000	1,000

Notes:

^a Cumulative analysis of the WSX Alternative with SVRTC, if it is adopted, is discussed in Chapter 5. For convenience of comparison, this table presents results for the WSX Alternative and for the WSX Alternative with SVRTC.

^b Ridership shown between the Fremont and Warm Springs Stations.

Source: DKS Associates 2002 VTA-modified MTC Model

Ridership declines would be even greater for the Capitol Corridor. Under the SVRTC scenarios, Capitol Corridor ridership drops sharply at the Alameda/Santa Clara County line. The Capitol Corridor could retain many long-distance riders traveling between Santa Clara County and points outside the BART service area (e.g., Fairfield, Davis, and Sacramento). This market currently comprises about half of the Capitol Corridor’s Santa Clara County ridership (Capitol Corridor Joint Powers Authority 2002). However, any of the following reasons may cause many potential Capitol Corridor riders traveling between Santa Clara County and points within the BART service area (e.g. Richmond, Oakland, Hayward) to elect to ride BART instead.

- BART has more frequent operating headways (6 minutes compared to hourly on the Capitol Corridor).
- BART is more centrally located to areas of high population and employment.
- BART provides direct connections between downtown San Jose, Oakland, and San Francisco.

Schedule reliability issues may also impact Capitol Corridor ridership, although reliability was not addressed per se in the ridership model. Running-time adherence to within a few minutes of published schedules is particularly important when riders must connect to other transit services to reach their destinations. On-time performance can be difficult to achieve over long distances. Most Capitol Corridor trains originate in Sacramento, 134 miles from San Jose; some trains start as far away as Auburn, 170 miles from San Jose. Sharing tracks with freight trains can sometimes delay Capitol Corridor trains as well.

In some ways, the Capitol Corridor and BART will complement each other. For example, direct transfers between the two rail lines would be available at the planned Coliseum and Union City intermodal transit facilities. This connectivity would enable riders to use whichever system or combination of systems that best suits their needs.

Local Bus Ridership

Under both the WSX Alternative plus SVRTC scenarios (with and without the optional Irvington Station), the VTA express routes that currently serve the Fremont BART Station, which would continue to serve the Warm Springs Station with implementation of the WSX Alternative, would no longer operate into Alameda County. Instead, their operations would change and they would continue to serve Santa Clara County.

Station Entries and Exits

Table 5-3 lists the station entries and exits for the two SVRTC scenarios.

In summary, the following observations can be made from the table.

- At the Fremont BART Station under all 2025 conditions, station entries and exits would decrease compared to the 2025 No-Build condition. Entries and exits would decrease by 200 under the WSX Alternative plus SVRTC condition and by 3,000 under the WSX Alternative with optional Irvington Station plus SVRTC condition.
- In 2025 with implementation of SVRTC, there would be an increase of 5,200 entries and exits at the Warm Springs Station compared to the WSX Alternative. When the WSX Alternative with optional Irvington Station and the WSX Alternative with optional Irvington Station plus SVRTC are compared, there would be another 2,800 entries and exits at the two new southern Fremont stations.
- Compared to the 2025 No-Build condition, southern Alameda County would experience an increase of 26,100 entries and exits under the WSX Alternative plus SVRTC condition and an increase of 26,900 entries and exits under the WSX Alternative with optional Irvington Station plus SVRTC condition.
- In 2025 with implementation of the WSX Alternative plus SVRTC, entries and exits system-wide would increase by approximately 162,200. With implementation of the WSX Alternative with optional Irvington Station plus SVRTC, they would increase by approximately 163,800.

Mode of Access/Egress

Table 5-4 lists the mode of access/egress for the southern Alameda County stations and for the Montague/Capitol Station in Santa Clara County for the two SVRTC scenarios.

Table 5-3. Daily Station Entries and Exits^a – 2025

Station	No Build	WSX Alternative	WSX Alternative with Irvington Station	WSX Alternative plus SVRTC ^c	WSX Alternative with Irvington Station plus SVRTC ^c
Southern Alameda County Existing Stations					
Union City	11,400	12,100	12,500	16,200	16,600
Fremont	17,100	12,200	10,500	16,900	14,100
Southern Alameda County Existing Stations Subtotal	28,500	24,300	23,000	33,100	30,700
WSX Alternative Stations					
Irvington	—	—	6,200	—	9,400
Warm Springs	—	16,300	15,700	21,500	15,400
WSX Alternative Stations Subtotal	—	16,300	21,900	21,500	24,700
Southern Alameda County Proposed and Existing Stations Subtotal					
	28,500	40,600	44,900	54,600	55,400
SVRTC Stations Subtotal					
	—	—	—	110,400	108,000
BART Systemwide Total ^b Entries and Exits					
	972,800	989,200	994,400	1,136,400	1,138,000
BART Systemwide Total ^b Boardings					
	486,400	494,600	497,200	568,200	569,000

Notes:

^a Station-level and subtotal values are for station entries and exits (i.e. total persons entering and leaving station areas). Systemwide total boardings were calculated by dividing entries and exits by two.

^b Systemwide totals include all existing BART stations and may include WSX Alternative and proposed SVRTC BART stations (depending on column).

^c Cumulative analysis of the WSX Alternative plus SVRTC, if it is adopted, is discussed in Chapter 5. For convenience of comparison, this table presents results for the WSX Alternative and for the WSX Alternative plus SVRTC.

All numbers have been independently rounded to the nearest hundred; totals may not sum up to displayed value.

Source: DKS Associates, 2002 from VTA-modified MTC model

Table 5-4. 2025 Mode of Access/Egress to BART Stations

Station	Mode of Access/Egress				Total Entries and Exits
	PNR ^a	KNR ^b	Walk/Bike	Transit XFER ^c	
2025 No Build					
Union City	3,600	2,100	900	4,700	11,400
Fremont	5,100	2,600	1,800	7,500	17,100
Irvington	0	0	0	0	0
Warm Springs	0	0	0	0	0
Southern Alameda total	8,700	4,700	2,700	12,200	28,500
2025 WSX Alternative					
Union City	3,700	2,400	1,000	5,000	12,100
Fremont	4,900	1,000	2,500	3,800	12,200
Irvington	0	0	0	0	0
Warm Springs	4,600	1,000	2,500	8,000	16,300
Southern Alameda total	13,200	4,400	6,000	16,800	40,600
2025 WSX Alternative with Optional Irvington Station					
Union City	4,600	2,000	1,000	5,000	12,500
Fremont	4,100	800	2,600	2,900	10,500
Irvington	2,500	500	1,600	1,700	6,200
Warm Springs	3,600	800	2,500	8,900	15,700
Southern Alameda total	14,800	4,100	7,700	18,500	44,900
2025 WSX Alternative with SVRTC^d					
Union City	5,600	2,100	1,400	7,100	16,200
Fremont	6,200	1,300	3,300	6,100	16,900
Irvington	0	0	0	0	0
Warm Springs	3,200	600	6,700	11,000	21,500
Montague/Capitol	3,900	900	1,500	15,600	21,900
Southern Alameda total (without Montague/Capitol)	15,000	4,000	11,300	24,200	54,600
2025 WSX Alternative with Optional Irvington Station with SVRTC^d					
Union City	6,400	1,700	1,400	7,000	16,600
Fremont	5,000	1,000	3,400	4,500	14,100
Irvington	3,200	700	2,300	3,200	9,400
Warm Springs	2,000	400	5,300	7,700	15,400

Station	Mode of Access/Egress				Total Entries and Exits
	PNR ^a	KNR ^b	Walk/Bike	Transit XFER ^c	
Montague/Capitol	3,700	900	1,300	15,600	21,500
Southern Alameda total (without Montague/Capitol)	16,600	3,800	12,400	26,000	55,400

Notes:

^a PNR = Park-and-ride

^b KNR = Kiss-and-ride

^c XFER = Transfer

^d Cumulative analysis of the WSX Alternative plus SVRTC, if it is adopted, is discussed in Chapter 5. For convenience of comparison, this table presents results for the WSX Alternative and for the WSX Alternative plus SVRTC.

All numbers have been independently rounded to the nearest hundred; totals may not sum up to displayed value.

Source: DKS Associates, 2002 from VTA-modified MTC model

In summary, the table presents the following information for the SVRTC alternatives.

- 2025 WSX Alternative plus SVRTC – Park-and-ride demand would increase at the Fremont BART Station with implementation of the WSX Alternative plus SVRTC, although kiss-and-ride levels would decline (due to the increase in parking at each of the new stations).
- 2025 WSX Alternative with optional Irvington Station plus SVRTC – Park-and-ride demand at the Fremont Station would decline compared to the 2025 No-Build condition. Kiss-and-ride demand would also decline when the two scenarios are compared.

New Transit Ridership

The new transit ridership, measured by changes in linked transit trips, for the two SVRTC alternatives is listed in Table 5-5.

The table is summarized below.

- In 2025 with implementation of the WSX Alternative plus SVRTC, there would be an increase of more than 60% in new transit riders throughout the corridor compared to the 2025 No-Build condition. Linked transit trips to the southern Alameda County area would increase by 93%, but the largest growth would be in trips through the Fremont/Newark/Union City corridor (trips that either start or finish in [or beyond] Santa Clara County), which would increase by more than 105% with implementation of the WSX Alternative plus SVRTC.
- In 2025 with implementation of the WSX Alternative with optional Irvington Station plus SVRTC, there would be an increase of 58% (slightly lower overall than the WSX Alternative plus SVRTC option) in linked transit riders in the corridor compared to the 2025 No-Build condition. Linked transit trips to the southern Alameda County area would increase by 80%, and the linked transit trips would increase by just under 105% compared to the 2025 No-Build condition.

Table 5-5. 2025 Linked Transit Trips

Trips:	No Build	WSX Alternative	WSX Alternative with Irvington Station	WSX Alternative plus SVRTC ^c	WSX Alternative with Irvington Station plus SVRTC ^c
Intra ^a	11,100	11,800	12,300	12,000	12,500
To ^b	8,600	10,700	11,000	14,900	15,500
From ^c	25,300	28,000	29,100	37,800	37,800
Through ^d	11,800	13,300	13,400	24,400	24,100
Total WSX Alternative Corridor Transit Trips	56,700	63,900	65,800	89,100	89,900
Change from No Build	—	7,200	9,100	32,400	33,200
Intra Santa Clara Transit Trips	243,000	246,900	246,800	253,500	253,300

Notes:

^a Intra: Trips solely within Southern Alameda County (MTC Super District 16: Fremont, Union City and Newark).

^b To: Trip attractions to SD 16.

^c From: Trip productions from SD 16.

^d Through: Trips passing through SD 16 (e.g., Hayward to San Jose).

^e Cumulative analysis of the WSX Alternative plus SVRTC, if it is adopted, is discussed in Chapter 5. For convenience of comparison, this table presents results for the WSX Alternative and for the WSX Alternative plus SVRTC.

All numbers have been independently rounded to the nearest hundred; totals may not sum up to displayed value.

Source: DKS Associates, 2002 from VTA-modified MTC model

Impact TRN-Cume-1—Contribution to cumulative increase in new transit trips. Regional transit ridership, particularly for trips destined for, originating in, or passing through southern Alameda County, would increase. Tables 4.2-11 (Section 4.2, *Transportation*) and Table 5-5 indicate that transit person trips would increase with implementation of the WSX Alternative compared to the No-Build Alternative. This increase in new transit trips would be 32,400 trips under the WSX Alternative plus SVRTC compared to the No-Build Alternative in 2025. These tables indicate a shift in use from automobile to transit. As discussed in the MTS analysis below, increased transit usage would reduce auto congestion. In addition, as discussed below in Section 5.2.15, *Cumulative Impacts on Air Quality*, increased transit usage would reduce air pollution. This is a beneficial effect.

Travel Time Comparison

The travel time comparisons between each scenario are listed in Table 5-6 for selected pairs of destinations.

Table 5-6. 2025 Transit Travel Times (minutes)^a

Sample Trip (Origin-Destination) ^b	Drive Alone	Carpool	2025 No Build	2025 WSX Alternative	Transit		
					2025 WSX Alt. with Irvington Station	WSX Alt. plus SVRTC ^c	WSX Alt. with Irvington Station plus SVRTC ^c
Northwest Milpitas-Northwest Downtown San Francisco	110	85	71	71	72	71	72
Northwest Milpitas-Northwest Pacific Commons	20	26	86	66	67	53	53
Irvington-NUMMI	11	18	40	25	18	25	18
Irvington-Downtown San Jose	40	47	82	72	65	38	30
Fremont-Lockheed	52	49	98	67	68	56	57
Fremont-Pacific Commons	14	21	45	45	45	45	45
Union City-Diridon Caltrain Depot	60	60	69	69	69	52	53
Union City-Downtown San Jose	58	58	79	82	83	48	49
Hayward-Lockheed	72	60	75	80	81	68	69

Notes:

^a Travel times include all modes, including walking, driving, waiting, in-vehicle travel, and other times as appropriate.

^b Fremont location is approximately the Stevenson Boulevard/Paseo Padre Parkway intersection. Union City location is approximately the Dyer/Alvarado-Niles Parkway intersection (west of I-880). Hayward location is assumed to be at the city center.

^c Cumulative analysis of the WSX Alternative plus SVRTC, if it is adopted, is discussed in Chapter 5. For convenience of comparison, this table presents results for the WSX Alternative and for the WSX Alternative plus SVRTC.

Source: DKS Associates, 2002 from VTA-modified MTC model

Transit travel timesavings are highest when both the origin and the destination are located adjacent to the BART system, such as from Irvington to downtown San Jose.

Intersections

Table 5-7 lists the LOS at the study intersection for the two SVRTC alternatives.

Table 5-7. Results of Intersection Analysis for 2025 Scenarios

#	Intersection	2025 No-Build						2025 WSX Alternative						2025 WSX Alternative with Irvington Station						2025 SVRTC with WSX Alternative ^c						2025 SVRTC with WSX Alternative with Irvington Station ^c					
		a.m. Peak Hour		p.m. Peak Hour		LOS		a.m. Peak Hour		p.m. Peak Hour		LOS		a.m. Peak Hour		p.m. Peak Hour		LOS		a.m. Peak Hour		p.m. Peak Hour		LOS		a.m. Peak Hour		p.m. Peak Hour		LOS	
		LOS ^a	V/C ^b	LOS	V/C	LOS	V/C	LOS ^a	V/C ^b	LOS	V/C	LOS	V/C	LOS ^a	V/C ^b	LOS	V/C	LOS ^a	V/C ^b	LOS	V/C	LOS ^a	V/C ^b	LOS	V/C	LOS ^a	V/C ^b	LOS	V/C	LOS ^a	V/C ^b
1	Osgood Road/Durham Road/Auto Mall Parkway	E	1.00	F	1.06	E	1.00	F	1.11	F	1.02	F	1.09	F	1.04	F	1.10	F	1.04	F	1.09	F	1.04	F	1.10	F	1.04	F	1.04	F	1.07
2	I-680 SB Ramps/Durham Road/Auto Mall Parkway	E	0.98	D	0.90	E	0.98	E	0.91	E	0.97	E	0.91	E	0.92	E	0.91	E	0.92	E	0.91	E	0.92	E	0.91	E	0.92	E	0.92	E	0.91
3	I-680 NB Ramps/Durham Road/Auto Mall Parkway	B	0.61	A	0.42	B	0.63	A	0.44	B	0.64	A	0.44	B	0.64	A	0.46	A	0.59	A	0.46	A	0.59	A	0.46	A	0.59	A	0.42	A	0.42
4	Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard	F	1.14	F	1.31	F	1.33	F	1.41	F	1.25	F	1.42	F	1.22	F	1.41	F	1.22	F	1.41	F	1.22	F	1.41	F	1.22	F	1.45	F	1.44
5	Fremont Boulevard/South Grimmer Boulevard	F	1.07	D	0.84	F	1.05	C	0.80	E	0.99	C	0.71	E	0.99	C	0.72	E	0.99	C	0.72	E	0.99	C	0.72	E	0.99	C	0.80	C	0.80
6	Fremont Boulevard/I-880 NB Ramps	D	0.83	A	0.42	D	0.82	A	0.47	D	0.82	A	0.45	D	0.82	A	0.37	D	0.82	A	0.37	D	0.82	A	0.37	D	0.82	A	0.38	A	0.38
7	Fremont Boulevard/I-880 SB On-ramp/Cushing Parkway	D	0.87	A	0.49	D	0.89	A	0.54	D	0.89	A	0.54	D	0.88	A	0.49	D	0.88	A	0.49	D	0.88	A	0.49	D	0.88	A	0.49	A	0.49
8	Fremont Boulevard/I-880 SB Off-ramp	D	0.86	A	0.51	B	0.85	A	0.55	D	0.85	A	0.55	D	0.86	A	0.50	D	0.86	A	0.50	D	0.86	A	0.50	D	0.86	A	0.50	A	0.50
9	Warm Springs Boulevard/Mission Boulevard	F	1.42	F	1.09	F	1.13	F	1.15	F	1.20	F	1.17	F	1.31	F	1.07	F	1.31	F	1.07	F	1.31	F	1.07	F	1.26	F	1.42	F	1.42
10	Mohave Drive/Mission Boulevard	B	0.66	D	0.81	C	0.73	D	0.86	C	0.73	D	0.86	C	0.67	D	0.83	B	0.67	D	0.83	B	0.67	D	0.83	B	0.67	D	0.83	D	0.83
11	Warm Springs Boulevard/Northern Warm Springs Station Entrance					C	0.75	C	0.75	C	0.73	C	0.77	B	0.67	D	0.81	B	0.67	D	0.81	B	0.67	D	0.81	B	0.67	D	0.82	D	0.87
12	Warm Springs Boulevard/Southern Warm Springs Station Entrance					C	0.73	C	0.75	C	0.76	C	0.77	B	0.64	B	0.69	B	0.64	B	0.69	B	0.64	B	0.69	B	0.64	B	0.78	D	0.89

#	Intersection	2025 No-Build				2025 WSX Alternative				2025 WSX Alternative with Irvington Station				2025 SVRTC with WSX Alternative with Irvington Station ^c							
		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour					
		LOS ^a	V/C ^b	LOS	V/C	LOS ^a	V/C ^b	LOS	V/C	LOS ^a	V/C ^b	LOS	V/C	LOS ^a	V/C ^b	LOS	V/C				
13	I-680 NB Ramps/Washington Boulevard	A	0.58	D	0.81	A	0.56	D	0.85	B	0.69	C	0.76	A	0.58	C	0.77	B	0.61	B	0.64
14	I-680 SB Ramps/Washington Boulevard	C	0.71	D	0.86	A	0.60	B	0.63	B	0.66	B	0.62	A	0.54	A	0.59	A	0.57	A	0.59
15	Osgood Road/Washington Boulevard	D	0.89	D	0.85	D	0.82	D	0.82	D	0.86	C	0.78	D	0.84	D	0.84	E	0.92	D	0.88
16	Fremont Boulevard/Washington Boulevard/Bay St	E	0.98	F	1.13	E	0.91	F	1.09	E	0.92	F	1.13	E	0.92	F	1.14	E	0.98	F	1.15
17	Osgood Road/Blacow Road	C	0.77	A	0.46	C	0.74	A	0.52	C	0.73	A	0.49	C	0.77	A	0.51	C	0.77	A	0.46
18	Osgood Road/Opt. Irvington Station Entrance					A	0.52	B	0.68					A	0.55	C	0.70				

Notes:

^a LOS = level of service.

^b V/C = volume-to-capacity ratio.

^c Cumulative analysis of the WSX Alternative plus SVRTC, if it is adopted, is discussed in Chapter 5. For convenience of comparison, this table presents results for the WSX Alternative and for the WSX Alternative plus SVRTC.

NB = northbound; SB = southbound

Source: DKS Associates 2002

Contribution of WSX Alternative plus SVRTC to Intersection Impacts

This scenario (2025 WSX Alternative plus SVRTC) assumes implementation of both the WSX Alternative and SVRTC.

Operational Contribution, 2025

Impact TRN-Cume-2—Contribution to cumulative change in 2025 in V/C and LOS at the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway. Under 2025 WSX Alternative plus SVRTC conditions, the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway would operate at a V/C ratio of 0.91 and LOS E in the p.m. peak hour. Implementation of Mitigation Measure TRN-5 would reduce this impact.

Mitigation Measure TRN-5—Improve V/C and LOS at the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway. The intersection operations could be improved to a V/C ratio of 0.90 and LOS D in the p.m. peak hour with implementation of Mitigation Measure TRN-5 as described in Section 4.2, *Transportation*.

Impact TRN-Cume-3—Contribution to cumulative change in 2025 V/C and LOS at the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard. Under 2025 WSX Alternative plus SVRTC conditions, the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard would operate at a V/C ratio of 1.26 and LOS F in the a.m. peak hour, and a V/C ratio of 1.41 and LOS F in the p.m. peak hour. Implementation of Mitigation Measure TRN-6 would reduce this impact.

Mitigation Measure TRN-6—Improve V/C and LOS at the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard. The intersection operations could be improved to a V/C ratio of 0.86 and LOS D in the a.m. peak hour, and a V/C ratio of 0.88 and LOS D in the p.m. peak hour with implementation of Mitigation Measure TRN-6 as described in Section 4.2, *Transportation*.

Contribution of WSX Alternative with Optional Irvington Station plus SVRTC to Project Intersection Impacts

This scenario (2025 WSX Alternative with optional Irvington Station plus SVRTC) assumes implementation of both the WSX Alternative, with the optional Irvington Station, and SVRTC.

Operational Contribution, 2025

Impact TRN-Cume-4—Contribution to cumulative change in 2025 V/C and LOS at the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway. Under 2025 WSX Alternative with optional Irvington Station plus SVRTC conditions, the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway would operate at a V/C ratio of 0.91 and LOS E in the p.m. peak hour. Implementation of Mitigation Measure TRN-5 would reduce this impact.

Mitigation Measure TRN-5—Improve V/C and LOS at the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway. The intersection operations could be improved to a V/C ratio of 0.89 and LOS D in the p.m. peak hour with implementation of Mitigation Measure TRN-5 as described in Section 4.2, *Transportation*.

Impact TRN-Cume-5—Contribution to cumulative change in 2025 V/C and LOS at the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard. Under 2025 WSX Alternative with optional Irvington Station plus SVRTC conditions, the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard would operate at a V/C ratio of 1.45 and LOS F in the a.m. peak hour, and a V/C ratio of 1.47 and LOS F in the p.m. peak hour. Implementation of Mitigation Measure TRN-6 would reduce this impact.

Mitigation Measure TRN-6—Improve V/C and LOS at the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard. The intersection operations could be improved to a V/C ratio of 0.88 and LOS D in the a.m. and p.m. peak hours with implementation of Mitigation Measure TRN-6 as described in Section 4.2, *Transportation*.

Impact TRN-Cume-6—2025 change in V/C and LOS at the intersection of Mission Boulevard/Warm Springs Boulevard. Under 2025 WSX Alternative with optional Irvington Station plus SVRTC conditions, the intersection of Mission boulevard/Warm Springs Boulevard would operate at a V/C ratio of 1.42 and LOS F in the p.m. peak hour. The intersection is built out along each approach, and there are commercial properties on each of the four corners of the intersection. Widening or adding turn lanes is not feasible. The existing and projected congestion is related largely to regional traffic traveling between I-680 and I-880. To reduce congestion and alleviate impacts at this intersection would require substantial right-of-way acquisition and utility relocation. No feasible mitigation measures are available to mitigate this impact.

Impact TRN-Cume-7—Contribution to cumulative change in 2025 V/C and LOS at the intersection of Osgood Road/Driscoll Road/Washington Boulevard. Under 2025 WSX Alternative with optional Irvington Station plus SVRTC conditions, the intersection of Osgood Road/Driscoll Road/Washington Boulevard would operate at a V/C ratio of 0.92 and LOS E in the a.m. peak hour. Implementation of the following mitigation measure would reduce this impact.

Mitigation Measure TRN-Cume-7—Improve V/C and LOS at the intersection of Osgood Road/Driscoll Road/Washington Boulevard. The intersection operations can be improved to a V/C ratio of 0.45 and LOS A for the a.m. peak hour with the conversion of the southbound right-turn lane to a shared through/right-turn lane (to create four southbound through lanes) and conversion of a westbound left-turn lane to a shared left-turn/through lane (to create two left-turn lanes). Although there would be a slight decrease in the V/C ratio in the p.m. peak hour, the intersection would still operate at LOS D. The proposed changes to the southbound and westbound approaches can be accommodated within the existing right-of-way, although the approaches would need to be restriped. This measure would require widening on the west side of Warm Springs Boulevard along the BART frontage to accommodate four southbound receiving lanes.

Metropolitan Transportation System

Table 5-8 identifies the quantity of roadway segments that would experience small (2% to 4%) or large (5% or more) volume changes for the cumulative impacts of the WSX Alternative plus SVRTC scenarios compared to the 2025 No-Build condition.

Table 5-8. MTS Roadway Analysis Summary

Scenario	Roadway Volume Change				LOS Improvements		LOS Degradation	
	-5% or greater	-2% to -4%	+2 to +4%	+5% or greater	State Hwy	Local Roadway	State Hwy	Local Roadway
2010 No Build	13 state highway segments and one local roadway segment operating at LOS E or F							
2010 WSX Alternative ^a	40	23	18	20	2	8	1	1
2010 WSX Alternative with Irvington Station ^a	43	20	41	15	2	8	—	1
2025 No Build	31 state highway segments operating at LOS E or F							
2025 No Build ^a	8	2	7	134	—	3	39	7
2025 WSX Alternative ^b	35	29	10	14	6	3	—	7
2025 WSX Alternative with Irvington Station ^b	40	38	7	12	4	5	4	2
2025 WSX Alternative plus SVRTC ^{b,c}	55	36	16	10	18	2	—	3
2025 WSX Alternative with Irvington Station plus SVRTC ^{b,c}	63	38	10	12	17	5	—	1

Notes:

^a Compared to 2010 No Build.

^b Compared to 2025 No Build.

^c Cumulative analysis of the WSX Alternative plus SVRTC, if it is adopted, is discussed in Chapter 5. For convenience of comparison, this table presents results for the WSX Alternative and for the WSX Alternative plus SVRTC.

Source: DKS Associates 2002 from VTA-modified MTC Model, San Francisco Bay Area Rapid Transit District

Cumulative Roadway Impacts of WSX Alternative plus SVRTC

Compared to the 2025 No Build, the 2025 WSX Alternative plus SVRTC would result in the following changes during the p.m. peak hour.

- Three of the MTS local roadway segments would show deterioration in LOS.
- Eighteen of the MTS state highway segments would experience an improvement in LOS.
- Two of the MTS local roadway segments would experience an improvement in LOS.

The remaining 131 MTS roadway segments would continue to operate with similar LOS.

Cumulative Roadway Impacts of WSX Alternative with Optional Irvington Station plus SVRTC

Compared to the 2025 No Build, the 2025 WSX Alternative with optional Irvington Station plus SVRTC would result in the following changes during the p.m. peak hour.

- Four of the MTS state highway segments would show deterioration in LOS.
- One of the MTS local roadway segments would show deterioration in LOS.
- Seventeen of the MTS state highway segments would experience an improvement in LOS.
- Five of the MTS local roadway segments would experience an improvement in LOS.

The remaining 131 MTS roadway segments would continue to operate with similar LOS.

Parking

Table 5-9 lists the parking supply and demand at the three stations in the study area for the WSX Alternative plus SVRTC and the WSX Alternative with optional Irvington Station plus SVRTC scenarios.

Table 5-9. Parking Demand Summary^a

Scenario	Fremont Station		Warm Springs Station		Optional Irvington Station	
	Supply	Demand	Supply	Demand	Supply	Demand
2010 No Build	2,030	2,360	—	—	—	—
2010 WSX Alternative	1,880	1,840	2,040	1,415	—	—
2010 WSX Alternative with Optional Irvington Station	1,880	1,480	2,040	1,060	925	910
2025 No Build	2,030	2,420	—	—	—	—
2025 WSX Alternative	1,880	2,310	2,040	2,170	—	—
2025 WSX Alternative with Irvington Station	1,880	1,940	2,040	1,710	925	1,175
2025 WSX Alternative plus SVRTC ^b	1,880	2,920	2,040	1,510	—	—
2025 WSX Alternative with Irvington Station plus SVRTC ^b	1,880	2,360	2,040	940	925	1,510

Notes:

^a Parking demand at the three proposed stations is based on unconstrained travel demand forecasts from the ridership models without consideration of the number of actual proposed parking spaces. The local intersection traffic analysis, however, does consider the potential limitations of proposed parking supply at each of the three Fremont area stations analyzed, and assumes that BART patrons would travel to BART stations where parking is perceived to be available.

^b Cumulative analysis of the WSX Alternative plus SVRTC, if it is adopted, is discussed in Chapter 5. For convenience of comparison, this table presents results for the WSX Alternative and for the WSX Alternative plus SVRTC.

Source: DKS Associates 2002 from VTA-modified MTC Model, San Francisco Bay Area Rapid Transit District

Contribution of WSX Alternative plus SVRTC to Parking Impacts

Impact TRN-Cume-8—Reduced parking supply at Fremont Station resulting in spillover into residential or commercial areas. Under 2025 No-Build conditions, there would be a projected parking shortfall of 390 spaces at the Fremont Station. Under 2025 WSX Alternative plus SVRTC

conditions, there would be a parking shortfall of 1,040 spaces at the Fremont Station. Therefore, an additional shortfall of 650 spaces ($1,040 - 390 = 650$) at the Fremont Station would be attributable to the WSX Alternative plus SVRTC. At the Warm Springs Station under 2025 WSX Alternative plus SVRTC conditions, there would be a projected excess of 530 available parking spaces because the parking demand would be 530 spaces less than the supply. However, the net parking shortfall of 120 spaces ($650 - 530 = 120$) would be considered an impact of the WSX Alternative plus SVRTC in 2025.

This impact would be avoided with implementation of the following mitigation measure, which provides for 120 additional spaces at the Warm Springs Station. It is assumed that BART patrons would travel to stations where parking is perceived to be available. Therefore, with this mitigation, spillover parking is not expected to occur, because the parking supply would be adequate to meet the anticipated demand.

Although spillover parking is not expected to be considerable, a monitoring program would be implemented to assess whether spillover parking from the BART stations becomes a problem due to unanticipated events. Accordingly, BART would provide a parking monitoring program and, if necessary to ensure that spillover is limited, assistance with parking management as described below. With the redistribution of traffic towards the Warm Spring Station from the Fremont Station, there would be minimal change to study intersection service levels compared to the analysis presented above.

Mitigation Measure TRN-Cume-8—Provide additional parking and implement parking monitoring program.

If SVRTC has commenced construction by 2010 but the Irvington Station has not, BART will provide an additional 120 parking spaces at the Warm Springs Station.

To determine whether substantial spillover parking occurs, BART will institute a monitoring program on streets adjacent to the Fremont Station and, if necessary, will provide parking management assistance, as described in Mitigation Measure TRN-23(b) in Section 4.2, *Transportation*.

**Contribution of WSX Alternative with Optional Irvington Station plus SVRTC to Parking Impacts
Operational Contribution, 2025**

Impact TRN-Cume-9—Cumulative contribution to reduced parking supply at Fremont and Irvington Stations resulting in spillover into residential or commercial areas. If the WSX Alternative with optional Irvington Station and SVRTC are both constructed, a parking shortfall of 480 spaces is predicted at the Fremont Station, and a shortfall of 585 spaces is predicted at the Irvington Station. However, the Warm Springs Station would have a projected excess of 1,100 spaces, which is 35 spaces more than the combined shortfall at the Fremont and Irvington Stations ($480 + 585 = 1,065$). It is assumed that BART patrons would travel to stations where parking is perceived to be available (i.e., the Warm Springs Station). Accordingly, the parking supply across stations would be adequate to meet the demand, and spillover parking is not anticipated to occur. With the redistribution of traffic towards the Warm Springs Station from the Fremont and Irvington Stations, there would be minimal change to study intersection service levels compared to the analysis presented above.

Although spillover parking is not expected to be considerable, a monitoring program would be implemented to assess whether unanticipated events would cause spillover parking from the BART stations to become a problem. BART would provide a parking monitoring program and, if necessary to ensure that spillover is limited, assistance with parking management as described below.

Mitigation Measure TRN-Cume-9—Implement parking monitoring program. To determine whether substantial spillover parking occurs if the optional Irvington Station and SVRTC have both commenced construction by 2010, BART will implement a monitoring program on streets adjacent to the Fremont and Irvington Stations and, if necessary, provide parking management assistance as described in Mitigation Measure TRN-23(b) in Section 4.2, *Transportation*.

Cumulative Construction Impacts of WSX Alternative plus SVRTC

Impact TRN-Cume-10—Cumulative contribution to construction-related impacts. The construction-related impacts and mitigation measures of the WSX Alternative plus SVRTC would be similar to those of the WSX Alternative without SVRTC with the assumption that there would no overlap between construction of the two projects. However, to account for the SVRTC construction schedule if construction of SVRTC overlaps with that of the WSX Alternative, adjustment of the construction traffic management plan described above in Mitigation Measure TRN-25 would suffice to reduce the WSX Alternative's contribution to cumulative construction-period traffic impacts.

Mitigation Measure TRN-Cume-10—Adjust the construction traffic management plan described in Mitigation Measure TRN-25. If construction of the WSX Alternative and SVRTC overlap, the construction traffic management plan identified in Mitigation Measure TRN-25 will be adjusted to account for the SVRTC construction schedule. BART will ensure that the plan as adjusted satisfies the goals identified in Mitigation Measure TRN-25 in Section 4.2, *Transportation*.

5.2.4 Cumulative Impacts on Soils, Geology, and Seismicity

Impact G-Cume-1—Potential for increased exposure to seismic hazards. Implementation of the WSX Alternative may result in the development of increased population densities in the proximity to rapid transit services. Increased population in the corridor would result in increased exposure of people and structures to the seismic hazards with the Hayward Fault Zone. This impact will be mitigated by the requirements of the Alquist-Priolo Special Studies Zones Act. The provisions of the Act require that permits for all development within the special studies zone established by the California Division of Mines and Geology not be granted until an investigation of fault rupture hazards is conducted. The impact of strong seismic shaking expected within the areas on buildings and other structures would be minimized through the application of design criteria of the Uniform Building Code.

5.2.5 Cumulative Impacts on Hazardous Materials

The WSX Alternative and the WSX Alternative with the optional Irvington Station would not contribute to cumulative impacts on hazardous materials.

5.2.6 Cumulative Impacts on Hydrology Resources

Contribution of Warm Springs Extension to Cumulative Impacts

Operational Contribution

Impact H-Cume-1—Potential for increased hardscape area to reduce groundwater infiltration and increase peak flows in area drainages. Pollutant loads delivered to area drainages may also increase. The WSX Alternative's incremental contribution to these impacts is described in Impact H-1 (Alteration of flooding conditions due to changes in absorption rates, drainage patterns, or the rate and amount of surface runoff) and Impact H-4 (Delivery of increased pollutant loads to urban drainages from expanded impervious areas) (Section 4.5.4 of Section 4.5, *Hydrology*). Because these impacts would be effectively minimized by implementing Mitigation Measure H-1 (Design and implement a stormwater management system to safely convey stormwater), compliance with requirements of the Clean Water Program, and implementation of Mitigation Measure H-4 (Incorporate design features and implement BMPs for post-construction water quality protection), none of these are expected to contribute to cumulative impacts. The WSX Alternative's potential to contribute to long-term cumulative impacts on area hydrology and water quality is accordingly considered minimal.

Construction-Related Contribution

Impact H-Cume-2—Potential for cumulative construction impacts on local hydrology and water quality. If one or more of the projects listed in Table 5-1 are constructed at the same time as the WSX Alternative, there is some potential for cumulative construction impacts on local hydrology and water quality as a result of (1) accelerated erosion and sediment transport related to site preparation and earthwork, and (2) accidental release of substances such as fuels and lubricants. The incremental contributions of other projects are small because they are subject to the same flood protection and stormwater requirements as WSX Alternative. These impacts would be effectively minimized by implementing the erosion and sediment control measures and hazardous material storage and spill control measures required by the NPDES General Permit. As a result, neither is likely to contribute to cumulative impacts, and the WSX Alternative's potential to contribute to cumulative construction-related impacts on area hydrology and water quality is considered minimal.

Contribution of Optional Irvington Station to Cumulative Impacts

Operational Contribution

Impact H-Cume-3—Potential for optional Irvington Station to increase the project-related contribution to any cumulative regional impacts on groundwater recharge and peak flood flows. As described in Section 4.5, *Hydrology*, Impact H-14 (Alteration of flooding conditions due to changes in absorption rates, drainage patterns, or the rate and amount of surface runoff as a result of implementation of optional Irvington Station), the optional Irvington Station would add 18 acres of impervious surface to the 49 acres resulting from implementation of the WSX Alternative, increasing the project-related contribution to any cumulative regional impacts on groundwater recharge and peak flood flows. However, Impact H-14 would be effectively minimized by implementing Mitigation Measure H-1 (Design and implement a stormwater management system to safely convey stormwater), and is thus not expected to contribute to cumulative impacts. The

optional Irvington Station's potential to contribute to long-term cumulative impacts on area hydrology and water quality is considered minimal.

Construction-Related Contribution

Impact H-Cume-4—Potential for construction of the optional Irvington Station to contribute to any cumulative regional impacts on hydrology and water quality. Construction of the optional Irvington Station would increase the duration of construction, with a consequent increase in the WSX Alternative's potential to contribute to any cumulative regional impacts on hydrology and water quality as a result of (1) accelerated erosion and sediment transport related to site preparation and earthwork, and (2) accidental release of substances such as fuels and lubricants. The contributions of other projects are small because they are subject to the same flood protection and stormwater requirements as WSX Alternative. These impacts would be effectively minimized by implementing the erosion and sediment control measures and hazardous material storage and spill control measures required by the NPDES General Permit, so neither is likely to contribute to cumulative impacts. The optional Irvington Station's potential to contribute to cumulative construction-related impacts on area hydrology and water quality is accordingly considered minimal.

5.2.7 Cumulative Impacts on Wetlands

Impact WL-Cume-1—Potential for loss of wetlands and riparian habitat. Cumulative loss of wetlands habitat throughout the region may result from the developments listed in Table 5-1. Cumulative regional loss of wetlands and riparian habitat has the potential to result in a measurable change in species or community composition above and beyond the changes that have occurred as a result of urban growth to date. However, through the regulatory and environmental permitting process, the impacts associated with these developments would be mitigated at a ratio determined through consultation with the Corps. Therefore, the overall effect of wetlands impacts and required mitigation through regulatory processes will be a change in the distribution of wetlands habitat in the region.

The city's grade separations project will likely impact 0.6 acre of seasonal wetland and an additional 2.5 acres of riparian habitat would be removed from the area around the two flood control channels north of Paseo Padre Parkway. The SVRTC development may also contribute to overall impacts on wetlands and riparian habitat. The WSX Alternative would result in the loss of 0.8 acre of seasonal wetlands habitat (Impact WL-1) and 0.6 acre of riparian forest habitat (Impact WL-2). Both of these habitat types have already been substantially fragmented and reduced by urbanization in the WSX Alternative corridor and surrounding area. The project-related contribution to habitat fragmentation has been addressed to the extent feasible by selecting habitat enhancement and restoration sites to maximize the connectivity of restored and created habitat with existing habitat.

Mitigation Measure WL-1 (Restore, create, and protect wetland habitat to mitigate loss of wetland habitat) and Mitigation Measure WL-2 (Enhance, recreate, or restore riparian forest to compensate for the loss of riparian forest habitat) would minimize the WSX Alternative's incremental contribution to loss and fragmentation of wetland and riparian habitat. Impacts on wetlands from the WSX Alternative and those projects identified, including the city's grade separations project and SVRTC, have the potential to be cumulatively significant but would be mitigated through the regulatory process as discussed above. Consequently, the WSX Alternative's potential to contribute to cumulative impacts related to loss and fragmentation of riparian and freshwater wetland habitat is considered minimal.

5.2.8 Cumulative Impacts on Biological Resources

Contribution of Warm Springs Extension to Cumulative Impacts

Operational Contribution

Impact BIO-Cume-1—Potential to disturb common and special-status wildlife species in the region. Cumulative impacts as a result of noise and groundborne vibrations generated by operation of the WSX Alternative and SVRTC would have the potential to disturb common and special-status wildlife species in the region. However, wildlife species in the region are already habituated to noise and vibration associated with trains operating on the existing UP tracks, motor vehicle traffic, and nearby land uses. Although an overall increase in cumulative noise and vibration would occur, this impact is considered minor because wildlife would not likely be displaced but would adapt to the change in conditions over time.

Impact BIO-Cume-2—Potential for loss of ruderal forb-grassland habitat. Cumulative loss of ruderal forb-grassland habitat in the region is expected to continue in the foreseeable future as a result of the proposed development listed in Table 5-1. Approximately 475 acres of existing habitat dominated by ruderal forb-grassland would be developed should all of these projects be constructed. Additional habitat loss is expected as a result of SVRTC and the City of Fremont's grade separations project.

The WSX Alternative would result in the permanent loss of an additional 37.4 acres of ruderal forb-grassland habitat in the region (Impact BIO-2). Although Impact BIO-2 is considered a minimal impact, it represents a cumulative contribution to the ongoing regional loss of habitat for a wide range of common and special-status species that depend on Fremont's remaining open spaces. However, as described in Mitigation Measure BIO-3 (Implement on- and offsite replacement of Western Burrowing Owl habitat), BART has committed to preserve habitat suitable for Western Burrowing Owl. This reduces the WSX Alternative's incremental contribution to loss of ruderal forb-grassland habitat in the region. Nevertheless, this cumulative impact is considered unavoidable.

Impact BIO-Cume-3—Potential to contribute to cumulative regional impacts on the Western Burrowing Owl. Habitat loss and disturbance associated with the WSX Alternative has the potential to contribute to cumulative regional impacts on the Western Burrowing Owl. Results of protocol-level surveys are not available for all projects listed above, but some of the ruderal forb-grassland habitat proposed for development is likely to support Western Burrowing Owls. Because the regional population of the Western Burrowing Owl has declined precipitously, any adverse impact would represent a cumulative contribution to regional effects on the species.

The WSX Alternative area is known to support breeding Western Burrowing Owls. As described in Impact BIO-3, the WSX Alternative could result in both permanent loss of owl habitat and disturbance and/or mortality of individual owls. Implementation of the survey, avoidance, and exclusion procedures described in Mitigation Measure BIO-8 and the habitat replacement described in Mitigation Measure BIO-3 would reduce the WSX Alternative's contribution to direct and indirect regional impacts on Western Burrowing Owl. However, cumulative loss of suitable habitat for the Western Burrowing Owl in the region is considered unavoidable.

Construction-Related Contribution

Impact BIO-Cume-4—Potential for construction-related cumulative impacts. If one or more of the projects listed above, including SVRTC and the city’s grade separations project, are constructed at the same time as the WSX Alternative, there is potential for cumulative impacts in the following areas.

- Temporary disturbance of habitats, including ruderal forb-grassland, emergent seasonal wetland and creek habitat, and riparian forest habitat.
- Temporary disturbance of Western Burrowing Owl habitat.
- Temporary disturbance of birds, including swallows and raptors, and their habitat.

Construction-related impacts would occur at a regional level if construction schedules for any of the identified projects overlap in time. This impact has the potential to result in a significant temporary impact on special-status wildlife through disturbance to their habitat. However, through the regulatory and environmental permitting process, these developments will be required to minimize and avoid temporary impacts through approved mitigation measures. For example, the WSX Alternative’s contribution to construction-related impacts will be minimized through the mitigation measures listed below.

Incremental contribution to disturbance of habitats is described in Impact BIO-6 (ruderal forb grassland), WL-5 (emergent seasonal wetland and creek habitat), and WL-6 (riparian forest). Impacts related to habitat disturbance would be effectively minimized by implementing Mitigation Measures WL-5(a) (Avoid or minimize disturbance of wetlands and creeks), WL-5(b) (Restore disturbed wetland and creek habitat), WL-5(c) (Compensate for temporary loss of wetland and creek habitat), WL-6(a) (Minimize disturbance of riparian habitats), and WL-6(b) (If it is not possible to avoid work in riparian areas, restore disturbed riparian forest areas).

Incremental contributions to disturbance of Western Burrowing Owl habitat are described in Impact BIO-8—Impacts related to disturbance of Western Burrowing Owl habitat would be addressed by implementing Mitigation Measure BIO-8 (Conduct preconstruction surveys for nesting and wintering Burrowing Owls and avoid or minimize impacts if owls are present).

Contributions to disturbance of nesting birds are described in Impacts BIO-9 (raptors), BIO-10 (raptor nesting habitat), and BIO-11 (swallows). Impacts related to disturbance of nesting birds and their habitat would be addressed by implementing Mitigation Measures BIO-9 (Conduct a preconstruction survey for nesting special-status raptors and implement measures to avoid or minimize impacts if nesting raptors are present), WL-6(a) (Minimize disturbance of riparian habitats [addresses impacts on nesting Tree Swallows]), and BIO-11 (Avoid construction during swallow nesting season or remove empty nests and prevent new nesting).

It is assumed that the projects listed above, and SVRTC would also be required to provide mitigation measures that reduce the temporary impacts associated with construction under applicable law. Therefore, the WSX Alternative’s contribution to construction-related impacts would not represent a cumulative impact because all projects in the region will be subject to implementation of minimization and avoidance measures similar to those listed above.

Contribution of Optional Irvington Station to Cumulative Impacts

Operational Contribution

Impact BIO-Cume-5—Potential for loss of ruderal forb-grassland habitat. Development of the optional Irvington Station would result in the permanent loss of 7.8 acres of ruderal forb-grassland in addition to the acreage lost as a result of the WSX Alternative. This represents a cumulative contribution to the ongoing regional loss of habitat for a wide range of common and special-status species that depend on Fremont's remaining open spaces. Loss of 7.8 acres of this habitat is considered an unavoidable cumulative impact.

Construction-Related Contribution

Impact BIO-Cume-6—Potential for temporary disturbance of nesting special-status raptors. If the optional Irvington Station is constructed at the same time as one or more of the projects listed above, it has the potential to contribute to cumulative impacts related to temporary disturbance of nesting special-status raptors (Impact BIO-9). Mitigation Measure BIO-9 (Conduct a preconstruction survey for nesting raptors and implement measures to avoid or minimize impacts if nesting raptors are present) would minimize this impact. Consequently, the optional Irvington Station's potential contribution to cumulative construction-related impacts on biological resources is considered minimal.

5.2.9 Cumulative Impacts on Land Use

The cumulative impacts assessment for land use considers the potential for the WSX Alternative, in combination with the projects described above, including two transportation projects (the city's grade separations project and the SVRTC project to the south of the Warm Springs Station), to have impacts on the physical environment. Potential physical impacts assessed are the potential to adversely effect the efficiency, effectiveness, or productivity of adjacent land uses or to conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project, adopted for the purpose of avoiding or mitigating an environmental effect.

The WSX Alternative would generally use a vacant linear corridor reserved for BART and an existing railroad right-of-way. It would not introduce barriers to movement along the alignment nor reduce the effectiveness or productivity of adjacent land uses.

The proposed development projects and those currently under review listed in Table 5-1 would provide additional residential, regional, and neighborhood-serving commercial services, as well as employment opportunities through development of housing, shopping centers, and light industrial developments. When combined, these projects would provide improved connections to neighborhoods east and west of the railroad right-of-way and increase housing, commercial, and employment resources within the City of Fremont.

The city's grade separations project is intended to enhance interaction among communities to the east and west of the railroad right-of-way by providing new grade-separated crossings. SVRTC's consistency with local plans and policies in its area of service is being evaluated separately in an ongoing federal environmental review process, but no adverse effects on land use were identified in the Final EIR.

Contribution of Warm Springs Extension to Cumulative Impacts

Operational Contribution

Impact LU-Cume-1—Potential cumulative contribution by the WSX Alternative to beneficial effects on land use regionally. All of the projects listed in Table 5-1 would be served by the WSX Alternative, as they would likely result in increased transit demand associated with the influx of new employees at the industrial development and new residents in residential communities. Similarly, the WSX Alternative and SVRTC would work in concert to create a rail linkage between the South Bay and the rest of the Bay Area.

As noted in Table 5-1, a proposed general plan amendment is pending (the second application on this parcel was made in August 2003 and deemed incomplete in October 2003), for a 19-acre parcel situated north of Paseo Padre Parkway between the former SP and WP alignments. The amendment would redesignate the parcel from open space to residential. The proposal (referred to as the Paseo Padre Estates Project) is for a land use designation change, not for a specific development project. The *Fremont General Plan* identifies the BART alignment as an overlay traversing this parcel, and the proposed General Plan Amendment would not alter that overlay. However, for purposes of discussing the reasonably foreseeable environmental impacts of potential development, the city's October 2002 draft EIR for the Paseo Padre Estates redesignation identifies a hypothetical development proposal for the parcel that could result following the redesignation.

To the extent that the redesignation of this parcel for residential use as contemplated in the October 2002 draft EIR may preclude construction of the WSX Alternative, the environmental benefits of the WSX Alternative (reduced traffic congestion, air pollution, and energy consumption, as discussed in the relevant sections of this document) would not be realized. To the extent that development of portions of the parcel following land use redesignation may occur together with the WSX Alternative, if the WSX Alternative is adopted by BART, the cumulative result would be that the portion of the parcel used for the WSX Alternative would be unavailable for residential development. In the absence of a reduced development proposal that would be consistent with the BART alignment identified in the *Fremont General Plan*, potential cumulative effects are too speculative for analysis in this document. However, it is likely that reduced development on the parcel may reduce the quantitative extent of certain environmental impacts identified therein (such as hydrology impacts due to impervious surfaces) but may increase others (such as traffic and circulation impacts) compared to the proposal identified in the October 2002 draft EIR.

Proposed development associated with a new BART station at Warm Springs would likely result in changes in land use and increased land use densities in the vicinity of the station. The incremental change in land use (i.e., improved efficiency of land uses) brought about by the WSX Alternative in concert with future transit-oriented development in the Warm Springs Station area would contribute to cumulative beneficial land use impacts in the project area. The WSX Alternative's incremental contributions to cumulative aesthetic, noise-related, and air quality impacts are addressed in Sections 4.11 (*Aesthetics*), 4.13 (*Noise and Vibration*), and 4.14 (*Air Quality*). Overall, the incremental effects of the WSX Alternative on land use are expected to be beneficial with respect to improved efficiency of land uses, and the WSX Alternative would not contribute to cumulative impacts.

Construction-Related Contribution

Impact LU-Cume-2—Potential cumulative contribution by the WSX Alternative to construction-related effects on regional or localized land use. If two or more large projects are constructed during the same time frame, they may result in cumulative regional or localized land use impacts related to construction activities. Given the duration of construction expected for the WSX Alternative (approximately 4 years), its construction window would likely overlap with those of other projects listed in Table 5-1. It could also overlap with construction of SVRTC. The construction-related effects of greatest concern with regard to land use typically include traffic congestion, increased noise and dust generation, and aesthetic effects. The WSX Alternative's incremental contribution to cumulative impacts in these areas would be minimal based on mitigation measures provided in Sections 4.2 (*Transportation*), 4.10 (*Population, Economics, and Housing*), 4.11 (*Aesthetics*), 4.13 (*Noise and Vibration*), and 4.14 (*Air Quality*), and the other projects would be required to implement similar mitigations.

Contribution of Optional Irvington Station to Cumulative Impacts

Operational Contribution

Impact LU-Cume-3—Potential cumulative contribution by the optional Irvington Station to beneficial effects on land use regionally. Similar to the Warm Springs extension and station, the projects listed in Table 5-1 would be served by the optional Irvington Station, as they would likely result in increased transit demand associated with the influx of new employees at the industrial development and new residents in residential communities. The Irvington Station would provide an additional access point to riders in the rail link created by the WSX Alternative and SVRTC between the South Bay and the rest of the Bay Area. Proposed development associated with a new BART station at Irvington would likely result in changes in land use and increased land use densities in the vicinity of the station. The incremental change in land use (i.e. improved efficiency of land uses) of the optional Irvington Station in concert with future transit-oriented development in the Warm Springs Station area would contribute to cumulative beneficial land use impacts in the project area. The Irvington Station's incremental contributions to cumulative aesthetic and noise-related impacts are addressed in Section 4.11 (*Aesthetics*) and 4.13 (*Noise and Vibration*).

Construction-Related Contribution

Impact LU-Cume-4—Potential cumulative contribution by the optional Irvington Station to construction-related effects on regional or localized land use. Construction of the optional Irvington Station could overlap with that of other projects listed in Table 5-1, including SVRTC, so the Irvington Station has the potential to contribute to cumulative regional or localized land use effects related to construction activities. The construction-related effects of greatest concern with regard to land use typically include traffic congestion, increased noise and dust generation, and aesthetic effects. The Irvington Station's incremental contribution to cumulative impacts in these areas would be minimal based on mitigation measures provided in Sections 4.2 (*Transportation*), 4.10 (*Population, Economics, and Housing*), 4.11 (*Aesthetics*), 4.13 (*Noise and Vibration*), and 4.14 (*Air Quality*), and the other projects would be required to implement similar mitigations.

5.2.10 Cumulative Impacts on Parks and Recreation

Contribution of WSX Alternative to Cumulative Effects

Operational Contribution

Impact PR-Cume-1—Potential cumulative contribution of the WSX Alternative to substantial deterioration in park and recreational facilities or programs.

WSX Alternative. Since none of the related projects described above would be likely to result in adverse effects to the parks in the study area, the WSX Alternative would not cause a cumulative contribution to substantial deterioration in park and recreational facilities or programs.

No-Build Alternative. Because it would involve no changes in the environment other than those associated with the limited improvements and projects that are already planned, the No-Build Alternative would not cause a cumulative contribution to substantial deterioration in park and recreational facilities or programs.

Impact PR-Cume-2—Potential cumulative contribution to the demand for construction or expansion of parks or recreational facilities that could have an adverse effect on the environment.

WSX Alternative. The incremental, negligible new employment and housing that could potentially be associated with the WSX Alternative would not be so substantial, even in conjunction with new population, employment, and housing associated with related projects, to make a cumulative contribution to the demand for construction or expansion of parks or recreational facilities that could have an adverse effect on the environment. In addition, any new residential development would be required to pay impact fees, which include fees for park facilities for new residences.

No-Build Alternative. Because it would involve no changes in the environment other than those associated with the limited improvements and projects that are already planned, the No-Build Alternative would not cause a cumulative contribution to construction or expansion of parks or recreational facilities that could have an adverse effect on the environment.

Construction-Related Contribution

Impact PR-Cume-3—Potential cumulative contribution to creation of construction-related disruptions to park and recreation facilities or programs, such as traffic and circulation obstructions; noise, dust, and other pollutants; and safety issues.

WSX Alternative. Since none of the related projects described above would be constructed in the vicinity of the parks in the study area, the WSX Alternative would not cause a cumulative contribution to creation of construction-related disruptions to park and recreation facilities or programs, such as traffic and circulation obstructions; noise, dust, and other pollutants; and safety issues.

No-Build Alternative. Because it would involve no changes in the environment other than those associated with the limited improvements and projects that are already planned, the No-Build Alternative would cause no cumulative contribution to construction-related disruptions to park and

recreation facilities or programs, such as traffic and circulation obstructions; noise, dust, and other pollutants; and safety issues.

Contribution of Optional Irvington Station to Cumulative Effects

Operational Contribution

Impact PR-Cume-4—Potential cumulative contribution of the WSX Alternative to substantial deterioration in park and recreational facilities or programs due to the optional Irvington Station. Because none of the parks in the study area are proximate to the location of the optional Irvington Station, the optional Irvington Station would result in no cumulative contribution to substantial deterioration in park and recreational facilities or programs.

Impact PR-Cume-5—Potential cumulative contribution to the demand for construction or expansion of parks or recreational facilities that could have an adverse effect on the environment due to the optional Irvington Station. The incremental, negligible new employment and housing that could potentially be associated with the optional Irvington Station would not be so substantial, even in conjunction with new population, employment, and housing associated with related projects, to make a cumulative contribution to the demand for construction or expansion of parks or recreational facilities that could have an adverse effect on the environment. In addition, any new residential development would be required to pay impact fees, which include fees for park facilities for new residences.

Construction-Related Contribution

Impact PR-Cume-6—Potential cumulative contribution to creation of construction-related disruptions to park and recreation facilities or programs, such as traffic and circulation obstructions; noise, dust, and other pollutants; and safety issues due to the optional Irvington Station. Since none of the related projects described above would be constructed in the vicinity of the parks in the study area, the optional Irvington Station would not cause a cumulative contribution to creation of construction-related disruptions to park and recreation facilities or programs, such as traffic and circulation obstructions; noise, dust, and other pollutants; and safety issues.

5.2.11 Cumulative Impacts on Population, Economics and Housing

Contribution to Cumulative Impacts

The cumulative impacts assessment for population, economics, and housing considers the potential for the WSX Alternative, in combination with the projects listed in Table 5-1, including two transportation projects (the city's grade separations project and the SVRTC project to the south of the Warm Springs Station), as described above, to have impacts on the physical environment. Potential physical impacts assessed are disruption or division of an existing community hampering social interaction; displacement of businesses and residences; and construction-period disruption to traffic, access, and parking within existing communities.

The WSX Alternative would generally use a vacant linear corridor reserved for BART and an existing railroad right-of-way. It would not introduce barriers to movement along the alignment, nor

would it introduce changes to community cohesion. The city's grade separations project is intended to enhance interaction among communities to the east and west of the railroad right-of-way by providing new grade-separated crossings. The pending and proposed development projects listed in Table 5-1 would provide additional residential, regional, and neighborhood-serving commercial services, as well as employment opportunities through development of housing, shopping centers, and light industrial developments. When combined, these projects would provide improved connections to neighborhoods east and west of the railroad right-of-way and increase housing, commercial, and employment resources within the City of Fremont.

Contribution of Warm Springs Extension to Cumulative Impacts

Operational Contribution

Impact POP-Cume-1—Potential to displace existing businesses and residences. The WSX Alternative, the City of Fremont's grade separations project, and SVRTC are expected to displace existing businesses. The WSX Alternative would displace up to approximately 16 businesses and no residences; the city's grade separations project may displace 5 to 10 businesses and residences; and the SVRTC project to the south of the Warm Springs Station could displace 1 to 5 residences and 72 to 99 businesses (Earth Tech, Inc. et al. 2001; VTA 2005). The city's grade separations project and the SVRTC project are public-agency undertakings; therefore, relocation benefits similar to those for the WSX Alternative would be expected to minimize potential relocation impacts.

In addition, approved and pending development projects listed in Table 5-1 would add up to as much as 8 million square feet of light industrial and commercial lease space in Fremont, and 51 units of special populations housing. When combined with the WSX Alternative and other transportation improvements, a net gain in commercial and light industrial development is anticipated. Therefore, because cumulative impacts analysis indicates that commercial and light industrial developments will be available for businesses as relocation sites, and publicly sponsored projects will provide relocation benefits to affected businesses, displacement of commercial and industrial development will not result in cumulative impact to which the project would contribute.

Construction-Related Contribution

Impact POP-Cume-2—Potential to restrict access and egress to existing businesses, residences, and community facilities or to reduce parking supply. The WSX Alternative would contribute to cumulative construction-related population, economics, and housing impacts if, when combined with the other projects listed in Table 5-1, the WSX Alternative would contribute to restricting access and egress to existing businesses, residences, and community facilities or to reducing parking supply. The WSX Alternative would not reduce parking supply. The WSX Alternative would contribute to construction-period traffic access impacts only in combination with projects under construction simultaneously with the WSX Alternative's construction activities.

Several of the projects listed in Table 5-1 would either not be under construction at the same time as the WSX Alternative or would use different construction access routes. Since the city's grade separations project will be constructed prior to construction of the WSX Alternative, the WSX Alternative would not contribute to cumulative impacts in combination with the grade separations project. Two of the projects listed in Table 5-1 and located within the general vicinity of the WSX Alternative alignment are west of I-880. These projects, Pacific Commons and Fremont Materials Recovery Facility, would be expected to use construction access routes outside the

WSX Alternative area. Therefore, potential cumulative construction-period access and aggress impacts would be avoided.

However, five approved and pending development projects are located within the general vicinity of the WSX Alternative and may use construction access routes similar to those of the WSX Alternative. The SVRTC project, which is located adjacent to and to the south of the WSX Alternative, may use Mission Boulevard for construction access, which would create a potential overlap with the WSX Alternative and approved and pending development projects. Should all or a combination of these projects be under construction simultaneously, construction vehicles could increase traffic congestion and cause increased wait times at intersections and driveways along major roadways in the WSX Alternative area. Implementation of the following mitigation measure would reduce construction-related cumulative impacts.

Mitigation Measure POP-Cume-2—Coordinate access and traffic control during construction of cumulative projects. BART will work with the City of Fremont and entities constructing other projects if necessary to ensure that the WSX Alternative’s construction traffic management plan is adjusted to accommodate any overlapping construction traffic from multiple projects. BART will require its contractors to prepare a construction traffic management plan (as described in Mitigation Measure TRN-25 in Section 4.2, *Transportation*) that designates truck and equipment access routes to the construction site. Contractors will be required to limit construction vehicle and equipment traffic to designated access routes. The construction traffic management plan will be coordinated with the contractor’s construction sequence so that general timeframes when construction vehicles will use designated roadways within the WSX Alternative area (months from contractor’s start of construction activities) can be estimated.

BART will approve the contractor’s construction traffic management plan and submit a copy of the approved construction traffic management plan to the City of Fremont. The city can use the construction traffic management plan when reviewing building permit applications for development projects within the WSX Alternative area should the combined projects create the potential for construction traffic generated congestion to block access to existing development.

Contribution of Optional Irvington Station to Cumulative Impacts

Operational Contribution

Impact POP-Cume-3—Potential for construction of the Irvington Station to create physical barriers to social interactions or to cause displacements. The optional Irvington Station would not contribute to cumulative impacts on population, economics, and housing, because the station would not create physical barriers to social interactions and would not require business or residential displacements beyond those identified for the WSX Alternative. See discussion above under Impact POP-8 (Section 4.10, *Population and Housing*).

Construction-Related Contribution

Impact POP-Cume-4—Potential for construction of the Irvington Station to restrict access and egress to existing businesses, residences, and community facilities or to reduce parking supply. Cumulative impacts associated with construction of the optional Irvington Station would be similar to those of the WSX Alternative, as identified above. Construction-related impacts from the combined cumulative projects could result in traffic congestion that restricts access and egress to existing businesses, residences, and facilities in the vicinity of the optional Irvington Station.

Implementation of Mitigation Measure POP-Cume-2 would reduce construction-related cumulative impacts.

Mitigation Measure POP-Cume-2—Coordinate access and traffic control during construction of cumulative projects. This mitigation measure is described above.

5.2.12 Cumulative Impacts on Aesthetics

Contribution to Cumulative Impacts

The analysis of cumulative impacts on visual quality includes the projects listed in Table 5-1.

Contribution of Warm Springs Extension to Cumulative Impacts

Impact A-Cume-1—Potential for WSX Alternative to result in a cumulatively considerable contribution to visual impacts. As vacant and underutilized areas along the alignment are developed for residential, commercial, industrial, or community uses, the visual character and quality of the area will appear more urban and built up. The following approved or proposed projects would result in changes in the visual character of the North Industrial Visual Analysis Area portion of the WSX Alternative corridor: Skyway Court business center (Skyway Court and Osgood Road), development at the Wal-Mart site (Osgood Road near Skyway Court), Bailey Farms and Business Center (Auto Mall Parkway at Technology Drive), and Fremont Business Center (Fremont Boulevard and Old Warm Springs Boulevard). These projects would intensify development in the WSX Alternative corridor by constructing commercial and industrial uses on previously undeveloped parcels, and would therefore contribute to the alteration of the visual quality in the project vicinity.

Although the WSX Alternative's visual impacts as discussed above would be mitigated with the measures identified in this EIS, the residual impact after mitigation could, together with other projects, contribute to changes in the visual setting. However, the City of Fremont will require applicable local design and aesthetic conditions on the other development projects in the area, which is expected to either reduce the cumulative contribution of those projects or result in a net improvement in cumulative overall visual quality in the WSX Alternative corridor.

Two of the projects listed above, Skyway Court and the Wal-Mart site are adjacent to the WSX Alternative corridor. Skyway Court is a series of four light industrial buildings and Wal-Mart was a planned big-box retail establishment. Both project sites are located in an area zoned for industrial use and neither project proposed a residential component. Therefore, given the nature of the existing and proposed development, a cumulative visual encroachment impact is not expected.

Other transportation and transit projects proposed within the WSX Alternative area are the City of Fremont's grade separations project and SVRTC. No cumulative visual impacts are expected to occur in conjunction with these projects. The city's proposed grade separations project will not result in a visual impact on Paseo Padre Parkway and Washington Boulevard/Osgood Road, but it will involve the removal of railroad crossings from existing at-grade streetscapes. These changes would benefit the visual character and quality of the area. Therefore, the WSX Alternative, in conjunction with the city's grade separations projects, would not substantially degrade the existing visual character or quality of Paseo Padre Parkway or Washington Boulevard nor damage scenic resources or natural elements near these scenic roads.

Because the proposed alignment for SVRTC would be located entirely to the south of the WSX Alternative, the only cumulative impacts likely to occur in conjunction with the WSX Alternative would be construction related. If the timing of construction for any of the various cumulative projects were to overlap with that of the WSX Alternative, cumulative construction-related visual impacts could occur. Due to the linear nature of the WSX Alternative, the only projects that could have cumulative visual construction effects are Wal-Mart, Skyway Court, and SVRTC. Wal-Mart and Skyway Court are adjacent to sections of the WSX Alternative alignment where the chief construction activities would be constructing a gap breaker station, grading the railroad bed, and placing the BART tracks. These are relatively minor construction activities and the related visual impacts would be negligible and would not contribute to cumulative visual impacts. The terminus of the SVRTC project would be approximately 1,400 feet south of the Warm Springs Station site, where the two alignments would meet. Due to this distance between the construction around the Warm Springs Station and the closest SVRTC construction, cumulative visual construction impacts are not expected.

Contribution of the Optional Irvington Station to Cumulative Impacts

Impact A-Cume-2—Potential for construction of Irvington Station to result in a cumulatively considerable contribution to visual impacts. The City of Fremont's grade separations project along Washington Boulevard is the only approved or proposed project in the vicinity of the Irvington Station. Construction of the grade separations project and the optional Irvington Station would change the visual character of the Washington Boulevard/Osgood Road area. The combination of the elevated intersection and the Irvington Station, with its pedestrian concourse over Osgood Road, would add new visual elements to the scene. As illustrated in Figures 4.11-7 and 4.11-10 (Section 4.11, *Aesthetics*), the existing visual environment has many visually unrelated objects (residences, industrial structures, old automobiles, disjointed landscaping, etc.). The cumulative development would not detract from the existing scene, but would replace many of the disjointed elements with a more unified visual environment.

Therefore, the cumulative effect of the optional Irvington Station in combination with the city's grade separations project would not result in a cumulative adverse visual impact.

5.2.13 Cumulative Impacts on Cultural Resources

Contribution of Warm Springs Extension to Cumulative Impacts

Operational Contribution

Impact CR-Cume-1—Potential for damage to archaeological resources. There is potential for the WSX Alternative, together with other projects, to contribute to cumulative impacts on important archaeological resources. However, such contribution would be considered minimal after implementation of the site-specific mitigation measures described in Section 4.12, *Cultural Resources*: Mitigation Measures CR-2(a) (Prepare and implement MOA and treatment plan for APE), CR-2(b) (Conduct geomorphological research and subsurface investigations, including backhoe trenching), CR-2(c) (Conduct subsurface testing, data recovery, and reporting for CA-ALA-343CR-2[d]), CR-2(d) (Stop work if buried cultural deposits are encountered during construction activities), and CR-5 (Preserve and interpret structural remains of Gallegos Winery and associated features). In general, data recovery efforts that are carried out according to professional standards are

sufficient to mitigate impacts on archaeological resources. In addition, other projects will also be required to mitigate their impacts on cultural resources in accordance with professional standards. Any remaining impacts after mitigation would not be expected to be adverse, and the WSX Alternative would not result in an adverse contribution to a cumulative impact.

Impact CR-Cume-2—Potential for damage to William Y. Horner House. The WSX Alternative has the potential to cause an adverse impact on the Horner House, a historically significant building. Vibration impacts associated with operation of the WSX Alternative could cause structural damage to the Horner House, which is a residential building that has been identified as a significant historical resource. However, Mitigation Measure N-2 has been incorporated into the project to reduce this impact. Only one project included in the cumulative impacts assessment, the Deaf Senior Retirement Corporation housing development at Driscoll Road south of Valero Road, is in the vicinity of the Horner House. The housing development would not be expected to generate ongoing vibration impacts on nearby properties. Therefore, because the WSX Alternative’s vibration impacts on the Horner House would be mitigated and no other known projects would contribute to vibration impacts at the Horner House, the WSX Alternative would not result in an adverse contribution to a cumulative impact.

Mitigation Measure N-2—Implement vibration-reducing measures at vibration-sensitive land uses in the WSX Alternative corridor. This mitigation measure is described in Section 4.13, *Noise and Vibration*.

Construction-Related Contribution

The permanent effects of construction activities required to implement the WSX Alternative are considered operational impacts, because these effects would persist throughout the lifetime of the WSX Alternative. Therefore, the WSX Alternative’s contribution to cumulative construction-related impacts is discussed above under *Operational Contribution*. The WSX Alternative is not expected to contribute to additional (temporary) cumulative effects on cultural resources.

Contribution of Optional Irvington Station to Cumulative Impacts

Impact CR-Cume-3—Potential impact on cultural resources: Gallegos Winery structure and Ford House. Ongoing development in the region, unrelated to the BART project, has resulted in the destruction and alteration of many cultural resources in the area over time. If the optional Irvington Station results in adverse impacts to cultural resources, then the project would make a contribution to the ongoing, cumulative loss of cultural resources.

Implementation of the optional Irvington Station would result in the construction of a pedestrian walkway and parking lot on the Gallegos property that would result in a loss of historic setting to the structural remains of the winery and associated features, thereby altering them to such a degree that the ability of the site to convey its significance would be materially impaired.

Implementation of the optional Irvington Station would result in new construction on the Ford House property, thereby resulting in a loss of historic setting. The Irvington Station would alter the Ford House parcel to such a degree, that the ability of the building to convey its significance as a residence would be materially impaired.

Construction of the Irvington Station has the potential to contribute to the cumulative loss of historic architecture in the area. However, mitigation measures for preserving and interpreting the Gallegos Winery ruins (Mitigation Measure CR-5) and reusing and rehabilitating the Ford House property

according to Secretary of Interior Standards (Mitigation Measure CR-6) have been incorporated into the project design and would minimize any adverse cumulative impacts.

The optional Irvington Station's contribution to cumulative construction-related impacts is discussed above under *Operational Contribution*, because any such impacts would persist throughout the lifetime of the optional Irvington Station. The WSX Alternative is not expected to contribute to additional (temporary) cumulative impacts on cultural resources.

5.2.14 Cumulative Impacts on Noise and Vibration

Criteria for Cumulative Impacts

The cumulative noise impact analysis for the WSX Alternative was based on the criteria defined in the FTA's guidance manual, *Transit Noise and Vibration Impact Assessment* (Federal Transit Administration 1995). These criteria are used by BART to assess cumulative noise impacts. The WSX Alternative's contribution to cumulative noise impacts is determined by combining the anticipated future cumulative background noise level, expressed in L_{dn} , with the projected L_{dn} produced by operation of BART trains. Determination of the future cumulative background noise level is based on the existing background noise level and the effect on noise of the list of approved and pending development projects in Fremont. Surface-street traffic generally governs the background noise level in the project area. A comparison of existing traffic volumes to predicted 2025 traffic volumes that takes into account approved and pending development projects indicates that the background noise level in the project area will typically not change by more than 1 dB. Accordingly, the future cumulative background noise level is considered to be the same as the existing background noise level. This is typical for this type of developed urban setting. The cumulative impact assessment for noise considers the potential for the WSX Alternative, in combination with the projects described above, to have impacts on the physical environment.

Contribution of Warm Springs Extension to Cumulative Impacts

Operational Contribution

Since the noise and vibration impacts analyses in this EIS are based on future background noise level resulting from 2025 traffic volumes, the cumulative noise impacts of all such developments are included, and additional analysis of potential cumulative effects of specific projects would be redundant. Accordingly, the following assessment presents the combined effects of future groundborne vibration in conjunction with the WSX Alternative (and optional Irvington Station) and SVRTC.

Impact N-Cume-1—Contribution to cumulative vibration impacts on vibration-sensitive receptors. Most of the approved and pending development projects would not contribute to groundborne vibration impacts in the study area. Operation of the SVRTC project would contribute to groundborne vibration impacts in the southern end of the study area because it would generate groundborne vibration at a level similar to the WSX Alternative. However, SVRTC would not actually generate additional vibration in the WSX Alternative area; the vibration from SVRTC would be the same as that from the WSX Alternative because it would be the same cars running on the same track for the same duration. SVRTC would result in vibration impacts in a new geographical area not affected by the WSX Alternative.

The UP freight rail switching yard serving NUMMI, which is immediately adjacent on the west side of the site where the two projects would meet, would contribute to potential cumulative groundborne vibration impacts. Since land uses in this area are industrial and commercial, there are no vibration-sensitive receptors located in the immediate vicinity. Therefore, implementation of the WSX Alternative would not contribute to cumulative groundborne vibration impacts on vibration-sensitive receptors. No mitigation for cumulative groundborne vibration impacts is required.

Construction-Related Contribution

Impact N-Cume-2—Cumulative contribution to cumulative construction-related noise and vibration impacts. Noise and vibration from construction of the WSX Alternative will be highly localized and will be mitigated through the implementation of Mitigation Measures N-4(a) (Employ noise-reducing construction practices), N-4(b) (Disseminate essential information to residences and implement a complaint response/tracking program), and N-5 (Employ vibration-reducing construction practices). It is not anticipated that construction of other projects listed in Table 5-1 will occur at the same time and in the same location as construction of the WSX Alternative. For these reasons, no cumulative construction noise or vibration impacts are anticipated.

Contribution of Optional Irvington Station to Cumulative Impacts

Operational Contribution

Because BART operations with the optional Irvington Station would be the same as the WSX Alternative without the Irvington Station, the cumulative operational noise and vibration impacts of the WSX Alternative with the optional Irvington Station are predicted to be the same as those for the WSX Alternative without the station.

Construction-Related Contribution

For the same reasons presented above for the WSX Alternative without the optional Irvington Station, no cumulative construction noise or vibration impacts are anticipated for the WSX Alternative with the optional Irvington Station.

5.2.15 Cumulative Impacts on Air Quality

Contribution of Warm Springs Extension to Cumulative Impacts

Operational Contribution

Impact AIR-Cume-1—Effects of cumulative projects on ROG, NO_x, and PM₁₀ emissions from mobile sources. The results of regional air quality modeling for the WSX Alternative, described in Section 4.14, *Air Quality*, include the contributions to air quality from projected development that is incorporated into the model. Increases in transit ridership would reduce automobile VMT. Accordingly, the results in Tables 4.14-4 and 4.14-5 (Section 4.14, *Air Quality*) demonstrate that the WSX Alternative would have cumulative beneficial effects on air quality because it reduces regional air emissions.

However, the projections of general regional growth that are incorporated into the regional modeling analysis presented in Tables 4.14-4 and 4.14-5 (Section 4.14, *Air Quality*) do not include the proposed SVRTC project. Additional modeling analysis was performed in order to evaluate the potential cumulative effect on air quality of the WSX Alternative together with the SVRTC project (as well as regional growth). As indicated on Tables 5-3 and 5-4, the WSX Alternative along with the SVRTC improvements would decrease ROG, NO_x and PM₁₀ emissions in 2025 as compared to

the no project condition. The cumulative increase in transit ridership would further reduce automobile VMT.

Comparison of Tables 5-10 and 5-11 to 4.14-4 and 4.14-5 (Section 4.14, *Air Quality*) shows that the WSX Alternative together with SVRTC would also decrease ROG and PM10 in 2025 compared to the WSX Alternative alone. However, NO_x emissions for the WSX Alternative together with SVRTC would be similar to those for the WSX Alternative alone, and would increase for the WSX Alternative with optional Irvington Station together with SVRTC compared to the WSX Alternative with optional Irvington Station alone. The reason for this result is that, under the cumulative scenarios with SVRTC, projected VMT for buses would increase slightly relative to VMT for automobiles (as feeder bus service is added to serve the new BART stations), and buses emit higher levels of NO_x than automobiles.

In sum, the cumulative effect of the WSX Alternative together with the SVRTC project, if it were adopted, would result in regional air quality benefits.

Table 5-10. Cumulative Mobile Source Emissions Resulting from WSX Alternative plus Proposed SVRTC Project (pounds/day)

	ROG	NO _x	PM10
2025 No Build	14,029	34,232	175,548
2025 WSX Alternative plus SVRTC	13,942	34,192	174,331
2025 WSX Alternative with Irvington Station plus SVRTC	13,961	34,224	174,590

Source: EMFAC 2001; Vehicle Miles Traveled, DKS Associates 2002

Table 5-11. Cumulative Mobile Source Emissions Resulting from WSX Alternative plus Proposed SVRTC Project (tons/year)

	ROG	NO _x	PM10
2025 No Build	3,089	7,229	32,038
2025 WSX Alternative plus SVRTC	3,070	7,218	31,816
2025 WSX Alternative with Irvington Station plus SVRTC	3,074	7,225	31,863

Source: EMFAC 2001; Vehicle Miles Traveled, DKS Associates 2002

Construction-Related Contribution

Impact AIR-Cume-2—Potential for construction of WSX Alternative to contribute to cumulatively considerable air quality impacts. Air quality impacts related to the construction of the WSX Alternative would be mitigated using the required mitigation measures from BAAQMD. Other projects that may be undergoing construction in the vicinity of the WSX Alternative in the same time frame (including the northern portion of the SVRTC, if that project is adopted and if construction of its northern portion overlaps with construction of the Warm Springs station) would also be required to incorporate the BAAQMD mitigation measures. Assuming BAAQMD's mitigation measures are implemented for all projects, those measures are designed to be sufficient to

reduce cumulative air quality impacts. Accordingly, based on implementation of Mitigation Measure AIR-1 (Implement dust and vehicle control measures) throughout the construction phase, no contribution to cumulative impacts would result.

Contribution of Optional Irvington Station to Cumulative Impacts

Operational Contribution

Impact AIR-Cume-3—Effects of cumulative projects on ROG, NO_x, and PM10 emissions from mobile sources. Additional increases in transit ridership associated with the Irvington Station would further reduce automobile VMT. Accordingly, the results in Tables 4.14-4 and 4.14-5 (Section 4.14, *Air Quality*) demonstrate that the WSX Alternative would have cumulative beneficial effects on air quality, since it reduces regional air emissions.

As noted above, the projections of general regional growth that are incorporated into the regional modeling analysis presented in Tables 4.14-4 and 4.14-5 (Section 4.14, *Air Quality*) do not include the proposed SVRTC project. Tables 5-10 and 5-11 show that the WSX Alternative with Irvington Station along with the SVRTC improvements (as well as regional growth) would further decrease ROG, NO_x, and PM10 emissions in 2025 as compared to the no project condition. Therefore, the cumulative effect of the WSX Alternative with Irvington Station, together with the SVRTC project if it were adopted, would result in regional air quality benefits.

Construction-Related Contribution

Impact AIR-Cume-4—Potential for construction of WSX Alternative to result in cumulatively considerable air quality impacts related to construction of optional Irvington Station. This impact is similar to Impact AIR-Cume-2, as described above, but would apply to construction activities associated with the optional Irvington Station. Air quality impacts related to the construction of the WSX Alternative with Irvington Station and other projects would be mitigated using the required mitigation measures from BAAQMD. Assuming implementation of Mitigation Measure AIR-6 (described above) throughout the construction phase of the WSX Alternative and other projects, construction is not expected to contribute to cumulative impacts.

5.2.16 Cumulative Impacts on Energy Resources

Operational Contribution

Impact E-Cume-1—Contributions of WSX Alternative (without and with the optional Irvington Station) to overall energy usage. The results of regional energy budget modeling for the WSX Alternative, both with and without the optional Irvington Station, described under Impacts E-1 and E-5 in Section 4.15, *Energy*, include the contribution to energy consumption from projected development that is incorporated into the model. Increases in transit ridership would reduce automobile VMT. Accordingly, the WSX Alternative, both with and without the Irvington Station, would have a beneficial effect on the overall regional energy budget, as shown by the discussion of Impacts E1 and E5. Therefore, with or without the optional Irvington Station, the WSX Alternative would have a beneficial impact on the region's cumulative energy budget. No further analysis or mitigation is required for Impacts E-1 and E-5.

The projections of general regional growth that are incorporated into the regional modeling analysis presented under Impacts E-1 and E-5 do not include the proposed SVRTC project. Additional modeling analysis was performed to evaluate the potential cumulative effect on the regional energy

budget by the WSX Alternative in conjunction with the SVRTC project (as well as regional growth). As indicated on Table 4.15-2 (Section 4.15, *Energy*), the WSX Alternative in addition to the SVRTC improvements would further decrease regional energy consumption, as compared to the no action condition, because the cumulative increase in transit ridership would further reduce automobile VMT. Compared to the No Build, the WSX Alternative together with SRVTC project would save approximately 1.75 trillion BTUs. Compared to the No Build, the SRVTC project with the optional Irvington Station included would save approximately 1.34 trillion BTUs. Therefore, together with the SVRTC project, the cumulative effect of the WSX Alternative, both with and without the optional Irvington Station, if adopted, would result in a regional energy benefit.

Impact E-Cume-2—Contributions of the WSX Alternative (without and with the optional Irvington Station) to peak- and base-period electricity demand. As discussed in the analysis conducted in Section 4.15, *Energy*, for Impact E-3 and E-7, the increased demand the WSX Alternative, both with and without the optional Irvington Station, puts on the Cal-ISO electrical transmission grid could have an impact, depending on how much the transmission system is improved prior to implementation of the WSX Alternative. Because no mitigation is available to reduce this impact, it is considered an unavoidable impact. In addition, this project in conjunction with other projects in the area, including those listed in Table 5-1, would have the potential to exceed projected electricity supply. Therefore, the WSX Alternative could contribute to cumulative effects on electricity demand, and could, in conjunction with other growth in the area, potentially exceed energy supply, which would be an unavoidable impact.

Construction-Related Contribution

Impact E-Cume-3—Effects of construction of the WSX Alternative on the consumption of nonrenewable energy resources. The total construction time for the WSX Alternative (without and with the optional Irvington Station) and the cumulative projects is anticipated to extend beyond 4 years. Construction impacts on energy consumption would be temporary and would be spread over several years. The energy consumed during construction of the WSX Alternative would not result in consumption of nonrenewable energy resources in a wasteful, inefficient, or unnecessary manner with implementation of Mitigation Measure E-4 (Develop and implement construction energy conservation plan) as described in Section 4.15, *Energy*. It is also assumed that other projects will adopt best practices for energy conservation. Therefore, the WSX Alternative in conjunction with the projects listed in Table 5-1 would not contribute to a cumulative effect on the consumption of nonrenewable energy resources.

5.2.17 Cumulative Impacts on Utilities and Public Services

When considered along with other the past, present, and reasonably foreseeable future projects listed in Table 5-1, construction of the WSX Alternative, both with and without the optional Irvington Station, may result in cumulative regional or localized utility and public services impacts related to construction activities. Given the duration of construction expected for the WSX Alternative (approximately 4 years), its construction window would likely overlap with those of other projects list in Table 5-1. It could also overlap with construction of the SVRTC. The construction-related effect of greatest concern with regard to utilities and public services is typically accidental service disruptions. Mitigation measures for utilities and public services are provided in Section 4.15. Each of the other construction projects in the project area will be required to comply with similar legally

enforceable measures relating to utilities and public services. These measures applied to each project would minimize the potential impacts from each; therefore, there would be no cumulative impact.

5.2.18 Cumulative Impacts on Safety and Security

The WSX Alternative and the SVRTC are expected to add eight transit stations (plus two optional stations) in the region, which may affect the demand for local police protection or community services. However, BART would provide public and project security during operation of the WSX Alternative and the SVRTC on its vehicles and station areas. In addition, BART's System Safety Department administers a comprehensive and coordinated System Safety Program in order to identify, control, and resolve potential hazards during the design, development, and operation of transit service. Moreover, BART will prepare a Safety and Security Certification Plan for the WSX in accordance with FTA guidelines and BART's System Safety Department certification procedures, and the certification plan will be submitted to the California Public Utilities Commission.

There are also potential cumulative impacts for the WSX Alternative, (with or without the optional Irvington Station) since it would place an incremental increase in demand on safety and security programs during construction. Several of the projects listed in Table 5-1 would either be under construction at the same time as the WSX Alternative or would be located within the general vicinity of the WSX Alternative. Should all or some combination of these projects be under construction simultaneously, construction could increase traffic congestion and affect the response times of emergency personnel to these construction sites in the event of an accident. Mitigation measures for safety and security are provided in Chapter 4.16. Each of the other projects in the project area will be required to comply with similar legally enforceable measures relating to the security impacts of that project. These measures applied to each project would minimize the potential impacts from each; therefore, that there would be no cumulative impact.

5.2.19 Cumulative Impacts on Environmental Justice

Taking into consideration the effects of other past, present, and reasonably foreseeable future projects in the vicinity of the WSX Alternative alignment, neither construction nor operation of the WSX Alternative (with or without the optional Irvington Station) would result in cumulative impacts related to environmental justice. Environmental justice concerns would arise if the WSX Alternative resulted in disproportionately high and adverse human health or environmental effects. As the analysis of environmental justice considerations in Section 4.18 notes, the factors that must be considered in determining whether effects are disproportionately high and adverse are whether (1) the effects of the WSX Alternative are predominately borne by a minority or low-income population, or (2) the effects of the WSX Alternative are appreciably more severe or greater in magnitude on minority or low-income populations compared to the effects on non-minority or non-low-income populations. A corresponding assessment of potential cumulative effects depends on whether (1) the effects of the WSX Alternative and related projects taken together are predominately borne by a minority or low-income population, or (2) the effects of the WSX Alternative and related projects taken together are appreciably more severe or greater in magnitude on minority or low-income populations compared to the effects on non-minority or non-low-income populations, *and* (3) the effects of the WSX Alternative and related projects taken together are appreciably more severe or greater in magnitude on minority or low-income populations compared to the effects on non-minority or non-low-income populations.

None of the required factors above appears to be satisfied in this case. First, as was documented in Section 4.18, the study area and indeed the entire Bay Area region are characterized by a plurality of different population groups, with many areas (including the study area) having “majority minority” populations. There is no evidence to suggest that the WSX Alternative or any of the related projects bear any particular relationship to the demographic characteristics of the communities surrounding them. Except for those goals of the WSX Alternative related to serving transit-dependent population groups, the purposes and needs underlying the WSX Alternative and the other related projects are generally associated with factors having little or nothing to do with the make-up of the local and regional population. Second, the effects of the WSX Alternative and the related projects, whether individually or taken as a group, cannot be said to be markedly different in relative character, duration, or likelihood with respect to any population groups. These are effects that are not uncommon to any population group in an urbanized area. Finally, it is unlikely that the effects of the WSX Alternative and the related projects would contribute to adverse cumulative effects after mitigation, project enhancements, and other offsetting benefits are taken into account. For all of these reasons, no adverse cumulative effects related to environmental justice are anticipated.

5.3 Indirect Effects

Pursuant to Section 1502.16(b) of the CEQ NEPA Regulations, an EIS must address the indirect effects of a proposed action. Indirect effects are defined as effects:

...which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rates, and related effects on air and water and other natural systems, including ecosystems.

The following analysis evaluates whether the WSX Alternative would indirectly induce economic, population, or housing growth within the WSX Alternative’s surrounding environment. Information used to support conclusions in this analysis was derived from ABAG, BART, and the City of Fremont’s adopted *General Plan* and *General Plan EIR*.

5.3.1 Growth, Land Use, and Transportation Systems

Growth rates and patterns within an area are influenced by various local, regional, and nationwide forces that reflect ongoing social, economic, and technological changes. Ultimately, the amount and location of population growth and economic development that occurs within a specific area is regulated by city and county governments through zoning, land use plans and policies, and decisions regarding development applications. Local government and other regional, state, and federal agencies also make decisions regarding the provision of infrastructure (e.g., transportation facilities, water facilities, sewage facilities) that may influence growth rates and the location of future development.

Transportation projects can have a wide range of growth-inducing effects. A project may hasten growth in certain areas, retard it in other areas, intensify growth in certain locations, or shift growth from one locality to another. Generally, transportation improvements support growth, whereas land use development generates new travel demand and therefore supports the need for new transportation facility capacity. Transportation infrastructure is one component of the overall infrastructure that may serve to accommodate planned growth. This infrastructure may also serve to accelerate or shift

planned growth or encourage and intensify unplanned growth (i.e., growth not specifically identified in an adopted general or specific plan) within an area (San Francisco Bay Area Rapid Transit District 1991).

Extension of urban services or transportation facilities into previously unserved or underserved areas, or removal of obstacles to growth and development, are considered factors that contribute to growth inducement. However, existing ABAG projections include substantial future population and employment growth in the Fremont area over the next 20 years, as detailed in Section 4.10 (*Population, Economics, and Housing*). The WSX Alternative is planned to serve the existing corridor's transit needs as well as accommodate this planned future development.

Generally, extension of rail transit systems, such as BART, into communities has the effect of concentrating growth into infill areas and producing positive economic benefits to a community. More compact development is made possible by the high-volume service of BART-type rail transit systems, creating less urban sprawl than would be the case if all development were auto-oriented. This more compact style of development is a key principle of "smart growth." *Smart growth* is a movement to foster responsible land use development patterns and growth that benefits the economy, community, and the environment. Some of the characteristics of smart growth include mixed land uses, compact building designs, a range of types of housing choices, walkable neighborhoods, preservation of open space and farmland, and a range of transportation choices. Transit-oriented development is a key component of smart growth. (Sedway Group 1999.)

5.3.2 Regional Growth and BART Ridership

This section provides a discussion of regional growth and regional BART ridership trends. Because BART is a multi-jurisdictional provider of mass public transit services in the Bay Area's complex transportation system, the effects of the WSX Alternative on growth inducement must first be discussed in the context of regional population and ridership trends.

Based on ABAG's 2002 projections, the population in the nine Bay Area counties will increase by 1.4 million from 2002 to 2025, which is comparable to the rate of growth estimated from 1980 to 2000. Although recent downturns in the local economy indicate that short-term job growth in the Bay Area is limited, the long-term forecast for additional jobs is far more substantial: an additional 1,180,000 jobs are expected to be added through 2025 (Association of Bay Area Governments 2001). Housing costs and overall affordable-housing shortage trends are expected to continue during this timeframe, leading to a higher likelihood of infill development and longer commutes, which in turn leads to demands for improved roadway capacity and mass transportation systems. Growth is anticipated in the Bay Area regardless of whether the WSX Alternative and other transit projects are constructed. However, the environmentally superior type of growth associated with smart growth is less likely to occur if the WSX Alternative and other transit projects are not constructed. The location, intensity, and forms of growth can shift to take advantage of the regional access afforded by transit improvements, resulting in more potential for smart growth development.

BART rail ridership has increased incrementally since the inception of service in 1972. This was attributable to an expanding economy in the late 1990s, a high level of employment, substantially increased roadway congestion, higher gasoline prices, and the opening of eight new BART stations since 1995. This trend in increasing demand for BART is expected to continue as the region grows in the future (San Francisco Bay Area Rapid Transit District 2001). The WSX Alternative is

expected to contribute to these ridership trends given projected long-term growth within southern Alameda and northern Santa Clara counties.

5.3.3 Growth-Inducing Impacts of the WSX Alternative

The analysis in Sections 5.3.4–5.3.6 below concludes that the WSX Alternative would result in the following:

- No effect on growth overall in the Bay Area region (Section 5.3.4).
- Potential for indirect adverse growth-related impacts in the local study area (Section 5.3.5).
- Potential for indirect positive contribution to smart growth patterns in the local study area (Section 5.3.6).

5.3.4 Regional Growth Inducement

BART's original vision was to shape regional economic growth on a large-scale, area-wide basis. An explicit goal was to encourage and support large economic and redevelopment plans in the downtown areas of San Francisco and Oakland and in suburban centers along major corridors—effectively becoming “an integrated transit system that the Bay Area needed” (Sedway Group 1999). Thirty years later, the original economic focus of Bay Area rail investments has largely succeeded; San Francisco and Oakland's central business districts added millions of square feet of office uses during the 1970s and 1980s. However, many expectations of growth in outlying areas did not occur, even in planning policy, until quite recently.

As mixed-use centers became accepted by the development community in the mid-1980s, commercial and employment-oriented development occurred more frequently around several suburban centers, notably Concord, Hayward and Walnut Creek. As the Bay Area's chronic housing shortage worsened, and given that many BART stations exist in redevelopment areas, more multi-family housing, especially affordable housing, began to be included near BART stations (Cervero et al. 1995).

A large number of general plan updates and redevelopment plan amendments occurred in cities around the Bay Area during the mid to late 1990s, some of which had not been substantially revised for decades. With the refinement of smart growth principles in urban design and planning, the focus shifted to transit-oriented development with higher employment and housing densities within walking distance of rail stations. The late 1990s economic boom led to the creation of many transit-oriented development plans, which ultimately were adopted into updated general plans (BART Planning Department 2002).

The WSX Alternative is designed to serve the current and planned growth in population, housing, and employment in the next 15 to 20 years in the regional South Bay Area (southern Alameda and Santa Clara Counties). The WSX Alternative would provide a key segment in the Bay Area's regional rail transportation network between San Francisco, the East Bay, and the South Bay by providing a link as part of the plans for an integrated system between BART, AC Transit District, and VTA. The additional 16.3 miles of BART service would be extended from the proposed Warm Springs Station terminus to near 28th and East Santa Clara streets in San Jose on the UP alignment. The alignment would then proceed below grade in a subway under downtown San Jose and terminate

near the Caltrain commuter rail station in Santa Clara. The extension would include seven stations and one future station in Santa Clara County. The new stations would be located at Montague/Capitol, Berryessa, Alum Rock, Civic Plaza/San Jose State University, Market Street, Diridon/Arena, and Santa Clara. This BART service extension would also include a future station near Calaveras Boulevard in Milpitas.

On a regional level, MTC has determined that the region-wide transportation improvements in the Bay Area (specifically those included in MTC's 2001 Regional Transportation Plan, such as the WSX Alternative, SVRTC project, etc.), would not have a significant growth-inducement effect in the Bay Area because the proposed transportation systems lag behind the growth that has already occurred in the Bay Area. MTC has determined that these transportation improvements are consistent with projected and planned growth in the region overall and would not adversely alter land designated for future development in existing local plans (Dyett & Bhatia 2001). MTC, in conjunction with ABAG and other regional agencies, has since created a smart growth approach to planning regional transportation improvements that support updated general plans, redevelopment plans, and concept plans with a transit-oriented development focus (Metropolitan Transportation Commission 2002, Association of Bay Area Governments 2002).

5.3.5 Indirect Adverse Growth-Inducing Impacts in the Local Study Area

The WSX Alternative would *indirectly* induce growth in southern Fremont through several means, including alleviating highly congested transportation systems; improving access to existing neighborhoods, civic resources, and employment centers from regional public transit that may grow as a result; and providing incentive for development on vacant and underutilized land in the vicinity (see Section 5.3.6 below). Additionally, the new station would provide an access point for residents and employees seeking transit to the BART system.

Therefore, to the extent that improved transit systems encourage development by removing obstacles to mobility or improving access in the region, the WSX Alternative could have an indirect growth-inducing effect by accelerating planned growth in a more compact, transit-oriented form, particularly in and around the Warm Springs BART Specific Plan Area. Additionally, changes in land use designations implemented by the City of Fremont since 1992 in the area around the proposed Warm Springs Station and the optional Irvington Station would allow for more mixed-use development and could indirectly encourage growth.

Although the indirect growth caused by the WSX Alternative and the optional Irvington Station in the local study area is not considered adverse in itself, it could cause indirect adverse growth-related impacts associated with construction and implementation of new development projects in the local project area (i.e., air and noise impacts from construction of new housing or other development, etc). Any potential future growth that could result from implementation of the WSX Alternative is under the jurisdiction of the City of Fremont. Following established planning procedures, the city will create a specific plan for the Warm Springs Station Area early next year, which will include opportunities for public involvement. The city anticipates adopting the *Warm Springs Bart Plan* and certifying the EIR for the plan by mid-2005. The existing *Irvington Redevelopment Plan* will be amended to reflect the outcome of the public planning process. A Draft Negative Declaration has been prepared as part of an amendment for the *Draft Irvington Redevelopment Plan*. Upon certification and formal approval of the environmental documents, both the specific plan and the

redevelopment plan amendment will be adopted by the City Council and Redevelopment Agency as amendments to the *Fremont General Plan* and *Fremont Redevelopment Plan* respectively. Therefore, impacts associated with development in the local project area will be addressed by the city in its *General Plan* and through the environmental review process.

The city's planning efforts for the areas surrounding the proposed Warm Springs Station and optional Irvington Station are intended to encourage changes to land use designations and zoning to accommodate anticipated growth, including transit-oriented development. These changes reflect the indirect influence of the WSX Alternative. The city's planning processes are not complete. Subsequent to formal adoption of a future Warm Springs BART Area specific plan or Irvington redevelopment plan that provides program-level environmental review, any new transit-oriented development proposals would be subject to environmental review on a project-specific basis.

5.3.6 Indirect Positive Contribution to Smart Growth Patterns in the Local Study Area

A major objective of the WSX Alternative is to improve regional transit access and transportation services to accommodate planned and future growth in Fremont and adjacent areas of southern Alameda County. As outlined in Chapter 2, *Purpose and Need*, the purpose and need for the project reflect BART's cooperation with other government entities and serve to advance multi-jurisdictional efforts to plan and implement transit-oriented development (Association of Bay Area Governments 2003).

New development, defined through the creation of specific and redevelopment plans for areas surrounding both the proposed Warm Springs and optional Irvington Stations, is intended to reflect a more pedestrian-oriented, compact, and mixed-use development. BART access plans providing multi-modal access to regional rail emphasize public space and infrastructure improvements that are designed to encourage the private sector developers, who increasingly specialize in transit-oriented projects around BART and other rail stations (San Francisco Bay Area Rapid Transit District 2002).

Proximity to a BART station offers major incentives to attract business, entertainment, commercial/retail, and other employment-generating land uses, along with unique opportunities for meeting the city's growing housing needs. While development may occur without the WSX Alternative, it most likely will be auto-oriented and thus will not be smart growth. The WSX Alternative thus meets the major policy goals of smart growth being endorsed by state, regional, and county agencies by providing an incentive for transit-oriented planning, which is being led by the city (Association of Bay Area Governments 2003). The specific environmental benefits of particular smart growth projects will be measured through these separate planning efforts, while this EIS identifies how the WSX Alternative contributes to the probability of such future development patterns.

5.4 List of Required Federal Permits

The permits and approvals shown in Table 5-12 will be required to implement the WSX Alternative.

Table 5-12. Required Federal Permits and Approvals

Agency	Statutory Authority	Permit or Approval Jurisdiction, Actions Covered	Documentation or Prior Actions Required
Federal Transit Administration	NEPA; Clean Air Act of 1970 as amended	Lead federal agency for EIS; granting of funding; conformity evaluation of project with State Implementation Plan under Clean Air Act (CAA)	Approval of this EIS, Record of Decision, and CAA Conformity Analysis
U.S. Environmental Protection Agency	Section 404 permit (Clean Water Act Amendment of 1977); Clean Air Act of 1970 as amended	Section 404 oversight; CAA Conformity determination	Review of EIS
U.S. Department of Interior	Section 4(f) (Department of Transportation Act of 1966)	Approval of a transportation project for use of publicly owned land such as a park, recreation area, wildlife refuge, or land from a historic site of national, state, or local significance	Section 4(f) evaluation
U.S. National Park Service	Section 6(f)(3) (Land and Water Conservation Fund)	Approval of conversion to non-park use of publicly owned park property, or park facilities whose acquisition or construction were financed by the Fund.	Section 6(f) evaluation
U.S. Fish and Wildlife Service	Section 7 (Federal Endangered Species Act of 1972); Migratory Bird Treaty Act of 1918	Section 7 – Taking (kill, harm, capture, harass, etc.) of endangered and other special-status plant or animal species	Biological Assessment; Review of EIS
U.S. Army Corps of Engineers	Section 404 permit (Clean Water Act)	Permits for discharge of dredged or fill materials into waters of the United States, including jurisdictional wetlands according to Section 404 (b) (1) guidelines	Review of EIS
Advisory Council on Historic Preservation	Section 106 review (National Historic Preservation Act of 1966)	Review of project for potential disturbance to significant historic and archaeological resources	Finding of Effect
Regional Water Quality Control Board	Section 401 and 402 of Clean Water Act; Porter-Cologne Act	Section 401 and Porter Cologne Act – Water quality certification, or waiver thereof, for potential construction in wetlands areas determined to be under U.S. Army Corps of Engineers' jurisdiction	

5.5 Relationship between Short-Term Uses of the Environment and Long-Term Productivity

Short-term uses of the natural, physical, and built environment would be required in order to implement the WSX Alternative. Such uses are minimized because of the proposed use of an existing railroad right-of-way for the majority of the alignment. Short-term uses are also considered temporary since they are principally associated with the construction period. The tradeoff with the short-term use requirements is a long-term benefit associated with the implementation of the proposed action. These tradeoffs are identified in the following discussion.

The following short-term uses of the environment would be required to implement the WSX Alternative.

- Some loss of vegetation during construction due to site clearing.
- Temporary changes to visual quality due to construction activities.
- Traffic disruptions during construction.
- Temporary disruptions to freight rail service during construction.
- Temporary disruption to park and recreational use during construction.
- Displacement of residences.
- Displacement of economic activities.
- Disruption of economic activities for non-displaced businesses during construction.
- Temporary air quality, noise, and vibration effects during construction.

The following long-term productivity would either be maintained or enhanced by the WSX Alternative.

- Alternative choice of transportation throughout the region.
- Enhanced transit and traffic capacity within existing right-of-way.
- Improved access to employment opportunities.
- Reduced congestion at key roadway intersections.
- Improved safety conditions along corridor.
- Improved and alternative use of energy consumption.
- Long-term improvements in economic conditions
- Enhanced potential for high-density, transit-oriented development
- Decrease toxic air contaminant emissions

5.6 Irreversible or Irretrievable Commitment of Resources

Implementation of the WSX Alternative would involve a commitment of a range of natural, physical, human, and fiscal resources. Land required for the proposed action would be considered an irreversible commitment. Additional property requirements would be necessary at station locations.

The acquisition of property and associated displacement of residences and businesses in order to construct the WSX Alternative and its stations would represent an irreversible commitment of real property. Owners, residents, or tenants of these properties would be afforded opportunities to relocate (as discussed in Section 4.10, *Population, Economics, and Housing*), but their existing properties would be converted to transit uses necessary to support the project.

Considerable amounts of fossil fuels, labor, and construction materials would be expended in the construction of the WSX Alternative. Large amounts of labor and natural resources would also be used in the fabrication and preparation of construction materials. These materials are generally considered irretrievable. However, their availability is not limited and their use would not have an adverse impact on continued availability of these resources. The construction of the WSX Alternative would also require substantial expenditure of local, state, and federal funds, which, once spent, would not be retrievable.

Section 4(f)/Section 6(f) Evaluation

6.1 Application of Section 4(f)

6.1.1 Introduction

Section 4(f) of the Department of Transportation Act of 1966, codified at 49 USC Section 303, declares that “[i]t is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.”

Section 4(f) specifies that

[t]he Secretary [of Transportation] may approve a transportation program or project . . . requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge or site) only if –

- (1) there is no prudent and feasible alternative to using that land; and
- (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Section 4(f) further requires consultation with the Department of Interior and, as appropriate, the involved offices of the Department of Agriculture and the Department of Housing and Urban Development, and relevant state and local officials, in developing transportation projects and programs that use lands protected by Section 4(f).

The WSX Alternative, as described in Chapter 3, is a transportation project that may receive federal funding and/or discretionary approvals through the U.S. Department of Transportation (i.e., FTA); therefore, documentation of compliance with Section 4(f) is required.

This Section 4(f) evaluation has been prepared in accordance with the joint FHWA/FTA regulations for Section 4(f) compliance codified at 23 CFR Section 771.135. Though not directly applicable to FTA programs and activities, additional guidance has been obtained from the FHWA Technical Advisory T 6640.8A (1987) and the FHWA Section 4(f) Policy Paper (1987).

6.1.2 Section 4(f) “Use”

As defined in 23 CFR Section 771.135(p), the “use” of a protected Section 4(f) resource occurs when any of the following conditions are met.

- Land is permanently incorporated into a transportation facility through partial or full acquisition (i.e., “direct use”).
- There is a temporary occupancy of land that is adverse in terms of the preservationist purposes of Section 4(f) (i.e., “temporary use”).
- There is no permanent incorporation of land, but the proximity of a transportation facility results in impacts so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired (i.e., “constructive use”).

Direct Use

A direct use of a Section 4(f) resource takes place when property is permanently incorporated into a proposed transportation project (23 CFR Section 771.135[p][1]). This may occur as a result of partial or full acquisition of a fee simple interest, permanent easements, or temporary easements that exceed regulatory limits noted below (23 CFR Section 771.135[p][7]).

Temporary Use

A temporary use of a Section 4(f) resource occurs when there is a temporary occupancy of property that is considered adverse in terms of the preservationist purposes of the Section 4(f) statute. Under the FTA/FHWA regulations (23 CFR Section 771.135[p][7]), a temporary occupancy of property does not constitute a use of a Section 4(f) resource when the following conditions are satisfied.

- The occupancy must be of temporary duration (i.e., shorter than the period of construction) and not involve a change in ownership of the property.
- The scope of work must be minor, with only minimal changes to the protected resource.
- There are no permanent adverse physical effects on the protected resource, and there will be no temporary or permanent interference with activities or purpose of the resource.
- The property being used must be fully restored to a condition that is at least as good as that which existed prior to the proposed project.
- There must be documented agreement of the appropriate officials having jurisdiction over the resource regarding the foregoing requirements.

Constructive Use

A constructive use of a Section 4(f) resource happens when a transportation project does not permanently incorporate land from the resource, but the proximity of the project results in impacts (i.e., noise, vibration, visual, access, and/or ecological impacts) so severe that the protected activities, features, or attributes that qualify the resource for protection under Section 4(f) are substantially impaired (23 CFR Section 771.135[p][2]). Substantial impairment occurs only if the protected

activities, features, or attributes of the resource are substantially diminished. This determination is made through the following practices.

- Identification of the current activities, features, or attributes of the resource that may be sensitive to proximity impacts.
- Analysis of the potential proximity impacts on the resource.
- Consultation with the appropriate officials having jurisdiction over the resource (23 CFR Section 771.135[p][6]).

6.2 WSX Alternative

6.2.1 Description

The WSX Alternative alignment would generally parallel portions of the Union Pacific Railroad (UP) corridor, which contains the former Western Pacific (WP) and Southern Pacific (SP) railroad tracks, and Interstates 680 and 880 in southern Alameda County. The initial segment would begin on an embankment at the southern end of the existing elevated Fremont BART Station. The alignment would pass over Walnut Avenue on an aerial structure and descend into a cut-and-cover subway north of Stevenson Boulevard. The alignment would continue southward in the subway structure under Fremont Central Park and the eastern arm of Lake Elizabeth, and return to grade between the former WP and SP alignments north of Paseo Padre Parkway. Paseo Padre Parkway will be reconfigured as a vehicular underpass as part of the Washington Boulevard and Paseo Padre Parkway Railroad Grade Separations Project, a separate City of Fremont project. The WSX Alternative alignment would pass over Paseo Padre Parkway on a bridge structure, and then continue southward at grade, passing under a grade-separated Washington Boulevard. Washington Boulevard will be reconfigured as a vehicular overpass as part of the city's grade separations project. From Washington Boulevard, the WSX Alternative alignment would continue at grade along the former WP alignment south to a terminus station at Warm Springs and South Grimmer Boulevards in the Warm Springs district. A more detailed description of the WSX Alternative is provided in Chapter 3, *Alternatives Considered*.

6.2.2 Purpose and Need

The need for and purpose of the Warm Springs Extension are presented in detail in Chapter 2, *Purpose and Need*. Below is a summary of the need for and purpose of the WSX Alternative.

Need for Project

The need for the WSX Alternative is based on the recognition of existing and future transportation constraints in the study area. The anticipated growth in employment and population in southern Alameda and northern Santa Clara Counties and related congestion along the regional freeway network establish a need to improve public transit service in the area. Improved transit service could better meet existing local and regional transportation demand and increase transportation capacity to accommodate future growth in areawide employment and population.

The following bullet list summarizes the need for the WSX Alternative.

- Growth in Alameda and Santa Clara Counties: Increased employment opportunities have resulted in expanded development and more vehicle trips on regional roadways.
- Traffic congestion: Regional growth has increased traffic congestion, and future traffic demand is expected to exceed future capacity, even with improvements.
- Transit accessibility: Reaching residential and employment centers via transit from the Fremont BART Station is often inconvenient, and an enhanced public transportation system could attract more riders and divert a significant number of people from automobiles
- Air quality: The traffic volume and congestion contribute to air quality problems in the region; increased transit would reduce vehicular air emissions in the region.
- Energy efficiency: Traffic congestion in the region contributes to less efficient use of energy that could be used for other regional needs.
- Smart growth: Generally, extension of transit systems into communities concentrates growth into infill areas and produces positive economic benefits for a community. High-volume service systems such as BART lead to more compact growth, creating less urban sprawl than auto-oriented development.

Purpose of Project

Employment throughout the South Bay and Silicon Valley area has contributed to high levels of traffic and congestion in the Fremont–South Bay Area. Although economic growth has slowed recently, the number of vehicle trips in the Warm Springs corridor is still expected to grow. In fact, traffic congestion and conditions during peak periods are expected to worsen in the region in the coming 15 to 20 years (Metropolitan Transportation Commission 2001). Increased traffic volume and congestion will lead to increased vehicular emissions and further degradation of air quality.

The purpose of the WSX project is to address transportation and air quality problems in the project corridor and accomplish the following.

- Increase transit access and ridership: The WSX Alternative would increase transit access and maximize transit ridership by enhancing transit opportunities in the Warm Springs area; improving overall access for transit patrons in southern Alameda County and northern Santa Clara County; improving facilities (stations, multi-modal access facilities, parking, etc.); facilitating transfers between modes and between regional and local transit services; increasing the speed, comfort, and reliability of public transportation and reduce travel times for commuters in the regional corridor; and increasing transportation choices, particularly during peak-commute periods, would.
- Improve environmental quality: Expanding the transit system would promote displacement of air-polluting auto trips, reduce the number of automobile trips and resulting vehicular emissions, and contribute to decreasing automobile miles traveled, resulting in regional energy savings and conservation of non-renewable energy.
- Provide development catalyst and transit-oriented development: The Warm Springs and optional Irvington Stations would be designed to support smart, efficient, and desirable growth patterns that can accommodate future transit-oriented development, both on- and off-site, with a resulting increase in land values, rents, and tax income for the City of Fremont.

- Provide transportation services equitably to all segments of the population: The proposed BART stations would be designed as intermodal transit hubs, providing regional links to bus, shuttle, automobile, bicycle, and pedestrian networks, thereby increasing mobility options for the transportation-disadvantaged, including the elderly and disabled.
- Support community goals and institutional objectives: The WSX Alternative would be consistent with regional, local, and institutional goals. The *Fremont General Plan* specifically reserves a transit corridor for a BART extension and designates two potential station sites, one at Warm Springs and one at Irvington (City of Fremont 1991, as amended). The proposed improvements would also be consistent with MTC's Regional Transportation Expansion Policy, which identifies and prioritizes transit projects.
- Provide transportation services that make effective use of financial resources and are financially attainable: Public support for transit in the project area is strong and financing is attainable. Alameda County Measure B approved by voters in 2000 provides sales tax revenues to fund a BART extension to southern Alameda County, and there are additional funding partners for a potential BART extension. The optional Irvington Station is not yet funded, and its inclusion in the project is contingent on the availability of funding.

6.3 Description of Section 4(f) Properties

As noted above, properties subject to Section 4(f) consideration include publicly owned lands of a public park/recreation area; a wildlife and waterfowl refuge of national, state, or local significance; or an historic site of national, state, or local significance, whether publicly or privately owned. For purposes of this Section 4(f) evaluation, only those resources within 0.25 mile of the WSX Alternative alignment have been identified for additional analysis.

As described more fully below, the Section 4(f) resources in the vicinity of the WSX Alternative alignment include publicly owned parks/recreation areas and significant historic sites. Figures 6-1a-c illustrate the location of these Section 4(f) resources. There are no wildlife and waterfowl refuges in the WSX Alternative area.

6.3.1 Public Parks and Recreation Areas

One public park and two public school playgrounds and athletic fields have been identified in the WSX Alternative area. Table 6-1 provides a summary listing of each resource. Detailed descriptions of each resource are provided below in the discussion of effects on Section 4(f) properties.

Table 6-1. Section 4(f) Properties—Public Parks and Recreation Areas

Name	Location
Fremont Central Park	40000 Paseo Padre Parkway
Gomes Elementary School—Playground/Athletic Fields	555 Lemos Lane
Gomes Neighborhood Park	827 Lemos Lane
Grimmer Elementary School—Playground/Athletic Fields	43030 Newport Drive

Source: Jones & Stokes 2004.

6.3.2 Historic Sites

A total of 14 historic sites have been identified in the WSX Alternative area. Of these, 12 sites are architectural resources and two sites are archaeological resources. In accordance with the FTA/FHWA regulations, Section 4(f) requirements are only applicable to *significant* historic sites (i.e., those sites on or eligible for the National Register of Historic Places (NRHP), or sites otherwise determined significant by the FTA Administrator) (23 CFR Section 771.135[e]). Table 6-2 provides a summary of descriptive characteristics for each historic site, and indicates which of these sites has been determined significant for Section 4(f) purposes. Detailed descriptions of each significant historic site are provided below in the discussion of effects on Section 4(f) properties.

Table 6-2. Section 4(f) Properties—Historic Sites

Name	Location	Significance*
Archaeological Resources (Significant)		
CA-Ala-343	Confidential—near WSX alignment	NRHP—Eligible, 2006, BART Warm Springs Project
Archaeological Resources (Not Significant)		
Gallegos Winery Ruins (subsurface)	Confidential—near WSX alignment	NRHP—Not eligible, 2000, Fremont Grade Separation Project
Architectural Resources (Significant)		
Hetch Hetchy Aqueduct Bay Peninsula Division Pipelines No. 1 and 2	Paseo Padre Parkway/UP right-of-way	NRHP—Eligible, 2006, BART Warm Springs Project
William Y. Horner House	3101 Driscoll Road	NRHP—Eligible, 2006, BART Warm Springs Project
Dr. J.H. Durham House	42539 Osgood Road	NRHP—Determined eligible, 2000, Osgood Road Widening Project
Ford House	41753 Osgood Road	NRHP—Determined eligible, 2000, Osgood Road Widening Project
Gallegos Winery Ruins (structural remains)	Osgood Road—near WSX alignment	NRHP—Eligible, 2006, BART Warm Springs Project

Name	Location	Significance*
Architectural Resources (Not Significant)		
Two eucalyptus trees	Near Tule Pond, between Walnut Ave and Stevenson Blvd	NRHP—Not eligible, 2006, BART Warm Springs Project
Former Southern Pacific RR	Parallel to WSX alignment	NRHP—Not eligible, 2006, BART Warm Springs Project
Former Western Pacific RR	Parallel to WSX alignment	NRHP—Not eligible, 2006, BART Warm Springs Project
Irvington Pumping Station	Paseo Padre Parkway/UP right-of-way	NRHP—Not eligible, 2006, BART Warm Springs Project
Warehouse	41075 Railroad Avenue	NRHP—Not eligible, 2006, BART Warm Springs Project
Warehouse	41655 Osgood Road	NRHP—Not eligible, 2006, BART Warm Springs Project
Residence	43303 Osgood Road	NRHP—Not eligible, 2006, BART Warm Springs Project
Residential complex	44960 Old Warm Springs Road	NRHP—Not eligible, 2006, BART Warm Springs Project

* A resource is considered to be “significant” for purposes of Section 4(f) if it is on or eligible for the NRHP (or otherwise determined important by the FTA Administrator).

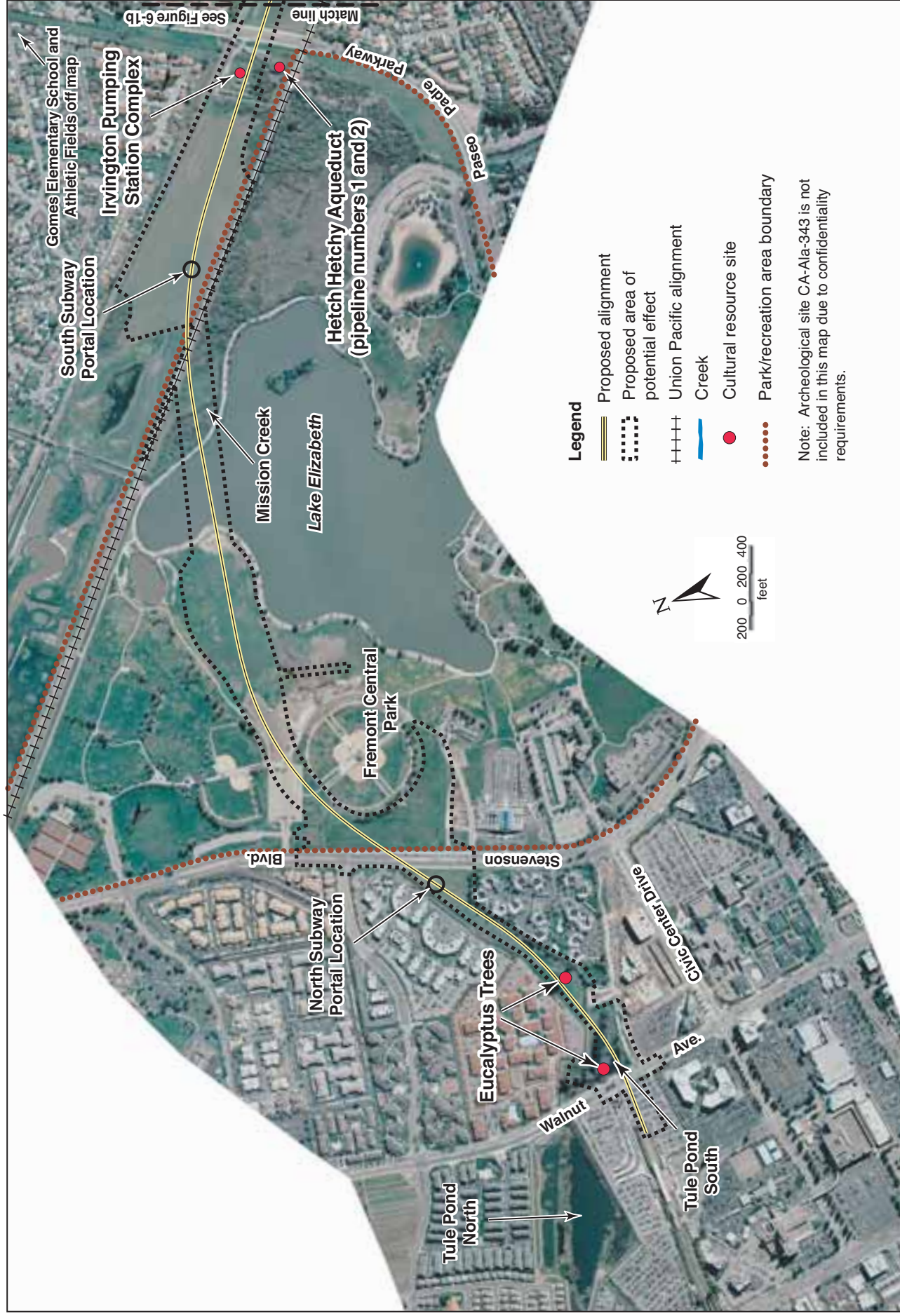
Source: Jones & Stokes (2006)

6.4 Effects on Section 4(f) Properties

The following sections describe how the WSX Alternative would affect Section 4(f) properties. A summary of potential effects is provided below in Table 6-3. Additional analysis then follows for each property. In every instance, an assessment has been made as to whether any permanent or temporary occupation of a property would occur and whether the proximity of the project would cause any access disruption, noise, vibration, or aesthetic effects that would substantially impair the features or attributes that qualify the resource for protection under Section 4(f).

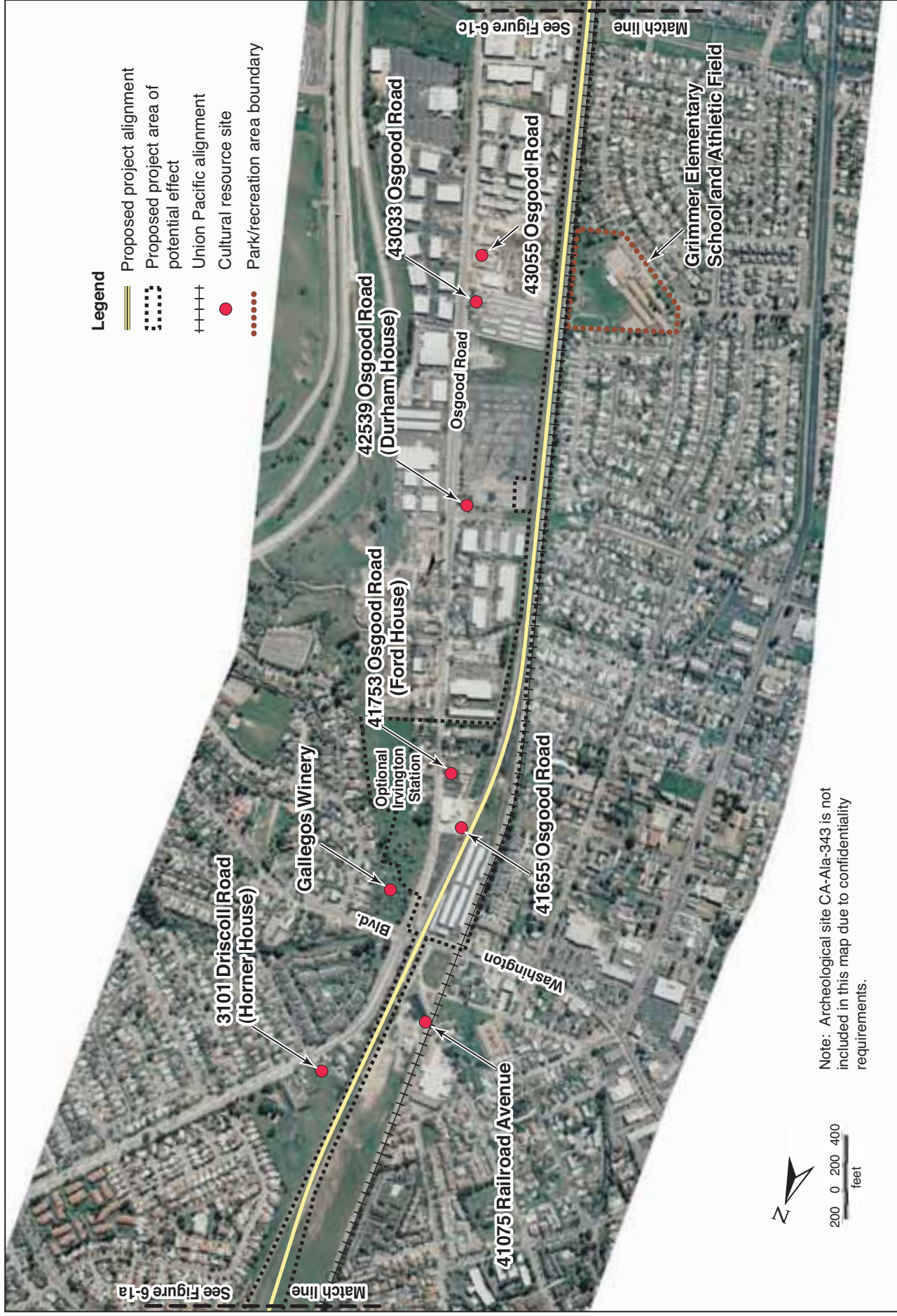
Table 6-3. Effects on Section 4(f) Properties

Name	Section 4(f) Use?			Remarks
	Direct	Temporary	Constructive	
Public Parks and Recreation Areas				
Fremont Central Park	Yes	Yes	No	<i>Direct</i> —permanent acquisition (subway vents) <i>Temporary</i> —lengthy visual intrusion during project construction <i>Constructive</i> —Noise and aesthetic effects from vents mitigated
Gomes Neighborhood Park	No	No	No	Buffered by distance and intervening uses.
Gomes E.S. Playground/Fields	No	No	No	Buffered from alignment by distance and intervening uses
Grimmer E.S. Playground/Fields	No	No	No	Noise effects mitigated
Significant Historic Sites (Archaeological)				
CA-A1a-343	Yes	No	No	<i>Direct</i> —ground-disturbing excavations, grading, fill; permanent subway Adverse effect
Significant Historic Sites (Architectural)				
Gallegos Winery Ruins (structural remains)	Yes	No	No	<i>Direct</i> —permanent pedestrian walkway and parking lot Adverse effect
Hetch Hetchy Aqueduct Bay Peninsula Division Pipelines No. 1 and 2	No	No	No	No effect
William Y. Horner House	No	No	No	Vibration effects mitigated No adverse effect
Dr. J.H. Durham House	No	No	No	Buffered from alignment by distance No effect
Ford House	Yes	No	No	<i>Direct</i> —permanent parking lot Adverse effect



Source: Aerial base and alignments: Parsons Brinkerhoff 2002; cultural resource sites: Jones & Stokes 2002.

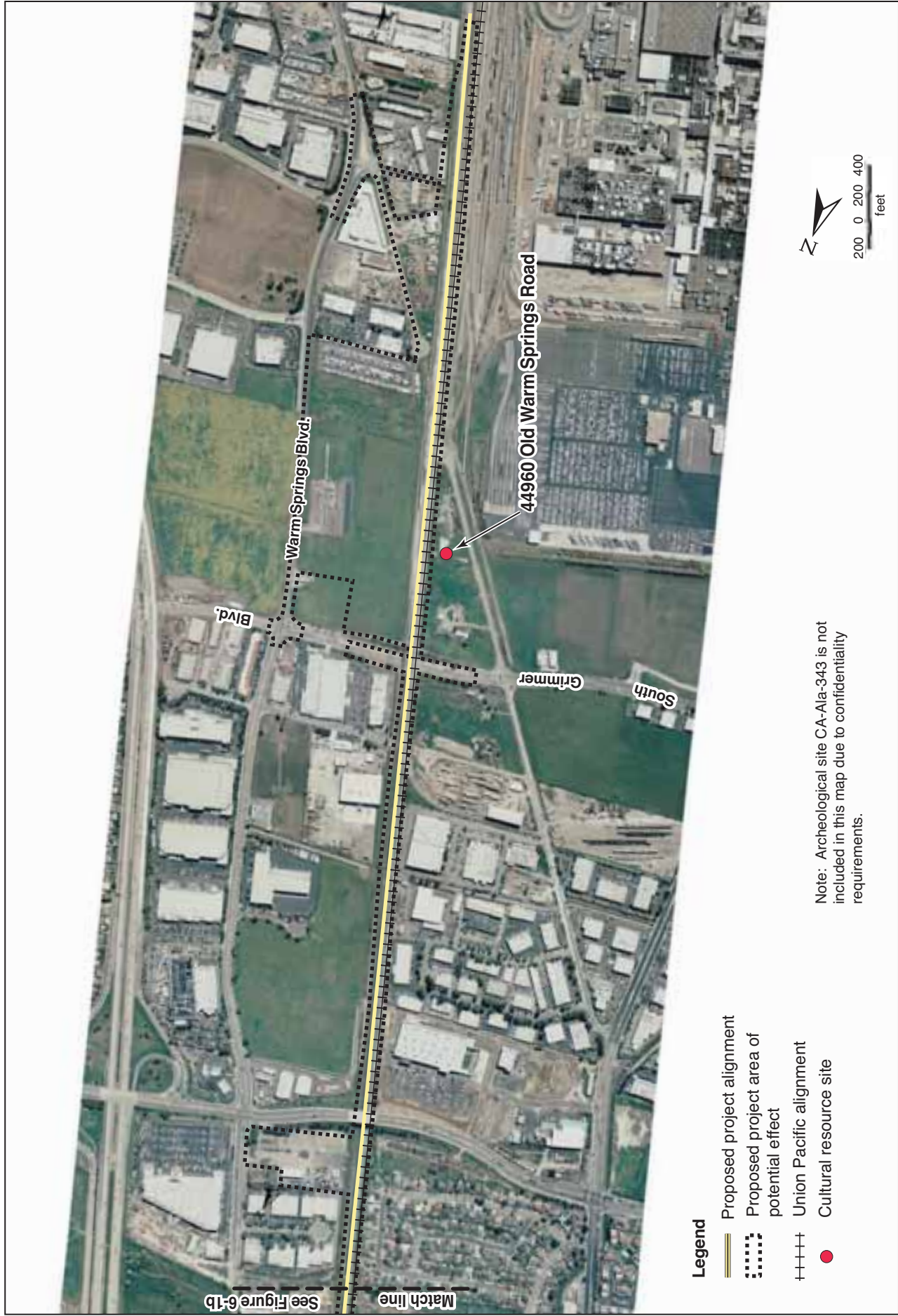
Figure 6-1a
Locations of Parks and Cultural Resource Sites



Source: Aerial base and alignments: Parsons Brinkerhoff 2002; cultural resource sites: Jones & Stokes 2002.

Figure 6-1b
Locations of Parks and Cultural Resource Sites

04071.04 (8-05)



Source: Aerial base and alignments: Parsons Brinkerhoff 2002; cultural resource sites: Jones & Stokes 2002.

Figure 6-1c
Locations of Parks and Cultural Resource Sites

6.4.1 Parks/Recreation Areas with No Section 4(f) Use

Gomes Neighborhood Park

Description and Significance of Property

Type/Location/Size

Gomes Neighborhood Park at 827 Lemos Lane is neighborhood park operated by the City of Fremont Parks and Recreation Department. Gomes Park is a 13.17-acre park that extends from John Gomes Elementary School on the east to the Fremont Golf Course, which is part of the City's park and recreation system, on the west.

Access/Facilities/Usage

Vehicular access to the park is from Lemos Lane. Pedestrian access is from John Gomes Elementary School, Lemos Lane, Ambar Place, Valdez Way, and Fremont Golf Course. The park provides open space and general recreation facilities for the local neighborhood.

Relationship to Similar Facilities in the Area

The park is immediately adjacent to Gomes Elementary School, which has school playfields and athletic fields on the east side of the school. Gomes Park is operated by the city's Park and Recreation Department, which also operates the golf course and Fremont Central Park to the west.

Ownership/Jurisdiction

The City of Fremont owns 12.17 acres of the park and the Alameda Flood Control District owns 1.0 acre. The total 13.17-acre park is operated by the city's Department of Parks and Recreation.

Significance

The city's Park and Recreation Department has confirmed that, in comparing the park facilities of this recreation area with the recreational objectives of the community, the resource in question plays an important role in meeting those objectives.

Application of Section 4(f) Criteria for Use

Because the park is buffered from the WSX Alternative alignment by distance (i.e., about 1,000 feet at its closest point to the subway alignment and more than 1,300 feet from the at-grade segment of the alignment) and by the presence of intervening residences, it is unlikely that any direct, temporary, or constructive use would result.

Coordination/Consultation

BART has initiated formal consultation with the City of Fremont.

Recommended Determination

Based on the foregoing analysis, it is recommended that the FTA Administrator make a determination that no direct, temporary, or constructive use of the Gomes Neighborhood Park would result from the WSX Alternative.

Gomes Elementary School Playground and Athletic Fields

Description and Significance of Property

Type/Location/Size

The Gomes Elementary School, at 555 Lemos Lane, has a playground and athletic fields that are available for public use during after-school hours. The playground and athletic fields occupy approximately 2 acres. These facilities are situated about 1,000 feet from the WSX Alternative alignment.

Access/Facilities/Usage

Vehicular and pedestrian access to the school playground and athletic fields is from Lemos Lane. The amenities available include playground equipment and ball fields. The playground and athletic field facilities are primarily used during school hours, but are also available to the general public during after-school hours.

Relationship to Similar Facilities in the Area

The playground and athletic fields are a part of the Gomes Elementary School and have no particular association with any other public parks or recreation areas in the WSX Alternative area.

Ownership/Jurisdiction

The Gomes Elementary School playground and athletic fields are owned by, and subject to the jurisdiction of, the Fremont Unified School District.

Significance

It is expected that formal consultation with the Fremont Unified School District will confirm that, in comparing the availability and function of this recreation area with the recreational objectives of the community, the resource in question plays an important role in meeting those objectives.

Application of Section 4(f) Criteria for Use

Because the school playground and athletic fields are buffered from the WSX Alternative alignment by distance (i.e., about 1,000 feet) and the presence of intervening residences, there is no reasonable likelihood that any direct, temporary, or constructive use would result.

Coordination/Consultation

Formal consultation has been initiated with the Fremont Unified School District.

Recommended Determination

Based on the foregoing analysis, it is recommended that a determination be made by the FTA Administrator that no direct, temporary, or constructive use of the Gomes Elementary School playground and athletic fields would result from the WSX Alternative.

Grimmer Elementary School Playground and Athletic Fields

Description and Significance of Property

Type/Location/Size

The Grimmer Elementary School playground and athletic fields are located at 43030 Newport Drive. The playground and athletic fields are available for public use during after-school hours, and occupy approximately 3 acres. A portion of the athletic field facilities is situated just west of the WSX Alternative alignment, adjacent to the existing UP railroad right-of-way.

Access/Facilities/Usage

Vehicular and pedestrian access to the school playground and athletic fields is from Newport Drive. Facilities include a baseball diamond and a track. School staff members report that facilities are available for public use, and that most public use of the playground and athletic fields occurs on the weekends (McDonald pers. comm.).

Relationship to Similar Facilities in the Area

The playground and athletic fields are a part of the Grimmer Elementary School and have no particular association with any other public parks or recreation areas in the WSX Alternative area.

Ownership/Jurisdiction

The Grimmer Elementary School playground and athletic fields are owned by, and subject to the jurisdiction of, the Fremont Unified School District.

Significance

The playground and athletic fields play an important role in the community, and BART anticipates that the Fremont Unified School District will confirm this during formal consultation. BART initiated formal consultation with the school district but has not received a formal response.

Application of Section 4(f) Criteria for Use

Direct Use

The WSX Alternative would not require any permanent use of the Grimmer Elementary School playground and athletic fields.

Temporary Use

The WSX Alternative would not require any temporary use of the Grimmer Elementary School playground and athletic fields.

Constructive Use

Noise/Vibration

The noise analysis in Section 4.13, *Noise and Vibration*, concludes that the WSX Alternative would not result in an adverse effect at the Grimmer Elementary School playground and athletic fields. However, noise reduction measures (i.e., noise barriers) would be implemented pursuant to the results of the 2003 SEIR. In this NEPA document, FTA noise criteria are used to identify noise impacts. In the 2003 SEIR, BART's adopted noise criteria from its Extensions Program System Design Criteria were used to identify noise impacts. BART is committed to carrying out mitigation measures adopted in the 2003 SEIR for all receptors identified therein. The 2003 SEIR identified a noise impact at Grimmer Elementary School due to BART train operations under the WSX Alternative. This impact would be minimized through noise reduction measures (e.g., noise barriers,

sound insulation) in Mitigation Measure N-1. Accordingly, the noise effects of the WSX Alternative would be unlikely to substantially impair the protected activities, features, and attributes that qualify this resource for protection under Section 4(f).

Aesthetics

Because portions of the athletic fields would be situated adjacent to the WSX Alternative alignment, some potential exists for visual intrusion to occur. However, as described in Section 4.11, *Aesthetics*, the potential adverse effects would be minimized by the presence of existing privacy fences that partially or wholly screen views from the athletic fields. Consequently, the aesthetic effects of the WSX Alternative would be unlikely to substantially impair the protected activities, features, and attributes that qualify this resource for protection under Section 4(f).

Access

The WSX Alternative would not affect access to the playground and athletic fields at Grimmer Elementary School.

Coordination/Consultation

Formal consultation has been initiated with the Fremont Unified School District.

Recommended Determination

Based on the foregoing analysis, it is recommended that a determination be made by the FTA Administrator that no direct, temporary, or constructive use of the Grimmer Elementary School playground and athletic fields would result from the WSX Alternative.

6.4.2 Parks/Recreation Areas with Potential Section 4(f) Use

Fremont Central Park

Description and Significance of Property

Type/Location/Size

Located at 40000 Paseo Padre Parkway, Fremont Central Park is set on about 433.90 acres bound by Stevenson Boulevard, Paseo Padre Parkway, and the UP ROWs. Lake Elizabeth occupies 83 acres in the park.

Access/Facilities/Usage

Fremont Central Park is a park and recreation facility. Vehicular and pedestrian access is primarily from Stevenson Boulevard and Paseo Padre Parkway. The park is open to general public use, with some facilities (e.g., picnic grounds) requiring reservations. The park comprises nearly half of all park and recreation space in the City. The park includes the following existing facilities:

- Senior citizen center.
- Community center.
- Lake Elizabeth.
- Boathouse with docks, launches, boat storage, and boat rentals.

- Fishing pier.
- Band pavilion.
- 18 tennis courts and a pro shop.
- 6 softball fields, a guard shack, support space, and a snack bar.
- 10 soccer fields and a snack bar.
- 2 basketball courts.
- Skate park.
- Teen Center.
- Executive Golf Course and Driving Range.
- Golf driving range and pro shop.
- More than 200 picnic tables, with four group picnic areas by reservation.
- 4 playgrounds.
- Approximately 5 miles of walking and jogging trails.
- 1.5-mile exercise course.
- Dog park.
- 50-acre nature area with a boardwalk and nature center.
- Open turf areas.
- Parking lots.
- Various park services and maintenance structures.

Proposed new facilities at Fremont Central Park include a cultural arts center and an aquatics gymnasium (Rakley pers. comm.). The construction of a new Family Water Play Facility is expected to begin in 2006, with the facility opening to the public in May 2007.

Several public facilities are located within the larger boundaries of Central Park, but are not located on parkland, such as the police building and jail, Tri-City Animal Shelter, and the offices of the Fremont Main Library and Alameda County Public Library.

Relationship to Similar Facilities in the Area

Fremont Central Park is the largest of several parks in the City of Fremont and serves as an important focal point for community activity.

Ownership/Jurisdiction

Ownership of Fremont Central Park is shared by the City of Fremont (approximately 260 acres) and the Alameda County Flood Control and Water Conservation District (ACFCD) (approximately 174 acres, including Lake Elizabeth). The portion of the park that is owned by ACFCD is operated as a flood control facility and includes Lake Elizabeth and Mission Creek. A renewable cooperative license agreement permits the City to operate ACFCD property as a public park and recreation

facility with ACFCD retaining its primary right to operate the flood control facility. ACFCD authority over its portion of the park includes the right to review any grading, structures, or improvements, with approval to be determined based upon the preservation of existing flood control, drainage, and water conservation functions.

There are two other property interests in the park. First, the SP ROW separates the main park area from its east sub-area. Second, a Pacific Gas and Electric Company utility easement transects the nature area at the southern end of the park.

Portions of the land and facilities in the park were acquired and/or developed with federal funding from Land and Water Conservation Fund (LWCF) grants. A review of the LWCF grants database maintained by the California Department of Parks and Recreation (DPR) and the National Park Service (NPS) has revealed that at least two LWCF grants were used for park facilities. A \$14,456 grant in 1973 was made for a portion of the Fremont Central Park bike and pedestrian path. A grant in 1974 for \$95,562 was made for a sports complex in Fremont Central Park, which paid for a portion of the construction. Formal consultation with the NPS has been initiated and is discussed below in Section 6.5.

Significance

Formal consultation with the City of Fremont is expected to confirm that, in comparing the availability and function of this recreation area with the recreational objectives of the community, the resource in question plays an important role in meeting those objectives.

Application of Section 4(f) Criteria for Use

Direct Use

The WSX Alternative would extend through a subway structure beneath Stevenson Boulevard and Fremont Central Park, including the northeastern arm of Lake Elizabeth. Permanent operational effects on park facilities and programs in this area would be limited because Stevenson Boulevard, Fremont Central Park, and Lake Elizabeth would be returned to their existing condition and all existing park facilities and programs would be reinstated following construction. The only long-term use of park property within this area would involve the permanent location of ventilation structures for the subway (Figures 4.9-4 and 4.9-5).

Two options are being considered for ventilating the subway: a single ventilation structure (Option 1) or two slightly smaller structures (Option 2). If Option 1 were implemented, the structure would be placed in Fremont Central Park, approximately 125 feet south of the existing parking area (Figure 6-2). A visual simulation of Option 1 is depicted in Figure 4.11-6 in Section 4.11, *Aesthetics*. If Option 2 is implemented, one structure would be placed in the existing Fremont Central Park south parking lot and a second structure would be placed east of Lake Elizabeth near Mission Creek (Figure 6-3). The ventilation structures under either option would be primarily subterranean, but would include aboveground features (a 10-foot-high wall and a paved parking area). Option 1 would cover an area approximately 50 to 70 feet wide and 300 feet long, and Option 2 would cover two areas approximately 40 to 60 feet wide and 230 feet long each. The proposed ventilation structures would occupy a negligible percentage (approximately 0.13%) of Fremont Central Park's total area (433.90 acres), but would nevertheless constitute a direct use of a Section 4(f) resource.

Option 1 would not involve any permanent relocation of park facilities, but Option 2 would likely require that the south parking lot be reconfigured and that the adjacent dog park and basketball courts



Figure 6-2
Ventilation Option 1





Figure 6-3
Ventilation Option 2



be relocated in order to accommodate the north ventilation structure. Figure 4.9-4 illustrates a conceptual plan for this area. Instead of one south parking lot, two lots would be constructed, with the total number of parking spaces increasing from 135 spaces to at least 150 spaces. The relocated dog park would be situated just south of the existing parking lot, next to one of the new parking lots, and would be essentially the same size and offer the same amenities. The basketball courts would be moved slightly to the west next to the other new parking lot, but would otherwise remain the same. City staff members have indicated that the reconfiguration of these facilities would be unlikely to have adverse consequences on park programs, and could actually be beneficial insofar as the new layout could better serve the dog park and basketball courts with separate parking lots. The south ventilation structure proposed under Option 2 would require no relocation of park facilities, since it would be located in an undeveloped area. Figure 4.9-5 shows a conceptual plan for this area.

Other than the modifications to the south parking lot for Option 2, neither of the ventilation structure options would entail any substantial long-term change in the vehicular, pedestrian, or bicycle circulation patterns in Fremont Central Park. If Option 2 were implemented, an existing ACFCD access road would be modified in order to provide access to the south ventilation structure. The ACFCD access road parallels the east side of Fremont Central Park but is separated from city-owned park property by a flood control channel. The modified access road would follow its current alignment from Stevenson Boulevard to about Mission Creek, and would only cross onto the park at its very southernmost end, after it crosses south of Mission Creek. At this point a new road to the vent structure would extend approximately 550 feet from Mission Creek to the vent structure. To make the existing ACFCD access road consistent with current standards, it could be necessary to widen it for some or all of its length. To do so, BART would have to secure an access easement from ACFCD for the road. Provisions for future pedestrian and bicycle access along the road also could be made. Because the access road would traverse alongside a relatively undeveloped area of the park and would only occupy a small portion of undeveloped parkland at its southern end, it would not require the displacement of park facilities or otherwise result in a substantial disruption to park facilities and programs.

In order for construction and operation of the proposed subway to occur, BART would obtain a permanent subsurface easement from the city. This easement would permit subsurface use below about 4.5 acres in the park. However, because the easement would not affect the ongoing functions and quality of the park facilities and programs at the surface, this would not be considered to be a direct use of the Section 4(f) resource.

Temporary Use

Construction of the Fremont Central Park segment of the WSX Alternative alignment would last for about 2 years, and would result in temporary effects on Stevenson Boulevard, Fremont Central Park, and Lake Elizabeth. Some of these construction-related effects (e.g., noise, dust, circulation obstructions) are examined in more detail elsewhere in this document (see Sections 4.2, *Transportation*; 4.9, *Parks and Recreation*; 4.13, *Noise and Vibration*; and 4.14, *Air Quality*). See also Sections 4.5, *Hydrology*, and 4.7, *Biological Resources*, for additional discussion of the effects of construction on natural resources in the park. The discussion below describes the anticipated construction activities in the vicinity of Fremont Central Park, and the effects on park facilities, programs, and patrons that would result. Figures 4.9-3a and 4.9-3b depict a conceptual plan for the temporary park layout during construction of WSX Alternative. (See also Chapter 3, *Alternatives Considered*, for a detailed description of the construction scenario for the WSX Alternative.)

Construction of Subway and Its Effects – Construction of the cut-and-cover subway structure would involve trenching through existing facilities within the WSX Alternative ROW (Figures 4.9-2a and 4.9-2b). The schedule for construction activities will depend largely on the contractors' plans, but it is anticipated that construction of the subway trench will occur in stages. Various segments of the subway trench could be constructed in one or more locations, with some segments built sequentially and others concurrently. It is important to note, however, that opportunities to stage construction activities in the park are limited by several constraints, including (1) the need to segregate contractors' laydown and work areas from public areas, (2) prohibitions on construction activity in the 100-year flood zone between the months of October and April, and (3) habitat protections (e.g., federal Migratory Bird Treaty Act) that require avoidance of protected biological resources.

To accommodate construction activities in a constrained setting, while also maintaining safe access to park facilities and programs, a construction zone with restricted access would be established in an area along the WSX Alternative alignment through the park. (See also Section 4.17, *Safety and Security*). The construction zone would also encompass portions of the park surrounding, but not including, the softball complex. (See Figures 4.9-3a and 4.9-3b.) The construction zone would be fenced and screened, and would be limited to a size sufficient to safely contain construction activities and equipment. Special construction methods would also be employed to protect park facilities outside the construction zone (e.g., trench shoring and/or sheet piling could be used to avoid damage to the softball complex fields and light standards).

Public access to the north end of the park would be provided at several points along Stevenson Boulevard, including the driveway on the east side of the police facility, the driveway for the parking lot at the softball complex, and the driveways between the tennis courts and the two east softball fields.

Three new temporary parking lots would be provided, one at the northeast corner of the park near the tennis courts, a second adjacent to the two east softball fields, and the third between the west side of the softball complex and the police facility. Additionally, the two existing parking lots on the east side of the softball complex would be reconfigured as one lot during construction. The temporary parking lots will ensure that the total number of parking spaces in Fremont Central Park is maintained at its current level throughout the construction period. BART will provide lighting for the temporary parking lots that will be consistent with existing parking lots.

Construction at the north end of the subway alignment could temporarily affect circulation on Stevenson Boulevard; thus, to minimize any potential disruptions to circulation that could arise, traffic would possibly be rerouted through the north end of Fremont Central Park.

To ensure safe access to and from park facilities and parking areas, protected access routes would be utilized either around or over the construction zone. A temporary pedestrian bridge over the cut-and-cover trench at the north end of the park may also be included.

To construct the portion of the subway beneath Lake Elizabeth, a cofferdam would be installed, and the eastern portion of the lake would be drained. The cofferdam and associated laydown areas would likely remain in the park for most of the subway construction period. Thus, to maintain access along the pedestrian and bicycle path in this area, a temporary detour around or over the cofferdam would be created.

Construction of Ventilation Structures and Its Effects – Construction of the proposed subway ventilation structure(s) would also affect park facilities and users. As described above in the

discussion of operational effects, both ventilation structure options would place a structure within or adjacent to the parking lots east of the softball complex. Construction of the subway trench and the ventilation structure(s) would, therefore, necessitate reconfiguration of the adjacent parking lots (see above) and relocation of the nearby dog park to a site on the west side of the softball complex. The basketball courts in this area also would have to be removed, but would not necessarily be relocated during the construction period. They would, however, be rebuilt near their current location once construction of the subway and ventilation structure(s) is complete.

Aesthetic Effects of Construction Activities – Section 4.11, *Aesthetics*, describes the aesthetic effects on Fremont Central Park that would result from construction of the WSX Alternative. This analysis concludes that construction activities would have substantial adverse effects related to trenching and exposed bare soils, removal and alteration of landscaping and portions of roadway, the presence of heavy equipment, and the installation of a cofferdam in Lake Elizabeth. Measures could be taken to minimize these adverse effects, but some residual unavoidable adverse effects would occur due to the relatively lengthy duration (i.e., about 2 years) of construction activities in Fremont Central Park.

Given the magnitude and duration of construction activities in Fremont Central Park that are described above, a temporary use of the section 4(f) resource would result. The temporary use of Fremont Central Park *would not* satisfy the requirements of 23 CFR Section 771.135(p)(7) for a “minimal” temporary occupancy.

Constructive Use

Noise/Vibration

The analysis of noise and vibration in Section 4.13, *Noise and Vibration*, shows that noise and vibration effects on Fremont Central Park facilities or programs from operation of the WSX Alternative would be limited to noise that could be generated from the subway ventilation structures. Because noise reduction measures, such as the use of acoustically rated vents, would greatly reduce this effect, it is unlikely that the protected activities, features, and attributes that qualify this resource for protection under Section 4(f) would be substantially impaired.

Aesthetics

Visual effects of the subway ventilation structures and recommended mitigation are analyzed in Section 4.11, *Aesthetics*. This analysis finds that the ventilation structures associated with the 1-mile-long subway portion of the WSX Alternative would potentially affect the visual quality and character of Fremont Central Park, but that mitigation to conceal the structures would substantially reduce this effect. Thus, it is unlikely that visual effects would substantially impair the protected activities, features, and attributes that qualify this resource for protection under Section 4(f).

Access

Once construction is completed, access to the park would be the same as at present.

Avoidance Alternatives

As detailed in Chapter 3, *Alternatives Considered*, the WSX Alternative represents the culmination of an extended assessment of potential transportation alternatives in the Warm Springs corridor. While the WSX Alternative evaluated in this document is considered to be the alternative that would best satisfy the need for and purpose of transportation improvements in the corridor, it would nonetheless entail certain adverse environmental consequences, including the temporary and direct

uses of Fremont Central Park that are described above. Other alternatives have been considered that would potentially avoid or minimize the use of this resource, but for the reasons explained below these alternatives would not be feasible and prudent.

Alternatives Bypassing Fremont Central Park

As a result of the construction of the Fremont Station at its present location north of Walnut Avenue in 1972, the only feasible direct southern extension of the BART system from the Fremont Station is through Fremont Central Park. Theoretically, a southern extension could bypass Fremont Central Park with an alignment either to the east or the west of Fremont Central Park. However, BART technology is heavy rail technology that requires a predominantly straight alignment and gentle curves. The sharper the curve, the slower the speed at which the train can travel. BART standards call for a design speed of 80 miles per hour. (Typical train speeds are 70 miles per hour, but the higher design speed allows train operators to make up time when necessary.) Slower train speeds increase travel times and ultimately reduce patronage. Therefore, the BART system is designed to reduce unnecessary curves.

An alignment to bypass the park on the east side would extend from the Fremont Station along the north side of Stevenson Boulevard, cross Stevenson Boulevard, and extend into the former WP alignment that runs adjacent to the park on the east. This alignment would require two major curves, one turning the alignment eastward parallel to Stevenson Boulevard and the second turning the alignment from Stevenson Boulevard southward into the former WP alignment. The east-side park bypass would require acquisition of additional right-of-way north of Stevenson Boulevard, an area of dense medium-density residential development, and acquisition of the former WP alignment between Paseo Padre Parkway and Stevenson Boulevard, which is currently owned by UP. The alignment would also need to cross the northeast corner of the park between Stevenson Boulevard and the former WP alignment; otherwise, the alignment curve would be too tight and not feasible.

An alignment to bypass Fremont Central Park to the west would extend from the Fremont Station along the north side of Stevenson Boulevard, turning south parallel to Paseo Padre Parkway, and then south again into the former WP alignment. This alignment would require three curves: one turning the alignment westward parallel to Stevenson Boulevard, a second turning the alignment south parallel to Paseo Padre parkway, and a third to turn the alignment from Paseo Padre Parkway south into the former WP right-of-way. Additional right-of-way would be required in at least three locations: the medium-density residential area north of Stevenson Boulevard; either in Paseo Padre Parkway, the single-family residential area adjacent to it, or along the western park perimeter; and the single-family residential area along the south side of Paseo Padre Parkway approaching the UP right-of-way.

Both the east or west park bypass routes would lengthen the alignment compared to a route through the park, increasing capital costs. The addition of major curves would slow train speeds and could affect system patronage. Additional right-of-way costs for both the east and west alignments would also increase, along with a dramatic increase in residential displacements. The alignment options to bypass Fremont Central Park would reduce impacts to the park itself, but could entail equal or greater impacts to the neighborhoods around the park. For these reasons, BART alignments avoiding Fremont Central Park were not considered prudent or feasible.

In an effort to reduce project construction impacts on Fremont Central Park, tunneling was considered. The WSX alignment through Fremont Central Park would be located in a shallow subway box that would contain the BART tracks and communications facilities. The subway box

would be covered by approximately 10 feet of earth. Due to this shallow depth, a tunneling alternative would be infeasible. The ground above the subway would not be able to retain its stability during tunneling and would collapse into the subway, endangering the public, the workers and the construction operation. To provide the required stability, the tunnel bores would need to be much deeper than currently proposed. Tunneling would also impact the subway alignment. The tunnel bores would also need to be farther apart than planned, increasing the width of the subway corridor and attendant corridor impacts. In addition, the shorter an underground alignment, the less cost effective tunneling is as a construction method. The 1-mile length of the WSX underground alignment would not justify the expense of an underground boring machine.

Alternatives on a New Location

Several alternatives that would serve the Warm Springs corridor have been considered and eliminated from further study. These alternatives would not necessarily follow the WSX Alternative alignment. Thus, it is possible that some or all of these alternatives would potentially avoid Section 4(f) resources affected by the WSX Alternative. All, however, have been determined not to be feasible and prudent because they did not sufficiently meet the project need and purpose. All of these alternatives were considered but eliminated from detailed study in the 2003 SEIR, with the exception of the Bus Alternative (with Bus Rapid Transit and busway components), which was evaluated in the 2003 SEIR.

2003 Taxi Service from Warm Springs to Fremont

Taxi service is private automobile transportation that would likely be cost-prohibitive and not economically viable for most passengers. This approach would not provide transportation services in an equitable manner to all segments of the population.

2003 Chauffeur-Driven Limousine from Warm Springs to Fremont

Similarly, chauffeur-driven limousines are also privately operated and use a mode of transportation not operated by BART or other public transit carriers. Because these services operate with automobiles as private transportation, they do not offer the opportunity to achieve the goal of relieving automobile congestion on regional roadways. In addition, they would not provide transportation services that would make efficient and effective use of financial resources.

2003 Capitol Corridor Passenger Rail Service

The Capitol Corridor interregional rail service is operated by BART along with several other agencies through the Capitol Corridor Joint Powers Agency (CCJPA). BART provides day-to-day management support to the CCJPA. The service operates through two regions and several counties throughout Northern California, from San Jose to Sacramento. The alignment of the Capitol Corridor rail service currently includes a stop at Fremont/Centerville, to the north and west of the BART alignment. There has been no proposed discontinuance of this interregional rail service, so the BART alignment could not replace it. There have also not been any proposals to alter the route of the Capitol Corridor from Union City to San Jose from its current Alviso route to a Warm Springs route on the UP ROW. Given the mandate of the Capitol Corridor to provide only inter-city service, a spur route from Union City to Warm Springs would not be permitted. Therefore, such an alternative would be infeasible.

2003 Commuter Rail Service

Commuter rail is defined as “long-haul rail passenger service operating between metropolitan and suburban areas, whether within or across the geographical boundaries of a state, usually characterized by reduced fares for multiple rides, and commutation tickets for regular, recurring riders” (American Public Transportation Association 2002). BART operates long-haul rail passenger service within the metropolitan and suburban communities in the greater Bay Area. BART serves four Bay Area counties: San Francisco, Alameda, Contra Costa, and San Mateo. BART provides reduced fares on high-value ticket purchases. As such, BART fulfills the definition of commuter rail service. A commuter rail alternative in the project area is already being considered with the WSX Alternative.

Commuter rail service between Union City and San Jose using the UP right-of-way has been considered and rejected in the past. Unlike the Union City BART Station, the Fremont BART Station does not have standard gauge railroad tracks in close proximity. A commuter rail alternative from the Fremont Station would be the WSX Alternative as described above. VTA completed a major investment study (MIS) in November 2001 and rejected a commuter rail alternative between Warm Springs and San Jose. Before finishing this study, VTA also considered commuter rail service between Union City and San Jose with a station at Warm Springs. Of the six alternatives studied in depth in the MIS, the commuter rail alternative in the UP alignment had the lowest ranking and was rejected from further consideration. Some of the reasons for its low ranking included low ridership, noise impacts of commuter trains running in residential areas, and strong opposition by residents along the UP railroad corridor. These reasons also apply to commuter rail service between Union City and Warm Springs.

2003 Light Rail Transit

A light rail transit (LRT) alternative most likely would consist of an alignment extending approximately 5.4 miles from the Fremont BART Station to a station in Warm Springs and an optional intermediate station at Irvington. Although LRT can run on surface streets without requiring grade separations, the availability of the UP right-of-way between Warm Springs and Paseo Padre Parkway would make this the preferred alignment in this segment. Between Paseo Padre Parkway and the Fremont Station, the LRT alignment would most likely follow the UP alignment north to Stevenson Boulevard, turn west on Stevenson Boulevard to run in the median, and then follow the WSX Alternative alignment between Stevenson Boulevard and Walnut Avenue. This alignment along Stevenson Boulevard would eliminate the median and require intrusion into the sidewalk and likely require acquisition of additional right-of-way.

An LRT would be affected by several factors not associated with either the WSX Alternative or the Bus Alternative. Northbound commuters would have to transfer from bus or automobile to the LRT at Warm Springs and subsequently transfer from LRT to BART at the Fremont BART Station. Southbound riders also would have to transfer twice between Fremont and Warm Springs (BART to LRT, LRT to bus/automobile). Transit studies have demonstrated that the more mode transfers passengers must make to reach their destinations, the less likely they are to use transit. This double mode-transfer penalty for LRT users would decrease ridership compared to the WSX Alternative. Further ridership reduction would occur due to the longer travel time for LRT compared to BART over the same distance.

Typically, one of the primary reasons that LRT costs are less than heavy rail is LRT’s minimal grade separation requirements. In the UP corridor, grade separations are not an issue. Capital costs for

LRT, including cost of right-of-way, construction, vehicles, and maintenance facilities would be less than costs for the WSX Alternative; however, LRT ridership also would be significantly less than the WSX Alternative ridership. In particular, LRT would require an entirely new fleet of vehicles for the system, as well as maintenance facilities, whereas BART and bus operators would be augmenting their existing vehicle fleet and could use existing maintenance facilities. Additional consideration would also be necessary at the LRT interface at the Fremont BART Station. LRT traveling at grade along the proposed BART alignment or city streets would require a ramp and elevated platform to allow cross-platform transfers to BART, or with an at-grade LRT station design, additional vertical circulation (stairs, escalators, elevators) between the LRT terminus and the BART platform. Both designs would require modification of the existing BART station, including changing auto and bus circulation and loss of station parking.

Future extension of LRT south of Warm Springs, and a commensurate increase in ridership, is unlikely. For practical purposes, selection of a 5.4-mile, Fremont BART-to-Warm Springs LRT system would not allow for future non-LRT transit extensions in the UP railroad corridor. Construction of LRT would preclude a future BART extension southward, unless the LRT system (and LRT financial investment) was removed. Also, there is no reasonable likelihood of an LRT extension in the regional corridor south from Warm Springs. LRT was examined in VTA's MIS and rejected as a transit alternative. The primary reasons for the elimination of LRT by VTA were that LRT in Santa Clara County would be limited to 2- and 3-car trains due to constraints on the Tasman and Downtown East Valley light rail line, slower guideway speeds (55 mph maximum), and traffic congestion and LRT coordination problems at the East Julian Street and East Santa Clara Street grade crossings. An LRT project in Santa Clara County would also require voter approval to use VTA's Measure A funding.

2003 Local Bus Alternative

A bus alternative that would operate exclusively on local city streets was also considered for analysis in the 2003 SEIR. The 1992 EIR did not analyze such an alternative, and considered expanded local bus service within the context of the No-Project and TSM alternatives. However, in developing a reasonable and feasible alternative to the WSX Alternative that would rely on bus transit, it was recognized that the service would need to be more competitive with the rail transit alternative in terms of travel timesavings, as travel time efficiency is a key determinant of ridership. A bus alternative operating on local streets could be constrained by delays due to operating within the local traffic stream. During scoping for the 2003 SEIR, it was suggested that the project funds be provided to expand local bus service. These funds could be used to enhance local bus service, with the use of such features as limited stops, signal pre-emption, and bus transit priority treatments. However, even with these enhancements, the travel timesavings that could be realized by buses on local streets would not be competitive with transit that operates within an exclusive right-of-way. In previous studies of the regional corridor, express bus and expanded local bus options were analyzed, and these enhancements were considered. Local and express buses showed only marginal improvements with these additions, since traffic conditions within Fremont at the time of the analysis showed acceptable levels of services along key arterials. It was determined that express buses would not achieve the ridership levels of a rail transit alternative unless HOV lanes and busways were added to reduce travel times.

2003 Bus Alternative (with bus rapid transit and busway components)

During the 2003 SEIR scoping process, it was suggested that a bus alternative be considered for further analysis in the 2003 SEIR. Although bus alternatives had been previously analyzed in earlier studies, such an alternative was not analyzed in the 1992 EIR. Changes in the circumstances underlying the previous environmental analysis, including advancements in bus operations known as bus rapid transit (BRT), have arisen since 1992. These changed conditions supported the analysis of this option in the 2003 SEIR.

Developed in conjunction with AC Transit and VTA, the Bus Alternative was designed to provide high-quality service similar to the WSX Alternative. The Bus Alternative incorporates several BRT components, with transit centers at the WSX Alternative Warm Springs BART Station site and the optional Irvington Station site. Relatively minor changes associated with fare collection and information systems are included for the Fremont BART Station, and no parking spaces would be lost at this site. The service along the busway would include a limited number of stops between the Warm Springs Transit Center and the Fremont BART Station.

Bus Rapid Transit

BRT is a rubber-tired vehicle operation that is configured to offer speeds and capacity similar to rail transit, with exclusive travel lanes, busways or HOV lanes, limited stops, and signal pre-emption.

BRT is most appropriate in corridors with high ridership where there is sufficient right-of-way available to provide exclusive lanes. With the exclusive right-of-way, buses would now be separated from other vehicles using public roadway rights-of-way. Using limited stops, buses would stop less frequently. With both of these elements of BRT in place, travel times would be generally reduced. The addition of traffic priority at intersections and/or signal priority throughout the WSX Alternative corridor would further reduce bus travel times. The elements of BRT that are the most quantifiable using regional travel forecasting methods are traffic signal priority systems, limited bus stops, and exclusive bus lanes. The effects of BRT elements have been shown to provide up to a 30% improvement in travel timesavings and a similar growth in ridership.

It should be noted that not all BRT elements are included in the Bus Alternative. Coordination with land use planning has not been included, as local plans are supportive of the WSX Alternative. Unique vehicles have not been included, as both bus operators would use rolling stock that is similar to their current fleet. Articulated buses, similar to the ones currently in operation, would be needed for the county-to-county bus trips. However, many other elements, including exclusive right-of-way, limited stops, improved passenger boarding facilities, prepaid fares, real-time passenger information, traffic priority at intersections, passenger boarding at the same height as the bus, and signal priority are included.

Busway

The busway would include the creation of a paved busway within the Union Pacific Railroad (UP) right-of-way from South Grimmer Boulevard to Paseo Padre Parkway, for a length of approximately 3 miles. Access to the busway at Paseo Padre Parkway would be provided by flyover ramps that would pass over the adjacent at-grade UP railroad track. The two-way flyover from the busway would provide access to both directions of travel on Paseo Padre Parkway. The busway would carry both VTA and AC Transit routes. Passengers would board and alight on any bus operating in the busway, with stops located at the Fremont BART Station and at two transit centers, which would be

located on the same sites as the Warm Springs Station and the optional Irvington Station. Additional stops would be located at Paseo Padre Parkway and Stevenson Boulevard, at Auto Mall Parkway and Grimmer Boulevard, and at Auto Mall Parkway and Warm Springs Boulevard. Both the transit centers and regular stops would facilitate connections to other local bus routes within Fremont. The Bus Alternative includes signal pre-emption and upgrades to eight intersections along the path of the included bus routes. Passengers would be informed of bus schedules through the use of “next-bus” technology, which would announce the impending arrival of the buses at each bus shelter and passenger waiting area.

The Bus Alternative is not considered a feasible and prudent alternative to avoid Section 4(f) resources because it would not adequately satisfy the Warm Springs Extension Project’s purpose and need. The WSX Alternative would maximize transit ridership and new transit trips compared to the Bus Alternative. Although the Bus Alternative would also promote transit goals, the WSX Alternative best supports them by maximizing transit ridership and new transit trips. In addition, given that the Bus Alternative travels in traffic for part of its route, the WSX Alternative would better serve the purpose of increasing the speed, comfort, and reliability of public transportation and reducing travel time for commuters in the regional corridor. The WSX Alternative also has the additional benefit of affording greater opportunity than the Bus Alternative for future extension of service into Santa Clara County, further enhancing the regional network by connection to the SVRTC project if it is adopted by VTA (or by future transit expansion projects if the SVRTC project is not adopted). Increased transit ridership provided by the WSX Alternative would translate into greater long-term environmental benefits compared to the Bus Alternative, through air quality improvements and energy savings resulting from reduced highway congestion and vehicle-miles-traveled. In addition, by increasing the amount of impervious surface and runoff, the Bus Alternative could have more extensive effects on hydrology and water quality than the WSX Alternative. Finally, the Bus Alternative would not be as effective in promoting transit-oriented development and accommodating planned growth in a “smart growth” manner. One advantage of a Bus Rapid Transit system is that it offers more flexibility than a fixed-rail system; as growth and travel patterns shift, bus routes can be shifted to accommodate these shifts. In contrast, the rail system infrastructure and stations of the BART system represent a major public investment in an area that is not movable. For this reason, private developers are more amenable to making a long-term real estate investment around a BART station than a bus center.

Alternatives on the Same Location

The rail transportation project that was proposed in the 1992 SEIR (the 1992 Adopted Project) would have followed essentially the same alignment as the WSX Alternative, but would have employed an aerial configuration over Fremont Central Park and Lake Elizabeth. As proposed, the alignment of the 1992 Adopted Project (identified as Alternative 5, Design Option 2A, in the 1992 EIR) would have begun at the existing elevated Fremont BART Station and extended southeasterly. The alignment would have followed an aerial alignment through Fremont Central Park that skirted the eastern edge of Lake Elizabeth. The alignment would have continued on an aerial structure over the former SP track, curved south between the former SP track and the former WP track, and crossed over Paseo Padre Parkway. The alignment would have then transitioned to a below-grade crossing under Washington Boulevard to arrive at the Irvington Station.

From the Irvington Station, the alignment would have risen to grade and remained at grade over the Blacow Road underpass and under the Auto Mall Parkway overpass. From Auto Mall Parkway, the alignment would have risen to an embankment and an aerial structure to cross the former WP track at Grimmer Boulevard and continued above grade to the elevated Warm Springs Station. The

alignment would have then transitioned to grade, and would have had approximately 3,000 feet of tail track south of the Warm Springs Station.

When the WSX EIR was certified in 1992, Fremont did not support the recommended project alternative (Alternative 5, Design Option 2A, in the 1992 EIR), which included an aerial alignment over Lake Elizabeth in Fremont Central Park. Fremont did support an alternative that included a subway alignment under Lake Elizabeth (Design Option 2S in the 1992 EIR). Accordingly, an aerial structure over Fremont Central Park is not considered a feasible and prudent alternative to the WSX Alternative with a subway alignment under the park. The aerial alignment was dismissed from further consideration in the EIS, based on its permanent adverse impacts to visual and park resources and the lack of support from the local community and the City of Fremont.

The 1992 Adopted Project also included a subway design option (identified as Design Option 2S in the 1992 EIR) that would have substituted a subway alignment under Fremont Central Park for the aerial alignment proposed as Design Option 2A. The BART alignment under this design option would have emerged from the subway structure, crossed the former SP track, and continued between the former SP track and the former WP track. This subway alignment was necessary in the 1992 Adopted Project to accommodate the two active freight rail lines. The WSX Alternative analyzed in this EIS includes a different subway alignment that is very similar to the alignment of Design Option 1 in the 1992 EIR, which has become feasible as a result of the city's grade separations project.

As noted above, additional variations in the vertical and horizontal alignment of the BART extension were considered in the 1992 EIR. These design options were as follows.

1992 Design Option 1 (Subway)

Under this design option, the vertical alignment would have been under Stevenson Boulevard, Lake Elizabeth, and Paseo Padre Parkway. This alignment is similar to that of the WSX Alternative; the key difference is that it would have crossed under Paseo Padre Parkway, an additional 0.5 mile of subway. This design option would have been applicable to 1992 Alternatives 4 through 11. Although there is a slight difference in the alignment, 1992 Design Option 1 is very similar to the WSX Alternative. The changes in the alignment that occur due to the city's grade separations project now make a subway alignment under Lake Elizabeth feasible.

1992 Design Option 2S (Subway)

Under this design option, the proposed BART alignment would have moved around Lake Elizabeth similar to 1992 Design Option 2A. The vertical alignment north of Central Park would have been on an embankment over Walnut Avenue and transitioned to a subway under Stevenson Boulevard. After Stevenson Boulevard, the vertical alignment would have continued in a subway, following the same route as 1992 Design Option 2A. The alignment would have also traveled under a section of Central Park that was further east and would have skirted Lake Elizabeth and continued south, crossing under Paseo Padre Parkway. The option was also applicable to all 1992 Alternatives 4 through 11. This option is not considered feasible because it would disrupt activity at the City of Fremont's golf course, which is located between the former WP and former SP alignments east of Central Park.

1992 Design Option 3 (Aerial)

Under this design option, the BART vertical alignment would have been on an embankment over Walnut Avenue and an aerial structure over Stevenson Boulevard. The alignment would have proceeded over a portion of Central Park that was further east, and would have avoided Lake Elizabeth. Finally, the alignment would have continued south on the west side of the UP track and crossed over Paseo Padre Parkway. This design option would have been applicable to 1992 Alternatives 4 through 11.

1992 Design Option 3 (Aerial) was found to be infeasible because of the alignment's incompatibility with a land use proposed by the City, as well as the proximity of this aerial alignment to residences along the western side of the 1992 Proposed Project corridor. The WSX Alternative alignment would reduce these impacts.

1992 Central Park Design Option 3 located the alignment on the west side of the UP tracks. This option is not feasible because of the track relocations that are part of the city's grade separations project.

Given the aforementioned problems with the Fremont Central Park design options, and the City opposition to an alternative with an aerial alignment in particular, it is reasonable to conclude that none of these would be a feasible and prudent alternative to the current WSX Alternative.

No-Build and Transportation System Management Alternatives

Because construction of a new rail transportation facility in this area would not likely occur under the No-Build Alternative described in this document, it would avoid the use of the Section 4(f) resource. However, it is not considered to be a feasible and prudent alternative, insofar as it would fail to address the demonstrated need for rail transit improvements in the Warm Springs corridor.

Below are other no-build and transportation system management (TSM) types of alternatives that are not considered feasible and prudent but would potentially avoid the Section 4(f) resources in the corridor.

1992 Alternative 2: No Project, Programmed Transportation Improvements

1992 Alternative 2 did not include a BART Warm Springs extension, but did include highway and transit improvements that were programmed in the 1990 State Transportation Improvement Program (STIP), as well as those funded by the Alameda County Measure B sales tax revenues. Transit improvements would have included the Dublin, West Pittsburg, and Colma BART extensions, as well as implementation of AC Transit's Comprehensive Service Plan (CSP).

This alternative was dismissed from further consideration for the following reasons.

- This alternative would not satisfy the project purpose and need to alleviate traffic congestion, enhance transit accessibility, improve air quality and energy efficiency, and promote transit-oriented "smart growth" land uses.
- This alternative does not support the anticipated population growth in the Fremont General Plan.
- The Alameda County Measure B sales tax, which was approved by voters in 1986, provided funding for the 1992 Proposed Project. Because 1992 Alternative 2 did not include the 1992 Proposed Project, it does not satisfy the mandate of Measure B.

1992 Alternative 3: Transportation Systems Management

The 1992 TSM Alternative included the benefits of various existing or programmed transit and highway improvements, as in 1992 Alternative 2, and also included the BART extension to the San Francisco International Airport and the Tasman Corridor Light Rail Transit (LRT) system from east San Jose to Sunnyvale or Mountain View. Additional transit improvements would have included changes to AC Transit's services, as defined previously, in the CSP. In addition, changes to the Santa Clara County Transit District's (now Santa Clara Valley Transportation Authority's or VTA's) bus-route network to complement the BART extension were proposed. Highway improvements in the study area included in this alternative were high occupancy vehicle (HOV) lanes on I-880, from SR 238 south to the Montague Expressway.

This alternative was dismissed from further consideration for the following reasons.

- This alternative would not satisfy the project purpose and need to alleviate traffic congestion, enhance transit accessibility, improve air quality and energy efficiency, and promote transit-oriented "smart growth" land uses.
- The alternative does not support the anticipated population growth in the *Fremont General Plan*.

The Alameda County Measure B sales tax, which was approved by voters in 1986, provided funding for the 1992 Proposed Project. Because 1992 Alternative 3 did not include the 1992 Proposed Project, this alternative does not satisfy the mandate of Measure B.

Measures to Minimize Harm

The following measures have been identified to minimize harm to Fremont Central Park.

Mitigation for long-term aesthetic effects of vent structure(s)

Mitigation Measure A-3—Implement measures to conceal the ventilation structures. In designing and placing the ventilation structures in Fremont Central Park, BART will implement the following mitigation measures.

- Coordinate with the City of Fremont in developing criteria for design of the structures to be placed in the park. BART will ensure that the final designs of the structures and the plantings will be consistent with visual resources of the immediate project vicinity, including park maintenance facilities and landscaping.
- Use surface treatments forms, textures, and colors that reflect Fremont's architectural character and that help blend the ventilation structures and ancillary equipment into the surroundings.
- Establish plantings (e.g., trees and shrubs) along the edges of buildings and any fencing. The plantings will be consistent with the character of existing vegetation in the park.

Mitigation for long-term noise effects of vent structure(s)

Mitigation Measure N-3—Design and construct electrical substations, vent shafts, and other ancillary facilities to reduce noise. Electrical substations, vent shafts, and other ancillary facilities will be designed so that noise generated by these facilities does not exceed the limits specified in Table 4.13-6 [see Section 4.13]. Measures to be employed may include but are not limited to the following.

- Orient noise-generating components away from noise-sensitive land uses or locate buildings between noise-generating components and noise-sensitive land uses.
- Use acoustically rated vents to reduce noise.
- Construct local barriers or enclosures around noise-generating components.

Mitigation for temporary construction effects

Mitigation Measure PR-3—Limit construction-related disruptions to Fremont Central Park. Implementation of the following measures will be coordinated as necessary under a comprehensive agreement with the City of Fremont:

- A relocated dog park will be provided.
- A temporary pedestrian bridge will be constructed over the cut-and-cover subway construction just north of Lake Elizabeth.
- Access across the BART construction zone between the parking lots for the softball fields will be provided whenever games are scheduled.
- A public pathway across the construction zone from the neighborhood to the east will be maintained during construction whenever feasible.
- To the extent that existing park paths may currently be capable of accommodating bicycles, the relocated paths will provide equivalent access. The paths will be well signed, and any paths closed for public safety and security will be well marked. At least one public pathway across the construction zone near Lake Elizabeth will be maintained at all times to accommodate people who walk or ride bicycles to the park from the residential areas immediately east of the railroad corridor.
- BART and the construction contractor will work with the City of Fremont and ACFCD to develop and implement a program to maintain Lake Elizabeth's flood control function or provide alternative temporary storage, if necessary, during the construction period.
- BART and the construction contractor will work with the City of Fremont to find the most suitable locations and durations for construction storage.
- BART and its contractor will coordinate with the City Parks and Recreation staff to provide as much advance notice as possible for construction scheduling and other project activities that would cause disruptions to the use of Central Park.

Mitigation for construction-period aesthetic effects

Mitigation Measure A-6—Take measures to conceal temporary construction activities. BART will implement the following mitigation measures to rectify, reduce, or minimize temporary visual impacts during construction.

- Fencing will be installed to shield views of construction activities from Stevenson Boulevard, Fremont Central Park, Osgood Road, and Grimmer Boulevard. Fencing installed by BART contractors will be sufficiently tall to hide all excavation, grading, and trenching activities and materials.
- Major construction activities will be followed immediately with paving and landscaping. Fencing materials will remain in place until finish work (e.g., plantings, site cleanup) has been completed.

Mitigation measures to reduce adverse effects on the park during construction are also noted in other sections of this document (e.g., Section 4.2, *Transportation*, Section 4.3, *Geology*, Section 4.5, *Hydrology and Water Quality*, Section 4.7, *Biological Resources*, Section 4.8, *Land Use*, Section 4.9, *Parks and Recreation*, Section 4.13, *Noise and Vibration*, and Section 4.14, *Air Quality*).

Coordination/Consultation

BART has coordinated with the City of Fremont since planning and development for a proposed Warm Springs Extension commenced. This included substantial coordination during the 1992 and 2003 environmental reviews conducted pursuant to the California Environmental Quality Act (CEQA). As noted above in the discussion of alternatives, one important result of the previous consultation was that the City objected to the aerial alignment in Fremont Central Park proposed in the 1992 EIR, and requested that a subway alignment be considered as a means of reducing impacts to park facilities, programs, and patrons. BART has responded to this concern by devising the subway portion of the current WSX Alternative. Consultation with the City of Fremont has been re-initiated as part of this NEPA process, and is expected to continue throughout the duration of that process, as well as the subsequent period of project design and construction.

Recommended Determination

The FTA Administrator has determined and DOI has concurred that a direct use and a temporary use of the Fremont Central Park would result from the WSX Alternative. As documented herein, there is no feasible and prudent alternative to the use of this property, and the WSX Alternative includes all possible planning to minimize harm to the property resulting from such use.

6.4.3 Historic Sites with No Section 4(f) Use

Hetch Hetchy Aqueduct (Bay/Peninsula Division Pipeline Nos. 1 and 2)

Description and Significance of Property

In 1934, engineers completed the infrastructure for the Hetch Hetchy Aqueduct in what was then Washington Township. The Hetch Hetchy Aqueduct was officially opened on October 28, 1934, when water flowed from the Sierra Nevada into Crystal Springs Reservoir on the San Francisco Peninsula. The Irvington Portal, a critical component of the Hetch Hetchy Aqueduct, is situated in the Fremont hills above Mission Boulevard. The portal is where the Hetch Hetchy waters divide and flow through pipelines, either directly towards San Francisco or southward to San Jose and then north to San Mateo County. The pipeline traveling through the WSX Alternative area to San Francisco was constructed between 1922 and 1934 and is known as the Bay/Peninsula Division of the Hetch Hetchy Aqueduct (Page & Turnbull 2000).

The Hetch Hetchy Aqueduct Bay/Peninsula Pipeline Nos. 1 and 2 transect the WSX Alternative alignment near Paseo Padre Parkway and the UP right-of-way. The two pipelines retain integrity and have been determined to be eligible for listing in the NRHP under Criterion A, because of their association with the Hetch Hetchy Aqueduct and early water development in the Bay Area and California.

Application of Section 4(f) Criteria for Use

The WSX Alternative would construct an alignment over Bay/Peninsula Division Pipeline Nos. 1 and 2 and, thus, is not expected to materially impair (i.e., demolish or substantially alter the physical characteristics of) either of the pipelines. The pipelines would continue to convey their historical significance. Consequently, no effect on these pipelines is anticipated for purposes of Section 106, and no direct, temporary, or constructive use of the Section 4(f) resource would result.

Coordination/Consultation

Consultation with the SHPO and other cultural resources stakeholders has been initiated, and is described in Section 4.12, *Cultural Resources*, and in the Section 106 documentation. SHPO has formally concurred with the determination of eligibility and the finding of effect for this resource (OHP 2006a, 2006b).

Recommended Determination

Based on the foregoing analysis, it is recommended that a determination be made by the FTA Administrator that no direct, temporary, or constructive use of the Hetch Hetchy Aqueduct Bay/Peninsula Division Pipeline Nos. 1 and 2 would result from the WSX Alternative.

William Y. Horner House

Description and Significance of Property

The William Y. Horner House at 3101 Driscoll Road is a single-family residence constructed circa the 1850s to 1860s. The building and surrounding landscape retain a high degree of integrity and are associated with William Y. Horner, an important early settler in the area. The property was determined eligible for the NRHP in a 2002 cultural resource assessment conducted for the Fremont Grade Separation Project (William Self Associates 2002). The property retains its integrity and SHPO has concurred that it is eligible for listing in the NRHP under Criterion B for its association with William Y. Horner, an important early settler in the area (OHP 2006a, 2006b). In addition, the historic landscape, including two palm trees and two pepper trees at the front of the residence, and a black oak tree at the rear, adds to the integrity of the property. A secondary residence at 3073 Driscoll Road is located at the rear of the parcel. This building lacks integrity and therefore does not appear to meet NRHP eligibility criteria.

Application of Section 4(f) Criteria for Use

The William Y. Horner House is located close (approximately 85 feet) to the WSX alternative alignment, and it experiences noise and vibration from movement of freight trains along the UP alignment. As part of the WSX Alternative, BART will construct a sound wall along the property line between the Horner House and the WSX alignment to mitigate noise impacts. The sound wall will cause no visual impacts to the Horner House, as it will be located approximately 50 feet from the Horner House. Furthermore, existing vegetation will partially shield the sound wall from view. The Horner House would continue to convey its historical significance. Consequently, no visual effect on the Horner House is anticipated. Groundborne vibration impacts and potential mitigation measures are discussed in detail in Section 4.13, *Noise and Vibration*, which identifies the Horner House as one of eight buildings in the Paseo Padre Parkway to Washington Boulevard segment of the WSX

Alternative corridor that would be subject to substantial groundborne vibration effects. The studies conclude that groundborne vibration levels associated with the WSX Alternative can be reduced to levels not to exceed 85 VdB with implementation of mitigation. Because vibration levels can be reduced to levels less than 95–100 VdB, the level at which groundborne vibration has the potential to cause structural and cosmetic damage to historical resources, vibration effects on the Horner House would be negligible, and no adverse effect is anticipated for purposes of Section 106. Thus, it is unlikely that vibration effects would substantially impair the protected activities, features, and attributes that qualify this resource for protection under Section 4(f). No direct, temporary, or constructive use of the Section 4(f) resource would result.

Coordination/Consultation

Consultation with the SHPO and other cultural resources stakeholders has been initiated, and is described in Section 4.12, *Cultural Resources*, and in the Section 106 documentation. SHPO has formally concurred with the determination of eligibility and the finding of effect for this resource (OHP 2006a, 2006b).

Recommended Determination

Based on the foregoing analysis, it is recommended that a determination be made by the FTA Administrator that no direct, temporary, or constructive use of the Horner House would result from the WSX Alternative.

Dr. J.H. Durham House

Description and Significance of Property

The Dr. J. H. Durham House at 42539 Osgood Road was previously recorded and evaluated for the NRHP in a 2000 cultural resource assessment conducted as part of the Osgood Road Widening Project (William Self Associates 2000). The previous evaluation determined that the property appeared eligible for listing in the NRHP under Criterion C at a local level for its unique architectural style (i.e., Prairie Style with Spanish Colonial Revival elements). The SHPO subsequently reviewed the resource and concurred with the 2000 NRHP determination of eligibility (OHP 2006a, 2006b). Qualified architectural historians revisited the property as part of this project and found no significant changes since the previous evaluation. Therefore, based upon concurrence by the SHPO and the lack of subsequent changes to the characteristics of the property, the Durham House remains eligible for listing in the NRHP.

Application of Section 4(f) Criteria for Use

The Durham House is situated at the northeast corner of a relatively large parcel (2.59 acres) near the WSX Alternative alignment. Additional historic landscape features are located close to the residence. The building and historic landscape features are more than 390 feet from the WSX Alternative alignment and are separated from the alignment by an open field. Therefore, the WSX Alternative is not expected to cause the physical destruction, relocation, or alteration of the building or associated historic landscape features. In addition, because the residence is located more than 390 feet from the WSX Alternative alignment, increased groundborne vibration levels are not expected to have an effect on the property, nor would any noise, aesthetic, or access effects occur. Since the

property would continue to convey its historical significance, no effect is anticipated for purposes of Section 106, and no direct, temporary, or constructive use of the Section 4(f) resource would result.

Coordination/Consultation

Consultation with the SHPO and other cultural resources stakeholders has been initiated, and is described in Section 4.12, *Cultural Resources*, and in the Section 106 documentation. The SHPO has previously concurred with the determination of eligibility for this resource as part of the Osgood Road Widening Project. SHPO has formally concurred with the finding of effect for this resource (OHP 2006a, 2006b).

Recommended Determination

The FTA Administrator has determined and DOI has concurred that no direct, temporary, or constructive use of the Durham House would result from the WSX Alternative.

6.4.4 Historic Sites with Potential Section 4(f) Use

CA-Ala-343

Description and Significance of Property

CA-Ala-343 is a large prehistoric Native American site that has been subject to numerous archaeological investigations since it was first recorded in 1968 (King 1968). FTA has determined, with SHPO concurrence, that this site is eligible for listing in the NRHP (OHP 2006b). This site meets the eligibility criteria for listing in the NRHP and CRHR under Criterion A and Criterion D, due to the size of the site and richness of the site both in diagnostic artifacts and burials, and in the association of burials with artifacts. It is a large village site that has the potential to yield information regarding the prehistory of the Ohlone Indians, the region, and California. There is also significant public interest in CA-Ala-343 due to the large quantity of human remains that have been found there.

Based on the results of previous surveys and excavations, the WSX Alternative alignment does not appear to cross directly through the CA-Ala-343 site as the boundaries are currently understood. However, CA-Ala-343 is an extensive site, and its boundaries remain poorly defined despite numerous field investigations to date.

Application of Section 4(f) Criteria for Use

Although not currently known to extend into the WSX Alternative project area, Chavez et al. (1991) strongly suggest that construction of the WSX Alternative could result in permanent substantial impacts on unidentified portions of CA-Ala-343 south of the Tule Pond. Unless subsurface features associated with CA-Ala-343 are absent from the project area or lack integrity to contribute to the site's significance, it is assumed that important subsurface deposits may be present in the WSX Alternative area and that construction of the elevated structures and subway for the WSX Alternative would potentially destroy a portion of an historically important resource. Accordingly, SHPO has determined that there will be an adverse effect on CA-Ala-343 for purposes of Section 106, and a direct use has been assumed for purposes of Section 4(f).

Coordination/Consultation

Consultation with the SHPO and other cultural resources stakeholders has been initiated, and is described in Section 4.12, *Cultural Resources*, and in the Section 106 documentation. SHPO has formally concurred with the determination of eligibility and the finding of effect for this resource (OHP 2006b).

Avoidance Alternatives

Chapter 3, *Alternatives Considered*, details the potential transportation alternatives that have been evaluated for the Warm Springs corridor over the course of more than 10 years. Of these, the WSX Alternative has been carried forward as the alternative that most satisfactorily addresses the need for and purpose of a transportation investment in the corridor.

For the reasons outlined below, no other feasible and prudent alternatives exist that would avoid the direct use of this Section 4(f) resource (CA-Ala-343).

No-Build and Transportation System Management Alternatives

See discussion of No-Build and TSM alternatives above for Fremont Central Park.

Alternatives on a New Location

See discussion of alternatives on a new location above for Fremont Central Park.

Alternatives on the Same Location

Until the results of additional subsurface investigations are available, it cannot be concluded with any certainty that there are alternatives along the same alignment that would avoid the Section 4(f) resource. Clearly, it can be assumed that the subway configuration included as part of the WSX Alternative raises the possibility of encountering buried cultural resources, but that aerial and at-grade alternatives would not entirely eliminate this possibility either. Varying degrees of ground-disturbing activity would have to occur under any of these scenarios. Considering the other environmental, engineering, and financial constraints that would be associated with the aerial and at-grade alternatives previously considered in 1992 and 2003, it can be reasonably concluded that none would be feasible and prudent.

Measures to Minimize Harm

The following measures have been identified to minimize harm to CA-Ala-343.

Mitigation Measure CR-2(a)—Prepare and implement MOA and treatment plan for APE. BART will prepare and enter into an MOA with SHPO that assumes the presence of an archaeological site and potential adverse effects on resources, including human remains. The MOA will provide for subsurface testing and data recovery in a detailed treatment plan for the entire APE as needed prior to construction, as well as other measures to minimize and mitigate impacts. The treatment plan will include, but not be limited to the details described in Mitigation Measures CR-2(b), CR-2(c), and CR-2(d).

Mitigation Measure CR-2(b)—Conduct geomorphological research and subsurface investigations, including backhoe trenching. Based on examinations of the project area, the entire APE, with the exception of filled areas, is considered moderately to very highly sensitive for the potential for buried cultural resources.

To locate buried sites within the project APE, the following procedures will be implemented. However, regardless of the sensitivity of the area, if the project will not result in subsurface disturbance in a particular location, no subsurface investigations will be required in that location. By undertaking the majority of the procedures described below prior to construction, monitoring and construction delays can be reduced.

The project segments (Segments 1–6, as identified above in the impact discussion) have been classified into three broad types of sensitivity: very high, high, and high to moderate. Each classification is reached by considering known sites, setting, and sediment type. This information is then compared against proposed construction impacts, with resource identification and treatment activities varying accordingly.

- Very High Sensitivity (Segment 1): Because of the presence of a known site, impacts on Segment 1 (north end of APE to northern subway portal) will be addressed in an MOA and treatment plan. This entire portion of the APE will be subjected to some degree of subsurface archaeological testing prior to construction; such testing will be detailed in an MOA and treatment plan.
- High Sensitivity (Segments 2, 3, 5, and 6): To test for buried cultural materials in areas with Holocene period alluvium where subsurface disturbance is proposed, backhoe trenches will be excavated in open areas on a regular grid at intervals of approximately 500 feet. The depth of trenches will be to the maximum reach of the machine or until groundwater level is reached. Soil descriptions and profiles will be drawn as needed. A geoarchaeologist will be present during this testing activity and will use their judgment to continue or limit backhoe testing within the Basin Sediments. The subway tunnel will be monitored for disturbance occurring as deep as approximately 15 feet, because preconstruction excavation would not be possible.
- High to Moderate Sensitivity (Segment 4): Pleistocene and Undifferentiated Alluvium in this segments will be tested using backhoe trenches at intervals of approximately 650 feet, in open areas as available, and only where subsurface disturbance is proposed. These trenches will be excavated below the proposed depth of construction, which in the at-grade areas may be fairly shallow. Based on the results of this effort and sediment conditions, the geoarchaeologist may recommend a closer trenching interval within the Pleistocene and Undifferentiated Alluvium.

Mitigation Measure CR-2(c)—Conduct subsurface testing, data recovery, and reporting for CA-ALA-343. SHPO has concurred that CA-ALA-343 is an NRHP-eligible resource that will be adversely affected by the WSX Alternative. BART will conduct subsurface testing to assess and minimize potential effects on prehistoric and historic archaeological resources at CA-ALA-343 and vicinity. To establish the presence or absence and the integrity of CA-ALA-343 deposits in the project area, BART will design a focused subsurface testing program and implement it in areas south of Tule Pond and north of Stevenson Boulevard that have not previously been subject to subsurface archaeological investigations. To do this, BART will retain qualified archaeologists to conduct the investigation, which will follow standard professional practice for the evaluation of cultural resources. Before the investigation begins, a work plan will be prepared, including Native American protocols for the project, a research design, and methods of conducting the study.

Following test excavations, a technical report will be prepared to document the results of the investigation. The technical report will be submitted to BART and also placed on file at the Northwest Information Center of the California Historical Resources Information System at

Sonoma State University. If archaeological deposits are discovered, the report will define the WSX Alternative's expected effects and present specific recommendations for subsequent actions. Consideration will be given to preserving important archaeological deposits in the project area by avoiding the deposits or otherwise protecting them from impacts, if feasible.

If preservation alternatives are not possible or feasible, BART will conduct data recovery for CA-ALA-343 and vicinity in order to minimize impacts. If significant archaeological deposits that cannot be avoided or otherwise protected are found within the WSX Alternative area, BART will ensure that data recovery is implemented by qualified archaeologists in accordance with standard professional practices. If archaeological deposits that indicate the presence or probable likelihood of Native American human remains are discovered, the data recovery plan will be prepared and implemented in consultation with appropriate representatives of the Native American community. The objective of archaeological data recovery will be to adequately recover the scientifically consequential information from and about the historical resource. The results of the study will be deposited with the California Historical Resources Regional Information Center.

Mitigation Measure CR-2(d)—Stop work if buried cultural deposits are encountered during construction activities. If buried cultural resources such as chipped or ground stone, quantities of bone or shell material, or historic debris or building foundations are inadvertently discovered during ground-disturbing activities, work will be stopped within a 100-foot radius of the find until a qualified archaeologist can assess the significance of the find. If, after evaluation by a qualified archaeologist, an archaeological site or other find is identified as meeting the criteria for inclusion in the NRHP or the CRHR, BART will retain a qualified archaeologist to develop and implement an adequate program for investigation, avoidance if feasible, and data recovery for the site, with Native American consultation, if appropriate.¹

If human skeletal remains are inadvertently encountered during construction of the WSX Alternative, the contractor will contact the Alameda County Coroner immediately. If the County Coroner determines that the remains are Native American, the coroner will contact the NAHC, as required by Section 7050.5[c] of the California Health and Safety Code, and the County Coordinator of Indian Affairs. A qualified archaeologist will also be contacted immediately.

Recommended Determination

The FTA Administrator has determined and DOI has concurred that a direct use of this resource would result from the WSX Alternative. As documented herein, there is no feasible and prudent alternative to the use of this resource, and the WSX Alternative includes all possible planning to minimize harm to the property resulting from such use.

¹ This portion of Mitigation Measures CR-2 applies to the WSX Alternative area where construction is not anticipated to encounter archaeological remains and will therefore not be monitored or previously investigated by qualified archaeologists.

Gallegos Winery Ruins (Structural Remains)

Description and Significance of Property

In 1881 Juan Gallegos purchased the former Elias Beard ranch near present-day Washington Boulevard. Gallegos was born in Costa Rica and settled in the United States with his family in 1872. His wife, Donna Julia Montealegre, was the daughter of Dr. José Maria Montealegre, third president of Costa Rica. Gallegos planted a 600-acre vineyard and constructed a large winery known as the Gallegos or Palmdale Winery on his vast Irvington property. A spur of the nearby railroad ran directly to the winery to ease distribution of wine throughout the country. The highly profitable winery operated successfully until the early 1900s when it fell victim to a bad wine economy and vine disease. The 1906 San Francisco earthquake destroyed the winery complex (William Self Associates 2002).

The Gallegos Winery ruins site is currently unoccupied and contains no intact structures other than portions of the former winery building walls. Vegetation obscures much of the site. Several of the palm trees that were part of the original winery facility remain on the site.

Based on the results of cultural resource assessments conducted in 2002 and 2003 for the Fremont Grade Separation Project, as well as the additional cultural resources analysis performed for the WSX Alternative, the structural remains and associated features (e.g., palm trees) of the Gallegos Winery ruins appear to be eligible for listing in the NRHP under Criteria A and B, due to an association both with people of importance to local history (i.e., Juan Gallegos) and their association with events of importance (i.e., the development of local agriculture and the Irvington District). In addition, the ruins of the winery retain a sufficient degree of integrity of design, workmanship, setting, and feeling, despite their debilitated state.

Archaeological testing and subsurface evaluations were conducted at the winery site in 2003 as part of the mitigation program for the Fremont Grade Separation Project. The 2003 investigation included additional archival research, photographic documentation to Historic American Building Survey (HABS) standards, preconstruction testing to evaluate the vertical and horizontal boundaries of the site, and a magnetic geophysical survey of portions of the site. The study found that no significant subsurface archaeological resources were present at the winery site. Thus, the 2002 proposed finding of eligibility does not extend to the subsurface below the winery. Only the aboveground structural remains of the winery are considered a significant architectural resource for purposes of Section 106 and this Section 4(f) evaluation.

Application of Section 4(f) Criteria for Use

Implementation of the optional Irvington Station would involve the construction of a pedestrian walkway and parking lot on the Gallegos Winery ruins property. The pedestrian bridge would be constructed approximately 16 feet above the reconfigured Osgood Road, from the Irvington Station to the proposed main parking lot, on the west and south sides of the Gallegos Winery ruins. A pedestrian/bike path, bus lot, and passenger drop-off area would be incorporated into the parking lot area. The introduction of these new structures would result in a loss of historic setting for the structural remains of the winery and its associated features, thereby altering them to such a degree that the ability of the site to convey its significance would be materially impaired. Because the structural remains of the Gallegos Winery ruins and the associated landscape features comprise the only known cultural resource site that can be directly associated with the Gallegos family and the

early development of viniculture in the City of Fremont, the substantial alteration in the historic setting would result in an adverse effect for purposes of Section 106 and a direct use for purposes of Section 4(f).

Coordination/Consultation

Consultation with the SHPO and other cultural resources stakeholders has been initiated, and is described in Section 4.12, *Cultural Resources*, and in the Section 106 documentation. SHPO has formally concurred with the determination of eligibility and the finding of effect for this resource (OHP 2006a, 2006b).

Avoidance Alternatives

Chapter 3, *Alternatives Considered*, details the potential transportation alternatives that have been evaluated for the Warm Springs corridor over the course of more than 10 years. Of these, the WSX Alternative has been carried forward as the alternative that most satisfactorily addresses the need for and purpose of a transportation investment in the corridor.

The Gallegos Winery ruins are located on the northern end of a 4.9-acre parcel that is currently undeveloped. Implementation of the optional Irvington Station would result in the construction of 222 surface parking spaces on the southern portion of the Gallegos Winery property, which would result in the direct use of portions of this historic property. The direct use would be avoided if alternate locations for parking were found.

Bound by the Hayward Fault on the east, the railroad corridor on the west, and bisected by Osgood Road, the Irvington Station site is a highly constrained site. One way of maintaining the number of parking spaces at Irvington Station, but removing them from the Gallegos parcel would be to construct a parking garage at Irvington. There are two potential locations for parking structures on the station site, neither of which is prudent for a parking structure. The first location for a parking structure would be south of the Gallegos parcel between Osgood Road and the Hayward Fault to the east. As shown in Figure 3-8a, the Hayward Fault borders the parcel, making it an unsuitable location for a parking structure. As discussed in Section 4.3.2.2, the site is subject to active fault creep of approximately 0.32 inch/year, and the Hayward Fault Zone is considered capable of producing the next major earthquake in the San Francisco Bay Area. Additionally, construction of a parking structure adjacent to the Gallegos Winery site could create an adverse visual effect to a substantially greater degree than the adverse effect associated with surface parking. The second potential location for a parking structure is between Osgood Road and the BART alignment, adjacent to the Ford House on the south. However, a parking structure adjacent to the Ford House would create an adverse visual effect to the Ford House substantially greater than the surface parking currently planned. In addition, the cost of constructing a 222-space parking structure is estimated at approximately \$10 million.

A pedestrian walkway is also planned on the Gallegos parcel, located on the east side of Osgood Road and extending from near the corner of Osgood Road and Washington Boulevard to the planned parking area. This ground level pathway would run parallel to and approximately 100 feet from the winery ruins. Although the pathway is located on the historic property, it would not detract from the historic nature of the winery ruins. In fact it would provide a good vantage point from which to view the Gallegos ruins. Mitigation Measure CR-5 (Preserve and interpret structural remains of Gallegos Winery and associated features) in the EIS requires the preservation and interpretation of the

Gallegos winery ruins. This requirement would actually improve access and public awareness of the winery site.”

For the reasons and the additional reasons outlined below, no other feasible and prudent alternatives exist that would avoid the direct use of this Section 4(f) resource—Gallegos Winery Ruins (Structural Remains).

Alternatives on a New Location

See discussion of alternatives on a new location above for Fremont Central Park.

Alternatives on the Same Location

The WSX Alternative could proceed without construction of the optional Irvington Station, thereby eliminating the direct use of the Section 4(f) resource. However, not constructing this station could result in a transportation investment that does not fully meet the need for and purpose of improvements along the Warm Springs corridor. Lack of an Irvington Station is inconsistent with BART’s Extension Staging Policy, which was in effect in 1992, during early project planning. BART’s current System Expansion Policy, adopted in 1999, effectively supercedes the Extension Staging Policy. The new policy includes goals to demonstrate a commitment to transit-supportive growth and development and to develop projects in partnership with communities that will be served. The Irvington Concept Plan being developed by the City of Fremont incorporates the principles of transit-oriented development.

Other alternatives that have been evaluated and dismissed, but that would potentially avoid this Section 4(f) resource are summarized below. For the reasons noted, none could be considered feasible and prudent.

1992 Alternative 6: 7.8-Mile Extension with Two Stations (No Irvington Station)

1992 Alternative 6 was described as a 7.8-mile extension with no station in the Irvington District. This alternative was dismissed from further consideration because it is longer than the WSX Alternative (7.8 miles vs. 5.4 miles) and would result in greater environmental impacts. This alternative would also entail potential proximity impacts to the Section 4(f) resource.

1992 Alternative 7: 7.8-Mile Extension with Two Stations (No Irvington Station)

1992 Alternative 7 was described as a 7.8-mile, two-station extension, mostly on an aerial structure, with no Irvington Station, and running east of the UP tracks outside of railroad rights-of-way, from south of Washington Boulevard to the end of the line. With Alternative 7, significant visual impacts would have resulted due to the aerial BART structure over Washington Boulevard and through the Irvington district. The unmitigable visual impacts of the structure and of the associated sound walls in the vicinity of Washington Boulevard and the surrounding Irvington redevelopment area also contributed to determining that Alternative 7 was infeasible. Additionally, the aerial structure over Washington Boulevard could have resulted in the increased risk of structural damage or collapse during strong seismic activity. This alternative was dismissed from further consideration because it is longer than the WSX Alternative (7.8 miles vs. 5.4 miles) and would result in greater environmental impacts. This alternative would also entail potential proximity impacts to the Section 4(f) resource.

1992 Alternative 8: 7.8-Mile Extension along Osgood Road and Warm Springs Boulevard, with Two Stations (No Irvington Station)

1992 Alternative 8 was described as a 7.8-mile, two-station extension of BART south from the Fremont Station. This alternative was dismissed from further consideration for the following reasons.

- This alternative would require that the Pacific Gas & Electric Company (PG&E) transmission towers along Osgood Road and Warm Springs Boulevard be raised to provide clearance over the BART structure. In addition, the aerial structure associated with this alternative would result in unavoidable adverse visual impacts south of Washington Boulevard along Osgood Road and Warm Springs Boulevard, including the area where the Section 4(f) resource is located. The city's grade separations project has enabled an at-grade alignment for BART to be considered as part of the WSX Alternative, which would substantially reduce these significant visual impacts.
- This alternative is longer than the WSX Alternative (7.8 miles vs. 5.4 miles) and would result in greater environmental impacts.

1992 Alternative 9: 5.4-Mile Extension with One Station (Warm Springs)

1992 Alternative 9 was described as a 5.4-mile, one-station extension along the same route as described under 1992 Alternative 4. This alternative was dismissed from further consideration because it does not include an Irvington Station and is inconsistent with transit-oriented development.

1992 Alternative 10: 7.8-Mile Extension with One Station (South Warm Springs)

1992 Alternative 10 was described as a 7.8-mile, one-station extension along the same route as described under 1992 Alternative 8, with a single proposed station to be located in South Warm Springs, near Scott Creek/Kato Road. This alternative was dismissed from further consideration because it is longer than the WSX Alternative (7.8 miles vs. 5.4 miles) and would result in greater environmental impacts.

1992 Alternative 11: 7.8-Mile Extension with Two Stations (No Warm Springs Station)

1992 Alternative 11 was described as a 7.8-mile, two-station extension with no Warm Springs Station. This alternative was dismissed from further consideration because it is longer than the WSX Alternative (7.8 miles vs. 5.4 miles) and would result in greater environmental impacts.

No-Build and Transportation System Management Alternatives

See discussion of No-Build and TSM alternatives above for Fremont Central Park.

Measures to Minimize Harm

The following measure has been identified to minimize harm to Gallegos Winery ruins (structural remains).

Mitigation Measure CR-5—Preserve and interpret structural remains of Gallegos Winery and associated features. BART will not disturb the structural remains of the winery and retain as many of the historic palm trees as feasible. This way the site can be incorporated into the proposed optional Irvington Station walkway and parking lot. An appropriate barrier or fencing will be placed between the proposed walkway/parking lot and the structural remains so that the site is protected and also visible to the public. BART will

also display an interpretive plaque or signage explaining the history and significance of the site nearby the winery ruins. The objective of this interpretive tool would be to increase local and regional public awareness of this historic site, as well as an awareness of BART's efforts to maintain the structural remains while preserving its essential historic character.

Mitigation Measure A-7(b)—Incorporate Gallegos Winery site into design of optional Irvington Station. In developing detailed architectural and landscape plans for the optional Irvington Station, BART will take the following mitigation measures.

- BART will work with the City of Fremont to ensure that the final designs are consistent with the city's goals for preserving the Gallegos Winery ruins.
- The design and layout of the parking lot area east of Osgood Road will be designed to avoid physical encroachment on the Gallegos Winery ruins.
- BART will work with the City of Fremont to develop design guidelines to ensure the final landscaping/plantings design of the parking lot and near the Gallegos Winery ruins are consistent with the visual resources of the immediate project vicinity.
- Artificial lighting will be installed in a manner that minimizes spillover light, using such design features as capping, shielding, and ground-level bollards.

Recommended Determination

The FTA Administrator has determined and DOI has concurred that a direct use of this resource would result from the WSX Alternative. As documented herein, there is no feasible and prudent alternative to the use of this resource, and the WSX Alternative includes all possible planning to minimize harm to the resource resulting from such use.

Ford House

Description and Significance of Property

The Ford House at 41753 Osgood Road is a single-family residence constructed circa 1895. A 2000 cultural resources assessment prepared for the Osgood Road Widening Project found that the property appeared to be eligible for listing in the NRHP under Criterion C at a local level because of its unique architectural style (i.e., an example of a late 19th century in-town Queen Anne style residence in Fremont) (William Self Associates 2000). The SHPO reviewed the resource and concurred with the 2000 NRHP finding of eligibility. Qualified architectural historians revisited the property as part of this project and found no significant changes have taken place to the property since the 2000 evaluation. SHPO formally acknowledged that the 2000 NRHP finding remains valid (OHP 2006a, 2006b). Therefore, based upon concurrence by the SHPO and the lack of subsequent changes to the characteristics of the property, the Ford House remains eligible for listing in the NRHP.

Application of Section 4(f) Criteria for Use

Implementation of the optional Irvington Station would entail construction of a parking lot on and around the Ford House property and would also involve the demolition of a modern structure to the rear of the Ford House. The proposed construction would result in a loss of historic setting to the Ford House and associated landscape, thereby altering the site to such a degree that the ability of the

building to convey its significance as a residence would be materially impaired. This would constitute an adverse effect under Section 106, and would result in a direct use of this Section 4(f) resource.

Coordination/Consultation

Consultation with the SHPO and other cultural resources stakeholders has been initiated, and is described in Section 4.12, *Cultural Resources*, and in the Section 106 documentation. The SHPO has previously concurred with the determination of eligibility for this resource as part of the Osgood Road Widening Project. SHPO also has concurred with the finding of effect for this resource (OHP 2006a, 2006b).

Avoidance Alternatives

Chapter 3, *Alternatives Considered*, details the potential transportation alternatives that have been evaluated for the Warm Springs corridor over the course of more than 10 years. Of these, the WSX Alternative has been carried forward as the alternative that most satisfactorily addresses the need for and purpose of a transportation investment in the corridor.

The construction of surface parking on a portion of the Ford House site would result in a direct use of this historic property. The area of direct use could potentially be reduced by construction of a parking structure. As discussed in the comment regarding the surface parking on the Gallegos winery property above, this alternative would not be feasible or prudent since there are substantially greater adverse visual impacts related to a parking structure adjacent to either the Gallegos winery or the Ford House compared to surface parking.

For these reasons and the reasons outlined below, no other feasible and prudent alternatives exist that would avoid the direct use of this Section 4(f) resource—Ford House.

Alternatives on a New Location

See discussion of alternatives on a new location above for Fremont Central Park.

Alternatives on the Same Location

See discussion of alternatives on the same location above for Gallegos Winery Ruins (Structural Remains).

No-Build and Transportation System Management Alternatives

See discussion of No-Build and TSM alternatives above for Fremont Central Park.

Measures to Minimize Harm

The following measure has been identified to minimize harm to this resource.

Mitigation Measure CR-6(a)—Document the Ford House. BART will hire a qualified cultural resources management specialist to document the Ford House with a historical narrative and large-format photographs in a manner consistent with the Historic American Buildings Survey (HABS). Copies of the narrative and photographs would be distributed to branches of the Alameda County Library system, Alameda County Historical Society, and the Washington Township Historical Society. The preparation of the HABS documentation will follow standard NPS procedures. There will be three main tasks: gather data, prepare photographic documentation, and prepare written historic and descriptive reports. The

photographic documentation will consist of large-format photography conforming to HABS standards. Photographic documentation will include 4- by 5-inch negatives in labeled sleeves, 8- by 10-inch prints mounted on labeled photo cards, and an index to the photographs. In addition to the residence and its setting, the research will include possible photographic reproduction of any available building blueprints.

Mitigation Measure CR-6(b)—Adapt Ford House for reuse. BART will retain the Ford House (41753 Osgood Road) and adjoining mature landscape for reuse as part of the proposed Optional Irvington Station.

1. Prior to the rehabilitation or reuse of any portion of the Ford House and associated landscape features, a qualified cultural resource management specialist will prepare a Historic Structures Report following Office of Historic Preservation guidelines. The report shall document the construction history of the Ford House property; identify the character-defining features of the residence (i.e., the form and detailing of exterior building materials), and record the existing appearance and condition of the building.
2. Based on information from the Historic Structures Report, BART will rehabilitate the Ford House and will explore adaptive reuse options (i.e., office, commercial establishment) for the building according to guidelines established in the *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings*. As part of the reuse efforts, BART will take steps to retain the building's architectural significance (i.e., historic appearance) despite any planned alterations or additions necessary for contemporary use. Physical changes to the Ford House shall not result in the loss of the building's historic character or integrity.
3. Prior to the rehabilitation or reuse of any portion of the Ford House, a qualified cultural resource management specialist will also prepare a preservation and maintenance plan for the Ford House that is compatible with The Secretary of the Interior's Standards for Treatment of Historic Properties.

Recommended Determination

Based on the foregoing analysis, the FTA Administrator has determined and DOI has concurred that a direct use of this resource would result from the WSX Alternative. As documented herein, there is no feasible and prudent alternative to the use of this resource, and the WSX Alternative includes all possible planning to minimize harm to the property resulting from such use.

6.5 Section 4(f) Consultation and Coordination

Formal consultation has been initiated with the following agencies: City of Fremont, Fremont Unified School District, and NPS. Copies of this correspondence are included in Appendix E.

Notification letters were sent to the Alameda County Historical Society and the Washington Township Historical Society requesting information regarding cultural resources that may be located along the WSX Alternative alignment.

Native American consultation has been conducted through letters sent to the California Native American Heritage Commission (NAHC) and to individual Native American contacts. In response,

the NAHC indicated that a search of their sacred lands database did not identify sacred lands listed within the WSX Alternative area. Two responses were received from the individual Native Americans who were contacted. Both respondents, Andrew Galvan and Katherine Perez, are members of the Ohlone Tribe who are active in the Native American community and involved in Native American issues throughout the Bay Area. Native American consultation is expected to continue throughout the construction period of the WSX Alternative because the WSX Alternative area is sensitive and includes known cultural resources.

An additional set of consultation letters was sent to Native American representatives on March 9, 2006, which reported that the State Historic Preservation Officer (SHPO) has concurred with the determination that CA-ALA-343 is eligible for listing in the National Register of Historic Places (NRHP) and that there will be an adverse effect to the site. The March 2006 letter informed the Native Americans that a Memorandum of Agreement (MOA) and Historic Properties Treatment Plan (HPTP) are being prepared to address adverse affects to CA-ALA-343. (A copy of the draft MOA is provided in Appendix E-2.) The letter invited the Native American representatives to be concurring parties on the MOA and to receive copies of the HPTP upon their request. Three individuals have responded to this letter: two individuals have requested to be included on the MOA and to receive copies of the MOA and HPTP, and one individual requested copies of the documents and asked to be included in the monitoring phase of the project.

6.6 Section 6(f)(3) Considerations

Section 6(f)(3) of the Land and Water Conservation Fund Act (LWCF Act) (16 USC Section 4601-4) contains provisions to protect federal investments in park and recreation resources and the quality of those assisted resources. The law recognizes the likelihood that changes in land use or development may make park use of some areas purchased with LWCF funds obsolete over time, particularly in rapidly changing urban areas, and provides for conversion to other use pursuant to certain specific conditions.

Section 6(f)(3) - No property acquired or developed with assistance under this section shall, without the approval of the Secretary, be converted to other than public outdoor recreation uses. The Secretary shall approve such conversion only if he finds it to be in accord with the then existing comprehensive statewide outdoor recreation plan and only upon such conditions as he deems necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location.

This requirement applies to all parks and other sites that have been the subject of LWCF grants of any type, and includes acquisition of park land and development or rehabilitation of park facilities.

A review of the LWCF grants database and consultation with City of Fremont and NPS staff members indicate that two projects at Fremont Central Park were funded with LWCF grants.

The two projects at Fremont Central Park that received LWCF grants are:

- 1973/74 - Central Park Bike Trail development \$14,456 grant #06-00332
- 1973/74 - Central Park Sports Complex \$95,562 grant #06-00394

Formal consultation with NPS, the California Department of Parks and Recreation (State Parks), and the City of Fremont has been initiated to obtain information regarding the LWCF-assisted property in Fremont Central Park that is subject to Section 6(f)(3) restrictions. Initial written correspondence was directed to NPS and the City of Fremont on August 4, 2004. NPS staff was then contacted by telephone on September 29, 2004 and October 18, 2004. These discussions led to a meeting among BART, NPS, State Parks, and City staff on November 2, 2004. The meeting included a field visit to view the proposed project area in Fremont Central Park. Subsequently, NPS has consulted with State Parks staff and provided its preliminary findings with respect to the application of Section 6(f)(3). Consultation among the parties remains ongoing, but has thus far revealed the information that follows.

6.6.1 Land and Water Conservation Fund-Assisted Property in Fremont Central Park

Of the two LWCF grants in Fremont Central Park, the first (#06-00332) provided for the improvement of a bike trail along the northern and eastern shore of Lake Elizabeth, comprising a portion of the trail which encircles the lake, and the second (#06-00394) provided for construction of two softball fields, utility construction, installation of an irrigation system, and landscaping of 5.83 acres in the northeast portion of the park. Since the City received the grants prior to the requirement for contemporaneous mapping, the precise boundaries of each grant-assisted area are unclear. The NPS, in correspondence dated November 12, 2004, has stated that it “considers these areas as being contained within ‘property...developed with assistance under this section.’” Subsequent discussions among NPS, the California Department of Parks and Recreation, the City of Fremont, and BART indicate that only a portion of the northern ventilation structure is within the LWCF-assisted area.

The NPS, in consultation with City of Fremont staff, has found that the grant-assisted property containing a portion of the bike path falls under a license agreement between the City and the Alameda County Flood Control and Water Conservation District. The NPS has suggested that, because the original license agreement has expired, the Section 6(f)(3) requirements governing LWCF-assisted property in this area may also have ceased with the expiration of the license agreement. However, until the status of the license agreement is resolved, the discussion that follows regarding effects on LWCF-assisted property assumes that the area in the northeast portion of the park that was assisted by grant #06-00394, and the area in the southeast portion of the park that was assisted by grant #06-00332 are both subject to Section 6(f)(3) requirements.

6.6.2 Effects on Land and Water Conservation Fund-Assisted Property

As described more fully in Section 6.4.2 above and Section 4.9 of the EIS, two options are being considered for ventilating the subway beneath Fremont Central Park and Lake Elizabeth: a single ventilation structure (Option 1) or two slightly smaller structures (Option 2). If Option 1 is implemented, the structure would be placed in Fremont Central Park, approximately 125 feet south of the existing parking area. If Option 2 is implemented, one structure would be placed in the existing Fremont Central Park south parking lot and a second structure would be placed east of Lake Elizabeth near Mission Creek. The ventilation structures under either option would be primarily subterranean, but would include aboveground features (a 10-foot-high wall and a paved parking area). Option 1 would cover an area approximately 50 to 70 feet wide and 300 feet long, and

Option 2 would cover two areas approximately 40 to 60 feet wide and 230 feet long each. The proposed ventilation structures would occupy no more than about 0.13% of Fremont Central Park's total area (433.9 acres).

Based on an examination of grant documents and maps provided by the City of Fremont, it appears that a portion of the northern vent structure would encroach into LWCF-assisted property between the existing south parking lot and softball field #2 by about 2,400 square feet. The remaining portion of the vent structure would not affect LWCF-assisted property since it would fall within an area formerly subject to a state highway easement. The parties have agreed that no LWCF grant funds were expended for facilities in this former easement area. NPS staff confirmed this in their November 12, 2004 correspondence.

NPS staff members have also indicated that some or all of the southern vent structure would encroach into LWCF-assisted property at the southeast side of Fremont Central Park. For purposes of this analysis, it is assumed that all of the southern vent structure would occupy LWCF-assisted property. This assumption has been made in accordance with correspondence dated December 3, 2004, from NPS to the City of Fremont stating that "NPS considers both proposed BART ventilation structures to encroach into the 6(f)(3) protected area" (Munsterman pers. comm.).

In addition to the permanent presence of the vent structures, the WSX Alternative would occupy a permanent underground easement under Fremont Central Park, and would entail temporary construction-period disruption of recreation uses in a portion of the park as described in Section 4.09, Parks and Recreation. NPS staff members have advised that the permanent easement is excepted from Section 6(f)(3) requirements pursuant to Land and Water Conservation Fund Grants Manual, Section 675.9.3.A.(5)(a), which provides an exception for underground utility easements. NPS staff members have determined that public transit within an urban area should be considered a necessary utility for purposes of the Section 6(f)(3) exception, and have also noted that BART is subject to the regulations of the California Public Utilities Commission relating to safety appliances and procedures (Pub. Util. Code Section 29047). Regarding construction effects on recreation, generally under NPS policy there is a 1-year limit on temporary non-conforming uses of property subject to Section 6(f)(3). However, although the project will involve construction in Fremont Central Park for more than 1 year, NPS staff members have determined that the 1-year limit does not apply to excepted underground utility projects.

6.6.3 Section 6(f)(3) Conversion Requirements

The northern and southern vent structure encroachments into LWCF-assisted property would be subject to the conversion requirements of Section 6(f)(3). These requirements are specified at 36 CFR 59.3 and Section 675.9.3.B(1) of the NPS manual for LWCF grant compliance. The requirements can be summarized as follows:

1. **Alternatives Evaluation:** The project proponents must examine any other practical alternatives to conversion of the LWCF-assisted property. Factors considered in the alternatives evaluation would include such considerations as engineering constraints, right-of-way issues, environmental impacts, and community concerns.
2. **Appraisals of Fair Market Value:** Appraisals of the fair market value of both the conversion property and proposed replacement property must be obtained.

3. Identification and Evaluation of Replacement Property: The project proponents must identify proposed replacement properties that are of reasonably equivalent usefulness and location as the property being converted. This includes: (a) a determination of the recreational needs being fulfilled by the facilities at the converted property, and the types of outdoor recreation resources and opportunities available; and (b) an assessment of the property proposed for substitution for its suitability to meet recreation needs which are at least similar in magnitude and impact to the user community as the conversion property.
4. Eligibility Determination: The project proponents must document how the property proposed for substitution meets the eligibility criteria for LWCF-assisted acquisitions.
5. Partial Impact Consideration: The project proponents must document the impact of partial park land acquisition on the remaining site, with the focus of this assessment on whether the unconverted property remains recreationally viable.
6. Agency Coordination/Section 4(f): The project proponents must consult with the applicable federal agencies, including any Section 4(f) consultation required if the proposed project involves funding and/or approvals from the U.S. Department of Transportation.
7. Environmental Evaluation: The project proponents must provide environmental documentation in accordance with the NEPA procedures promulgated by NPS and CEQ.
8. State Intergovernmental Review: The project proponents must comply with any required state intergovernmental clearinghouse review necessitated by the proposed property conversion.
9. Statewide Outdoor Recreation Plan Consistency: The project proponents must document how the proposed conversion is in accordance with any applicable statewide recreation plans.

NPS staff stated in their November 12, 2004 correspondence that “the Section 4(f) analysis should be sufficient” to document the Section 6(f)(3) conversion findings outlined above.

In order to satisfy its NEPA obligation (see #7 above), NPS has requested and has been granted cooperating agency status. Thus, the NEPA documentation for the WSX Alternative will also serve as the NEPA compliance vehicle for NPS.

With respect to the principal conversion requirement (i.e., provision of comparable replacement property), efforts have been undertaken to complete a property exchange between BART and the City of Fremont. This exchange was initially intended as a means of complying with certain state law requirements under the California Public Preservation Act of 1971. However, preliminary consultation with NPS and State Parks staff suggests that these agencies would not object to the exchange serving to meet Section 6(f)(3) requirements as well as the state law requirements. The property exchange would involve a transfer of about 1.0 acre from the City to BART to facilitate construction of one or two ventilation structures. In return, BART would transfer to the City approximately 1.6 acres east of the UP tracks adjacent to the Stiver’s Lagoon area. NPS staff members viewed the proposed property exchange areas as part of the November 2, 2004 field review. In their November 12, 2004 correspondence, NPS staff noted that “[p]ending state review, NPS would find this area to be acceptable replacement property. We are investigating options to provide for the acceptance of currently available appraisal reports to provide for an expedited determination of equivalent value.” The approximately 1.6-acre replacement parcel would be sufficient to fulfill

the replacement obligation, assuming that both the northern and southern vent structures occupy LWCF-assisted property as noted above.

The City of Fremont has identified the proposed replacement property as an area to be improved as wetlands for passive use. Although the passive use as wetlands would not be exactly the same type of recreational use as in the area that would be converted near the vent structures, it would be of reasonably equivalent usefulness. The NPS requirements for replacement property at 36 CFR 59.3(i) acknowledge the reasonably equivalent usefulness of wetland areas, stating that “[w]etland areas and interests therein . . . shall be considered to be of reasonably equivalent usefulness with the property proposed for conversion regardless of the nature of the property proposed for conversion.” The City of Fremont has also determined that the replacement property and its proposed use as wetlands would be in conformance with the “Criteria for Selection of Park Sites” in the parks and recreation portion of its general plan (City of Fremont, October 6, 2004; City of Fremont, September 23, 2004). Accordingly, the replacement property would meet the Section 6(f)(3) conversion requirement regarding reasonably equivalent usefulness.

The National Park Service completed its review of the FEIS. The NPS concurs with the FEIS analysis contained in the EIS concerning the conversion of the area to be occupied by ventilation structures on the recreation utility of the park, and that the ventilation structures, as identified in the FEIS, and the proposed property replacement will meet Section (6f)(3) conversion requirements (Jarvis, 2005).

Chapter 7

Financial Considerations

7.1 Introduction

To facilitate evaluation of the cost-effectiveness of the WSX project, this section considers the costs of the project by evaluating capital costs, annual operating and maintenance (O&M) costs, and cost effectiveness. The primary factors considered in this section are derived from the FTA New Starts Criteria. While New Starts funding is not anticipated for this project, aspects of FTA's *Reporting Instructions for the Section 5309 New Starts Criteria* (April 2004) have been employed because it provides useful tools for the general evaluation of a proposal's costs and cost effectiveness. Costs for the No-Build Alternative, WSX Alternative, and WSX Alternative with optional Irvington Station are presented.

7.2 Cost Summary

7.2.1 Capital Costs

Capital costs are the expenses associated with the implementation of a project, including design and construction, acquisition of right-of-way, environmental mitigation, trackway and station construction, vehicles, system equipment, and maintenance facilities.

No-Build Alternative. An EIS must evaluate and analyze the impacts of the No-Action Alternative. The purpose of evaluating the No-Action Alternative is to allow decision-makers to compare the impacts of approving the project with the impacts of not approving the project. The No-Action Alternative is referred to herein as the "No-Build Alternative." The No-Build Alternative represents the conditions that would be reasonably expected to occur in the foreseeable future if the WSX Alternative was not approved. These conditions are based on current plans and are consistent with available infrastructure and community services.

For the purposes of this analysis, the No-Build Alternative does not include a BART extension to Warm Springs and assumes that current transit services provided by BART, AC Transit, and VTA would continue unchanged. Programmed highway improvements included in MTC's 2001 Regional Transportation Plan (RTP), such as the addition of an HOV lane to I-680 over the Sunol Grade, are also included in this alternative.¹ Completion of the city's grade separations project has also been assumed for the purposes of EIS analysis, because it will be a part of the existing conditions by the

¹ An updated Regional Transportation Plan was released by MTC in draft form on November 12, 2004. The draft Regional Transportation Plan was adopted by MTC on February 23, 2005.

time any alternative is constructed. No capital costs would be associated with the No-Build Alternative.

WSX Alternative. Preliminary cost estimates were based on the conceptual engineering being developed for the WSX Alternative. (Any costs associated with the SVRTC project are not included.) Capital cost estimates for the WSX Alternative are based on historical BART costs and the experience of both BART staff and BART’s general engineering consultant. The total cost of the WSX Alternative is based on unit costs for individual line items required to build and operate the extension. Both BART and BART’s consultants provided prices for items such as stations, vehicles, systems, maintenance facilities, and other components of the project. Percentage adjustments for “soft costs” (design services, insurance, and contingencies) were applied to the unit costs to develop the total cost for each alternative.

The total estimated capital cost for the WSX Alternative (excluding the optional Irvington Station) is approximately \$678 million (2004 dollars). The estimated capital costs of the WSX Alternative are summarized in Table 7-1. The table groups the costs in three categories: right-of-way, construction, and non-construction costs. Right-of-way costs include costs associated with the permanent acquisition of land or the temporary acquisition of land rights necessary to implement the WSX Alternative. Construction costs comprise costs to construct or install trackway and structures, the Warm Springs Station facility and parking area, systems (electrification, communications, automatic train control equipment), and final design and construction management. Non-construction costs comprise vehicles, conceptual and preliminary engineering, design oversight, project administration, agreements, environmental mitigation, legal, insurance, BART systems engineering, and startup.

Table 7-1. Estimated Capital Costs for WSX Alternative

Cost Category	Cost in 2004 Dollars (in millions)	
	Individual Costs	Totals
Right-of-Way (subtotal)		105
Construction		
–Trackway & Structures	169	
–Warm Springs Station and Parking	47	
–Systems	93	
–Final Design and Construction Management	35	
Construction (subtotal)		344
Non-construction		
–Soft Costs, including conceptual and preliminary design, agreements, environmental mitigation, design oversight, construction management oversight, legal, insurance, BART Systems Engineering, administration, start-up, etc.		
Non-construction (subtotal)		133
Vehicles, including engineering (subtotal)		96
Total Project Cost		678

Source: San Francisco Bay Area Rapid Transit District

Optional Irvington Station. The Irvington Station is optional because funding for the station has not been identified at this time. Although BART was able to secure funds for the Warm Springs Extension, primarily through the voter-approved Alameda County Measure B sales tax initiative (November 2000) and other state initiatives, funding for the Irvington BART Station has not been identified. The optional Irvington Station would not be implemented unless local funds are identified. The total cost of the station is preliminarily estimated at \$79 million (2004 dollars). The \$79 million cost assumes that the Irvington Station is built at the same time as the WSX Alternative; if the optional Irvington Station were constructed later than the WSX Alternative, the cost would be greater.

Table 7-2 illustrates the preliminary cost estimates for the Irvington Station, including right-of-way, station structure, parking, systems, contingencies and escalation, and soft costs. Capital costs for the Irvington Station are higher than a typical BART station due to the physical constraints at the Irvington site. The site is bounded by the UP alignment to the west and the Hayward Fault to the north and east. In addition, the planned Washington Boulevard grade separation project will elevate Washington Boulevard and Osgood Road adjacent to the station site, complicating access issues.

Table 7-2. Estimated Capital Costs for Optional Irvington Station

Cost Category	Cost in 2004 Dollars (in millions)	
	Individual Costs	Totals
Right-of-Way (subtotal)		10.30
Construction		
–Station Structure	26.15	
–Parking	7.26	
–Systems	2.16	
–Contingency and Escalation	18.90	
Construction (subtotal)		54.47
Non-Construction		14.23
–Soft Costs, including conceptual and preliminary design, agreements, environmental mitigation, design oversight, construction management oversight, legal, insurance, BART Systems Engineering, administration, start-up, etc.		
Total Project Cost		79.00

Source: San Francisco Bay Area Rapid Transit District

7.2.2 Operating and Maintenance Costs

O&M costs for the alternatives were provided by BART staff members. The BART O&M cost model estimates staffing requirements, labor costs, and non-labor expenses. The cost model is based on the service and fleet assumptions described in Chapter 3, *Alternatives Considered*, of this EIS.

No-Build Alternative. The No-Build Alternative assumes that transit service offered by BART and other providers will continue at current levels (except for limited increases in service efficiency); therefore, O&M costs would not increase due to increases in service. Programmed transportation capital improvements included in the No Project Alternative, such as the addition of an HOV lane on I-680 over the Sunol Grade or the City of Fremont's grade separations project, also would not require O&M costs on the part of any transit agencies.

WSX Alternative. The estimated O&M costs of the WSX Alternative total \$8.16 million annually (2004 dollars). The O&M costs are based on the service and fleet assumptions described above in Chapter 3 for the years 2010 through 2025 (2004 dollars).

Optional Irvington Station. The incremental increase in O&M costs necessary to run the optional Irvington Station over and above costs for the WSX Alternative are estimated to be approximately \$1.33 million dollars annually (2004 dollars) or a total of \$9.49 million annually for WSX Alternative with the Irvington Station.

7.2.3 Fare Revenues

Table 7-3 indicates the projected BART fare revenues resulting from the WSX Alternative and WSX Alternative with the optional Irvington Station in both 2010 and 2025, based on the estimated increase in system-wide BART ridership and O&M costs.

WSX Alternative. The WSX Alternative would generate approximately \$6.48 million (2004 dollars) from additional ridership in 2010 and \$8.86 million in 2025. The additional revenue would not cover anticipated annual O&M costs of \$8.16 million in 2010, but revenue would exceed costs in 2025. Net annual revenue would be a deficit of approximately \$1.67 million in 2010 and a surplus of approximately \$0.70 million in 2025.

BART's ratio of rail passenger revenue to rail operating costs, or *farebox recovery ratio*, was approximately 62% for the entire BART system in 2004² (San Francisco Bay Area Rapid Transit District 2004). Farebox recovery for the WSX Alternative is estimated to exceed the systemwide percentage. One reason for this projection is that patron trips from the Fremont area tend to be longer (presumably to Oakland or San Francisco) compared to the average BART trip and have higher fares. The average BART fare in 2004 was \$2.62 (San Francisco Bay Area Rapid Transit District 2004). The average fare from the Fremont Station was \$3.70. (The net average fare, which is the fare after various discounts, was assumed to be \$3.65 for the purposes of calculating the net annual revenue in Table 7-3.)

Optional Irvington Station. The WSX Alternative with the optional Irvington Station would generate approximately \$7.99 million (2004 dollars) in 2010 and approximately \$11.67 million in 2025. The additional revenue would not cover the estimated total operating cost of \$9.49 in 2010,

² BART, *Fiscal year 2005 Short Range Transit Plan & Capital Improvement Program*, September 2004, Figure 16.

and there would be a deficit of \$1.50 million. However, the project revenue would cover anticipated O&M costs in 2025 and produce a surplus of \$2.21 million.

Table 7-3. Estimated O&M Costs and Fare Revenue in 2010 and 2025 (2004 dollars in millions)

Alternative	Annual New BART Ridership System-wide (million)	BART Fare*	BART Revenue (millions)	Annual O&M Costs (millions)	Net Annual Revenue (millions)
Year 2010					
WSX Alternative	1.75	\$3.65	\$6.48	\$8.16	-\$1.67
WSX with Irvington Station	2.19	\$3.65	\$7.99	\$9.49	-\$1.50
Year 2025					
WSX Alternative	2.43	\$3.65	\$8.86	\$8.16	\$0.70
WSX with Irvington Station	3.20	\$3.65	\$11.67	\$9.49	\$2.21

Notes:

Numbers may not total exactly due to rounding.

Annual new BART system-wide ridership is daily new system-wide entries in 2010 (6,000 for WSX Alternative, 7,400 with Irvington) and in 2025 (8,200 for WSX Alternative, 10,800 with Irvington) x ridership annualization factor of 296.

* Net average fare from the new Warm Springs Station and optional Irvington Station is assumed to be \$3.65 (2004 dollars).

Source: San Francisco Bay Area Rapid Transit District

7.2.4 Cost-Effectiveness

One of FTA’s cost-effectiveness measures is the incremental cost per incremental passenger in the forecast year. This measure, expressed in constant year (2004) dollars is based on the annualized total capital investment plus annual operating costs, divided by the forecast change in annual transit system ridership measured in linked trips,³ compared to the baseline (No-Build) alternative.

This measure is expressed by the following equation:

$$\text{Cost Effectiveness Index} = \frac{\Delta \text{Capital Cost} + \Delta \text{O\&M Cost}}{\Delta \text{Linked Annual Transit Trips}}$$

Using FTA’s annualization factors, annualized costs for all the alternatives were calculated (Federal Transit Administration 2000). Project costs were annualized according to their assumed useful lifespan and a 7% discount rate. The useful lifespan of different project components varies according to the component. For example, right-of-way is assumed to have a useful lifespan of 100 years; structures, track work, signals, and electrical systems have a useful life of 30 years.

³ One linked transit trip could be composed of several unlinked trips, such as driving to a park-and-ride lot, riding a commuter train, and taking a bus to the final destination is all one linked trip; but the one linked trip is made up of three unlinked trips.

The incremental cost per incremental passenger provides a comparison of the cost per new rider for each alternative. Table 7-4 summarizes the cost effectiveness calculations by combining the annualized capital cost and annual O&M costs into a total annualized cost for each alternative. This annualized cost is divided by the projected annual ridership⁴ for the WSX alternative compared to the No-Build Alternative. The resulting dollar amount provides a comparison of the relative cost effectiveness of each alternative as defined by FTA New Starts Criteria.

WSX Alternative. Using FTA's annualization factors, the \$678 million estimated capital cost for the WSX Alternative would have an annualized cost of approximately \$53.23 million in constant 2004 dollars. Combined with the estimated O&M cost of \$8.16 million, the incremental annualized cost of the WSX Alternative would be \$61.39 million. The incremental cost per new rider is \$28.82.

Optional Irvington Station. Due to the higher total cost for the WSX Alternative with the Irvington Station, the annualized capital cost would be \$59.64 million. Combined with the estimated total annual operating cost of \$9.46 million for this alternative, the incremental annualized increase for the WSX Alternative with the Irvington Station would be \$69.10 million. However, the WSX Alternative with the Irvington Station would generate higher ridership than the project without the station, and the cost per new rider would be \$25.69, which is lower than the WSX Alternative alone.

To put these cost comparisons in a larger context, submissions to FTA for New Starts projects in fiscal year 2000 show cost-effectiveness indices ranging from \$2.54 per new rider to \$48.82 per new rider, with a reported median of \$10.39 per new rider.

7.3 Financial Feasibility and Local Financial Commitment

No-Build Alternative. No capital expenses are assumed for the No-Build Alternative.

WSX Alternative. A combination of revenues from federal, state, and local sources would fund the \$678 million capital costs of the WSX Alternative. (All funding numbers are presented in 2004 dollars.) As identified in MTC's RTP (also known as the Transportation 2030 Plan), which was adopted on February 23, 2005, the WSX Alternative's funding plan comprises the sources listed in Table 7-5.

BART is not requesting any federal New Starts funding for the WSX project. The largest single source of funding comes from the Alameda County 2000 Measure B transportation sales tax through the Alameda County Transportation Improvement Authority, which would provide approximately \$195 million to the WSX Alternative. Additional funding partners include the state Transportation Congestion Relief Program and the San Mateo County Transit District (SamTrans). On March 2, 2004, the voters passed Regional Measure 2 (RM-2), which will provide the project with \$85 million and brings the total funding plan to \$678 million. BART is requesting \$58 million in federalized state funds (State Transportation Improvement Program) and may request other federal funds available in the future. The source of federal funds is the State Transportation Improvement Program (STIP). The STIP is managed by MTC and will be funded by federalized (flexible) funds that are distributed through the State of California. Appropriate matching funds, if required, will be secured

⁴ Daily new linked trips x ridership annualization factor of 296.

from local sources. The estimated cost of the optional Irvington Station is approximately \$79 million (estimated in year 2004 dollars) and is not included in the funding plan.

Table 7-4. Cost-Effectiveness Calculation: Incremental Cost per Incremental Passenger, 2025

Factor	WSX Alternative 2025			WSX Alternative with Irvington 2025		Source/ Calculation
	No-Build	WSX Alternative	WSX vs. No-Build	No-Build	WSX Alternative with Irvington	
1. Total annual ridership in linked trips (million)	0	2.13		0	2.69	Source: Regional travel demand model
2. Incremental annualized cost (2004 millions of dollars\$)			62.62			70.42 Source: Annualized capital costs and annual O&M costs
3. Incremental annual ridership (million)			2.13			2.69 Calculation: subtract total annual ridership (line 1) for the No Build from the Build Alternative
4. Cost effectiveness (incremental cost per new rider)			\$29.40			\$26.18 Calculation: Divide incremental annualized cost (line 2) by incremental annual ridership (line 3)

Note:

New annual linked trips =(7,200 daily trips-WSX Alternative/9,100 daily trips-with Irvington Station) x 296 annualization factor.

Source: San Francisco Bay Area Rapid Transit District

Table 7-5. WSX Alternative Funding

Funding Sources	Amount in 2004 Dollars (in millions)
Alameda County 2000 Measure B Transportation Sales Tax	195
Alameda County State Transportation Improvement Program (STIP) ^a	58
State Transportation Congestion Relief Program	111
Regional Measure 1 Bridge Tolls	84
SamTrans	145
Regional Measure 2 Bridge Tolls	85
Total^b	\$678

Notes:

^a STIP funds are federalized (flexible) funds that are distributed through the State of California.

^b The total funding for the project does not include funds for the optional Irvington Station.

Source: San Francisco Bay Area Rapid Transit District

Optional Irvington Station. The City of Fremont is investigating an amendment to the 1998 Redevelopment Plan that could contribute funds to the construction of the Irvington Station, which is considered a significant component of the redevelopment effort for the Irvington area. As part of the 1998 Amended Redevelopment Plan, the Fremont Redevelopment Agency Board and City Council identified the construction of the Irvington BART Station as an eligible use of Redevelopment Agency funds to stimulate revitalization of the Irvington Redevelopment Project Area. City of Fremont staff has advised BART that the city and its Redevelopment Agency will determine the financial feasibility of proceeding with an amendment to the 1998 Amended Redevelopment Plan for the Industrial Project Area to generate funding for the optional Irvington Station. If such a redevelopment plan amendment is pursued, city staff anticipates that the city and the Redevelopment Agency will prepare a project-specific EIR that will draw on this EIS as a source document.

Agency and Community Participation

8.1 Introduction

This chapter discusses the agency and community participation efforts conducted by BART and FTA in preparing this EIS. Coordination and consultation with various federal, state, and local agencies; elected officials; community leaders; organizations; Native American tribes; and other individuals from the neighborhoods and communities within the study area were achieved through a variety of means, including public agency coordination, consultation, and a public scoping process.

8.2 Summary of Scoping

8.2.1 Purpose and Process of Scoping

NEPA specifically requires the lead agency to consult with federal agencies that have jurisdiction over the proposed action by law or special expertise. The lead agency must also solicit appropriate information from the public during EIS preparation. Scoping is the process by which the lead agency conducts these activities. This process will help to determine the scope of the EIS, including the extent of the action, the range of the alternatives, and the types of significant adverse effects to be evaluated. The lead agency's scoping process may include early scoping meetings that can be incorporated with other aspects of the federal agency planning process.

8.2.2 Notice of Intent

NEPA and FTA require that an NOI to prepare an EIS be filed with EPA and appear in the Federal Register. The NOI for the BART Warm Springs Extension EIS appeared in the Federal Register on April 6, 2004. The NOI provided a description of the project area, stated the project's purpose and need, presented the preliminary alternatives, and identified the probable effects that would be analyzed in the EIS. A copy of the NOI is included in Appendix A.

8.2.3 Public Scoping Meeting

A public scoping meeting for the Warm Springs Extension was held April 28, 2004, at the Fremont Main Library in Fremont, California. During the public scoping meeting comments were solicited from attendees to help determine the scope of the EIS. A press release was prepared, and notices regarding the meeting were published beforehand in five local newspapers of general circulation (*San Francisco Chronicle*, *Fremont Argus*, *Tri-Valley Herald*, *Contra Costa Times* and *San Jose Mercury*

News). The notices announced the time, date, location, and purpose of the meeting. Invitations to the meeting were also distributed to an extensive mailing list of stakeholders throughout the City of Fremont, southern Alameda County, and northern Santa Clara County.

The public scoping meeting was conducted in an informal open-house format. Self-guided exhibits were displayed describing the proposed project alignment, conceptual station layouts, and an overview of the environmental process. Attendees were invited to talk with representatives from BART and consultants. BART staff members were also available to answer questions about the WSX Project, related projects, and general BART-related issues. A formal presentation followed the open house session. A facilitated comment session allowed members of the public to provide verbal input. Interested parties also had the opportunity to provide comments by comment card, mail, or email. A scoping report summarizing all comments received during the scoping period was prepared and is available at the BART office at 300 Lakeside Drive, 21st floor, Oakland, CA 94612.

8.3 Summary of Public Agency Coordination

Public agencies formally or informally contacted and consulted during the preparation of this environmental document are listed below. These agencies received notification of the proposed EIS and the public scoping meeting.

8.3.1 Federal Agencies

National Marine Fisheries Service
U.S. Army Corps of Engineers/Regulatory Branch
U.S. Environmental Protection Agency, Region 9
U.S. Fish & Wildlife Service
U.S. Geological Services

8.3.2 State Agencies

California Department of Fish and Game
California Department of Parks & Recreation
California Department of Toxic Substances Control
California Housing and Community Development Department
California Native Plant Society, East Bay
California State Senate, District 10
California Air Resources Board
California Department of Toxic Substances Control
California Department of Transportation
California Department of Fish and Game
California Energy Commission
California Highway Patrol
California Resources Agency/Department of Conservation
California Resources Agency/Department of Parks and Recreation
California Resources Agency/Department of Water Resources
California School for the Deaf
California Water Resources Control Board
State Clearinghouse

State Lands Commission
Office of Historic Preservation

8.3.3 Local and Regional Agencies

Alameda County Congestion Management Agency
Alameda County Planning Department
Alameda County Public Works Agency
Alameda County Transportation Authority
Alameda County Transportation Improvement Authority (ACTIA)
ACTIA Citizens Watchdog Committee
Alameda County Water District
Alameda-Contra Costa Transit District (AC Transit)
Altamont Commuter Express
Association of Bay Area Governments
Bay Area Air Quality Management District
City of Fremont
City of Milpitas
City of Newark
City of San Jose
City of San Jose, Department of Planning & Building
City of San Jose, Transportation Division
City of Santa Clara
City of Union City
Contra Costa Transportation Authority
County of Santa Clara
County of Santa Clara/Planning office
Energy Commission
Metropolitan Transportation Commission
Public Utilities Commission
Regional Water Quality Control Board
SamTrans
San Francisco Bay Conservation and Development Commission
San Francisco Bay Regional Water Quality Control Board
San Francisco Public Utilities Commission
San Francisco Public Utilities Commission Water Supply and Treatment Division
San Jose Redevelopment Agency
Santa Clara Valley Transportation Authority
SF Transportation Authority
Transportation Engineering Division, City of San Jose
Union Sanitary District

8.4 Summary of Native American Consultation

Native American consultation has been conducted through letters sent to the Native American Heritage Commission (NAHC) and to individual Native American contacts. In response, the NAHC indicated that a search of their sacred lands database did not identify sacred lands listed within the WSX Alternative area. Two responses were received from individual Native Americans who were

contacted. Both are members of the Ohlone Tribe and are active in the Native American community and involved in Native American issues throughout the Bay Area. Native American consultation is expected to continue throughout the construction period of the WSX Alternative because the study area is sensitive and includes known cultural resources.

An additional set of consultation letters was sent to Native American representatives on March 9, 2006, which reported that the State Historic Preservation Officer (SHPO) has concurred with the determination that CA-ALA-343 is eligible for listing in the National Register of Historic Places (NRHP) and that there will be an adverse effect to the site. The March 2006 letter informed the Native Americans that a Memorandum of Agreement (MOA) and Historic Properties Treatment Plan (HPTP) are being prepared to address adverse affects to CA-ALA-343. The letter invited the Native American representatives to be concurring parties on the MOA and to receive copies of the HPTP upon their request. Three individuals have responded to this letter: two individuals have requested to be included on the MOA and to receive copies of the MOA and HPTP, and one individual requested a copy of the documents and asked to be included in the monitoring phase of the project.

8.5 Summary of Public Involvement

BART and FTA have conducted a public information and outreach program for the Warm Springs Extension scoping process. The public outreach components of the program have centered around the public scoping meeting and consisted of public meeting notices, newspaper advertisements, press releases, web site updates, project updates, and general information materials. In addition to community and public agency outreach and involvement, Native American consultation was conducted and is ongoing.

A scoping summary report was prepared that consists of various components, including an overview of the public involvement and comments received, public meeting conducted, and a summary of community outreach activities. Supporting documentation includes copies of the agency mailing list, press release, scoping meeting agenda, a blank comment card, meeting sign-in sheets, transcript of proceedings, direct mail notice, exhibits, and copies of letters received during the scoping period.

The Draft EIS was published on March 11, 2005. Copies of the Draft EIS were provided to local, state, and federal agencies (see Section 9), and interested community groups and individuals. A 45-day public review period was held to receive comments on the DEIS, which extended from March 11, 2005 to April 25, 2005. BART held a public hearing at 6:30 p.m. on Tuesday, April 12, 2005, to receive public comments on the DEIS. The public hearing was held at the Washington Township Veterans Memorial, which is located at 37154 Second Street, Fremont, CA 94536. In addition to comments received at the Public Hearing, BART accepted written comments on the DEIS. BART also accepted Email comments sent to the following address: bartwarmsspringsextension@bart.gov. The Executive Summary of the DEIS was also available online at BART's website, located at www.bart.gov/wsx.

Following the close of the public comment period on April 25, 2005, BART and FTA considered the comments and prepared responses to substantive written and oral comments on the DEIS. Volume 2 of the Final EIS includes all of the substantive comments and responses to the comments.

Upon completion of the Final EIS, FTA published a notice of its availability. The Final EIS was available for public review at the same locations in which the Draft EIS was available, and copies were distributed to persons who commented on the Draft EIS, interested parties, and agencies that

have authority over aspects of the project. The Executive Summary of the Final EIS is available online at BART's website: www.bart.gov/wsx.

Agencies, Organizations, and Individuals Receiving Copies of the Final EIS

The Final EIS is available for public review at the same locations where the Draft EIS was available. Copies were distributed to persons who commented on the Draft EIS, interested parties, and agencies that have authority over aspects of the project.

9.1 Public Review Locations

The Final EIS was made available for public review at the following locations.

San Francisco Bay Area Rapid Transit District
300 Lakeside Drive
21st Floor
Oakland, CA 94612

Fremont Main Library
2400 Stevenson Boulevard
Fremont, CA 94538

Metropolitan Transportation Commission (MTC)/Association of Bay Area
Governments (ABAG) Library
101 8th Street
Oakland, CA 94607-4700

Federal Transit Administration, Region IX
201 Mission Street, Suite 1650
San Francisco, CA 94105

9.2 Commenters

9.2.1 Federal Agencies

National Park Service
1111 Jackson Street, Suite 700
Oakland, CA 94607-4807
Attn: Gary Munsterman
Federal Lands to Parks Program

U.S. Department of the Interior
Office of Environmental Policy and Compliance
Main Interior Building, MS 2340
1849 C. Street N.W.
Washington, D.C. 20240
Attention: Willie R. Taylor
Director

U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, CA 94105-3901
Attention: Lisa Hanf
Environmental Review Office Manager

9.2.2 California State Agencies

California Department of Toxic Substances Control
700 Heinz Avenue, Suite 200
Berkeley, CA 94710-2721
Attention: Denise Tsuji
Unit Chief

California Department of Transportation, District 4
P.O. Box 23660, Mail Stop 10-D
Oakland, CA 94623-0660
Attention: Tim Sable
Transportation Planner

9.2.3 Regional Agencies

Alameda-Contra Costa Transit District (AC Transit)
1600 Franklin Street
Oakland, CA 94612
Attention: Nancy Skowbo
Deputy General Manager

Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109
Attention: Jack Broadbent,
Executive Officer/APCO

Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
Attention: Ms. Kathryn Hart
Water Resource Control Engineer

9.2.4 Local Agencies and Officials

Alameda County Public Works Agency
951 Turner Court, Room 100
Hayward, CA 94545-2698
Attention: Stanley Fung
Deputy Director, Development Services Department

Alameda County Water District
43885 South Grimmer Boulevard
Fremont, CA 94537-5110
Attention: Paul Piraino
General Manager

City of Fremont
39550 Liberty St
Fremont, CA 94538
Attention: Jeff Schwob
Planning Manager

Santa Clara Valley Transportation Authority
3331 North First Street, Building B
San Jose, CA 95134-1606
Attention: Roy Molseed
Planning and Programming

9.2.5 Groups and Organizations

BayRail Alliance
3921 East Bayshore Road
Palo Alto, CA 94303
Attention: Margaret Okuzumi
Executive Director

Citizen's Advisory Committee to ACTIA
390 W. Essex Drive
Alameda, CA 94501-7102
Attention: Bill Stremmel

Irvington Business Association
P.O. Box 1631
Fremont, CA 94604-2688
Attention: George Matta
President

Law Offices of Marc Chytilo
P.O. Box 92233
Santa Barbara, CA 93190
Attention: Marc Chytilo

League of Women Voters of the Bay Area
1611 Telegraph Avenue, Suite 300
Oakland, CA 94612
Attention: Linda Craig
President
Irene Sampson
Transportation Chair

Math-Science Nucleus
4074 Eggers Drive
Fremont, CA 94536
Attention: Joyce Blueford
Board President

Sierra Club
San Francisco Bay Chapter
2530 San Pablo Avenue, Suite 1
Berkeley, CA 94702
Attention: Andy Katz and Bob Piper
Co-chairs, Transportation Committee

TRANSDEF
16 Monte Cimas Avenue
Mill Valley, CA 94941
Attention: David Schonbrunn
President

Urban Habitat
4316 14th Street, Suite 1205
Oakland, CA 94612
Attention: Juliet Ellis
Executive Director
Lila Hussain, Staff

Warm Springs Transit Village
1855 Park Avenue
San Jose, CA 95126
Attention: Tony Morici, Eric Morley

9.2.6 Individuals

- Anne Bacon
- Charles Cameron
- Gerald Cauthen
- Arnold Corbett
- Susan Gearhart
- Robert Heath
- Philip Ingber

- Christy Kennedy
- Tony Louey
- Elliot Martin
- Randy McConnel
- Michael McGowen
- Roy Nakadegawa
- Mark Nelson
- Roy Perkill
- Roberta Quinson
- George Rasko
- Carol Thomas
- Don Tustin
- M. Wilkin

9.3 Agencies with Jurisdiction over the Project

U.S. Fish and Wildlife Service
2800 Cottage Way, Suite W-2605
Sacramento, CA 95825-1846
Attention: Mr. James Browning
Fish and Wildlife Biologist

U.S. Army Corps of Engineers
333 Market Street
San Francisco, CA 94105
Attention: Robert F. Smith,
Biologist

California Department of Fish and Game
1416 9th Street, 12th Floor
Sacramento, CA 95814
Attention: Robert Hight
Director

California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102
Attention: Mr. Wesley M. Franklin
Executive Director

State Office of Historic Preservation
P.O. Box 942896
Sacramento, CA 94296
Attention: Michael McGuirt
Archaeologist

Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814
Attention: Ms. Debbie Pilas-Treadway
Environmental Specialist

California Department of Parks and Recreation
1416 9th Street, Room 940
P.O. Box 942896
Sacramento, CA 94296-0001
Attn: Richard Rendon
Project Officer

Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109
Attention: Mr. Tom Peradi
Director of Planning and Research

Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612
Attention: Ms. Kathryn Hart
Water Resource Control Engineer

Metropolitan Transportation Commission
101 Eighth Street
Oakland, CA 94607
Attention: Mr. Marc Roddin
Santa Clara County Liaison

City of Fremont
39550 Liberty St
Fremont, CA 94537
Attention: Jim Pierson
Transportation and Operations Director

Alameda County Water District
43885 South Grimmer Boulevard
Fremont, CA 94538
Attention: Steven Inn/Robert Shaver

Alameda County Flood Control and Water Conservation District
951 Turner Court, Room 100
Hayward, CA 94545
Attention: Andrew Otsuka

9.4 Native Americans

- Andrew Galvin, Ohlone Tribe
- Ramona Garibay, Trina Marine Ruano Family
- Ann Marie Sayer, Indian Canyon Mutsun Band of Costanoan

9.5 Project Development Team

Alameda-Contra Costa Transit District
1600 Franklin Street
Oakland, CA 94612
Attention: Nathan Landau

Alameda County
1221 Oak Street, Room 536
Oakland, CA 94612
Attention: Scott Hagerty
Supervisor

Alameda County Congestion Management Agency
1333 Broadway, Suite 220
Oakland, CA 94612
Attention: Frank Furger
Deputy Director, Planning

Alameda County Transportation Improvement Authority
426 17th Street, Suite 100B
Oakland, CA 94612
Attention: Art Dao
Deputy Director

California Department of Transportation, District 4
P.O. Box 23660, Mail Stop 6E
Oakland, CA 94623
Attention: Mr. Wade Greene
Senior Transportation Planner

City of Fremont
39550 Liberty St
Fremont, CA 94537
Attention: Jim Pierson
Transportation and Operations Director

Metropolitan Transportation Commission
101 Eighth Street
Oakland, CA 94607
Attention: Mr. Marc Roddin
Santa Clara County Liaison

Santa Clara Valley Transportation Authority
3331 North First Street
San Jose, CA 95134
Attention: Marian Lee-Skoronik
Congestion Management and Planning Program

9.6 Others Receiving Copies of the Final EIS

California School for the Deaf
39350 Gallaudet Drive
Fremont, CA 94538
Attention, Frank Lester

Federal Transit Administration
400 7th Street, SW, Room 9413
Washington, DC 20590
Attention: Ms. Tawanna Glover
Office of Human and Natural Environment

Federal Transit Administration, Region IX
201 Mission Street, Suite 1650
San Francisco, CA 94105
Attention: Leslie Rogers
Regional Administrator

Gannett Flemming
Shelterpoint Business Park Center Suite 5220
591 Redwood Highway
Mill Valley, CA 94941
Attention: William Gamlen

Governor's Office of Planning and Research
1400 10th Street
Sacramento, CA 95814
Attention: Ms. Terry Roberts
Chief, State Clearinghouse

Questa Engineering Corporation
1220 Brickyard Cove, Suite 206
Richmond, CA 94801
Attention: Margaret Henderson

Santa Clara County
Office of Planning
70 West Hedding Street
San Jose, CA 95110
Attention: Ms. Ann Draper
Director of Planning

Santa Clara Valley Transportation Authority
3331 North First Street
San Jose, CA 05134
Attention: Tim Chan
Planning and Programming
Tom Fitzwater
Environmental Programs

Santa Clara Valley Transportation Authority, Congestion Management Program
Pony River Oaks, Building B
San Jose, CA 05134
Attention: Carolyn Gonot
Manager

U.S. Department of the Interior
Office of Environmental Policy and Compliance
Main Interior Building, MS 2340
1849 C. Street N.W.
Washington, D.C. 20240
Attention: Willie R. Taylor
Director

Chapter 10

References

Executive Summary

California Department of Transportation. 2001 Traffic Volumes. State of California, Department of Transportation, Traffic Operations Division.

Metropolitan Transportation Commission. 1994. *Fremont-South Bay Corridor Final Report*. Prepared by DKS Associates. Oakland, CA.

———. 2001. *Travel Forecasts for the San Francisco Bay Area: 1990-2025, Auto Ownership, Trip Generation and Trip Distribution, Data Summary*. May.

San Francisco Bay Area Rapid Transit District and Santa Clara Valley Transportation Authority. 2000. *BART Extension Study from Fremont to Milpitas, San Jose and Santa Clara*. Prepared by Parsons Brinckerhoff in association with Apex Strategies, CCS Planning and Engineering, Inc., DKS Associates, Hatch Mott MacDonald, and the Seville Group Inc. Oakland, CA.

Chapter 1. Introduction

Printed References and Web Sites

Alameda County Congestion Management Agency. 2001. *Countywide Transportation Plan 2001–2026*. Alameda, CA.

City of Fremont. 1991, as amended. *Fremont General Plan*. Most recent amendment September 12, 2000. Fremont, CA: Development and Environmental Services Department, Planning Division.

DKS Associates. 1992. *Santa Clara County BART Extension Alignment Alternatives Feasibility Study*. Oakland, CA.

———. 1993. *Fremont-South Bay Corridor Final Report*. Oakland, CA.

Metropolitan Transportation Commission. 2001. *Draft Regional Transportation Plan for the San Francisco Bay Area*. San Francisco, CA.

San Francisco Bay Area Rapid Transit District. 1991a. *BART Warm Springs Extension Draft Environmental Impact Report*. Prepared by DKS Associates, Donaldson Associates, and associated consultants. Oakland, CA.

- . 1991b. *BART Warm Springs Extension Final Environmental Impact Report*. Prepared by DKS Associates, Donaldson Associates, and associated consultants. Oakland, CA.
- . 2000. *BART Extension Study from Fremont to Milpitas, San Jose and Santa Clara*. Prepared by Parsons Brinckerhoff in association with Apex Strategies, CCS Planning and Engineering, Inc., DKS Associates, Hatch Mott MacDonald, and the Seville Group Inc. Oakland, CA.
- . 2002. *Framework for System Expansion*. Oakland, CA.

Chapter 2. Purpose and Need

Printed References and Web Sites

- Alameda County Congestion Management Agency. 2004. *2004 Level of Service Monitoring Report*, Appendix A. Alameda, CA.
- . 2001. *Countywide Transportation Plan 2001–2026*. Alameda, CA.
- Association of Bay Area Governments. 2002. *Regional Housing Needs Determination for the San Francisco Bay Area 2001–2006 Housing Element Cycle*. June 2001. Oakland, CA.
- . 2004. *What is Smart Growth?* Available: <<http://www.abag.ca.gov/planning/smartgrowth/whatisSG.html>> Accessed: December 2004.
- City of Fremont. 1991, as amended. *Fremont General Plan*. Most recent amendment September 12, 2000. Fremont, CA: Development and Environmental Services Department, Planning Division.
- Metropolitan Transportation Commission. 2005. *Bay Area Transportation Plan 2004*. San Francisco, CA.
- . 2005. *State of the System 2004*. San Francisco, CA.
- . 2001. *Draft Regional Transportation Plan for the San Francisco Bay Area*. San Francisco, CA.
- San Francisco Bay Area Rapid Transit District. 1991a. *BART Warm Springs Extension Draft Environmental Impact Report*. Prepared by DKS Associates, Donaldson Associates and associated consultants. Oakland, CA.
- . 1991b. *BART Warm Springs Extension Final Environmental Impact Report*. Prepared by DKS Associates, Donaldson Associates and associated consultants. Oakland, CA.
- . 1999. *BART Strategic Plan: A New Era of Ownership*. Oakland, CA.
- . 2002. *Framework for System Expansion*. Oakland, CA.
- . 2003a. *BART Warm Springs Extension Supplemental Draft Environmental Impact Report*. Prepared by Jones & Stokes and associated consultants. Oakland, CA.

———. 2003b. *BART Warm Springs Extension Supplemental Final Environmental Impact Report*. Prepared by Jones & Stokes and associated consultants. Oakland, CA.

Santa Clara Valley Transportation Authority. 2004. *Final Environmental Impact Report (EIR) for the BART Extension to Milpitas, San Jose, and Santa Clara*. San Jose, CA.

Smart Growth America. 2004. Association website. Available: <<http://www.smartgrowthamerica.com/>>. Accessed: December 2004.

Chapter 3. Alternatives Considered

Printed References and Web Sites

American Public Transportation Association. 2001. *Public Transportation Fact Book*. 52nd Edition. Washington, D.C.

Council on Environmental Quality. 1986. *Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations*. 46 Federal Register 18026, as amended, 51 Federal Register 15618. Washington, DC.

City of Fremont. 1991 as amended. *Fremont General Plan*. Most recent amendment September 12, 2000. Fremont, CA: Development and Environmental Services Department, Planning Division.

DKS Associates. 1993. *Fremont–South Bay Corridor Final Report*. Oakland, CA.

———. 2002. *Traffic study for the proposed BART Warm Springs Extension*. Oakland, CA.

Chapter 4. Environmental Analysis

Section 4.1. Introduction to Environmental Analysis

None.

Section 4.2. Transportation

Printed References and Web Sites

Alameda–Contra Costa Transit District. 2002. *Transit Ridership and Schedule Adherence Research in the Fremont/Newark Area*. Oakland, CA.

Association of Bay Area Governments. 1999. *Projections 2000*. December 1999. Oakland, CA.

California Department of Transportation. 2000. *2000 Traffic Volumes on the California State Highway System*. Available at: <<http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2000all.htm>>.

Capitol Corridor Joint Powers Authority. 2002. *Ridership Data*. December 2002. Oakland, CA.

- CCS Planning and Engineering Incorporated. 2002. *Final Report: Technical Memorandum—Traffic Operation Analysis: Fremont Grade Separation Project on Washington Boulevard*. San Jose/Fremont, CA.
- City of Fremont. 1991, as amended. *Fremont General Plan*. Most recent amendment September 12, 2000. Fremont, CA: Development and Environmental Services Department, Planning Division.
- . 2000. *2000 Traffic Volumes*. Fremont, CA.
- . 2002. *Traffic Impact Fee Projects List, 2002*. Fremont, CA.
- . 2004a. *Bicycle and Pedestrian Program*. Available: <www.ci.fremont.ca.us/Community/Traffic/BicycleAndPedestrianProgram.htm>. Accessed: December 2004.
- . 2004b. *City of Fremont, Existing Bicycle Commuter Map*. Available: <<http://www.ci.fremont.ca.us/NR/rdonlyres/e5jvcqnzzn7e5wmh4176whhonrku4jayhxiflgtdfmb5c7df14den44m6yyvchid4ooujjmlxaiqmp5yd7xagik3d/appB.pdf>>. Accessed: December 2004.
- Hexagon Transportation Consultants. 2002. *Working Paper #10—Travel Demand Modeling Methodology Report*. San Jose, CA. November 1, 2002.
- Metropolitan Transportation Commission. 1997. *Travel Demand Models for the San Francisco Bay Area (BAYCAST-90)*. Available at: <<http://www.mtc.ca.gov/datamart/forecast/baycast1.htm>>.
- San Francisco Bay Area Rapid Transit District. 2000. *BART Station Characteristics Database, 2000*. Oakland, CA.
- . 2002. *Traffic Study for the Proposed Bart Warm Springs Extension*. Prepared by DKS Associates. Oakland, CA.
- Transportation Research Board. 1980. *Interim Materials on Highway Capacity*. Circular 212. Washington, DC.

Section 4.3. Soils, Geology, and Seismicity

Printed References and Web Sites

- Blair, M.L., and W.E Spangle. 1979. *Seismic Safety and Land-Use Planning—Selected Examples from California*. Reston, VA: U.S. Geological Survey Professional Paper 941-B.
- Bonilla, M.G. 1966. Deformation of Railroad Tracks in Fremont, California. In: *Tectonic Creep in the Hayward Fault Zone, California*. Reston, VA: U.S. Geological Survey Circular 525:6–8.
- Borchardt, G., J.J. Lienkaemper, K.E. Budding, and D.P. Schwartz. 1990. Holocene Slip Rate of the Hayward Fault, Fremont, California. In: *Soil Development and Displacement along the Hayward Fault*. Volume I, Chapter A. California Division of Mines and Geology Open File Report 88-12.

- Burkland and Associates. 1978. *Geologic and Seismic Hazards Investigation, Community Center Building Addition*. Fremont, CA: unpublished consulting report.
- California Department of Transportation. 2001. *Seismic Design Criteria, Version 1.2*. Sacramento, CA.
- California Division of Mines and Geology. 1980. *Niles quadrangle: State of California Special Studies Zones*, revised official map, scale 1:24,000. Sacramento, CA.
- Cluff, L.S., and K.V. Steinbrugge. 1966. *Creep in the Irvington District, Fremont, California, in Tectonic Creep in the Hayward Fault Zone, California*. Reston, VA: U.S. Geological Survey Circular 525.
- Coffman, J.L., C.A. von Hake, and C.W. Stover. 1982. *Earthquake History of the United States, Publication 41-1*. Washington, DC: U.S. Government Printing Office.
- Coppersmith, K.J., and C.B. Griggs. 1978. *Morphology, Recent Activity, and Seismicity of the San Gregorio Fault Zones*. In (E.A. Silver and W.R. Normark, eds.) *San Gregorio-Hosgri Fault Zone, California*. California Division of Mines and Geology Special Report 137
- Dibblee, T.W., Jr. 1980. *Preliminary Geologic Map of the Niles Quadrangle, Alameda County, California*. Washington DC: U.S. Geological Survey Open File Report 80-533c, scale 1:24,000.
- Earth System Consultants. 1986. *Soil and Geologic Study, Proposed Townhouse Project—Tract 5639*. Fremont, CA: unpublished consulting report, File No. C6-1987-C1.
- Ellsworth, W.L., Olson, J.A., Shijo, L.N., and Marks, S.M. 1982. *Seismicity and Active Faults in the Eastern San Francisco Bay Region*, in Proceedings Conference On Earthquake Hazards in the Eastern San Francisco Bay Area. Sacramento, CA: California Division of Mines and Geology, Special Publication 62
- Fox, K.F., Jr., R.J. Fleck, G.H. Curtis, and E.C. Meyer. 1985. *Implications of the Northwestwardly Younger Age of the Volcanic Rocks of West-Central California*. Boulder, CO: Geological Society of America Bulletin, v. 96.
- GEI. 1990. *Report Fault Location Study Including Preliminary Soil Investigation, Planned New Police Building East of Existing Civic Center, Fremont, California*. Prepared for the City of Fremont.
- Greensfelder, R.W. 1974 *Maximum Credible Rock Acceleration from Earthquakes in California*. Sacramento, CA: California Division of Mines and Geology, map sheet 23, 1:250,000 scale.
- Hart, E.W. 1990. *Fault-Rupture Hazard Zones in California*. Sacramento, CA: California Division of Mines and Geology, Special Publication 42.
- Hart, E.W., and W.A. Bryant. 1997. *Fault-Rupture Hazard Zones in California*. Sacramento, CA: California Division of Mines and Geology Special Publication 42.

- Helley, E.J., K.R. Lajoie, and D.B. Burke. 1972. Geologic Map of Late Cenozoic Deposits, Alameda County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-429, scale 1:62,500.
- Helley, E.J., K.R. Lajoie, W.E Spangle, and M.L. Blair. 1979. Flatland Deposits of the San Francisco Bay Region, California—Their Geology and Engineering Properties, and Their Importance to Comprehensive Planning. U.S. Geological Survey Professional Paper 943.
- Hayward Fault Paleoearthquake Group. 1999. *Timing of Paleoearthquakes on the Northern Hayward Fault—Preliminary Evidence in El Cerrito, California*. U.S. Geological Survey Open File Report 99-318.
- International Code Council. 1997. *Uniform Building Code*. International Conference of Building Officials.
- Jones & Stokes. 2002a. *San Francisco Bay Area Rapid Transit District: Environmental Impact Services in Support of the Warm Springs Extension*. Alameda County, CA: Start-Up Packet.
- . 2002b. *San Francisco Bay Area Rapid Transit District: Third Administrative Draft, Supplemental Environmental Impact Report, BART Warm Springs Extension*. Chapter 2, Project Description. Alameda County, CA.
- Knudsen, K.L., J.M. Sowers, R.C. Witter, C.M. Wentworth, and E.J. Helley. 2000. *Preliminary Maps of Quaternary Deposits and Liquefaction Susceptibility, Nine-County San Francisco Bay Region, California; A Digital Database*. U. S. Geological Survey Open File Report 00-444, Version 1.0. Lawson, A.C. 1908. The California Earthquake of April 18, 1906. *Comparison with Other Severe Earthquakes in the Same Region*. Report of the State Earthquake Investigation Commission, v. 1.
- Lienkaemper, J.J., T.E. Dawson, S.F. Personius, G.G. Seitz, L.M. Reidy, and D.P. Schwartz. 2002. *Logs and Data from Trenches across the Hayward Fault at Tyson's Lagoon (Tule Pond)*. Fremont, CA: U.S. Geological Society Map MF-2386.
- Lienkaemper, J.J., G. Borchardt, and M. Lisowski. In prep. *Historic Creep Rate and Potential for Seismic Slip Along the Hayward Fault, California*.
- Moore and Taber. 1978. *Foundation Investigation, Grimmer Boulevard Underpass*, Fremont, CA: unpublished report prepared for DeLeuw, Cather and Company, Job No. 376/50.
- Mualchin, L. 1996. *California Seismic Hazard 1996*. California Department of Transportation, Scale 1:500,000, Revision 1.
- Nason, R.D. 1971. *Investigation of Fault Creep in Northern and Central California*. Ph.D. thesis, La Jolla, CA: University of California, San Diego.
- Nilsen, T.H., R.H. Wright, T.C. Vlastic, and W.E. Spangle. 1979. *Relative Slope Stability and Land Use Planning in the San Francisco Bay Region, California*. U.S. Geological Survey Professional Paper 944.
- Oppenheimer, D.H., and N.G. MacGregor-Scott. 1991. Seismic Potential of the East San Francisco Bay Region of California. Geological Society of America, Abst. With Prog., Vol. 23.

- Page, B.M. 1982. *Modes of Quaternary Tectonic Movement in the San Francisco Bay Region, in Proceedings Conference Hazards in the Eastern San Francisco Bay Area*, California Division of Mines and Geology, Special Publication 62.
- Parikh Consultants, Inc. 2002. Unpublished Geotechnical Information for Proposed Paseo Padre Underpass, Proposed Washington Boulevard Overhead, and proposed Union Pacific Tracks Realignment.
- Prescott, W.H., and M. Lisowski. 1983. Strain Accumulation along the San Andreas Fault System East of San Francisco Bay, California. *Tectonophysics* Volume 97.
- Rodgers, T.H., and J.W. Williams. 1974. *Potential Seismic Hazards in Santa Clara County, California*. California Division of Mines and Geology Special Report 107.
- Sadigh, K., C.-Y. Chang, J.A. Egan, F. Makdisi, and R.R. Youngs. 1997. *Attenuation Relationship for Shallow Crustal Earthquakes Based on California Strong Motion Data*. Seismological Research Letters, Vol. 68, Number 1. Jan.–Feb. 1997.
- San Francisco Bay Area Rapid Transit District. 1989. *Available Geotechnical Data Report for Warm Springs Extension*, prepared by Bay Area Transit Consultants.
- . 1991. *Bart Warm Springs Extension, Draft Environmental Impact Report*. Prepared by DKS Associates, Donaldson Associates, and associated consultants. Oakland, CA.
- . 1993. *Hayward Fault Investigation at the BART Irvington Station Site for the Warm Springs Extension*. Prepared by Geotechnical Consultants, Inc. Sarma-Wojcicki, A.M., Meyer, C.E., and Slate, J.L. 1986. *Displacement of a ca. 6 Matuff across the San Andreas Fault System, Northern California*. EOS, v. 67, no. 44.
- Slemmons, D.B., and D.H. Chung. 1982. *Maximum Credible Earthquake Magnitudes for the Calaveras and Hayward Fault Zones, California, in Proceedings Conference on Earthquake Hazards in the Eastern San Francisco Bay Area*. California Division of Mines and Geology, Special Publication 62.
- Steinbrugge, K.V., J.H. Bennett, H.J. Lagorio, J.F. Davis, G. Borchardt, T.R. Topozada, H.J. Degenkolb, G.L. Laverty, and J.E. McCarty. 1987. *Earthquake Planning Scenario for a Magnitude 7.5 Earthquake on the Hayward Fault in the San Francisco Bay Area*. California Division of Mines and Geology Special Publication 78.
- Topozada, T.R., Real, C.R., and Parke, D.L. 1981. *Preparation of Isoseismal Maps and Summaries of Reported Effects for pre-1900 California Earthquakes*. California Division of Mines and Geology Open-file Report 81-11 SAC. U.S. Department of Agriculture. 1981. *Soil Survey of Alameda County, California, Western Part*. Soil Conservation Service.
- U.S. Geological Survey. 1989. *Lessons Learned from the Loma Prieta, California Earthquake of October 17, 1989*. G. Plafker and J.P. Galloway, editors. U.S. Geological Survey Circular 1045.
- William Lettis & Associates, Inc. 2003. *Geologic Evaluation of Hayward Fault Crossings BART Warm Springs Extension, Fremont, California*. Submitted to Parsons Brinckerhoff Quade & Douglas, Inc. William Lettis & Associates, Inc.: Walnut Creek, CA.

- Williams, J.W., P. Holland, J. Wopat, and M Yeates. 1990. *Preliminary Evidence of Hayward Fault Paleoseismicity*. EOS, V71, No. 43.
- Williams, P.L. 1991. *Evidence of Late Holocene Ruptures, South Hayward Fault, California*. Geological Society of America, Abst. with Programs, Vol. 23, No. 2.
- Wong, I., G. Hemphill-Haley, and D.H. Wright. 1991. *What and Where is the Mission Fault in the Eastern San Francisco Bay Area, California?* Seismological Research Letters, Vol. 62, No. 1.
- Woodward-Clyde and Associates. 1970. *Fremont Meadows Active Fault Investigation and Evaluation, Fremont, California*. Oakland, California: unpublished consulting report prepared for F.B. Burns and Associates, Project No. G-10396.
- Working Group on California Earthquake Probabilities. 1999. *Earthquake Probabilities in the San Francisco Bay Region—A Summary of Findings*, U. S. Geological Survey Open File Report 99-517.

Section 4.4. Hazardous Materials

Printed References and Web Sites

- Alameda County Water District. 1998. Letter from Steve Inn, Alameda County Water District to Joel Strafelda, Southern Pacific Real Estate Enterprises: Response to Case Closure Request for Fremont Lumber, 3560 Washington Boulevard. Oakland, CA. February 11, 1998.
- Ausmus, B. S. 1990. *Needs Assessment: Environmental Liability Assessment, Warm Springs Extension Project*. Oakland, CA.
- Baseline Environmental Consultants. 1999. *Surface Soil and Pipeline Sampling and Bulk Asbestos & Lead-Based Paint Survey Prepared for the Irvington Pump Station, Emeryville, CA*. Emeryville, CA.
- . 2000. *Hazardous Materials Technical Report for City of Fremont Grade Separations Project from Washington Boulevard to Paseo Padre Parkway*. Emeryville, CA. Emeryville, CA.
- California Public Utilities Commission. 1993. Decision No. 93-11-013, Order Instituting Investigation on the Commission's own Motion to Develop Policies and Procedures for Addressing the Potential Health Effects of Electric and Magnetic Fields of Utility Facilities. Sacramento, CA. Published November 2, 1993.
- Dames & Moore. 1993a. *Soil & Groundwater Investigation, Warm Springs Extension Project*. San Francisco, CA.
- . 1993b. *Environmental Site Assessment Services Report, Warm Springs Extension Project*. San Francisco, CA.
- Federal Transit Administration. 1996. *Final Environmental Impact Report/Final Environmental Impact Statement, BART—San Francisco International Airport Extension*. Prepared by Ogden Environmental and Energy Services Company. San Francisco, CA.

- Geomatrix. 2001. Letter from Martin Bloes, Geomatrix for Ted Trenholme, Alameda County Water District concerning “Project Meeting Request: Former Fremont Lumber Site (LUFT Site #54). Oakland, CA. September 13, 2001.
- Hydrosafe. 2004. *Material Safety Data Sheet for Hydro Safe ISO VG-68 Hydraulic Fluid*. Accessed: May 13, 2004. Available at: <<http://www.hydrosafe.com/vg68msds.html>>.
- Kal Krishman Consulting Services, Inc. 1991. *Phase II Environmental Survey, Warm Springs Extension*. Oakland, CA.
- Pacific Gas & Electric Co. 1999. *Electric and Magnetic Fields Q and A*. Accessed: February 2003. Available at: <http://www.pgr.com/customer_services/other/emf/qanda.html>.
- San Francisco Public Utilities Commission. 2000. *Irvington Pumping Station—Historic Resource Study*. Prepared by Page & Turnbull, Inc. San Francisco, CA.
- San Francisco Bay Area Rapid Transit District. 1981. *Emergency Plan*. Oakland, CA
- . 1991. *BART Warm Springs Extension Final Environmental Impact Report*. Prepared by DKS Associates. Oakland, CA.
- . 2002. *BART System Safety Program Plan*. Oakland, CA
- Science Applications International Corporation. 2003. *Supplemental Phase I Environmental Site Assessment*. Prepared for BART Warm Springs Extension.

Personal Communications

- Hayden, Neil. Manager of Operations. Union Pacific Railroad, May 29, 1991—personal communication.
- Huebel, Robert. Manager of Train Operations. Southern Pacific Transportation Company, May 29, 1991—personal communication.
- Jensen, Gary. Director of System Safety. San Francisco Bay Area Rapid Transit District. February 19, 2003—conversation.

Section 4.5. Hydrology

Printed References and Web Sites

- Alameda County Water District. 2002. Alameda County Water District Home Page. Accessed: August 30, 2002 and May 11, 2004. Available at: <<http://www.acwd.org/acwd-alamedacreek.html>>. Updated: 2000.
- Alameda Countywide Clean Water Program. 2001. *Draft Stormwater Management Plan, July 2001—June 2008*. Hayward, CA: County of Alameda.
- Bay Area Transit Consultants. 1993. *Tule Pond Hydrology Study*. Millbrae, CA.

- California State Water Resources Control Board. 2002. *The Section 303(d) List of Water Quality Limited Segments*. Accessed: May 14, 2002. Available at: <http://www.swrcb.ca.gov/tmdl/303d_lists.html>. Last revised: April 2, 2002.
- City of Fremont. 1991, as amended. *Fremont General Plan*. Most recent amendment September 12, 2000. Fremont, CA: Development and Environmental Services Department, Planning Division.
- Federal Emergency Management Agency. 2000a. *Flood Insurance Study*. City of Fremont, California. Alameda County. Community Number—065028. Washington, DC: U.S. Government Printing Office.
- . 2000b. Flood insurance rate maps. City of Fremont, California. Alameda County. Community Number—065028. (Map panels 0650280010C.P., 0650280029C.P., 0650280030C.P., 0650280033C.P., 0650280045C.P., 0650280046C.P., 0650280048C.P.; effective date: February 9, 2000.) Washington, DC: U.S. Government Printing Office.
- Fugro West, Inc. 2004. *Draft Dewatering Feasibility Study, BART Warm Springs Extension*. June 17. Fremont, CA.
- Jones & Stokes. 2000. *Final City of Fremont Laguna Creek Basin Reconnaissance Study and Water Quality Enhancement Plan*. (J&S 98-138.) Sacramento, CA. Prepared for City of Fremont Development and Environmental Services Department.
- Jones & Stokes. 2001. *Environmental Analysis of Tidal Marsh Restoration in San Francisco Bay*. Draft. December. Sacramento, CA. Prepared for San Francisco International Airport, South San Francisco, CA
- San Francisco Bay Area Rapid Transit District. 1991a. *BART Warm Springs Extension Draft Environmental Impact Report*. Oakland, CA. Prepared by DKS Associates, Oakland, CA.
- . 1991b. *BART Warm Springs Extension Final Environmental Impact Report*. Prepared by DKS Associates, Oakland, CA.
- . 2002. *Preliminary Geotechnical Report for BART Extension to Warm Springs—City of Fremont, CA*. Milpitas, CA. Prepared by Parikh Consultants, Oakland, CA.
- . 2004. *Draft Dewatering Feasibility Study Bart Warm Springs Extension Fremont, California*. Prepared by Fugro West, Inc. and PB Team.
- . 2004. West Bay Extension, Hillcrest Sump Discharge Tests, May 2003 through May 2004.
- San Francisco Bay Regional Water Quality Control Board. 1995. Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin.
- . 2001. *A Comprehensive Groundwater Protection Evaluation for South San Francisco Bay Basins—Draft*. Oakland, CA: San Francisco Bay Regional Water Quality Control Board.
- State Water Resources Control Board. 2003. The Section 303(d) List of Water Quality Limited Segments. Accessed: May 11, 2004. Available at: <http://www.swrcb.ca.gov/tmdl/303d_lists.html>. Last posted or revised: December 4, 2003.

- U.S. Environmental Protection Agency. 2003. *2002 Clean Water Act Section 303(d) List of Water Quality Limited Segments*. July. Washington, D.C.
- Welch, L.E. 1981. *Soil Survey of Alameda County, California, Western Part*. Washington D.C.: U.S. Department of Agriculture, Soil Conservation Service.
- Rahmat Zandian. San Francisco Water Department, personal communication. April 11, 1991. San Francisco, CA.

Personal Communications

- Piraino, Paul. General Manager, Alameda County Water District. May 2003 from FEIS

Section 4.6. Wetlands

Printed References and Web Sites

- City of Fremont. 1991, as amended. *Fremont General Plan*. Most recent amendment September 12, 2000. Fremont, CA: Development and Environmental Services Department, Planning Division.
- . 1993a. *Lake Elizabeth Stivers Lagoon Marsh Design and Improvement Program, Draft Environmental Impact Report*. Fremont, CA.
- . 1993b. *Lake Elizabeth Stivers Lagoon Marsh Design and Improvement Program, Final Environmental Impact Report*. Fremont, CA.
- Environmental Collaborative. 2000. *Biological Resource Assessment for the Grimmer Boulevard and Irvington Pump Station Sites Owned by San Francisco Public Utilities Commission*. Prepared for Baseline Environmental Consulting.
- Environmental Science Associates. 1993. *Stivers Lagoon Marsh Restoration /Enhancement Plan*. February 1993. Prepared for City of Fremont, Fremont, CA.
- Huffman & Associates, Inc. 2002. *Investigation of the Presence of Waters of the United States within the Fremont Grade Separations Project, Fremont, California*. April. Larkspur, CA. Prepared for City of Fremont, Fremont, CA.
- San Francisco Bay Area Rapid Transit District. 1991. *Bart Warm Springs Extension, Draft Environmental Impact Report*. Prepared by DKS Associates, Donaldson Associates, and associated consultants. Oakland, CA.
- . 2002. *Preliminary Geotechnical Report for BART Extension to Warm Springs—City of Fremont, CA*. Milpitas, CA. Prepared by Parikh Consultants, Oakland, CA.
- U.S. Soil Conservation Service. 1992. *Hydric Soils Lists for Alameda County, California, Western Part*. Davis, CA.

Welch, L.E. 1981. *Soil Survey of Alameda County, California, Western Part*. U.S. Department of Agriculture Soil Conservation Service in cooperation with the University of California Agricultural Experiment Station. Washington, D.C.

Section 4.7. Biological Resources

Printed References and Web Sites

- Aigner, P., J. Tecklin, and C. Koehler. 1995. Probable Breeding Populations of the Black Rail in Yuba County, California. *Western Birds* 26.
- Beedy, E. C., and W. J. Hamilton. 1999. Tricolored Blackbird (*Agelaius tricolor*). In A. Poole and F. Gill (eds.), *The Birds of North America, No. 423*. Philadelphia, PA: The Birds of North America, Inc.
- California Department of Fish and Game. 1995. *Staff Report on Burrowing Owl Mitigation*. Sacramento, CA: California Department of Fish and Game.
- . 2002. RareFind 2, Version 2.1.2 (March 1, 2002 update). Search of the Niles and Milpitas 7.5-minute Quadrangles. Sacramento, CA: California Department of Fish and Game.
- California Native Plant Society. 2001. *Inventory of Rare and Endangered Plants of California*. 6th edition. Sacramento, CA: Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor.
- City of Fremont. 1991, as amended. *Fremont General Plan*. Most recent amendment September 12, 2000. Fremont, CA: Development and Environmental Services Department, Planning Division.
- . 1993a. *Lake Elizabeth Stivers Lagoon Marsh Design and Improvement Program, Draft Environmental Impact Report*. Fremont, CA.
- . 1993b. *Lake Elizabeth Stivers Lagoon Marsh Design and Improvement Program, Final Environmental Impact Report*. Fremont, CA.
- Environmental Collaborative. 2000. *Biological Resource Assessment for the Grimmer Boulevard and Irvington Pump Station Sites Owned by San Francisco Public Utilities Commission*. Prepared for Baseline Environmental Consulting.
- Environmental Science Associates. 1993. *Lake Elizabeth/Stivers Lagoon Marsh Design and Improvement Program: Draft Environmental Impact Report*. February. Prepared for the City of Fremont.
- Evens, J. G., G. W. Page, S. A. Laymon, and R. W. Stallcup. 1991. Distribution, Relative Abundance, and Status of the California Black Rail in Western North America. *Condor* 93.
- Faanes, C. A., C. Vaughn, Jr., and J. M. Andrew. 1992. Birders and U.S. Federal Laws. *Birding* 24(5). Available at the Northern Prairie Wildlife Research Center Home Page: <<http://www.npwrc.usgs.gov/resource/tools/Birdlaws/BIRDLAWS.HTM>>.

- Huffman & Associates. 2002a. *Site Assessment for the California Red-Legged Frog and the California Tiger Salamander at the Fremont Grade Separation Project, South of Paseo Padre Parkway and Protocol Level Survey for the California Red-Legged Frog and the California Tiger Salamander at the Entire Fremont Grade Separation Project Site, Fremont, Alameda County, California*. Lafayette, CA. June 10, 2002.
- . 2002b. *Burrowing Owl Survey at the Fremont Grade Separation Project—North of Paseo Padres Parkway*. Lafayette, CA. February 20, 2002.
- Jennings, M. R., and M. P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California*. (Final report.) Rancho Cordova, CA: California Department of Fish and Game, Inland Fisheries Division.
- Jones & Stokes. 2000. *Final City of Fremont Laguna Creek Basin Reconnaissance Study and Water Quality Enhancement Plan*. (J&S 98-138.) Sacramento, CA. Prepared for City of Fremont Development and Environmental Services Department.
- McEwan, D. and T.A. Jackson. 1996. *Steelhead Restoration and Management Plan for California*. California Department of Fish and Game. Sacramento, CA.
- North State Resources. 1999. Technical memorandum, Fremont Wal-Mart Site Burrowing Owl Survey and Biological Reconnaissance Summary Letter.
- Preston, R. E. 1999. *Preliminary Report on the Conservation Status of Congdon's Spikeweed (Hemizonia parryi ssp. congdonii) in the South and East San Francisco Bay Area and Monterey County, CA*. Prepared for the U.S. Fish and Wildlife Service, Ventura, CA.
- Remsen, J.V. 1978. *Bird Species of Special Concern in California: An Annotated List of Declining or Vulnerable Bird Species*. (Wildlife Management Branch Administrative Report No. 78-1.) Sacramento, CA: California Department of Fish and Game, Nongame Wildlife Investigations.
- San Francisco Bay Area Rapid Transit District. 1991a. *Bart Warm Springs Extension, Draft Environmental Impact Report*. Prepared by DKS Associates, Donaldson Associates, and associated consultants. Oakland, CA.
- . 1991b. *BART Warm Springs Extension Final Environmental Impact Report*. Oakland, CA. Prepared by DKS Associates, Donaldson Associates, and associated consultants. Oakland, CA.
- . 1997. *Summary of Preliminary Mitigation Requirements and Options, BART Warm Springs Extension Project*. Prepared by V. Reynolds. Forestville, CA.
- . 2002a. *A Report on Wetlands and Other Aquatic Habitats Occurring along the San Francisco Bay Area Rapid Transit District Proposed Warm Springs Extension*. Prepared by Jones & Stokes. Sacramento, CA.
- . 2002b. *Preliminary Geotechnical Report for BART Extension to Warm Springs—City of Fremont, CA. Milpitas, CA*. Prepared by Parikh Consultants. Oakland, CA.

- Williams, D.F. 1986. *Mammalian Species of Special Concern in California*. Administrative Report 86-1. Sacramento, CA: California Department of Fish and Game, Wildlife Management Division.
- Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White. 1990. *California's Wildlife. Volume II: Birds*. (California Statewide Wildlife Habitat Relationships System.) Sacramento, CA: California Department of Fish and Game.

Personal Communications

- Able, Jay. Fisheries Biologist. Santa Clara Valley Water District. Telephone conversation—August 26, 2002.
- Atkinson, Kristine. Fishery Biologist. California Department of Fish and Game. Email—October 22, 2004.
- Buford, Dan. Fish and Wildlife Biologist. United States Fish and Wildlife Service. Telephone conversation—October 21, 2002.
- Hafernik, John. San Francisco State University Entomologist. Telephone conversation—July 11, 2002.
- Hankens, Don. Fish and Wildlife Biologist. United States Fish and Wildlife Service. Telephone conversation—July 12, 2002.
- Nogare, Sue. Office Manager, Central Park. City of Fremont. Telephone conversation—November 17, 2004.
- Stern, Gary. Fisheries Biologist. National Marine Fisheries Service, Santa Rosa, CA. October 29, 2004—telephone conversation.

Section 4.8. Land Use and Planning

Printed References and Web Sites

- Alameda County Congestion Management Agency/Alameda County Management Agency Steering Committee for the I-880 Corridor Study. 2001. *Alameda County Countywide Transportation Plan*. Accessed: August 19, 2002. Available at: <<http://www.accma.ca.gov/pages/county0.shtml>>. Last updated August 2, 2001.
- _____. 1995. *I-880 Intermodal Corridor Study*. Prepared for the Alameda County Congestion Management Agency Steering Committee for the I-880 Corridor Study. Alameda, CA.
- City of Fremont. 1991, as amended. *Fremont General Plan*. Most recent amendment September 12, 2000. Fremont, CA: Development and Environmental Services Department, Planning Division.
- _____. 1998, as amended. *Fremont Redevelopment Plan*. Most recent amendment July 2002. Fremont, CA.

- . 2001. *Fremont Housing Element 2001–2006*. Fremont, CA. Prepared by Freitas + Freitas Engineering and Planning Consultants, Santa Cruz, CA.
- . 2002a. *Fremont General Plan Atlas*. Revised February 26, 2002. Prepared by City of Fremont. Fremont, CA.
- . 2002b. *Fremont Zoning Atlas*. Version 4.20 Revised March 7, 2002. Prepared by City of Fremont. Fremont, CA.
- . 2002c. *Staff Report to the City Council, Warm Springs Area Specific Plan, Scope, Cost, and Process*. March 26.
- . 2004. City of Fremont website. Accessed: June 22, 2004. Available at: <www.ci.Fremont.ca.us>. .
- Metropolitan Transportation Commission. 2001. *2001 Regional Transportation Plan for the San Francisco Bay Area*. Accessed: August 19, 2002. Available at: <<http://www.mtc.dst.ca.us/projects/rtp/rtpindex.htm#rtp>>. Last updated January 9, 2002.
- . 2002. *About MTC*. Accessed: August 19, 2002. Available at: <www.mtc.dst.ca.us/about_mtc/about.htm>. Last updated February 13, 2002.
- San Francisco Bay Area Rapid Transit District. 1991. *Bart Warm Springs Extension, Draft Environmental Impact Report*. Prepared by DKS Associates, Donaldson Associates, and associated consultants. Oakland, CA.
- . 1999. *BART Strategic Plan: A New Era of Partnership*. Accessed: August 19, 2002. Available at: <<http://www.bart.gov/docs/strategicPlan.pdf>>. Last updated 2002.
- . 2002. *Framework for System Expansion*. Oakland, CA.
- San Francisco Public Utilities Commission. 2002. *Fremont Bay Division Pipeline Seismic Retrofit Overview*. Accessed: September 17, 2002. Available at: <http://sfwater.org/detail.cfm/MSID/6/MTO_ID/NULL/MC_ID/7/holdSession/1/C_ID/1003>. Last updated July 11, 2002.

Personal Communications

- Lavin, Jake. Fremont Redevelopment Agency. July 23, 2004.
- Rakley, Amy. Park Planning Manager. City of Fremont. May 2002—telephone conversation.

Section 4.9. Parks and Recreation

Printed References and Web Sites

- City of Fremont. 2002. *City of Fremont—Lake Elizabeth*. Accessed June 3, 2004. Available at: <<http://www.ci.fremont.ca.us/Recreation/LakeElizabeth/default.htm>>.
- San Francisco Bay Area Rapid Transit District. 1992. *Extensions Program System Design Criteria*. Oakland, CA.

Personal Communications

McDonald, Anita. School secretary, Grimmer Elementary School. May 10, 2004—personal communication.

Rakley, Amy. Park Planning Manager, City of Fremont. May 11, 2004—personal communication.

Section 4.10. Population, Economics, and Housing

Printed References and Web Sites

Association of Bay Area Governments. 2001. *Projections 2002*. Forecasts for the San Francisco Bay Area to the Year 2020. December 2001. San Francisco, CA.

———. 2002. Regional Housing Needs Determination for the San Francisco Bay Area 2001–2006 Housing Element Cycle. June 2001. Oakland, CA.

Bay East Association of Realtors. Accessed: May 2002. Available at:
<http://www.bayeast.org/hs_12_01_sf.htm; http://www.bayeast.org/hs_12_01_condo.htm>.

BT Commercial Real Estate. 2004. *Silicon Valley Manufacturing Report (First Quarter 2004)*. Accessed: July 2004. Available at:
<<http://www.btcommercial.com/reports/2004/1Q/Silicon%20Valley%20Mfg%201Q04%20summary.pdf>>. .

———. 2004. *Silicon Valley Office Report (Second Quarter 2004)*. Accessed: July 2004. Available at:
<<http://www.btcommercial.com/reports/2004/2Q/Silicon%20Valley%20Office%202Q04%20summary.pdf>>.

California State Board of Equalization. Accessed: June 2002. Available at:
<<http://www.boe.ca.gov/news/>>.

CB Richard Ellis. 2004. Silicon Valley Industrial Marketview (Second Quarter 2004). Accessed: July 2004. Available at:
<<http://www.cbre.com/Research/Market+Reports/Local+Reports+Worldwide/globalresearch.htm>>.

———. 2004. Silicon Valley Office Marketview (Second Quarter 2004). Accessed: July 2004. Available at:
<<http://www.cbre.com/Research/Market+Reports/Local+Reports+Worldwide/globalresearch.htm>>.

City of Fremont. 1991, as amended. *Fremont General Plan*. Most recent amendment September 12, 2000. Fremont, CA: Development and Environmental Services Department, Planning Division.

———. 2001. *Fremont Housing Element 2001–2006*. Fremont, CA. Prepared by Freitas + Freitas Engineering and Planning Consultants, Santa Cruz, CA.

- . City of Fremont Combined Statement of Revenues, Expenditures and Changes in Fund Balances (2000-2001). Accessed: July 2002. Available at: <<http://www.ci.fremont.ca.us/citysvcs/finance/pdf/combinedstatement-actual.pdf>>.
- County of Alameda. *County of Alameda Comprehensive Annual Financial Reports, 2000–2001*. Alameda, CA.
- Dyett & Bhatia. *Program EIR on Metropolitan Transportation Commission's 2001 Regional Transportation Plan*. December 2001. San Francisco, CA.
- Earthtech, Inc., S. R. Beard & Associates, Manuel Padron & Associates, Inc., and Parsons Transportation Group. 2001. *Major Investment Study (MIS) Final Report for the Santa Clara Valley Transportation Authority (VTA) Silicon Valley Rapid Transit Corridor MIS/EIS/EIR*. Santa Clara, CA.
- San Francisco Bay Area Rapid Transit District. 1991. *Bart Warm Springs Extension, Draft Environmental Impact Report*. Prepared by DKS Associates, Donaldson Associates, and associated consultants. Oakland, CA.
- . 2004a. *Draft Safety and Security Certification Plan for the Warm Springs Extension Project*. June. Oakland, CA.
- . 2004b. "Help Us Keep BART Safe and Secure." Accessed: July 15, 2004. Available at: <www.bart.gov/guide/overview/yoursafety.asp>.
- U.S. Census Bureau. 2000. *2000 Census*. Accessed: June 2002. Available at: <<http://www.census.gov/main/www/cen2000.html>>.

Personal Communications

- Angela W. Tsui. Marketing and Communications, City of Fremont. Facsimile regarding office and industrial supply and absorption—June 4, 2002.
- Avan Gangaparum, Associate Planner, City of Fremont. Telephone conversation regarding affordable housing—January 27, 2003.
- Jeff Schwob, Senior Planner, City of Fremont. Telephone conversation regarding Housing Element—January 30, 2003.
- Daniel LaForte. Planning Department, City of Fremont. Email regarding building permits issued during 1999–2001—May 22, 2002.

Section 4.11. Aesthetics

Printed References and Web Sites

- City of Fremont. 1991, as amended. *Fremont General Plan*. Most recent amendment September 12, 2000. Fremont, CA: Development and Environmental Services Department, Planning Division

- Federal Highway Administration. 1983. *Visual Impact Assessment for Highway Projects*. (Contract DOT-FH-11-9694). Washington, DC.
- San Francisco Bay Area Rapid Transit District. 1991. *Bart Warm Springs Extension, Draft Environmental Impact Report*. Prepared by DKS Associates, Donaldson Associates, and associated consultants. Oakland, CA.
- Smardon, R.C., J.F. Palmer, and J.P. Felleman. 1986. *Foundations for Visual Project Analysis*. New York, NY: John Wiley & Sons, Inc.
- U.S. Forest Service. 1974. *National Forest Landscape Management Volume 2*. Chapter 1: The Visual Management System (Agriculture Handbook Number 462). Washington, DC.

Section 4.12. Cultural Resources

Printed References and Web Sites

- Bean, L.J. 1994. *The Ohlone Past and Present: Native Americans of the San Francisco Bay Region*. (Ballena Press Anthropological Paper No. 42.) Novato, CA: Ballena Press.
- Cadero, A. J. 1953 Washington Township Map. Niles, California. On file at the California Room, California State Library, Sacramento.
- Chambers Group. 1999. *Level 3/WS07/Fremont Potential Unanticipated Discovery and Archaeological Testing*. Irvine, CA. Prepared for Level 3 Fiber Optic.
- Chavez, D., and M. Holman. 1974. *Archaeological Field Investigation of Considered Site of Retention Pond, Fremont Parking Lot Enlargement Project, Bay Area Rapid Transit*. Prepared for San Francisco Bay Area Rapid Transit District, Oakland, CA. On file at the Northwest Information Center at Sonoma State University, Rohnert Park, CA.
- Chavez, D., J. M. Hupman, and S. B. Woodbridge. 1991. *Cultural Resources Investigation for the BART Warm Springs Extension, Alameda County, California*. Prepared for DKS Associates, Oakland, CA. On file at the Northwest Information Center at Sonoma State University, Rohnert Park, CA.
- City of Fremont. 1991, as amended. *Fremont General Plan*. Most recent amendment September 12, 2000. Fremont, CA: Development and Environmental Services Department, Planning Division.
- . 2003. Archaeological Testing at the Gallegos Winery, Washington Boulevard and Osgood Road, Fremont Grade Separation Project, Fremont California; data on file. Rohnert Park, CA: Northwest Information Center at Sonoma State University.
- Drury, G. H. (ed.). 1999. *The Historical Guide to North American Railroads: 160 Lines Abandoned or Merged since 1930*. 2nd edition. Waukesha, WI: Kalmbach Books.

- Fredrickson, D., and J. Bennyhoff. 1969. A Proposed Integrative Taxonomic System for Central California Archaeology, in Richard Hughes (ed.), 1994, *Toward a New Taxonomic Framework for Central California, Essays by James A. Bennyhoff and David A. Fredrickson*. Contributions of the University of California Archaeological Research Facility, Berkeley.
- Hall, J. T. 1985. Results of an Archaeological Subsurface Testing Program at CA-Ala-343. Center for Anthropological Research, San Jose State University. On file at the Northwest Information Center at Sonoma State University, Rohnert Park, CA.
- Hall, J. T., R. Jurmain, and J. S. Nelson. 1988. Preliminary Description of Cemetery Complex at CA-Ala-343 in S. E. Hector, L. E. Christenson, G. T. Gross, and M. D. Rosen (eds.), *Papers Presented at the Annual Meeting of the Society for California Archaeology*. Volume 1. San Diego, CA: Society for California Archaeology.
- Holman & Associates. 1996. *Report of Archaeological Excavations at CA-Ala-343, East of Tule Pond, Fremont, Alameda County, California*. Prepared for M. H. Podell Company. On file at the Northwest Information Center at Sonoma State University, Rohnert Park, CA.
- Hoover, M. B. (ed.), H. E. Rensch, E. G. Rensch, and W. N. Abeloe. 1990. *Historic Spots in California*. 4th edition. Stanford, CA: Stanford University Press.
- King, T. 1968. Site Record of CA-Ala-343. Recorded February 15, 1968. On file at the Northwest Information Center at Sonoma State University, Rohnert Park, CA.
- Kroeber, A. L. 1925. *Handbook of the Indians of California*. (Bulletin 78.) Washington, DC: Bureau of American Ethnology.
- Levy, R. 1978. Costanoan. In R. F. Heizer (ed.), *California. Handbook of North American Indians*, vol. 8, W. C. Sturtevant, general editor. Washington, DC: Smithsonian Institution.
- Milliken, R. 1996. *A Time of Little Choice: The Disintegrations of the Tribal Culture in the San Francisco Bay Area 1769–1810*. (Ballena Press Anthropological Paper No. 43.) Novato, CA: Ballena Press.
- Moratto, M. J. 1984. *California Archaeology*. New York: Academic Press.
- Page & Turnbull. 2000. *Irvington Pumping Station: Historic Resource Study, Fremont, California*. On file at the Northwest Information Center at Sonoma State University, Rohnert Park, CA.
- Porcasi, P., J. F. Porcasi, and C. O'Neill. 1999. Early Holocene Coastlines of the California Bight: The Channel Islands as First Visited by Humans. *Pacific Coast Archaeological Society Quarterly* 35:2 and 3 (Spring–Summer 1999). Available at the Pacific Coast Archaeological Society web site: <www.pcas.org/Vol35N23/3523Porcasi.pdf>.
- San Francisco Bay Area Rapid Transit District. 1991. *Bart Warm Springs Extension, Draft Environmental Impact Report*. Prepared by DKS Associates, Donaldson Associates, and associated consultants. Oakland, CA.
- . 2002. *San Francisco Bay Area Rapid Transit District: Third Administrative Draft, Supplemental Environmental Impact Report, BART Warm Springs Extension*. Oakland, CA.

- . [In prep.]. *Inventory and Evaluation Report of Cultural Resources for BART Warm Springs Extension, Alameda County, CA*. Oakland, CA: Prepared by Jones & Stokes.
- Wildensen, L. 1968. *Report of Preliminary Excavations at CA-Ala-343*. On file at the Northwest Information Center at Sonoma State University, Rohnert Park, CA.
- William Self Associates. 2000. *Historic Property Survey Report: Osgood Road Widening Project, Fremont, Alameda County, California*. Orinda, CA. Prepared for City of Fremont.
- . 2002. *Fremont Grade Separations Project: Cultural Resource Assessment Report*. Orinda, CA. Prepared for Public Affairs Management, San Francisco.
- . 2003. Archaeological Testing at the Gallegos Winery, Washington Boulevard and Osgood Road, Fremont Grade Separation Project, Fremont California. Prepared for the City of Fremont, Fremont, CA. On file at the Northwest Information Center at Sonoma State University, Rohnert Park, CA.

Personal Communications

- Galvan, Andrew. Principal Historian/Native American Indian Consultant. Archaeor— Anthropological Services and Cultural Resources Consultation. Telephone conversations— May 5 and 6, 2002; letter—May 21, 2002.
- State of California, Department of Parks and Recreation, Office of Historic Preservation (OHP), 2006a. Personal correspondence from M. Wayne Donaldson, State Historic Preservation Officer, to Shari Adams, BART, January 30, 2006, regarding Section 106 Consultation on the BART Warm Springs Extension Project, City of Fremont, Alameda County, California. Sacramento, CA.
- State of California, Department of Parks and Recreation, Office of Historic Preservation (OHP) 2006b. Personal correspondence from M. Wayne Donaldson, State Historic Preservation Officer, to Kathleen K. Mayo, BART, February 27, 2006, regarding Request for Concurrence of Findings and Ongoing Consultation for BART Warm Springs Extension (WSX), Alameda, County, California [Further Section 106 Consultation on the BART Warm Springs Extension Project, City of Fremont, Alameda County, California]. Sacramento, CA.

Section 4.13. Noise and Vibration

Printed References and Web Sites

- City of Fremont. 1991, as amended. *Fremont General Plan*. Most recent amendment September 12, 2000. Fremont, CA: Development and Environmental Services Department, Planning Division.
- Federal Transit Administration. 1995. *Transit Noise and Vibration Impact Assessment*. Washington, D.C.

- Harris Miller Miller & Hanson, Inc. 2003. *Noise and Vibration Impact Assessment for the San Francisco Bay Area Rapid Transit District (BART) Warm Springs Extension Project*. Draft report. February (HMMH Report No. 298760-01) Burlington, MA. Prepared for Jones & Stokes.
- San Francisco Bay Area Rapid Transit District. 1991. *Bart Warm Springs Extension, Draft Environmental Impact Report*. Prepared by DKS Associates, Donaldson Associates, and associated consultants. Oakland, CA.
- . 1992. *Extensions Program System Design Criteria*. Oakland, CA.
- Transportation Research Board. 1997. *Dynamic Effects of Pile Installations on Adjacent Structures. A Synthesis of Highway Practice*. Washington, D.C.
- Wilson, Ihrig & Associates, Inc. 1998. *Wayside Noise Measurements: BART Rehabilitated Vehicles*. San Francisco, CA.

Personal Communications

- Furtney, Mike. Director of Public Relations, Western Region. Union Pacific Railroad. May 20, 2002—telephone conversation.

Section 4.14. Air Quality

Printed References and Web Sites

- Asbaugh, L., R. Flocchini, D. Chang, V. Garza, O. Carvacho, T. James, and R. Matsumura. 1996. *Final report: Traffic generated PM10 hot spots*. UCD-ITS-RR-96-17. Prepared for the California Department of Transportation under Caltrans Contract No. 53V606 A2. Air Quality Group, Crocker Nuclear Laboratory, University of California, Davis. August.
- Asbaugh, L., R. Flocchini, R. Matsumura, T. James, O. Carvacho, C. Tsubamoto, and M. Brown. 1998. *Final report: Wintertime traffic generated PM10 hot spots*. Prepared for the California Department of Transportation under Caltrans Contract No. 43X878. Air Quality Group, Crocker Nuclear Laboratory, University of California, Davis. September 3.
- Bay Area Air Quality Management District. 1996. *Climate, Physiography, and Air Pollution Potential—Bay Area and its Subregions (referenced by county)*. Accessed: August 2002. Available at: <<http://www.baaqmd.gov/tech/mda/bayclim2.pdf>>.
- . 1997. *Air Pollution Glossary*. Accessed: August 2002. Available at: <<http://www.baaqmd.gov/pie/aqgloss.htm>. Last updated: February 14, 1997>.
- . 1999. *BAAQMD CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans*. Adopted: April 1996. Revised: December 1999. San Francisco, CA.
- California Air Resources Board. 2002. *California Air Quality Data Statistics*. Accessed: August 2002. Available at: <<http://www.arb.ca.gov/adam>>.

- Caltrans. 2000. *Caltrans Interim Guidance (4/7/2000); Project-Level PM10 Hot Spot Analysis*. California Department of Transportation. Sacramento, CA.
- DKS Associates. 2002. *BART WSX ADSEIR Technical Report Transportation*. Draft. Prepared for Jones & Stokes. Oakland, CA.
- Federal Highway Administration. 2000. *Transportation Conformity: A Basic Guide for State and Local Officials*. Accessed: August 2002. Available at: <<http://www.fhwa.dot.gov/environment/conformity/basic2gd.htm>>. Updated: June 19, 2000
- Garza et al. 1997. *Transportation Project-Level Carbon Monoxide Protocol*. Institute of Transportation Studies, University of California. Davis, CA.
- Jones & Stokes. 2002. *BART WSX SEIR—Air Quality Technical Report*. Sacramento, CA.
- South Coast Air Quality Management District. 1999. *Draft Final Report: Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-II)*. November 1999.
- U.S. Environmental Protection Agency. 2004. *EPA Green Book: Classifications of Carbon Monoxide Maintenance Areas*. Available at: <<http://www.epa.gov/air/oaqps/greenbk/cmc.html>>. Accessed: September 2004.

Section 4.15. Energy

Printed References and Web Sites

- California Energy Commission. 2001a. *California Energy Outlook Electricity and Natural Gas Trends Report (Staff Draft)*. September 2001. Accessed: June 7, 2002. Available at: <http://38.144.192/electricity/silicon_valley_consumption.html>.
- . 2002b. 2002–2012 Electricity Outlook Report (Commission Final - P700-01-004F). February. Accessed: June 7, 2002. Available at: <http://38.144.192/electricity/silicon_valley_consumption.html>.
- . 2002c. *California Electricity Consumption by Sector*. October. Accessed: February 13, 2003. Available at: <www.energy.ca.gov/electricity/consumption_by_sector.html>.
- . 2003. *California's Electricity Supply and Demand Balance Over the Next Five Years*. January. Accessed: February 3, 2003. Available at: <http://www.energy.ca.gov/electricity/2003-01-28_OUTLOOK.PDF>.
- California Independent System Operator. 2002b. 2002 Summer Assessment, Version 1.1. May. Accessed: February 3, 2003. Available at: <<http://www.caiso.com/docs/2002/04/19/2002041917130017460.pdf>>.
- . 2003. 2002 CAISO Control Grid Study. February. Available: <www.caiso.com/docs/2003/01/2914354119442.pdf>. Accessed: 2/12/03.
- Caltrans. 1983. *Energy and Transportation Systems*. July 1983.
- Competitive Enterprise Institute. 1996. *CAFE Standards*. Washington, D.C.

- DKS Associates. 2002. *BART WSX ADSEIR Technical Report—Transportation. Draft*. Prepared for Jones & Stokes. Oakland, CA.
- Federal Transit Administration, Office of Planning (FTA). *Technical Guidance on Section 5309 New Starts Criteria*. July 1999.
- Oak Ridge National Laboratory. 2002. *Transportation Energy Book: Edition 22*. Oak Ridge, TN.
- U.S. Department of Transportation. 2002a. Docket Number NHTSA 11048. Accessed: June 7, 2002. Available at: <<http://www.dot.gov/affairs/nhtsa2002.html>>.
- . 2002b. Transportation Efficiency Act for the 21st Century. Accessed: June 2002. Available at: <<http://www.fhwa.dot.gov/tea21/h240subb.htm#1203>>.
- Western Area Power Administration (WAPA). 2004. Path 15 Update. August. Accessed July 16, 2004. Available at: <<http://www.wapa.gov/sn/initiatives/path15/factSheet.pdf>>.

Section 4.16. Utilities and Public Services

Printed References and Web Sites

- Bay Area Transit Consultants. 1990. *BART Extensions Program Design Criteria*. California Department of Conservation & Division of Mines and Geology. 1987. Earthquake Planning Scenario Hayward Fault Scenario, Special Publication 78. Sacramento, CA.
- City of Fremont. 1991, as amended. *Fremont General Plan*. Most recent amendment September 12, 2000. Fremont, CA: Development and Environmental Services Department, Planning Division.

Personal Communications

- Azevedo, Gary. TCI Cablevision of California, Inc. April 12, 1991—personal communication; July 12, 1989—letter to BATC and plan markup.
- Billeter, Kent. Chevron Pipeline Company. April 1991—personal communication.
- Davis, Rich. Union Sanitation District. April 11, 1991—personal communication.
- DeBacker, Steve. Pacific Gas and Electric. June 29, 1990—correspondence to BATC, including gas plats.
- Lindley, Jack. Alameda County Flood Control and Water Conservation District. April 11, 1991—personal communication
- March, John. US Sprint. April 12, 1991—personal conversation; July 27, 1989—letter and plan markup to BATC.
- Noreen, R.A. Chevron Pipeline Company. 1989—letter and plan markups.
- Reed, George Reed. Santa Fe Pacific Pipeline. April 12, 1991—personal communication.

Scurries, Dean. MCI. April 12, 1991—personal conversation.

Siegel, Gerald D. MCI. August 2, 1989—letter and plan markup to BATC.

Simpson, Dale. Pacific Gas and Electric. April 12, 1991—personal communication.

Walde, Peter H. Pacific Bell. June 14, 1989—letter and plan markups to BATC.

Whitelaw, Joe. Santa Fe Pacific Pipeline. April 11, 1991—personal conversation.

Section 4.17. Safety and Security

Printed References and Web Sites

California Public Utilities Commission. 1991.

San Francisco Bay Area Rapid Transit District. 2002a. *BART System Safety Program Plan*. Revision No. 5.

———. 2002b. The BART Emergency Plan.

Section 4.18. Environmental Justice

U.S. Census Bureau. 2000. U.S. Census of Population and Housing, Summary File 1.

Chapter 5. Other NEPA Considerations

Association of Bay Area Governments. 2001. *Projections 2002: Forecasts for the San Francisco Bay Area to the Year 2025*. December.

———. 2003. *Smart Growth Preamble and Policies*. ABAG has formally adopted Draft Prepared for adoption by the five regional agencies of the Bay Region: Metropolitan Transportation Commission, Association of Bay Area Governments, Bay Area Air Quality Management District, Bay Conservation and Development Commission and the Regional Water Quality Control Board. January. Oakland, CA.

Cervero, R., C. Castellanos, K. Rich, and W. Sarosa. 1995. *BART@20: Land Use and Development Impacts*. September. Berkeley, CA: Institute of Urban and Regional Development, University of California, Berkeley.

Dyett & Bhatia. 2001. 2001 Regional Transportation Plan Draft Environmental Impact Report. Prepared for the Metropolitan Transportation Commission. August. Oakland, CA.

Freitas + Freitas. 2002. City of Fremont Housing Element: 2001-2006. Prepared for the City of Fremont. February. Santa Cruz, CA.

San Francisco Bay Area Rapid Transit District. 1991. *Bart Warm Springs Extension, Draft Environmental Impact Report*. Prepared by DKS Associates, Donaldson Associates, and associated consultants. Oakland, CA.

- . 1999a. *BART's Contributions to the Bay Area*. Prepared by Sedway Group. July. San Francisco, CA.
- . 1999b. *BART Strategic Plan: A New Era of Partnership*. Accessed: August 19, 2002. Available at: <<http://www.bart.gov/docs/strategicPlan.pdf>>. Last updated 2002.
- . 2001. *Short-Range Transit Plan and Capital Improvement Program: FY 02 Update, Fiscal Years 2002 through 2011*. August. Oakland, CA.

Chapter 6. Section 4(f) Evaluation

- American Public Transportation Association. 2001. *Public Transportation Fact Book*. 52nd Edition. Washington D.C.
- Chavez, D., J. M. Hupman, and S. B. Woodbridge. 1991. *Cultural Resources Investigation for the BART Warm Springs Extension, Alameda County, California*. Prepared for DKS Associates, Oakland, CA. On file at the Northwest Information Center at Sonoma State University, Rohnert Park, CA.
- City of Fremont. 2004. Agenda, Fremont Recreation Commission Regular Meeting, October 6, 2004. Fremont, CA: Recreation Commission.
- . 2004. BART Warm Springs Extension (WSX) Parkland Disposition and Acquisition in Central Park (PLN2005-00065), Planning Commission Meeting Report, September 23, 2000. Fremont, CA: Planning Commission.
- . 1991, as amended. *Fremont General Plan*. Most recent amendment September 12, 2000. Fremont, CA: Development and Environmental Services Department, Planning Division.
- Jarvis, Jonathan. October 21, 2005. Regional Director, United States Department of the Interior, National Park Service, Pacific West Region. Oakland, CA.
- Jones & Stokes. 2004.
- King, T. 1968. Site Record of CA-Ala-343. Recorded February 15, 1968. On file at the Northwest Information Center at Sonoma State University, Rohnert Park, CA.
- Metropolitan Transportation Commission. 2001. *Draft Regional Transportation Plan for the San Francisco Bay Area*. San Francisco, CA.
- Page & Turnbull. 2000. *Irvington Pumping Station: Historic Resource Study, Fremont, California*. On file at the Northwest Information Center at Sonoma State University, Rohnert Park, CA.
- San Francisco Bay Area Rapid Transit District. 1992. *Extensions Program System Design Criteria*. Oakland, CA.
- William Self Associates. 2000. *Historic Property Survey Report: Osgood Road Widening Project, Fremont, Alameda County, California*. Orinda, CA. Prepared for City of Fremont.
- . 2002. *Fremont Grade Separations Project: Cultural Resource Assessment Report*. Orinda, CA. Prepared for Public Affairs Management, San Francisco.

Personal Communications

McDonald, Anita. School secretary, Grimmer Elementary School. May 10, 2004—personal communication.

Rakley, Amy. Park Planning Manager. City of Fremont. May 2002—telephone conversation.

State of California, Department of Parks and Recreation, Office of Historic Preservation (OHP), 2006a. Personal correspondence from M. Wayne Donaldson, State Historic Preservation Officer, to Shari Adams, BART, January 30, 2006, regarding Section 106 Consultation on the BART Warm Springs Extension Project, City of Fremont, Alameda County, California. Sacramento, CA.

State of California, Department of Parks and Recreation, Office of Historic Preservation (OHP) 2006b. Personal correspondence from M. Wayne Donaldson, State Historic Preservation Officer, to Kathleen K. Mayo, BART, February 27, 2006, regarding Request for Concurrence of Findings and Ongoing Consultation for BART Warm Springs Extension (WSX), Alameda, County, California [Further Section 106 Consultation on the BART Warm Springs Extension Project, City of Fremont, Alameda County, California]. Sacramento, CA.

Chapter 7. Financial Considerations

San Francisco Bay Area Rapid Transit District. 2004. *Fiscal Year 2005, Short Range Transit Plan and Capital Improvement Program*. September. Oakland, CA.

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Appendix A
Notice of Intent

DEPARTMENT OF TRANSPORTATION

Federal Transit Administration

Preparation of Environmental Impact Statement for the San Francisco Bay Area Rapid Transit District (BART) Warm Springs Extension Project in the City of Fremont, located in Alameda County, California.

AGENCY: Federal Transit Administration (FTA), Department of Transportation (DOT).

ACTION: Notice of Intent to prepare an Environmental Impact Statement (EIS).

SUMMARY: The Federal Transit Administration, as lead agency, and the San Francisco Bay Area Rapid Transit District (BART) intend to jointly prepare an Environmental Impact Statement on a proposal by BART to extend its existing 91-mile rail network an additional 5.4 miles from the existing Fremont BART Station to a new station in the Warm Springs district of Fremont. An optional station at Irvington is also being considered. The EIS will be prepared to satisfy the requirements of the National Environmental Policy Act of 1969 (NEPA). An Environmental Impact Report (EIR) and Supplemental Environmental Impact Report (SEIR) were previously prepared for this project by BART in accordance with the California Environmental Quality Act (CEQA). The proposed project was selected as the preferred alternative by the BART Board of Directors following completion and certification of the CEQA SEIR in June 2003. The CEQA EIR and SEIR are available for review as described in ADDRESSES below. FTA and BART seek public and interagency input on the scope of the NEPA EIS for the project, including the alternatives to be considered and the environmental impacts to be evaluated.

DATES: Scoping Comments Due Date: Written comments on the scope of the NEPA review, including the alternatives to be considered and the related impacts to be assessed, should be received no later than May 17, 2004. Written comments should be sent to the BART Project Manager at the address given below in ADDRESSES.

Scoping Meeting Dates: A public scoping meeting and open house will be held at 7 p.m. on April 28, 2004 at the Fremont Main Library, located at 2400 Stevenson Boulevard, in the City of Fremont. Oral and written comments may be given at the scoping meeting, and a stenographer will record oral comments. The formal scoping meeting will be preceded by an open house from 6:30 pm to 7 pm allowing the public to discuss the EIS scope and proposed project informally with BART staff. The meeting location is accessible to people with disabilities. Persons with special needs should call BART at (510) 476-3900 at least 72 hours prior to the scoping meeting.

ADDRESSES: Written comments should be sent to San Francisco Bay Area Rapid Transit District, Attention: Ms. Shari Adams, Warm Springs Group Manager, P.O. Box 12688, MS LKS-21, Oakland, CA 94604-2688. Phone: (510) 476-3900. Fax: (510) 287-4747. Email: rbatars@bart.gov. If you wish to be placed on the mailing list to receive further information as the EIS study develops, contact Ms. Adams at the address listed above. Please specify the mailing list for the WSX EIS (Warm Springs Extension Project Environmental Impact Statement). Copies of the EIR and SEIR can also be obtained by contacting Ms. Adams as indicated above.

FOR FURTHER INFORMATION CONTACT: Ms. Lorraine Lerman, Community Planner, FTA Region IX, 201 Mission Street, Suite 2210, San Francisco, CA 94105.

Phone: (415) 744-2735. Fax: (415) 744-2726. Information about the project can also be obtained from the BART website, <http://www.bart.gov/wsx>.

SUPPLEMENTARY INFORMATION:

I. Scoping

The FTA and BART invite all interested individuals and organizations, and federal, state, and local agencies to comment on the scope of the EIS. During the scoping process, comments should focus on proposing alternatives that may be less costly or have less environmental impacts while achieving similar transportation objectives, and on identifying specific social, economic, or environmental issues to be evaluated. At this time, comments should not focus on a preference for a particular alternative. As part of the public participation process, the study website referenced above will be periodically updated to reflect the project's current status. Additional opportunities for public participation will be announced through mailings, notices, advertisements, and press releases.

The project was originally advanced by BART as a State-funded and locally funded project without FTA involvement. At that time, BART prepared the CEQA EIR and SEIR and the BART Board of Directors selected a preferred alternative. Recent changes in State transportation funding priorities have resulted in BART's seeking FTA funding for the project. FTA is, therefore, preparing an EIS, but plans to incorporate by reference the CEQA EIR and SEIR. FTA does not intend to consider in detail alternatives that were evaluated during the CEQA process and found not to satisfactorily meet the project's purpose and need. At the same time, FTA intends that this EIS not be merely a ratification of decisions already made. FTA therefore seeks comments during scoping, on the alternatives to be considered in the EIS, in light of the analyses and coordination activities performed by BART and publicized prior to FTA involvement. FTA must also comply with other environmental requirements, such as Section 4(f) of the Department

of Transportation Act (49 U.S.C. §303) and Section 106 of the National Historic Preservation Act, that apply only to Federal actions.

II. Description of Study Area

The FTA, as lead agency, in cooperation with the BART District, will prepare a EIS on a proposal to extend BART's rail service from the existing Fremont Station to a new station in the Warm Springs district of Fremont. An optional station at Irvington is also being considered. The project would be located entirely within the City of Fremont. Located in the East Bay region of the San Francisco Bay Area, Fremont is the southernmost city in Alameda County. Fremont is bounded by the cities of Hayward and Union City on the north, San Francisco Bay to the west, the foothills and mountains of the Diablo Range to the east, and the City of Milpitas and Santa Clara County on the south.

The alignment of the proposed BART extension would generally parallel portions of the Union Pacific Railroad (UP) corridor, which lies between Interstate 680 to the east and Interstate 880 to the west. The project study area includes the location of the proposed rail alignment, stations, auxiliary facilities, and a maintenance facility.

III. Purpose and Need

Transportation has become a critical issue for people living and working in the southern Alameda County and northern Santa Clara County. The surge in population, including nearly a 20 percent population increase over the past decade in the City of Fremont, has increased traffic on regional roadways. Highway improvements have not kept up with the demand for more highway capacity. Congestion on Interstate 680 and Interstate 880, the two major regional roadways linking Santa Clara, Alameda, and Contra Costa Counties, has worsened considerably over the last decade, and escalating

traffic volumes have reached levels considered unacceptable by the California Department of Transportation and other regional monitoring agencies.

The proposed 5.4-mile BART extension to the Warm Springs district of Fremont, would improve the regional transit network by enhancing the link between the southern Alameda County-northern Santa Clara County area and the rest of the East Bay, and San Francisco. By shortening travel times and improving reliability, the BART extension is expected to generate additional transit ridership and reduce overall traffic congestion. The Warm Springs Extension would help accommodate projected future growth in employment and population, reduce pressure to expand roads, and support the region's efforts to meet state and federal air quality standards.

IV. Alternatives

In light of prior CEQA studies by BART, FTA intends to evaluate the following two alternatives in detail in the EIS:

1. The No-Build Alternative, which consists of the planned highway and transit systems expected to be in place in the design years 2010 and 2025 if the project is not built. The future No-Build Alternative is based on the Metropolitan Transportation Commission's long-range transportation plan for the area and includes programmed improvements in bus service.

2. BART Warm Springs Extension, the locally preferred alternative selected by the BART Board of Directors at the conclusion of the SEIR process, consists of a 5.4-mile BART extension from the existing Fremont Station to a proposed station in the Warm Springs district of Fremont, with an optional station at Irvington. The proposed project alignment would generally parallel portions of the UP railroad corridor through

Fremont, between Interstate 680 to the east and Interstate 880 to the west. This route reflects a revised alignment designed following the 1992 EIR. The revisions were made in order to reduce project impacts, and the revised project was the subject of the 2003 SEIR. Chief among the project revisions is the proposed subway under Fremont Central Park; an alignment segment previously planned as an aerial structure.

The initial segment of the alignment would begin on an embankment at the south end of the existing elevated Fremont BART Station. The alignment would pass over Walnut Avenue on an aerial structure and descend into a cut-and-cover subway north of Stevenson Boulevard. The alignment would continue southward in subway under Fremont Central Park and the eastern arm of Lake Elizabeth and surface to grade between the eastern and western alignments of the UP corridor. The BART alignment would pass over Paseo Padre Parkway, which would be a vehicular underpass, on a bridge structure. The alignment would then continue southward at grade, passing under Washington Boulevard, which would be a vehicular overpass. From Washington Boulevard, the proposed project alignment would continue south at grade along UP's former eastern alignment to a terminus station in the southeast quadrant of Warm Springs Road and Grimmer Boulevard.

The optional Irvington Station, if constructed, would be located on the south side of Washington Boulevard, east and west of Osgood Road. Auxiliary wayside facilities would be placed periodically along the proposed alignment and would include electrical substations, gap breaker stations, train control and communications facilities, and pumping and emergency access facilities. Two subway ventilation structures may be required in Fremont Central Park, if feasible and prudent avoidance options cannot be

developed. A rail vehicle maintenance facility is proposed immediately south of the Warm Springs Station site between the UP eastern alignment and Warm Springs Court.

If additional reasonable alternatives are identified through the scoping process, they will be evaluated in the EIS.

V. Probable Effects

The EIS will evaluate and fully disclose the environmental consequences of building and operating the proposed BART extension in advance of any decision by FTA to commit financial or other resources toward the implementation of a particular alternative. The EIS will examine the transportation benefits and environmental impacts of the alternatives. In addition, it will discuss actions to reduce or eliminate such impacts. Information on preliminary engineering of the rail alignment, stations, auxiliary facilities, and a maintenance facility will be included in the EIS. In addition, a section on financial considerations will be provided that identifies capital and operating costs and funding sources.

Environmental issues to be analyzed in the EIS include: transportation and traffic impacts, including changes in intersection and roadway levels of service; the use of parkland, including Fremont Central Park; biological resources and sensitive species; land use, including consistency of proposed stations with local plans and policies; potential impacts to historic and cultural resources; noise and vibration impacts on homes and other sensitive receptors near the tracks. Cumulative and growth-inducing impacts will be examined. Impacts will be evaluated for both the temporary construction period and for the long-term operation of the alternatives. Measures to mitigate any adverse impacts will be identified.

To ensure that all significant issues related to this proposed action are identified and addressed, scoping comments and suggestions are invited from all interested parties. Comments should be directed to the BART Warm Springs Extension Group Manager as noted in the ADDRESSES section above.

VI. FTA Procedures

The EIS is being prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), its implementing regulations by the Council on Environmental Quality (40 CFR parts 1500-1508), and with the FTA/Federal Highway Administration's "Environmental Impact and Related Procedures" (23 CFR part 771). In accordance with FTA policy, the NEPA process will also address the requirements of other applicable environmental laws, regulations, and executive orders, such as the National Historic Preservation Act of 1966, Section 4(f) of the U.S. Department of Transportation Act, and Executive Orders on Environmental Stewardship and Transportation Infrastructure Project Reviews, Environmental Justice, Floodplain Management, and Protection of Wetlands.

The SEIR that resulted in the BART Board of Directors' selection of the proposed project as its preferred alternative was issued in 2003. To streamline the NEPA process and to avoid duplication of effort, FTA and BART will consider and incorporate into the EIS the results of previous studies, including the EIR and SEIR.

Upon completion, the Draft EIS will be distributed for public and agency review and comment. A public hearing on the Draft EIS will be held within the study area. Based on the Draft EIS and the public and agency comments received, FTA and BART may further refine and analyze the alternatives in the Final EIS.

Issued on: _____

Leslie T. Rogers,

Regional Administrator

Appendix B

2003 Mitigation Monitoring and Reporting Plan

**Mitigation Monitoring and Reporting Plan
for the
BART Warm Springs Extension**

As Adopted by the BART Board on June 26, 2003

Prepared by:

San Francisco Bay Area Rapid Transit District
800 Madison Street – Lake Merritt Station
Oakland, CA 94604-2688

June 2003

Mitigation Monitoring and Reporting Plan for the BART Warm Springs Extension. Adopted June 26, 2003. Oakland, CA. Prepared by the San Francisco Rapid Transit District. 800 Madison Street – Lake Merritt Station. Oakland, CA.

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1.1. Purpose and Need for Monitoring

A supplemental environmental impact report (SEIR) was prepared to comply with the California Environmental Quality Act (CEQA) for the BART Warm Springs Extension (WSX) (herein called the Project). The SEIR was prepared as a supplement to the *BART Warm Springs Extension Environmental Impact Report* that was certified on September 15, 1992. Potential environmental impacts identified in the 1992 EIR and 2003 SEIR include impacts in the following areas.

- Geology, Soils, and Seismicity.
- Hazards and Hazardous Materials.
- Hydrology and Water Quality.
- Biological Resources.
- Land Use and Planning.
- Population, Employment, and Housing.
- Aesthetics.
- Cultural Resources.
- Utilities.
- Safety and Security.
- Transportation.
- Noise and Vibration.
- Air Quality.
- Energy.

Measures to mitigate significant environmental impacts were proposed in the 1992 EIR and 2003 SEIR wherever feasible.

This Mitigation Monitoring and Reporting Plan (MMRP) was prepared pursuant to the requirements of Public Resources Code Section 21081.6, which requires a public agency to adopt a monitoring and/or reporting program to ensure compliance with mitigation measures during project

implementation. This MMRP identifies and clarifies the mitigation measures to be implemented by BART for the Project and identifies the parties responsible for implementation and monitoring. This MMRP incorporates measures identified in the MMRP prepared for the 1992 EIR, as well as additional or revised measures identified in the 2003 SEIR.

1.2. Project Description

The Project consists of a 5.4-mile extension of the BART system south from the existing Fremont BART Station to a proposed new station in the Warm Springs district of the City of Fremont. The Project alignment would generally parallel portions of the Union Pacific (UP) railroad corridor, which contains railroad tracks formerly belonging to the Western Pacific (WP) and Southern Pacific (SP), and Interstate 680 (I-680) and Interstate 880 (I-880) in southern Alameda County. The initial segment would begin on an embankment at the southern end of the existing elevated Fremont BART Station. The alignment would pass over Walnut Avenue on an aerial structure and descend into a cut-and-cover subway north of Stevenson Boulevard. The alignment would continue southward in the subway structure under Fremont Central Park and the eastern arm of Lake Elizabeth, and surface to at grade between the former WP and SP alignments north of Paseo Padre Parkway. Paseo Padre Parkway will be reconfigured as a vehicular underpass as part of the Washington Boulevard and Paseo Padre Parkway Railroad Grade Separations Project, referred to herein as the city's grade separations project. The alignment would pass over Paseo Padre Parkway on a bridge structure, and then continue southward at grade, passing under a grade-separated Washington Boulevard. Washington Boulevard will be reconfigured as a vehicular overpass as part of the city's grade separations project. From Washington Boulevard, the Project alignment would continue at grade along the former WP alignment south to a terminus station at Warm Springs and South Grimmer Boulevards in the Warm Springs district. An optional station at Irvington also is proposed. The optional Irvington Station would be located on Osgood Road, just south of and adjacent to Washington Boulevard.

The analysis of the Project presented in the 2003 SEIR focused on updating and supplementing the information contained in the 1992 EIR based on changes that have occurred in the project setting and any new information related to the project that was not known at the time the original EIR was published and the project was adopted.

1.3. Mitigation Monitoring Program

This MMRP has been prepared for the Project in accordance with Public Resources Code 21081.6, which specifies that when a public agency makes findings required by paragraph (1) of subdivision (a) of Section 21081, it "...shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment." Public Resources Code 21081.6 further specifies that the MMRP will "...ensure compliance during project implementation." This MMRP is intended to ensure the effective implementation of mitigation measures that are within the authority of BART to implement, including monitoring where identified, throughout all phases of development and operation of the Project.

1.4. Mitigation Actions

This MMRP identifies the mitigation actions that will be performed by BART to compensate for, reduce, or eliminate the effect of impacts resulting from construction and operation of the Project. These include relevant measures identified in the MMRP document for the 1992 EIR, as well as additional measures identified in the 2003 SEIR. Mitigation measures carried forward from the 1992 MMRP consist of those that were proposed for resource areas not discussed in the 2003 SEIR because they were found to have been adequately analyzed in the 1992 EIR. BART's Manager of Environmental Compliance will be responsible for oversight of the implementation of mitigation actions and reporting on compliance with this plan to the BART Board of Directors. Mitigation actions required to be performed prior to and during project construction will be performed by BART staff, by consultants to BART, or by the contractors who will construct the Project under the oversight of BART staff. Any actions that require implementation after construction will be performed by BART staff, by consultants to BART, or by contractors to BART.

1.5. Procedures for Monitoring and Reporting

Monitoring and reporting procedures will conform to the following steps prior to and during project construction and operations.

Step 1. Monitoring

This step will be executed by the Monitor. The Monitor will be designated by BART's Environmental Compliance Division. Monitoring activities may be performed by the Environmental Compliance Manager, by BART staff, or the Monitor may be a consultant to BART.

The Monitor will have the following responsibilities.

- Prepare an implementation plan prior to commencement of construction to augment and detail the monitoring actions and compliance requirements listed in this MMRP.
- Be knowledgeable in the mitigation that is to be monitored.
- Verify implementation of mitigation by:
 - verifying prior to advertisement for contract bids that bid documents, contracts, and other plans and specifications include requirements to implement identified mitigation measures;
 - verifying in the field that required implementation has been properly executed during and after construction; and
 - contacting the Project Manager and requesting that the situation be remedied if mitigation is not being implemented or executed properly. This action will be accomplished with formal notification via an Environmental Non Conformance Report (ENCR) process, which requires formal response.
- Prepare Mitigation Status Forms and submit to appropriate BART management.

Step 2. Action

This step will be executed by the Transit System Development (TSD) Project Manager (PM). The PM will be appointed by the Executive Manager of TSD.

The PM will have the following responsibilities.

- Review the Mitigation Status Forms and any other information presented by the Monitor as monitoring occurs.
- Oversee amendments of the MMRP, if changes in monitoring activities are deemed necessary, to provide equivalent mitigation measures and maintain conformance with goals of the plan.
- Coordinate with the Environmental Compliance Division as necessary.
- Ensure that the mitigation measures in the MMRP are undertaken, via staff, contractors, or consultants.
- Ensure that penalties to contractors for noncompliance and for ongoing noncompliance are incorporated into contracts.
- Verify monthly that mitigation actions are properly undertaken. This may include designation of a BART staff person or consultant to enforce effective and timely compliance with regard to specific mitigation measures outlined in this MMRP or required permits. Such staff or consultants referenced in this MMRP include Construction Management Oversight. Construction Management Oversight will be knowledgeable in regulatory compliance applicable to the project and will be responsible for day-to-day supervision of construction activities to ensure compliance with regulatory permits.
- Ensure that procedures and assignments to implement the MMRP are in place in the event that the BART structure is reorganized prior to completion of the MMRP actions.

Step 3. Reporting

This step will be executed by the Monitor.

The Monitor will have the following responsibilities.

- Compile all Mitigation Status Forms into a Report of Compliance on a quarterly basis. Convey the status and any recommendations to the PM. Recommendations may include updating the frequency of monitoring, changing the type of monitoring, and suggesting better ways to implement mitigation.
- Assist the Project Manager in reviewing contractor's response to ENCRs, and preparing details of corrective action and time of completion to resolve issues raised. If the Monitor deems mitigation is satisfactorily completed, the noncompliance situation will expire. If Monitor deems mitigation to be unsatisfactorily addressed, Monitor will document the non-compliance in a report. The reports will be submitted to the BART Board of Directors by the Environmental Compliance Manager.

- Verify that the ENCR is enforced, that the contractor has taken corrective action and submitted a formal response to the ENCR, and the contractor will incur appropriate penalties as specified in the contracts. Monitor will report corrective actions taken to remedy noncompliance or ongoing noncompliance to the Environmental Compliance Manager who will report to the BART Board of Directors.
- Submit all completed reports and statements to the Environmental Compliance Manager for submittal to the BART Board of Directors.

1.6. General Mitigation and Monitoring Efforts

In general, BART staff will be responsible for implementing or ensuring that the mitigation actions listed in the MMRP are undertaken for this project. Implementation includes ensuring that any required actions are included in bid documents and contracts as part of the design and construction process for the project and ensuring that the consultants and contractors include specified mitigation activities in plans and specifications for construction. BART staff responsibility includes designation of certain mitigation responsibility to, and continued oversight of, the contractors and consultants.

The Monitor will investigate noncompliance allegations and identify how BART staff or its designees, contractors, or consultants should correct implementation of the measure. The recipient of the ENCR has 30 days to respond with plans for corrective action, unless another time frame is required by state or federal regulatory agencies or as specified in contracts. Otherwise, BART staff is responsible for enforcing contracts to bring ENCRs into conformance; contractors or consultants are responsible for correcting actions in nonconformance, as indicated in contracts. If a measure is under control of another agency, the Monitor will inform the agency of the monitor's determination and request improved implementation. All actions taken as part of this MMRP will be documented monthly and reported quarterly to the BART Board of Directors by the BART Environmental Compliance Manager.

This MMRP will be available for public review at the office of the BART Manager of Environmental Compliance, currently 1330 Broadway, Oakland, California 94607. For the extent of the mitigation monitoring period, as listed in each mitigation measure, individuals and public agencies may notify the BART Manager of Environmental Compliance in writing if mitigation measures are not implemented or not being executed properly.

Project Mitigation Measures

2.1 Introduction

This section describes the mitigation measures for each of the impacts identified in the 1992 EIR and in the 2003 SEIR and identifies the parties responsible for implementation and monitoring of each measure. It should be noted that the nomenclature and format for identifying impacts and mitigation measures differed between the 1992 EIR and the 2003 SEIR. For example, in the 1992 EIR, resource topics were identified by number (e.g., “1. Geology, Soils, and Seismicity”), impacts on that resource were lettered (e.g., “1A, Project Impact - Increased exposure of the public to a seismically active region involving risks from potential seismic ground shaking and associated ground rupture”), and mitigation measures were listed in bullet format under each impact. In the 2003 SEIR, mitigation measures were numbered using a prefix to link them with the impact they address (e.g., “Mitigation Measure HazMat1” refers to the first mitigation measure in the “Hazards and Hazardous Materials” section). For ease of reference, the impacts and mitigation measures in this MMRP are numbered as they were described in the 1992 EIR and 2003 SEIR. Because not all of the impacts identified in the 1992 EIR and 2003 SEIR have mitigation measures associated with them, the numbers are not always sequential. For example, Mitigation Measure HazMat1 is followed by Mitigation Measure HazMat3 because no mitigation measures were identified for Impact HazMat2.

Mitigation measures for operational impacts are described in Section 2.2, and mitigation measures for construction impacts are described in Section 2.3. Cumulative impacts are identified as “cume” (e.g., Mitigation Measure POP-Cume2 “Coordinate access and traffic control during construction of cumulative projects”).

The resource topics are discussed in the same order as in the 1992 EIR and the 2003 SEIR. Table 2-1 indicates the number or letter code used to identify the resource topics and mitigation measures presented in this section. The table also indicates the source of the mitigation (1992 EIR or 2003 SEIR).

Table 2-1. Mitigation Measure Identifications

Identifying Prefix	Resource Topic	Source
1	Geology, Soils, and Seismicity	1992 EIR
2	Hazards and Hazardous Materials (for operations impacts only)	1992 EIR
HazMat	Hazards and Hazardous Materials (for construction impacts only)	SEIR
H	Hydrology and Water Quality	SEIR
BIO	Biological Resources	SEIR
LU	Land Use and Planning	SEIR
POP	Population, Employment, and Housing	SEIR
A	Aesthetics	SEIR
CR	Cultural Resources	SEIR
9	Utilities	1992 EIR
10	Safety and Security	1992 EIR
TRN	Transportation	SEIR
N	Noise and Vibration	SEIR
AIR	Air Quality	SEIR
E	Energy	SEIR

2.2 Operational Mitigation Measures

Geology, Soils, and Seismicity

Impact 1A. Increased exposure of the public to a seismically active region involving risks from potential seismic ground shaking and associated ground rupture. (1992 EIR.)

Mitigation 1A: Reduce increased exposure of the public to a seismically active region involving risks from potential seismic ground shaking and associated ground rupture.

1. Incorporate the BART seismic design criteria into extension design.
2. Aerial structures will be supported on piles driven into dense older alluvium, where feasible.
3. For elevated alignments, use embankments at fault crossings.
4. Comply with the Alquist-Priolo Special Studies Zones Act.

5. Use BART's earthquake alarm system and implement BART's Emergency Response Plan procedures.
6. All buildings will be designed in accordance with the Uniform Building Code (UBC) including current State of California amendments.
7. Prior to final design, identify the precise location of the Hayward Fault and any secondary faults at the Irvington Station. The investigation would follow the California Division of Mines and Geology guidelines for evaluating the hazard of surface fault rupture. If fault traces are identified, structures which would be occupied by workers or passengers would be located or relocated outside the zone of potential fault rupture.

Monitoring:

1. BART staff will ensure and Monitor will verify that requirements to follow BART seismic design criteria have been included in design contracts.
2. Monitor will review final contract drawings to verify stamped approval of a registered engineer.
3. Monitor will review appropriate contract documentation to verify that elevated alignments have been placed on embankments at fault crossings.
4. Monitor will verify that certified geologist has completed a report in compliance with the Alquist-Priolo Act.
5. BART staff will ensure and Monitor will verify that the BART's Emergency Response Plan has been expanded to include the Warm Springs Extension.
6. BART staff will ensure and Monitor will verify that the motion sensor and alarm system are included in trackway design.
7. BART staff will ensure and Monitor will verify that a geologic investigation has taken place as per the California Division of Mines and Geology guidelines. If the relocation of structures has been deemed necessary, review construction drawings to verify the relocation.

Impact 1B. Increased exposure of the public to a seismically active region involving risks from fault creep along the Hayward Fault, which could displace rails and create adverse track conditions. (1992 EIR.)

Mitigation 1B: Reduce increased exposure of the public to a seismically active region involving risks from fault creep along the Hayward Fault, which could displace rails and create adverse track conditions. (1992 EIR.)

1. Monitor fault creep and conduct weekly track inspections and semi-annual track alignment surveys and realign track as necessary.

2. Monitoring of track displacements also would be performed monthly by a specially designed “laser geometry car” or other equivalent method certified by BART engineers.
3. Document and compile all monitoring of track displacements.

Monitoring:

1. BART staff will ensure and Monitor will verify that a program is prepared and implemented to verify that BART’s track alignment inspections and surveys are conducted and expanded to include the Warm Springs Extension.
2. Monitor will verify that documentation of all monitoring of track alignment inspections and surveys has been completed.

Impact 1C. Expansive soils occur along the alignments, creating a potential risk of damage to structures from changing soil pressures. (1992 EIR.)

Mitigation 1C: Reduce risk of expansive soils that occur along the alignment, which creates a potential risk of damage to structures from changing soil pressures. (1992 EIR.)

1. The structure which may be affected will either be designed to withstand the increased earth pressures caused by the expansive clays; or alternatively, the expansive clays will be treated with lime injection to reduce the shrink-well potential in localized areas. The removal of expansive soils and replacement with a non-expansive fill material is another mitigation option.
2. Expansive soil will not be used as fill behind retaining structures or building foundations.
3. After construction, settlement should be monitored and evaluated to see if the track alignment has been affected.

Monitoring:

1. BART staff will ensure and Monitor will verify that structural design features, lime injection, or non-expansive fill have been included in design specifications in areas where expansive soils are found to exist.
2. Monitor will review contract drawings and specifications to verify stamped approval by a licensed professional engineer.
3. BART staff will ensure and Monitor will verify that the monitoring program is prepared and implemented after construction, so that settlement would be monitored and evaluated to see if the track alignment has been affected.

Impact 1D. Increased exposure of the public to compressible soils, creating a potential risk of damage to structures from changing soil pressures. (1992 EIR.)

Mitigation 1D: Reduce increased exposure of the public to compressible soils, creating a potential risk of damage to structures from changing soil pressures. (1992 EIR.)

1. Treat or replace compressible soils in localized areas.
2. Employ the BART Extension Program Design Criteria, the Uniform Building Code as amended, and the Alameda County Grading Ordinance to control erosion and unstable slopes.
3. Following construction, survey structures on embankments to evaluate if settlement has affected the alignment.

Monitoring:

1. BART staff will ensure and Monitor will verify that treatment or replacement of compressible soils has been included in design specifications.
2. Monitor will review contract drawings and specifications to confirm stamped approval by a licensed engineer.
3. BART staff will ensure and Monitor will verify that requirements to follow BART Extension Program Design Criteria and the Alameda County Grading Ordinance have been included in design contracts.

Impact 1E. Potential slope instability in excavations and during construction; and potential erosion during and after construction. (1992 EIR.)

Mitigation 1E: Reduce potential slope instability in excavations and during construction; and potential erosion during and after construction. (1992 EIR.)

1. Excavation and slope construction would be performed under inspection by a qualified engineering professional, as required by the Uniform Building Code and BART design criteria.
2. Employ to the extent feasible the BART Extension Program Design Criteria, the Uniform Building Code (UBC), City of Fremont Grading, Excavation and Sediment Control Ordinance, and the Alameda County Grading Ordinance in design of slopes and retaining structures.
3. Shore excavations as per Cal/OSHA requirements.
4. Develop a dewatering program or appropriate procedures to control seepage (and associated pore water pressure) into any excavation below the groundwater table where necessary. Any water discharged into state waters would be regulated by the Regional Water Quality Control Board

(RWQCB) under the National Pollutant Discharge Elimination System (NPDES) requirements. Water discharge into sanitary sewers would meet with Union Sanitation Discharge requirements.

5. Slopes would be benched if slope height exceeds 30 ft. and vegetated as soon after construction as possible.
6. Concentrated surface flow would be diverted away from slopes or conveyed to appropriate drains.
7. Inspect slopes monthly and after periods of heavy rain, repair gullies and re-vegetate as soon as possible.
8. Follow substantially the applicable portions of the City of Fremont Grading, Excavation and Sedimentation Control Ordinance.

Monitoring:

1. BART staff will ensure and Monitor will verify that requirements to follow BART Extension Program Design Criteria, the UBC, and appropriate provisions of the Alameda County and the City of Fremont Grading, Excavation and Sedimentation Control Ordinance have been included in design contracts.
2. Monitor will verify that the City of Fremont and Alameda County have had an opportunity to review and comment on sedimentation and erosion control plans.
3. Monitor will review appropriate contract documentation to verify that provisions requiring shoring as per Cal/OSAH standards are included.
4. BART staff and Monitor will review appropriate contract documentation to verify that provisions requiring dewatering as per RWQCB, NPDES, or USD regulations are included.
5. BART staff and Monitor will review appropriate contract documentation to verify that provisions requiring terracing for slopes exceeding 30 feet in height, slope inspection after rainfall, gully repair, and re-vegetation are included.
6. Monitor will inspect BMPs during construction at the project site immediately before, during, and immediately after storm events.

Impact 1F. Increased or higher-density population near transit facilities may increase exposure of people to seismic hazards related to the Hayward Fault Zone. (1992 EIR.)

Mitigation 1F: Reduce risk of increased or higher-density population near transit facilities that may increase exposure of people to seismic hazards related to the Hayward Fault Zone. (1992 EIR.)

1. Comply with Alquist-Priolo Special Studies Zone Act provisions and building codes for seismically active areas.
2. Follow BART seismic design criteria at all fault crossings.
3. For elevated alignments, use embankments at fault crossings.
4. Use BART's earthquake alarm system and implement Emergency Response Plan procedures.
5. Prior to final design identify the precise location of the Hayward Fault and any secondary faults at the Irvington Station. The investigation would follow the California Division of Mines and Geology guidelines for evaluating the hazard of surface fault rupture. If fault traces are identified, structures which would be occupied by workers or passengers would be located or relocated outside the zone of potential fault rupture.
6. In addition, BART would encourage the City of Fremont to impose seismic design requirements on development along the BART alignment in the vicinity of the Hayward Fault Zone.

Monitoring:

1. BART staff will ensure and Monitor will verify the requirements that are to follow BART seismic design criteria have been included in design contracts.
2. Monitor will review contract drawings to verify stamped approval by a registered engineer.
3. Monitor will review appropriate contract documentation to verify that elevated alignments have been placed on embankments at fault crossings.
4. Monitor will verify that a certified geologist has completed a report in compliance with the Alquist-Priolo Act.
5. Monitor will verify that BART's Emergency Response Plan has been expanded to include the Warm Springs Extension.
6. BART staff and Monitor will verify that the motion sensor and alarm system are included in trackway design.
7. BART staff and Monitor will verify that a geologic investigation has taken place as per the California Division of Mines and Geology guidelines. If the relocation of structures has been deemed necessary, review construction drawings to verify the relocation.
8. BART staff and Monitor will verify that BART has encouraged the City of Fremont to impose seismic design requirements on developments in the vicinity of the Hayward fault.

Hazards and Hazardous Materials

Impact 2A. Increased exposure of the public to contaminants in the event of accidents involving fuel pipelines along the alignment or railcars transporting hazardous materials. (1992 EIR.)

Mitigation 2A: Reduce risk of increased exposure of the public to contaminants in the event of accidents involving fuel pipelines along the alignment or railcars transporting hazardous materials. (1992 EIR.)

1. The procedures set forth in BART's Emergency Response Plan would be implemented in the event of a release of hazardous materials.

Monitoring:

1. BART staff and Monitor will verify that the hazardous materials accident provisions in the Emergency Response Plan and in the site health and safety plan have been expanded to include the Warm Springs Extension prior to the completion of final design.

Impact 2B. Interruption or delay of potential investigation or remediation activities. (1992 EIR.)

Mitigation 2B: Reduce potential for interruption or delay of potential investigation or remediation activities. (1992 EIR.)

1. BART would cooperate with investigation and clean-up agencies and provide access as necessary for collection of soil samples and remediation of contaminated soils or groundwater, provided all regulatory and BART safety and emergency programs are complied with.

Monitoring:

1. BART staff will consult and Monitor will verify consultation with local jurisdictions to determine if site investigation/remediation activities will occur during construction and, if so, coordinate with the Project Manager to ensure that clean-up agencies have appropriate access to the site.

Hydrology and Water Quality

Impact H1. Alteration of flooding conditions due to changes in infiltration rates, drainage patterns, or the rate and amount of surface runoff. (2003 SEIR.)

Impact H12. Alteration of flooding conditions due to changes in infiltration rates, drainage patterns, or the rate and amount of surface runoff as a result of implementation of optional Irvington Station. (2003 SEIR.)

Mitigation Measure H1: Design and implement a stormwater management system to safely convey stormwater.

1. BART will design and implement a stormwater management system and will develop and implement a stormwater management plan to convey flows up to and including the 100-year design storm. The stormwater management system will be incorporated into plans and specifications for the Project.
2. BART will submit the Project designs to ACFCD for approval to ensure that the Project does not exacerbate either upstream or downstream flooding conditions. The ACFCD publishes guidelines with which design of drainage systems are to comply. In addition, any work that would encroach on structures or areas owned or operated by the ACFCD would require approval from the ACFCD. The stormwater management plan may recommend use of stormwater detention facilities to temporarily store the increased flows from storms up to and including the 15-year storm, and to discharge the flows at approximately predevelopment levels.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require the contractor implement a stormwater management system for a 100-year design storm.
2. BART staff will ensure and Monitor will verify that BART submits the Project designs to ACFCD for approval to ensure that the Project does not exacerbate either upstream or downstream flooding conditions.
3. Monitor to verify in the field that the stormwater management plan is implemented.

Impact H3. Loss of flood storage capacity at Tule Pond South. (2003 SEIR.)

Mitigation Measure H3: Mitigate the loss of flood storage capacity by providing an equal or greater amount of lost storage capacity at the same location.

1. To maintain existing flood storage capacity, BART will expand Tule Pond and/or create an additional flood storage facility (e.g., detention pond) at the same location. The storage capacity will be at least as large as the loss of storage resulting from implementation of the project.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications incorporate elements of the flood storage facility will be implemented.
2. Monitor will verify in the field that flood storage capacity is provided.

Impact H4. Delivery of increased pollutant loads to urban drainages from expanded impervious areas. (2003 SEIR.)

Mitigation Measure H4: Incorporate design features and implement best management practices (BMPs) for postconstruction water quality protection.

1. BART will incorporate design features for postconstruction water quality protection into the stormwater management system described in Mitigation Measure H1 above, and will ensure that appropriate water quality protection BMPs are implemented during operation of the Project. Design features may include, but will not necessarily be limited to, water quality inlets, grassy swales, oil-water separators, and wet ponds. These structures remove hydrocarbons, dissolved pollutants, and particulate matter using a range of mechanisms, including particulate settling, biological uptake, flocculation, and filtration. BART will monitor and maintain water quality design features as necessary for the life of the Project.
2. In addition to physical structures, BMPs may include programs designed to educate staff and reduce potential impacts to water quality. Likewise, BART may incorporate operational elements that will reduce or eliminate potential sources of point- and non-point source pollutants. Implementation of BMPs to protect water quality will be specified in the SWPPP associated with their NPDES General Permit. In addition, BART may receive assistance in defining and implementing those BMPs via the Clean Water Program's storm water quality management plan.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications incorporate all conditions for operational BMPs for the project.
2. BART staff will ensure and Monitor will verify that coverage under the NPDES general permit for stormwater associated with industrial activities is obtained prior to operation.
3. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications include requirements that the contractor follow BMPs for postconstruction water quality protection and BMPs are specified in the SWPPP regarding prevention of pollutant discharges.
4. Monitor will verify implementation of a long-term program to implement all conditions of the NPDES permit and BMPs specified in the SWPPP and to monitor and maintain water quality design features as necessary for the life of the Project.

Biological Resources

Impact BIO3. Permanent loss of wetland habitat. (2003 SEIR.)

Mitigation Measure BIO3: Restore, create, and protect wetland habitat to mitigate loss of wetland habitat.

1. To ensure that implementation of the Project results in no net loss of wetland habitat functions and values, BART will compensate for the loss of wetland habitat at Tule Pond South and south of the Warm Springs Station site through a combination of onsite restoration/creation and offsite protection and enhancement of at least 0.79 acre of wetland habitat. The size and location(s) of the area(s) to be restored/created will be determined based on appropriate mitigation ratios derived in consultation with the Corps. A mitigation plan will be prepared by a wetland biologist experienced in mitigation and restoration. The plan will be implemented under the biologist's guidance. Subject to approval by the Corps, the wetland mitigation plan will address temporary and permanent impacts (temporary impacts are addressed under Impact BIO12). Factors that will be considered in developing an effective mitigation plan in consultation with the Corps include the following.
 - Function and values: Wildlife species, percentage of vegetative cover and/or density, approximate plant height; plant and animal species diversity, root development, and canopy stratification.
 - Hydrological regime: Sources of water, discharge points, areas affected by seasonal flooding, direction of flow, and size of watershed.

Specific measurable criteria for the above factors will be incorporated into the plan in conformance with applicable regulatory requirements and the Corps' Guidelines. Such criteria cannot be specifically identified at this stage, however, because the Corps has not visited the site.

2. Prior to any work that could disturb wetland or creek habitat within the Project corridor, BART will obtain the following permits as required.
 - U.S. Army Corps of Engineers – Nationwide or individual permit as required under Clean Water Act Section 404.
 - San Francisco Bay Regional Water Quality Control Board – Water quality certification or waiver under Clean Water Act Section 401.
 - California Department of Fish and Game – Streambed Alteration Agreement.

Consultation with these agencies will govern how the disturbance of wetland and creek habitats will be mitigated.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications incorporate the above requirements to mitigate impacts to wetlands.
2. BART staff will ensure and Monitor will verify that a wetland mitigation plan, which addresses the appropriate functions, values and hydrological regime, has been prepared by a wetland biologist experienced in mitigation and restoration.
3. BART staff will ensure and Monitor will verify that the appropriate agency permits have been obtained prior to construction at the location of the impact.
4. Monitor will verify implementation of the wetland mitigation plan.

Impact BIO4. Loss of riparian forest habitat. (2003 SEIR.)

Mitigation Measure BIO4: Enhance, recreate, or restore riparian forest to compensate for the loss of riparian forest habitat.

1. BART will compensate for the permanent loss of riparian forest habitat at Tule Pond South and east of Mission Creek through onsite restoration/creation of 0.5 acre of forested riparian habitat west of the existing Tule Pond South site and east of Mission Creek. Compensation will be provided at a minimum ratio of 1:1 (1 acre restored or created for every acre removed). Restoration activities will occur after construction; native species are planted where appropriate.
2. BART will retain a qualified restoration ecologist to develop a conceptual restoration and monitoring plan that describes how riparian habitat will be enhanced or recreated and monitored over a minimum period of time. BART will be responsible for ensuring that the restoration and monitoring plan is implemented.
3. After restoration and revegetation are completed, monitoring will be conducted for a minimum of 5 years to ensure that the success criteria identified below are met and to identify any necessary remedial actions. The revegetation/restoration plan for riparian habitats will be considered successful when the following criteria are met.

- ❑ The restored site is composed of a mix of species similar to that removed during the construction activity; native species are planted where appropriate.
- ❑ The restored site has at least 75% of the absolute cover of native vegetation present in areas immediately adjacent to the construction corridor.
- ❑ Plantings are self-sustaining without human support (e.g., weed control, rodent and deer control, irrigation).
- ❑ Functions and values of the restored habitat are comparable to those of adjacent undisturbed riparian habitat.

Remedial action will be required if any of the above criteria are not met during the monitoring period. The purpose of the remedial action will be to ensure that the above criteria are met.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications incorporate the above requirements to mitigate impacts to riparian forest habitat.
2. BART staff will ensure and Monitor will verify compensation will be provided at a minimum ratio of 1:1 (1 acre restored or created for every acre removed) and that restoration activities will occur after construction.
3. BART will ensure development of a conceptual restoration and monitoring plan.
4. BART staff will ensure and Monitor will verify that the appropriate agency permits have been obtained prior to construction at the location of the impact.
5. Monitor will verify implementation of the restoration plan and the continued monitoring for 5 years after restoration and revegetation are completed.

Impact BIO5. Disturbance or loss of potential habitat for California red-legged frog (CRLF) habitat. (2003 SEIR.)

Jones & Stokes biologists conducted protocol-level surveys for this species in the above areas. Jones & Stokes has prepared a California red-legged frog site assessment for the Project and has engaged in informal consultation with the US Fish and Wildlife Service (USFWS). This report will be submitted to the US Army Corps of Engineers (Corps) in accordance with the 404 permitting process. BART will request concurrence that the Project will not adversely impact California red-legged frog.

However, if the Corps, in conjunction with USFWS, determines that the Project has potential to affect CRLF, the following mitigation measures, in addition to all other conditions stipulated by USFWS, will be implemented to reduce this impact to a less-than-significant level.

Mitigation Measure BIO5(a): Avoid and minimize impacts to California red-legged frog habitat.

1. Prior to the initial site investigation and subsequent ground-disturbing activities, a qualified biologist will provide worker awareness training to all project personnel in recognition of California red-legged frog and its habitat.
2. A qualified biologist will conduct pre-construction surveys within the project area no earlier than 2 days before ground-disturbing activities.
3. No activities will occur after October 15 or the onset of the rainy season, whichever occurs first, until May 1, except for during periods greater than 72 hours without precipitation. Activities can only resume after site inspection by a qualified biologist. The rainy season is defined as “a frontal system that results in depositing 0.25 inches or more of precipitation in one event.”
4. Vehicles to and from the project site will be confined to existing roadways to minimize disturbance of habitat.
5. Prior to movement of heavy equipment in the project area, a qualified biologist will verify that the route is clear of California red-legged frogs.
6. If a California red-legged frog is encountered during excavations or any project activities, activity will cease until the frog is removed and relocated by a USFWS-approved biologist. Any incidental take will be reported to USFWS immediately by telephone.
7. If suitable wetland habitat is disturbed or removed, BART will restore the suitable habitat back to its original value by covering bare areas with mulch and revegetating all cleared areas with wetland species that are currently found in the project area.

Mitigation Measure BIO5(b):

1. Compensate for permanent removal of California red-legged frog habitat through protection or enhancement of California red-legged frog habitat.
2. Any permanent removal of habitat identified by USFWS as suitable to support California red-legged frog will be mitigated through protection of suitable California red-legged frog habitat elsewhere, at a 3:1 ratio. The location and size of the compensation habitat will be determined through consultation with USFWS.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications incorporate the above requirements and mitigation measures to reduce impacts to red-legged frog habitat adjacent to the construction corridor.
2. If red-legged frogs are found, BART staff will ensure and Monitor will verify that a qualified biologist will provide worker awareness training to all project personnel in recognition of California red-legged frog and its habitat, and that pre-construction surveys within the project area are performed no earlier than 2 days before ground-disturbing activities.
3. If red-legged frogs are found, BART staff will ensure and Monitor will verify that no activities will occur after October 15 or the onset of the rainy season, except as described above.
4. If red-legged frogs are found, Monitor will verify on-site that vehicles are confined to existing roadways, and a qualified biologist will verify that the route is clear of California red-legged frogs, and that if a California red-legged frog is encountered during excavations or any project activities, activity will cease until the frog is removed and relocated by a USFWS-approved biologist. Monitor will verify report of any incidental take to USFWS immediately by telephone.
5. If red-legged frogs are found, BART staff will ensure and Monitor will verify that suitable habitat is restored if habitat is removed or disturbed.
6. If red-legged frogs are found, BART staff will ensure and Monitor will verify that any permanent removal of red-legged frog habitat is mitigated per consultation with the USFWS.

Impact BIO6. Loss of occupied Western Burrowing Owl habitat and direct impacts on Western Burrowing Owls. (2003 SEIR.)

Mitigation Measure BIO6: Implement on- and offsite replacement of Western Burrowing Owl habitat.

1. BART will ensure that the loss of Western Burrowing Owl habitat in the Project corridor is compensated by the provision of replacement habitat either on-site or offsite. Habitat replacement will be based on a biological analysis of the requirements of the owls at this site, or CDFG-approved guidelines (California Department of Fish and Game 1995).
2. Location of the compensation habitat will be identified in conjunction with CDFG through a mitigation agreement. Compensation habitat may be located either on-site or off-site, depending on approval from CDFG. If necessary, BART will construct two artificial burrows for each occupied burrow lost or rendered unsuitable as a result of construction activities. BART will retain a qualified biologist to build and monitor the

artificial burrows. BART will ensure that the mitigation habitat (including artificial burrows) is maintained for owls in perpetuity.

Monitoring:

1. BART staff will ensure and Monitor will verify that the loss of Western Burrowing Owl habitat in the Project corridor is compensated per the requirements of CDFG.

Impact BIO9. Removal of trees. (2003 SEIR.)

Mitigation Measure BIO9(a): Conduct a tree survey to assess tree resources impacted by the Project.

1. BART will retain a certified arborist to conduct a tree survey of the Project corridor, including potential contractor laydown areas, and identify and evaluate trees, including any landmark trees as identified by the City of Fremont, that will be removed. If the arborist's survey does not identify any protected trees or known landmark trees that would be removed or damaged as a result of the Project, no further mitigation is necessary. However, if the Project would remove or damage any tree(s), Mitigation Measure BIO9(b) as described below will also be implemented.

Mitigation Measure BIO9(b): Compensate for removal of protected trees.

1. For any tree with a trunk diameter in excess of 4 inches measured at 4 feet above ground level that is removed as a result of the Project, BART will ensure that replacement trees are planted in the Project corridor. At a minimum, each removed tree that meets the 4-inch size standard will be replaced with either (i) one replacement tree of 24-inch box size, or (ii) three replacement trees of 15-gallon size. Replacement trees will belong to a native species such as coast live oak (*Quercus agrifolia*), California buckeye (*Aesculus californica*), California bay laurel (*Umbellularia californica*), or other appropriate species native to the Fremont area or similar to the mix of species removed during construction activity. Trees will be planted in close proximity to removal sites, in locations suitable for the replacement species. Selection of replacement sites and installation of replacement plantings will be supervised by a qualified botanist. Newly planted trees will be monitored by a qualified botanist at least once a year for 5 years. Each year, any trees that do not survive will be replaced. Any trees planted as remediation for failed plantings will be planted as stipulated here for original plantings, and will be monitored for a period of 5 years following installation. Tree replacement will occur after project construction.

Monitoring:

1. BART staff will ensure and Monitor will verify that a tree survey is conducted by a certified arborist, including identification of landmark trees.
2. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require that replacement trees be planted to compensate for removal of any tree with a trunk diameter in excess of 4 inches measured at 4 feet above ground level within the project corridor.
3. Monitor will verify in the field that the tree replacement plan is implemented.

Land Use and Planning

No operational mitigation measures were identified.

Population, Employment, and Housing

Impact POP3. Displacement of existing businesses or housing, especially affordable housing. (2003 SEIR.)

Mitigation Measure POP3: Acquire property and relocate residences and businesses.

1. BART's Real Estate Services Department will implement an acquisition and relocation program that meets the requirements of applicable state and federal acquisition and relocation laws. Acquisition will involve compensation at fair market value for properties, and relocation assistance would include, but is not limited to, down payments or rental supplements, moving costs, business reestablishment reimbursement, and goodwill offers as appropriate. All benefits will be provided in accordance with the Federal Uniform Relocation and Real Properties Acquisition Policies Act, and applicable state law.

Monitoring:

1. BART staff will ensure that the acquisition and relocation program is implemented prior to commencement of the project.
2. BART Real Estate Services Department will acquire the property, relocate affected business owners, and/or tenants in accordance with applicable federal and state laws and regulations. Acquisition and relocation activities will be audited as required by FTA and Caltrans.

3. Monitor will verify directly or through auditors that all applicable laws and regulations were followed for all relocations.

Aesthetics

Impact A1. Reconfiguration of Tule Pond, resulting in change of a well-defined landscape feature. (2003 SEIR.)

Mitigation Measure A1: Protect and replace vegetation near Tule Pond.

BART will implement the following mitigation actions to reduce the impacts of vegetation removal and reconfiguration of portions of Tule Pond.

1. Minimize vegetation loss and replace vegetation lost during construction. Install measures to protect the portions of Tule Pond that will be preserved as outlined in biological mitigation measures below.
2. Add plantings to screen views of the embankment south of Walnut Avenue. On completion of the project, BART's contractors will stabilize exposed slopes with hydro-seeding or other planting methods, and reestablish wetland banks with appropriate plantings to encourage the reestablishment of currently existing vegetation types.
3. Ensure that all landscaping plans are consistent with the existing vegetation of the area. A qualified landscape architect retained by BART's contractors will approve all landscaping plans for the area.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications include requirements to minimize vegetation loss, add plantings to screen views, and landscape plans are prepared by a qualified landscape architect.
2. Monitor will verify in the field that mitigation actions, as described above, are implemented.

Impact A3. Potential adverse effects on visual quality and character of Fremont Central Park from proposed ventilation structures. (2003 SEIR.)

Mitigation Measure A3: Implement measures to conceal the ventilation structures.

1. In designing and placing ventilation structures in Fremont Central Park, BART will implement the following mitigation measures.
 - Coordinate with the City of Fremont in developing criteria for design of the structures to be placed in the park. BART will ensure that the final designs of the structures and the plantings will be consistent with

visual resources of the immediate project vicinity, including park maintenance facilities and landscaping.

- Use surface treatments forms, textures, and colors that reflect Fremont's architectural character and that help blend the ventilation structures and ancillary equipment into the surroundings.
- Establish plantings (e.g., trees and shrubs) along the edges of buildings and any fencing. The plantings will be consistent with the character of existing vegetation in the park.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications include requirements to incorporate architectural and landscaping design and aesthetic treatments.
2. BART staff will ensure and Monitor will verify that the City of Fremont has been consulted in developing design criteria and that the final design is consistent with visual resources in the project vicinity.
3. Monitor will verify in the field that all architectural and landscaping design and aesthetic mitigation measures are implemented, as described above.

Impact A4. Introduction of new elements associated with the proposed Warm Springs Station. (2003 SEIR.)

Mitigation Measure A4: Ensure design of proposed Warm Springs Station is consistent with existing environment.

1. In developing detailed architectural and landscape plans for the proposed Warm Springs Station, BART will take the following steps.
 - Design the proposed Warm Springs Station so that it is compatible with the scale and massing of other buildings in the surrounding environment, including the commercial facilities to the north and the light industrial uses to the north and south.
 - Provide landscaping within the parking areas to visually interrupt the expanses of paving, provide shade, provide protected circulation areas for pedestrians, and minimize glare from parked automobiles.
 - Plant trees and plantings to function as wayfinding elements in conjunction with lighting.
 - Ensure all plantings are xeric/drought-tolerant and located to maximize the likelihood of sustainability (i.e., taking into account soil, drainage, sun/shadow).

- ❑ Provide artificial lighting to accommodate pedestrians and bicyclists as well as vehicles, and install it in a manner that minimizes spillover light.
- ❑ Consult with the City of Fremont regarding the design of the Warm Springs Station, including consideration of city comments developed through voluntary participation in informal design review meetings prior to finalization of the station plans.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications include all requirements to incorporate architectural, landscaping design, and aesthetic treatments.
2. BART staff will ensure and Monitor will verify that the City of Fremont has been consulted regarding the design of the Warm Springs Station as described above.
3. Monitor will verify in the field that all architectural, landscaping design, and aesthetic treatments are implemented.

Impact A5. Potential visual impacts due to soundwalls. (2003 SEIR.)**Preferred Mitigation Measure A5(i):** Screen views of soundwalls with landscaping.

1. Where right-of-way widths allow, BART will provide xeric/drought-tolerant landscaping (e.g., trees, vines and/or shrubs) to screen views of soundwalls where significant visual impacts occur. Landscaping would generally reduce visual impacts associated with proposed soundwalls to a less-than-significant level. However, in certain cases the resulting visual impacts may still be significant.

Alternative Mitigation Measure A5(ii): Provide surface treatments.

1. If the right-of-way width is insufficient to permit landscaping, an alternative mitigation will be implemented whereby the outside of the walls (residential side) will be designed with a surface treatment that is compatible with the surrounding residential architecture. In some cases, for example, where surface treatment is used rather than landscaping or where soundwalls are placed on top of berms, resulting visual impacts may still be significant.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications include requirements to incorporate landscaping treatments to screen views of soundwalls.

BART staff will evaluate whether alternative mitigation is needed to implement surface treatments.

2. Monitor will verify in the field that all landscaping design and surface treatments as necessary are implemented.

Impact A7. Introduction of new elements or demolition of existing structures in area of optional Irvington Station. (2003 SEIR.)

Mitigation Measure A7(a): Ensure design of an optional Irvington Station is consistent with existing environment.

In developing detailed architectural and landscape plans for the optional Irvington Station, BART will take the following steps.

1. Design the optional Irvington Station so that it is compatible with the scale and massing of other buildings in the surrounding environment. Provide landscaping within the parking areas to visually interrupt the expanses of paving, provide shade, provide protected circulation areas for pedestrians, and minimize glare from parked automobiles.
2. Plant trees and plantings to function as wayfinding elements in conjunction with lighting.
3. Ensure all plantings are xeric/drought-tolerant and are located to maximize the likelihood of sustainability (i.e., taking into account soil, drainage, sun/shadow, etc. considerations).
4. Provide artificial lighting to accommodate pedestrians and bicyclists as well as vehicles, and install it in a manner that minimizes spillover light.
5. Consult with the City of Fremont regarding the design of the optional Irvington Station, including consideration of city comments developed through voluntary participation in informal design review meetings prior to finalization of the station plans.

Mitigation Measure A7(b): Incorporate Gallegos Winery site into design of optional Irvington Station. In developing detailed architectural and landscape plans for the optional Irvington Station, BART will take the following mitigation measures.

1. BART will work with the City of Fremont to ensure that the final designs are consistent with the city's goals for preserving the Gallegos Winery ruins.
2. The design and layout of the parking lot area east of Osgood Road will be designed so as to avoid physical encroachment on the Gallegos Winery ruins.
3. BART will work with the City of Fremont to develop design guidelines to ensure the final landscaping/plantings design of the parking lot and near

the Gallegos Winery ruins are consistent with the visual resources of the immediate project vicinity.

4. Artificial lighting will be installed in a manner that minimizes spillover light, using such design features as capping, shielding, and ground-level bollards.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications include design guideline requirements related to developing detailed architectural and landscape plans for the optional Irvington Station.
2. BART staff will ensure and Monitor will verify that the City of Fremont has been consulted regarding the design of the optional Irvington Station and the treatment of the Gallegos Winery ruins as described above.
3. Monitor will verify in the field that all architectural, landscaping design, and aesthetic treatments are implemented.

Cultural Resources

Impact CR2. Potential for substantial adverse change in the significance of archaeological resources: site CA-Ala-343. (2003 SEIR.)

Mitigation Measure CR2(a): Conduct subsurface testing to assess and minimize potential impacts on prehistoric and historic archaeological resources at CA-Ala-343 and vicinity.

1. To establish the presence or absence and the integrity of CA-Ala-343 deposits in the project area, BART will ensure that a focused subsurface testing program is designed and implemented in areas south of Tule Pond and north of Stevenson Boulevard that have not previously been subject to subsurface archaeological investigations. BART will retain qualified archaeologists to conduct the investigation, which will follow standard professional practice for the evaluation of cultural resources. Before the investigation begins, a work plan will be prepared, including Native American protocols for the project, a research design, and methods of conducting the study.
2. Following test excavations, a technical report will be prepared to document the results of the investigation. The technical report will be submitted to BART and also placed on file at the Northwest Information Center of the California Historical Resources Information System at Sonoma State University. If significant archaeological deposits are discovered, the report will define the Project's expected impacts and present specific recommendations for subsequent actions. Consideration

will be given to preserving significant archaeological deposits in the project area by avoiding the deposits or otherwise protect them from impacts, if feasible. If preservation alternatives are not possible or feasible, the following additional mitigation measure will be required to reduce significant impacts to less than significant.

Mitigation Measure CR2(b): Conduct data recovery for CA-Ala-343 and vicinity.

If historically significant archaeological deposits that cannot be avoided or otherwise protected are found within the Project area, BART will ensure that data recovery is implemented by qualified archaeologists in accordance with standard professional practices. If archaeological deposits that indicate the presence or probable likelihood of Native American human remains are discovered, the data recovery plan will be prepared and implemented in consultation with appropriate representatives of the Native American community. The objective of archaeological data recovery will be to adequately recover the scientifically consequential information from and about the historical resource. The results of the study will be deposited with the California Historical Resources Regional Information Center.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications include the above requirements for archaeological testing.
2. BART staff will ensure and Monitor will verify that a qualified archaeologist is retained to prepare a cultural resources work plan, including Native American protocols.
3. BART staff will ensure and Monitor will verify that a technical report is submitted to BART and to the California Historical Resources Information System at Sonoma State University.
4. If historically significant archaeological deposits cannot be avoided or otherwise protected, BART staff will ensure and Monitor will verify that data recovery is implemented by qualified archaeologists in accordance with standard professional practices.

Impact CR3. Potential for disturbance of previously unknown cultural deposits or human remains during ground-disturbing activities. (2003 SEIR.)

Mitigation Measure CR3: Stop work if buried cultural deposits are encountered during construction activities.

1. If buried cultural resources such as chipped or ground stone, quantities of bone or shell material, or historic debris or building foundations are inadvertently discovered during ground-disturbing activities, the construction contractor will ensure that work is stopped within a 100-foot radius of the find until a qualified archaeologist can assess the

significance of the find. If, after evaluation by a qualified archaeologist, an archaeological site or other find is identified as meeting the criteria for inclusion in the NRHP or the CRHR, BART will ensure that a qualified archaeologist is retained to develop and implement an adequate program for investigation, avoidance if feasible, and data recovery for the site, with Native American consultation, if appropriate.

2. If human skeletal remains are inadvertently encountered during construction of the Project, the contractor will contact the Alameda County Coroner immediately. If the County Coroner determines that the remains are Native American, s/he will contact the NAHC, as required by Section 7050.5[c] of the California Health and Safety Code, and the County Coordinator of Indian Affairs. A qualified archaeologist will also be contacted immediately.

Monitoring:

1. If any archaeological remains are discovered during construction, BART staff will enforce the requirement for ceasing work in the vicinity pending an evaluation of the nature and significance of the materials found.
2. BART staff will ensure and Monitor will verify that, if an archeological site is identified, BART will retain a qualified archeologist to develop and implement a program for investigation and avoidance, if feasible.
3. BART staff will contact the Alameda County Coroner, if skeletal remains are found.
4. Monitor will verify in the field that the requirements of the plan are being implemented.

Impact CR6. Potential substantial adverse change in the significance of archaeological resources as a result of optional Irvington Station: Gallegos Winery. (2003 SEIR.)

Mitigation Measure CR6(a): Conduct subsurface archaeological testing to evaluate and minimize impacts on the Gallegos Winery if optional Irvington Station is constructed.

1. To establish the presence or absence and the integrity of archaeological deposits associated with the Gallegos Winery, BART will ensure that a focused subsurface testing program is designed and implemented for the Irvington Station study area (including the parking facility and a 15-foot surrounding buffer zone). BART will retain qualified archaeologists to conduct the investigation, which will follow standard professional practice for the evaluation of historical archaeological resources. Before the investigation begins, a work plan will be prepared, including a research design and methods for conducting the study, including a delineation of the anticipated extent of subsurface remains in the proposed project area.

2. Following test excavations, a technical report will be prepared to document the results of the investigation. The technical report will be submitted to BART and also placed on file at the Northwest Information Center of the California Historical Resources Information System at Sonoma State University. If significant archaeological deposits are discovered, the report will define the Project's expected impacts and present specific recommendations for subsequent actions. Consideration will be given to preserving significant archaeological deposits in the project area by avoiding the deposits or otherwise protect them from impacts, if feasible. If preservation alternatives are not possible or feasible, the following additional mitigation measure will be required to reduce significant impacts to a less-than-significant level.

Mitigation Measure CR6(b): Conduct data recovery in the Gallegos Winery study area.

1. If historically significant archaeological deposits that cannot be avoided or otherwise protected are found within the optional Irvington Station and parking facility area, BART will ensure that data recovery is implemented by qualified archaeologists in accordance with standard professional practices. The objective of archaeological data recovery will be to adequately recover the scientifically consequential information from and about the historical resource. The results of the study will be identified, catalogued, and deposited with the California Historical Resources Regional Information Center.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications include the above requirements for subsurface archaeological testing for archaeological resources for Gallegos Winery site.
2. BART staff will ensure and Monitor will verify that a technical report is placed on file at the Northwest Information Center of the California Historical Resources Information System.
3. If data recovery is necessary as described above, BART staff will ensure and Monitor will verify that it is implemented by qualified archaeologists in accordance with standard professional practices, as described above.

Utilities

No operational utilities mitigation measures identified. (See utilities under construction.)

Safety and Security

Impact 10A. Increased demand for police and fire services. (1992 EIR.)

Mitigation 10A: Reduce demand for police and fire services. (1992 EIR.)

1. Apply provisions of BART's System Safety Plan and Emergency Response Plan.
2. Expand BART's Police force and Safety Department staff or other security measures as necessary.
3. Provide additional training and coordination with the Fremont Fire Department.
4. The Fremont Fire Department would be given the opportunity to comment on the engineering plans for the extension project as they are developed, and BART's Safety engineers would review the fire department's recommendation for design modifications that would further BART's system safety goals.

Monitoring:

1. BART staff will ensure and Monitor will verify that BART System Safety Plan and Emergency Response Plan have been applied.
2. BART staff will ensure and Monitor will verify that BART Police services or other security measures have been expanded to serve the Warm Springs Extension as necessary.
3. Monitor will check with appropriate BART departments and local jurisdictions to verify that satisfactory briefing regarding services has occurred before operation of revenue service.
4. BART staff will ensure and Monitor will verify that the Fremont Fire Department has been given an opportunity to review and comment on construction plans.

Transportation

Mitigation of Intersection Impacts

Impacts on intersections are based upon the modeling of traffic in 2010 and 2025 under different circumstances: (i) with and without the optional Irvington Station; and (ii) with and without the cumulative effects on traffic of the Project together with the Silicon Valley Rapid Transit Corridor (SVRTC) project, if that project is adopted.

Accordingly, the need for intersection improvements identified as mitigation measures will depend on the circumstances as indicated below.

A. The following mitigation measures TRN5 and TRN6 will be implemented, whether or not the optional Irvington Station or the SVRTC project is constructed.

Impacts TRN5, TRN 9, TRN 12, TRN17, TRN-Cume2 and TRN-Cume4.
Changes in V/C and LOS at the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway. (2003 SEIR.)

Mitigation Measure TRN5: Improve V/C and LOS at the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway.

The intersection operations could be improved to an acceptable V/C ratio and LOS with the conversion of an eastbound through lane to a shared right-turn/through lane (to create another right-turn lane). This measure could be accommodated within the existing right-of-way, although the southernmost eastbound through lane would need to be restriped to accommodate the measure. Although not achieving the goal of a V/C ratio of 0.85, the measure would result in LOS D operations, which reduce the impact to a less-than-significant level.

Monitoring:

1. BART staff will coordinate with the City of Fremont to implement appropriate intersection modifications as described above. These improvements will be carried out with the cooperation and approval of the City of Fremont.
2. If the improvements are constructed by the city, BART staff will ensure and Monitor will verify that BART contributes its fair share of the actual cost of the improvements, based on the proportional share of BART-generated traffic volume as a percentage of the total traffic volume at the intersection.
3. If improvements are constructed by the contractor, BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications include the intersection modifications required to implement the mitigation measures.
4. Monitor will contact the City of Fremont and verify the status of improvements.
5. Monitor will verify in the field that the BART contractor is constructing the intersection modifications according to the construction plans.

Impacts TRN6, TRN10, TRN13, TRN18, TRN-Cume3 and TRN-Cume5.
Changes in V/C and LOS at the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard. (2003 SEIR.)

Mitigation Measure TRN6: Improve V/C and LOS at the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard.

The intersection operations could be improved to an acceptable V/C ratio and LOS with the addition of a second northbound left-turn lane, a second eastbound left-turn lane, and an exclusive eastbound right-turn lane, and conversion of the northbound right-turn lane to a shared right-turn/through lane. The mitigation for the northbound approach could be accommodated within the existing right-of-way. With the conversion of the northbound right-turn lane to a shared right-turn/through lane, a second left-turn lane could be accommodated. The northbound approach would need to be restriped. To accommodate the mitigation for the eastbound approach, right-of-way would need to be acquired on the south side of Grimmer Boulevard. The west leg of the intersection would need to be restriped to accommodate the second eastbound left-turn lane and the exclusive eastbound right-turn lane.

Monitoring:

1. BART staff will coordinate with the City of Fremont to implement appropriate intersection modifications as described above. These improvements will be carried out with the cooperation and approval of the City of Fremont.
2. If the improvements are constructed by the city, BART staff will ensure and Monitor will verify that BART contributes its fair share of the actual cost of the improvements, based on the proportional share of BART-generated traffic volume as a percentage of the total traffic volume at the intersection.
3. If improvements are constructed by the contractor, BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications include the intersection modifications required to implement the mitigation measures.
4. Monitor will contact the City of Fremont and verify the status of improvements.
5. Monitor will verify in the field that the BART contractor is constructing the intersection modifications according to the construction plans.

B. If the optional Irvington Station is constructed, the following additional mitigation measure TRN15 will be implemented, whether or not the SVRTC project is constructed.

Impacts TRN15 and TRN-Cume7. Change in V/C and LOS at the intersection of Osgood Road/Driscoll Road/Washington Boulevard. (2003 SEIR.)

Mitigation Measure TRN15: Improve V/C and LOS at the intersection of Osgood Road/Driscoll Road/Washington Boulevard.

The intersection operations could be improved to an acceptable V/C ratio and LOS with the conversion of the second southbound left lane to a third through lane, conversion of the southbound right-turn lane to a shared through/right-turn lane (to create four southbound through lanes), and conversion of a westbound left-turn lane to a shared left-turn/through lane (creating two westbound left turn lanes). The proposed changes to the southbound and westbound approaches could be accommodated within the existing right-of-way, although the approaches would need to be restriped. This measure would require widening the west side of Osgood Road along the BART frontage to accommodate four southbound receiving lanes.

Monitoring:

1. BART staff will coordinate with the City of Fremont to implement appropriate intersection modifications as described above. These improvements will be carried out with the cooperation and approval of the City of Fremont.
2. If the improvements are constructed by the city, BART staff will ensure and Monitor will verify that BART contributes its fair share of the actual cost of the improvements, based on the proportional share of BART-generated traffic volume as a percentage of the total traffic volume at the intersection.
3. If improvements are constructed by the contractor, BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications include the intersection modifications required to implement the mitigation measures.
4. Monitor will contact the City of Fremont and verify the status of improvements.
5. Monitor will verify in the field that the BART contractor is constructing the intersection modifications according to the construction plans.

Mitigation of Parking Impacts

Impacts on parking are based upon the modeling of traffic in 2010 and 2025 under different circumstances: (i) with and without the optional Irvington Station; and (ii) with and without the cumulative effects on traffic of the Project together with the Silicon Valley Rapid Transit Corridor (SVRTC) project, if that project is adopted.

Accordingly, the need for additional parking identified in mitigation measures will depend on the circumstances as indicated below. In addition, although spillover parking is not expected to be significant, a parking monitoring program has been included to ensure that parking activity is monitored and that additional mitigation will be undertaken if a significant parking spillover impact is identified.

- A. If neither the optional Irvington Station nor the SVRTC project has commenced construction by 2010, the following mitigation measure will be implemented.**

Impacts TRN-23. Reduced parking supply at the Fremont station resulting in spillover into residential or commercial areas (2003 SEIR).

Mitigation Measure TRN23: Provide additional parking at the Warm Springs Station and implement parking monitoring program at the Fremont and Warm Springs Stations.

(A) If neither the Irvington Station nor SVRTC has commenced construction by 2010, BART will provide an additional 170 parking spaces at the Warm Springs Station.

(B) To determine whether substantial spillover parking occurs, BART will institute a monitoring program on streets adjacent to the Fremont and Warm Springs Stations. A baseline survey of parking conditions in the vicinity of the stations will be conducted prior to commencement of the Project. The baseline survey will establish parking conditions in the vicinity of the station during weekday morning hours. Monitoring will be conducted during the first six months of operation of the Project to verify if spillover parking is occurring. Such monitoring will be based on field surveys and any complaints received by BART and local parking authorities. After the first six months of operation of the station, BART Community Relations staff will respond to parking complaints and BART will investigate such complaints to verify parking concerns.

If a parking spillover problem is confirmed by this monitoring, BART staff will assist the City of Fremont in implementing a parking management program. The program will incorporate appropriate parking control measures based on BART's Parking Management Toolkit. The Toolkit identifies a detailed process for understanding local parking issues, evaluating parking conflicts, and implementing specific parking control measures. These measures could include time limits and time-based restrictions, increased enforcement, or parking fees. The parking management program would be implemented by the City of Fremont. BART staff will assist the city to ensure that the parking control measures, adapted as appropriate for site-specific conditions, are implemented and are achieving the necessary effect. BART staff would also continue discussions as necessary with the city to help adjust any parking control measures in response to issues that may arise during implementation of such measures.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications, include requirements to provide additional parking spaces as described above.
2. BART staff will ensure and Monitor will verify that a baseline survey of parking conditions and monitoring during the first six months of operation of the Project are conducted on streets in the vicinity of the Fremont and Warm Springs Stations as described above. BART staff or a consultant will perform the survey and monitoring.

3. If spillover parking is identified as a problem, BART staff will ensure and Monitor will verify that the Parking Management Toolkit is made available to the City of Fremont and will provide assistance in implementation of the site-specific measures.
4. Monitor will verify coordination with the City of Fremont.

B. If the optional Irvington Station is constructed, the following mitigation measure TRN24 and TRN-Cume9 will be implemented, whether or not the SVRTC project is constructed.

Impacts TRN-24 and TRN-Cume9. Reduced parking supply at the Fremont and Irvington Stations resulting in spillover into residential or commercial areas (2003 SEIR).

Mitigation Measures TRN24 and TRN-Cume9: Implement parking monitoring program at the Fremont and Irvington Stations.

If the optional Irvington Station is constructed, to determine whether substantial spillover parking occurs, BART will institute a monitoring program on streets adjacent to the Fremont and Irvington Stations and, if necessary, provide parking management assistance as described above in Mitigation Measure TRN23, part (B).

Monitoring:

1. BART staff will ensure and Monitor will verify that a baseline survey of parking conditions and monitoring during the first six months of operation of the Project are conducted on streets in the vicinity of the Fremont and Irvington Stations as described under Mitigation Measure TRN23, part (B). BART staff or a consultant will perform the survey and monitoring.
2. If spillover parking is identified as a problem, BART staff will ensure and Monitor will verify that the Parking Management Toolkit is made available to the City of Fremont and will provide assistance in implementation of the site-specific measures.
3. Monitor will verify coordination with the City of Fremont.

C. If the SVRTC project has commenced construction by 2010 but the Irvington Station has not, the following mitigation measure TRN-Cume 8 will be implemented.

Impacts TRN-Cume8. Cumulative contribution to reduced parking supply at the Fremont station resulting in spillover into residential or commercial areas (2003 SEIR).

Mitigation Measure TRN-Cume8 – Provide additional parking and implement parking monitoring program at the Fremont Station.

1. If SVRTC has commenced construction by 2010 but the Irvington Station has not, BART will provide an additional 120 parking spaces at the Warm Springs Station.
2. To determine whether substantial spillover parking occurs, BART will institute a monitoring program on streets adjacent to the Fremont Station and, if necessary, will provide parking management assistance, as above described in Mitigation Measure TRN23, part (B).

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications, include requirements to provide additional parking spaces as described above.
2. BART staff will ensure and Monitor will verify that a baseline survey of parking conditions and monitoring during the first six months of operation of the Project are conducted on streets in the vicinity of the Fremont Station as described under Mitigation Measure TRN23, part (B). BART staff or a consultant will perform the survey and monitoring.
3. If spillover parking is identified as a problem, BART staff will ensure and Monitor will verify that the Parking Management Toolkit is made available to the City of Fremont and will provide assistance in implementation of the site-specific measures.
4. Monitor will verify coordination with the City of Fremont.

Noise and Vibration

Impact N1, N-Cume1. Exposure of noise-sensitive land uses to noise from BART trains in the Project corridor. (2003 SEIR.)

Mitigation Measure N1: Implement noise-reducing measures at noise-sensitive land uses in the Project corridor.

BART will design and implement noise-reducing measures such that noise from train operations does not exceed the operational noise limits listed in Table 3.10-3 in the SEIR. The measures may include but are not limited to the following.

1. Noise Barriers – Construction of barriers is a common approach to reducing noise impacts from surface transportation sources. The primary requirements for an effective noise barrier are that (1) the barrier must be high enough and long enough to break the line-of-sight between the sound source and the receiver; (2) the barrier must be of an impervious material with a minimum surface density of 4 lb/sq. ft.; and (3) the barrier must not have any gaps or holes between the panels or at the bottom. Because numerous materials meet these requirements, the selection of

materials for noise barriers is usually dictated by aesthetics, durability, cost, and maintenance considerations. Depending on the proximity of the barrier to the tracks and on the track elevation, transit system noise barriers typically range in height from between 4 and 8 feet. Where implementation of all feasible exterior noise mitigation does not reduce noise below the thresholds identified in Tables 3.10-3 and 3.10-4 in the DSEIR, implementation of interior noise-mitigation measures to reduce interior noise to less than 45 dB-Ldn is considered adequate to mitigate noise impacts to a less than significant level.

2. Building Sound Insulation – Sound insulation of residences and institutional buildings to improve the outdoor-to-indoor noise reduction has been widely applied around airports and has seen limited application for transit projects. Although this approach has no effect on noise in exterior areas, it may be the best choice for sites where noise barriers are not feasible or desirable, and for buildings where indoor sensitivity is of greatest concern. Substantial improvements in building sound insulation (on the order of 5 to 10 dBA) can often be achieved by adding an extra layer of glazing to the windows, by sealing any holes in exterior surfaces that act as sound leaks, and by providing forced ventilation and air-conditioning so that windows do not need to be opened.

Where implementation of all feasible exterior noise mitigation does not reduce noise below the thresholds identified in Tables 3.10-3 and 3.10-4 in the DSEIR, implementation of interior noise-mitigation measures to reduce interior noise to less than 45 dB-Ldn is considered adequate to mitigate noise impacts to a less than significant level.

3. Special Trackwork at Crossovers – Because the impacts of wheels over rail gaps at track crossover locations increase noise by about 6 dBA, crossovers are a major source of noise impact when they are located in sensitive areas. If crossovers cannot be relocated away from residential areas, another approach is to use spring-rail or moveable point crossovers in place of standard crossovers. These special types of crossovers eliminate the gap in the track caused by crossovers in the main traffic direction, thereby eliminating the additional noise associated with crossovers.
4. For two residences located at 3153 and 3185 Driscoll Road, east of the Project alignment between Paseo Padre Parkway and Washington Boulevard, building acoustical insulation may be required.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require that the contractor implement measures described above to reduce operational noise.

2. Monitor will verify in the field that the contractor is implementing the design features to reduce operational noise according to the plans and specifications.

Impact N2, CR-1. Exposure of vibration-sensitive land uses to groundborne vibration from BART trains. (2003 SEIR.)

Mitigation Measure N2: Implement vibration-reducing measures at vibration-sensitive land uses in the Project corridor.

1. BART will design and implement vibration-reducing measures such that groundborne vibration from train operations does not exceed the operational vibration limits listed in Table 3.10-6 of the SEIR. The measures may include but are not limited to the following.
2. Ballast Mats – Rail trackways consist of ballast and ties. Ballast is the aggregate rock material that lies between the crosspieces of wood or concrete that support the rails. A ballast mat consists of a pad made of rubber or rubber-like material placed on an asphalt or concrete base with the normal ballast, ties, and rail above. The reduction in ground-borne vibration provided by a ballast mat depends strongly on the frequency content of the vibration and on the design and support of the mat. Ballast mats will only work in locations where there is ballast and tie track.
3. Resilient Fasteners and/or Resiliently Supported Ties – A number of resilient fastening systems for reducing vibration are available. However, many resilient fasteners are suitable for direct fixation only and would not work for ballast and tie track. Resilient fasteners reduce the amount of vibration energy that is transferred into the track substructure and are effective in reducing ground-borne vibration in frequencies above 30 Hz.
4. Special Trackwork at Crossovers – Because the impacts of wheels over rail gaps at track crossover locations increases vibration by about 10 dBA, crossovers are a major source of vibration impact when they are located in sensitive areas. If crossovers cannot be relocated away from residential areas, another approach is to use spring-rail or moveable point crossovers instead of standard crossovers. These special types of crossovers eliminate the gap in the track caused by crossovers in the main traffic direction, thereby eliminating the additional vibration associated with crossovers.

Table 3.10-12 of the SEIR indicates the areas along the Project alignment where mitigation would be needed to reduce vibration levels. At a minimum, the installation of ballast mats would be required. However, more extensive measures or a combination of measures may be required to reduce significant impacts to a less-than-significant level at some locations.

Specific implementation of the vibration mitigation measures described above, including details regarding the specific locations and types of mitigation, will be addressed in detail during preliminary engineering and final design. During preliminary engineering and final design, further detail about track and receiver elevation, track location, and other pertinent information will be available. This information will be used to adopt the mitigation measures presented above on a site-specific basis and to allow design at an appropriate level of detail. Implementation of these mitigation measures is expected to reduce significant impacts to a less-than-significant level. However there may be some situations where implementation of all feasible mitigation measures would not reduce the impact to a less-than-significant level. The situations where this could occur will be determined when the detailed vibration mitigation design is developed.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require that the contractor implement measures to reduce operational vibrations, as described above.
2. Monitor will verify in the field that the contractor is implementing the design features to reduce operational vibrations according to the plans and specifications.

Impact N3. Exposure of noise-sensitive land uses to noise from ancillary equipment. (2003 SEIR.)

Mitigation Measure N3: Design and construct electrical substations, vent shafts, and other ancillary facilities to reduce noise.

1. Electrical substations, vent shafts, and other ancillary facilities to reduce noise will be designed so that noise generated by these facilities does not exceed limits specified in Table 3.10-4 in the SEIR. Measures to be employed may include but are not limited to the following.
 - Orient noise-generating components away from noise-sensitive land uses or locating buildings between noise-generating components and noise-sensitive land uses.
 - Use acoustically rated vents to reduce noise.
 - Construct local barriers or enclosures around noise-generating components.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require that the contractor reduce facility noise to or below the BART design criteria.
2. Monitor will verify in the field that the contractor is implementing the design features to reduce facility noise according to the plans and specifications.

Air Quality

No operational mitigation measures were identified.

Energy

No operational mitigation measures were identified.

2.3 Construction Mitigation Measures**Hazards and Hazardous Materials**

Impact HazMat1. Previous uses of the project alignment may have resulted in the release of hazardous materials into the soil or groundwater. Construction may result in exposure of workers or the public to these materials resulting in adverse health effects. (2003 SEIR.)

Impact HazMat2. Potential handling of hazardous materials within 0.25 miles of an existing school. (2003 SEIR.)

Impact HazMat4. Previous uses of the optional Irvington Station area may have resulted in the release of hazardous materials into the soil or groundwater. Construction may result in exposure of workers or the public to these materials resulting in adverse health effects. (2003 SEIR.)

Mitigation Measure HazMat1: Develop a work plan for additional site characterization.

1. BART will retain the services of a Registered Geologist or Professional Engineer to develop a Work Plan for additional sites characterization along portions of the Project alignment where grading, excavation, or dewatering is likely to occur.
2. Construction activity in contaminated areas, including excavation and grading, will be conducted with a site-specific health and safety plan prepared by a qualified professional. The plan will provide safety guidelines, delineation of action levels for personal protective gear, and

emergency response procedures. The plan would be reviewed by all construction workers prior to commencement of construction.

3. To mitigate significant impacts associated with exposure to hazardous materials during construction, BART will develop a soil management plan for approval by the appropriate regulatory agencies. Contaminated solids or groundwater excavated or extracted during construction activities would be managed in accordance with the approved soil management plan and regulatory agency oversight. Remediation of soils could include excavation and on- or off-site treatment/disposal or in-place treatment of the affected soils. Remediation of groundwater could include in-situ treatment or extraction and treatment. Disposal options for contaminated soil and groundwater (i.e., on- or off-site treatment and/or disposal) would depend on the specific chemicals present and the levels of contamination. The steps in such a process include the following.
 - Develop a Work Plan for additional site characterization.
 - Undertake additional soil sampling in areas of known contamination to further define the horizontal and vertical extent of contamination.
 - Conduct groundwater testing in locations where dewatering activities may be required to identify any potential groundwater contamination for water management purposes.
 - Develop and obtain approval of a soil management plan to address proper handling of contaminated materials.
 - Handle contaminated soils in accordance with the approved soil management plan.
 - Construction work with contaminated soils will utilize dust control measures (Mitigation Measure AIR6) and sediment and erosion control measures (Mitigation Measure H7) to prevent exposure to workers, the public, and the environment. Where appropriate, air monitoring will be conducted to measure the effectiveness of the control measures.
 - Manage groundwater discharges in accordance with construction stormwater, pre-treatment, or NPDES permits as appropriate.
 - Document the remediation work for submittal to the local and state agencies overseeing implementation of the soil management plan.
4. If any unidentified contaminated materials are encountered during construction or an accident results in the release of hazardous materials, halt work to ascertain the immediacy and nature of the material. If necessary, clear the area to provide safety to workers and the public. Take measures to isolate the release and determine a course of action for cleanup, treatment, and/or disposal of contaminated materials. Notify

public emergency services and regulatory agencies as appropriate. Prior to construction near the underground fuel pipelines, the exact location of lines should be accurately established (e.g., accurate maps from the owner or operator or geophysical surveys). Potential hazards associated with rupture of the pipelines or discovery of hazardous materials releases from the pipelines should be included in the site health and safety plan.

Monitoring:

1. BART staff will ensure and Monitor will verify that BART retain a Registered Geologist or Professional Engineer to develop a Work Plan for additional sites along portions of the Project alignment where grading, excavation, or dewatering is likely to occur.
2. BART staff to ensure and Monitor to verify that construction activity in contaminated areas is conducted with a site-specific health and safety plan prepared by a qualified professional. Monitor to verify that the plan is reviewed by all construction workers prior to commencement of construction. BART staff will ensure and Monitor to verify that a soil management plan is developed for approval by appropriate regulatory agencies.
3. Monitor will verify that an approved soil management plan is implemented.

Impact HazMat3. Potential for demolition or renovation of existing structures to expose workers to lead-based paint and asbestos-containing materials. (2003 SEIR.)

Mitigation Measure HazMat3: Survey and properly handle materials from structures that may contain asbestos and lead-based paint.

1. Prior to demolition or renovation of structures built before 1978, a survey for the presence of ACM will be conducted. The survey will be conducted by Asbestos Hazard Emergency Response Act (AHERA)-certified personnel, trained according to state and federal regulations. Structures will also be surveyed for the presence of lead-based paint. If the results of the survey detect the presence of lead-based paint, construction will be performed in accordance with the Lead in Construction Standard (8 Cal. Code of Regulations Section 5132.1). ACM will be removed in accordance with the requirements of Cal OSHA (8 Cal. Code of Regulations 5129) and the Bay Area Air Quality Management District (BAAQMD).

Monitoring:

1. BART staff to ensure and Monitor to verify that, prior to demolition or renovation, structures are surveyed for the presence of ACM and lead-based paint, as appropriate.
2. If ACM or lead-based paint is detected, BART staff will ensure and Monitor will verify that construction is performed and ACM is removed in accordance with the standards described above.

Hydrology and Water Quality

Impact H7. Potential for accelerated erosion and discharge of sediment into water bodies as a result of ground-disturbing activities. (2003 SEIR.)

Mitigation Measure H7: Ensure the implementation of NPDES permit conditions.

1. As required by the NPDES General Permit for Discharges of Storm Water Associated with Construction Activities, BART will ensure that specific erosion and sediment control measures are implemented during Project construction to prevent accelerated erosion stemming from grading and other ground-disturbing activities. Measures include, but are not limited to, the following.
 - Erosion Control Measures:
 - Temporary and permanent seeding of disturbed areas and stockpiles.
 - Use of erosion control blankets.
 - Stabilization of construction area entrances and exits.
 - Dust suppression (e.g., watering exposed surfaces and stockpiles of soils and/or excavated material, covering stockpiles with plastic tarps).
 - Sediment Control Measures:
 - Use of straw rolls, sediment fences, straw bales, and/or sediment traps to prevent sediment-laden runoff from leaving the construction area.
 - Use of temporary dikes to redirect or control runoff.

These measures would be installed before October 15 and monitored throughout the winter rainy season (October 15–March 15). The measures and monitoring requirements required under the NPDES General Permit would minimize the potential for accelerated erosion and sedimentation. In addition, BART may receive assistance in defining and implementing those BMPs via the Clean Water Program's storm water quality management plan. BART will verify that an NOI and a SWPPP

have been filed before allowing construction to begin. BART will routinely inspect the project site to verify that the BMPs specified in the SWPPP are properly installed and maintained. BART will immediately notify the contractor if there is a noncompliance issue and require compliance.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require that the contractor use appropriate sediment control measures, as described above.
2. BART staff will ensure and Monitor will verify that coverage under the NPDES general permit for stormwater associated with construction activities is obtained prior to construction.
3. Monitor will verify that all conditions of the NPDES permit, BMPs in the SWPPP, and specific erosion and sediment control measures are implemented during Project construction.

Impact H8. Water quality degradation at Lake Elizabeth, Mission Creek, Tule Pond, and Cañada de Aliso during construction. (2003 SEIR.)

Mitigation Measure H8(a): Implement water quality control measures to prevent release of sediment

1. BART will ensure that water quality control measures, such as turbidity barriers/curtains, are in place before construction activities begin in these areas, and prior to cofferdam installation. The barriers have pores that are large enough to allow water to pass through, but the pores are small enough to trap most sediments that may be suspended in the water. Measures will be installed on the west side of the cofferdam in Lake Elizabeth to prevent the release of disturbed lake-bottom sediments into the majority of the lake. Additional turbidity barriers/curtains or other appropriate measures will be installed at the outlet to Mission Creek to retain entrained lake-bottom sediments. BART may also use additional technologies to reduce potential impacts to water quality. These technologies may include, but not be limited to, the use of sheet piles instead of using an earthen cofferdam.
2. BART will also ensure that construction activities related to dewatering or the runoff of stormwater from Lake Elizabeth, Mission Creek, Tule Pond, and Cañada de Aliso will incorporate BMPs to minimize impacts to water quality. BMPs may include, but not be limited to, using sediment barriers (e.g., silt curtains), limiting the amount of exposed soils, and incorporating settling basins prior to discharge of water.

Mitigation Measure H8(b): Comply with City of Fremont MS-4 Permit.

1. BART will conduct any dewatering activities associated with the construction or operation of the Project according to the Waste Discharge Requirements for Facility-Wide Municipal Storm Water Discharges from Storm Sewer System and Non-Storm Water Discharges from the City of Fremont (MS4 Permit) issued by the San Francisco Bay RWQCB.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require that the contractor use specified water quality control measures.
2. BART staff will ensure and Monitor will verify that appropriate water quality control measures are implemented to minimize impacts to water quality during construction.
3. BART staff will ensure and Monitor will verify that dewatering activities associated with the Project are consistent with the MS-4 Permit.

Impact H9. Release of hazardous substances that violate water quality standards. (2003 SEIR.)

Mitigation Measure H9: Implement hazardous materials spill prevention and control plan.

1. As part of its NPDES General Permit for Construction Activities, BART will be required to develop and implement a Hazardous Material Spill Prevention and Control Plan related to the use of construction equipment for the Project. The Hazardous Material Spill Prevention and Control Plan would describe storage procedures and construction site housekeeping practices and identify the parties responsible for monitoring and spill response. The measures and monitoring procedures required under the NPDES General Permit would minimize the potential for release of hazardous materials to the environment. BART will ensure the filing of the NOI for the NPDES permit and developing and implementing a Hazardous Materials Spill Prevention and Control Plan. BART will review the Hazardous Materials Spill Prevention and Control Plan before allowing construction to begin. BART will routinely inspect the project site to verify that the BMPs specified in the Hazardous Materials Spill Prevention and Control Plan are properly installed and maintained. BART will immediately notify the contractor if there is a noncompliance issue.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require that the contractor prepare and implement a hazardous materials spill prevention and control plan.

2. Monitor will verify in the field that the Hazardous Materials and Spill Prevention and Control Plan is being implemented and that BMPs are properly installed and maintained.

Impact H11. Temporary reduction in flood storage capacity at Lake Elizabeth. (2003 SEIR.)

Mitigation Measure H11(a): Limit construction of cut-and-cover subway to the dry season.

1. BART will close the cofferdam after April 1 and will complete construction and breach the cofferdam by November 1. Using this construction method, there would only be a small reduction in flood storage during the flood season (fill above the normal water level) and the construction period would be maximized.

Mitigation Measure H11(b):

Create additional flood storage capacity equal to or greater than the temporary reduction in flood storage during construction.

1. One or more of the following solutions could be employed to provide additional flood storage to offset the temporary reduction of flood storage during construction activities:
 - ❑ Actively manage the level of water within Lake Elizabeth to provide additional storage capacity equal to the storage loss.
 - ❑ Construct a second temporary cofferdam on the east side of the open trenching activities during construction and divert flows back into the eastern arm of Elizabeth Lake.
 - ❑ Construct additional storage facilities (e.g., detention basin) at the same location to provide additional storage capacity.

One or more of these solutions would be incorporated with the review and permission of the City of Fremont and the ACFCO.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require that the contractor limit construction of cut-and-cover subway within Lake Elizabeth to the dry season, if feasible.
2. If construction in Lake Elizabeth cannot be completed during the dry season, as described above, BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and

specifications require that the contractor create additional flood storage capacity equal to or greater than the temporary reduction in flood storage during construction.

3. Monitor will verify in the field that construction of the cofferdam is consistent with the description above, or that a flood storage plan providing adequate capacity has been implemented.

Biological Resources

Impact BIO10. Temporary disturbance of ruderal forb-grassland. (2003 SEIR.)

Mitigation Measure BIO10(a): Minimize and avoid ruderal forb-grassland habitat.

1. The following minimization and avoidance measures will be implemented in order to ensure pre-project conditions in areas where ruderal forb-grassland habitat is temporarily disturbed.
 - Remove as little vegetation as possible.
 - Replace topsoil and replant the grassland habitat, using a mixture of native perennial and annual grasses and forbs.
 - Minimize construction activities in sensitive habitat areas.

Mitigation Measure BIO10(b): Minimize erosion of stockpiled soil.

1. During construction, measures necessary to prevent erosion and pollution from the excavated and stockpiled soil, such as the use of geotextiles, will be implemented.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require that the contractor minimize and avoid where possible the disturbance of ruderal forb-grassland, as described above.
2. Monitor will verify in the field that disturbance to ruderal forb-grassland is minimized as described above.

Impact BIO11. Temporary disturbance of open water habitat. (2003 SEIR.)

Mitigation Measure BIO11: Restore disturbed vegetation and install erosion barriers.

1. Destroyed vegetation will be replaced and the channels restored to previous condition following construction.

2. Require the construction contractor to use erosion barriers in order to prevent construction materials and excavated soil from entering any of the open water areas.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require that the contractor restore disturbed vegetation and install erosion barriers.
2. Monitor will verify in the field that vegetation has been restored and erosion barriers have been installed.

Impact BIO12. Temporary disturbance of wetland and creek habitat. (2003 SEIR.)

Mitigation Measure BIO12(a): Avoid or minimize disturbance of wetlands and creeks. At a minimum, mitigation for this impact will include the following measures.

1. All environmentally sensitive areas will be staked and flagged in the field and marked on construction drawings before construction begins. BART's construction contractor(s) will avoid construction activities in and adjacent to creeks and saturated or ponded wetlands during the wet season (winter and spring) to the maximum extent possible. Wetlands and creek habitats on and near active Project construction sites will be protected by installing environmentally sensitive area fencing (orange construction barrier fencing) at least 20 feet outboard of the edge of the ordinary high-water mark; depending on site-specific conditions and permit requirements, the buffer may be wider than 20 feet to prevent erosion and sedimentation impacts on wetland habitats. Construction specifications for the Project will include language that specifically prohibits construction-related activities, including vehicle laydown and operation, storage of materials and equipment, and other ground-disturbing activities in fenced environmentally sensitive areas.
2. BART will retain qualified biologists and/or resource specialists to monitor construction activities near wetlands and creeks. Monitors will be hired and trained prior to construction, and will be responsible for preconstruction surveying, staking and fencing sensitive resources, onsite monitoring, documenting compliance and violations, coordinating with contract compliance inspectors, and performing postconstruction documentation.
3. Contractors will ensure that woody debris, soils, and any other materials that are inadvertently deposited below the ordinary high-water mark of drainages are removed. Removal will be accomplished by qualified personnel, in a manner that minimizes disturbance of drainage bed and banks.

4. If it is not possible to avoid ground-disturbing activities in or adjacent to environmentally sensitive areas, including creeks and/or saturated or ponded wetlands, the following measures will be implemented to minimize disturbance.
5. When working in or adjacent to creeks or wetlands, contractors will use geotextile cushions or other appropriate materials (e.g., timber pads, prefabricated equipment pads) to minimize damage to the substrate and vegetation and increase the likelihood of successful restoration.
6. When working upslope of creeks or wetlands, contractors will use geotextile mats, excelsior blankets, or other soil stabilization products to minimize the potential for construction to contribute to erosion and sedimentation that could affect wetland water quality.
7. Contractors will stabilize exposed slopes and streambanks immediately on completion of ground-disturbing activities, using a nonvegetative material that will bind the soil initially and break down within a few years.
8. BART will ensure that all measures stipulated here, and all relevant permit conditions, are incorporated into contract specifications and implemented by the construction contractor.

Mitigation Measure BIO12(b): Restore disturbed wetland and creek habitat.

1. To ensure that implementation of the Project results in no net loss of wetland and creek habitat functions and values, BART will ensure that wetlands and creeks disturbed during construction activities are restored and/or revegetated. BART will comply with any measures required by the Corps as part of the Section 404 permitting process.
2. In addition, BART will retain a qualified restoration ecologist to develop a restoration/revegetation plan for wetlands and creeks adversely affected by construction activities, in conjunction with resource and regulatory agency staff. The restoration/revegetation plan will include design specifications, an implementation plan, maintenance requirements, and a monitoring program.
3. After restoration and revegetation are completed, monitoring will be conducted for a minimum of 5 years to ensure that the success criteria identified below are met and to identify any necessary remedial actions. Annual monitoring reports will be submitted to the Corps and the San Francisco Bay RWQCB. The reports will summarize the data collected during each monitoring period, describe the progress of the restored habitats relative to the success criteria outlined below, and discuss any remedial actions performed.

4. The revegetation/restoration plan for wetland and creek habitats will be considered successful when the following criteria are met.
 - The restored site is composed of a mix of species similar to that removed during the construction activity.
 - The restored site has at least 75% of the absolute cover of native vegetation present in areas immediately adjacent to the construction corridor.
 - Plantings are self-sustaining without human support (e.g., weed control, rodent and deer control, irrigation).
 - Functions and values of the restored habitat are comparable to those of adjacent undisturbed wetland and creek habitats.
5. Remedial action will be required by BART if any of the above criteria are not met during the monitoring period. The purpose of the remedial action will be to ensure that the above criteria are met.

Mitigation Measure BIO12(c): Compensate for temporary loss of wetland and creek habitat.

1. To compensate for the temporary loss of wetland and creek habitat during construction, BART will implement Mitigation Measure BIO3 (Restore, create, and protect wetland habitat to mitigate loss of wetland habitat). As discussed in this mitigation measure, the size of the area(s) to be restored/created will be determined based on appropriate mitigation ratios derived in consultation with the Corps.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require that the contractor to avoid or minimize the disturbance of creeks and wetlands, and where necessary, restore disturbed areas as described above. Project specifications will include language that specifically prohibits construction-related activities, including vehicle laydown and operation, storage of materials and equipment, and other ground-disturbing activities in fenced environmentally sensitive areas.
2. BART staff will ensure and Monitor will verify that the appropriate agency permits have been obtained prior to construction at the location of impact.
3. Monitor will verify in the field that all environmentally sensitive areas are staked and flagged in the field and marked on construction drawings before construction begins, the contractor(s) avoid construction activities in and adjacent to creeks and saturated or ponded wetlands during the wet

season (winter and spring) to the maximum extent possible, and that wetlands and creek habitats on and near active construction sites are protected by installing environmentally sensitive area fencing.

4. BART staff will ensure and Monitor will verify that resource specialists are retained to monitor construction activities near wetlands and creeks.
5. Monitor will verify in the field that contractors remove woody debris, soils, and any other materials that are inadvertently deposited below the ordinary high-water mark of drainage channels and creeks.
6. BART staff will ensure and Monitor will verify that, if it is not possible to avoid ground-disturbing activities in or adjacent to environmentally sensitive areas, the appropriate measures are implemented, as described above, to minimize damage and stabilize soils and slopes.
7. BART staff will ensure and Monitor will verify that BART retains a qualified restoration ecologist to develop a restoration/revegetation plan for wetlands and creeks affected by the project.
8. Monitor will verify that the restoration plan is implemented.

Impact BIO13. Temporary disturbance of riparian forest habitat. (2003 SEIR.)

Mitigation Measure BIO13(a): Minimize disturbance of riparian habitats.

1. BART's construction contractor(s) will avoid construction activities in and adjacent to riparian habitats to the maximum extent possible. Riparian habitats on and near active Project construction sites will be protected by installing environmentally sensitive area fencing (orange construction barrier fencing) outboard of (upslope from) the edge of the riparian zone. Depending on site-specific conditions, the buffer may be wider than 20 feet, as needed to protect the area from erosion. The locations of fences will be marked in the field with stakes and flags and will be shown on the construction drawings.
2. If it is not possible to avoid work in riparian areas, BART's construction contractor(s) will minimize impacts on riparian forest vegetation by trimming vegetation rather than removing entire shrubs or trees wherever practicable. Shrubs will be cut at least 1 foot above ground level to leave the root systems intact and allow for more rapid regeneration. Cutting will be limited to the minimum area necessary in the construction zone. To protect migratory birds, no removal of woody riparian vegetation will take place during the breeding season (March 1–August 1).

Mitigation Measure BIO13(b): If it is not possible to avoid work in riparian areas, restore disturbed riparian forest areas.

1. BART will ensure that the riparian forest disturbed during construction activities is restored and/or revegetated.
2. BART will retain a qualified restoration ecologist to develop a revegetation plan for riparian forest adversely affected by construction activities. The revegetation plan will include design specifications, an implementation plan, maintenance requirements, and a monitoring program. To help develop the plan, the restoration ecologist shall qualitatively sample the riparian vegetation in the Project corridor prior to construction. Revegetation will be implemented immediately following disturbance in substantially disturbed areas, or as appropriate for site conditions, based on the evaluation of the restoration ecologist and input from agency staff. Weeds will be vigorously controlled within and adjacent to the restoration site to ensure that no new noxious weeds are introduced into the area.
3. Monitoring will be conducted by BART for a minimum of 5 years to document the degree of success in achieving the success criteria identified below and to identify any necessary remedial actions. The reports will summarize the data collected during each monitoring period, describe the progress of restored habitats relative to the success criteria outlined below, and discuss any remedial actions performed.
4. The revegetation plan for riparian habitat will be considered successful when the following criteria are met.
 - ❑ The riparian habitat established is composed of a mix of native species similar to that removed by the construction.
 - ❑ The absolute cover of riparian vegetation is at least 75% of that in adjacent riparian areas not impacted by construction.
 - ❑ The health and vigor of riparian vegetation in the planted areas is similar to that of individuals of the same species in adjacent riparian areas, based on a qualitative comparison of leaf turgor, stem caliber, leaf cover and foliage density.
 - ❑ Plantings are self-sustaining without human support (e.g., weed control, rodent control, or irrigation).

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require that the contractor avoid construction activities in and adjacent to riparian habitats to the maximum extent possible, as described above.
2. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require that, if it is not

possible to avoid work in riparian areas, the contractor minimize disturbance of riparian habitats, and where necessary, restore disturbed areas, as described above.

3. Monitor will verify in the field that all environmentally sensitive areas are staked and flagged in the field and marked on construction drawings before construction begins. Riparian habitat on or near active construction sites shall be protected by installing environmentally sensitive area fencing.
4. Monitor shall verify in the field that cutting will be limited to the minimum amount necessary in the construction zone.
5. BART staff will ensure and Monitor will verify that BART retains a qualified restoration ecologist to develop and implement a revegetation plan for riparian forest affected by the project.
6. Monitor will verify that the revegetation plan is implemented.

Impact BIO15. Temporary disturbance of habitat for Western Burrowing Owl. (2003 SEIR.)

Mitigation Measure BIO15: Conduct preconstruction surveys for nesting and wintering Burrowing Owls and implement measures to avoid or minimize impacts if owls are present.

1. If construction activities are scheduled to occur during the breeding season (approximately February 1–August 31), BART, in consultation with CDFG, will retain a qualified biologist to conduct a preconstruction survey within 1–2 weeks of the onset of construction activities. If active Western Burrowing Owl nests are found, biologists will establish a 250-foot buffer zone around the active burrow(s). The buffer zone(s) will be delineated with highly visible temporary construction fencing. No construction activities will occur until a qualified biologist has determined that the young have fledged.
2. Preconstruction surveys will also be conducted if activities are scheduled to occur during the nonbreeding season (September 1–January 31). If Western Burrowing Owls are found, BART will either implement avoidance measures or will passively relocate the owls. Avoidance will involve establishing a 160-foot no-disturbance buffer zone that will be delineated with highly visible temporary construction fencing. Passive relocation will involve installation of one-way doors in the entrances of all burrows in areas where construction is slated to occur. One-way doors will be installed at least 48 hours before construction begins, and will be monitored for 1 week. Following the monitoring period, the burrows will be excavated to prevent reoccupation by owls.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require a preconstruction survey and mitigation measures for the burrowing owls, as described above.
2. BART staff will ensure and Monitor will verify that, if construction activities are scheduled to occur during the breeding season, BART, in consultation with CDFG, will retain a qualified biologist to conduct a preconstruction survey.
3. If active Western Burrowing Owl nests are found during the breeding season, BART staff will ensure and Monitor will verify that a 250-foot buffer zone around the active burrow(s) is implemented.
4. BART staff will ensure and Monitor will verify that, if Western Burrowing Owls are found during the non-breeding season, avoidance measures or passive relocation of the owls, as described above, is implemented.

Impact BIO16. Temporary noise disturbance of nesting common and special-status raptors. (2003 SEIR.)

Impact BIO23. Temporary noise disturbance of common and special-status nesting raptors at site of optional Irvington Station. (2003 SEIR.)

Mitigation Measure BIO16: Conduct a preconstruction survey for nesting raptors and implement measures to avoid or minimize impacts if nesting special-status raptors are present.

1. No mitigation is required if construction occurs during the nonbreeding season (August 16–February 28). However, if construction activities occur between March 1 and August 15, BART will retain a qualified biologist to conduct a preconstruction survey for special-status raptor species in the Project corridor, including contractor laydown areas. The survey will be conducted during the calendar year in which the activity is slated to begin, to determine whether nesting special-status birds of prey would be affected. The results of the survey will be considered valid only for the season in which the survey was conducted; if phased construction is planned, an additional survey or surveys may be required.
2. If the survey does not identify any nesting special-status raptor species in the area potentially affected by the proposed activity, no further mitigation is required.
3. If nesting special-status raptors are found during a preconstruction survey, the biologist will identify and establish a buffer area around each active raptor nest. No construction activities will take place inside the buffer area until the biologist has determined that the young have fledged or the parents are no longer attempting to nest. The size of the buffer area will

be determined in consultation with CDFG, based on site conditions. Examples of approved buffers include the following.

- ❑ Northern Harrier – minimum 200-foot radius around active nest.
- ❑ Cooper’s Hawk – minimum 500-foot radius around active nest.
- ❑ White-tailed Kite – minimum of 500-foot radius around active nest.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require a preconstruction survey and mitigation measures, as described above, if nesting raptors are found.
2. BART staff will ensure and Monitor will verify that, if construction activities occur between March 1 and August 15, BART will retain a qualified biologist to conduct a preconstruction survey for special-status raptor species.
3. Monitor will verify that, if nesting special-status raptors are found during a preconstruction survey, the biologist will identify and establish a buffer area around each active raptor nest. Monitor will verify that no construction activities will take place inside the buffer area until the young have fledged or the parents are no longer attempting to nest.

Impact BIO18. Temporary disturbance of nesting swallows. (2003 SEIR.)

Mitigation Measure BIO18: Avoid construction during swallow nesting season or remove empty nests and prevent new nesting.

1. No mitigation is required if construction in potential swallow nesting habitat occurs entirely outside the swallow nesting season (March 1–August 1). However, if construction activities will occur in potential swallow nesting habitat during the nesting season, BART will retain a qualified wildlife biologist to inspect known and potential nest sites during the nonbreeding season (September 1–February 28). Abandoned nests will be removed. If swallows begin constructing new nests during the breeding season, a qualified wildlife biologist will remove the nests before nesting swallows complete nest construction. Construction in nesting swallow habitat will not begin before September 1, or until after USFWS issues appropriate removal permits.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications to require the contractor to

avoid construction during swallow nesting season or remove nests to prevent new nesting.

2. BART staff will ensure and Monitor will verify that BART will retain a qualified biologist to conduct a preconstruction inspection and, if necessary, remove nests prior to construction.

Impact BIO19. Temporary disturbance of potential California tiger salamander upland estivation habitat. (2003 SEIR.)

Mitigation Measure BIO19(a): Conduct preconstruction surveys for California tiger salamander and implement measures to avoid or minimize impacts if salamanders are present.

1. Prior to any construction activity, BART will retain a qualified biologist to conduct a preconstruction survey for California tiger salamander in New Marsh. The presence/absence surveys will be based on USFWS or CDFG approved protocols. Surveys for adult salamanders will occur during and following the first rains of the 2003/2004 rainy season as adults are moving between estivation sites and New Marsh. Surveys for larval salamanders will be conducted in New Marsh during spring 2004. If it is determined that salamanders are present, Mitigation Measure 19(b) will be implemented. If salamanders are absent from New Marsh, and the resource agencies concur with this finding, no further mitigation will be required.

Mitigation Measure BIO19(b): Implement measures to avoid and minimize disturbance and mortality of California tiger salamander.

1. A construction work area will be delineated along the Project corridor in the vicinity of New Marsh. All construction activities will be restricted to the area within the delineated work area. The work area will begin 200 feet from New Marsh, thereby creating a 200-foot no-disturbance buffer zone around New Marsh. The contractor will identify the outer extent (i.e., width) of the work area. A qualified biologist will determine the length of the work area based on habitat characteristics and topography. The areas outside of the designated work area will be identified on construction drawings as an "Environmentally Sensitive Areas."
2. Barrier fencing will be installed along the perimeter of both sides of the work area. Drift fencing will be installed along the base of the barrier fencing to ensure that no salamanders enter the work area from New Marsh or from estivation sites. To minimize disruption of migratory movements, pit traps will be installed periodically along the drift fence to capture migrating salamanders. During the migratory period (generally during the rainy season while salamanders move between the upland estivation sites and the breeding pond), a qualified biologist will monitor the traps and move any captured salamanders to the opposite side of the

work area. This process will protect New Marsh and immediately adjacent uplands, minimize the disruption of migratory movements, and ensure construction activities are not interrupted within the work area. The process will not require biological monitoring within the work area.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require a preconstruction survey and mitigation measures, as described above, if salamanders are found.
2. If salamanders are found, BART staff will ensure and Monitor will verify that construction will be within a delineated work area in the vicinity of New Marsh.
3. If salamanders are found, Monitor will verify in the field that barrier fencing and drift fencing is installed along the perimeter of the work area.
4. If salamanders are found, BART staff will ensure and Monitor will verify in the field that a qualified biologist will monitor the traps and move any captured salamanders.

Land Use and Planning

Impact LU3. Creation of construction impacts, such as traffic and circulation obstructions; noise, dust, and other pollutants; and safety issues. (2003 SEIR.)

Mitigation Measure LU3: Limit construction-related impacts on land uses adjacent to the project alignment in Fremont Central Park.

1. The following measures will be implemented to limit short-term construction impacts related to the loss of parking associated with the softball/baseball fields at Fremont Central Park and the temporary disruption of walking paths around Lake Elizabeth.
 - A dog-run facility will be provided.
 - A temporary pedestrian bridge will be constructed over the cut-and-cover subway construction just north of Lake Elizabeth.
 - Access across the BART construction zone between the parking lots for the softball fields will be provided whenever games are scheduled.
 - A public pathway across the construction zone from the neighborhood to the east will be maintained during construction whenever feasible.
2. Temporary walking paths around Lake Elizabeth will be created and maintained throughout the construction period. The walking paths will be

well signed, and any paths closed for public safety and security will be well marked. At least one public pathway across the construction zone near Lake Elizabeth will be maintained at all times to accommodate people who walk or ride bicycles to the park from the residential areas immediately east of the railroad corridor.

3. BART and the construction contractor will work with ACFCD to develop and implement a program to maintain Lake Elizabeth's flood control function or provide alternative temporary storage, if necessary, during the construction period.
4. BART and the construction contractor will work with the City of Fremont to find the most suitable locations and durations for construction storage.
5. Please see also Mitigation Measure TRN25.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require the contractor to limit land use impacts in Fremont Central Park, as described above.
2. BART staff will ensure and Monitor will verify that temporary walking/biking paths around Lake Elizabeth are created and maintained throughout the construction period.
3. BART staff will ensure and Monitor will verify that BART and the contractor will work with ACFCD to develop and implement a program to maintain Lake Elizabeth's flood control function or provide alternative temporary storage during the construction period.
4. BART staff will ensure that the contractor is working with the City of Fremont to find the most suitable locations and durations for construction storage.

Population, Employment, and Housing

Impact POP7. Substantial diminishment in access to and parking at businesses and residences.

Mitigation Measure POP7: Maintain access, traffic control, and parking supply during construction.

1. BART will develop and implement a traffic and access control plan in consultation with the City of Fremont, local business associations, and local neighborhood and homeowners' associations. Before construction begins, BART and its contractors will verify that the traffic and access control plan avoids restriction of access and that flaggers are used to direct traffic in potentially congested zones such as the Washington Boulevard and Osgood Road area. Construction workers and contractors

will be advised to carpool and park on-site when feasible to reduce temporary impacts to parking for adjacent residences and businesses. Movement of heavy equipment and supplies to and from construction sites will be scheduled during non-peak travel times. Similarly, temporary lane closures due to work on aerial or below-grade structures will be scheduled for non-peak travel times. Access to businesses and residences will be maintained throughout construction phases, and existing parking supply will not be reduced.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require the contractor to develop and implement a traffic control plan in consultation with the City of Fremont, as described above.
2. BART staff will ensure consultation with the City of Fremont and Monitor will verify implementation of traffic control measures in the field.

Impact POP-Cume2. Potential to restrict access and egress to existing businesses, residences, and community facilities or to reduce parking supply.

Mitigation Measure POP-Cume2: Coordinate access and traffic control during construction of cumulative projects.

1. BART will work with the City of Fremont and entities constructing other projects if necessary to ensure that the Project's construction traffic management plan is adjusted to accommodate any overlapping construction traffic from multiple projects. BART will require its contractors to prepare a construction traffic management plan (as described in Mitigation Measure TRN25) that designates truck and equipment access routes to the construction site. Contractors will be required to limit construction vehicle and equipment traffic to designated access routes. The construction traffic management plan will be coordinated with the contractor's construction sequence so that general timeframes when construction vehicles will use designated roadways within the Project area (months from contractor's start of construction activities) can be estimated.
2. BART will approve the contractor's construction traffic management plan and submit a copy of the approved construction traffic management plan to the City of Fremont. The city can use the construction traffic management plan when reviewing building permit applications for development projects within the Project area should the combined projects create the potential for construction traffic generated congestion to block access to existing development.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require the contractor's traffic control plan, as described above, to accommodate overlapping construction traffic from multiple projects in consultation with the City of Fremont.
2. BART staff will ensure consultation with the City of Fremont and Monitor will verify implementation of traffic control measures in the field.

Aesthetics

Impact A6. Temporary visual disturbances caused by construction. (2003 SEIR.)

Mitigation Measure A6: Take measures to conceal temporary construction activities.

1. BART will implement the following mitigation measures to reduce temporary visual impacts during construction.
 - Fencing will be installed to shield views of construction activities from Stevenson Boulevard, Fremont Central Park, Osgood Road, and Grimmer Boulevard. Fencing installed by BART contractors will be sufficiently tall to hide all excavation, grading, and trenching activities and materials.
 - Major construction activities will be followed immediately with paving and landscaping. Fencing materials will remain in place until finish work (e.g., plantings, site cleanup) has been completed.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require the contractor to shield construction activities from sensitive views and provide paving and landscaping, as described above.
2. BART staff will ensure and Monitor will verify that fencing is adequate to conceal views and major construction activities are followed immediately with paving and landscaping.
3. Monitor will verify these activities are implemented in the field.

Utilities

Impact 9A. Potential disruptions of utilities, electrical transmission lines, pipelines, and fiber optic cables. (1992 EIR.)

Mitigation 9A: Reduce potential disruptions of utilities, electrical transmission lines, pipelines, and fiber optic cables. (1992 EIR.)

1. Coordinate with the San Francisco Water Department to determine actual impact to their facilities and develop a plan to mitigate construction impacts.
2. Provide protection from stray electrical currents.
3. Maintain clearance beneath electrical transmission lines.
4. Provide access during BART construction.
5. Coordinate with Sanitary District for sewer line relocations.
6. Relocate or adjust grades where it is determined necessary by pipeline operators.
7. Coordinate with affected companies which own underground conduits and fiber optic lines to arrange necessary relocation and protection of existing lines and follow their regulations to mitigate construction impacts.

Monitoring:

1. BART staff will ensure and Monitor will verify that a review of project utility relocation plans is conducted, and Monitor will verify that the relocation of utilities, pipelines, and fiber optic cables is done with the coordination of the respective agency or company.

Impact 9B. The extension project would involve potential impacts on basin drainage demands. (1992 EIR.)

Mitigation 9B: The extension project would involve potential impacts on basin drainage demands. (1992 EIR.)

1. Coordinate with the Alameda County Flood Control & Water Conservation District (ACFCWCD) and develop a plan to upgrade existing drainage systems.
2. Provide interim storage areas to avoid flooding during construction.
3. Sediment traps should be placed at the drainage outlets of each earthwork construction area.

4. Sediment barriers should be placed along the toe of the embankment over South Tule Pond to prevent sedimentation of the replacement wetlands.

Monitoring:

1. BART staff to ensure that ACFCWCD has had an opportunity to review and comment on the basin drainage plans.
2. BART staff will review appropriate contract documentation to verify inclusion of interim storage areas.
3. BART staff will review appropriate contract documentation to verify sediment traps are placed at the drainage outlets of each earthwork construction area. Monitor will verify in the field.
4. BART staff will review appropriate contract documentation to verify that sediment barriers are placed along the toe of the embankment at South Tule Pond. Monitor will verify in the field.

Impact 9C. The extension project would involve potential impacts on sewer feeder lines during construction. (1992 EIR.)

Mitigation 9C: The extension project would involve potential impacts on sewer feeder lines during construction. (1992 EIR.)

1. Coordinate with the Sanitary District for sewer line relocations and follow District policies.
2. Provide access during construction.
3. Interim sewer lines and/or drainage could be provided to avoid flooding if any change or improvement to the existing system proves necessary.
4. Work on the system would be scheduled to avoid periods of peak flow.

Monitoring:

1. BART staff will ensure that coordination with the Sanitary District has occurred.
2. BART staff will review appropriate contract documentation to verify access during construction, provision of interim lines, and work schedule. Monitor to verify in the field.

Impact 9D. The extension project would involve potential conflicts with water pipelines for Hetch Hetchy water pipeline and electrical transmission lines. (1992 EIR.)

Mitigation 9D: The extension project would involve potential conflicts with water pipelines for Hetch Hetchy water pipeline and electrical transmission lines. (1992 EIR.)

1. Coordinate with the San Francisco Water Department to identify specific relocation and grade adjustment requirements.
2. Provide protection from stray electrical currents for metal pipes.
3. Proper clearance from Hetch Hetchy electrical transmission lines will be maintained.

Monitoring:

1. BART staff will ensure that coordination with San Francisco Water Department has occurred.
2. BART staff will review appropriate contract documentation to verify protection from stray electrical currents and proper clearance from electrical transmission lines.

Transportation

Mitigation Measure TRN25: Develop and implement a construction phasing and traffic management plan.

1. BART will prepare and implement a construction phasing and traffic management plan that defines how traffic operations (including construction equipment and worker traffic) are managed and maintained during each phase of construction. The plan will be developed in consultation with the City of Fremont, Caltrans, AC Transit, and VTA, and will be coordinated with the plan to maintain access and parking for businesses and residences described in Mitigation Measure POP7. To the maximum practical extent, the plan will include the following measures.
 - ❑ Plan, schedule, and coordinate construction activities to reduce effects on AC Transit and VTA bus lines, so that additional buses or larger buses are not required on any route to maintain on-time performance.
 - ❑ Specify predetermined haul routes from staging areas to construction sites and disposal areas by agreement with the City of Fremont prior to construction. The routes will follow streets and highways that provide the safest route and have the least feasible impact on traffic.

Section 2. Project Mitigation Measures

- ❑ Identify construction activities that, due to concerns regarding traffic safety or congestion, must take place during off-peak traffic hours. Any road closures will be done at night under ordinary circumstances. If unforeseen circumstances require road closure during the day, the City of Fremont will be consulted.
 - ❑ Provide a detour plan for lane closures and for the diversions of Walnut Avenue, Stevenson Boulevard, and South Grimmer Boulevard, and require information be provided to the public on lane closures and detours using signs, press releases, and other media tools.
 - ❑ Identify a telephone number that the public can call for information on construction scheduling, phasing, and duration, as well as for complaints. Such information will also be posted on BART's website.
 - ❑ Provide safe access and circulation routes for vehicles, bicycles, and pedestrians during construction at the Fremont BART Station.
 - ❑ Provide parking replacement where construction results in temporary displacement of parking in Fremont Central Park.
 - ❑ Coordinate, to the extent feasible, with the city's grade separations project to reduce traffic disruption.
2. To reduce to the greatest extent possible the total duration of construction where the BART alignment crosses Paseo Padre Parkway and the corresponding potential for traffic disruption, elements of the BART bridge structure should be constructed at the same time as the city's grade separations project.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications include requirement that the contractor develop and implement a construction phasing and traffic management plan, as described above.
2. BART staff will ensure coordination with the City of Fremont to develop and implement the construction phasing and traffic management plan.
3. BART staff will ensure consultation with the City of Fremont to coordinate with the grade separation project.
4. Monitor will verify implementation in the field.

Mitigation Measure TRN-Cume10 – Adjust the construction traffic management plan described above in Mitigation Measure TRN25.

If construction of the Proposed Project and SVRTC overlap, the construction traffic management plan identified in Mitigation Measure TRN25 will be adjusted to account for the SVRTC construction schedule. BART will ensure that the plan as adjusted satisfies the goals identified in Mitigation Measure TRN25.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications, include requirements to adjust the construction traffic management plan, as described above.
2. BART staff will ensure coordination with the City of Fremont.

Noise and Vibration

Impact N4. Exposure of noise-sensitive land uses to construction noise. (2003 SEIR.)

Mitigation Measure N4(a): Employ noise-reducing construction practices.

1. The construction contractor will employ noise-reducing construction practices such that construction noise does not exceed the limits specified in Table 3.10-5 at occupied land uses. Measures to be employed may include but are not limited to the following.
 - Avoid nighttime construction in residential areas.
 - Use equipment with enclosed engines and/or high performance mufflers.
 - Locate stationary equipment as far as possible from noise-sensitive uses.
 - Construct noise barriers, such as temporary walls or piles of excavated material between noise activities and noise sensitive uses.
 - Re-route construction-related traffic along roads that will result in the least amount of disturbance to residences.
 - Where pile driving is planned within 1,200 feet of residences, or within 650 feet of hotels or in-use outdoor recreation areas, use cast-in-drilled-hole (CIDH) piles, pre-drilled piles, soil-mix wall technology, shielded pile drivers, vibratory pile drivers. (Shielded pile drivers or vibratory pile drivers can be used only where geotechnical conditions allow.)

Mitigation Measure N4(b): Disseminate essential information to residences and

implement a complaint response/tracking program.

1. BART will notify residences within 500 feet of a construction area of the construction schedule in writing, prior to construction. BART and the construction contractor will designate a noise-disturbance coordinator who will be responsible for responding to complaints regarding construction noise. The coordinator will determine the cause of the complaint and will ensure that reasonable measures are implemented to correct the problem. A contact telephone number for the noise disturbance coordinator will be conspicuously posted on construction site fences and will be included in the written notification of the construction schedule sent to nearby residents.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications include requirements to use noise-reducing construction practices, as described above.
2. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications include requirements for the use of noise barriers or alternative technologies to pile-driving that produce less noise, as listed above, as necessary to meet BART's construction noise thresholds in the vicinity of sensitive receptors.
3. Monitor will verify in the field that noise-reduction measures, such as temporary noise barriers, are used to reduce noise, that sound barriers or alternative technologies that produce less noise are provided during construction as necessary to reduce noise near sensitive receptors, and that BART's construction noise criteria are met.
4. BART staff will ensure that a noise coordinator is named and that residents within 500 feet of a construction area are notified, and Monitor will verify that noise coordinator is responding to complaints.

Impact N5. Exposure of vibration-sensitive land uses to construction vibration. (2003 SEIR.)

Mitigation Measure N5: Employ vibration-reducing construction practices.

1. The construction contractor will employ vibration-reducing construction practices such that construction vibration does not exceed 80 VdB (more than 1 hour per day), 90 VdB (less than 1 hour per day), or 100 VdB (less than 10 minutes per day), or the peak particle velocity damage threshold of 0.20 inches per second for fragile buildings or structures. The Horner House at 3101 Driscoll Road is the only historic structure in close proximity to the project area that is potentially in the fragile category. Measures to be employed may include but are not limited to the following.

- ❑ Locate vibration-generating equipment as far as possible from vibration-sensitive land uses.
- ❑ Avoid simultaneous operation of multiple pieces of vibration-generating equipment.
- ❑ Avoid nighttime construction in residential areas.
- ❑ Avoid construction processes that generate high vibration levels (for example vibration from pile driving can be reduced or eliminated by using pre-drilled holes or using pushed piles).
- ❑ Avoid the use of vibratory rollers near vibration-sensitive uses.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications include requirements for the contractor to use vibration-reducing construction methods, as described above.
2. Monitor will verify that vibration-reducing methods are used in the field and ground-borne vibration monitoring of vibration-intensive activities is consistent with the standards described above.

Air Quality

Impact AIR6. Temporary increase in construction-related emissions during grading and construction activities. (2003 SEIR.)

Impact AIR12. Temporary increase in construction-related emissions during grading and construction activities related to the optional Irvington Station. (2003 SEIR.)

Mitigation Measure AIR6: Implement dust and vehicle emissions control measures.

1. BART will implement or require the contractor to implement the following basic measures to control dust emissions during construction.
 - ❑ Water all active construction areas at least twice daily, or more as required to control dust.
 - ❑ Cover all trucks hauling soil, sand, and other loose materials, or require all trucks to maintain at least 2 feet of freeboard.
 - ❑ Pave, apply water daily to, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
 - ❑ Sweep (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites, as needed.

- ❑ Sweep streets (with water sweepers) if soil is visible on adjacent public streets, as needed.
- ❑ Hydroseed or apply (nontoxic) soil stabilizers to inactive construction areas (previously graded areas that will be inactive for 10 days or more).
- ❑ Enclose, cover, water twice daily, or apply (nontoxic) soil binders to exposed stockpiles (dirt and sand).
- ❑ Limit traffic speeds on unpaved roads to 15 miles per hour (mph).
- ❑ Install sandbags or other erosion control measures to prevent silt runoff to public roadways, as needed.
- ❑ Reduce idling of internal combustion engines to an absolute minimum to the greatest extent feasible.
- ❑ Maintain construction equipment properly and tune engines to minimize exhaust emissions.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications incorporate the above requirements and require that the contractor use applicable Bay Area Air Quality Management District (BAAQMD) BMPs for construction activities to minimize air emissions, as described above.
2. Monitor will verify in the field that the BART contractor is implementing BMPs to minimize air emission according to the plans and specifications.

Energy

Impact E4. Effects of Project construction on the consumption of nonrenewable energy resources. (2003 SEIR.)

Impact E8. Effects of Project construction on the consumption of nonrenewable energy resources. (2003 SEIR.)

Mitigation Measure E4: Develop and implement construction energy conservation plan.

1. BART will require the contractors to adopt construction energy conservation measures including, but not limited to, those listed below.
 - ❑ Use energy-efficient equipment and incorporate energy-saving techniques in the construction of the Project.
 - ❑ Avoid unnecessary idling of construction equipment.

Section 2. Project Mitigation Measures

- ❑ Consolidate material delivery as much as possible to ensure efficient vehicle utilization.
- ❑ Schedule delivery of materials during non-rush hours to maximize vehicle fuel efficiency.
- ❑ Encourage construction workers to carpool.
- ❑ Maintain equipment and machinery, especially those using gasoline and diesel, in good working condition.

Monitoring:

1. BART staff will ensure and Monitor will verify that bid documents and contracts, and other plans and specifications require the contractor to develop and implement construction energy conservation measures, as described above.
2. Monitor will verify in the field that the contractor is implementing the construction energy conservation measures according to the plans and specifications.

Appendix C

Biological Resources Information

Appendix C-1

**U.S. Fish and Wildlife Service
Species Lists for the Proposed Project Area**



IN REPLY REFER TO
1-1-02-SP-2185

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

June 10, 2002

Mr. Brook Vinnedge
Jones and Stokes
268 Grand Avenue
Oakland, California 94610-4724

Subject: Species List for BART Warm Springs Extension Project (WSX), Fremont and Irvington, Alameda County, California

Dear Mr. Vinnedge:

We are sending the enclosed list in response to your June 7, 2002, request for information about endangered and threatened species (Enclosure A). The list covers the following U.S. Geological Survey 7½ minute quad or quads: Milpitas and Niles Quads

Please read *Important Information About Your Species List* (enclosed). It explains how we made the list and describes your responsibilities under the Endangered Species Act. Please contact Tracy Davis at (916) 414-6625, if you have any questions about the attached list or your responsibilities under the Endangered Species Act. For the fastest response to species list requests, address them to the attention of Species Lists at this address. You may fax requests to 414-6712 or 414-6713. You may also email them to harry_nussman@fws.gov.

Sincerely,

Jan C. Knight
Chief, Endangered Species Division

Enclosures

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute *quads*. The United States is divided into these quads, which are about the size of San Francisco. If you requested your list by quad name or number, that is what we used. Otherwise, we used the information you sent us to determine which quad or quads to use.

Animals

The animals on your species list are ones that occur within, *or may be affected by projects within*, the quads covered by the list. Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them. Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents. Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones *that have actually been observed* in the quad or quads covered by the list. We have also included either a county species list or a list of species in nearby quads. We recommend that you check your project area for these plants. Plants may exist in an area without ever having been detected there.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. For plant surveys, we recommend using the enclosed *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Species*. The results of your surveys should be published in any environmental documents prepared for your project.

State-Listed Species

If a species has been listed as threatened or endangered by the State of California, but not by us nor by the National Marine Fisheries Service, it will appear on your list as a Species of Concern. *However you should contact the California Department of Fish and Game for official information about these species.* Call (916) 322-2493 or write Marketing Manager, California Department of Fish and Game, Natural Diversity Data Base, 1416 Ninth Street, Sacramento, California 95814.

Your Responsibilities Under the Endangered Species Act

All plants and animals identified as *listed* on Enclosure A are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the *take* of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal. Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a *formal consultation* with the Service. During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a *biological opinion* by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an *incidental take permit*. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project. Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as *critical habitat*. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Maps and boundary descriptions of the critical habitat may be found in the *Federal Register*. The information is also reprinted in the *Code of Federal Regulations* (50 CFR 17.95).

Candidate Species

We recommend that you address impacts to *candidate* species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Your list may contain a section called *Species of Concern*. This term includes former *category 2 candidate species* and other plants and animals of concern to the Service and other Federal, State and private conservation agencies and organizations. Some of these species may become candidate species in the future.

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed, candidate and special concern species in your planning, this should not be a problem. We also continually strive to make our information as accurate as possible. Sometimes we learn that a particular species has a different range than we thought. This should not be a problem if you consider the species on the county or surrounding-quad lists that we have enclosed. If you have a long-term project or if your project is delayed, please feel free to contact us about getting a current list. You can also find out the current status of a species by going to the Service's Internet page: www.fws.gov

**GUIDELINES FOR CONDUCTING AND REPORTING BOTANICAL INVENTORIES,
FOR FEDERALLY LISTED, PROPOSED AND CANDIDATE PLANTS
(September 23, 1996)**

These guidelines describe protocols for conducting botanical inventories for federally listed, proposed and candidate plants, and describe minimum standards for reporting results. The Service will use, in part, the information outlined below in determining whether the project under consideration may affect any listed, proposed or candidate plants, and in determining the direct, indirect, and cumulative effects.

Field inventories should be conducted in a manner that will locate listed, proposed, or candidate species (target species) that may be present. The entire project area requires a botanical inventory, except developed agricultural lands. The field investigator(s) should:

1. Conduct inventories at the appropriate times of year when target species are present and identifiable. Inventories will include all potential habitats. Multiple site visits during a field season may be necessary to make observations during the appropriate phenological stage of all target species.
2. If available, use a regional or local reference population to obtain a visual image of the target species and associated habitat(s). If access to reference populations is not available, investigators should study specimens from local herbaria.
3. List every species observed and compile a comprehensive list of vascular plants for the entire project site. Vascular plants need to be identified to a taxonomic level which allows rarity to be determined.
4. Report results of botanical field inventories that include:
 - a. a description of the biological setting, including plant community, topography, soils, potential habitat of target species, and an evaluation of environmental conditions, such as timing or quantity of rainfall, which may influence the performance and expression of target species
 - b. a map of project location showing scale, orientation, project boundaries, parcel size, and map quadrangle name
 - c. survey dates and survey methodology(ies)
 - d. if a reference population is available, provide a written narrative describing the target species reference population(s) used, and date(s) when observations were made
 - e. a comprehensive list of all vascular plants occurring on the project site for each habitat type
 - f. current and historic land uses of the habitat(s) and degree of site alteration
 - g. presence of target species off-site on adjacent parcels, if known

- h. an assessment of the biological significance or ecological quality of the project site in a local and regional context
5. If target species is(are) found, report results that additionally include:
 - a. a map showing federally listed, proposed and candidate species distribution as they relate to the proposed project
 - b. if target species is (are) associated with wetlands, a description of the direction and integrity of flow of surface hydrology. If target species is (are) affected by adjacent off-site hydrological influences, describe these factors
 - c. the target species phenology and microhabitat, an estimate of the number of individuals of each target species per unit area; identify areas of high, medium and low density of target species over the project site, and provide acres of occupied habitat of target species. Investigators could provide color slides, photos or color copies of photos of target species or representative habitats to support information or descriptions contained in reports.
 - d. the degree of impact(s), if any, of the proposed project as it relates to the potential unoccupied habitat of target habitat.
6. Document findings of target species by completing California Native Species Field Survey Form(s) and submit form(s) to the Natural Diversity Data Base. Documentation of determinations and/or voucher specimens may be useful in cases of taxonomic ambiguities, habitat or range extensions.
7. Report as an addendum to the original survey, any change in abundance and distribution of target plants in subsequent years. Project sites with inventories older than three years from the current date of project proposal submission will likely need additional survey. Investigators need to assess whether an additional survey(s) is (are) needed.
8. Adverse conditions may prevent investigator(s) from determining presence or identifying some target species in potential habitat(s) of target species. Disease, drought, predation, or herbivory may preclude the presence or identification of target species in any year. An additional botanical inventory(ies) in a subsequent year(s) may be required if adverse conditions occur in a potential habitat(s). Investigator(s) may need to discuss such conditions.
9. Guidance from California Department of Fish and Game (CDFG) regarding plant and plant community surveys can be found in Guidelines for Assessing the Effects of Proposed Developments on Rare and Endangered Plants and Plant Communities, 1984. Please contact the CDFG Regional Office for questions regarding the CDFG guidelines and for assistance in determining any applicable State regulatory requirements.

ENCLOSURE A
Endangered and Threatened Species that May Occur in or be Affected by
PROJECTS IN ALAMEDA COUNTY
Reference File No. 1-1-02-SP-2185
June 10, 2002

Listed Species

Mammals

- salt marsh harvest mouse, *Reithrodontomys raviventris* (E)
- San Joaquin kit fox, *Vulpes macrotis mutica* (E)
- riparian (San Joaquin Valley) woodrat, *Neotoma fuscipes riparia* (E) *
- riparian brush rabbit, *Sylvilagus bachmani riparius* (E) *

Birds

- California brown pelican, *Pelecanus occidentalis californicus* (L)
- California clapper rail, *Rallus longirostris obsoluitus* (E)
- California least tern, *Sterna antillarum (=albifrons) browni* (E)
- bald eagle, *Haliaeetus leucocephalus* (T)

Reptiles

- Alameda whipsnake, *Masticophis lateralis euryxanthus* (T)
- Critical habitat, Alameda whipsnake, *Masticophis lateralis euryxanthus* (T)

Amphibians

- California red-legged frog, *Rana aurora draytoni* (T)

Fish

- littoral goby, *Eucyclogobius newberryi* (E)
- Critical habitat, winter-run chinook salmon, *Oncorhynchus tshawytscha* (E) NMFS
- winter-run chinook salmon, *Oncorhynchus tshawytscha* (E) NMFS
- coho salmon - central CA coast, *Oncorhynchus kisutch* (T) NMFS
- Central California Coastal steelhead, *Oncorhynchus mykiss* (T) NMFS
- Critical habitat, Central California coastal steelhead, *Oncorhynchus mykiss* (T) NMFS
- Critical habitat, Central Valley steelhead, *Oncorhynchus mykiss* (T) NMFS
- Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T) NMFS
- Critical Habitat, Central Valley spring-run chinook, *Oncorhynchus tshawytscha* (T) NMFS

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

delta smelt, *Hypomesus transpacificus* (T) *

Invertebrates

longhorn fairy shrimp, *Branchinecta longiantenna* (E)

vernal pool tadpole shrimp, *Lepidurus packardii* (E)

callippe silverspot butterfly, *Speyeria callippe callippe* (E)

vernal pool fairy shrimp, *Branchinecta tyachi* (I)

bay checkerspot butterfly, *Euphydryas editha bayensis* (T)

Plants

large-flowered fiddleneck, *Amisackia grandiflora* (F)

Presidio clarkia, *Clarkia franciscana* (F)

palmate-bracted bird's-beak, *Cordylanthus palmatus* (F)

Contra Costa goldfields, *Lasthenia conjugens* (E)

pallid manzanita (Alameda or Oakland Hills manzanita), *Arctostaphylos pallida* (F)

robust sprenflower, *Chorizanthe robusta* var. *robusta* (E) *

California sea bite, *Suaeda californica* (F) *

showy Indian clover, *Trifolium amoenum* (L) *

Sanra Cruz tarplant *Holocarpha macraetonia* (F) *

Proposed Species

Birds

mountain plover, *Charadrius montanus* (PT)

Candidate Species

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Fish

Central Valley fallitate fall-run chinook salmon, *Oncorhynchus tshawytscha* (C) NMFS

Critical habitat, Central Valley fallitate fall-run chinook, *Oncorhynchus tshawytscha* (C) NMFS

Species of Concern

Mammals

- Pacific western big-eared bat, *Corynorhinus* (= *Plecotus*) *townsendii townsendii* (SC)
- greater western mastiff-bat, *Eumops perotis californicus* (SC)
- small-footed myotis bat, *Myotis californicus* (SC)
- long-eared myotis bat, *Myotis evotis* (SC)
- fringed myotis bat, *Myotis thysanodes* (SC)
- long-legged myotis bat, *Myotis volans* (SC)
- Yuma myotis bat, *Myotis yumanensis* (SC)
- San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)
- San Joaquin pocket mouse, *Perognathus inornatus* (SC)
- Alameda Island mole, *Scapanus latimanus parvus* (SC)
- salt marsh vagrant shrew, *Sorex vagrans talicoetes* (SC)
- Berkeley kangaroo rat, *Dipodomys heermanni berkeleyensis* (SC) *

Birds

- little willow flycatcher, *Empidonax traillii brewsteri* (CA)
- black rail, *Lateralus jamaicensis californicus* (CA)
- bank swallow, *Riparia riparia* (CA)
- Aleutian Canada goose, *Branta canadensis leucophaea* (D)
- American peregrine falcon, *Falco peregrinus anatum* (D)
- Snowy Egret, *Egretta thula* (MB)
- bicolored blackbird, *Agelaius tricolor* (SC)
- grasshopper sparrow, *Ammodramus savaannum* (SC)
- Bell's sage sparrow, *Amphispiza belli belli* (SC)
- short-eared owl, *Asio flammeus* (SC)
- western burrowing owl, *Athene cunicularia hypugrida* (SC)
- American bittern, *Botaurus lentiginosus* (SC)
- ferruginous hawk, *Buteo regalis* (SC)

Costa's hummingbird, *Calypte costae* (SC)
 Lawrence's goldfinch, *Carduelis lawrencei* (SC)
 Vaux's swift, *Chaetura vauxi* (SC)
 olive-sided flycatcher, *Contopus cooperi* (SC)
 hermit warbler, *Dendroica occidentalis* (SC)
 white-tailed (=black shouldered) kite, *Elanus leucurus* (SC)
 common loon, *Gavia immer* (SC)
 saltmarsh common yellowthroat, *Geothlypis trichas sinuosa* (SC)
 loggerhead shrike, *Lanius ludovicianus* (SC)
 Lewis' woodpecker, *Melanerpes lewis* (SC)
 Alameda (South Bay) song sparrow, *Melospiza arctodia pusillula* (SC)
 long-billed curlew, *Numenius americanus* (SC)
 white-faced ibis, *Plegadis chula* (SC)
 rufous hummingbird, *Selasphorus rufus* (SC)
 Allen's hummingbird, *Selasphorus sasin* (SC)
 California thrasher, *Toxostoma redivivum* (SC)
 oak titmouse, *Basileptus mexicanus* (SLC)

Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC)
 northwestern pond turtle, *Chrysemys marmorata marmorata* (SC)
 southwestern pond turtle, *Clemmys marmorata pallida* (SC)
 San Joaquin coachwhip (=whipsnake), *Masticophis flagellum ruddocki* (SC)
 California horned lizard, *Phrynosoma coronatum frontata* (SC)

Amphibians

foothill yellow-legged frog, *Rana boylei* (SC)
 western spadefoot toad, *Spea hammondi* (SC)

Fish

green sturgeon, *Acipenser medirostris* (SC)

river lamprey, *Lampetra ayresi* (SC)

Pacific lamprey, *Lampetra tridentata* (SC)

longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Opler's longhorn moth, *Adeta oplerella* (SC)

Bridges' Coast Range shoulderband snail, *Huterea glypta nickliniana bridgesi* (SC)

Ricksecker's water scavenger beetle, *Hydrochara rickseckeri* (SC)

curved-foot Hygroplitis diving beetle, *Hygroplitis curvipes* (SC)

California Loderiella fairy shrimp, *Loderiella occidentalis* (SC)

Lumont (=Lum's) microblind harvestman, *Microcina lumi* (SC)

San Francisco lacewing, *Nothochrysa californica* (SC)

Plants

San Francisco popcornflower, *Plagiobolus diffusus* (CA)

Sharsmith's onion, *Allium sharsmithae* (SC)

alkali milk vetch, *Astragalus tener* var. *tener* (SC)

heartscale, *Atriplex cordulata* (SC)

trifluescale, *Atriplex depressa* (SC)

San Joaquin spine scale (=saltbush), *Atriplex joaquiniana* (SC)

Big plant, *Elephantopus plumosa* ssp. *plumosa* (SI)

Mt. Hamilton thistle, *Cirsium fontinale* var. *campylon* (SC)

South Bay clarkia (=Santa Clara red ribbons), *Clarkia concinna* ssp. *autornixa* (SC)

hispid bird's-beak, *Cordylanthus ovolis* ssp. *hispidus* (SC)

Mt. Hamilton coreopsis, *Careopsis hamiltonii* (SC)

Livermore tarplant, *Deinandra baccata* (SC)

interior California (Hospital Canyon) larkspur, *Delphinium californicum* ssp. *interius* (SC)

recurved larkspur, *Delphinium recurvatum* (SC)

Ben Lomond buckwheat (=naked buckwheat), *Eriogonum nudum* var. *decurrans* (SC)

Hoover's budon-celery, *Eryngium aristulatum* var. *hooveri* (SC)

diamond-petaled California poppy, *Eschscholzia rhombipetala* (SC)

lulus fritillary, *Fritillaria falcata* (SC)

fragrant fritillary (= prairie bells), *Fritillaria maceo* (SC)

Diablo helianthella (=rock-rose), *Helianthella castanea* (SC)

Congdon's tarplant, *Hemizonia parryi* ssp. *congdonii* (SC)

Napa western flax, *Hesperolinon serpentinum* (SC)

delta tule-pea, *Lathyrus jepsonii* var. *jepsonii* (SC)

Mason's lilaeopsis, *Lilaeopsis masonii* (SC)

large-flowered (=flower) linanthus, *Linanthus grandiflorus* (SC)

little mouse-ear, *Myosurus minimus* ssp. *opus* (SC)

most beautiful (uncommon) jewelflower, *Streptanthus albidus* ssp. *peramoonus* (SC)

water sack (=saline) clover, *Trifolium depauperatum* var. *hydrophilum* (SC)

bent flowered tiddleruck, *Armsinckia lunans* (SLC)

big-scale (=California) balsamroot, *Balsamorhiza macrolepis* var. *macrolepis* (SLC)

chaparral harebell (=bellflower), *Campanula exigua* (SLC)

salt marsh owl's clover (=thorny-tip), *Gastrophysa ambigua* ssp. *ambigua* (SLC)

Hoover's cryptantha, *Cryptantha hooveri* (SLC)

western leatherwood, *Dryca occidentalis* (SLC)

fluron buckwheat, *Eriogonum caninum* (SLC)

stinkbells, *Fritillaria agrestis* (SLC)

serpentine bedstraw, *Galium andrewsii* ssp. *gatense* (SLC)

robust monardella (=robust coyote mint), *Monardella villosa* ssp. *globosa* (SLC)

Pacific cordgrass (=California cudgrass), *Spartina foliosa* (SLC)

San Francisco Bay spineflower, *Chorizanthe cuspidata* var. *cuspidata* (SC) *

northcoast (=Point Reyes) bird's-beak, *Cordylanthus maritimus* ssp. *palustris* (SC) *

Loma Prieta hoia, *Holia strobilina* (SC) *

Kellogg's horkelia, *Horkelia cuneata* ssp. *sericea* (SC) *

prostrate navarrelia (=prostrate pincushionplant), *Navarrelia prostrata* (SC) *

- adobe sanicle, *Sanicula maritima* (SC) *
- Lemmon's jewelflower, *Caulanthus ooulton var lemmonii* (SI,C) *
- Chong's (=artist's) popcorn-flower, *Plagiobothrys charisianus var charisianus* (SI,C) *
- hairless allocarya (=popcornflower), *Plagiobothrys glaber* (SC) **
- caper-fruited tropidocarpum, *Tropidocarpum cappardeum* (SC) **
- Hall's bush mallow, *Molacothamnus hallii* (= *M. fasciculatus*) (SLC)

KEY.

(E)	<i>Endangered</i>	Listed (in the Federal Register) as being in danger of extinction.
(T)	<i>Threatened</i>	Listed as likely to become endangered within the foreseeable future.
(P)	<i>Proposed</i>	Officially proposed (in the Federal Register) for listing as endangered or threatened
(PX)	<i>Proposed Critical Habitat</i>	Proposed as an area essential to the conservation of the species
(C)	<i>Candidate</i>	Candidate to become a <i>proposed</i> species
(SC)	<i>Species of Concern</i>	Other species of concern to the Service.
(SI,C)	<i>Species of Local Concern</i>	Species of local or regional concern or conservation significance
(D)	<i>Delisted</i>	Delisted. Status to be monitored for 5 years.
(CA)	<i>State-Listed</i>	Listed as threatened or endangered by the State of California.
NMFS	NMFS species	Under the jurisdiction of the National Marine Fisheries Service. Contact them directly
*	<i>Extirpated</i>	Possibly extirpated from the area
**	<i>Extinct</i>	Possibly extinct
	<i>Critical Habitat</i>	Area essential to the conservation of a species

ENCLOSURE A

Endangered and Threatened Species that May Occur in
or be Affected by Projects in the Selected Quads Listed Below

Reference File No. 1-1-02-SP-2185

June 10, 2002

QUAD. 427B MILPITAS

Listed Species

Mammals

salt marsh harvest mouse, *Reithrodontomys raviventris* (E)

riparian brush rabbit, *Sylvilagus bachmani riparius* (E) *

San Joaquin kit fox, *Vulpes macrotis mutica* (E)

Birds

bald eagle, *Haliaeetus leucocephalus* (T)

California clapper rail, *Hallia longirostris obsoletus* (E)

California least tern, *Sterna antillarum (=albifrons) browni* (E)

Reptiles

Alameda whipsnake, *Masticophis lateralis euryxanthus* (T)

Critical habitat, Alameda whipsnake, *Masticophis lateralis euryxanthus* (T)

Amphibians

California red-legged frog, *Rana aurora chrysota* (I)

Fish

della smelt, *Hypomesus transpacificus* (T)

Central California Coastal steelhead, *Oncorhynchus mykiss* (T) NMFS

Central Valley steelhead, *Oncorhynchus mykiss* (T) NMFS

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E) NMFS

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T) NMFS

Critical Habitat, Central Valley spring-run chinook, *Oncorhynchus tshawytscha* (I) NMFS

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

Invertebrates

bay checkerspot hutterfly, *Euphydryas orithia bayensis* (I)

vernal pool tadpole shrimp, *Lepidurus packardii* (E)

Plants

Contra Costa goldfields, *Lasthenia conjugens* (E)

Candidate Species

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Fish

Central Valley falllate fall-run chinook salmon, *Oncorhynchus tshawytscha* (C) NMFS

Critical habitat. Central Valley fall/late fall-run chinook, *Oncorhynchus tshawytscha* (C) NMFS

Species of Concern

Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendi townsendi* (SC)
 greater western mastiff-bat, *Eumops perotis californicus* (SC)
 small-footed myotis bat, *Myotis californicus* (SC)
 long-eared myotis bat, *Myotis evotis* (SC)
 fringed myotis bat, *Myotis thysanodes* (SC)
 long-legged myotis bat, *Myotis volans* (SC)
 Yuma myotis bat, *Myotis yumanensis* (SC)
 San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)
 salt marsh vagrant shrew, *Sorex vagrans halicoetes* (SC)

Birds

tricolored blackbird, *Agelaius tricolor* (SC)
 grasshopper sparrow, *Ammodramus savanarum* (SC)
 Bell's sage sparrow, *Amphispiza belli belli* (SC)
 short-eared owl, *Asio flammeus* (SC)
 western burrowing owl, *Athene cunicularia hypugaea* (SC)
 ferruginous hawk, *Buteo regalis* (SC)
 Costa's hummingbird, *Calypte costae* (SC)
 Lawrence's goldfinch, *Carduelis lawrencei* (SC)
 Vaux's swift, *Chaetura vauxi* (SC)
 black tern, *Chlidonias niger* (SC)
 black swift, *Cypseloides niger* (SC)
 hermit warbler, *Dendroica occidentalis* (SC)
 white-tailed (black shouldered) kite, *Elanus leucurus* (SC)
 little willow flycatcher, *Empidonax traillii brewsteri* (CA)
 American peregrine falcon, *Falco peregrinus anatum* (D)
 saltmarsh common yellowthroat, *Geothlypis trichas sinuosa* (SC)
 loggerhead shrike, *Lanius ludovicianus* (SC)
 Lewis' woodpecker, *Melanerpes formicivorus* (SC)
 Alameda (South Bay) song sparrow, *Melospiza melodia pusillula* (SC)
 long-billed curlew, *Numenius americanus* (SC)
 bank swallow, *Riparia riparia* (CA)
 rufous hummingbird, *Selasphorus rufus* (SC)
 Allen's hummingbird, *Selasphorus sasin* (SC)

Reptiles

- silvery legless lizard, *Anniella pulchra pulchra* (SC)
- northwestern pond turtle, *Clemmys marmorata marmorata* (SC)
- southwestern pond turtle, *Clemmys marmorata pallida* (SC)
- California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

- foothill yellow-legged frog, *Rana boylei* (SC)
- western spadefoot toad, *Spea hammondi* (SC)

Fish

- longfin smelt, *Sprinotus thaleichthys* (SC)

Invertebrates

- Opler's longhorn moth, *Adela oplerella* (SC)
- Ricksecker's water scavenger beetle, *Hydrochara rickseckeri* (SC)

Plants

- alkali milk vetch, *Astragalus tener* var. *tener* (SC)
- San Joaquin sparscale (=saltbush), *Atriplex joaquiniana* (SC)
- salt marsh owl's clover (=plummy-nip), *Castilleja ambigua* ssp. *ambigua* (SLC)
- northcoast (=Point Reyes) bird's-beak, *Cordylanthus maritimus* ssp. *palustris* (SC) *
- Huover's button-celery, *Fryxogram aristulatum* var. *huoveri* (SC)
- Congdon's tarplant, *Humronia parryi* ssp. *congdonii* (SC)
- arcuate bush mallow, *Malacothrummus arcuatus* (=M. *fuscolafat*) (SLC)
- prostrate navamota (=prostrate pincushionplant), *Navamota prostrata* (SC) *

Q11A9 446C NILE:5

Listed Species

Mammals

- riparian (San Joaquin Valley) woodrat, *Neotoma fuscipes riparia* (E) *
- salt marsh harvest mouse, *Reithrodontomys myrensis* (L)
- riparian brush rabbit, *Sylvilagus bachmani riparius* (E) *
- San Joaquin kit fox, *Vulpes macrotis nativa* (I:)

Birds

- bald eagle, *Haliaeetus leucocephalus* (T)
- California least tern, *Sterna antillarum* (= *albatross*) *browna* (E)

Reptiles

- Alameda whipsnake, *Masticophis lateralis euryxanthus* (T)
- Critical habitat, Alameda whipsnake, *Masticophis lateralis euryxanthus* (E)

Amphibians

California red-legged frog, *Rana aurora draytoni* (T)

Fish

delta smelt, *Hypomus transpacificus* (T)

Central California Coastal steelhead, *Oncorhynchus mykiss* (F) NMFS

Central Valley steelhead, *Oncorhynchus mykiss* (T) NMFS

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E) NMFS

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

Invertebrates

vernal pool fairy shrimp, *Branchinecta lynchi* (T)

bay checkerspot butterfly, *Euphydryas editha bayensis* (T)

vernal pool tadpole shrimp, *Lepidurus packardii* (E)

Candidate Species

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Fish

Central Valley fall-late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C) NMFS

Species of Concern

Mammals

Pacific western big-eared bat, *Corynorhinus* (= *Plecotus*) *townsendii townsendii* (SC)

greater western mastiff bat, *Lasiurus perotis californicus* (SC)

small footed myotis bat, *Myotis californicus* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes amnocoens* (SC)

Birds

tricolored blackbird, *Agelaius tricolor* (SC)

grasshopper sparrow, *Ammodramus saviannarum* (SC)

Bell's sage sparrow, *Amphispiza belli belli* (SC)

short-eared owl, *Asio flammeus* (SC)

western burrowing owl, *Athene cunicularia hypugaea* (SC)

ferruginous hawk, *Buteo regalis* (SC)

Costa's hummingbird, *Calypte costae* (SC)

Lawrence's goldfinch, *Carduelis lawrencei* (SC)

Vaux's swift, *Chaetura vauxi* (SC)

black tern, *Chlidonias niger* (SC)
 black swift, *Cypseloides niger* (SC)
 hermit warbler, *Dendroica occidentalis* (SC)
 white-tailed (=black shouldered) kite, *Elanus leucurus* (SC)
 little willow flycatcher, *Empidonax traillii brewsteri* (CA)
 American peregrine falcon, *Falco peregrinus anatum* (D)
 saltmarsh common yellowthroat, *Geothlypis trichas sinuosa* (SC)
 loggerhead shrike, *Lanius ludovicianus* (SC)
 Lewis' woodpecker, *Melanerpes formicivorus* (SC)
 Alameda (South Bay) song sparrow, *Melospiza melodia pusillula* (SC)
 long-billed curlew, *Numenius americanus* (SC)
 bank swallow, *Riparia riparia* (CA)
 rufous hummingbird, *Selasphorus rufus* (SC)
 Allen's hummingbird, *Selasphorus sasin* (SC)

Reptiles

northwestern pond turtle, *Chrysemys marmorata marmorata* (SC)
 southwestern pond turtle, *Chrysemys marmorata pallida* (SC)
 California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

foothill yellow-legged frog, *Rana boylei* (SC)

Fish

longfin smelt, *Spirinchus tholeichthys* (SC)

Invertebrates

Opler's longhorn moth, *Adela oplerella* (SC)
 Ricksecker's water scavenger beetle, *Hydrochara rickseckeri* (SC)
 California landonella fairy shrimp, *Landonella occidentalis* (SC)

Plants

chaparral harebell (=bellflower), *Campanula exigua* (SLC)
 South Bay clarkia (=Santa Clara red ribbons), *Clarkia concinna* ssp. *automixa* (SC)
 Congdon's tarplant, *Hemizonia parryi* ssp. *congdoni* (SC)
 delta tule pea, *Lathyrus jepsonii* var. *jepsonii* (SC)
 robust monardella (=robust coyote mint), *Monardella villosa* ssp. *glabosa* (SLC)
 Choriz's (=artist's) popcorn-flower, *Plagiobothrys chorizanus* var. *chorizanus* (SLC)
 most beautiful (uncommon) jewelflower, *Streptanthus albidus* ssp. *peramoenus* (SC)

KEY:

(E)	<i>Endangered</i>	Listed (in the Federal Register) as being in danger of extinction
(T)	<i>Threatened</i>	Listed as likely to become endangered within the foreseeable future
(P)	<i>Proposed</i>	Officially proposed (in the Federal Register) for listing as endangered or threatened.
(PX)	<i>Proposed Critical Habitat</i>	Proposed as an area essential to the conservation of the species
(C)	<i>Candidate</i>	Candidate to become a proposed species
(SC)	<i>Species of Concern</i>	May be endangered or threatened. Not enough biological information has been gathered to support listing at this time.
(SLC)	<i>Species of Local Concern</i>	Species of local or regional concern or conservation significance.
(MB)	<i>Migratory Bird</i>	Migratory bird
NMFS	NMFS species	Under the jurisdiction of the National Marine Fisheries Service. Contact them directly.
(U)	<i>Delisted</i>	Delisted. Status to be monitored for 5 years.
(CA)	<i>State-Listed</i>	Listed as threatened or endangered by the State of California
(*)	<i>Extirpated</i>	Possibly extirpated from this quad
(**)	<i>Extinct</i>	Possibly extinct.
	<i>Critical Habitat</i>	Area essential to the conservation of a species

Appendix C-2

**California Natural Diversity Database Search for
the Niles, Milpitas, Mountain View, Newark,
Hayward, Dublin, Livermore, La Costa Valley,
and Calaveras Reservoir 7.5-Minute USGS
Topographic Quadrangles**

California Department of Fish and Game
 Natural Diversity Data Base

List of Elements and Status by Scientific Name
 BART NSX QUAO SEARCH

Scientific/Common Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
ACCIPITER COOPERII COOPER'S HAWK	None/ None	G5/ S3		SC
ACCIPITER STRIATUS SHARP-SHINNED HAWK	None/ None	G5/ S3		SC
AGELAIUS TRICOLOR TRICOLORED BLACKBIRD	None/ None	G3/ S3		SC
AMBYSTOMA CALIFORNIENSE CALIFORNIA TIGER SALAMANDER	Endangered/ None	G2G3/ S2S3		SC
AQUILA CHRYSAETOS GOLDEN EAGLE	None/ None	G5/ S3		SC
ARDEA HERODIAS GREAT BLUE HERON	None/ None	G5/ S4		
ASTRAGALUS TENER VAR TENER ALKALI MILK-VEITCH	None/ None	G1T1/ S1.1	1B/ 3-2-3	
ATHENE CUNICULARIA BURROWING OWL	None/ None	G4/ S2		SC
ATRIPLEX CORDILATA HEARTSCALE	None/ None	G2?/ S2.2?	1B/ 2-2-3	
ATRIPLEX JOAQUINIANA SAN JOAQUIN SALTBUSH	None/ None	G2/ S2.1	1B/ 2-2-3	
BALSAMORHIZA MACROLEPIS VAR MACROLEPIS BIG SCALE BALSAMROOT	None/ None	G3T2/ S2.2	1B/ 2-2-3	
BRANCHINECTA LYNCHI VERNAL POND FAIRY SHRIMP	Threatened/ None	G2G3/ S2S3		
CENTROMADIA PARRYI SSP CONGDONII CONGDON'S TARPLANT	None/ None	G5T1/ S1.1	1B/ 3-3-3	

California Department of Fish and Game
Natural Diversity Data Base

List of Elements and Status by Scientific Name
BART WSX QUAD SEARCH

Scientific/Common Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
<i>CHARADRIUS ALEXANDRINUS NIVOSUS</i> WESTERN SNOWY PLOVER	Threatened/ None	G4T3/ S2		SC
<i>CHORIZANTHE ROBUSTA VAR ROBUSTA</i> ROBUST SPINEFLOWER	Endangered/ None	G2T1/ S1.1	1B/ 3-3-3	
<i>CIRCUS CYANEUS</i> NORTHERN HARRIER	None/ None	G5/ S3		SC
<i>CLEMYS MARMORATA</i> WESTERN POND TURTLE	None/ None	G4/ S3		SC
<i>CLEMYS MARMORATA PALLIDA</i> SOUTHWESTERN POND TURTLE	None/ None	G4T2T3 / S2		SC
<i>CORDYLANTHUS MARITIMUS SSP PALUSTRIS</i> POINT REYES BIRD'S-BEAK	None/ None	G3T2/ S2.2	1B/ 2-2-2	
<i>CORDYLANTHUS PALMATUS</i> PALMATE-BRACTED BIRD'S-BEAK	Endangered/ Endangered	G1/ S1.1	1B/ 3-3-3	
<i>CORYORHINUS TOWNSENDII TOWNSENDII</i> TOWNSEND'S WESTERN BIG-EARED BAT	None/ None	G4T3T4 / S2S3		SC
<i>DANAUS PLEXIPPUS</i> MONARCH BUTTERFLY	None/ None	G4/ S3		
<i>DENDROICA PETECHIA BREWSTERI</i> YELLOW WARBLER	None/ None	G5T3?/ S2		SC
<i>DIPodomys HEERMANNI BERKELEYENSIS</i> BERKELEY KANGAROO RAT	None/ None	G3G4T4 / S4		
<i>DISCA OCCIDENTALIS</i> WESTERN LEATHERWOOD	None/ None	G2G3/ S2S3	1B/ 2-2-3	
<i>ELANUS LEUCURUS</i> WHITE-TAILED KITE	None/ None	G5/ S3		

California Department of Fish and Game
Natural Diversity Data Base

List of Elements and Status by Scientific Name
DART W5X QUAD SEARCH

Scientific/Common Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDPG Status
EREMOPHILA ALPESTRIS ACTIA CALIFORNIA HORNED LARK	None/ None	G5T3/ S3		SC
FALCO PEREGRINUS ANATUM AMERICAN PEREGRINE FALCON	unknown code.../ Endangered	G4T3/ S2		
FRITILLARIA LILIACEA FRAGRANT FRITILLARY	None/ None	G2/ S2.2	1B/ 2-2-3	
GEOTHLYPIS TRICHAS SINUOSA SALTMARSH COMMON YELLOWTHROAT	None/ None	G5T2/ S2		SC
HELIANTHELLA CASTANEA DIABLO HELIANTHELLA	None/ None	G3/ S3.2	1B/ 2 2 3	
LASTHENIA CONJUGENS CONTRA COSTA GOLDFIELDS	Endangered/ None	G1/ S1.1	1B/ 3-3-3	
LATERALLUS JAMAICENSIS COTURNICULUS CALIFORNIA BLACK RAIL	None/ Threatened	G4T1/ S1		
LEPIDURUS PACKARDI VERNAL POOL TADPOLE SHRIMP	Endangered/ None	G2G3/ S2S3		
LINDERIELLA OCCIDENTALIS CALIFORNIA LINDERIELLA	None/ None	G2G3/ S2S3		
MASTICOPHIS LATERALIS EURYXANTHUS ALAMEDA WHIPSNAKE	Threatened/ Threatened	G4T2/ S2		
MONARDELLA VILLOSA SSP GLOUCCIA ROBUST MONARDELLA	None/ None	G51B/ S1	1B/ 3 2 3	
NORTHERN COASTAL SALT MARSH	None/ None	G3/ S3.2		
ONCORHYNCHUS MYKISS IRIDEUS STEELHEAD-CENTRAL CALIFORNIA COAST ESU	Threatened/ None	G5T2/ S2		

California Department of Fish and Game
Natural Diversity Data Base

List of Elements and Status by Scientific Name
BART WEX QUAD SEARCH

Scientific/Common Name	Federal/ State Status	Global/ State Rank	CNPS/ R-B-D	CDFG Status
<i>PLAGIOBOTHRYS GLABER</i> HAIRLESS POPCORN-FLOWER	None/ None	GH/ SH	1A/ *	
<i>RALLUS LONGIROSTRIS OBSOLETUS</i> CALIFORNIA CLAPPER RAIL	Endangered/ Endangered	G5T1/ S1		
<i>RANA AURORA DRAYTONII</i> CALIFORNIA RED-LEGGED FROG	Threatened/ None	G4T2T3 / S2S3		SC
<i>RANA BOYLI</i> FOOTHILL YELLOW-LEGGED FROG	None/ None	G1/ S2S3		SC
<i>REITHRODONTOMYS HAVIVENTRIS</i> SALT-MARSH HARVEST MOUSE	Endangered/ Endangered	G1G2/ S1S2		
<i>RIPARIA RIPARIA</i> BANK SWALLOW	None/ Threatened	G5/ S2S3		
<i>SIDALCEA MALACHROIDES</i> MAPLE LEAVED CHECKERBLOOM	None/ None	G2/ S2.2	1B/ 2 2 2	
<i>SOREX VAGRANS HALICOMETES</i> SALT-MARSH WANDERING SIREW	None/ None	G5T1/ S1		SC
<i>STERNA ANTILLARUM BROWNI</i> CALIFORNIA LEAST TERN	Endangered/ Endangered	G4T2T3 / G2S3		
<i>STREPTANTHUS ALBIDUS SSP PERMOENUS</i> MOST BEAUTIFUL JEWEL-FLOWER	None/ None	G2T2/ S2.2	1B/ 2-2-3	
<i>SUAEDA CALIFORNICA</i> CALIFORNIA SEABLITE	Endangered/ None	G1/ S1.1	1B/ 3-3-3	
<i>SYCAMORE ALLUVIAL WOODLAND</i>	None/ None	G1/ S1.1		
<i>TROPIDOCARPUM CAPPARIDEUM</i> CAPER-FRUITED TROPIDOCARPUM	None/ None	GH/ SH	1A/ *	

California Department of Fish and Game
 Natural Diversity Data Base

List of Elements and Status by Scientific Name
 BART WSX QUAD SEARCH

Scientific/Common Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
TRYONIA IMITATOR MIMIC TRYONIA (-CALIFORNIA BRACKISHWATER SNAIL)	None/ None	G2G1/ S2S3		
VALLEY NEEDLEGRASS GRASSLAND	None/ None	G1/ S3.1		
VALLEY SINK SCRUB	None/ None	G1/ S1.1		
VULPES MACROTIS NUTICA SAN JOAQUIN KIT FOX	Endangered/ Threatened	G4T2T3 / S2S3		

Appendix C-3

**Results of Surveys Conducted for
Special-Status Birds and Nesting Raptors**



Memorandum

Date June 25, 2002

To Debra Jones, Project Manager

From William Widdowson and Brook Vinnedge, Wildlife Biologists

Subject **Special Status Wildlife (Birds) Survey Report for the BART Warm Springs Extension (WSX), Fremont, CA, June 10, 2002**

Summary

On 10 June 2002, Jones & Stokes biologists William Widdowson and Brook Vinnedge conducted surveys for special-status bird species within the BART Warm Springs Extension (WSX) project area. This survey focussed on special-status bird species with potential to occur in the project area. Biologists surveyed for the following species: Northern Harrier (*Circus cyaneus*), White-tailed Kite (*Elanus caeruleus*), Cooper's Hawk (*Accipiter cooperii*), Long-billed Curlew (*Numenius americanus*), Bank Swallow (*Riparia riparia*), Tricolored Blackbird (*Agelaius tricolor*), and nesting raptors. In total, 48 bird species were detected (Table 1). Of these special-status species, biologists detected one Tricolored Blackbird and an abandoned Northern Harrier nest. No nesting raptors were detected in the project corridor during the survey, but suitable habitat exists for nesting raptors. It is recommended that if construction activities are scheduled to take place during the nesting season (February 1–August 1), a pre-construction survey be conducted prior to removal of any trees suitable for nesting raptors.

Methods

On June 10, 2002, an informal bird survey was conducted along the proposed route for the WSX project, to assess the potential for the target species to occur within the area. Biologists began the survey at the Fremont BART station and moved south to the proposed Warm Springs Station parcel. Within this corridor, all suitable habitat for the target species was surveyed and assessed for potential to support special status species. All bird species heard or seen were noted. Survey of the area began at 10:20 a.m., concluding at 13:16 p.m. Pacific Daylight (PDT). Weather conditions were excellent: 5% cloud cover; temperature range 78 to 81 degrees Fahrenheit; wind 1 (Beaufort Scale); no precipitation. Results of the survey are summarized from north to south.

Results

A remnant raptor nest was observed in a large clump of eucalyptus trees located approximately 400-feet east of Tule Pond. The trees are approximately 150 feet tall and are located in a corridor of non-native annual grassland habitat approximately 150 feet wide. This corridor separates two housing developments and connects Walnut Ave with Stevenson Boulevard. The trees and surrounding habitat provide suitable nesting and foraging habitat for special status raptors such as White-tailed Kite and Northern Harrier.

A single adult male Tricolored Blackbird was detected during the survey. This individual was observed mingling with a flock of Red-winged Blackbirds (*Agelaius phoeniceus*) at the north end of New Marsh, adjacent to and north of Lake Elizabeth. The GPS coordinates were noted (TRBL 1 - N 37° 33.121, W 121° 57.556).

One Red-tailed Hawk (*Buteo jamaicensis*) was observed foraging over the ruderal field located adjacent to and north of Paseo Padre Parkway. A pair of American Kestrels (*Falco amerincanus*) was observed in the UP right-of-way approximately 200 feet north of Washington Boulevard.

Two Barn Owl (*Tyto alba*) feathers were found in the non-native grassland habitat at the proposed Irvington Station parking lot east of Osgood Road. In addition, one Red-shouldered Hawk (*Buteo striatus*) was observed roosting in a large conifer at the western boundary of this parcel.

One inactive Northern Harrier nest was observed in the parcel of land south of Grimmer Road and east of the existing UP tracks. The parcel, which is the proposed Warm Springs Station, currently contains facilities for model airplane use (a runway) surrounded by 22.5 acres of non-native annual grassland. The destroyed nest is located approximately 190 feet east of the UP tracks and approximately 600 feet south of Grimmer Boulevard. The nest appeared to be flattened from mowing activity earlier in the season. In the nest were 3 intact eggs and some eggshell fragments.

Table 1. Birds Observed During Survey of Fremont BART Extension, Fremont, CA, June 10, 2002

Scientific Name	Common Name
<i>Podilymbus podiceps</i>	Pied-billed Grebe
<i>Phalacrocorax auritus</i>	Double-crested Cormorant
<i>Egretta thula</i>	Snowy Egret
<i>Butorides striatus</i>	Green Heron
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron
<i>Branta canadensis</i>	Canada Goose
<i>Anas platyrhynchos</i>	Mallard
<i>Buteo striatus</i>	Red-shouldered Hawk
<i>Buteo jamaicensis</i>	Red-tailed Hawk
<i>Falco sparverius</i>	American Kestrel
<i>Columba livia</i>	Rock Dove (I)
<i>Zenaida macroura</i>	Mourning Dove
<i>Sterna forsteri</i>	Forster's Tern
<i>Charadrius vociferus</i>	Killdeer
<i>Calypte anna</i>	Anna's Hummingbird
<i>Picoides nuttallii</i>	Nuttall's Woodpecker
<i>Picoides pubescens</i>	Downy Woodpecker
<i>Sayornis nigricans</i>	Black Phoebe
<i>Empidonax difficilis</i>	Pacific-slope Flycatcher
<i>Empidonax traillii</i>	Willow Flycatcher
<i>Corvus corax</i>	Common Raven
<i>Pica nuttalli</i>	Yellow-billed Magpie
<i>Corvus brachyrhynchos</i>	American Crow
<i>Aphelocoma californica</i>	Western Scrub-Jay
<i>Hirundo rustica</i>	Barn Swallow
<i>Tachycineta bicolor</i>	Tree Swallow
<i>Stelgidopteryx serripennis</i>	N. Rough-winged Swallow
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow
<i>Psaltriparus minimus</i>	Bushtit
<i>Thryomanes bewickii</i>	Bewick's Wren
<i>Parus inornatus</i>	Oak Titmouse
<i>Turdus migratorius</i>	American Robin
<i>Mimus polyglottos</i>	Northern Mockingbird
<i>Toxostoma redivivum</i>	California Thrasher

Scientific Name	Common Name
<i>Sturnus vulgaris</i>	European Starling (I)
<i>Geothlypis trichas</i>	Common Yellowthroat
<i>Dendroica petechia</i>	Yellow Warbler
<i>Pipilo maculatus</i>	Spotted Towhee
<i>Melospiza melodia</i>	Song Sparrow
<i>Euphagus cyanocephalus</i>	Brewer’s Blackbird
<i>Agelaius tricolor</i>	Tricolored Blackbird
<i>Agelaius phoeniceus</i>	Red-winged Blackbird
<i>Molothrus ater</i>	Brown-headed Cowbird
<i>Icterus bullockii</i>	Bullock’s Oriole
<i>Carpodacus mexicanus</i>	House Finch
<i>Carduelis psaltria</i>	Lesser Goldfinch
<i>Carduelis tristis</i>	American Goldfinch
<i>Passer domesticus</i>	House Sparrow
Total Number of Species	48
(I) = Introduced	

Results of Special-Status Plant Surveys



Memorandum

Date June 25, 2002

To Debra Jones, Project Manager

From Rob Preston

Subject **Special Status Plant Survey Report for the BART Warm Springs Extension, Fremont, CA, June 10, 2002**

Introduction

This report presents the results of Jones & Stokes's special-status plant survey for the proposed San Francisco Bay Area Rapid Transit District (BART) Warm Springs Extension Project (WSX). The objective of this survey was to complete a botanical survey to determine whether special-status plants or their habitat occurred within the project area and to supplement information obtained during previous surveys. The results of this survey will be used to prepare the supplemental environmental impact report (SEIR) that was prepared for the project in 1992.

Project Description and Location

BART proposes to extend its existing service in Alameda County 5.4 miles to the south, from the current end-of-line at the Fremont Station to 2,000 feet north of Mission Boulevard, in the Warm Springs District. The project would consist of construction of new track, one or two new stations, and ancillary facilities such as traction power, train control and communications facilities, and maintenance and storage facilities. Most of the alignment would be at grade in the existing railroad alignment formerly operated by the Western Pacific Railroad. However, at the northern portion of the alignment, the alignment would be in a subway structure for approximately 1 mile under Fremont Central Park.

Biological Setting

The biological setting was described in the 1992 EIR prepared for the project (DKS Associates 1992). The land along the proposed alignment has been converted from its historical condition to agricultural, residential, and commercial uses. Much of the vegetation along the alignment consists of ornamental plantings, such as grass lawn and landscaping trees. Several vacant lots and fallow fields along the alignment are vegetated by non-native grasses and ruderal forbs. Mission Creek, which crosses the alignment on the east side of Fremont Central Park, supports a mixed riparian forest of willows, Fremont cottonwood, and black walnut. Mixed riparian forest is also present at Tule Pond, (a natural depression currently used for flood control) located just south of the Fremont BART station. Most of the other streams crossing the alignment have been channelized and have concrete-lined bottoms. Small seasonal wetlands are present in the toe-drain along the existing railroad alignment.

Methods

Prior to conducting the field work, Jones & Stokes botanists reviewed existing information on the potential occurrence of special-status plant species along the alignment, including the 1992 EIR (DKS Associates 1992), other biological surveys conducted in the project vicinity (Environmental Science Associates 1993, Environmental Collaborative 2002), and a search of the California Natural Diversity Data Base (2002). Based on this information, we generated a list of potentially occurring special-status plant species (Table 1) to assist with planning the field survey.

Jones & Stokes botanists Robert Preston, Ph.D., and Brad Schafer, conducted a 1-day survey of the proposed alignment on May 17, 2002. The survey area consisted of an approximately 100-foot-wide corridor centered on the proposed alignment. We walked the entire length of the proposed alignment and visually inspected the survey area, except for a segment between Lake Elizabeth and Paseo Padre Parkway. We recorded all spontaneously occurring plants encountered, which we identified to species, except for a few that lacked flowers, fruits, or other diagnostic features.

Results

Table 2 lists all of the plant species we encountered during the survey. We did not encounter any special-status plant species in the project area. The absence of natural vegetation, which is reflected in the high percentage of introduced species present (67 of 100 species), indicates that the potential for special-status species to occur in the project area is very low. No habitat is present for most of the species in Table 1. Of the special-status species known to occur in the project area, potential habitat appears to be present for two species.

Grassland habitat at the proposed Warm Springs Station is potential habitat for Congdon's spikeweed (*Hemizonia parryi* ssp. *congdonii*). Congdon's spikeweed occurs in similar ruderal forb-grassland habitat at several locations in the Warm Springs District, including an occurrence about 0.4 miles west of the project alignment at Auto Mall Parkway (California Natural Diversity Data Base 2002). Although we did not observe any spikeweeds at the proposed station site, it may have been too early in the season to detect them. As a reference, we visited the Auto Mall Parkway locality and also did not observe any spikeweed plants present. Congdon's spikeweed normally blooms during the autumn, and the best time to survey for the species is during September or October. Consequently, we cannot rule out the possibility that Congdon's spikeweed occurs in the project area but was not evident because of its late blooming season.

A seasonal wetland present along the railroad right-of-way south of Washington Boulevard supports species found in vernal pools. This is potential habitat for Hoover's button-celery (*Eryngium aristulatum* var. *hooveri*). Hoover's button-celery is known historically from

collections made near Alviso (Sheikh 1978), although no populations are currently known to occur in the east San Francisco Bay Area. Because Hoover's button-celery was not found in the project area, we conclude that it is not present and would not be affected by the proposed project.

References

California Natural Diversity Data Base. 2002. RareFind 2, Version 2.1.2 (March 1, 2002 update). California Department of Fish and Game, Sacramento, CA.

DKS Associates. 1991. *BART Warm Springs Extension Draft Environmental Impact Report*. July, 1991. Oakland, CA. Prepared for San Francisco Bay Area Rapid Transit District.

Environmental Collaborative. 2000. Biological Resource Assessment for the Grimmer Boulevard and Irvington Pump Station Sites owned by San Francisco Public Utilities Commission, Fremont, California. August 2000. Prepared for BASELINE Environmental Consulting, Emeryville, CA.

Environmental Science Associates. 1993. *Lake Elizabeth/Stivers Lagoon Marsh Design and Improvement Program, Environmental Impact Report*. Draft. February 1993. Prepared for City of Fremont, Fremont, CA.

Sheikh, M. Y. 1978. *A Systematic Study of West North American Genus Eryngium (Umbelliferae - Apoideae)*. Ph.D. Dissertation, University of California, Berkeley.

Table 1. Special-Status Plants Potentially Occurring in the Vicinity of the Proposed BART Warm Springs Extension

Name	Status ^a Federal/State/ CNPS	Distribution	Habitat	Occurrence in Project Area
Alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>	-/-/1B	Merced, Solano, and Yolo Counties	Grassy flats and vernal pool margins, on alkali soils; blooms March-June	Not present; habitat not present
San Joaquin saltbush <i>Atriplex joaquiniana</i>	-/-/1B	West edge of Central Valley from Glenn County to Tulare County	Alkali meadow, alkali grassland, saltbush scrub; blooms April-September	Not present; habitat not present
Big scale balsamroot <i>Balsamorhiza macrolepis</i>	-/-/1B	Scattered occurrences in the Coast Ranges and Sierra Nevada foothills	Fields and rocky hillsides, below 2,000 feet; grassland, foothill woodland; blooms March-June	Not present; habitat not present
Congdon's spikeweed <i>Centromadia parryi</i> ssp. <i>congonii</i>	-/-/1B	East San Francisco Bay Area, Salinas Valley, Los Osos Valley	Annual grassland, on lowers slopes, flats, and swales, sometimes on alkaline or saline soils, below 560 feet; blooms June-November	Not observed; potential habitat present
Robust spineflower <i>Chorizanthe robusta</i> var. <i>robusta</i>	E/-/1B	Coastal central California, from San Mateo to Monterey County	Coastal dunes, coastal scrub, on sandy soil; blooms May-September	Not present; habitat not present

Table 1. Continued

Name	Status ^a Federal/State/ CNPS	Distribution	Habitat	Occurrence in Project Area
Point Reyes bird's-beak <i>Cordylanthus maritimus</i> ssp. <i>paustris</i>	-/-/1B	Coastal northern California, from Humboldt to Santa Clara County; Oregon	Coastal salt marsh; blooms June-October	Not present; habitat not present
Western leatherwood <i>Dirca occidentalis</i>	-/-/1B	San Francisco Bay Area, from Sonoma County to Santa Clara County	Chaparral, forest, and woodland habitats; blooms January-April	Not present; habitat not present
Hoover's button-celery <i>Eryngium aristulatum</i> var. <i>hooveri</i>	-/-/1B	South San Francisco Bay area, South Coast Ranges	Vernal pools; blooms July	Not present; potential habitat present
Fragrant fritillary <i>Fritillaria liliacea</i>	-/-/1B	Coast Ranges from Marin County to San Benito County	Coastal scrub, coastal prairie, annual grassland, often on serpentine soils, below 1,350 feet; blooms February-April	Not present; habitat not present
Diablo helianthella <i>Helianthella castanea</i>	-/-/1B	San Francisco Bay area	At chaparral/oak woodland ecotone, often in partial shade, on rocky soils, between 80-3,800 feet; blooms April-June	Not present; habitat not present

Table 1. Continued

Name	Status ^a Federal/State/ CNPS	Distribution	Habitat	Occurrence in Project Area
Delta tulle pea <i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	-/-/1B	Central Valley from Sacramento County to Fresno County	Marshes and swamps (freshwater and brackish); blooms May- June	Not present; habitat not present
Contra Costa goldfields <i>Lasthenia conjugens</i>	E/-/1B	Scattered occurrences in Coast Range valleys and southwest edge of Sacramento Valley	Alkaline or saline vernal pools and swales, below 700 feet; blooms March- June	Not present; habitat not present
Robust monardella <i>Monardella villosa</i> ssp. <i>globosa</i>	-/-/1B	North Coast Ranges and Eastern San Francisco Bay Area	Oak woodland and grassy openings in chaparral; blooms June-July	Not present; habitat not present
Hairless popcorn flower <i>Plagiobothrys glaber</i>	-/-/1A	Coastal valleys from Marin County to San Benito County	Alkaline meadows; blooms April-May	Not present; habitat not present
Maple-leaved checkerbloom <i>Sidalcea malachroides</i>	-/-/1B	North Coast and northern Central Coast: from Humboldt to Monterey County	Coastal Scrub, Perennial Grassland, Redwood Forest, Douglas-fir Forest, in open areas	Not present; habitat not present

Table 1. Continued

Name	Status ^a Federal/State/ CNPS	Distribution	Habitat	Occurrence in Project Area
Most beautiful jewel-flower <i>Streptanthus albidus</i> ssp. <i>peramoenus</i>	-/-/1B	Contra Costa, Alameda, and Santa Clara counties	Chaparral, annual grassland, on ridges and slopes, on serpentine outcrops, between 450-3,200 feet; blooms April-June	Not present; habitat not present
California seablite <i>Suaeda californica</i>	E/-/1B	Morro Bay, San Luis Obispo County; historically found in the south San Francisco Bay	Margins of tidal salt marsh; blooms July- October	Not present; habitat not present

Table 2. List of Plant Species Observed along Proposed Alignment of BART Warm Springs Extension

Scientific Name	Common Name
<i>*Agrostis stolonifera</i>	creeping bent
<i>Alisma plantago-aquatica</i>	water plantain
<i>Ambrosia psilostachya</i>	western ragweed
<i>*Anagallis arvensis</i>	scarlet pimpernel
<i>*Arundo donax</i>	giant reed
<i>Asclepias fascicularis</i>	narrow-leaf milkweed
<i>*Avena fatua</i>	wild oat
<i>Baccharis pilularis</i>	coyote brush
<i>Baccharis salicifolius</i>	mulefat
<i>*Beta vulgaris</i>	beet
<i>*Bromus catharticus</i>	rescue grass
<i>*Bromus diandrus</i>	riggut brome
<i>*Bromus hordeaceus</i>	soft chess
<i>*Bromus madritensis ssp. rubens</i>	red brome
<i>*Bromus tectorum</i>	cheatgrass
<i>*Capsella bursa-pastoris</i>	shepherd's-purse
<i>*Cardaria draba</i>	heart-podded hoary cress
<i>*Carduus pycnocephalus</i>	Italian thistle
<i>*Centaurea calcitrapa</i>	purple star-thistle
<i>Chamaesyce sp.</i>	spurge
<i>Chenopodium sp.</i>	goosefoot
<i>*Cirsium vulgare</i>	bull thistle
<i>*Conium maculatum</i>	poison hemlock
<i>*Convolvulus arvensis</i>	field bindweed
<i>*Conyza bonariensis</i>	horseweed
<i>*Coronopus didymus</i>	wartcress
<i>Crassula aquatica</i>	water pygmy-weed
<i>*Crypsis schoenoides</i>	swamp timothy
<i>Cyperus eragrostis</i>	umbrella sedge
<i>Distichlis spicata</i>	saltgrass
<i>*Ditrichia graveolens</i>	stinkweed
<i>Eleocharis macrostachys</i>	creeping spikerush
<i>Epilobium brachycarpum</i>	panicled willow-herb
<i>Eremocarpus setigerus</i>	turkey mullein
<i>*Erodium cicutarium</i>	red-stem filaree
<i>Eschscholzia californica</i>	California poppy
<i>*Eucalyptus camaldulensis</i>	red gum
<i>*Foeniculum vulgare</i>	sweet fennel
<i>Galium aparine</i>	bedstraw
<i>*Geranium dissectum</i>	cut-leaf geranium
<i>*Gnaphalium luteo-album</i>	weedy cudweed
<i>*Hirschfeldia incana</i>	Mediterranean mustard
<i>Hordeum brachyantherum</i>	meadow barley
<i>*Hordeum murinum ssp. leporinum</i>	foxtail barley
<i>*Hordeum vulgare</i>	barley
<i>Juglans sp.</i>	black walnut

Scientific Name	Common Name
<i>Juncus balticus</i>	Baltic rush
* <i>Lactuca serriola</i>	prickly lettuce
<i>Lepidium strictum</i>	wayside peppergrass
<i>Leymus triticoides</i>	creeping wildrye
* <i>Lolium multiflorum</i>	Italian ryegrass
* <i>Lotus corniculatus</i>	bird's-foot trefoil
* <i>Malva nicaensis</i>	bull mallow
<i>Malvella leprosa</i>	alkali mallow
* <i>Matricaria matricarioides</i>	pineapple weed
* <i>Medicago polymorpha</i>	burclover
* <i>Melilotus alba</i>	white sweetclover
* <i>Myoporum laetum</i>	myoporum
* <i>Nasturtium officinale</i>	watercress
* <i>Olea europaea</i>	olive
* <i>Opuntia</i> sp.	prickly-pear
* <i>Paspalum dilatatum</i>	Dallisgrass
* <i>Phalaris minor</i>	Mediterranean canary grass
* <i>Phalaris paradoxa</i>	paradox canary grass
* <i>Picris echioides</i>	bristly ox-tongue
* <i>Piptatherum mileaceum</i>	smilo grass
* <i>Plantago lanceolata</i>	English plantain
<i>Polygonum amphibium</i> var. <i>emersum</i>	kelp
* <i>Polygonum arenastrum</i>	common knotweed
* <i>Polypogon monspeliensis</i>	annual rabbit's-foot grass
* <i>Prunus dulcis</i>	almond
* <i>Raphanus sativus</i>	wild radish
* <i>Ricinis communis</i>	castor-bean
* <i>Rubus discolor</i>	Himalaya blackberry
<i>Rubus ursinus</i>	California blackberry
* <i>Rumex crispus</i>	curly dock
<i>Salix exigua</i>	narrow-leaved willow
<i>Salix laevigata</i>	red willow
<i>Salix lasiolepis</i>	arroyo willow
* <i>Salsola tragus</i>	Russian thistle
<i>Sambucus mexicanus</i>	blue elderberry
* <i>Schinus</i> sp.	pepper tree
<i>Schoenoplectus acutus</i> var. <i>occidentalis</i>	hard-stem bulrush
<i>Scrophularia californica</i>	California figwort
<i>Senecio vulgaris</i>	common groundsel
* <i>Silybum marianum</i>	milk-thistle
* <i>Sinapis arvensis</i>	field mustard
* <i>Sonchus asper</i>	prickly sow-thistle
* <i>Sonchus oleraceus</i>	common sow-thistle
<i>Sparganium eurycarpum</i>	bur-reed
<i>Toxicodendron diversilobum</i>	poison-oak
* <i>Tragopogon porrifolius</i>	salsify
* <i>Tribulus terrestris</i>	puncture vine

Scientific Name	Common Name
<i>*Trifolium pratense</i>	red clover
<i>*Triticum aestivum</i>	wheat
<i>Typha angustifolia</i>	narrow-leaved cattail
<i>*Vicia sativa</i> ssp. <i>sativa</i>	common vetch
<i>*Vicia villosa</i> ssp. <i>varia</i>	winter vetch
<i>*Vinca major</i>	greater periwinkle
<i>*Xanthium strumarium</i>	common cocklebur

Note: Introduced species are indicated by an asterisk (*).

Results of California Red-Legged Frog Surveys

**Results of the California Red-Legged Frog
(*Rana aurora draytonii*) Site Assessment and
Protocol-level Surveys in the Proposed
BART Warm Springs Extension Project Area
in the City of Fremont**

Prepared for:

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Introduction

The California red-legged frog (*Rana aurora draytonii*) (CRLF) has the potential to occur in the regional area of the San Francisco Bay Area Rapid Transit (BART) Warm Springs Extension (WSX) Project in Fremont, California. BART requested that Jones & Stokes determine areas of suitable habitat for California red-legged frog within the project area and, if recommended by U. S. Fish and Wildlife Service (USFWS), conduct protocol-level surveys to determine the presence or absence of the species.

Jones & Stokes biologist Jeff Wingfield conducted an initial site assessment of the project area on May 14 and 15, 2002. During this assessment, Mr. Wingfield identified potential habitat for CRLF within the 5.4-mile project corridor. Following this initial site assessment USFWS biologist Don Hankins was contacted to discuss both the proposed project and California red-legged frog (Don Hankins pers. comm.). On June 5, 2002, Mr. Hankins commented that CRLF have been recorded in urban waterways in the project region, and although the open water habitat within the project area is surrounded by urban development, it would be impossible to make a determination of presence or absence without BART conducting protocol level surveys.

As a result of this conversation, Jones & Stokes biologist Brian Zettle conducted a secondary site assessment for California red-legged frog to determine habitat suitability (including the presence of potential breeding habitat and dispersal corridors) within the potential habitat areas originally identified by Mr. Wingfield. Based on his assessment, Mr. Zettle and Brook Vinnedge then conducted protocol level surveys in areas that Mr. Zettle determined suitable for CRLF breeding or dispersal. The following report documents the results of both site assessments and the protocol-level surveys.

Project Location and Background

The proposed BART WSX Project would be located entirely within the City of Fremont in the East Bay region of the San Francisco Bay Area. Fremont is the southernmost city in the southwestern portion of Alameda County. The city is bounded by the San Francisco Bay to the west, the foothills and mountains of the Diablo Range to the east, the cities of Union City and Hayward to the north, and the City of Milpitas in Santa Clara County to the south. (Figure 1-map of project site and general survey area). There are four ecological communities present in the project area. These include ruderal forb grasslands and agricultural fields, open water habitats, forested and emergent seasonal wetlands, and residential landscaped areas.

Mr. Gary Beeman of Beeman & Associates conducted a site assessment on February 25, 2002, for California red-legged frog at the Fremont Grade Separation project area (north of Paseo Padre Parkway) in Fremont, California (Beeman 2002). Since the Proposed Project area encompasses this survey area, the results of the Fremont Grade Separation California red-legged frog site assessment were reviewed. Mr. Beeman determined that the two (interconnecting) flood control channels north of Paseo Padre Parkway contain suitable habitat for California red-legged frog. At the time of Mr. Beeman's assessment, both the north and south channels

contained water; however, at the time of Jones & Stokes's site assessment the northern channel was mostly dewatered and only the southern channel contained water.

SPECIES DESCRIPTION

Legal Status

California red-legged frog is one of two subspecies of red-legged frog (*Rana aurora*) found on the Pacific Coast. The USFWS designated California red-legged frog as a threatened subspecies on June 24, 1996.

Physical Description

The red-legged frog is a large, brown to reddish-brown amphibian with prominent dorsolateral folds and diffuse, moderate-sized, dark brown to black spots that sometimes have light centers (Jennings and Hayes 1994). It has a dark mask bordered by a whitish jaw stripe. The distribution of red pigment is highly variable but is usually restricted to the belly and the undersurface of the thighs, legs, and feet.

Distribution

The species was once common from Redding, south to Baja California, including the Sierra Nevada and Coast Ranges. Its current range is greatly reduced and most remaining populations are found in central California along the Pacific Coast from Marin County, south to Ventura County. Within its range, red-legged frog breeds in lowland streams and wetlands, including livestock ponds. Red-legged frog may also be found in upland habitats near breeding areas and along intermittent drainages connecting wetlands.

Reasons for Decline

The decline of red-legged frog is attributable to a variety of factors. From the late-1800s to mid-1900s, the species' distribution was substantially reduced by the conversion of millions of acres of wetland habitat to agricultural uses in the Central Valley and elsewhere. Large-scale commercial harvest for food during this period probably also had a detrimental effect (Jennings and Hayes 1994). Continued recent declines are attributed to ongoing loss of wetland and stream habitat (especially from dam construction and water management activities) and introduction of non-native predators and competitors, including bullfrogs (*Rana catesbeiana*), crayfish (*Procambarus clarki*), and fish (Jennings and Hayes 1994).

Habitat Requirements

The red-legged frog requires coldwater pond habitats (e.g., pools, streams, and ponds) with emergent and submergent vegetation (Storer 1925, Stebbins 1972). Habitats with the highest densities of frogs are deepwater pools (at least 2.5 feet deep) with dense stands of overhanging willows (*Salix* sp.) and a fringe of tules (*Scirpus* sp.) or cattails (*Typha* sp.) (Hayes and Jennings 1988, Jennings 1988, Jennings and Hayes 1994). Juvenile frogs seem to favor open, shallow aquatic habitats with dense submergent vegetation.

As adults, red-legged frogs are highly aquatic when active, but depend less on permanent water bodies than do many other frog species (Brode and Bury 1984). Adults may take refuge during dry periods in rodent holes or leaf litter in riparian habitats. Although red-legged frogs typically remain near streams or ponds, recent information suggests that they are capable of moving 1 mile or more into upland habitats or through ephemeral drainages.

Red-legged frogs typically lay their eggs in clusters around aquatic vegetation from December to early April. Eggs hatch in 6–14 days (Jennings 1988). Increased siltation of water bodies that may occur during the breeding season can cause asphyxiation of eggs and small larvae. Larvae undergo metamorphosis 3.5–7 months after hatching (Storer 1925, Wright and Wright 1949, Jennings and Hayes 1990). Of the various life stages, larvae probably have the highest mortality rates; less than 1% of the eggs laid survive to reach metamorphosis (Jennings et al. 1992). Sexual maturity is normally reached at 3–4 years of age (Storer 1925, Jennings and Hayes 1985), and red-legged frogs may live 8–10 years (Jennings et al. 1992).

The diet of red-legged frogs is highly variable. Larvae probably eat algae (Jennings et al. 1992). In a study by Hayes and Tennant (1985), invertebrates were found to be the most common food item for juveniles and adults. Vertebrates, such as Pacific tree frogs (*Pseudacris [Hyla] regilla*) and California deer mice (*Peromyscus californicus*), represented more than half of the prey mass eaten by larger frogs. Whereas adult frogs were found to be largely nocturnal, juvenile frogs were active both diurnally and nocturnally. Feeding activity probably occurs along the shoreline and on the surface of the water (Hayes and Tennant 1985).

METHODS

Site Assessment Methods

Initially, a Jones & Stokes biologist conducted a record search of the DFG California Natural Diversity Database (CNDDDB 2002), and examined topographic maps and aerial photographs to identify potentially suitable habitat for the California red-legged frog within 5 miles of the project site.

Jones & Stokes biologist Jeff Wingfield conducted a site assessment for California red-legged frog habitat on May 14 and 15, 2002. The biologist walked meandering transects throughout the length of the 5.4-mile project corridor gathering information to assess habitat suitability for California red-legged frog.

After speaking with Mr. Hankins of USFWS, a Jones & Stokes biologist conducted a secondary site assessment at five locations within the project corridor: Tule Pond, New Marsh, Lake Elizabeth, Mission Creek and at the flood control channels north of Paseo Padre Parkway. During this assessment biologists evaluated habitat suitability by assessing the site's potential to support breeding or foraging frogs, provide refuge, or support dispersal. The resulting determination was based on habitat requirements described in *Guidance on Site Assessment and Field Surveys for California Red-Legged Frogs* (U.S. Fish and Wildlife Service 1997).

All suitable habitat areas were mapped (at a scale of 1 inch = 600 feet). Suitable habitat was categorized as “breeding and dispersal habitat” or “dispersal habitat” only, based on the attributes of the site. Representative photographs of the survey areas were taken (Figure 2).

Protocol Survey Methodology

Based on the site assessment, selected sites were surveyed for the presence of California red-legged frog. Biologists conducted red-legged frog surveys following the USFWS protocol (dated February 18, 1997). The protocol consists of four surveys: two day surveys and two night surveys, to be conducted between May 1 and November 1. Surveys were conducted between June 10-14, 2002 at three locations within the project corridor: New Marsh, Mission Creek and the flood control channel north of Paseo Padre Parkway.

During the surveys Jones and Stokes wildlife biologists, Brian Zettle and Brook Vinnedge, surveyed the entire shore of all the water areas that were accessible by foot and visually scanned all shoreline areas during both day and night surveys. Binoculars (10X40) were used to search areas that were not accessible by foot. Night surveys were conducted for eye shine using flashlights powered by one 6-volt battery.

RESULTS

Site Assessment

Based on a review of topographic maps, previous site assessments conducted in the area, and field investigations, biologists identified five sites to evaluate for California red-legged frog habitat suitability. These sites included Tule Pond, New Marsh, Lake Elizabeth, Mission Creek, and an interconnecting flood control channel north of Paseo Padre Parkway. The following is a detailed description of the habitat conditions at the five sites and information on known California red-legged frog occurrences in the project region.

Lake Elizabeth

Lake Elizabeth is a human-made lake approximately 83 acres in size. Lake Elizabeth was created between May 1968 and April 1969. The shoreline is concrete and riprap-lined to prevent erosion, and a narrow band of cattails and bulrush grow in small patches along a portion of the shoreline. In the southern portion of the lake is an island with arroyo willow (*Salix lasiolepis*) cover. Surrounding Lake Elizabeth is Fremont Central Park, which contains a paved pedestrian walkway, ornamental vegetation, ball fields, and maintained turf (non-native grassland habitat of limited value). The lake is currently being dredged in order to remove silt and several large temporary dewatering ponds were created in the open area on the north end of the lake. Lake Elizabeth was eliminated as a potential California red-legged frog site since it is a human-made lake with concrete and riprap banks and contains no suitable upland habitat.

Tule Pond

Tule Pond is not considered suitable breeding or dispersal habitat for California red-legged frog. Tule Pond is a flood control basin for local urban runoff approximately 6 acres in size. It is located adjacent to and south of Walnut Avenue. This pond is flooded only during the wet season and contains an artificial (burlap-like) mat covering the bottom of the pond. The pond is densely vegetated with cattail, bulrush and willow. The surrounding upland habitat has a cover of rip-gut grass, wild barley and coyote brush. Large eucalyptus trees are also in the area.

On June 10, 2002, there was approximately 6 inches of standing water in a small (4 feet by 3 feet) pool at the northern end of Tule Pond. The pooled water was located where the culvert comes from under Walnut Avenue into the north end of the pond. The water quality at this location appeared to be highly polluted. The remainder of the pond was dewatered, with isolated, shallow puddles of water and damp soils. Hundreds of Pacific treefrog metamorphs were observed at Tule Pond during the field investigation. Jennings and Hayes (1994) report that although California red-legged frogs can occur in ephemeral streams or ponds, it is unlikely that populations can be maintained in areas where all surface water disappears. Upon thorough investigation, biologists determined that Tule Pond lacks deeper, open water areas for oviposition, dries out early in the season, and is isolated from other suitable California red-legged frog habitat; therefore, it is not considered suitable habitat to support California red-legged frog. Protocol-level surveys were not conducted at Tule Pond.

New Marsh

Suitable breeding habitat for California red-legged frog is present in New Marsh (Figure 2). New Marsh is a human-made pond at the north end of Elizabeth Lake, created in 1986 as a retention basin for park runoff. During the survey, maximum water depth was estimated to be 1 to 3 feet due to the large amount of silt making up the substrate. Submergent and emergent vegetation (cattail and bulrush), which are important components of California red-legged frog habitat, were present around the margin of the pond. However, the upland area around the pond included a regularly maintained grass lawn associated with the landscaping of the park, ruderal and developed areas with sidewalk and Lake Elizabeth, and newly created disposal ponds for silt dredged from Lake Elizabeth. This pond is hydrologically isolated from other water features in the area. Bullfrogs (*Rana catesbiana*) were heard calling at this site. The presence of bullfrogs, as predators and competitors for food resources, and the lack of suitable upland habitat for hibernacula and dispersal reduce the suitability of the habitat to support California red-legged frog.

Mission Creek

Suitable dispersal habitat for California red-legged frog is present in Mission Creek (Figure 2). Mission Creek is a historic creek that once meandered from the Diablo Range east of the project area into the San Francisco Bay. This creek has been channelized and currently runs around Lake Elizabeth and through Central Park in Fremont. Mission Creek near Lake Elizabeth contains dense and somewhat degraded riparian habitat. Dominant vegetation includes willow and cottonwood, which provides an abundant amount of shade and cover. A few small flooded portions of the creek, outside of the riparian forest, support cattail, watercress, bulrush, knotweed

and alkali bulrush. The portion of Mission Creek between the Southern Pacific and Western Pacific Railroad (north and east of the project corridor) is highly disturbed and primarily vegetated with non-native herbaceous species.

Within the project corridor Mission Creek does not contain suitable CRLF breeding habitat because it lacks deep water pools, contains a high degree of silt, and lacks open water or only partially shaded areas with dense submergent vegetation for larvae and juvenile frogs. Maximum water depth was estimated to be approximately 12 inches and the substrate consisted of a 6-8 inch layer of mud and silt. However, the creek may provide suitable dispersal habitat for the California red-legged frog. Pacific treefrogs (*Hyla regilla*) were heard calling at Mission Creek.

Flood Control Channels North of Paseo Padre Parkway

Two flood control channels located north of Paseo Padre Parkway provide suitable dispersal habitat for the California red-legged frog (Figure 2). The flood control channels are surrounded by urban development including Southern Pacific Railroad tracks and Fremont Central Park to the west, Western Pacific Railroad tracks and residential development to the east, Paseo Padre Parkway to the south, and the SFWD Irvington Pump Station to the north. The channels are hydrologically connected to Mission Creek. The northern arm of the channel was mostly dewatered, but contained a dense layer of emergent vegetation. The southern arm of the channel is culverted under Paseo Padre Parkway and connects to the northern channel; however, this channel contains flowing water and does not contain a dense mat of emergent vegetation. Pockets of riparian vegetation line both channels. Neither channel provides suitable breeding habitat because of the lack of deeper pools. Crayfish and mosquito fish were observed in the southern channel. Both channels provide suitable dispersal habitat for California red-legged frog; however, the presence of exotic predators and development of the surrounding area further reduces the suitability of the habitat to support California red-legged frog.

Occurrence in the Project Vicinity

There are no known localities of California red-legged frog within the project corridor. There are two known localities within 5 miles of the project corridor. One adult and one juvenile California red-legged frog were found on July 30, 1996 approximately one mile east of the southern terminus of the project area (3.5 kilometers southeast of Lake Elizabeth) in Agua Caliente Creek south of Mission Boulevard. The second was recorded in May 1999, approximately 3 miles northwest of the northern terminus of the project area (6.5 kilometers northwest of Lake Elizabeth). The individual California red-legged frog was observed in a densely vegetated canal in Union City (CNDDDB 2002).

Survey Results

Jones & Stokes conducted protocol-level surveys at three sites (New Marsh, Mission Creek, and the flood control channel north of Paseo Padre Parkway) within the project corridor. Survey dates and weather conditions during the surveys at the three sites are provided in Table 1. No California red-legged frogs were located at the three survey sites. Adult bullfrogs were observed in New Marsh, and crayfish and mosquito fish were observed in the flood control

channel north of Paseo Padre Parkway. The presence of these exotic predators increases competition for food resources as well as the potential for predation. Other predators observed in the project area include raccoon (tracks) and skunks (observed). The presence of these species also increases the potential of predation on California red-legged frog and further reduces the habitat suitability for California red-legged frog to occur at these three sites.

Critical Habitat

Designated critical habitat for California red-legged frog occurs approximately 3 miles (5 kilometers) east of the project study area, but not within the project area.

CONCLUSIONS

New Marsh provides potential breeding habitat for California red-legged frog, while Mission Creek and the flood control channel north of Paseo Padre Parkway provide potential dispersal habitat for California red-legged frog. However, based on the protocol-level survey results, lack of recorded sightings of California red-legged frog in the project area, and extensive urban development and recreational activity occurring throughout the project area the potential for California red-legged frog to occur in the BART WSX project corridor is considered low.

CITATIONS

Printed References

- Beeman, Gary, A. 2002. Site assessment for the California red-legged frog and the California tiger salamander at the Fremont Grade Separation Project (north of Paseo Padre Parkway) in Fremont, Alameda County, California. Prepared for Terry Huffman of Huffman & Associates.
- Brode, J. M., and R. B. Bury. 1984. The importance of riparian systems to amphibians and reptiles. Pages 30-36 in R. E. Warner and K. M. Hendrix (eds.), *California Riparian Systems Ecology, Conservation, and Productive Management*. University of California Press. Berkeley, CA.
- California Natural Diversity Database. 2002. Element search of California for the California red-legged frog. California Department of Fish and Game. Sacramento, CA.
- Hayes, M. P., and M. R. Jennings. 1988. Habitat correlates of distribution of the California red-legged frog (*Rana aurora draytonii*) and the foothill yellow-legged frog (*Rana boylei*): implications for management in management of amphibians, reptiles, and small mammals in North America: proceedings of the symposium, July 19-21, 1988, Flagstaff, AZ. (General Technical Report RM-166.) U.S. Forest Service. Fort Collins, CO.
- Hayes, M. P., and M. R. Tennant. 1985. Diet and feeding behavior of the California red-legged frog, *Rana aurora draytonii* (Ranidae). *The Southwestern Naturalist* 30(4):601-605.
- Jennings, M. R. 1988. Natural history and decline of native ranids in California. Pages 61-72 in H. F. De Lisle, P. R. Brown, B. Kaufman, and B. M. McCurthy (eds.), *Proceedings of the Conference on California Herpetology*. November 1988. Based on regional conference held at the Los Angeles County Museum of Natural History, Los Angeles, CA, October 10-11, 1987. (Special Publication No. 4.) Southwestern Herpetologists Society. Van Nuys, CA.
- Jennings, M. R., and M. P. Hayes. 1985. Pre-1900 overharvest of California red-legged frogs (*Rana aurora draytonii*): the inducement for bullfrog (*Rana catesbeiana*) introduction. *Herpetologica* 41(1):94-103.
- _____. 1990. Status of the California red-legged frog *Rana aurora draytonii* in the Pescadero Marsh Natural Preserve. California Department of Fish and Game, Inland Fisheries Division. Rancho Cordova, CA. Prepared for the California Department of Parks and Recreation, Sacramento, CA.
- _____. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game, Inland Fisheries Division. Rancho Cordova, CA.
- Jennings, M. R., M. P. Hayes, and D. C. Holland. 1992. A petition to the U.S. Fish and Wildlife Service to place the California red-legged frog (*Rana aurora draytonii*) and the western pond

turtle (*Clemmys marmorata*) on the list of endangered and threatened wildlife and plants. California Department of Fish and Game, Inland Fisheries Division. Rancho Cordova, CA.

Stebbins, R. C. 1972. *California Amphibians and Reptiles*. University of California Press. Berkeley, CA.

Storer, T. I. 1925. *A Synopsis of the Amphibia of California*. University of California Publications in Zoology 27:1-342.

U.S. Fish and Wildlife Service. 1997. Guidance on site assessment and field surveys for California red-legged frogs. Ecological Services, Sacramento Field Office. Sacramento, CA.

Wright, A. H., and A. A. Wright. 1949. *Handbook of Frogs and Toads of the United States and Canada*. Comstock Publishing Company, Inc. Ithaca, NY.

Personal Communications

Hankins, Don. U.S. Fish and Wildlife Service. June 5, 2002.

Table 1. Survey Date and Weather Conditions during the California Red-legged Frog Surveys for BART WSX

Survey Date	Survey Duration	Cloud Cover	Wind Speed (mph)	Air Temperature (°F)	Water Temperature (°F)	Comments
June 10, 2002	1100–1400	0%	0–1	90	64	Bullfrogs calling at New Marsh. Pacific treefrogs calling at Mission Creek. Crayfish and mosquito fish observed in flood control channel.
June 11, 2002	1200–1400	0%	1–2	90	63	Crayfish and mosquito fish observed in flood control channel.
June 12, 2002	2100–2230	0%	0–1	65	63	Bullfrogs calling at New Marsh. Pacific treefrogs calling at Mission Creek.
June 13, 2002	2100–2230	90%	1–2	63	64	Bullfrogs calling at New Marsh. Pacific treefrogs calling at Mission Creek.

Note: Weather conditions are not separated by site due to the similarities of all three sites during each survey.

Appendix C-6

Results of Burrowing Owl Survey



Memorandum

Date June 25, 2002

To Debra Jones, Project Manager

From Brook Vinnedge and William Widdowson, Wildlife Biologists

Subject **Special Status Wildlife (Burrowing Owl) Survey Report for the BART Warm Springs Extension, Fremont, CA, June 10, 2002**

Summary

On June 10, 2002, Jones & Stokes biologists William Widdowson and Brook Vinnedge conducted surveys for the Western Burrowing Owl (*Athene cunicularia*) in the BART Warm Springs Extension (WSX) project. Three active Burrowing Owl nests were located in ruderal grassland habitat on the parcel proposed for the Warm Springs Station Parking Lot (Figure 1). The Burrowing Owl is a California State species of special concern and avoidance to reduce impacts to a less-than-significant level must be included in a project or the California Environmental Quality Act (CEQA) lead agency must make and justify findings of overriding considerations.

Methods

The biologists conducted a nesting season survey for Burrowing Owls on June 10, 2002 in the WSX project area. The areas surveyed included ruderal annual grassland and bare ground within the project corridor. The biologists began the surveys at the Fremont BART Station and traveled south along the project corridor. All suitable habitat within the corridor was surveyed for burrows and sign of owls. According to the *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game 1995) suitable habitat consists of annual and perennial grasslands, deserts, and arid scrublands characterized by low-growing vegetation or bare ground. Overgrown vegetation is not considered suitable habitat because it decreases the Burrowing Owl's ability to monitor burrows from a distance. Similarly, owls are less likely to nest in areas with trees or shrubs, which provide perches for predatory birds. Canopy cover must be less than 30% of the ground surface. Natural and artificial burrows are the essential component of suitable habitat. Burrowing Owls typically use burrows created by ground dwelling mammals but will also readily use human-made structures such as culverts or debris piles.

Survey of the area began at 10:20 a.m., concluding at 13:16 p.m. Pacific Daylight Time (PDT). Weather conditions were the following: 5% cloud cover; temperature range 78 to 81 degrees Fahrenheit; wind 1 (Beaufort Scale); no precipitation. Unless noted otherwise, biologists

surveyed suitable habitat by walking transects at a distance of approximately 50 feet apart. Ground squirrel or small mammal burrows were thoroughly checked for sign of owls, including tracks, feathers, pellets and whitewash. When an active burrow was found, surveyors were careful to minimize disturbance to the owls by maintaining a distance of 250-feet from the nest. Results of the survey are summarized from north to south.

Results

The non-native annual grassland between Stevenson Boulevard and Walnut Avenue did not contain any burrows suitable for Burrowing Owl. The Fremont Central Park area consists of ball fields and recreational facilities, which do not currently contain burrows. The Irvington Pump Station Parcel (approximately 30 acres of non-native annual grassland) was overgrown and did not contain any ground squirrel activity or burrows. Ground squirrel burrows were located in a ruderal field north of Paseo Padre Parkway and east of the project corridor. These burrows were thoroughly checked for sign of owl activity. No sign of owl was observed at any of the burrows at this location.

The field south of Paseo Padre Parkway and west of the project alignment was surveyed from the road using high-powered binoculars. Because of the vantage point it was possible to survey the entire field from Paseo Padre Parkway. The field was overgrown with vegetation and did not have any sign of ground squirrel activity or burrows.

The proposed Irvington Station parking lot on Osgood Road did contain a few ground squirrel burrows, however none are currently being used by Burrowing Owl. This field also contains trees, which decreases the site's suitability for Burrowing Owl.

The proposed Warm Springs Station parking lot was the only site that contained active Burrowing Owl nests within the project area. This site consists of a mowed, non-native annual grassland, which contains a facility for model airplane flying. Within this parcel are three active Burrowing Owl nests.

Burrowing Owl Nest #1 is located approximately 300 feet west of Warm Springs Boulevard and 700 feet south of Grimmer Road. This nest consists of multiple burrows. Two adult owls were observed leaving the burrow and perching on nearby fences.

Burrowing Owl Nest # 2 is located approximately 400 feet west of Warm Springs Boulevard and 750 feet south of Grimmer Road. This nest is approximately 100 feet west of Burrowing Owl Nest #1. No owls were observed at this burrow, however the burrow entrances were covered in white wash, owl pellets and feathers. In addition, Jones & Stokes botanists Rob Preston and Brad Schafer observed owls at this burrow while conducting surveys for rare plants.

Burrowing Owl Nest # 3 is located approximately 200 feet west of Warm Springs Boulevard and 1600 feet south of Grimmer Road. This nest consists of multiple burrows and one owl was perched on an elevated mound adjacent to a burrow entrance.

Conclusion

The results of the breeding-season survey conducted on June 10, 2002 will be valid only for the 2002 season. If constructed, the proposed Warm Springs parking lot site would result in impacts on Western Burrowing Owls. California Department of Fish and Game (CDFG) would be consulted for establishment of mitigation measures that would reduce these impacts to a less-than-significant level. Minimization of impacts on Burrowing Owls during the nesting season shall follow the mitigation guidelines outlined in the *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game 1995).

Mitigation measures negotiated with CDFG generally include permanently protecting 6.5 acres of foraging and nesting Burrowing Owl habitat onsite or offsite for every nest impacted. Protection of alternative habitat is conducted through land acquisition or participation in a land bank or land tract purchase. Additionally, the construction of two artificial burrows may be required for each occupied burrow lost or rendered unsuitable as a result of construction activities. BART would consult with CDFG for appropriate compensation and mitigation for habitat removed.

References

California Department of Fish of Game. 1995. *Staff Report on Burrowing Owl Mitigation*.

Appendix C-7

**Tables Listing Special-Status Species
with Potential to Occur in the
Proposed Project Corridor**

Table A. Special-Status Wildlife Species with Potential to Occur in BART WSX Project Corridor

Common and Scientific Name	Status ^a		California Distribution	Habitats	Potential for Occurrence in Project Corridor
	Federal/State				
INVERTEBRATES					
Bay checkerspot butterfly <i>Euphydryas editha bayensis</i>	T/--		Vicinity of San Francisco Bay	Native grasslands on outcrops of serpentine soil; California plantain and owl/lis clover are host plants	None; no records or suitable habitat
Bridges' Coast Range shoulderband <i>Helminthoglypta nickliniana bridgesi</i>	SC/--		Scattered locations in Alameda and Contra Costa Counties	Open hillsides; lives in rock piles surrounded by grass and herbaceous vegetation	None; no records or suitable habitat
Curved-foot hygrotus diving beetle <i>Hygrotus curvipes</i>	SC/--		Western side of the San Joaquin Valley from Oakley in Contra Costa County south to Alameda County	Small ponds, roadside ditches, vernal wetlands, and pools in intermittent streams, most of which dry up during summer and support alkaline-tolerant vegetation	Low; no records, low quality habitat in project area
Opler's longhorn moth <i>Adela oplerella</i>	SC/--		Vicinity of San Francisco Bay	Serpentine soils, grasslands	None; no records or suitable habitat
San Francisco forktail-damselfly <i>Ischnura gemina</i>	SC/--		Endemic to San Francisco Bay Area; extant populations in Marin County south to Santa Cruz County	Occurs in small, shallow ponds, marshes and human-made channels with sparse emergent vegetation	None; no records; none observed during surveys
San Francisco lacewing <i>Nothochrysa californica</i>	SC/--		Vicinity of San Francisco Bay	Oak woodlands	None; no records; no suitable habitat
Ricksecker's water scavenger beetle <i>Hydrochara rickseckeri</i>	SC/--		San Francisco Bay Area	Aquatic habitats	Low; no records; low quality habitat
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	T/--		Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County	Common in vernal pools; also found in sandstone rock outcrop pools	Low; no records, not known from surrounding region
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	E/--		Shasta County south to Merced County	Vernal pools and ephemeral stock ponds	Moderate; marginally suitable habitat in 1 seasonal wetland, records from 3.0 miles west

Table A. Special-Status Wildlife Species with Potential to Occur (Cont.)

Common and Scientific Name	Status ^a		California Distribution	Habitats	Potential for Occurrence in Project Corridor
	Federal/State				
AMPHIBIANS					
California red-legged frog <i>Rana aurora draytoni</i>	T/SSC		Found along the coast and coastal mountain ranges of California from Humboldt County to San Diego County; Sierra Nevada (midelevations [above 1,000 feet] from Butte County to Fresno County)	Permanent and semipermanent aquatic habitats, such as creeks and coldwater ponds, with emergent and submergent vegetation and riparian species along the edges; may estivate in rodent burrows or cracks during dry periods	None; nearest record 2.2 mi from habitat within project site; no CRLF detected during protocol level surveys in 2002
California tiger salamander <i>Ambystoma californiense</i>	C/SSC		Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Butte County south to Santa Barbara County	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy	High; observed in a seasonal wetland within the project corridor
REPTILES					
Alameda whipsnake <i>Masticophis lateralis euryxanthus</i>	T/T		Restricted to Alameda and Contra Costa Counties	Valleys, foothills, and low mountains associated with northern coastal scrub or chaparral habitat; requires rock outcrops for cover and foraging	None; no suitable habitat or CNDDDB records of this species in the project area
Northwestern pond turtle <i>Clemmys marmorata marmorata</i>	SC/SSC		In California, range extends from Oregon border of Del Norte and Siskiyou Counties south along coast to San Francisco Bay, inland through Sacramento Valley, and on the western slope of Sierra Nevada; range overlaps with that of southwestern pond turtle through the Delta and Central Valley to Tulare County	Woodlands, grasslands, and open forests; occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation	Moderate; historic records of this species within the project area; none observed during surveys
Southwestern pond turtle <i>Clemmys marmorata pallida</i>	SC/SSC		Occurs along the central coast of California east to the Sierra Nevada and along the southern California coast inland to the Mojave and Sonora Deserts; range overlaps with that of the northwestern pond turtle throughout the Delta and in the Central Valley from Sacramento County to Tulare County	Woodlands, grasslands, and open forests; aquatic habitats, such as ponds, marshes, or streams, with rocky or muddy bottoms and vegetation for cover and food	Moderate; same as above; range overlaps with northwestern pond turtle in SF Bay

Table A. Special-Status Wildlife Species with Potential to Occur (Cont.)

Common and Scientific Name	Status ^a		Habitats	Potential for Occurrence in Project Corridor
	Federal/State	California Distribution		
BIRDS				
California Clapper Rail <i>Rallus longirostris obsoletus</i>	E/E	Marshes around the San Francisco Bay and east to Suisun Marsh	Restricted to salt marshes and tidal sloughs; usually associated with heavy growth of pickleweed; feeds on mollusks removed from the mud in sloughs	None; no suitable habitat or records of this species within project corridor
California Black Rail <i>Laterallus jamaicensis</i>	SC/T	Permanent resident in the San Francisco Bay and eastward through the Delta into Sacramento and San Joaquin Counties; small populations in Marin, Santa Cruz, San Luis Obispo, Orange, Riverside, and Imperial Counties	Tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations	None; no suitable breeding or foraging habitat within project corridor
Cooper's Hawk <i>Accipiter cooperii</i>	--/SSC	Throughout California except high altitudes in the Sierra Nevada. Winters in the Central Valley, southeastern desert regions, and plains east of the Cascade Range	Nests in a wide variety of habitat types, from riparian woodlands and digger pine-oak woodlands through mixed conifer forests	Moderate; historic records and suitable habitat; none observed during 2002 survey
Sharp-shinned Hawk <i>Accipiter striatus</i>	--/SSC	Permanent resident in the Sierra Nevada, Cascade, Klamath, and north Coast Ranges at mid elevations and along the coast in Marin, San Francisco, San Mateo, Santa Cruz, and Monterey Counties. Winters over the rest of the state except at very high elevations	Dense canopy ponderosa pine or mixed-conifer forest and riparian habitats	Low; no records but suitable wintering habitat occurs within the project corridor
White-tailed Kite <i>Elanus leucurus</i>	--/FP	Lowland areas west of Sierra Nevada from head of Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging	High; historic records and suitable nesting habitat within the project area
Ferruginous Hawk <i>Buteo regalis</i>	SC/SSC	Does not nest in California; winter visitor along the coast from Sonoma County to San Diego County, eastward to the Sierra Nevada foothills and southeastern deserts, the Inyo-White Mountains, the plains east of the Cascade Range, and Siskiyou County	Open terrain in plains and foothills where ground squirrels and other prey are available	Low; winter migrant only

Table A. Special-Status Wildlife Species with Potential to Occur (Cont.)

Common and Scientific Name	Status ^a		California Distribution	Habitats	Potential for Occurrence in Project Corridor
	Federal/State				
Bank Swallow <i>Riparia riparia</i>	--/T		Occurs along the Sacramento River from Tehama County to Sacramento County, along the Feather and lower American Rivers, in the Owens Valley; or sandy loam and in the plains east of the Cascade Range in Modoc, Lassen, and northern Siskiyou Counties. Small populations near the coast from San Francisco County to Monterey County	Nests in bluffs or banks, usually adjacent to water, where the soil consists of sand or sandy loam	None; no records; no suitable habitat within project corridor
Little Willow Flycatcher <i>Empidonax traillii</i>	SC/E		Summer range includes a narrow strip along the eastern Sierra Nevada from Shasta County to Kern County, another strip along the western Sierra Nevada from El Dorado County to Madera County; widespread in migration	Riparian areas and large, wet meadows with abundant willows for breeding; usually found in riparian habitats during migration	Low; winter migrant only
Loggerhead Shrike <i>Lanius ludovicianus</i>	SC/SSC		Resident and winter visitor in lowlands and foothills throughout California; rare on coastal slope north to Mendocino County, occurring only in winter	Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches	Moderate; suitable habitat within project area
Long-billed Curlew <i>Numenius americanus</i>	SC/SSC		Nests in northeastern California in Modoc, Siskiyou, and Lassen Counties; winters along coast or in interior valleys west of Sierra Nevada	Nests at high-elevation grasslands adjacent to lakes or marshes during migration and in winter; frequents coastal beaches and mudflats or interior grasslands and agricultural fields	Low; historic records of this species; currently no habitat within project area
Long-eared Owl <i>Asio otus</i>	--/SSC		Permanent resident east of the Cascade Range from Placer County north to the Oregon border, east of the Sierra Nevada from Alpine County to Inyo County, along the coast from Sonoma County to San Luis Obispo County, and eastward over the north Coast Ranges to Colusa County; winters in the Central Valley, Mojave and Sonora Deserts, and the Inyo-White Mountains; summers along the eastern rim of the Central Valley and Sierra foothills from Tehama County to Kern County	Dense riparian stands of willows, cottonwoods, live oaks, or conifers; uses adjacent open lands for foraging; nests in abandoned crow, hawk, or magpie nests	None; project area does not contain suitable habitat for this species

Table A. Special-Status Wildlife Species with Potential to Occur (Cont.)

Common and Scientific Name	Status ^a		California Distribution	Habitats	Potential for Occurrence in Project Corridor
	Federal/State				
Mountain Plover <i>Charadrius montanus</i>	C/SSC		Does not breed in California; in winter, found in the Central Valley south of Yuba County, along the coast in parts of San Luis Obispo, Santa Barbara, Ventura, and San Diego Counties; parts of Imperial, Riverside, Kern, and Los Angeles Counties	Occupies open plains or rolling hills with short grasses or very sparse vegetation; nearby bodies of water are not needed; may use newly plowed or sprouting grainfields	None; no records; casual winter visitor only
Northern Harrier <i>Circus cyaneus</i>	--/SSC		Occurs throughout lowland California. Has been recorded in fall at high elevations	Grasslands, meadows, marshes, and seasonal and agricultural wetlands	High; historic and current records; suitable habitat within project area
Saltmarsh Common Yellowthroat <i>Geothlypis trichas sinuosa</i>	SC/SSC		Found only in the San Francisco Bay Area in Marin, Napa, Sonoma, Solano, San Francisco, San Mateo, Santa Clara, and Alameda Counties	Freshwater marshes in summer and salt or brackish marshes in fall and winter; requires tall grasses, tules, and willow thickets for nesting and cover	Low-Moderate; one CNDDB record for Alameda Co.; marginal habitat in project area
Short-eared Owl <i>Asio flammeus</i>	--/SSC		Permanent resident along the coast from Del Norte County to Monterey County although very rare in summer north of San Francisco Bay, in the Sierra Nevada north of Nevada County, in the plains east of the Cascades, and in Mono County; small, isolated populations also nest in the Central Valley; winters on the coast from San Luis Obispo County to San Diego County, in the Central Valley from Tehama County to Kern County, in the eastern Sierra Nevada from Sierra County to Alpine County, on the Channel Islands, and in Imperial County	Freshwater and salt marshes, lowland meadows, and irrigated alfalfa fields; needs dense tules or tall grass for nesting and daytime roosts	Low; one record in Alameda Co.; low potential for individuals to occur in project area
Tricolored Blackbird <i>Agelaius tricolor</i>	SC/SSC		Largely endemic to California; permanent residents in the Central Valley from Butte County to Kern County; at scattered coastal locations from Marin County south to San Diego County; breeds at scattered locations in Lake, Sonoma, and Solano Counties; rare nester in Siskiyou, Modoc, and Lassen Counties	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields; nesting habitat must be large enough to support 50 pairs; probably requires water at or near the nesting colony; requires large foraging areas, including marshes, pastures, agricultural wetlands, dairies, and feedlots, where insect prey is abundant	High; observed within the project corridor; low quality nesting habitat

Table A. Special-Status Wildlife Species with Potential to Occur (Cont.)

Common and Scientific Name	Status ^a		California Distribution	Habitats	Potential for Occurrence in Project Corridor
	Federal/State				
Western Burrowing Owl <i>Athene cucularia hypugea</i>	SC/SSC		Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast	Rodent burrows in sparse grassland, desert, and agricultural habitats	High; observed nesting in project corridor
Western Snowy Plover (Coastal) <i>Charadrius alexandrinus nivosus</i>	T/SSC		Winters along the coast from Del Norte County to San Diego County; breeding sites within this range are very limited	Coastal beaches above the normal high tide limit with wood or other debris for cover	None; no records or suitable habitat
Western Snowy Plover (Inland) <i>Charadrius alexandrinus nivosus</i>	--/SSC		Nests at inland lakes throughout northeastern, central, and southern California	Inland shores of salt ponds and alkali or brackish inland lakes	None; no records or suitable habitat
Yellow Warbler <i>Dendroica petechia brewsteri</i> (nesting)	--/SSC		Nests over all of California except the Central Valley, the Mojave Desert region, and high altitudes and the eastern side of the Sierra Nevada. Winters along the Colorado River and in parts of Imperial and Riverside Counties. Two small permanent populations in San Diego and Santa Barbara Counties	Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral; may also use oaks, conifers, and urban areas near stream courses	Low; rare and local breeder in the east bay; limited suitable habitat in project area
Yellow-breasted Chat <i>Icteria virens</i>	--/SSC		Nests locally in coastal mountains and Sierra Nevada foothills, east of the Cascades in northern California, along the Colorado river, and very locally inland in southern California	Nests in dense riparian habitats dominated by willows, alders, Oregon ash, tall weeds, blackberry vines, and grapevines	Low; rare and local breeder in the east bay; limited suitable habitat in project area
MAMMALS					
Alameda Island mole <i>Scapanus latimanus parvus</i>	SC/SSC			Soft soil in valleys and mountain meadows in several biotic communities	None; no records or suitable habitat in project area
Pacific Townsend's (=western) big-eared bat <i>Corynorhinus townsendii townsendii</i>	SC/SSC		Coastal regions from Del Norte County south to Santa Barbara County	Roosts in caves, tunnels, mines, and dark attics of abandoned buildings; very sensitive to disturbances and may abandon a roost after onsite visit	Low; no records; unlikely because low quality and highly disturbed habitat within project corridor
Salt marsh harvest mouse <i>Reithrodontomys raviventris</i>	E/E		San Francisco, San Pablo, and Suisun Bays	Salt marshes with a dense plant cover of pickleweed and fat hen; adjacent to an upland site	None; no records and no suitable habitat within project area
Salt marsh vagrant (wandering) shrew <i>Sorex vagrans halicoetes</i>	SC/SSC		Restricted to southern and northwestern San Francisco Bay	Midelevation salt marsh habitats with dense growths of pickleweed; requires driftwood and other objects for nesting cover	None; no records and no suitable habitat

Table A. Special-Status Wildlife Species with Potential to Occur (Cont.)

Common and Scientific Name	Status ^a		California Distribution	Habitats	Potential for Occurrence in Project Corridor
	Federal/State				
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	E/T		Principally occurs in the San Joaquin Valley and adjacent open foothills to the west; recent records from 17 counties extending from Kern County north to Contra Costa County	Saltbush scrub, grassland, oak, savanna, and freshwater scrub	None; no records and project area is outside current range for this species
San Francisco dusky-footed woodrat <i>Neotoma fuscipes annectens</i>	SC/SSC		West side of Mount Diablo to coast and San Francisco Bay	Present in chaparral habitat and in forest habitats with a moderate understory	None; no suitable habitat within project area
Small-footed myotis <i>Myotis ciliolabrum</i>	SC/--		Sierra Nevada; south Coast, Transverse, and Peninsular Ranges; and the Great Basin	Open stands in forests and woodlands, as well as shrublands; uses caves, crevices, and abandoned buildings	Low; no records; potential for non-breeding individuals to occur in project area
Yuma myotis <i>Myotis yumanensis</i>	SC/--		Considered common and widespread in northern California; colonies known from Marin and San Francisco Counties	Roosts colonially in a variety of natural and human-made sites, including caves, mines, buildings, bridges, and trees; in northern California, maternity colonies are usually in fire-scarred redwoods, pines, or oaks; forages for insects over water bodies	Low; no records; potential for non-breeding individuals to occur in project area
FISH					
Central California coast steelhead <i>Onchorhynchus mykiss</i>	T/SSC		Freshwater streams from Russian River to Soquel Creek, Santa Cruz County, inclusive.	Cold, clear water with clean gravel of appropriate size for spawning. Most spawning occurs in headwater streams. Steelhead migrate to the ocean to feed and grow until sexually mature.	Low; sporadic anecdotal information of adult steelhead found in Mission Creek
Central Valley fall-run chinook salmon <i>Oncorhynchus tshawytscha</i>	C/SSC		Sacramento River and its tributaries, San Joaquin River and its tributaries; tributaries to the South San Francisco Bay	Cool, clear water with spawning gravel; migrate to the ocean to feed and grow until sexually mature	Low; sporadic anecdotal information of adult steelhead found in Mission Creek

Common and Scientific Name	Status ^a		Habitats	Potential for Occurrence in Project Corridor
	Federal/State	California Distribution		
Federal				
E	=	listed as endangered under the federal Endangered Species Act.		
T	=	listed as threatened under the federal Endangered Species Act.		
C	=	species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list.		
SC	=	species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.		
--	=	no listing.		
State				
E	=	listed as endangered under the California Endangered Species Act.		
T	=	listed as threatened under the California Endangered Species Act.		
FP	=	fully protected under the California Fish and Game Code.		
SSC	=	species of special concern in California.		
--	=	no listing.		

^a Status explanations:

Federal = listed as endangered under the federal Endangered Species Act.

T = listed as threatened under the federal Endangered Species Act.

C = species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list.

SC = species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.

-- = no listing.

State

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

FP = fully protected under the California Fish and Game Code.

SSC = species of special concern in California.

-- = no listing.

Table B. Special-Status Plants that Have Potential to Occur in the BART WSX Project Corridor

Common and Scientific Name	Legal Status ^a		Geographic Distribution	Habitat Requirements	Blooming Period	Likelihood to Occur within Project Area ^b
	Federal/State /CNPS					
Alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>	SC/--/1B		Merced, Solano, and Yolo Counties; historically more widespread	Grassy flats and vernal pool margins, on alkali soils, below 200'	Mar-Jun	None; no suitable habitat
San Joaquin spearscale <i>Atriplex joaquiniana</i>	SC/--/1B		West edge of Central Valley from Glenn County to Tulare County	Alkali grassland, alkali scrub, alkali meadows, saltbush scrub, below 1,000'	Apr-Sept	None; no suitable habitat
Salt-marsh owl's-clover <i>Castilleja ambigua</i> ssp. <i>ambigua</i>	SLC/--/--		North and Central coastal California	Coastal bluffs and grasslands, below 300'	May-Aug	None; no suitable habitat
Robust spineflower <i>Chorizanthe robusta</i> var. <i>robusta</i>	E/--/1B		Central coastal California, Alameda*, Monterey, San Francisco*, San Mateo*, Santa Clara*, and Santa Cruz Counties	Coastal bluff scrub, coastal dunes openings in cismontane woodland, on sandy soil	May-Sep	None; no suitable habitat
Santa Clara red ribbons a.k.a. South Bay clarkia <i>Clarkia concinna</i> ssp. <i>automixa</i>	SC/--/4		Southern San Francisco Bay foothills, Alameda and Santa Clara Counties	Shaded mesic oak woodland below 5000'	Apr-Jul	None; no suitable habitat
Point Reyes bird's-beak <i>Cordylanthus maritimus</i> ssp. <i>palustris</i>	SC/--/1B		Coastal Northern California, Humboldt County to Santa Clara County	Coastal salt marsh	Jun-Oct	None; no suitable habitat
Hoover's button-celery <i>Eryngium aristulatum</i> var. <i>hooveri</i>	SC/--/1B		San Benito, Santa Clara, and San Luis Obispo Counties	Vernal pools	Jul	None; no suitable habitat
Congdon's tarplant <i>Centromadia parryi</i> ssp. <i>congdonii</i>	SC/--/1B		East San Francisco Bay Area, Salinas Valley, Los Osos Valley	Annual grassland, on lower slopes, flats, and swales, sometimes on alkaline or saline soils, below 700'	Jun-Nov	High; Known occurrences nearby and suitable habitat is present

Table B. Special-Status Plant Species with Potential to Occur (Cont.)

Common and Scientific Name	Legal Status ^a		Geographic Distribution	Habitat Requirements	Blooming Period	Likelihood to Occur within Project Area ^b
	Federal/State /CNPS					
Contra Costa goldfields <i>Lasthenia conjugens</i>	E/--/1B		Scattered occurrences in Coast Range valleys and southwest edge of Sacramento Valley, Alameda, Contra Costa, Mendocino, Napa, Santa Barbara*, Santa Clara*, and Solano Counties	Alkaline or saline vernal pools and swales, below 700'	Mar-Jun	None; no suitable habitat
Arcuate bush mallow <i>Malacothammus arcuatus</i>	SLC/--/1B		Santa Clara, Santa Cruz, and San Mateo Counties	Chaparral	Apr-Sep	None; no suitable habitat
Robust monardella <i>Monardella villosa</i> ssp. <i>globosa</i>	SLC/--/1B		North Coast Ranges and Eastern San Francisco Bay Area; Alameda, Contra Costa, Humboldt, Lake, Marin, Napa, San Mateo, and Sonoma Counties	Oak woodland and grassy openings in chaparral	June-July	None; no suitable habitat
Prostrate navaretia <i>Navarretia prostrata</i>	SC/--/1B		Los Angeles, Merced, Monterey, Orange, Riverside, San Bernardino, and San Diego Counties	Mesic sites in alkaline valley and foothill grassland, coastal scrub, vernal pools	Apr-Jul	None; no suitable habitat
Choris's popcorn-flower <i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>	SLC/--/1B		Santa Cruz, San Francisco and San Mateo Counties	Chaparral, coastal prairie, coastal scrub, in mesic areas	Mar-Jun	None; no suitable habitat
Most beautiful jewel-flower <i>Streptanthus albidus</i> ssp. <i>Peramoenus</i>	SC/--/1B		Eastern San Francisco Bay area, Central south coastal outer ranges. Alameda, Contra Costa, and Santa Clara Counties	Chaparral, annual grassland, on ridges and slopes on serpentinite outcrops, 450-3,200'	Apr-Jun	None; no suitable habitat

Table B. Special-Status Plant Species with Potential to Occur (Cont.)

Common and Scientific Name	Legal Status ^a		Geographic Distribution	Habitat Requirements	Blooming Period	Likelihood to Occur within Project Area ^b
	Federal/State /CNPS					
^a Status explanations:						
Federal						
E	=	listed as endangered under the federal Endangered Species Act.				
SC	=	other species of concern to the USFWS				
SLC	=	species of local or regional concern or conservation significance to the USFWS				
--	=	no listing.				
State						
--	=	no listing.				
California Native Plant Society						
1B	=	List 1B species: rare, threatened, or endangered in California and elsewhere.				
4	=	List 4 species: plants of limited distribution.				
--	=	no listing.				
*	=	known populations believed extirpated from that County				
^b Definitions of levels of Occurrence likelihood:						
High: Known occurrence of plant in region from Natural Diversity Data Base, or other documents in the vicinity of the project; or presence of suitable habitat conditions and suitable microhabitat conditions.						
Moderate: Known occurrence of plant in region from Natural Diversity Data Base, or other documents in the vicinity of the project; or presence of suitable habitat conditions but suitable microhabitat conditions are not present.						
Low: Plant not known to occur in the region from the Natural Diversity Data Base, or other documents in the vicinity of the project; or habitat conditions of poor quality.						
None: Plant not known to occur in the region from the Natural Diversity Data Base, or other documents in the vicinity of the project; or suitable habitat not present in any condition.						

Appendix D
Floodplain Finding Report



Memorandum

Date: July 6, 2004

To: Don Dean

cc: Mike Davis

From: Jeff Peters

Subject: **Floodplain Finding Memorandum, BART Warm Springs Extension**

1.0 Introduction

This floodplain finding is partly based on a conceptual drainage report prepared for the San Francisco Bay Area Rapid Transit District (BART) Warm Springs Extension (WSX) (PB Team 2003a). The WSX is currently in the preliminary engineering phase of development. The conceptual drainage report describes existing drainage patterns and flood zone information obtained from the Alameda County Flood Control and Water Conservation District (ACFCD) and the Federal Emergency Management Agency (FEMA). The drainage component of certain portions of the WSX (i.e., Tule Pond and some county facilities) is planned to be completely designed before the design-build contract is released for competitive bid. In other portions, the contractor will design, and in this case, the “designer” is referred to in this report.

This floodplain finding is also partly based on the environmental impact statement (EIS) currently being prepared for the BART WSX.

2.0 Background

In the early 1990s, BART developed a project and conducted an environmental review pursuant to the California Environmental Quality Act (CEQA) to extend BART service from the current terminus at the Fremont BART Station through Fremont to the Warm Springs district. The WSX project was originally developed in response to growth projections for the project area that indicated a need for consideration of alternative travel modes to better meet current and anticipated travel demand in combination with limitations on the expandability of the regional freeway network. The project was also intended to respond to the following specific policy mandates for improved transit service.

- The BART Extension Staging Policy citing the Warm Springs Extension as a priority inside-current-district Phase I extension project to be advanced concurrently with all other Phase I extensions.

- Metropolitan Transportation Commission's (MTC's) inclusion of BART as a programmed project in its New Rail Transit Starts and Extension Program (MTC Resolution 1876 as amended).
- Voter-approved and sanctioned Measure B sales tax in Alameda County.
- Naming of BART as a Transportation Control Measure in MTC Resolution 2131—Transportation Contingency Plan of the 1982 Air Quality Plan.
- Boatwright Law (Senate Bill 1715/Chapter 1259 of 1988) directing BART to commence construction of extension to Warm Springs subject to funding and environmental approvals.

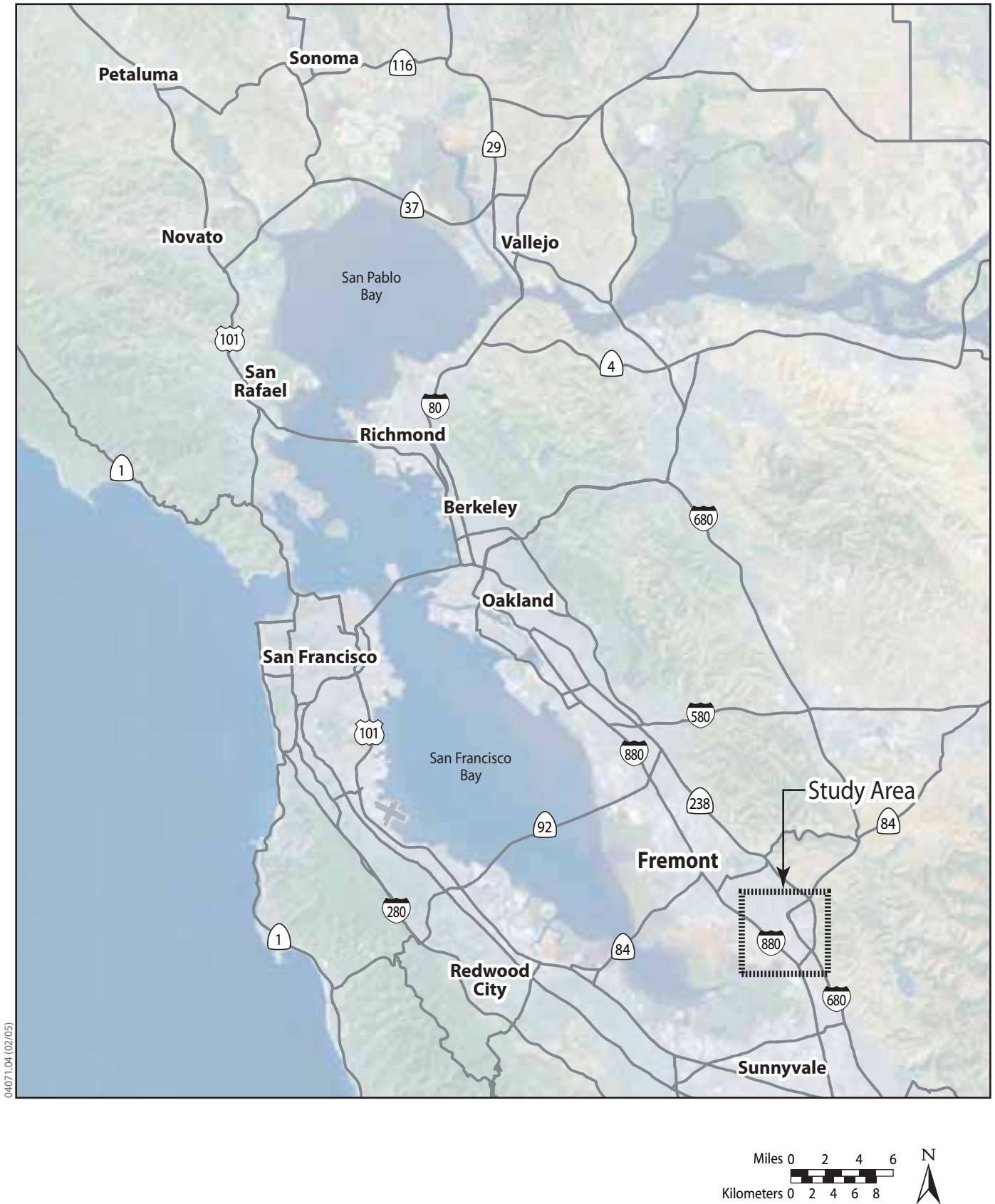
The WSX would provide a key segment in the Bay Area's regional rail transportation network linking the East Bay, the South Bay, and San Francisco, by providing an integrated system connecting existing BART, Alameda–Contra Costa Transit (AC Transit), and Santa Clara Valley Transportation Authority (VTA) services. Highway and freeway expansion to respond to the need for improved regional access is also possible, but severe limitations exist. The California Department of Transportation (Caltrans) estimates that Interstate 880 (I-880), the primary north-south freeway in the area, could be expanded from the existing 4- to 6-lane roadway to an 8- to 10-lane roadway. However, future demand is expected to exceed this capacity by as much as six additional lanes, and this scale of expansion is not feasible. Such limitations on the expandability of the regional freeway network, combined with growth projections for the area, require consideration of alternative travel modes to better meet current and anticipated travel demand. Improved transit service could better balance local and regional transportation demand now and provide increased transportation capacity for future growth in area-wide employment and population.

In 1991, BART prepared an environmental impact report (EIR) for the WSX (San Francisco Bay Area Rapid Transit District 1991a, 1991b).

2.01 1992 Adopted Project

On September 15, 1992, the BART Board of Directors certified the *BART Warm Springs Extension Final Environmental Impact Report* (San Francisco Bay Area Rapid Transit District, 1991b) and adopted a project consisting of a 5.4-mile, two-station extension of the BART system, with stations at Irvington and Warm Springs. This project is referred to as the 1992 Adopted Project and is briefly described in the following paragraphs. The 1992 Adopted Project was not constructed because sufficient funds were not available at that time.

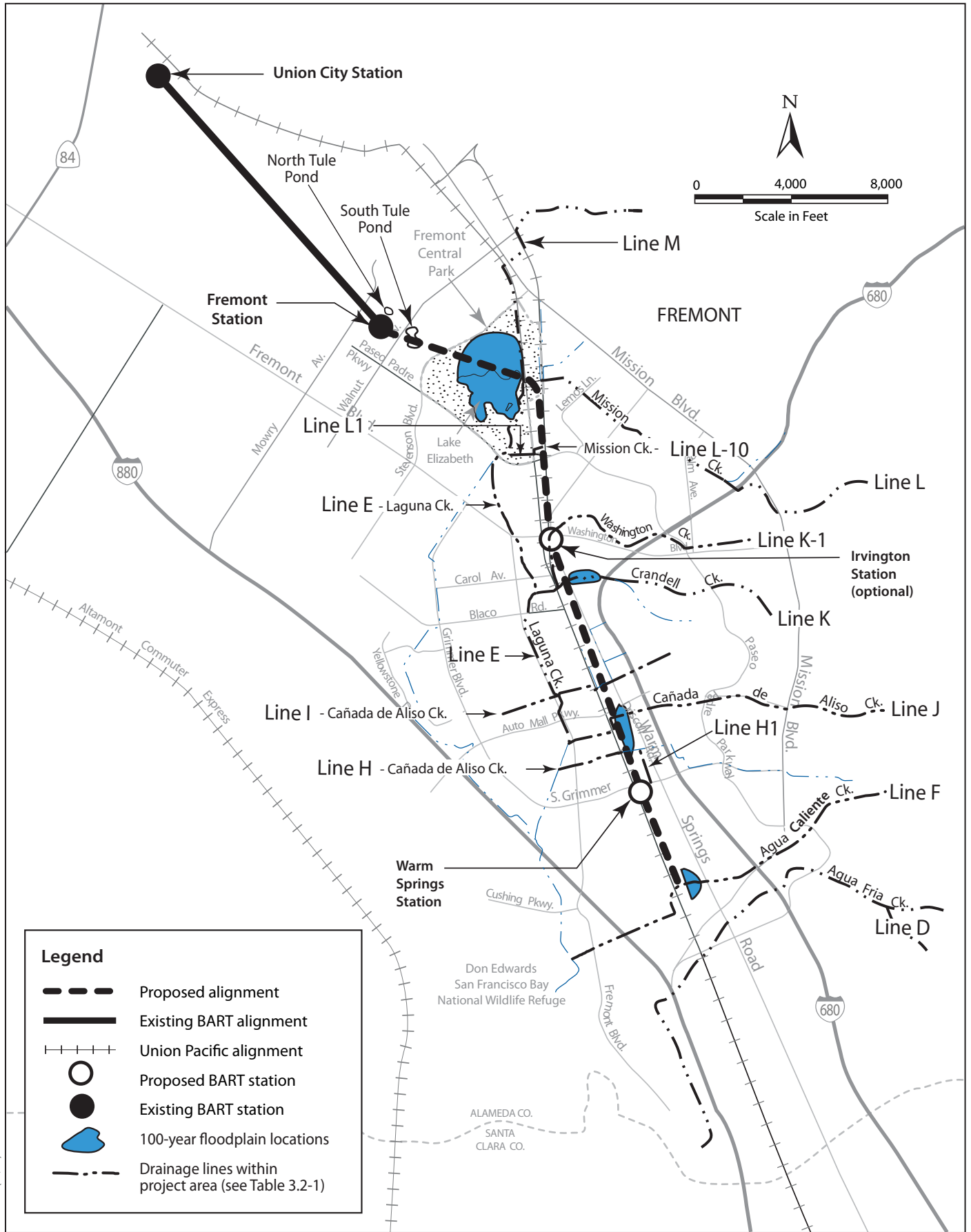
As proposed, the alignment of the 1992 Adopted Project (identified as Alternative 5, Design Option 2A, in the 1991 EIR) would have begun at the existing elevated Fremont BART Station and extended southeasterly. The alignment would have followed an aerial alignment through Fremont Central Park that skirted the eastern edge of Lake Elizabeth. The alignment would have



04071.04 (02/05)

Source: Basemap: San Francisco Estuary Institute EcoAtlas 2001.

Figure 1
Regional Location Map



04071.04 (02/05)

Source: FEMA FIRM maps 2000 and ACFCF maps.

Figure 2
Major Drainages in WSX Alternative Area

continued on an aerial structure over the former Southern Pacific (SP) railroad track, curved south between the former SP railroad track and the former Western Pacific (WP) railroad track,¹ and crossed over Paseo Padre Parkway. The alignment would have then transitioned to a below-grade crossing under Washington Boulevard to arrive at the Irvington Station.

From the Irvington Station, the alignment would have risen to grade and remained at grade over the Blacow Road underpass and under the Auto Mall Parkway overpass. From Auto Mall Parkway, the alignment would have risen to an embankment and an aerial structure to cross the former WP track at Grimmer Boulevard and continued above grade to the elevated Warm Springs Station. The alignment would have then transitioned to grade, and would have had approximately 3,000 feet of tail track south of the Warm Springs Station.

The 1992 Adopted Project also included a subway design option (identified as Design Option 2S in the 1991 EIR) that would have substituted a subway alignment under Fremont Central Park for the aerial alignment proposed as Design Option 2A. The BART alignment under this design option would have emerged from the subway structure, crossed the former SP track, and continued between the former SP track and the former WP track.

2.02 Subsequent Project History

Following adoption of the project and certification of the WSX EIR in 1992, BART initiated preliminary engineering for the 1992 Adopted Project. In 1992, the *BART to Santa Clara County Extension Alignment Alternatives Feasibility Study* (DKS Associates 1992) was prepared. The study analyzed alignments along the former WP and former SP railroad tracks extending southerly from Fremont to Santa Clara County. The study identified a BART alignment in the former WP right-of-way as the recommended alternative.

When the WSX EIR was certified in 1992, the City of Fremont (Fremont) did not support the recommended project alternative (Alternative 5, Design Option 2A, in the 1991 EIR), which included an aerial alignment over Lake Elizabeth in Fremont Central Park. Fremont did support the alternative that included a subway alignment under Lake Elizabeth (Design Option 2S in the 1991 EIR). Sufficient funds were not available to construct either alternative. However, because of public support for the extension of rail transit service from Fremont to Santa Clara County,

BART continued to consider the possibility of an extension from Fremont to Warm Springs and other transit agencies continued to study the regional corridor.

¹ Currently, Union Pacific Railroad (UP) operates both sets of tracks in the railroad corridor. For clarity in this document as necessary, the railroad tracks on the eastern side of the UP right-of-way are referred to as the former WP tracks, and the railroad tracks on the western side of the UP right-of-way are referred to as the former SP tracks.

In 1994, MTC prepared the *Fremont-South Bay Corridor Report* (DKS Associates 1994), which analyzed several alternatives for transit service in the regional corridor, including a BART alignment. In 2000, BART and VTA collaborated in preparing the *BART Extension Study from Fremont to Milpitas, San Jose and Santa Clara* (San Francisco Bay Area Rapid Transit District 2000), which again examined a BART alignment along the UP right-of-way.

Based on these two studies and enabled by funding from the Santa Clara County 1996 Measure B sales tax transportation improvement program, VTA began negotiations with UP to purchase the UP right-of-way to preserve it for future transportation use. In 2000, Alameda County voters reauthorized the transportation sales tax (Measure B), which has made sufficient funding available for a one-station BART extension. VTA purchased the UP right-of-way in December 2002.

In 2002, BART initiated the preparation of a CEQA supplemental EIR (San Francisco Bay Area Rapid Transit District 2003) to address modifications to the Adopted Project studied in the 1992 EIR (see Figure 1-3). The principal modification from the 1992 Adopted Project is the change from an aerial structure to a subway alignment under Fremont Central Park and Lake Elizabeth, which would reduce environmental impacts on the park. A Notice of Preparation (NOP) and CEQA Initial Study were submitted to the State Clearinghouse on March 5, 2002. A CEQA scoping meeting was conducted on March 25, 2002, which approximately 100 citizens and agency representatives attended. Comments received in response to the NOP and at the public scoping meeting were considered in the preparation of the supplemental EIR.

A draft supplemental EIR was published in March 2003, and a public comment period continued from March 25 to May 9 2003. A public hearing was held on April 14, 2003. Following the close of the public comment period, the BART Board of Directors certified the final supplemental EIR on June 26, 2003. At the June 26, 2003 meeting, the BART Board of Directors adopted the Proposed Project analyzed in the supplemental EIR.

3.0 Overview of WSX Alternative

BART has been in operation since 1972 and currently operates in four Bay Area counties: San Francisco, Alameda, Contra Costa, and San Mateo. The most recent extensions to the BART system are to Dublin/Pleasanton in eastern Alameda County, to Pittsburg/Bay Point in eastern Contra Costa County, and to the San Francisco International Airport in San Mateo County, with a terminus in Millbrae, California.

In southern Alameda County, BART operates service to downtown Fremont. The Fremont service currently terminates at the Fremont BART Station, which is near the Fremont Civic Center area.

In response to public policies and support for the extension of BART in southern Alameda County, BART is proposing a 5.4-mile extension of the BART system south from the existing Fremont Station to a proposed new station at Warm Springs. This proposed extension is analyzed in this floodplain finding. The proposed extension also includes an optional station at Irvington.

4.0 Description of WSX Alternative

The Proposed Project analyzed in the 2003 Supplemental EIR is identical to the WSX Alternative evaluated in this EIS. No changes to the project design, concept, or scope have been made since the BART Board of Directors adopted the 2003 Proposed Project.

The alignments of both the WSX Alternative generally parallel portions of the UP tracks and I-680 and I-880 in southern Alameda County. The initial segment of the WSX Alternative alignment would begin on an embankment at the southern end of the existing Fremont BART Station. The alignment would pass over Walnut Avenue on an aerial structure and descend into a cut-and-cover subway north of Stevenson Boulevard. The alignment would continue southward in the subway structure under Fremont Central Park and the eastern arm of Lake Elizabeth, and surface to at grade between the former WP and SP railroad alignments north of Paseo Padre Parkway. The new alignment would pass over Paseo Padre Parkway on a bridge structure, and then continue southward at grade, passing under a grade-separated² Washington Boulevard. From Washington Boulevard south to Prune Avenue, the WSX Alternative alignment would continue at grade along the former WP alignment. Near Prune Avenue, the alignment would bear to the east and continue south, crossing over South Grimmer Boulevard, to the end of the WSX Alternative alignment (just south of the Warm Springs Station). The WSX Alternative also includes an optional station at Irvington.

As compared to the 1992 Adopted Project, the WSX Alternative is at grade for a much greater portion of the alignment. With the exception of the Fremont Central Park portion of the alignment, which is underground, the WSX Alternative would be constructed at grade.

A detailed description of the WSX Alternative is provided in Chapter 3, *Alternatives Considered*, of the EIS.

5.0 WSX Alternative Location

The WSX Alternative would be located entirely within the City of Fremont, in the East Bay region of the San Francisco Bay Area. Fremont is the southernmost city in the southwestern portion of Alameda County. Figure 1 provides a map of the regional location.

² *Grade separated* describes an intersection where two modes of transportation (e.g., rail tracks and a highway) cross each other at different levels to permit unconstrained operation.

The area studied for the analysis for this document is approximately bounded on the north by the Fremont BART Station, on the south by the Warm Springs segment of Mission Boulevard, on the east by the ridgeline defining the eastern edge of the local watersheds, and on the west by the UP alignment. This study area defines the area that is likely to affect or be affected by proposed BART facilities.

6.0 Regional Transportation

Important regional transportation routes serving Fremont include I-880, I-680, and State Route 84 (SR 84). I-880, located west of the Fremont BART Station, is the principal north-south freeway that connects Fremont to Santa Clara County and the City of San Jose to the south, and to the City of Oakland and other communities of the East Bay to the north. I-880 lies within 3 miles of the WSX Alternative corridor and parallels the WSX Alternative corridor on the west. I-680, located east of the Fremont BART Station, connects Fremont to Santa Clara County and the City of San Jose to the south, and to the communities in eastern Alameda County and central Contra Costa County to the north. Within city boundaries, I-680 generally runs approximately 1 mile east of parallel to I-880, and serves the easternmost areas of Fremont. I-680 parallels the WSX Alternative alignment for approximately 3 miles, coming to within approximately 0.25 mile of the WSX Alternative corridor, and then veers slightly east. SR 84, which is the principal east-west route in the area studied, lies just to the north of the WSX Alternative corridor. It runs through the north-central portion of Fremont and connects the city to the Tri-Valley area to the east and to the San Francisco Peninsula to the west via the Dumbarton Bridge.

7.0 Regional Hydrology

7.01 Watershed

Surface hydrology in the eastern Fremont area is dominated by perennial and intermittent streams that flow westward from the East Bay hills and the foothills of the northern Diablo Range toward San Francisco Bay. Laguna Creek (Line E in Figure 2) is the principal drainage of the study area, draining a watershed that includes part of Fremont and the northern foothills of the Diablo Range as well as the Livermore and San Ramon Valley. There are eleven drainage lines within or immediately adjacent to the WSX Alternative alignment (Line E and its tributaries), as shown in Figure 2 and described further in Table 1; seven of the eleven are major drainages that are relevant to the WSX Alternative.

Table 1. Existing Drainage Channel Characteristics in Study Area

Drainage Line	Associated Watershed	Total Drainage Area (square miles)	Crossing Location (BART stationing [feet])	Characteristics at Crossing		
				Conveyance Structure		100-Year Peak Flow (cubic feet per second)
				West of Alignment	East of Alignment	
M	Mission Creek	1.0	NA	NA	Open Channel	330
L	Mission Creek	0.9	2275+50	Open Channel	Open Channel	3360
L-10 ¹	Mission Creek	NA	2302+20	Open Channel	Open Channel	139
L-1	Mission Creek	NA	2305+50	NA ²		
K	Crandall Creek	3.3	2361+00	6-by-3.5-foot box culvert and 72-inch pipe ³	6-by-5-foot arch and 72-inch pipe ³	1670
K-1	Washington Creek	NA	2361+00	66-inch pipe	66-inch pipe	267
I	Cañada de Aliso	0.6	2406+00	84-inch pipe	7-by-6-foot box culvert	245
J	Cañada de Aliso	1.6	2424+50	72-inch pipe	72-inch pipe	560
H	Cañada de Aliso	1.3	2434+00	modified box culvert	modified box culvert	589
H-1	Cañada de Aliso	NA	2434+00 to 2442+00	NA	48-inch pipe	NA
F ⁴	Arroyo del Agua Caliente (Agua Caliente Creek)	2.7	2493+50	8- by 6-foot box culvert	81-inch pipe	945

Notes:

NA = No data available.

¹ Currently, L-10 is an open channel west of the alignment. Immediately east of the alignment, it is open channel or 48-inch RCP a little further upstream. Upon completion of the city's grade separation project, it will be two 72-inch RCP pipes, one immediately east and one immediately west of WSX, and the 100-yr flow will be 296 cfs.

² Drainage channel will be filled in by the City of Fremont's grade separations project.

³ Channel crossing to be improved to convey 100-year flow below the WSX trackway while maintaining upstream and downstream water levels.

⁴ Line F does not cross the WSX Alternative alignment; however, its flooding may affect the project.

Sources: San Francisco Bay Area Rapid Transit District 1991a, Federal Emergency Management Agency 2000a

7.02 Tule Pond and Lake Elizabeth

Tule Pond, located at the north end of the WSX Alternative alignment, is a sag pond³ formed along the Hayward fault (Parikh Consultants 2002). It has been modified to serve as a flood control basin for local runoff during the wet season. Tule Pond is bisected by Walnut Avenue, but the portion north of Walnut Avenue (Tule Pond North) is hydrologically connected to the portion south of Walnut Avenue (Tule Pond South) via two 18-inch × 29-inch pipe arch culverts.

Lake Elizabeth, located in Fremont Central Park, is an 83-acre recreational lake owned by ACFCD and maintained with groundwater by Fremont. It originated as natural sag (Stivers Lagoon) formed along an active trace of the Hayward fault (City of Fremont 1991, as amended), but has been artificially enlarged, and hardscape has been installed to stabilize portions of the shoreline.

In addition to serving as a recreational resource, Lake Elizabeth and the surrounding park areas also provide approximately 985 acre-feet of flood storage capacity during the wet season (Jones & Stokes 2000). High wet-season flows in Mission Creek back up where the creek is culverted at Paseo Padre Parkway and flow over a weir into Lake Elizabeth. As the flood flows subside, lake water drains back into Mission Creek via the same weir. During extreme flood events, flood flows in Mission Creek overtop the bank and discharge directly into Lake Elizabeth upstream of the weir. During the summer, Fremont installs flashboards in the weir and adds supplemental water to offset evaporation and regulate lake level for recreation uses (Jones & Stokes 2000). Because of the shallow slopes adjoining Lake Elizabeth, surface runoff rates are slow and little overland runoff reaches the lake.

Lake Elizabeth acts as a sink for sediment transported by Mission Creek, particularly when the creek discharges directly into the lake at flood stage. Bathymetric surveys of the lake suggest that sediment has been accumulating at an average rate of approximately 8,000 cubic yards per year (Jones & Stokes 2000). The lake is periodically dredged to maintain floodwater storage capacity; dredged spoils are retained in a bermed area north of the lake and two dredged ponds with an aggregate area of approximately 20 acres located west of the lake. The ponds are maintained by Fremont Central Park staff.

Approximately 550 linear feet of the WSX Alternative alignment is in a subway structure under the northeast arm of Lake Elizabeth; the WSX Alternative corridor includes 3.7 acres of the lake's area. The portion of Lake Elizabeth intersected by the WSX Alternative corridor has a maximum depth of approximately 6 feet.

The lower reaches of the drainages shown in Figure 2 have been modified to serve as stormwater drainage channels. Because these facilities have drainage areas of between 50 acres and

³ *Sag* refers to a depression formed by surface deformation along an active fault trace. A *sag pond* forms when a sag is filled by runoff and/or groundwater to form a body of standing water.

10 square miles, ACFCD considers them primary facilities. Those that are FEMA-studied lines are designed to contain the FEMA 100-year storm.⁴ The design storm for primary county facilities not studied by FEMA is the 15-year storm. (Western Alameda County 1987). BART drainage criteria state “all culverts crossing beneath BART system at-grade trackbeds shall be designed for a 100-year storm.” Accordingly, as of 1991, existing drainage structures were sized to effectively convey flood flows from the 15-year storm (Otsuka pers. comm.); many are still not capable of effectively conveying flood flows from the 100-year storm (Federal Emergency Management Agency 2000a).

7.03 Climate and Rainfall Characteristics

The San Francisco Bay Area, like much of California’s central coast, enjoys a Mediterranean climate characterized by mild, wet winters and warm summers. Moderated by proximity to San Francisco Bay and the ocean, temperatures seldom drop below freezing. Summer weather is dominated by sea breezes caused by differential heating between the interior valleys and the coast, while winter weather is dominated by storms from the northern Pacific Ocean that produce the majority of the region’s annual rainfall. The mean annual temperature in Fremont is 57°F. The mean annual rainfall in Fremont is approximately 18 inches, most of which occurs between October and April (City of Fremont 1991, as amended).

8.0 Summary of Existing Regional Flood Conditions

Peak flows for the 100-year storm and resultant flooding have increased over the past decade because of additional development in the area’s upper watersheds (Federal Emergency Management Agency 2000a). The current Flood Insurance Study (FIS) for the region that includes the WSX Alternative area incorporates updated flood hazard information along selected area drainages (Federal Emergency Management Agency 2000a); peak flows for the drainages affected by the WSX Alternative are shown above in Table 1 and are discussed in more detail below in Section 9.0. Flooding is a concern along the northeastern portion of Lake Elizabeth and along Mission Creek (Lines L, L-10, and L-1), Crandell Creek (Line K), Cañada de Aliso (Lines J, I, H, and H-1), the unnamed tributary to Laguna Creek shown as drainage Line H in Table 1, and Agua Caliente Creek (Line F). Where the WSX Alternative alignment crosses some of these drainages, flow exceeds the capacity of the conveyance structures during extreme flood events and water moves as sheet flow across the existing railroad embankments (Federal Emergency Management Agency 2000a).

The portion of Tule Pond in the WSX Alternative corridor (Tule Pond South) has an area of approximately 6 acres and is seasonally flooded.

⁴The *100-year storm* is a storm that has a 1% chance of occurring in any given year; the *15-year storm* is a storm that has a 6.7% chance of occurring in any given year.

As mentioned previously, high wet-season flows in Mission Creek back up where the creek is culverted at Paseo Padre Parkway and flow over a weir into Lake Elizabeth. As the flood flows subside, lake water drains back into Mission Creek via the same weir. During extreme flood events, flood flows in Mission Creek overtop the bank and discharge directly into Lake Elizabeth upstream of the weir.

9.0 Existing and Proposed Drainage Patterns—Trackway Development

This section describes the existing and proposed drainage patterns in the WSX Alternative area. See Figure 2 for project areas and locations described below; also see Figures 1-26 of the *Draft Conceptual Storm Drainage Report, BART Warm Springs Extension* (PB Team 2003a). The term “channel” is generally synonymous with the term “line,” except Line H-3 is a pipe only.

WSX project elevations are referenced to the orthometric datum North American Vertical Datum 1988 (NAVD88). Elevations shown on the relevant FEMA Flood Insurance Rate Maps (FIRMs) and in the City of Fremont FIS are referenced to the older National Geodetic Vertical Datum 1929 (NGVD29). The datum conversion factor in the project area is 2.75 (i.e., $NGVD29 + 2.75 = NAVD88$.)

9.01 STA S1 2230+50 to 2286+00 Morrison Creek

Existing Conditions

An ACFCD maintenance road exists along the eastern bank of Line M, between the channel and the Union Pacific Railroad Warm Springs Subdivision. Line M, Morrison Creek, flows from north to south from Stevenson Boulevard along the eastern boundary of Central Park. It discharges to Mission Creek near the northeast corner of Lake Elizabeth.

FEMA Flood Zone Information

The area to the east and west of Line M, Morrison Creek, is designated Zone C, as an area of minimal flooding. The creek is designated Zone A, as an area of 100-year flooding, base flood elevations and flood hazard factors not determined. Zone A is contained within the channel.

Proposed Conditions

Improvements to the existing maintenance road along the eastern bank of Channel M, are proposed for emergency vehicle access to the southern ventilation structure. The WSX project proposes to improve this maintenance road and convert it to a shared BART/WSX facility that will allow for continued ACFCD maintenance access to Channel M and will allow BART and emergency vehicle access to the LES ventilation structure. Proposed road improvements include paving and the construction of three turnouts that would allow for an emergency vehicle to pass another if necessary. These turnouts are shown on WSX Site Plan Sheets as 50' long and 20'

wide with 20' taper sections transitioning from the typical 14' width to the 20' turnout width. These turnouts may encroach into the Channel M westerly bank.

9.02 Fremont Station to 2220+50 Fremont Station (Existing) to Walnut Avenue

See Figure 1 in the *Draft Conceptual Storm Drainage Report, BART Warm Springs Extension* (PB Team 2003a).

Existing Conditions

The WSX Alternative area in this location consists of impervious parking lot surface. The stormwater runoff from this area drains to the existing storm drain system, which consists of drop inlets and reinforced concrete pipe.

FEMA Flood Zone Information

The WSX Alternative area in this location appears on the FEMA FIRM Community Panel 065028 0030 C, revised 2/9/2000, and is designated as Zone C, as an area of minimal flooding.

Proposed Conditions

The WSX Alternative alignment begins at the existing Fremont Station platform and continues on a raised embankment in a southeasterly direction through what is currently a portion of the Fremont Station parking lot.

The proposed earthen embankment and ballasted track bed would allow for runoff infiltration and reduce the time of concentration (the time it takes for the entire area to contribute runoff to the downstream system) from the existing response time of the paved parking surface. As a result, the peak rate of runoff to the existing storm drain system is expected to remain the same or decrease in this area. The designer is to provide for drainage conveyance from the embankment and modified parking lot facilities.

9.03 STA S1 2220+50 to 2221+60 Walnut Avenue Overhead Structure

See Figure 1 in the *Draft Conceptual Storm Drainage Report, BART Warm Springs Extension* (PB Team 2003a).

Existing Conditions

The WSX area in the Walnut Avenue area consists of impervious roadway surface. Stormwater runoff is directed to the Walnut Avenue curb and gutter conveyance system and ultimately discharges to North and South Tule Ponds.

FEMA Flood Zone Information

The WSX Alternative area in this location appears on the FEMA FIRM Community Panel 065028 0030 C, revised 2/9/2000, and is designated as Zone C, as an area of minimal flooding.

Proposed Conditions

The WSX tracks would pass over Walnut Avenue on a raised overhead structure. The designer is to direct deck drainage runoff to the existing systems. Peak flow to this system would not increase, because the overhead structure is not expected to greatly affect the time of concentration, and the existing surface is impervious.

9.04 STA S1 2221+60 to 2230+50 Tule Pond

See Figures 1 and 2 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

Existing and Proposed Conditions

The WSX trackway will continue on the elevated earthen embankment through South Tule Pond, which is an existing ACFCO detention basin facility immediately south of Walnut Avenue.

Existing stormwater drainage patterns (inflow, outflow, and detention storage stages) through North and South Tule Ponds, as well as the effects of the WSX Alternative embankment with mitigation measures, are analyzed and described in detail in a separate report, *Draft Tule Pond Hydrology Study -BART Warm Springs Extension* (PB Team 2003b). Coordination with ACFCO and Fremont will continue throughout design and development of the WSX Alternative.

FEMA Flood Zone Information

The WSX Alternative area in this location appears on the FEMA FIRM Community Panel 065028 0030 C, revised 2/9/2000, and is designated as Zone C, as an area of minimal flooding.

9.05 STA S1 2230+50 to 2286+00 Retained Cut and Underground Subway: Stevenson Boulevard, Fremont Central Park, and Lake Elizabeth to UP Interim Alignment

See Figures 2, 3, 4, 5, 6, and 7 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

Existing Conditions

The WSX Alternative area in this location consists of a slot of vacant land, roadway, open space parkland (Fremont Central Park), and an artificial lake (Lake Elizabeth). The area drains to local street drainage at Stevenson Boulevard and overland flows to local depressions and swales

through Fremont Central Park to Lake Elizabeth. Lake Elizabeth serves as a recreation facility in the summer months and a detention basin/flood control facility during the winter season. Mission Creek delivers and receives flow to and from Lake Elizabeth through a controlled weir structure, depending on the season. High flows in Mission Creek are known to overtop the banks and sheet flow into Lake Elizabeth at various locations.

FEMA Flood Zone Information

The WSX Alternative area in this location appears on the FEMA FIRM Community Panel 065028 0030 C, revised 2/9/2000. The area immediately east of South Tule Pond is designated as FEMA Zone C, as an area of minimal flooding. The remainder of the area in this location is designated as Zone AH, as a special flood hazard zone with a 100-year base flood elevation of 56.75 (NAVD88), starting near the underground portal location west of Stevenson Boulevard and continuing to the interim UP alignment, east of Lake Elizabeth.

Proposed Conditions

After crossing the South Tule Pond area, the proposed WSX trackway descends below grade through a 1200-foot retained cut section to a subway section below Stevenson Boulevard, Fremont Central Park, and Lake Elizabeth.

After construction of the subway section, Stevenson Boulevard would be reconstructed, the park area regraded and revegetated, and Lake Elizabeth restored, all to their original conditions. No change in drainage patterns or increase in runoff is expected in this area as a result of any phase of the below-grade subway construction.

In addition to the trackway, a BART maintenance area, access road, and two ventilation structures would be constructed in this segment. All critical structures, including the retained cut leading to the subway section and ventilation structures would be protected from the 500-year flood during all construction phases per BART criteria (Bay Area Rapid Transit Authority 2003).

The designer is to apply permanent best management practices (BMPs) to the drainage design of these facilities as recommended by the Regional Water Quality Control Board (RWQCB) and described in *Start at the Source* (Bay Area Stormwater Management Agencies Association 1999). BMPs may include impervious areas that are hydraulically disconnected from natural waterways, grassy swales, and roof drains draining to landscaped areas.

9.06 STA S1 2286+00 to 2302+00 UP Interim Alignment to ACFCD L-10 Channel

See Figures 7, 8, and 9 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

Existing Conditions

The WSX Alternative area in this location is an undeveloped open space bordered by the former SP tracks to the west and the former WP tracks to the east. Runoff from this area flows to the south to the ACFCD L-10 Channel at the confluence of the ACFCD L-1 Channel. Fremont is planning a grade separations project at Paseo Padre Parkway to lower the roadway profile and realign the former SP track to an interim alignment, closer to the proposed WSX alignment. The city's grade separations project will allow the realigned former SP tracks and the WSX tracks to cross over Paseo Padre Parkway. The city's grade separations project is to be completed before the WSX trackway is installed in this area. Drainage design of the Paseo Padre underpass, interim former SP track, embankment, and drainage ditches is included in the city's grade separations project.

FEMA Flood Zone Information

The WSX Alternative area in this location appears on the FEMA FIRM Community Panel 065028 0030 C, revised 2/9/2000, and is designated as Zone B, as an area between the limits of the 100-year and 500-year flood, or subject to 100-year flooding with average depths less than 1 foot, or where the contributing drainage area is less than 1 square mile or where the area is protected by levees from the base flood.

Proposed Conditions

In addition to constructing the WSX trackway in this area, the WSX Alternative would move the interim former SP track from the interim alignment set by the city's grade separations project to the final alignment shown on project plans.

The WSX tracks would be constructed in a retained cut and on a raised embankment constructed above the FEMA 100-year base flood through this area. It has not yet been determined whether this embankment would impede or redirect flood flows nor how it would affect the existing floodplains; however, final project plans would be designed to minimize any adverse effects on floodplains per FEMA and ACFCD requirements. The WSX Alternative area would continue to drain to the south via drainage swales and continue through cross culverts to the west to the confluence of the ACFCD L-1 and L-10 Channels. The WSX and permanent former SP track embankments would be constructed of earth material.

At the top of both embankments, stormwater would drain away from the track and ties by filtering through the ballast layer and flowing down the earthen embankment to drainage ditches on either side.

Additional facilities to be constructed in this location include a maintenance access road, train control bungalow, and traction power substation. If any of these features were located within a 100-year floodplain, they would be constructed to meet FEMA requirements. The designer is to provide adequate drainage incorporating permanent BMPs as described above in Section 9.05.

**9.07 STA S1 2302+00 to 2306+00
ACFCD L-10 Channel to Paseo Padre Parkway**

See Figure 9 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

Existing Conditions

The city's grade separations project will also realign the ACFCD L-1 Channel to allow for the Paseo Padre Parkway detour road. Flow from the L-1 Channel in this area will be permanently diverted to the L-10 Channel. Flows from both the L-10 and the L-1 Channels will be contained in underground culverts within the proposed WSX alignment in this area before the WSX Alternative is constructed. These culverts have been designed to contain the 100-year storm event.

Overland flow generated from the WSX Alternative area would cross under the relocated former SP track through a 36-inch cross-culvert and flow to the downstream confluence of the L-10 and L-1 Channels.

FEMA Flood Zone Information

The WSX Alternative area in this location appears on the FEMA FIRM Community Panel 065028 0030 C, revised 2/9/2000, and 0031 B, revised 5/2/1983. This area is designated as Zone A1, as a special flood hazard zone. The 100-year base flood elevation was lowered from 63.75 (NAVD88) to 59.75 (NAVD88) with the construction of a 48-inch bypass storm drain line along Paseo Padre in 1991. The corresponding hydrology study (Alameda County Flood Control District 1991) and FEMA-issued Letter of Map Revision (Federal Emergency Management Agency 1992) is on file with Fremont and ACFCD.

The rerouting of the L-1 Channel by the city's grade separations project will maintain the lowered 1991 FEMA base flood elevation (Washington Infrastructure Services 2002). The primary source of flooding in this area is the L-1 Channel with a flow constriction under the Hetch Hetchy water lines. The city's grade separations project will relocate the Hetch Hetchy crossing and maintain flow in closed culverts until discharging to the west of the proposed UP tracks.

Proposed Conditions

The WSX tracks would be constructed on a raised embankment constructed above the 100-year base flood elevation through this area. Runoff from the ballasted track way would be directed to the confluence of the L-1 and L-10 Channels through the cross-culvert built as a part of the city's grade separations project.

No increase in peak flow to the L-1 Channel is expected to occur as a result of the WSX Alternative in this area. If increases in peak flow are expected in the L-10 channel as a result of

project implementation, it will be designed accordingly to contain the flow and will not result in any adverse effects to the 100-year floodplain in this area.

Additional facilities to be constructed in this location include a maintenance access road and access areas to the SFPUC's 60- and 66-inch water lines. The designer is to provide adequate drainage incorporating permanent BMPs as described in Section 9.05.

**9.08 STA S1 2306+00 to 2307+50
Paseo Padre Parkway Overhead Structure**

See Figure 9 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

Existing Conditions

As described previously, Fremont will construct the Paseo Padre Parkway underpass as a part of its grade separations project. The structure for the BART WSX track crossing over Paseo Padre will also be built as a part of the city's grade separations project.

Paseo Padre Parkway is currently an impervious surface that drains to the north to the L-1 Channel. Drainage from the WSX structure will be directed to local drainage facilities that will ultimately drain to the L-1 Channel as well.

FEMA Flood Zone Information

The WSX Alternative area in this location appears on the FEMA FIRM Community Panels 065028 0030 C, revised 2/9/2000, and 0031 B, revised 5/2/1983. This area is designated as Zone C, as an area of minimal flooding.

Proposed Conditions

The WSX project would place the tracks and complete the overhead structure constructed by the city's grade separations project. Drainage patterns in this area would not be affected by this part of the WSX project.

**9.09 STA S1 2307+50 to 2340+00
Paseo Padre Parkway to (Optional) Irvington Station**

See Figures 9, 10, 11, and 12 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

Existing Conditions

Upon completion of the city's grade separations project, the WSX Alternative area between Paseo Padre Parkway and Washington Boulevard will consist of the former WP cut section and the relocated former SP trackway. Runoff from the WSX Alternative area in this location splits

to the north to Paseo Padre and the L-1 Channel and to the south to Washington Boulevard and ultimately the ACFCD K-1 Channel.

The city's grade separations project will provide a grade separation from roadway traffic at Washington Boulevard. The intersection of Washington and Driscoll/Osgood Roads will be raised to allow the WSX and relocated former SP tracks to cross underneath.

FEMA Flood Zone Information

The WSX Alternative area in this location appears on the FEMA FIRM Community Panels 065028 0030 C, revised 2/9/2000, 0031 B, revised 5/2/1983 and 0033 C revised 2/9/2000. This area is designated as Zone C, as an area of minimal flooding.

Proposed Conditions

Runoff from the WSX embankment would be directed to drainage ditches that would maintain the existing flow patterns to the north and south. Runoff would filter through the track ballast before flowing down the earthen embankment side slopes to the drainage ditches.

9.10 STA S1 2340+00 to 2361+00 (Optional) Irvington Station to ACFCD K-1, K Channels

See Figures 12, 13, and 14 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

Existing Conditions

The BART station at Irvington is considered an optional station. Drainage facilities specific to this optional station have not yet been designed; this will be considered when the Irvington Station design is initiated.

Upon completion of the city's grade separations project, this location will consist of the former WP embankment and the relocated former SP tracks. This area contributes runoff to the confluence of the K and K-1 Channels to the south.

FEMA Flood Zone Information

The WSX Alternative area in this location appears on the FEMA FIRM Community Panel #065028 0033 C revised 2/9/2000. The area west of the former WP embankment is designated as Zone C, as an area of minimal flooding. In the vicinity of the K-1 and K Channels, it is designated as Zone AH, as a special flood hazard zone with a base flood elevation ranging from 62.75 (NAVD88) to 65.75 (NAVD88).

The ACFCD is requiring that the base flood levels be maintained in this area to prevent exacerbating downstream flooding problems in a nearby residential area. The base flood elevation overtops the former WP track by about 2 feet at the K Channel crossing. The K and K-1 Channels are discussed further below in Section 10.0.

Proposed Conditions

The WSX track and embankment would be constructed above the FEMA base flood elevations in this area.

Runoff from the WSX trackway would be directed to drainage ditches that would maintain the existing flow pattern to the south. Runoff would filter through the track ballast before flowing down the side slopes and draining to the embankment ditches.

The K Channel crossing would be improved to prevent flow over the WSX tracks, but, as described above, must maintain upstream base flood levels. The proposed modifications to the K and K-1 Channels are discussed in Section 10.0.

9.11 STA S1 2361+00 to 2406+00 ACFCD K-1, K Channels to ACFCD I Channel

See Figures 14, 15, 16, 17, and 18 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

Existing Conditions

The WSX area in this location consists of the former SP and WP embankments and undeveloped land between the trackways. This area drains to the south to ACFCD I Channel.

FEMA Flood Zone Information

The WSX Alternative area in this location appears on the FEMA FIRM Community Panel 065028 0033 C revised 2/9/2000. The area east of the former WP embankment is designated Zone B, as described in Section 9.06. The area west of the former WP embankment is designated as Zone C, as an area of minimal flooding.

Proposed Conditions

The WSX Alternative would maintain existing drainage patterns to the I Channel in this location. ACFCD facilities are discussed further in Section 10.0.

9.12 STA S1 2406+00 to 2424+50 ACFCD I Channel to ACFCD J Channel

See Figures 18, 19, and 20 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

Existing Conditions

The WSX area in this location consists of the former WP and SP embankments and undeveloped land between the trackways. The area is generally flat, bounded by I Channel to the north and J Channel to the south.

FEMA Flood Zone Information

The WSX Alternative area in this location appears on the FEMA FIRM Community Panel 065028 0033 C revised 2/9/2000. This area is designated as Zone C, an area of minimal flooding, from the ACFCD I Channel to south of Auto Mall Parkway, and Zone B, as described in Section 9.06, from south of Auto Mall Parkway to the ACFCD J Channel. In addition, the area east of the former WP embankment along the J Channel is designated as Zone AH, as a special flood hazard zone, with a 100-year base flood of 33.75 (NAVD88). See Section 10.0 for further discussion.

Proposed Conditions

The WSX trackway would be above the FEMA base flood elevation at the ACFCD J Channel crossing. As in the case of the K Channel, the existing base flood elevations must be maintained to not adversely affect downstream residential areas. See Section 5.0 above for further discussion.

9.13 STA S1 2424+50 to 2434+00 ACFCD J Channel to ACFCD H Channel

See Figures 20 and 21 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

Existing Conditions

The WSX area in this location consists of the former WP and SP embankments and undeveloped land between the trackways. The area is generally flat, with a gradual slope to the north to the J Channel.

FEMA Flood Zone Information

The WSX Alternative area in this location appears on the FEMA FIRM Community Panel 065028 0033 C revised 2/9/2000. This area is designated as Zone B, as described in Section 9.06. The area east of the former WP embankment comprises a part of the special flood hazard zone behind the J Channel, Zone AH, with a 100-year base flood of 33.75 (NAVD88).

The capacity of the H Channel, where it crosses under the former WP and SP embankments, is sufficient to convey the 100-year flow. See Section 10.0 for further discussion.

Proposed Conditions

The WSX Alternative would maintain existing drainage patterns to the J Channel in this location. Design considerations regarding the J Channel are described in Section 9.12.

**9.14 STA S1 2434+00 to 2448+00
ACFCD H Channel to Grimmer Boulevard Overhead Structures**

See Figures 21 and 22 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

Existing Conditions

The WSX area in this location consists of the former WP and SP embankments and undeveloped land between the trackways. The WSX Alternative area in this location is generally flat and bounded to the north by H Channel, and to the east by H-1 Channel.

FEMA Flood Zone Information

The WSX Alternative area in this location appears on the FEMA FIRM Community Panel 065028 0033 C revised 2/9/2000 and 0046 D revised 2/9/2000. This area is designated as Zone C, as an area of minimal flooding.

Proposed Conditions

The WSX Alternative trackway would widen in this area as it approaches the proposed Warm Springs Station. This widened embankment would cover the area occupied by the existing H-1 Channel. Further discussion of the channels is found in Section 10.0.

**9.15 STA S1 2448+00 to 2450+00
Grimmer Boulevard Overhead Structures**

See Figure 22 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

Existing Conditions

The UP crosses over Grimmer Boulevard on two overhead structures. Drainage from the Grimmer Boulevard underpass is pumped to a gravity line that ultimately drains to the H-1 Channel through two 48-inch reinforced-concrete pipe culverts.

The WSX Alternative area in this location consists of impervious roadway surface.

FEMA Flood Zone Information

The WSX Alternative area in this location appears on the FEMA FIRM Community Panel 065028 0046 D revised 2/9/2000. This area is designated as Zone C, as an area of minimal flooding.

Proposed Conditions

The WSX Alternative would replace the eastern Grimmer Boulevard overhead structure with two structures that would accommodate the tracks approaching the Warm Springs station. The

designer would provide deck drains to convey runoff to the H-1 Channel from the north end of the structure.

Since the existing area consists of an overhead structure over a paved roadway, the additional width of the proposed structures is not expected to increase runoff to the downstream H-1 facility. Because slightly more precipitation would be intercepted by the two proposed structures, the flow to the underpass pump station would be decreased as a result of the WSX Alternative in this location.

**9.16 STA S1 2450+00 to 2470+00
Grimmer Boulevard Overhead Structures to Warm Springs Station Site**

See Figures 22, 23, and 24 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

Existing Conditions

The WSX area in this location consists of the former WP and SP embankments and undeveloped land between the trackways. The project site for the Warm Springs Station consists of undeveloped land bounded to the north by Grimmer Boulevard, to the east by Warm Springs Boulevard, and to the west by the New United Motor Manufacturing Incorporated (NUMMI) yard. Runoff from this area flows to the northwest corner to an inlet to the H-1 Channel.

FEMA Flood Zone Information

The WSX Alternative area in this location appears on FEMA FIRM Community Panel 065028 0046 D revised 2/9/2000. This area is designated as Zone C, as an area of minimal flooding.

Proposed Conditions

Conceptual plans for the Warm Springs Station are presented in the *Draft SEIR, BART Warm Springs Extension* (Jones & Stokes 2003).

The ACFCD staff has stated that existing downstream facilities do not have the capacity to handle increased flows from this area and that detention would need to be provided. The designer may be required to provide detention facilities to maintain the existing peak rate of runoff to the downstream systems. The station design would include permanent BMPs as described in Section 9.05. A detention pond may be included in the northwest corner pending future plans for transit-oriented development. Flood storage could also be provided in large underground pipes with appropriate maintenance provisions.

**9.17 STA S1 2470+00 to 2493+61.85
Warm Springs Station to End of Tail Track, ACFCD F Channel**

See Figures 24, 25, and 26 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

Existing Conditions

The WSX area in this location consists of industrial properties.

FEMA Flood Zone Information

The WSX Alternative area in this location appears on the FEMA FIRM Community Panel 065028 0046 D revised 2/9/2000. This area is designated as Zone B, as described in Section 9.06. The Zone B designation is likely a result of the 500-year overflow of the F Channel. See Section 10.0 for further discussion.

Proposed Conditions

There would be tail tracks south of the Warm Springs Station for train storage and for the possible future continuation of service to San Jose. The track elevation would be raised to provide protection from flooding, and cross drainage would be provided to maintain the 500-year overland flow path.

10.0 Existing and Proposed Drainage Patterns—Alameda County Flood Control Facilities

ACFCD is the local agency with jurisdiction over the flood control facilities in the project area. Unless otherwise noted, the channels listed below flow from east to west across the WSX Alternative alignment.

10.01 South Tule Pond

See Figure 1 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

South Tule Pond is a detention basin facility immediately south of Walnut Avenue.

Existing stormwater drainage patterns (inflow, outflow, and detention storage stages) through North and South Tule Ponds, as well as the effects of the WSX Alternative embankment with mitigation measures, are analyzed and described in detail in the separate report, *Draft Tule Pond Hydrology Study -BART Warm Springs Extension* (PB Team 2003b).

10.02 Lake Elizabeth

See Figures 5, 6, and 7 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

Lake Elizabeth is an artificial lake in Fremont Central Park that serves as a recreation facility in the summer months and a detention basin/flood control facility during the winter season.

Operation of the WSX Alternative would not change the drainage patterns in this area nor permanently affect the functionality of the lake as a recreational or flood control facility because the alignment would pass under the lake.

Construction methods and project phasing will be coordinated with Fremont, RWQCB, and ACFCD as preliminary engineering and design progresses.

10.03 L Channel (Mission Creek)

See Figures 6 and 7 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

The L Channel, known as Mission Creek, is the primary source of flow to Lake Elizabeth and has known flooding issues. The completed WSX Alternative would not change the hydraulics of Mission Creek because the alignment would be located at or below the local groundwater table. As a result, seepage of groundwater could occur, and operation of the WSX Alternative would potentially require dewatering. BART anticipates subway seepage on the order of 8 GPM. Operational pumping of the sump water would take place intermittently at a rate of 150 GPM when the sump reaches capacity. Options for discharge include Mission Creek, Lake Elizabeth, and a new wetland mitigation area to be developed east of the park. Lake Elizabeth is not an impaired waterbody under CWA section 303(d). However, Mission Creek is impaired for a variety of pollutants/stressors (California State Water Resources Control Board 2003). Discharge of dewatering effluent could result in release of sediments or other contaminants.

Construction methods and project phasing will be coordinated with Fremont and ACFCD as preliminary engineering and design progresses. Line L has a 100-year flow of 3,360 cubic feet per second (cfs) in the vicinity of the WSX crossing (Otsuka pers. comm.).

10.04 L-10 Channel

See Figure 9 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

The L-1 Channel is located north of Paseo Padre Parkway. In the location of the WSX Alternative crossing, the city's grade separations project will combine flow from the L-1 Channel with the L-10 and contain the flow within two 72-inch pipes. The combined 100-year flow of the two channels is 296 cfs (Washington Infrastructure Services 2002). The new system will contain the 100-year storm event.

10.05 L-1 Channel

See Figure 9 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

The L-1 Channel is located north of Paseo Padre Parkway and will be contained within two 59-inch × 81-inch elliptical pipes and routed to the north to join the L-10 Channel with the construction of the city's grade separations project. In the location of the WSX Alternative crossing, the original L-1 Channel will be filled by construction of the city's grade separations project detour road. The new system will contain the 100-year storm event.

10.06 K-1 Channel

See Figures 13 and 14 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

The K-1 Channel is located south of Washington Boulevard to the east of the former WP embankment at the site of the optional Irvington Station. The peak 100-year flow in the channel is 267 cfs (Otsuka pers. comm.).

The K-1 Channel crosses perpendicular to the proposed WSX Alternative alignment in a 66-inch reinforced-concrete pipe and continues to the west under the former SP embankment. With a slope of 0.4%, this concrete pipe's full flow capacity is estimated at 227 cfs. It appears to have sufficient capacity to convey the 100-year base flow without overtopping the WSX Alternative embankment, which has a top-of-rail elevation of 69.0 feet in this location, approximately 10 feet above the top of the 66-inch reinforced-concrete pipe. This will be confirmed during final design.

10.07 K Channel

See Figure 14 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

The K Channel crossing of the WSX Alternative alignment is located just south of the K-1 Channel crossing. The K Channel has a 100-year base flow of 1,795 cfs in this location (Otsuka pers. comm.).

The channel flow splits between two flow paths. The original channel crossing consists of a 6-foot × 5-foot reinforced-concrete box culvert under the former WP that leads to an open channel section followed by a 6-foot × 5-foot arch-shaped concrete pipe under the former SP embankment. Insufficient flow capacity and the resulting upstream flooding problems in the area led to the construction of a second crossing consisting of a 72-inch reinforced-concrete pipe. With an average slope of 1%, the combined full flow capacity at this crossing is estimated at

680 cfs, 38% of the 100-year base flow, and higher flows continue to overtop the UP embankments.

Channel improvements would be required at this crossing to prevent the water level from overtopping the WSX Alternative embankment as currently occurs to the UP embankments. Potential improvements could include replacing the box culvert and open channel sections with 72-inch pipe and providing the additional required flow capacity in three additional 72-inch pipes or a 6-foot × 12-foot box culvert, but this would require working under the active former SP trackway and disturbing existing utilities such as fiber optics and a Kinder Morgan fuel line. Current in-progress plans show a series of emergency overflow pipes crossing under the proposed WSX trackway, set at the existing top of former WP embankment elevation. These would allow rising floodwaters to pass under the WSX trackway and maintain existing flow patterns and water levels. Further analysis of this design is underway, and ACFCD comments are pending.

As mentioned in Section 9.10, ACFCD has expressed that the flooding upstream of this crossing cannot be transferred to the downstream residential areas. Design of this drainage system at this location must account for this requirement by maintaining the existing water surface elevation while providing increased flow capacity and protection of the WSX Alternative. In addition, flood storage within the FEMA Zone AH adjacent to the WSX alignment on the east side, along the K-1 channel, would have to be replaced if filled by the project. This could potentially be achieved by excavating drainage swales along the side of the embankment.

10.08 I Channel

See Figure 18 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

The I Channel crosses the WSX Alternative alignment north of Auto Mall Parkway. The 100-year flow for this channel is 245 cfs (Jones & Stokes 2003).

The channel crossing consists of approximately 100 feet of 84-inch reinforced-concrete pipe followed by approximately 60 feet of 7-foot × 4-foot reinforced-concrete box culvert.

The capacity of this channel crossing may have to be increased to protect the WSX Alternative. ACFCD has commented that this channel has no history of flooding and there is no flooding at this channel shown on the FEMA FIRM, but this channel was not studied for the FEMA FIS for Fremont (Federal Emergency Management Agency 2000a).

10.09 J Channel

See Figures 19 and 20 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

The J Channel is located south of Auto Mall Parkway and has a 100-year flow of 560 cfs (Jones & Stokes 2003). The channel crossing at the WSX Alternative alignment location consists of 140 feet of dual 72-inch reinforced-concrete pipes at a 0.7% slope. Each pipe is estimated to have a full flow capacity of 383 cfs, or a combined 766 cfs, sufficient to convey the 100-year flow.

This system is to be analyzed in depth in conjunction with the H Channel to verify that existing upstream base flood levels are not transferred downstream. As is the case along the K-1 channel, flood storage within the FEMA Zone AH adjacent to the WSX alignment on the east side, between the J and H Channels, would have to be replaced if filled by the project. This could potentially be achieved by excavating drainage swales along the side of the embankment.

The FEMA FIS for Fremont (Federal Emergency Management Agency 2000a) states that weir flow occurs over the former WP embankment between the J and H Channels, although the embankment height ranges from elevation 36.2 to elevation 37.7 (NAVD88), between 2.5 feet and 4 feet above the base flood elevation of 33.75 (NAVD88) that is shown (Federal Emergency Management Agency 2000a). It also states that both the J and H Channels have 100-year capacity, although the reference may be to the area downstream of the UP crossings where they return to open channel sections and the FIRM notes "Zone A contained in channel" for each.

10.10 H Channel

See Figure 21 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

The H Channel is located north of Grimmer Boulevard and has a 100-year flow of 589 cfs (Jones & Stokes 2003). The channel crossing at the WSX Alternative alignment consists of a 20-foot length of 10-foot × 6-foot reinforced-concrete box culvert followed by a 40-foot length of 12.5-foot × 5-foot reinforced concrete box culvert under the former SP embankment. With an approximate slope of 1%, the culverts have a flow capacity of approximately 900 cfs, sufficient to convey the 100-year flow.

10.11 H-1 Channel

See Figures 21 and 22 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

The H-1 Channel flows to the north as an open channel along the eastern side of the former WP track and combines flow with the H Channel. It receives flow from the south from the Grimmer Boulevard underpass pump station through two 48-inch reinforced-concrete pipes. It also receives flow from the east from the H-3 Line at the terminus of Prune Avenue. At the confluence of the H-1 Channel and the H-3 Line, the 100-year flow is 82 cfs (Otsuka pers. comm.).

As mentioned above in Section 9.0, the WSX Alternative trackway would begin to widen in the vicinity of the H-1 Channel as it approaches the proposed Warm Springs Station. This would require that the H-1 Channel be contained within a closed culvert to allow for the trackway to be placed in this area.

10.12 H-3 Line

See Figure 22 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

The H-3 Line is a closed culvert that flows west along the northern side of Prune Avenue. At the terminus of Prune Avenue, the H-3 Line consists of a 42-inch reinforced-concrete pipe culvert that discharges to the H-1 Channel.

As mentioned above, the 100-year flow at the confluence of the H-1 Channel and the H-3 Line is 82 cfs (Otsuka pers. comm.).

10.13 F Channel

See Figure 26 in the Draft Conceptual Storm Drainage Report, BART Warm Springs Extension (PB Team 2003a).

The F Channel is located south of the site of the proposed Warm Springs Station. The channel consists of an 8-foot × 6-foot reinforced-concrete box followed by an 8-foot × 6.5-foot concrete arch under the NUMMI yard. The 100-year flow is 945 cfs (Jones & Stokes 2003).

The FIS states that upstream flooding occurs because of inadequate culvert capacity (Federal Emergency Management Agency 2000a). This is shown as Zone A6 on the FIRM, which also states that the 100-year flood is contained within the culvert under the UP crossings.

As described above in Section 9.17, the project area north of the F Channel is designated as FEMA Zone B, as an area between the limits of the 100-year and 500-year flood. The WSX Alternative trackway would be constructed so that it does not interfere with the 500-year flow path from east to west. In-progress plans show emergency overflow culverts below the WSX trackway, set at the existing UP top-of-rail elevation (similar to those described at the K channel) to allow rising flood waters to pass from east to west under the WSX trackway and maintain existing flood levels and flow patterns.

11.0 Regulatory Overview—Drainage and Floodplain Regulations

FEMA administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities complying with FEMA regulations that limit development in

floodplains. FEMA issues FIRMs for communities participating in the NFIP. These FIRM maps delineate flood hazard zones in the community.

Executive Order 11988 (Floodplain Management) addresses floodplain issues related to public safety, conservation, and economics. The policy applies to projects that would significantly encroach into the floodplain and requires that findings be made to ensure that the following goals are achieved.

- Avoidance of incompatible floodplain development.
- Consistency with the standards and criteria of the NFIP.
- Restoration and preservation of the natural and beneficial floodplain values.

Federal guidelines were developed for implementing Executive Order 11988 directives that outline an eight-step decision-making process, as follows. FHWA has developed regulations (23 C.F.R. Part 650, Subpart A) for location and hydraulic design procedures of projects that significantly encroach on the floodplain.

- Step 1: Determine whether a proposed action would take place in the base floodplain.
- Step 2: Identify a process that will be used for public review.
- Step 3: Identify and evaluate practicable alternatives to locating in the base floodplain.
- Step 4: Identify the impacts of the proposed action.
- Step 5: Minimize threats to life and property and to natural and beneficial floodplain values, and restore and preserve natural and beneficial floodplain values.
- Step 6: Reevaluate alternatives.
- Step 7: Issue findings and a public explanation.
- Step 8: Implement the action.

12.0 Property at Risk

Throughout the WSX Alternative area there are numerous creeks, drainage channels, and storm-drain facilities that cross the proposed WSX alignment and that would need to be protected, relocated, or modified to accommodate project construction and satisfy BART, local agency, and FEMA criteria. Flooding is a concern along the northeastern portion of Lake Elizabeth and

along Mission Creek (Lines L, L-10, and L-1), Crandell Creek (Line K), Cañada de Aliso (Lines J, I, H, and H-1), the unnamed tributary to Laguna Creek shown as drainage Line H in Table 1, and Agua Caliente Creek (Line F). Where the WSX Alternative alignment crosses some of these drainages, flow exceeds the capacity of the conveyance structures during extreme flood events, and water moves as sheet flow across the existing railroad embankments (Federal Emergency Management Agency 2000a).

As mentioned above in Section 9.0, ACFCO has expressed that the flooding upstream of certain crossings cannot be transferred to downstream residential areas. Design of these drainage systems would account for this by maintaining the existing water surface elevation while providing increased flow capacity and protection of the WSX alignment.

The WSX Alternative would increase conveyance capacity at the crossings as needed. Therefore, it is expected that property in the vicinity of the WSX alignment would not be at risk for flooding in the post-flood project base flood condition, thereby reducing risk to life and property. Additionally, the WSX Alternative trackway would be constructed so that it neither interferes with the 100- or 500-year flow path from east to west nor increases flooding downstream.

13.0 Evaluation of Impacts

13.01 Risk Associated with Implementation

As described previously, the WSX Alternative would reduce risk to life and property and would not increase flooding downstream. The latter outcome would be achieved through increased conveyance at crossings as needed. The WSX Alternative would not affect water surface elevations in a manner that would result in loss of life or property.

13.02 Impacts on Floodplain Values

Potential impacts on floodplain values would be limited to those temporary impacts associated with construction of the crossings.

13.03 Support of Incompatible Floodplain Development

The WSX Alternative, which would serve as an extension to the current BART alignment, is consistent with surrounding land uses and floodplain values. The improvements associated with the WSX Alternative are not intended to open new areas to development. As such, the WSX Alternative would not support incompatible floodplain development.

13.04 Minimization of Floodplain Impacts

Temporary construction-related impacts would be minimized through the implementation of normal construction precautions and strict adherence to the Storm Water Pollution Prevention Plan, mitigation measures stipulated in the environmental document, and any additional measures specified in permit conditions to be developed during the permit process.

In its permanent condition, the WSX Alternative would increase flood protection at the described crossings. This outcome represents an improvement to existing floodplain conditions.

13.05 Restoration and Preservation of Floodplain Values

Floodplain values would be preserved and/or restored from the temporary effects of project construction by implementing the appropriate permit conditions developed during the permit process. The WSX Alternative itself would be local to the existing crossings and would not significantly affect existing floodplain values. Some temporary impacts associated with construction are anticipated.

13.06 Alternatives to Significant Encroachment

The WSX Alternative does not represent a significant encroachment, as defined in the Federal Aid Policy Guide 23 CFR 650A (23 CFR 650.101 through 23 CFR 650.117). Alternatives to the WSX Alternative are not required because there would not be a substantial effect.

13.07 Alternatives to Longitudinal Encroachment

The WSX Alternative does not represent a significant longitudinal floodplain encroachment, as defined in the Federal Aid Policy Guide 23 CFR 650A (23 CFR 650.101 through 23 CFR 650.117).

14.0 References Cited

14.01 Printed References

Alameda County Flood Control District. 1991. Hydrology and Hydraulics Data Summary for Line L-1, Zone 6, Fremont, California, FEMA Community Number-065028.

Bay Area Rapid Transit Authority. 2003. BART Facilities Standards, Facility Design – Criteria.

Bay Area Stormwater Management Agencies Association. 1999. *Start at the Source*.

City of Fremont. 1991, as amended. *Fremont General Plan*. Most recent amendment September 12, 2000. Fremont, CA: Development and Environmental Services Department, Planning Division.

DKS Associates. 1992. *BART to Santa Clara County Extension Alignment Alternatives Feasibility Study*. Oakland, CA.

DKS Associates. 1994. *Fremont-South Bay Corridor Report*. Oakland, CA.

Federal Emergency Management Agency. 1992. Letter of Map Revision, Case No. 92-09-094P, effective date May 5, 1992.

———. 2000a. Flood Insurance Study. City of Fremont, California. Alameda County. Community Number – 065028. Washington, DC: U.S. Government Printing Office.

———. 2000b. Flood insurance rate maps. City of Fremont, California. Alameda County. Community Number – 065028. (Map panels 065028 0010C.P., 065028 0029C.P., 065028 0030C.P., 065028 0033C.P., 065028 0045C.P., 065028 0046C.P., 065028 0048C.P.; effective date: February 9, 2000.) Washington, DC: U.S. Government Printing Office.

Jones & Stokes. 2000. *Final City of Fremont Laguna Creek Basin Reconnaissance Study and Water Quality Enhancement Plan*. (J&S 98-138.) Sacramento, CA. Prepared for City of Fremont Development and Environmental Services Department.

———. 2003. *Draft Supplemental Environmental Impact Report, BART Warm Springs Extension*. March. (J&S 02-041.) Oakland, CA. Prepared for San Francisco Rapid Transit District, Oakland, CA.

———. [In prep.] Draft Environmental Impact Statement, BART Warm Springs Extension. Oakland, CA. Being prepared for San Francisco Rapid Transit District, Oakland, CA.

Parikh Consultants. 2002. *Preliminary Geotechnical Report for BART Extension to Warm Springs – City of Fremont, CA*. Milpitas, CA. Prepared for San Francisco Bay Area Rapid Transit District, Oakland, CA.

PB Team. 2003a. Draft Conceptual Stream Drainage Report-BART Warm Springs Extension.

PB Team. 2003b. Draft Tule Pond Hydrology Study-BART Warm Springs Extension.

San Francisco Bay Area Rapid Transit District. 1991a. *BART Warm Springs Extension Draft Environmental Impact Report*. Prepared by DKS Associates, Donaldson Associates and associated consultants. Oakland, CA.

———. 1991b. *BART Warm Springs Extension Final Environmental Impact Report*. Prepared by DKS Associates, Donaldson Associates and associated consultants. Oakland, CA.

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———. 2000. *BART Extension Study from Fremont to Milpitas, San Jose and Santa Clara*. Prepared by Parsons Brinckerhoff in association with Apex Strategies, CCS Planning and Engineering, Inc., DKS Associated, Hatch Mott MacDonald, and the Seville Group, Inc. Oakland, CA.

Washington Infrastructure Services. 2002. Washington Boulevard/Paseo Padre Parkway Grade Separation Project, 8156 (PWC), Storm Drainage Report.

14.01 Personal Communications

Otsuka, Andrew. ACFCD. August 2002—letter to Jones & Stokes regarding BART Warm Springs Extension-ACFCD & WCD drainage information.

Appendix E

Cultural Resources Information

Appendix E-1

**Consultation and Coordination with
California Department of Parks and Recreation,
Office of Historic Preservation**



SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

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May 18, 2004

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8TH DISTRICT

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9TH DISTRICT

RE: BART Warm Springs Extension EIS

Dear Mr. McGuirt:

The San Francisco Bay Area Rapid Transit District (BART), in coordination with the Federal Transit Administration (FTA) as federal lead agency, is currently preparing an Environmental Impact Statement (EIS) for the BART Warm Springs Extension (WSX) project. BART is responsible for implementing activities associated with the EIS, including compliance with historic preservation act regulations. BART has selected Jones & Stokes, an environmental consulting firm, to assist BART in preparing the EIS.

I have requested Jones & Stokes to initiate consultation with the Office of Historic Preservation for issues related to the BART WSX project. I anticipate that Jones & Stokes will contact you shortly to discuss the project on BART's behalf and set up our initial consultation meeting. I look forward to introducing the environmental team and meeting you at that time.

If you have any questions, please call Donald Dean, the environmental coordinator for the Warm Springs Extension EIS, at (510) 874-7341.

Sincerely,

Shari Tavaif Adams
Warm Springs Extension Group Manager
Transit Systems Development

cc: D. Dean
Dana McGowan
Barbra Siskin



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DIRECTORS

Jan Richard
BY DISTRICT

Joel Keller
BY DISTRICT

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Josée Ward Allen
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BY DISTRICT

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Michelle Sweet
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James Fang
BY DISTRICT

Tom Radolovich
BY DISTRICT

RE: BART Warm Springs Extension EIS

Dear Mr. McGuirt:

Thank you for speaking with BART's consultant Jones & Stokes regarding the Warm Springs Extension Project. In response to your request for additional information, Jones & Stokes has provided the attached memorandum, which provides additional information regarding the potential for buried archaeological deposits and how buried resources would be identified and treated. The memorandum also provides clarification on the locations for the previously excavated portions of the archaeological site CA-ALA-343, as well as a statement regarding the potential for the proposed WSX alternative having an adverse effect on this site.

Furthermore, we are providing an updated statement regarding the potential significance for the Gallegos Winery along with four architectural resources within the Area of Potential Effect that appear eligible for the National Register of Historic Places.

Following receipt of this memorandum, BART would like to meet with the Office of Historic Preservation to discuss the issues mentioned above and confirm that the approach by BART and the Federal Transit Administration to Section 106 compliance is appropriate. I anticipate that Jones & Stokes will contact you to continue discussing the project on BART's behalf and set up a consultation meeting. I look forward to meeting you at that time.

If you have any questions, please call Donald Dean, the environmental coordinator for the Warm Springs Extension EIS, at (510) 874-7341.

Sincerely:

Shari Tavaif Adams
Group Manager
Warm Springs Extension Project
Bay Area Rapid Transit District

Attachments:

cc: D. Dean
D. McGowan
B. Siskin
A. Kothari

File: 7.18.3.2



Jones & Stokes

Memorandum

Date: June 9, 2004

To: State Office of Historic Preservation

From: Barbra Siskin, Jones & Stokes Archaeologist on behalf of the San Francisco Bay Area Rapid Transit District (BART)

Subject: Request for Consultation for BART Warm Springs Extension Project

I. Introduction

This memorandum was prepared in response to questions regarding the BART Warm Springs Extension Project (WSX) received from the Office of Historic Preservation (SHPO) during informal consultation. Specifically, BART was requested to provide information regarding the potential for buried archaeological deposits based on detailed construction information and research on the geomorphology of the project area, and information regarding how such buried resources would be identified and treated. Also requested was clarification regarding the correct locations for the previously excavated portions of the archaeological site CA-AIA-343, outside of the Area of Potential Effect (APE) (Figure 1a) and a statement regarding the potential for the proposed WSX alternative having an adverse effect on this site.

At this time, we are also providing an updated statement regarding the potential significance for the Gallegos Winery as well as four architectural resources within the APE that appear eligible for the National Register of Historic Places (NRHP).

Upon receipt of this memorandum, BART is requesting a meeting with the Office of Historic Preservation to: 1) review the proposed approach to the identification of potential buried deposits, 2) verify that the project will have an adverse effect on CA-AIA-343, 3) confirm that the approach by BART and the Federal Transit Administration (FTA) to Section 106 compliance for the project, including the execution of a Memorandum of Agreement (MOA) between SHPO, FTA, and BART is appropriate, and 4) discuss a finding of no adverse effects on three NRHP eligible architectural resources (additional information on the fourth property is pending).

II. Potential for Discovery of Subsurface Archaeological Deposits Within the APE

The WSX Project area is within the wet lowlands of Alameda and Coyote Creeks, adjacent to the base of the many resource rich hills. Extensive archaeological sites are common in this type of rich, biotically diverse environment. The following discussion provides a summary regarding how sensitivity criteria have been applied to the project APE and how the potential for buried

cultural deposits in various portions of the APE will be addressed and documented in the inventory report.

Several steps have been taken to examine the potential for the presence of buried archaeological deposits within the APE (Figures 1a, 1b, and 1c). Jones & Stokes has examined the construction methods and plans for the proposed project. The results of this process have revealed that a minimal amount of the project alignment will actually impact subsurface soils that are accessible for testing. The following section describes the methods used to determine areas of archaeological sensitivity within the APE.

Areas of Subsurface Disturbance

The project alignment has been divided into segments in order to discuss the particular areas of disturbance that will occur as a result of the proposed project. Each segment is also discussed in terms of its sensitivity for the presence of buried archaeological deposits based on the boring logs, and geological information currently available.

• Segment 1: North End of APE to Northern Subway Portal

Sensitivity: This entire area is considered highly sensitive for the presence of archaeological deposits due to the likelihood that CA-ALA-343 extends from the east and west into the ROW. It is also likely that the site extends south from its current plotted location towards Stevenson Boulevard. It is proposed that this entire portion of the APE be subjected to subsurface archaeological testing prior to construction as outlined in a Memorandum of Agreement and Treatment Plan.

Disturbance: Extensive disturbance in this area will be required to construct the elevated structure and relocate a flood detention area between the two known loci of CA-ALA-343.

• Segment 2: Subway Tunnel Beneath Central Park and Lake Elizabeth

Sensitivity: The soils in this segment are comprised of Holocene alluvium and Basin deposits which indicate a high level of sensitivity for the presence of buried archaeological deposits.

Disturbance: This segment encompasses the length of the subway tunnel where cut and cover construction is proposed. The subsurface disturbance will be extensive as the width of the tunnel excavation will be at least 100 feet wide. There will be additional disturbance related to construction activities.

• Segment 3: Southern Subway Portal to Paseo Padre Parkway

Sensitivity: This area is considered to have high sensitivity for buried archaeological deposits based on the fact that the young alluvial soils in this area were deposited in the Holocene and are less than 10,000 years old.

Disturbance: This segment encompasses the southern subway portal and utility trenching from traction power substation (built at grade on fill) approximately 700 feet north of Paseo Padre Parkway to the point where the BART alignment joins the eastern Union Pacific Railroad (UPRR) tracks, likely in fill. Minimal disturbance subsurface will occur in this area.

• **Segment 4: Paseo Padre Parkway to Washington Boulevard and Irvington Station**

Sensitivity: There is a moderate to high level of sensitivity in this segment as the soils are generally Pleistocene age alluvial deposits (10,000-1.2 million years old) and undifferentiated alluvium (age cannot be determined).

Disturbance: This segment includes the intersection of BART alignment and Paseo Padre Parkway: abutment on the north, middle and south side of Paseo Padre Parkway and the intersection of BART alignment and Washington Boulevard: abutment on the north, middle and south side of Washington Boulevard. While much of the alignment will be constructed on the existing UPRR tracks, on fill there will be limited subsurface disturbance at both intersections to construct grade separations and at the location of the proposed Irvington Station.

• **Segment 5: Irvington Station to Grimmer Boulevard Overpass**

Sensitivity: The soils in this segment are from the Holocene period and are considered highly sensitive for the presence of buried deposits.

Disturbance: This portion of the alignment will be constructed on existing UPRR tracks. There will be a drainage channel under the alignment located just south of the Irvington Station and one south of Auto Mall Parkway. A traction power substation will be located south of Blewett Road. Minimal subsurface disturbance is expected. At the intersection of BART alignment and Grimmer Boulevard there will be an abutment on the north, middle, and south side of Grimmer Boulevard. In general there will be minimal subsurface disturbance in this segment.

• **Segment 6: Grimmer Boulevard to End of Alignment**

Sensitivity: There is a high sensitivity for the presence of buried archaeological deposits in this segment because the underlying soils are from the Holocene period.

Disturbance: There will be extensive subsurface disturbance for the construction of the Warm Springs Station. All other parts of this segment will be built on existing tracks, at grade.

III. Proposal for Identification and Evaluation of Potential Subsurface Archaeological Deposits

BART is requesting that all subsurface testing be deferred to a later time in the WSX project,

following execution of the MOA and Treatment Plan. In order to locate buried sites within the Project APE, the following procedures are under consideration for future implementation.

Project segments have been classified into three broad types of sensitivity: Very High, High, and High to Moderate. Each of these classifications is reached via consideration of known sites, setting, and sediment type. This information is then compared against proposed construction impacts, with resource identification and treatment activities varying accordingly.

- **Very High Sensitivity:** Because of the presence of a known site, impacts to Segment I will be addressed in an MOA and Treatment Plan.
- **High Sensitivity:** To test for buried cultural materials in areas with Holocene period alluvium where subsurface disturbance is proposed, backhoe trenches should be excavated in open areas on a regular grid at 150-meter intervals. The depth of trenches should be to the maximum reach of the machine or until ground water is reached. Soil descriptions and profiles should be drawn as needed. A geoarchaeologist will be present during this testing activity and will use their judgment to continue or to limit backhoe testing within the Basin Sediments. In the case of the subway tunnel, monitoring is proposed for disturbance occurring as deep as 5 meters if preconstruction excavation is not possible due to the presence of Lake Elizabeth.
- **High to Moderate Sensitivity:** Pleistocene and Undifferentiated Alluvium in these segments should be tested via backhoe trenches at 200-meter intervals, in open areas as available, and only where subsurface disturbance is proposed. These trenches should be excavated below the proposed depth of construction, which in the at-grade areas may be fairly shallow. Based upon the results of this effort and sediment conditions, the geoarchaeologist may recommend a closer trenching interval within the Pleistocene and Undifferentiated Alluvium.

Regardless of the sensitivity level of the area, if the project will not result in subsurface disturbance in a particular location, no subsurface investigations will be required.

IV. Finding of Adverse Effects on CA-ALA-343

Based on numerous, previously conducted field investigations, it appears that the WSX APE will extend through previously unidentified portions of CA-ALA-343. There is a strong possibility that the construction of the alignment on an embankment through Tule Pond and associated construction activities could affect unidentified portions of the site east of Tule Pond. Although data are not available to determine the precise boundaries of CA-ALA-343, it is clearly an extensive site. If the site extends southeast of Tule Pond toward Stevenson Boulevard, the construction of both the embankment through Tule Pond and the subway for the proposed action would severely impact this site.

V. Update of Status of Gallegos Winery and Associated Ruins

In the cultural resources investigation for the WSX CEQA document, the 2003 Supplemental Environmental Impact Report, Jones & Stokes found that the Gallegos Winery and associated historic landscape features appeared to meet the criteria for eligibility for listing in the California Register of Historic Resources (CRHR), and are therefore considered significant historical resources for CEQA purposes (Chavez et al. 1991, William Self Associates 2002). The property is also listed as a primary historical resource in the *Fremont General Plan* (City of Fremont 1991, as amended). The William Self Associates (WSA 2002) report details the results of their investigation and identifies the Gallegos Winery as a significant historic archaeological resource that appears to meet the criteria for listing in the CRHR and the NRHP. The report recommended archaeological test excavation to comply with CEQA as a mitigation measure for potential significant impacts on the historic winery (WSA 2002) for the Fremont Grade Separation Project.

In 2003, William Self Associates (WSA 2003) conducted archaeological testing and evaluated the Winery for its potential eligibility for inclusion in the CRHR. The WSA 2003 investigation included additional archival research, photographic documentation to Historic American Building Survey (HABS) standards, preconstruction testing to evaluate the vertical and horizontal boundaries of the site, and a magnetic geophysical survey of portions of the site (WSA 2003). The WSA report (2003) concluded that the structural remains of the Gallegos Winery are eligible for listing in the CRHR and the NRHP and the subsurface archaeological component of the Gallegos Winery does not meet the significance criteria for inclusion in the CRHR or the NRHP.

The research and testing methods of the archaeological investigation appear to meet the requirements of Section 106 compliance. The additional research conducted for the WSA 2003 investigation included mitigation measures that were implemented to reduce the impacts of the City of Fremont's Grade Separation project on the historic structural remains of the Winery. BART anticipates that no further action will be required to mitigate the effects of the BART WSX project on the structural remains of the Gallegos Winery.

VI. Architectural Resources

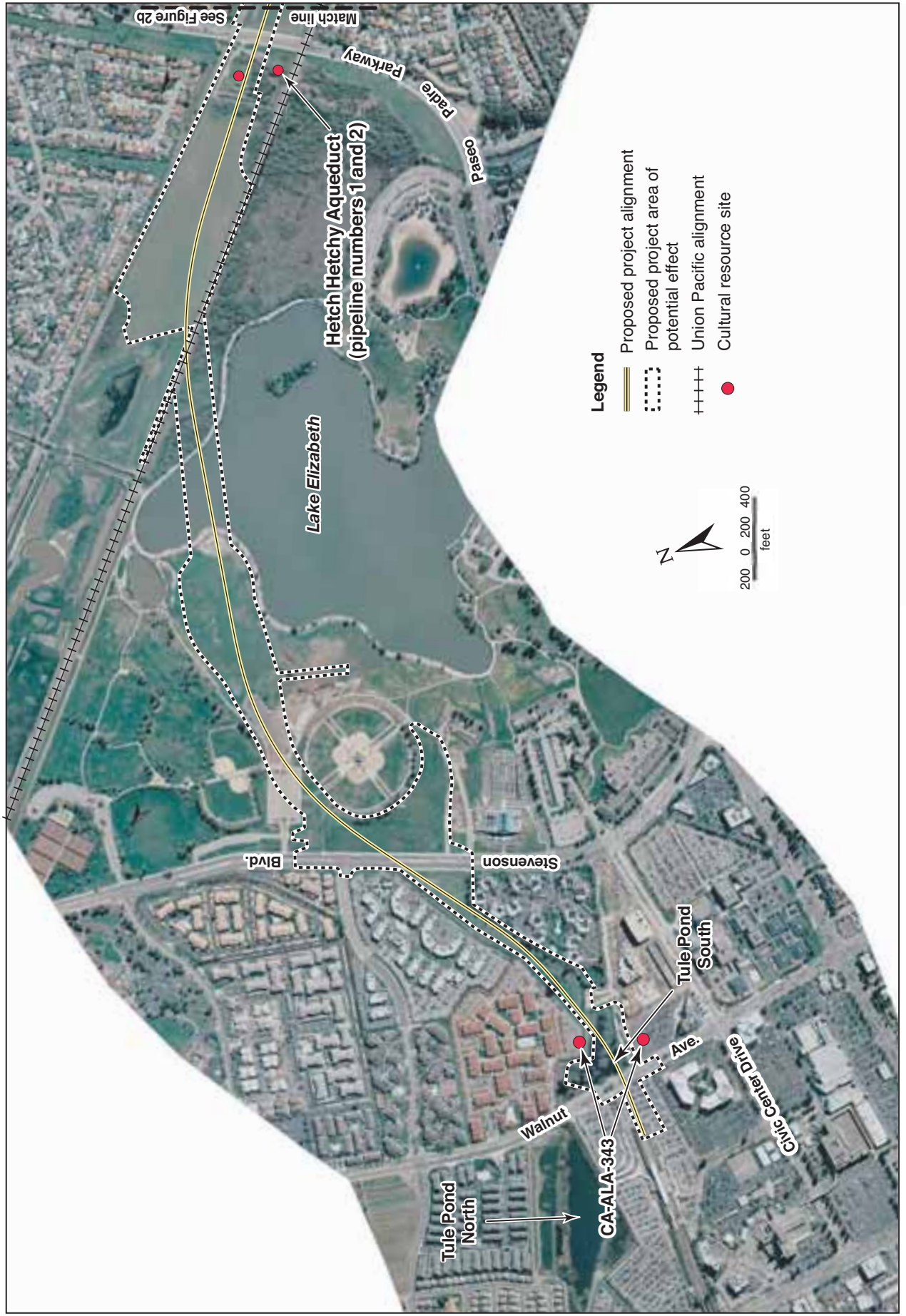
There are four properties within the Architectural APE of the WSX project that are eligible for listing in the NRHP: 1) Hetch Hetchy Aqueduct, 2) Durham House (42539 Osgood Road), 3) the Horner House, and 4) the Ford House (41753 Osgood Road). It does not appear that the proposed project will have an adverse effect on first three properties named above and BART anticipates a finding of no adverse effect for these properties. We are currently conducting additional research regarding the effects of the project on the Ford House.

VI. BART is requesting a meeting with the State Historic Preservation Officer to discuss the following items of consultation:

June 9, 2004

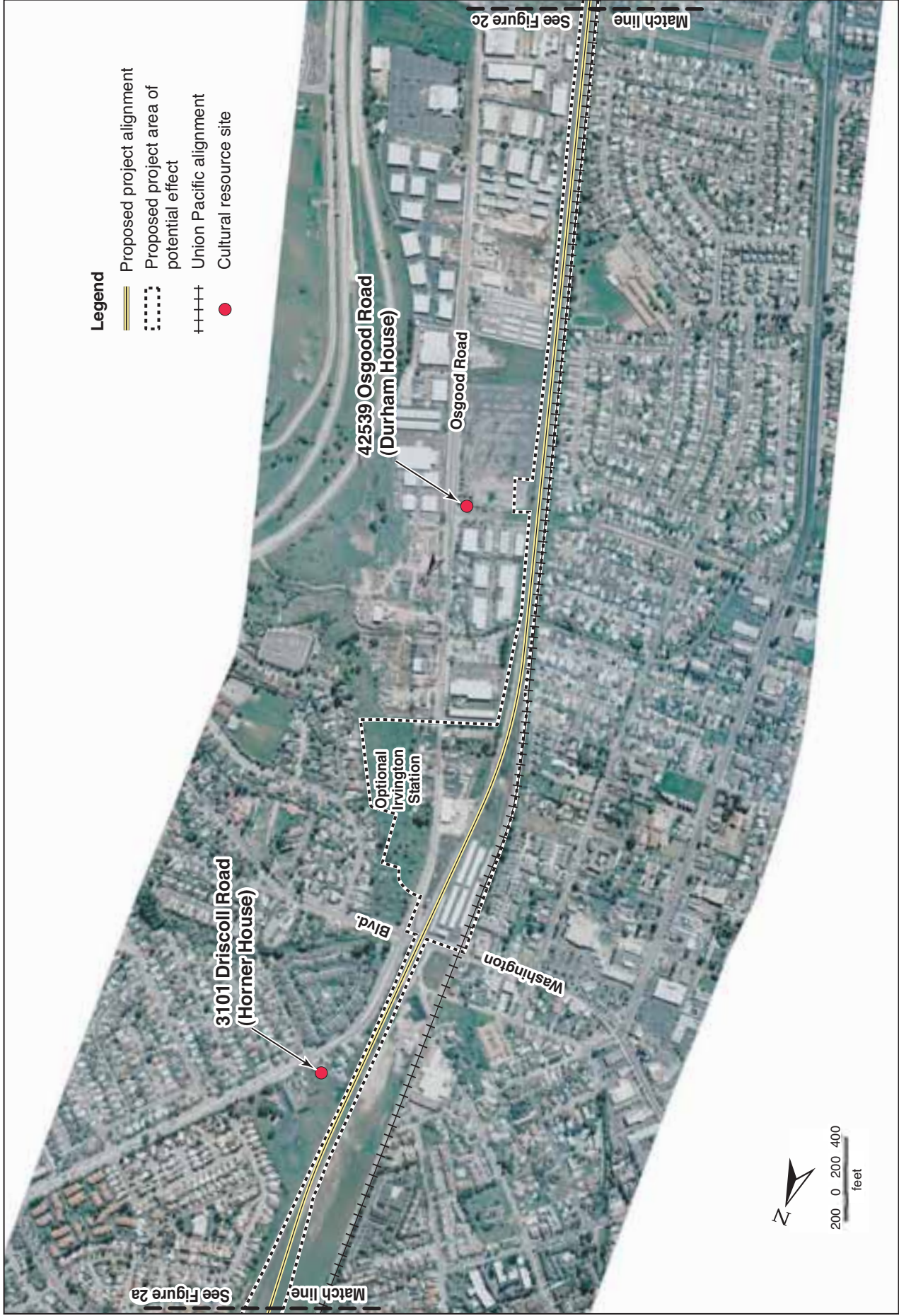
Page 6

- SHPO concurrence on the proposed approach to identify potential subsurface archaeological deposits within the APE and deferral of subsurface testing until after the execution of the MOA and Treatment Plan
- SHPO concurrence on the Finding of Adverse Effects for CA-ALA-343.
- SHPO concurrence regarding BART's approach to Section 106 compliance including the preparation of a Treatment Plan for CA-ALA-343 and a Memorandum of Agreement to be executed between BART, FTA and SHPO.
- SHPO concurrence on no adverse effects to three architectural resources: 1) Hetch Hetchy Aquaduct, 2) the Durham House (42539 Osgood Road), and 3) the Horner House.



Source: Aerial base and alignments: Parsons Brinkerhoff 2002; cultural resource sites: Jones & Stokes 2002.

Figure 1a
Area of Potential Effects and Locations of Cultural Resource Sites



Source: Aerial base and alignments: Parsons Brinkerhoff 2002; cultural resource sites: Jones & Stokes 2002.

Figure 1b
Area of Potential Effects and Locations of Cultural Resource Sites



Source: Aerial base and alignments: Parsons Brinkerhoff 2002; cultural resource sites: Jones & Stokes 2002.

Figure 1c
Area of Potential Effects and Locations of Cultural Resource Sites

**OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION**

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calshpo@ohp.parks.ca.gov
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30 January 2006

In Reply Refer To
FTA040430A

Shari Adams
Warm Springs Group Manager
San Francisco Bay Area Rapid Transit District
P.O. Box 12688
Oakland, California 94604-2688

SUBJECT: SECTION 106 CONSULTATION ON THE **BART WARM SPRINGS EXTENSION PROJECT**, CITY OF FREMONT, ALAMEDA COUNTY, CALIFORNIA

Dear Ms. Adams,

This letter responds to the requests of the San Francisco Bay Area Rapid Transit District (BART), on behalf of the Federal Transit Administration (FTA), to initiate formal consultation under 36 CFR Part 800, the regulation that implements Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), to concur in the several determinations and the finding of effect that the FTA have made for the subject undertaking, and to review and provide comment on a draft memorandum of agreement (MOA) and a draft historic properties treatment plan (HPTP) for the undertaking.

The FTA initiates consultation under Part 800 through BART's letter of 22 February 2005, and requests that I concur that

- (1) the area of potential effects (APE) for the undertaking "has been appropriately delineated,"
- (2) "the identification and evaluation efforts conducted to date are adequate to develop an MOA,"
- (3) "additional identification and evaluation efforts for prehistoric resources located within the APE can be deferred until after execution of the MOA,"
- (4) archaeological site CA-ALA-343 "meets NRHP [National Register of Historic Places] eligibility criterion D in accordance with 36 CFR 800,"
- (5) the Hetch Hetchy Aqueduct Bay and Peninsula Division Pipeline Nos. 1 and 2, the William Y. Horner House, and the Gallegos Winery are eligible for inclusion in the National Register of Historic Places "in accordance with 36 CFR 800.4,"
- (6) a "phased process of identification and evaluation for CA-ALA-343 (CFR 800.4(b)(2))" is appropriate, and
- (7) the undertaking may, if one or several circumstances ultimately occur, have an adverse effect "in accordance with CFR 800.5."

The letter further requests that I review a draft MOA for the undertaking, and a subsequent BART letter of 21 March 2005 requests that I review a draft HPTP that is to be attached to that MOA.

I provide comment here on the basis of my review of the above letters and the September 2004 draft *Inventory and Evaluation Report of Cultural Resources and Finding of Effect for BART Warm Springs Extension, Alameda County, California* (draft Inventory Report).

APE DETERMINATION

I am presently unable to concur that the FTA's determination of the APE for the undertaking, pursuant to 36 CFR § 800.4(a)(1), is adequate. There is no description of the APE in the FTA's letter of 22 February, nor a reference to such a description. I am assuming here that the APE description (p. 5) and

the APE figures (figures 2a–2c) in the draft Inventory Report represent the area on which the FTA requests my comment. The APE in the draft Inventory Report is not, in my opinion, consistent with the definition of such an area at 36 CFR § 800.16(y). The description of the APE on p. 5 does not evidence FTA's consideration or determination of a vertical component for the APE. Neither the subject description nor the subject figures clearly include the archaeological deposits of CA-ALA-343 in the APE. And the "parcels within and adjacent to the project area" in the "architectural APE" appear largely to not have been included in the APE. I recommend that the FTA revise the description and the figures of the APE to better comport with the regulatory definition of such an area. The FTA could then simply incorporate these revisions into the agreement document for the undertaking.

IDENTIFICATION AND EVALUATION OF HISTORIC PROPERTIES

With regard to items (2), (3), and (6) above, I do not object to the FTA's desire to use a phased process, pursuant to 36 CFR § 800.4(b)(2), to conduct its identification and evaluation efforts. I do need to know, however, exactly what that process will be, so that the FTA and I can consult on the implications of the results of each phase. If the FTA will concisely describe the phases of the proposed process and the agency's rationale for each phase, clarify the phases in the process that the agency believes it has completed, and summarize the results of each completed phase, then I will be able to provide comment on what I understand to be the overall status of the agency's identification and evaluation efforts.

CONSENSUS DETERMINATIONS

I am presently unable to concur in the FTA's determination that CA-ALA-343 is eligible for inclusion in the National Register of Historic Places (National Register), because I do not have sufficient information on the property to base an opinion. While the FTA provides various bits of information on the property in the draft Inventory Report, I can find no synthesis of our present knowledge of the boundary of the property, or the potential significance or integrity of the property's different archaeological components. A current, composite boundary for the property that draws on the research now available would be useful to our consultation. If the FTA does not presently wish to compile the documentation to support the agency's determination of the property's National Register eligibility, then I would not object if the agency were to assume such eligibility. I would appreciate knowing how the FTA intends to resolve the National Register status of this property.

I concur with the FTA's determination that the **Hetch Hetchy Aqueduct Bay/Division Pipelines Nos. 1 and 2** segment is eligible for inclusion in the National Register under Criteria A, B, and C. The property has strong associations with the construction of the Hetch Hetchy dam and reservoir and the development of a reliable water source that fueled the growth of the City and County of San Francisco. The property also has strong associations with Michael M. O'Shaughnessy, the City of San Francisco engineer responsible for the Hetch Hetchy Aqueduct. In addition, the property has retained its integrity of design, materials, workmanship, setting, feeling, and association with its historic period of significance.

I concur with the FTA's determination that the **Gallegos Winery** is eligible for inclusion in the National Register under Criteria A and B for the property's **structural remains and associated features**. The structural remains and associated features include the remnants of the winery walls and foundation, an historic landscape of six palm trees in a semicircular arrangement, and miscellaneous, surficial historic debris. This aspect of the property has strong associations with the development of local agriculture in the Fremont-Irvington district and was one of the area's largest commercial enterprises during its operation. The property also has strong associations with the Gallegos family, one of the largest landowners and employers in the Fremont area in the late 19th century. If the FTA were to make a future determination that the subsurface archaeological deposits of the property do not contribute to the winery's National Register eligibility, then I would be able to concur with that determination.

I concur with the FTA's determination that the **William Y. Horner House** (3101 Driscoll Lane, City of Fremont) is eligible for inclusion in the National Register under Criterion B. The property has strong associations with William Y. Horner, one of the earliest settlers in the Fremont area. Horner and his partners established one of the largest and most innovative farming operations in the Bay Area, and

established the first steamboat ferry on the San Francisco Bay to move produce to San Francisco. Horner and his brother also established Washington College of Science and Industry, the first institution of higher learning in Alameda County.

If the FTA were to determine, in the future, that

44960 Old Warm Springs Road
41655 Osgood Road
43033 Osgood Road
43055 Osgood Road
41075 Railroad Avenue
Irvington Pumping Station Complex
Former Nineteenth Century Western Pacific Railroad Alignment
Former Twentieth Century Western Pacific Railroad Alignment
Historic Landscape Features,

properties in the City of Fremont, were *not* eligible for inclusion in the National Register under any of the Criteria for Evaluation at 36 CFR § 60.4, because none of the properties have strong associations with significant historical events or persons, or are examples of outstanding architectural or engineering design or function, then I would be able to concur with those determinations.

I acknowledge that the FTA concludes, on the basis of recent field observation, that the prior consensus determinations (Office of Historic Preservation File No. FHWA010705B, 13 August 2001) for the Ford House (41753 Osgood Road, City of Fremont) and the Dr. J.H. Durham House (42539 Osgood Road, City of Fremont) remain valid: the properties are eligible for inclusion in the National Register.

FINDING OF EFFECT

I am presently unable to concur with what I understand to be the FTA's finding, pursuant to 36 CFR § 800.5(d)(2), that the implementation of the undertaking may adversely affect historic properties. The FTA does not as yet appear to have chosen the undertaking alternative that the agency will build and, thus, the agency cannot know what the potential scope of the undertaking's effects, adverse or otherwise, may be. The ability of the FTA to fully assess the undertaking's effects on historic properties would appear to be further hindered by the fact that the agency, due to the character of the phased identification and evaluation process that it appears to envision, does not know whether archaeological site CA-ALA-343, a potential historic property, may be in the undertaking's APE, and, consequently, whether the undertaking may affect it. If my understanding of the status of the planning process for the undertaking is correct, then it would not appear that the FTA will be able to fully determine the effects of the undertaking prior to the undertaking's approval. Under these circumstances, I would recommend that the FTA forego the declaration of a formal finding of effect and re-draft the draft MOA as a programmatic agreement (PA) under 36 CFR § 800.14(b)(1)(ii).

DRAFTS OF THE MOA AND THE HPTP

The drafts of the MOA and the HPTP are presently under review. Should the FTA decide that a PA would better fit the needs of our consultation, I would be willing to assist the FTA in the conversion of the MOA to a PA. Until I hear how the FTA would like to proceed on this matter, I will continue and conclude my review of the consultation process in the present draft MOA and the treatment proposals in the draft HPTP.

If you feel that a meeting would help to expedite the resolution of the issues that I raise above, I would be happy to host such a meeting in my office. Please contact Mike McGuirt of my staff at your earliest convenience at 916.653.8920 or at mmcguirt@ohp.parks.ca.gov to arrange a meeting, or to discuss any other questions or concerns that you may have.

Sincerely,

A handwritten signature in black ink on a light-colored background. The signature appears to read "Milford W. Donaldson" followed by a circled "F" and "M".

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

MWD/mdm

cc: Leslie T. Rogers, Regional Administrator, Region IX—Federal Transit Administration, San Francisco

**OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION**

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27 February 2006

In Reply Refer To
FTA040430A

Kathleen K. Mayo
Deputy Executive Manager
Transit System Development
San Francisco Bay Area Rapid Transit District
P.O. Box 12688
Oakland, California 94604-2688

RE: REQUEST FOR CONCURRENCE OF FINDINGS AND ONGOING CONSULTATION FOR BART WARM SPRINGS EXTENSION (WSX), ALAMEDA COUNTY, CALIFORNIA [FURTHER SECTION 106 CONSULTATION ON THE **BART WARM SPRINGS EXTENSION PROJECT**, CITY OF FREMONT, ALAMEDA COUNTY, CALIFORNIA]

Dear Ms. Mayo,

This letter is a response to the San Francisco Bay Area Rapid Transit District's (BART) recent effort to clarify, on behalf of the Federal Transit Administration (FTA), a number of points in our ongoing consultation under 36 CFR Part 800, the regulation that implements Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), as amended.

BART's letter of 16 February 2006 requests that concur that

- (1) "the area of potential effects (APE) for the undertaking has been appropriately determined and documented,"
- (2) "phased identification and evaluation for portions of CA-ALA-343 that may exist in the project's area of direct impact pursuant to 36 CFR § 800.4(b)(2) is appropriate,"
- (3) "archaeological site CA-ALA-343 is eligible for inclusion in the National Register of Historic Places (National Register) under criteria A and D,"
- (4) a number of built environment resources are not eligible for inclusion in the National Register,
- (5) "there are no archaeological deposits associated with the Gallegos Winery that contribute to the winery's National Register eligibility under criterion D," and
- (6) the subject undertaking will adversely affect historic properties.

APE DETERMINATION

I am presently unable to concur that the FTA's revisions to the undertaking's APE result in a determination that adequately comports with the definition of such an area at 36 CFR § 800.16(d). The southern portion of the APE, which the FTA transmits under separate cover of 16 February 2006 from its consultant Jones & Stokes, does not appear to include a number of properties that have been subjects of our consultation. Horner House, Gallegos Winery, and Hetch Hetchy Aqueduct are examples of properties that are not clearly in the revised APE. It is also unclear whether the revised APE encompasses the area in which the implementation of the undertaking may indirectly affect historic properties. Rather than allowing this issue to further impede the progress of our consultation, I would like to reiterate the recommendation that I made in my letter of 30 January 2006 that the FTA simply incorporate the necessary revisions to the APE into the proposed agreement document for the undertaking.

IDENTIFICATION AND EVALUATION OF HISTORIC PROPERTIES

With regard to item (2) above, as I stated in my letter of 30 January, I do not object to the FTA's wish to phase its identification and evaluation efforts, pursuant to 36 CFR § 800.4(b)(2), nor do I object to the agency's clear intent to provide for the completion of those efforts in the proposed agreement document for the undertaking. The FTA does not, however, provide in its letter of 16 February the information on the phasing of the identification and evaluation process that I request in my letter of 30 January. As with the resolution of the APE determination above, I would prefer that this issue not further impede our consultation. Rather than continuing to try and resolve this issue in the context of our correspondence, I recommend that the FTA make the appropriate revisions to the proposed agreement document to convey and account for the requested information.

CONSENSUS DETERMINATIONS

I concur, on the basis of information in enclosure 1 to your 16 February letter and in the September 2004 draft *Inventory and Evaluation Report of Cultural Resources and Finding of Effect for BART Warm Springs Extension, Alameda County, California* (draft Inventory Report), with the FTA's determination that

CA-ALA-343

is eligible for inclusion in the National Register under Criteria A and D.

I concur further, on the basis of information in the draft Inventory Report, with the FTA's determinations that

**44960 Old Warm Springs Road
41655 Osgood Road
43033 Osgood Road
43055 Osgood Road
41075 Railroad Avenue
Irvington Pumping Station Complex
Former Nineteenth Century Western Pacific Railroad Alignment
Former Twentieth Century Western Pacific Railroad Alignment
Historic Landscape Features,**

properties in the City of Fremont, are *not* eligible for inclusion in the National Register.

I also concur, on the basis of the July 2003 *Archaeological Testing at the Gallegos Winery, Washington Boulevard and Osgood Road, Fremont Grade Separation Project, Fremont California*, with the FTA's determination that the subsurface archaeological deposits of the Gallegos Winery property do not contribute to the winery's National Register eligibility.

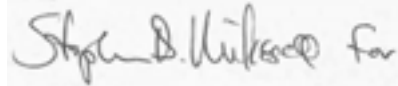
FINDING OF EFFECT

I am now able to concur with the FTA's finding, pursuant to 36 CFR § 800.5(d)(2), that the implementation of the undertaking, as presently proposed, will adversely affect historic properties.

The collaborative review and revision of the draft memorandum of agreement (MOA) and draft historic properties treatment plan (HPTP) continue. The FTA, BART, and I have agreed to conclude consultation on and execute the MOA prior to the conclusion of our consultation on the HPTP.

Please direct any questions or concerns that you may have to Project Review Unit archaeologist Mike McGuirt at 916.653.8920 or at mmcgu@parks.ca.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Stephen D. Wilkes" followed by a circled "F" or similar mark.

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

MWD/mdm

cc: Leslie T. Rogers, Regional Administrator, Region IX—Federal Transit Administration, San Francisco

Draft Memorandum of Agreement (MOA)

As of the date of this FEIS publication, BART, FTA, and the State Historic Preservation Officer are negotiating a Memorandum of Agreement. The latest version, dated June 2006, is attached. This agreement has not been executed and may still be subject to change. Attachments referenced in the MOA are not complete and are not included.

**MEMORANDUM OF AGREEMENT
BETWEEN THE FEDERAL TRANSIT ADMINISTRATION AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING THE DESIGN AND CONSTRUCTION OF THE SAN FRANCISCO BAY
AREA RAPID TRANSIT DISTRICT'S WARM SPRINGS EXTENSION,
ALAMEDA COUNTY, CALIFORNIA**

WHEREAS, the U.S. Department of Transportation, Federal Transit Administration (FTA) may provide funds for the design and construction of the San Francisco Bay Area Rapid Transit District's (BART) Warm Springs Extension (Undertaking), a proposed 5.4-mile addition to BART's present system to be built from the Fremont Station south to a new station in the Warm Springs district of the City of Fremont in Alameda County, California and illustrated in attachment A to this memorandum of agreement (MOA); and

WHEREAS, the FTA finds that the Undertaking will adversely affect archaeological site CA-ALA-343 and may adversely affect the Ford House (Historic Resource Inventory No. 138623) and the Gallegos Winery ruin, properties that the FTA has determined, in consultation with the California State Historic Preservation Officer (SHPO), to be eligible for inclusion in the National Register of Historic Places (National Register) and, therefore, historic properties as defined at 36 CFR § 800.16(l)(1); and

WHEREAS, the FTA has consulted with the SHPO in accordance with 36 CFR Part 800, the regulation that implements Section 106 of the National Historic Preservation Act (16 U.S.C. 470f), as amended (Act), and has notified the Advisory Council on Historic Preservation (Council) of the adverse effect finding pursuant to 36 CFR § 800.6(a)(1); and

WHEREAS, the FTA, after thoroughly considering alternatives to the Undertaking, has determined that the design constraints on the Undertaking preclude the possibility of avoiding adverse effects to archaeological site CA-ALA-343 during the Undertaking's implementation, has further determined that it will resolve, to the extent possible, the adverse effects of the Undertaking on CA-ALA-343, and, should the implementation of the Undertaking ultimately include the construction of Irvington Station, will also resolve, to the extent possible, the adverse effects on the Ford House and the Gallegos Winery ruin through the execution and implementation of this MOA; and

WHEREAS, BART has participated in this consultation and the FTA has invited the agency, pursuant to 36 CFR § 800.6(c)(2), to become a signatory to the MOA; and

WHEREAS, BART is responsible for implementing activities associated with the project, including compliance with section 106 regulations, FTA has delegated to BART the authority to work directly with the SHPO and others; and

WHEREAS, BART, as delegated by FTA, has been in consultation with The Ohlone Indian Tribe (Tribe) and continues to consult with the Tribe regarding the Undertaking

and its adverse effect on CA-ALA-343, and FTA has invited the Tribe, pursuant to 36 CFR § 800.6(c)(3), to concur in this MOA;

NOW, THEREFORE, the FTA and the SHPO agree that, upon FTA's decision to assist with the implementation of the Undertaking, the FTA shall ensure that the Undertaking is implemented in accordance with the following stipulations in order to take into account the effects of the Undertaking on historic properties, and further agree that these stipulations shall govern the Undertaking and all of its parts until this MOA expires or is terminated.

STIPULATIONS

The FTA shall ensure that the following measures are carried out:

I. AREA OF POTENTIAL EFFECTS

- A. The present area of potential effects (APE) for the Undertaking is depicted in attachment A, Figures 1-3. Figures 1-3 also depict the area of direct impact (ADI) for the Undertaking alternatives presently under consideration.
- B. If modifications to the Undertaking, subsequent to the execution of this MOA, necessitate the revision of either the APE or the ADI, BART shall consult with the SHPO on the adequacy of the subject revisions. If BART and the SHPO cannot reach agreement on the adequacy of the revisions, then BART and the SHPO shall resolve the dispute in accordance with section D of stipulation IV, below. If BART and the SHPO reach mutual agreement on the adequacy of the proposed revisions, then BART shall submit a final map of the revisions no later than 30 days following such agreement. Any additions to the APE that result from the application of the process in this stipulation shall be subject to the phased historic property identification process in the final version of the *Historic Properties Treatment Plan for BART Warm Springs Extension, Alameda County, California* (HPTP), which will be attachment B to this MOA and is described further in stipulation II below.

II. TREATMENT OF HISTORIC PROPERTIES

- A. BART shall prepare and implement a final version of the HPTP that concludes the phases of historic property identification that BART chose to defer until after FTA's approval of the Undertaking, provides for historic property identification in any areas added to the APE as a result of the process in section B of stipulation I, takes into account the adverse effect of the Undertaking on CA-ALA-343 and the potential adverse effect of the Undertaking on the Ford House and the Gallegos Winery ruin, and addresses any unanticipated effects or discoveries that may result from

the Undertaking's implementation. The final version of the HPTP will be the successor to the March 2005 draft of the plan, will reflect the input of the parties to this MOA, will be made final through consensus among the signatories to this MOA prior to the onset of any activity related to the Undertaking's implementation, will be appended to this MOA as attachment B, and will begin to be implemented prior to or concurrent with the onset of any activity related to the Undertaking's implementation.

- B.** 1. BART has submitted a March 2005 draft of the HPTP to the SHPO and FTA. [Please insert the names of those to whom the draft has been distributed]. These parties shall have 30 days from the execution of this MOA to comment. Failure to respond within this timeframe shall not preclude the FTA from finalizing the HPTP. Before it finalizes the HPTP, the FTA will provide the SHPO and the other MOA parties with documentation indicating whether and how any comments from these parties will be incorporated into the final HPTP. Unless the SHPO or the other MOA parties object to this documentation within 15 days following receipt, the FTA may finalize the HPTP as it deems appropriate, distribute copies to the other MOA parties, and thereafter proceed to implement the final HPTP.
2. Any party to this MOA may propose an amendment to the HPTP at any time. Such amendment will not require that the MOA be amended. Disputes regarding amendments proposed hereunder shall be addressed in accordance with section D of stipulation IV.
- C.** The final version of the HPTP will, at a minimum, address the following subject areas:
1. Deferred Historic Property Identification
- a. The HPTP will describe the methods that will be employed to complete the final phases of historic property identification. More specifically, the HPTP will build on the identification efforts completed to date (see attachment C) and will specify where and under what circumstances further efforts to identify significant archaeological deposits will take place.
- b. Within 30 days after BART has determined that all fieldwork required under stipulation II.A.1.a has been completed, BART will ensure preparation and concurrent distribution to the other MOA parties, for review and comment, a brief letter report that summarizes the rationale of the field efforts and the preliminary findings that are their result.
2. Resolving Adverse Effects on CA-ALA-343

a. The HPTP will describe research objectives and methods that will be employed to determine whether significant archaeological deposits associated with CA-ALA-343 are present in the APE that could be affected by the Project.

b. BART will implement the HPTP prior to construction-related ground disturbances. The specific areas of construction-related ground disturbance, which will be identified during final engineering design, will be incorporated into the testing portion of the HPTP, and those areas will be the focus of research, testing, and data recovery if deemed necessary, as described in the HPTP.

c. BART will consult with tribes and other interested Native Americans during the development of the HPTP to solicit their views on the contents of the HPTP, the public interpretation of the archaeological record, treatment of burials, and the scope of data recovery.

3. Resolving Adverse Effects on Built Environment Properties

a. Gallegos Winery

BART will stabilize and preserve in place, in accordance with the Secretary of the Interior's Standards, the structural remains of the winery and retain as many of the historic palm trees as feasible. The measure of feasibility will be the degree to which a palm tree or trees compromises the functional design of the optional Irvington Station. Specific plans for the protection and preservation of the winery will be described in detail in the HPTP. BART will make every prudent and feasible effort to incorporate the existing landscape features, including the aforementioned palm trees, into the proposed optional Irvington Station walkway and parking lot. An appropriate barrier or fencing will be placed between the proposed walkway/parking lot and the structural remains so that the site is protected, yet visible to the public. At the conclusion of the undertaking, BART will also display an interpretive plaque or sign near the winery ruin explaining the history and significance of the site, and why it is in the public interest to preserve and interpret the ruin.

b. The Ford House

BART will hire a qualified cultural resources management specialist to prepare photography and construction drawings of the Ford House. The photographs will be large-format (4"x5" or larger negative size) black and white style, and will be processed for archival permanence in accordance

with the Historic American Building Survey (HABS). Images of the building shall include contextual views of the building in its setting, elevation views, and details of character-defining features.

BART will also ensure the completion of a written historical and descriptive report for the Ford House. This report will provide a physical description and historical context for the building and discuss its significance under applicable NRHP criteria. The report will be prepared in accordance with the NPS *HABS/HAER Guidelines: HABS Historical Reports, October 2000*.

Copies of the documentation prescribed in this stipulation shall upon completion be retained by BART and also be provided to local historical societies (e.g. Alameda County) and to the Northwest Information Center of the California Historical Resources Information System at Sonoma State University, Rohnert Park and to other interested parties upon request.

BART will rehabilitate the Ford House, if appropriate, and will explore adaptive reuse options for the building. All plans and specification for the undertaking shall be developed and executed in accordance to guidelines established in the "Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, and Restoring, and Reconstructing (1995). BART shall submit to SHPO for review and comment all plans and specifications that are prepared for this undertaking. BART shall also ensure that plans and specifications are modified in accordance with SHPO comments, if any.

4. Construction Monitoring, Unanticipated Effects, and Discovery

A. Extent of Archaeological Monitoring and the Role of the Archaeological Monitor

Archaeological monitoring will occur during the implementation of the Undertaking to ensure that any historic properties found in the APE are duly considered.

1. Procedures for monitoring excavation and sediment removal in the APE will be as follows:

- a. Excavation and sediment removal will be monitored at National Register eligible archaeological sites following completion of investigations conducted as part of the phased identification efforts described in stipulation II.A.1 above or as part of data recovery efforts

described in stipulation II.A.2, and in areas with high sensitivity for buried sites, as identified in the HPTP.

b. All archaeological monitors would check in with the Resident Engineer prior to entering the construction area. In addition, all monitoring activities would be reported daily on a Daily Monitoring Record form on each day that a monitor is present on site.

c. The number of monitors at any given area would be based on the level of archaeological sensitivity and construction effort as described in the HPTP.

2. The following portions of the APE would require an archaeological monitor:

a. The entire APE, in the vicinity of CA-ALA-343, from Walnut Avenue to Fremont Central Park where there would be considerable subsurface construction activity for both embankment footings and the subway that would begin north of Stevenson Boulevard and extend underneath Fremont Central Park.

b. Once the approximate site boundaries of CA-ALA-343 are determined during the phase identification efforts described in the HPTP, a buffer zone of 300 meters (980 feet) beyond the determined archaeological site boundaries of CA-ALA-343.

c. The subway excavations would be below the reach of backhoe testing and would extend to depths of at least 12 meters (40 feet). The upper levels of this excavation would take place in what is currently defined as young alluvium sediments, which have a high sensitivity for containing buried cultural resources.

d. All areas of construction in the ADI would be sampled by backhoe as described in stipulation II.A.1 of the HPTP. If it became evident that this was not feasible, areas below the reach of backhoe testing would also need to be monitored, wherever feasible and safe, as described in the HPTP.

B. Archaeological Monitoring Field Protocol

1. Monitors would carefully inspect spoils and vertical cuts (as safety conditions permit) for archaeological evidence. If potentially significant resources were encountered, the archaeological monitor may temporarily halt or redirect construction activities surrounding the discovered resources that

require further investigation to determine significance. The newly discovered resource may also be fenced off to protect it from vandalism and inadvertent intrusions by machinery.

2. Testing and evaluation of the discovered resource would be implemented following procedures described in the HPTP. The manual excavation methods employed would depend on several factors, including site structure and the type of materials present. If historic properties are identified during monitoring that are in danger of being disturbed by construction, and the SHPO concurs in the National Register status of such properties, then it would be necessary to recover data from those properties, following procedures described in the HPTP. However, if identified properties were determined not to be eligible for the National Register based, in part, on criteria of integrity identified in the HPTP, subsurface investigation would cease at the testing and evaluation phase.

3. Construction activities must avoid any archaeological discovery until the project archaeologist indicates in writing that the site area avoidance fencing can be removed and construction can resume in the area. This determination will be made in accordance with stipulation II.B.2.

4. Treatment of Human Remains. The MOA parties agree that human remains and related items discovered during the implementation of the terms of this MOA and of the undertaking will be treated in accordance with the requirements of § 7050.5(b) of the California Health and Safety Code. If, pursuant to § 7050.5(c) of the California Health and Safety Code, the county coroner/medical examiner determines that the human remains are or may be of Native American origin, then the discovery shall be treated in accordance with the provisions of §§ 5097.98 (a) - (d) of the California Public Resources Code. The FTA will ensure that to the extent permitted by applicable law and regulation, the views of the Most Likely Descendant(s) are taken into consideration when decisions are made about the disposition of other Native American archaeological materials and records.

5. Reporting

a. Within 30 days after BART has determined that all fieldwork required under stipulation II has been completed, BART will ensure the preparation, and concurrent distribution to the other MOA parties, for review and comment, a brief letter report that summarizes the field efforts and the preliminary findings that result from them.

b. Within 24 months after BART has determined that all fieldwork required by stipulation II.A and II.B has been completed, BART will ensure preparation, and subsequent concurrent distribution to the other MOA parties, for review

and comment, a draft technical report that documents the results of implementing and completing the HPTP. The other MOA parties will be afforded 30 days following receipt of the draft technical report to submit any written comments to BART. Failure of these parties to respond within this time frame shall not preclude BART from authorizing revisions to the draft technical report, as BART may deem appropriate. BART will provide the other MOA parties with written documentation indicating whether and how the draft technical report will be modified in accordance with any comments received from the other MOA parties. Unless any MOA party objects to this documentation in writing to BART within 30 days following receipt, BART may modify the draft technical report, as BART may deem appropriate. Thereafter, BART may issue the technical report in final form and distribute this document in accordance with paragraph c. of this stipulation.

c. Copies of the final technical report documenting the results of HPTP implementation will be distributed by BART to the other MOA parties, to the Northwest Information Center of the California Historic Resources Information System (CHRIS) Regional Information Center, and to Native American parties subject to the terms of stipulation III.

6. Public Outreach

a. Public Interpretation. If appropriate, findings from the project will be interpreted through public exhibits and materials, which would be prepared by BART under the direction of the FTA. BART would propose particular interpretive products to all parties of the MOA in a letter. Consideration would be given in any public interpretation for the need to maintain confidentiality of location, character, and ownership pursuant to Section 304 of the NHPA and 36 CFR 800.11(c).

b. Professional Publications. BART will provide for the dissemination of the results of the HPTP's implementation among cultural resources professionals. BART shall encourage and support the preparation of publications or presentations for professional and popular journals discussing the findings gained from the research conducted for this project.

c. Document Review and Dissemination. The Historic Property Evaluation Report or Data Recovery Report, the Popular Report, and the Proposal for Public Interpretive Exhibits and Materials shall be completed within 2 years of completion of the construction monitoring. BART shall distribute a draft version of these documents to all MOA parties for their review and comment. The MOA parties would have 30 days in which to review the documents. BART would modify the documents in accordance with timely comments received from the reviewing parties. Failure of any party to comment within the

specified time frame shall not preclude BART from completing or issuing the documents in final form.

III. NATIVE AMERICAN CONSULTATION

BART, as delegated by FTA, has been in consultation with The Ohlone Indian Tribe (Tribe) regarding the Undertaking and its potential to affect historic properties, will continue to consult with the Tribe, and FTA has invited the Tribe to concur in this MOA. Should the Tribe desire to participate in the implementation of this MOA, the BART shall consult with the Tribe to reach consensus regarding the manner in which the Tribe may so participate, and regarding any time frames or other matters that may govern the nature, scope, and frequency of such participation.

IV. ADMINISTRATIVE STIPULATIONS

A. Professional Qualifications and Standards

1. **Professional Qualifications.** Pursuant to section 112(a)(1)(B) of the Act, the FTA shall ensure that all actions conducted under stipulation II of this MOA shall be carried out by or under the direct supervision of a person or persons meeting, at a minimum, the Secretary of Interior's Professional Qualifications Standards (48 FR 44738-39) (PQS) in the appropriate disciplines. However, nothing in this Stipulation may be interpreted to preclude any agent or contractor working on historical documentation from using the properly supervised services of persons who do not meet the PQS.
2. **Documentation Standards.** Written documentation of activities prescribed under stipulation II of this MOA shall conform to the Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716-40), as well as to standards and guidelines established by SHPO.
3. **Curation and Curation Standards.** The FTA shall ensure that, to the extent permitted under §§ 5097.98 and 5097.991 of the California Public Resources Code, the materials and records resulting from the activities prescribed by this MOA are curated in accordance with 36 CFR Part 79.

B. Confidentiality

All parties to this MOA acknowledge that information regarding historic properties covered by this MOA is subject to the provisions of section 304 of the Act, and § 6254.10 of the California Government Code relating to the disclosure of archaeological site information and, having so acknowledged,

will ensure that all actions and documentation prescribed by this MOA are consistent with said statutes.

C. Resolving Objections

1. Should any MOA signatory object to the manner in which the terms of this MOA are implemented, to any action carried out or proposed with respect to the implementation of the MOA, or to any documentation prepared in accordance with and subject to the terms of this MOA, the FTA shall immediately notify the other parties to this MOA of those objections, and shall consult with the objecting party and with the other parties for no more than 14 days to resolve the objection. Other MOA parties may also raise such objections through any of the signatories to the MOA. Any such signatories shall decide whether to raise the objections with the other signatories of the MOA. The FTA shall reasonably determine when this consultation will commence. If the objection is resolved through such consultation, the action subject to dispute may proceed in accordance with the terms of that resolution. If, after initiating such consultation, the FTA determines that the objection cannot be resolved through consultation, the FTA shall forward all documentation relevant to the objection, including the FTA's proposed response to the objection, to the Council, with the expectation that the Council will, within thirty (30) days after receipt of such documentation, do one of the following:
 - a. advise the FTA that the Council concurs in the FTA's proposed response to the objection, whereupon the FTA will respond to the objection accordingly. The objection shall thereby be resolved; or
 - b. provide the FTA with recommendations, which the FTA will take into account in reaching a final decision regarding its response to the objection. The objection shall thereby be resolved; or
 - c. notify the FTA that the objection will be referred for comment, pursuant to 36 CFR § 800.7(c), and proceed to refer the objection and comment. The FTA shall take the resulting comment into account, in accordance with 36 CFR § 800.7(c)(4) and section 110(1) of the Act. The objection shall thereby be resolved.
2. Should the Council not exercise one of the foregoing options within 30 days after receipt of all pertinent documentation, the FTA may assume the Council's concurrence in its proposed response to the objection and proceed to implement that response. The objection shall thereby be resolved.
3. The FTA shall take into account any Council recommendation or comment provided in accordance with section C.1 of this stipulation, with reference

only to the subject of the objection. The FTA's responsibility to carry out all actions under this MOA that are not the subjects of the objection will remain unchanged.

4. At any time during the implementation of the measures stipulated in this MOA, should an objection pertaining to such implementation be raised by a member of the public, the FTA shall notify the other MOA parties in writing of the objection and take the objection into consideration. The FTA shall consult with the objecting party and, if the objecting party so requests, with the other MOA parties for no more than fifteen (15) days. Within ten (10) days following closure of this consultation period, the FTA will render a decision regarding the objection and notify all consulting parties hereunder of its decision in writing. The objection will thereby be resolved. In reaching its decision, the FTA will take into account any comments from the consulting parties regarding the objection, including those of the objecting party. The FTA's decision regarding the resolution will be final.
5. The FTA shall provide the other MOA parties, the Council when the Council has issued comments hereunder, and any parties that have objected pursuant to section C.4 of this stipulation, with a copy of its final written decision regarding any objection addressed pursuant to this stipulation.
6. The FTA may authorize any action subject to objection under section D of this stipulation to proceed after the objection has been resolved in accordance with the terms of section C.

D. Amendment of the MOA

1. Any signatory to this MOA may propose that this MOA be amended, whereupon the MOA parties will consult for no more than fourteen (14) calendar days to consider the proposed amendment. The FTA may extend this consultation period. The amendment process shall comply with 36 CFR § 800.6(c)(7). This MOA may be amended only upon the written agreement of the signatories. If it is not amended, this MOA may be terminated by any signatory in accordance with section E of this stipulation.
2. The Treatment Plan, attachment B, may be amended through consultation as prescribed in section B of stipulation II without amending the MOA proper.

E. Termination

1. If this MOA is not amended as provided for in section D.1 of this stipulation, or if any signatory proposes termination of this MOA for other reasons, the signatory party proposing termination shall, in writing, notify the other MOA parties, explain the reasons for proposing termination, and consult with the other MOA parties for at least 30 days to seek alternatives to termination. Such consultation shall not be required if the FTA proposes termination because the Undertaking no longer meets the definition set forth at 36 CFR § 800.16(y).
2. Should such consultation result in an agreement on an alternative to termination, then the MOA parties shall proceed in accordance with the terms of that agreement.
3. Should such consultation fail, the signatory party proposing termination may terminate this MOA by promptly notifying the other MOA parties in writing. Termination hereunder shall render this MOA without further force or effect.
4. If this MOA is terminated hereunder, and if the FTA determines that the Undertaking will nonetheless proceed, then the FTA shall either consult in accordance with 36 CFR § 800.6 to develop a new MOA, or request the comments of the Council, pursuant to 36 CFR Part 800.

F. Duration of this MOA

1. Unless terminated pursuant to section E of this stipulation, or unless it is superseded by an amended MOA, this MOA will be in effect following execution by the FTA and the SHPO until the FTA, in consultation with the other MOA parties, determines that all of its stipulations have been satisfactorily fulfilled. This MOA will terminate and have no further force or effect on the day that the FTA notifies the other MOA parties in writing of its determination that all stipulations of this MOA have been satisfactorily fulfilled.
2. The terms of this MOA shall be satisfactorily fulfilled within seven (7) years following the date of execution by the FTA and the SHPO. If the FTA determines that this requirement cannot be met, the MOA parties will consult to reconsider the terms of this MOA. Reconsideration may include the continuation of the MOA as originally executed, amendment of the MOA, or termination. In the event of termination, the FTA will comply with section E.4 of this stipulation, if it determines that the Undertaking will proceed notwithstanding termination of this MOA.

3. If the Undertaking has not been implemented within seven (7) years following execution of this MOA by the FTA and the SHPO, this MOA shall automatically terminate and have no further force or effect. In such event, the FTA shall notify the other MOA parties in writing and, if it chooses to continue with the Undertaking, shall reinitiate review of the Undertaking in accordance with 36 CFR Part 800.

G. Effective Date of this MOA

Pursuant to 36 CFR § 800.6(c)(1)(i), this MOA shall become effective on the date that it has been fully executed by the FTA and the SHPO.

V. EXECUTION OF THIS MOA

Execution of this MOA by the FTA and the SHPO, its subsequent transmittal by FTA to the Council in accordance with 36 CFR § 800.6(b)(1)(iv), and subsequent implementation of its terms, shall evidence, pursuant to 36 CFR § 800.6(c), that this MOA is an agreement with the Council for the purposes of section 110(l) of the Act, and shall further evidence that the FTA has taken into account the effects of the undertaking on historic properties and has afforded the Council an opportunity to comment on the Undertaking and its effects on historic properties.

SIGNATORIES:

U. S. DEPT. OF TRANSPORTATION, FEDERAL TRANSIT ADMINISTRATION

By: _____ Date: _____
Leslie Rogers
Regional Administrator, Region IX

CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: _____
Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

INVITED SIGNATORY:

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

By: _____ Date: _____
Thomas E. Margro
General Manager

CONCURRING PARTY:

THE OHLONE INDIAN TRIBE

By: _____ Date: _____

Attachments:

- Attachment A-Revised APE Maps
- Attachment B-Historic Properties Treatment Plan for BART Warm Springs Extension
- Attachment C-Management Summary of Completed and Proposed Deferred Historic Property Identification

Appendix F

Section 4(f)/6(f) Consultation

Document F-1:

Letter to Fremont Unified School District from Jones & Stokes (June 3, 2004)

June 3, 2004

Therese Gain
Director of Facilities
Fremont Unified School District
4210 Technology Drive
Fremont, CA 84538

 **FAXED**
June 3 2004

Re: Request for Information

MAILED
June 3 2004

Dear Ms. Gain:

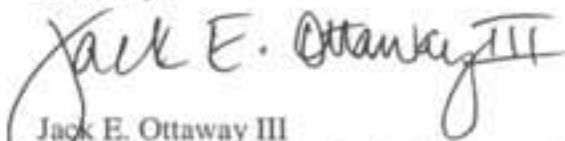
Our firm, Myra L. Frank / Jones & Stokes, is working with the Bay Area Rapid Transit District (BART) and the Federal Transit Administration (FTA) to prepare environmental documentation for the proposed BART Warm Springs Extension in the City of Fremont. In order to complete our review of parks and recreational facilities in the project area (including school playgrounds and athletic fields), we would greatly appreciate your assistance in providing the information listed below related to the playgrounds and athletic fields at two schools in the Fremont Unified School District: John Gomes Elementary School and Grimmer Elementary School.

Specifically, please provide the following information, if it is available:

- 1) Size of the playgrounds/athletic fields;
- 2) Facilities and programs available at these playgrounds/athletic fields;
- 3) Maps or site plans showing the location of the playgrounds/athletic fields in relation to other school facilities;
- 4) Availability of these facilities for after-hours use by the general public.

If you have any questions or need additional information, please feel free to contact either me or Shilpa Trisal at 213-617-5376.

Sincerely,



Jack E. Ottaway III
Project Manager / Senior Environmental Planner
Myra L. Frank / Jones & Stokes
jottaway@jsanet.com

**Document F-2:
Letter to National Park Service from BART (August 4, 2004)**



SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

300 Lakeside Drive, P.O. Box 12688
Oakland, CA 94604-2688
(510) 464-6000

James Fang
PRESIDENT

Dan Richard
VICE PRESIDENT

Thomas E. Margra
GENERAL MANAGER

DIRECTORS

Dan Richard
1ST DISTRICT

Joel Keller
2ND DISTRICT

Roy Nakadogawa
3RD DISTRICT

Carole Ward Allen
4TH DISTRICT

Peter W. Snyder
5TH DISTRICT

Thomas M. Blalock
6TH DISTRICT

Lynette Sweet
7TH DISTRICT

James Fang
8TH DISTRICT

Tom Radulovich
9TH DISTRICT

August 4, 2004

National Park Service
LWCF Grants Manager
Planning and Partnerships Team
Pacific Great Basin Support Office
1111 Jackson Street, Suite 700
Oakland, CA 94607

RE: BART Warm Springs Extension Environmental Impact Statement

Dear Sir/Madam:

Pursuant to the requirements of the National Environmental Policy Act (NEPA), the San Francisco Bay Area Rapid Transit District (BART) and the Federal Transit Administration (FTA) are currently preparing an Environmental Impact Statement (EIS) for the proposed BART Warm Springs Extension (WSX) project in the City of Fremont, California. I have attached the WSX project fact sheet and a map illustrating the WSX alignment.

As part of the NEPA process, BART and FTA are also preparing documentation required by Section 4(f) of the Department of Transportation Act of 1966 (*see* 49 USC §303) and Section 6(f) of the Land and Water Conservation Fund Act of 1965 (16 USC §4601-4 *et seq.*). (Herein referred to as "Draft Section 4(f)/6(f) Evaluation.")

As part of the preliminary research conducted for the Draft Section 4(f)/6(f) Evaluation, two Land and Water Conservation Fund Act (LWCF) grants have been identified for property and/or facilities in the vicinity of the WSX alignment. The two projects in the City of Fremont at Fremont Central Park that are known to have received LWCF grants are:

- 1973/74 - Central Park Bike Trail development \$14,456
- 1974/74 - Central Park Sports Complex \$95,562

In order to properly characterize the City of Fremont's park and recreation areas and document the potential effects of the WSX Extension on those recreation resources, BART and FTA respectfully request your response to the following initial items:

- (1) Please identify the name and title of the NPS official(s) to whom future correspondence should be directed.

- (2) Please confirm whether the above-noted LWCF grants are the only LWCF grants for property and/or facilities in the vicinity of the WSX alignment.
- (3) If possible, please provide a legal description and map of the property and/or facilities that were funded with the above-noted LWCF grants.

Please provide any additional information that you believe BART and FTA should consider as part of the Draft Section 4(f)/6(f) Evaluation. I would be happy to address any questions or concerns that you may have as this process moves forward. Please don't hesitate to contact me at (510) 874-7375 if you need additional information.

On behalf of BART and FTA, I sincerely appreciate your assistance with this matter, and look forward to working with you.

Sincerely,



Shari Tavaf Adams
Warm Springs Group Manager

Cc: Lorraine Lerman
Mike Davis

Attachments

BART

Warm Springs Extension



Visual Simulation of Proposed Warm Springs Station

Project Features

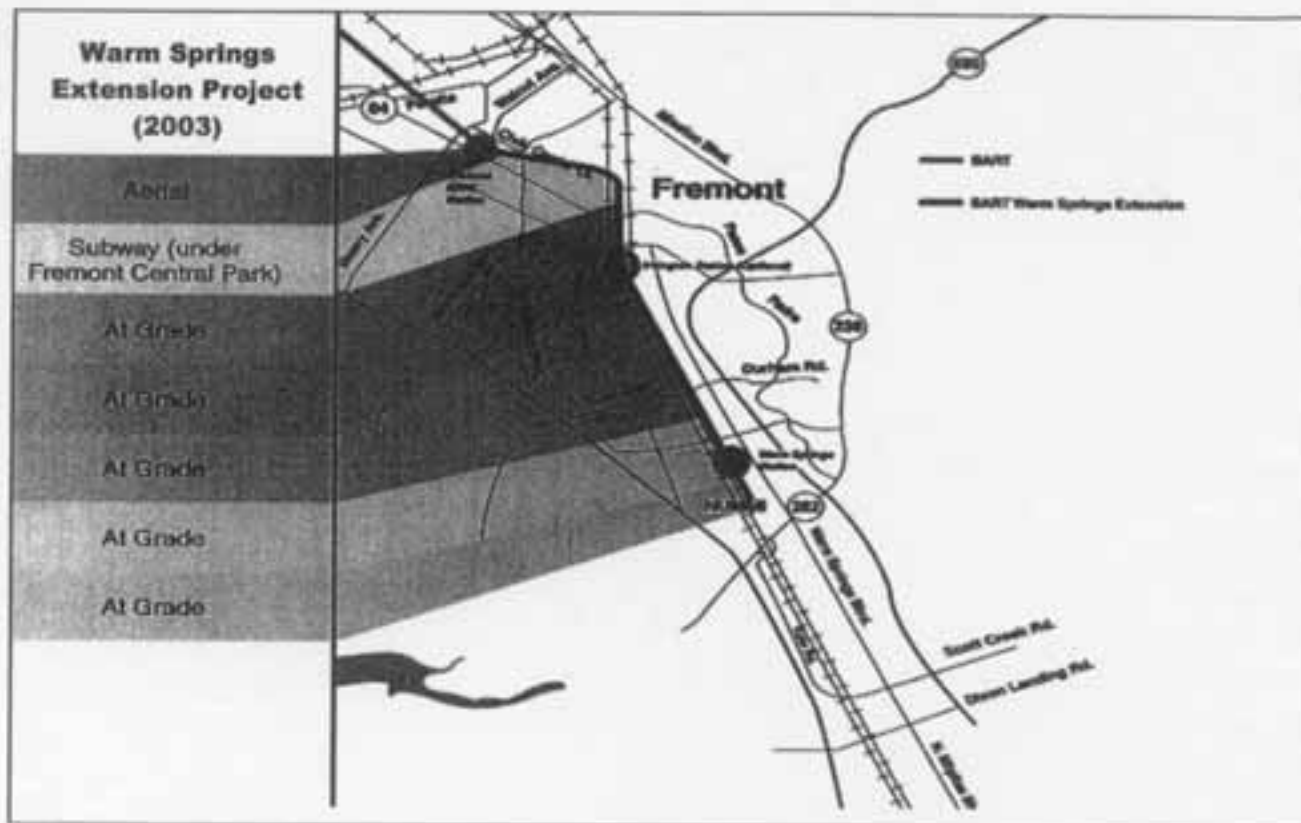
The Warm Springs Extension will add 5.4 miles of new tracks from the existing Fremont Station south to a new station in the Warm Springs District of the City of Fremont. An optional Irvington Station may be located approximately midway, in the heart of the Irvington District, if funding is obtained by the City of Fremont.

The project alignment consists of trackway on embankment (0.2 mile), on aerial structures (0.1 mile), subway (1.0 mile) and at-grade (4.1 miles).

The new Warm Springs station will feature an at-grade island platform with an overhead concourse, intermodal access to Santa Clara Valley Transportation Authority (VTA) and Alameda - Contra Costa Transit (AC Transit) buses, and taxi and "kiss and ride" passenger drop off areas, all accessible via Warm Springs Boulevard. A surface parking lot will provide approximately 2,000 parking spaces. Other features include full access for pedestrians and bicyclists, bike lockers, elevators, Braille signs and a tactile sight path to aid riders with disabilities.

The conceptual design for the optional Irvington station would feature at-grade platforms with an overhead concourse, fully accessible to pedestrians, bicyclists and riders with disabilities, with intermodal access to AC Transit buses, paratransit, taxi and "kiss and ride" passenger drop off areas. Approximately 960 surface parking spaces would be provided.





Project History

1991

BART prepared an Environmental Impact Report (EIR) under the California Environmental Quality Act (CEQA) for the Warm Springs Extension (WSX).

1992

BART Board of Directors certified the Final EIR and adopted a project. The project was not constructed at that time because funding was not available.

1994

Metropolitan Transportation Commission prepared the Fremont-South Bay Corridor Report, which analyzed alternatives for transit service, including a BART alignment.

November 7, 2000

Alameda County voters reauthorized Alameda County's transportation sales tax (Measure B) to provide funding for a series of transportation-related projects, including a BART extension from Fremont to Warm Springs.

June 26, 2003

BART Board of Directors certified the Final Supplemental EIR and adopted a revised project.

April 6, 2004

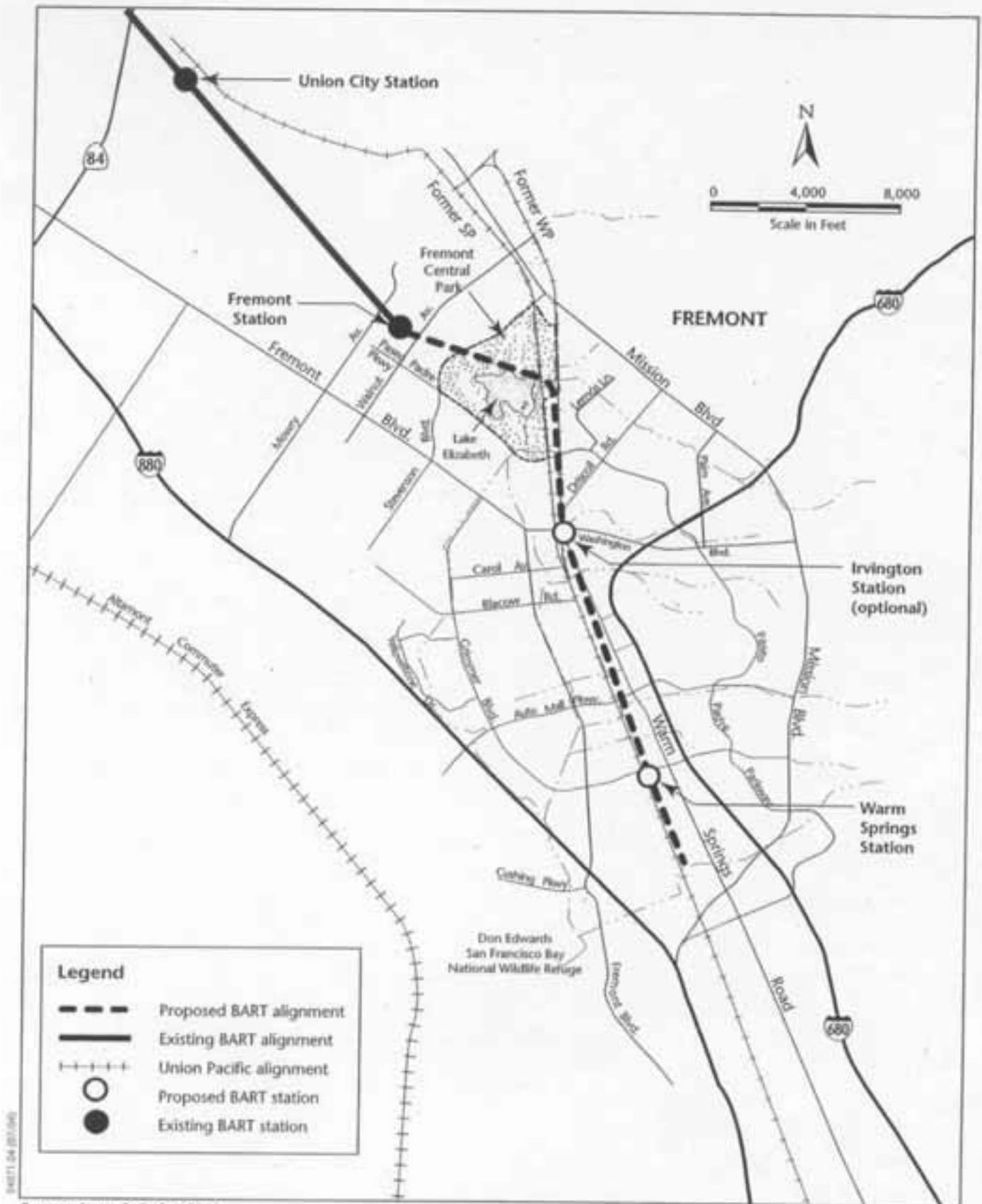
BART and the Federal Transit Administration issued a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) under the National Environmental Policy Act (NEPA).

Program Purpose

Improved transportation is critical for people living and working in southern Alameda County and northern Santa Clara County. In 2000, it was estimated that there were approximately 400,000 weekday automobile trips between the East Bay and Santa Clara County. By 2025, the Metropolitan Transportation Commission expects this number to exceed 500,000 vehicle trips.

To assist regional transit objectives, the goals of the Warm Springs Extension are:

- Improve public transportation service to increase mobility
- Generate additional transit ridership and reduce overall traffic congestion
- Maximize the use of public transportation, particularly during peak-commute periods
- Provide inter-modal transit hubs where rail, bus, automobile, bicycle and pedestrians meet
- Improve the regional transit network



Legend

- Proposed BART alignment
- Existing BART alignment
- - - - Union Pacific alignment
- Proposed BART station
- Existing BART station

Source: Jones & Stokes 2002.

WSX Alternative

**Document F-3:
Letter to Fremont Unified School District from BART (August 4, 2004)**



SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

300 Lakeside Drive, P.O. Box 12688
Oakland, CA 94604-2688
(510) 464-6000

James Fang
PRESIDENT

Dan Richard
VICE PRESIDENT

Thomas E. Margro
GENERAL MANAGER

August 4, 2004

Fremont Unified School District
Attn: Therese Gain, Director of Facilities
4210 Technology Drive
Fremont, CA 94538

DIRECTORS

Dan Richard
1ST DISTRICT

Joel Keller
2ND DISTRICT

Roy Nakadegawa
3RD DISTRICT

Carole Ward Allen
4TH DISTRICT

Peter W. Snyder
5TH DISTRICT

Thomas M. Blalock
6TH DISTRICT

Lynette Sweet
7TH DISTRICT

James Fang
8TH DISTRICT

Tom Radolovich
9TH DISTRICT

RE: Warm Springs Extension Environmental Impact Statement

Dear Ms. Gain:

Pursuant to the requirements of the National Environmental Policy Act (NEPA), the San Francisco Bay Area Rapid Transit District (BART) and the Federal Transit Administration (FTA) are currently preparing an Environmental Impact Statement (EIS) for the proposed BART Warm Springs Extension (WSX) project. I have attached the WSX project fact sheet and a map illustrating the proposed WSX alignment for your information.

As part of the NEPA process, BART and FTA are also preparing documentation required by Section 4(f) of the Department of Transportation Act of 1966 (49 USC §303) and Section 6(f) of the Land and Water Conservation Fund Act of 1965 (16 USC §4601-4 *et seq.*). (Herein referred to as "Draft Section 4(f)/6(f) Evaluation.") An important component of the Draft Section 4(f)/6(f) Evaluation is the coordination and consultation effort conducted by BART and FTA with those agencies having jurisdiction over public parks and recreation areas in the vicinity of the WSX alignment. The publicly owned parks and recreational areas that are considered as part of the Draft Section 4(f)/6(f) Evaluation may include public school playgrounds and athletic fields, depending on whether the facilities in question serve only school activities and functions, or are also available for use by the general public. This correspondence serves as the formal initiation of the coordination and consultation specific to the Section 4(f)/6(f) process. This formal consultation and coordination will continue throughout the duration of the NEPA process.

In order to properly characterize the school district's playgrounds and athletic fields, and document the potential effects of the WSX alignment on those resources, BART and FTA respectfully request your response to the following initial items:

- (1) Please identify the name and title of the Fremont Unified School District official(s) to whom future correspondence should be directed.

- (2) Please confirm that the Fremont Unified School District is the agency that "has jurisdiction over" the playgrounds and athletic fields at Gomes Elementary School and Grimmer Elementary School, as defined in 23 CFR §771.135(a)(2)(c). Please identify any after-school recreational programs at these facilities administered by any other group(s) or agency(ies).
- (3) Please clarify whether the playgrounds and athletic fields at Gomes Elementary School and Grimmer Elementary School are used only for school activities and functions, or are they also available for use by the general public.
- (4) Please verify if the District has determined that the playgrounds and athletic fields at Gomes Elementary School and Grimmer Elementary School are "significant" publicly owned recreational areas. For purposes of the Draft Section 4(f)/6(f) Evaluation, the term "significant" means that, in comparing the availability and function of the recreational area (i.e., the playgrounds and athletic fields) with the park and recreation objectives of the community, the resource in question plays an important role in meeting those objectives.

Please feel free to provide any additional information that you believe BART and FTA should consider as part of the Draft Section 4(f)/6(f) Evaluation. I would be happy to address any questions or concerns that you may have as this process moves forward. Please don't hesitate to contact me at (510) 874-7375 if you need additional information.

On behalf of BART and FTA, I sincerely appreciate your assistance with this matter, and look forward to working with you.

Sincerely,


Shari Tavaif Adams
Warm Springs Group Manager

Cc: Lorraine Lerman
Mike Davis

Attachments

BART

Warm Springs Extension



Visual Simulation of Proposed Warm Springs Station

Project Features

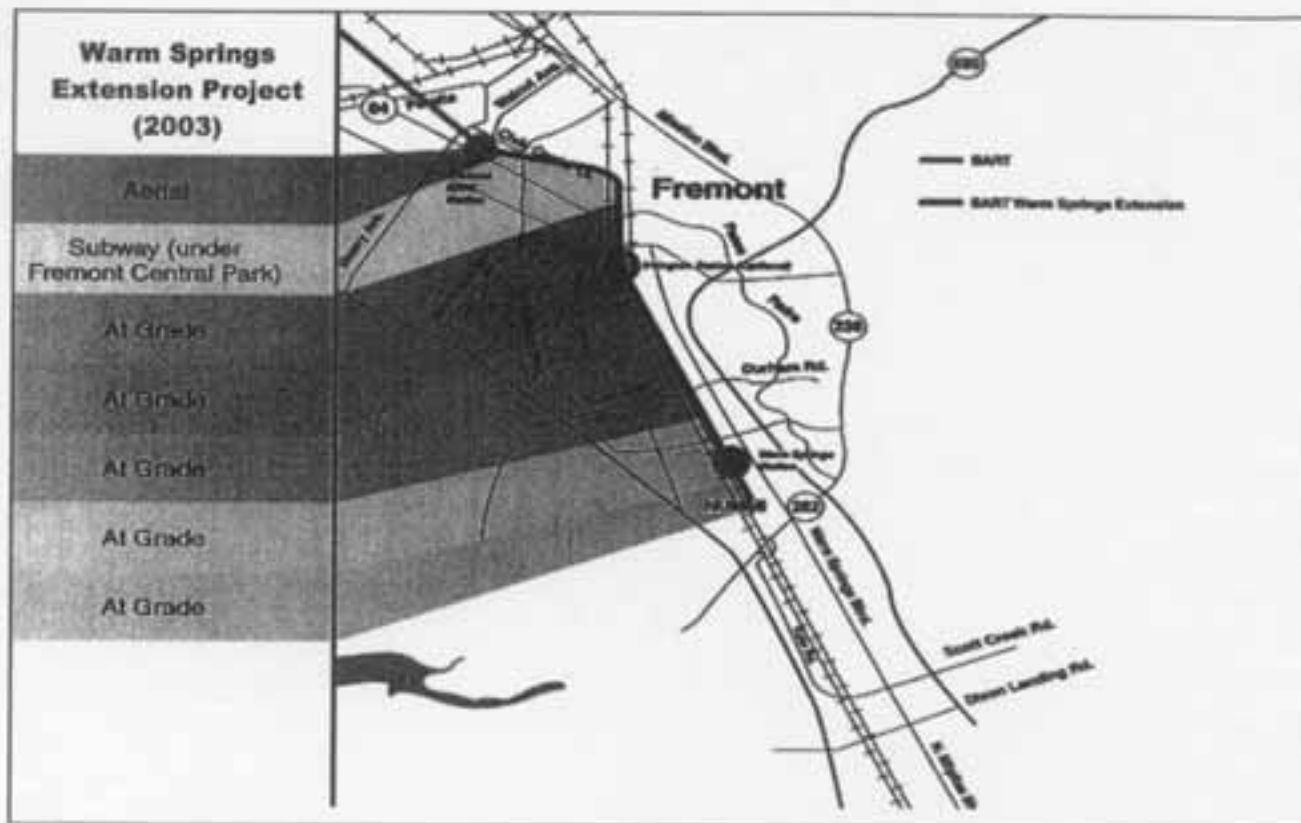
The Warm Springs Extension will add 5.4 miles of new tracks from the existing Fremont Station south to a new station in the Warm Springs District of the City of Fremont. An optional Irvington Station may be located approximately midway, in the heart of the Irvington District, if funding is obtained by the City of Fremont.

The project alignment consists of trackway on embankment (0.2 mile), on aerial structures (0.1 mile), subway (1.0 mile) and at-grade (4.1 miles).

The new Warm Springs station will feature an at-grade island platform with an overhead concourse, intermodal access to Santa Clara Valley Transportation Authority (VTA) and Alameda - Contra Costa Transit (AC Transit) buses, and taxi and "kiss and ride" passenger drop off areas, all accessible via Warm Springs Boulevard. A surface parking lot will provide approximately 2,000 parking spaces. Other features include full access for pedestrians and bicyclists, bike lockers, elevators, Braille signs and a tactile sight path to aid riders with disabilities.

The conceptual design for the optional Irvington station would feature at-grade platforms with an overhead concourse, fully accessible to pedestrians, bicyclists and riders with disabilities, with intermodal access to AC Transit buses, paratransit, taxi and "kiss and ride" passenger drop off areas. Approximately 960 surface parking spaces would be provided.





Project History

1991

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1992

BART Board of Directors certified the Final EIR and adopted a project. The project was not constructed at that time because funding was not available.

1994

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November 7, 2000

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June 26, 2003

BART Board of Directors certified the Final Supplemental EIR and adopted a revised project.

April 6, 2004

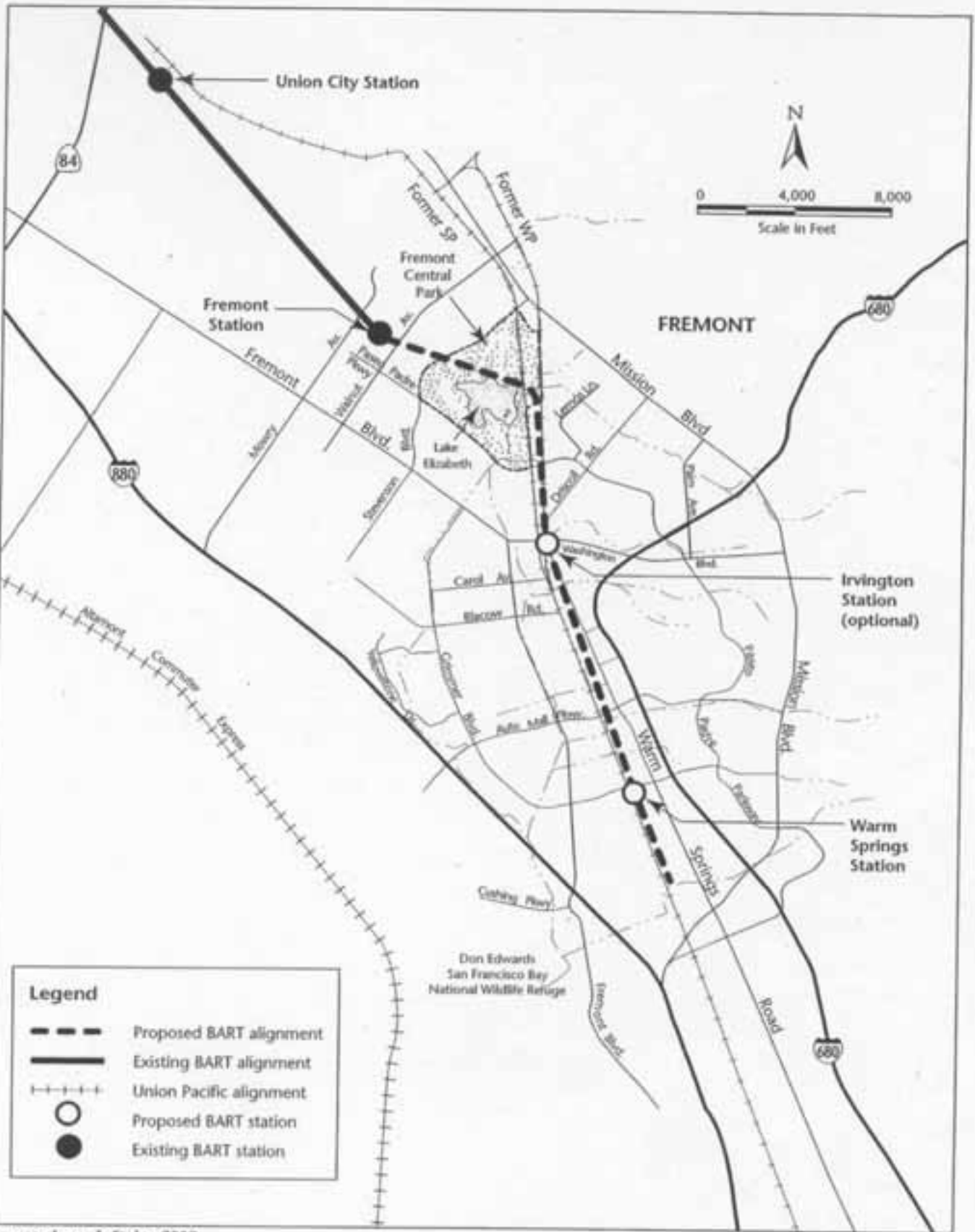
BART and the Federal Transit Administration issued a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) under the National Environmental Policy Act (NEPA).

Program Purpose

Improved transportation is critical for people living and working in southern Alameda County and northern Santa Clara County. In 2000, it was estimated that there were approximately 400,000 weekday automobile trips between the East Bay and Santa Clara County. By 2025, the Metropolitan Transportation Commission expects this number to exceed 500,000 vehicle trips.

To assist regional transit objectives, the goals of the Warm Springs Extension are:

- Improve public transportation service to increase mobility
- Generate additional transit ridership and reduce overall traffic congestion
- Maximize the use of public transportation, particularly during peak-commute periods
- Provide inter-modal transit hubs where rail, bus, automobile, bicycle and pedestrians meet
- Improve the regional transit network



04/01/04 (01/04)

Source: Jones & Stokes 2002.

WSX Alternative

**Document F-4:
Letter to City of Fremont from BART (August 4, 2004)**



SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

300 Lakeside Drive, P.O. Box 12688
Oakland, CA 94604-2688
(510) 464-6000

James Fang
PRESIDENT

Dan Richard
VICE PRESIDENT

Thomas E. Margro
GENERAL MANAGER

DIRECTORS

Dan Richard
1ST DISTRICT

Joel Keller
2ND DISTRICT

Roy Nakadegawa
3RD DISTRICT

Carole Ward Allen
4TH DISTRICT

Peter W. Snyder
5TH DISTRICT

Thomas M. Bialock
6TH DISTRICT

Lynette Sweet
7TH DISTRICT

James Fang
8TH DISTRICT

Tom Radulovich
9TH DISTRICT

August 4, 2004

City of Fremont
Attn: Amy Rakley, Park Planning Manager
3300 Capitol Ave., Bldg B
P.O. Box 5006
Fremont, CA 94537-5006

RE: BART Warm Springs Extension Environmental Impact Statement

Dear Ms. Rakley:

Pursuant to the requirements of the National Environmental Policy Act (NEPA), the San Francisco Bay Area Rapid Transit District (BART) and the Federal Transit Administration (FTA) are currently preparing an Environmental Impact Statement (EIS) for the proposed BART Warm Springs Extension (WSX) project. I have attached the WSX project fact sheet and a map illustrating the proposed WSX alignment for your information.

As part of the NEPA environmental process, BART and FTA are preparing documentation required by Section 4(f) of the Department of Transportation Act of 1966 (49 USC §303) and Section 6(f) of the Land and Water Conservation Fund Act of 1965 (16 USC §4601-4 *et seq.*). (Herein referred to as "Draft Section 4(f)/6(f) Evaluation.") An important component of the Draft Section 4(f)/6(f) Evaluation is the coordination and consultation effort conducted by BART and FTA with those agencies having jurisdiction over public parks and recreation areas in the vicinity of the proposed WSX alignment.

BART and the City of Fremont have already had, and will continue ongoing discussions about the WSX alignment and its relationship to Fremont's parks and recreation areas. This correspondence serves as the formal initiation of the coordination and consultation specific to the Section 4(f)/6(f) process. This formal consultation and coordination will continue throughout the duration of the NEPA process.

In order to properly characterize the city's park and recreation areas and document the potential effects of the WSX Extension on those resources, BART and FTA respectfully request your response to the following initial items:

- (1) Please identify the name and title of the city official(s) to whom future correspondence should be directed.

- (2) Please define the relationship between the City of Fremont and the Alameda County Flood Control District with respect to each agency's jurisdiction over Fremont Central Park. Please confirm that the City of Fremont is the agency that "has jurisdiction over" Fremont Central Park, as defined in 23 CFR §771.135(a)(2)(c).
- (3) Please confirm that the City of Fremont has determined that Fremont Central Park is a "significant" publicly owned park. For purposes of the Draft Section 4(f)/6(f) Evaluation, the term "significant" means that, in comparing the availability and function of the park or recreational area with the park and recreation objectives of the community, the resource in question plays an important role in meeting those objectives.

Please feel free to provide any additional information that you believe BART and FTA should consider as part of the Draft Section 4(f)/6(f) Evaluation. I would be happy to address any questions or concerns that you may have as this process moves forward. Please don't hesitate to call me at (510) 874-7375 if you need additional information.

On behalf of BART and FTA, I sincerely appreciate your assistance with this matter, and look forward to working with you.

Sincerely,



Shari Tavaf Adams
Warm Springs Group Manager
Transit System Development

Cc: Lorraine Lerman
Jim Pierson
Mike Davis

Attachments

BART

Warm Springs Extension



Visual Simulation of Proposed Warm Springs Station

Project Features

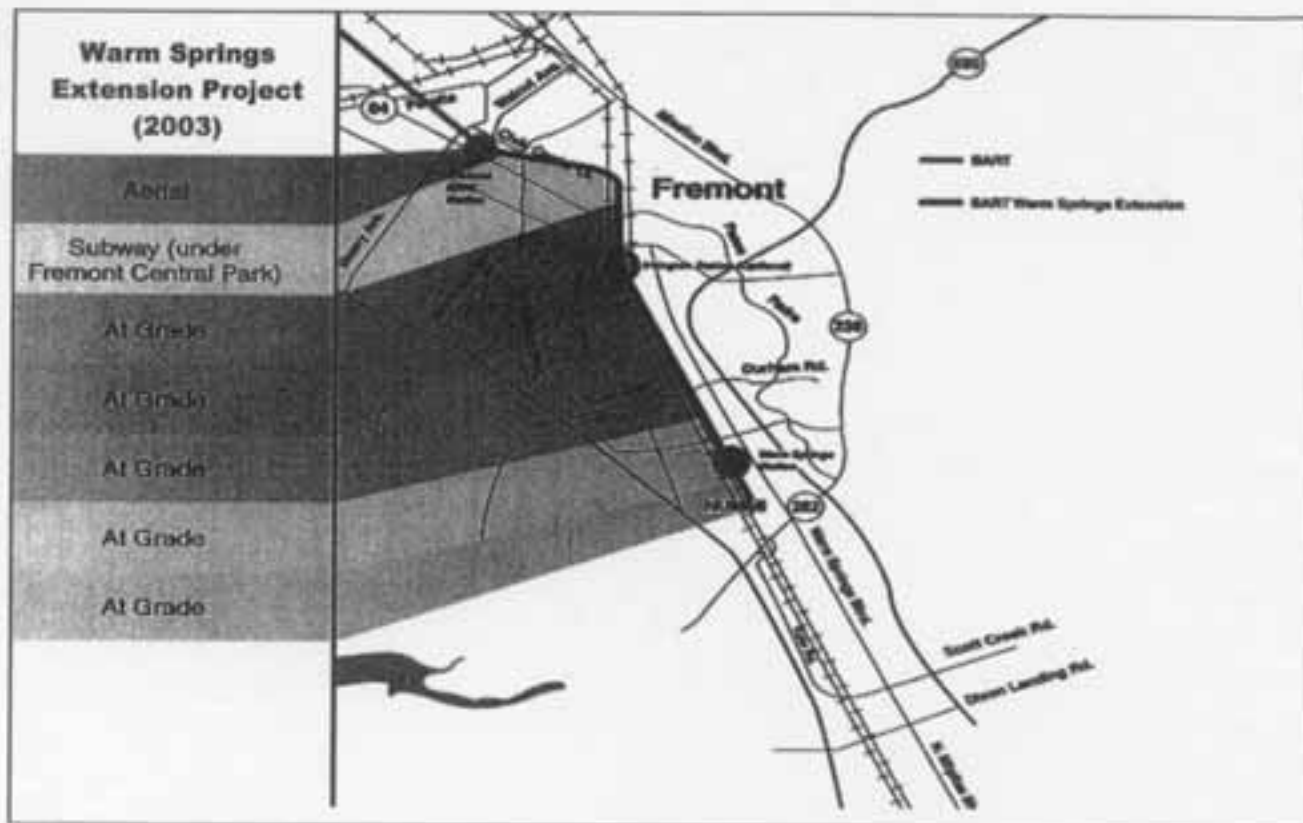
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April 6, 2004

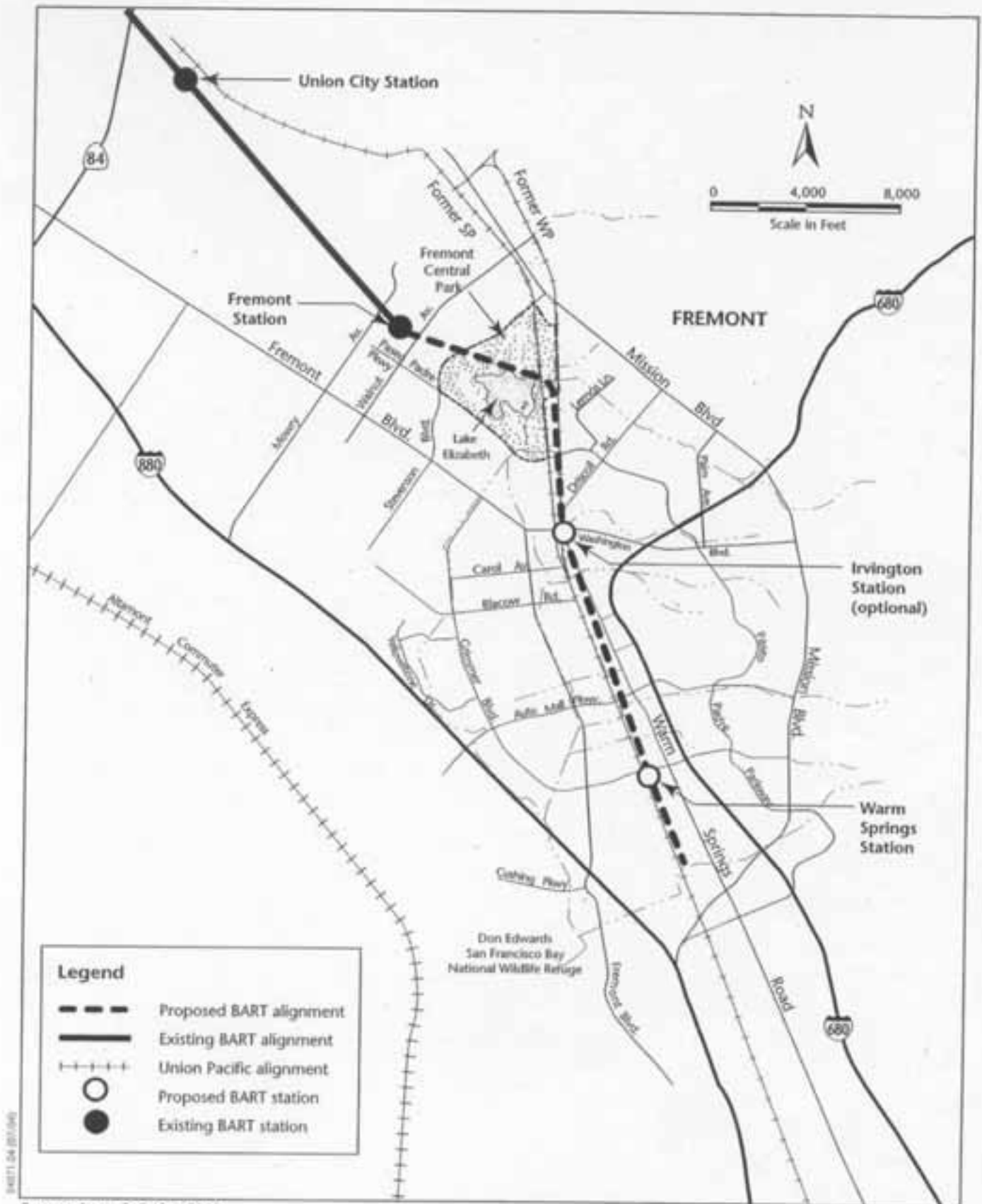
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- Improve the regional transit network



Source: Jones & Stokes 2002.

WSX Alternative

Document F-5:

Email to Jones & Stokes from National Park Service (September 29, 2004)

1111 Jackson Street, Suite 700
 Oakland, California 94607
 Voice (510) 817-1445
 FAX (510) 817-1505
 Email gary_munstroman@NPS.gov

National Park Service
 Federal Lands to Parks Program
 LWCF/UPARR Grant Programs

Fax Memo

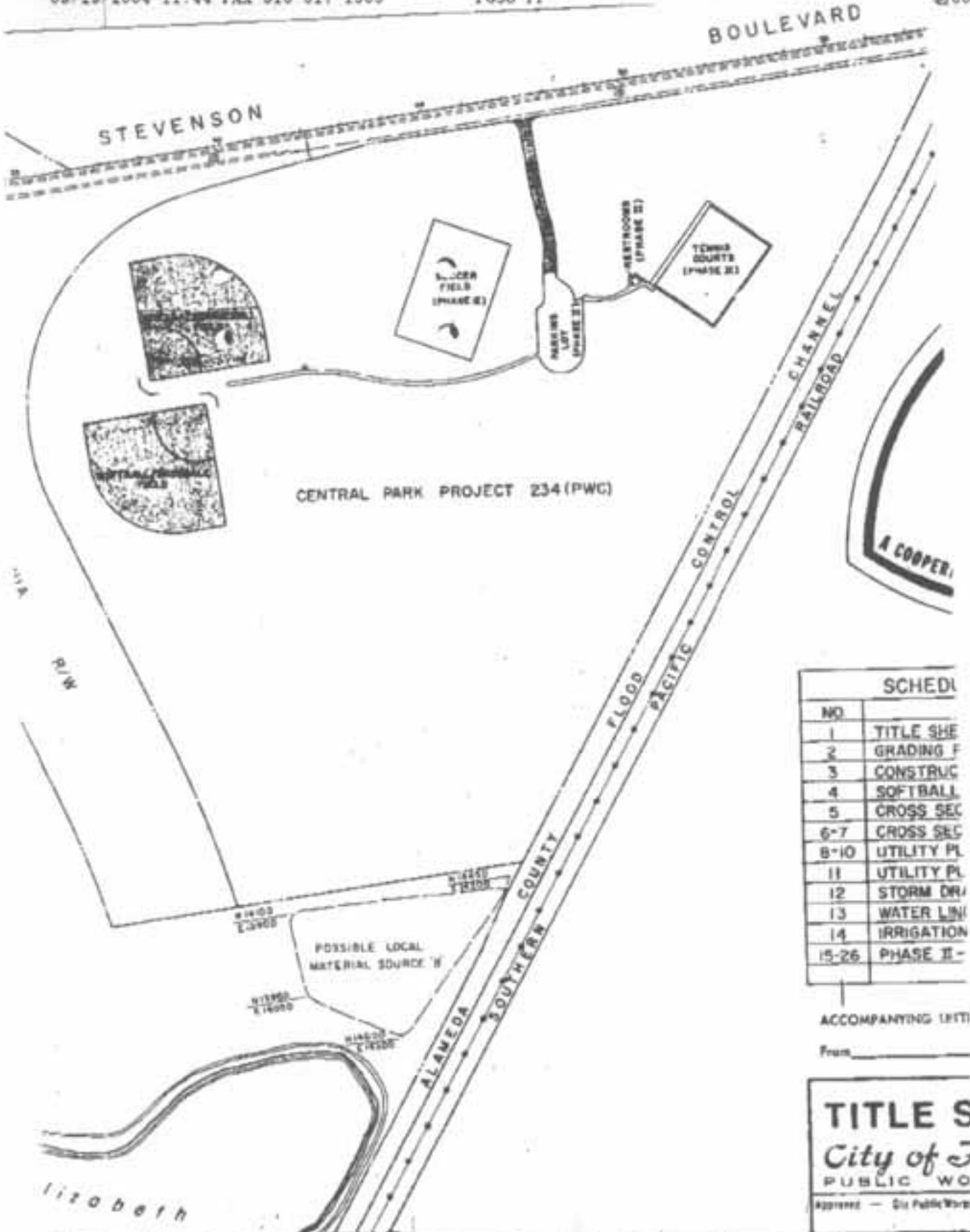
To:	Jack Ottaway, Jones and Stokes	From:	Gary Munstroman
Fax:	(213) 627-6853	Pages:	3
Phone:	(213) 627-5376	Date:	9/29/2004
Re:	Fremont Central Park LWCF Grants (06-00332 and 06-00394)	CC:	Richard Reardon, CDPR OGALS 916-653-6511

Urgent For Review Please Comment Please Reply As Requested

In follow-up to our phone conversation, attached are some map subsets generally showing the areas improved with the referenced grants. As I explained, the 6(f)(3) protected area has been mapped since the late 1970s, however both of these grants pre-date mapping requirements. The project area for the sports park project includes the entire northern area of the park. The bike path project appears to have constructed improvements along the east and northeast shore of Lake Elizabeth.

The National Park Service and the California Department of Parks and Recreation took an effective position in 1992 that the entire park acreage is protected by the 6(f)(3) and the effect of the area proposed for conversion must be considered on the remainder. From our conversation, we understand that BART, your client, has elected to propose construction of a subterranean section across Central Park, however a ventilation shaft with an above ground single story structure of upto 40' x 150' will be required within the park. It may be possible to qualify the subterranean section as an underground utility exempt from conversion. We request that as a part of your analysis you consider the noise impacts emanating from the proposed ventilation shaft on the park experience as well as the term of the disruption of park use during construction. At a minimum, the area effected by the ventilation shaft would be considered a conversion and require replacement with land of similar recreation utility and market value.

If you have further questions, regarding the procedures for considering a conversion, we request you consult with Richard Reardon, Project Officer with the California Department of Parks and Recreation at 916-651-7600.



CENTRAL PARK PROJECT 234 (PWG)

SCHEDULE	
NO	
1	TITLE SHE
2	GRADING F
3	CONSTRUC
4	SOFTBALL
5	CROSS SEC
6-7	CROSS SEC
8-10	UTILITY PL
11	UTILITY PL
12	STORM DRN
13	WATER LIN
14	IRRIGATION
15-26	PHASE II -

ACCOMPANYING (1871)
From _____

TITLE 5
City of
PUBLIC WORKS
 Approved - City Public Works

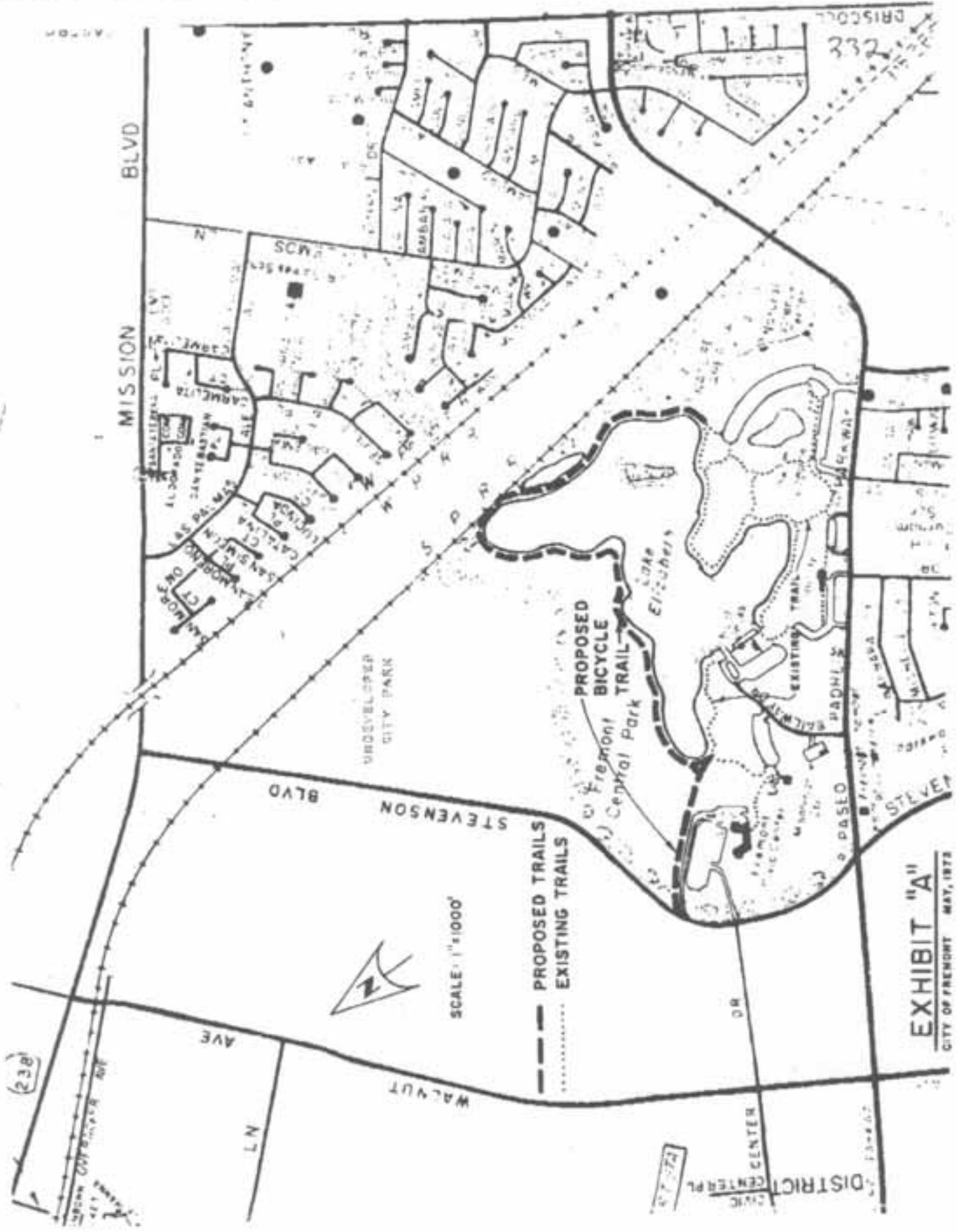


EXHIBIT "A"
 CITY OF FREMONT MAY, 1973

**Document F-6:
Letter to BART from City of Fremont (October 4, 2004)**



Parks and Recreation Department
 P.O. Box 5006, Fremont, CA 94537-5006
 www.fremont.gov

RECEIVED
 BART

OCT 06 2004
 TRANSIT SYSTEM
 DEVELOPMENT

October 4, 2004

Ms. Shari Tavaif Adams
 Warm Springs Group Manager
 Bay Area Rapid Transit District
 300 Lakeside Drive, P.O. Box 12688
 Oakland, CA 94604-2688

Dear Ms. Adams:

This letter is in response to your letter to the City of Fremont dated August 4, 2004, requesting information about the city's park and recreation areas that will be affected by the BART Warm Springs Extension project. Federal law, as described in your letter, requires this information as part of the NEPA environmental process.

The following provides the answers to the three items included in your letter.

1. Please direct all future correspondence to:

Mr. Jim Pierson
 Assistant City Engineer
 Development and Environmental Services
 39550 Liberty Street
 Fremont, CA 94538

2. Fremont's Central Park is 433.90 acres in size, of which: (a) the City of Fremont is the owner, in fee title, of 259.66 acres, and (b) the Alameda County Flood Control and Water Conservation District ("Flood Control District") is the owner, in fee title, of 174.24 acres, a considerable portion of which is Lake Elizabeth.

For the portion of Central Park owned in fee title by the Flood Control District, the City operates this property for park and recreation purposes pursuant to a long-term Real Property License Agreement between the parties which was originally executed on August 20, 1968. This Agreement confers upon the City "the license and privilege to use the Flood Control District's property for park and recreation use...for the purposes of improving, maintaining and operating them as public parks and recreational facilities". Although the current term of the Agreement expires on August 19, 2005, the parties are

Parks Division, Corporation Yard
 37350 Sequoia, Fremont
 510 713-5700 ph | 510 713-5708 fax

Recreation Division
 3300 Capitol Avenue, Building B, Fremont
 510 494-4339 ph | 510 494-4753 fax



Don,
 here is the response
 from City's Park &
 Rec. to our letter.
 Please send a copy to
 Ashok & to file after
 you share it w/ J&S.
 Thanks.
 Shari

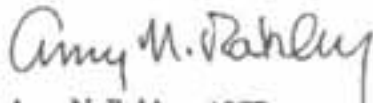
in the process of negotiating terms of an extension, which is anticipated to be a 25 year term with additional renewals at 10 year intervals.

Therefore, through both fee title ownership and the rights vested in the Real Property License Agreement, the City of Fremont is the agency having jurisdiction over Central Park.

3. The City of Fremont has determined that, in comparing the availability and function of the park area with the park and recreation objectives of the City of Fremont, Central Park plays a primary, unique and important role in meeting those public objectives, and is therefore considered to be "significant" for purposes of Section 4(f) of the Department of Transportation Act.

Please feel free to contact Jim Pierson or me if you have any further questions. I can be reached at (510) 494-4363; Mr. Pierson can be reached at (510) 494-4722.

Sincerely,



Amy N. Rakley, AICP
Park Planning Manager

C: Jim Pierson, Assistant City Engineer

Document F-7:

Email to Jones & Stokes from National Park Service (October 18, 2004)

1111 Jackson Street, Suite 700
 Oakland, California 94607
 Voice (510) 817-1445
 FAX (510) 817-1505
 Email gary_munsterman@NPS.gov

National Park Service
 Federal Lands to Parks Program
 LWCF/UPARR Grant Programs

Fax Memo

To:	Jack Ottaway, Jones and Stokes	From:	Gary Munsterman
Fax:	(213) 627-6853	Pages:	5
Phone:	(213) 627-5376	Date:	10/18/2004
Re:	Freemont Central Park 6(f) Determinations (06-00332 and 06-00394)	CC:	Richard Reardon, CDPR OGALS 916-653-6511

Urgent For Review Please Comment Please Reply As Requested

In follow-up to our phone conversation today, attached are some letters addressing the issue of the area of Freemont Central Park subject to 6(f)(3) protection under the Land and Water Conservation Fund Act. The combination of these determinations and the maps showing the area improved by each grant provided last month supports our judgment that that substantial portions if not the entire park area is subject to 6(f)(3) protection. Any replacement property acquired pursuant to the California Public Park Preservation Act of 1971 may also serve as replacement property for a 6(f)(3) conversion, provided the replacement property is of sufficient value and utility to offset park lands which are both directly and indirectly impacted. As indicated in the attached letters, and discussed in our prior message we will also require an assessment of the noise emanating from the proposed ventilation structures.

As we discussed today, we will also seek additional program direction on the temporary construction impacts and the anticipated duration of construction. We understand that the project's sub terrain construction will be by means of open trench could require as much as three years.

We are available to meet with BART, City and California State Parks staff. We would prefer such a meeting prior to a release of an EIS.

CHAPMAN

MURPHY

CHERRY

06-00332(WR-RG)
06-00392

September 15, 1992

Frank J. Wilson
General Manager
Bay Area Rapid Transit
800 Madison Street
Oakland, California 94604-2688

Dear Mr. Wilson:

On September 15, 1992, a staff representative attended a Special Meeting of the Board of Directors. Our attendance at the meeting was prompted by information we received regarding BART's proposed certification of the Final Environmental Impact Report for the Warm Springs extension. This project involves the construction of an aerial track aligned directly through Central Park and skirting Lake Elizabeth.

The purpose of this letter is to confirm that the City of Fremont received two grants from the Federal Land and Water Conservation Fund (L&WCF), and therefore, Central park is subject to the requirements of Section 6(f)(3) of the L&WCF Act which states:

"No property acquired or developed with assistance under this section shall, without the approval of the Secretary, be converted to other than public outdoor recreation uses. The Secretary shall approve such conversion only if he finds it to be in accord with the then existing comprehensive statewide outdoor recreation plan and only upon such conditions as he deems necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location."

NPS has authority to disapprove conversion requests and/or to reject proposed property substitutions. NPS is very concerned that the Board certified the Environmental Impact Report without considering the Land and Water Conservation Fund requirements in the analysis. Our office did not receive a copy of the report during the draft stages nor were we consulted with respect to the extension's impact on the park.

NPS will only consider a conversion when specific prerequisites have been met. The most significant of these being that all practical alternatives to the conversion have been evaluated and rejected on a sound basis and the fair market value of the property to be converted has been established and the property proposed for substitution is of at least equal fair market value. More specific information regarding these prerequisites is included in Chapter 675.9.3.B of the L&WCF Grants manual. A copy of Chapter 675.9 is enclosed for your information.

We are concerned the Board's approval and its intention to proceed with the construction of the Warm Springs Extension will be a violation of federal law. Please be advised that, if necessary, NPS will take action to uphold the provisions of the L&WCF Act. We hope this does not come to pass.

Sincerely,

(Sgd) John D. Cherry

John D. Cherry
Associate Regional Director
Resource Management and Planning

Enclosure

cc: Keith Steinhart, CA Dept. of Parks and Recreation
David Beckman, Heller, Ehrman, White & McAuliffe
Allen Sprague, City Attorney, Fremont

JChaplick:meg:9/15/92:744-3972:(JC\BART9.15)

(WR-RG)
06-00332

August 29, 1995

Kenneth Finney
Heller Ehrman White & McAuliffe
333 Bush Street
San Francisco, CA 94101-2878

Dear Mr. Finney:

Thank you for providing us with copies of the recent ruling by the California Supreme Court, *City of Fremont v. San Francisco Bay Area Rapid Transit District, et al.*, No. A066647 (1st Dist. May 19, 1995). The City of Fremont challenged a decision by the San Francisco Bay Area Rapid Transit District (BART) to certify a final environmental impact report (EIR) which was prepared in connection with BART's plan to extend one of its transit lines. Fremont opposed the project because part of the extension would run on elevated tracks through Central Park, the primary park for the citizens of Fremont.

Central Park was also developed with two grants from the Land and Water Conservation Fund. Lands acquired or developed with L&WCF assistance are protected by Section 6(f)(3) of the L&WCF Act which prevents their conversion to non-recreation use except where approved by the National Park Service and replaced with lands of equal market value and usefulness for recreation.

NPS is very concerned by statements made within the ruling which bring into question the accuracy of the Court's discussion of the Service's policy and guidelines under the Land and Water Conservation Fund Act. Language in the ruling appears to lump meeting the obligations of the L&WCF requirements with those of the California Public Park Preservation Act of 1971. The ruling states, "[T]he fact that moneys from the fund were used to improve Central Park was relevant only because it triggered an obligation from BART to replace any park land it should acquire with similar park land elsewhere. BART already had that obligation under the California Public Park Preservation Act of 1971, and it fully discussed its obligations under this parallel statutory scheme."

This is not accurate; the requirements of the L&WCF program are very specific and apply to property that is acquired and/or developed with grant funds. The L&WCF program further requires that "in the case of assisted sites which are partially rather than wholly converted, the impact of the converted portion on the remainder shall be considered. If such a conversion is approved, the unconverted area must remain recreationally viable or be replaced as well."

Due to the air, noise, and visual impacts, the converted area would include an area of the park much greater than the actual footprint of the tracks. NPS is very concerned that the Court ruling and BART does not accurately represent or acknowledge the L&WCF requirements. We recognize that BART has suspended all design work on the project because of a \$200 million shortfall in funding. However, should the project proceed, we believe it is important that BART be aware that the project will convert a substantial portion of the park and that replacement acreage at current fair market value will be required. Your assistance in making BART aware of the full impact of the Warm Springs Extension on Central Park and the Land and Water Conservation Fund requirements is requested.

Sincerley,

Joan Chaplick
Chief, Grants Branch

bcc: Ralph Mihan, Field Solicitor

Document F-8:

Email to Fremont Unified School District from Jones & Stokes (October 19, 2004)

Jack Ottaway III

From: Jack Ottaway III
Sent: Tuesday, October 19, 2004 12:33 PM
To: 'tgain@fremont.k12.ca.us'
Subject: BART Warm Springs Extension - Request for Information

Dear Ms. Gain:

I am writing to follow-up with the previous correspondence we sent to you earlier this summer regarding the proposed BART Warm Springs Extension in the City of Fremont. I believe that Mr. Donald Dean from BART has also spoken with you about the project.

As you may know, BART is considering an extension of their system from the existing Fremont station south to the Warm Springs area. As part of BART's efforts to comply with federal environmental requirements, we are assisting them in identifying potential impacts to local parks and recreation areas, including school playgrounds and athletic fields.

In order to ensure that we accurately describe the school playgrounds and athletic fields in the project area, we are hoping that you might be able to provide the following information for Gomes Elementary and Grimmer Elementary:

1. total size (acres) of the playgrounds and athletic fields;
2. brief description of facilities and programs available at these sites;
3. maps or site plans showing the location of the playgrounds and athletic fields in relation to other school facilities;
4. confirmation whether these school facilities are available for use by the general public (e.g., after school programs, joint recreation programs with the City, etc.)

Additionally, the letter that BART sent to you on August 4, 2004 requests certain other information about these facilities. If you did not receive this letter, I can arrange to have another copy sent to you.

On behalf of BART, we sincerely appreciate your time and effort in responding to this request. If you have any questions or need additional information, please feel free to contact me at 213-627-5376.

Jack Ottaway
Project Manager / Senior Environmental Planner
Myra L. Frank / Jones & Stokes
811 West 7th Street, Suite 800
Los Angeles, CA 90017
tel. 213-627-5376 fax. 213-627-6853
jottaway@jsanet.com

Document F-9:

Email from National Park Service to State Parks Department (November 12, 2004)

Jack Ottaway III

From: Gary_Munsterman@nps.gov
Sent: Friday, November 12, 2004 4:34 PM
To: darte@parks.ca.gov; trend@park.ca.gov
Cc: Jack Ottaway III; David_Siegenthaler@nps.gov
Subject: BART Warm Springs Extension Improvements in Fremont Central Park

The National Park Service has further reviewed the subject project in follow-up to our meeting with BART and city officials on November 2, 2004. The National Park Service's involvement in the project is as a result of two prior Land and Water Conservation Fund (LWCF) grants for improvements within Central Park; Grant Nos. 06-00332, providing for the improvement of a bike trail along the northern and eastern shore of Lake Elizabeth, and 06-00394, a grant which provided for the utility construction, installation of an irrigation system, construction of two baseball fields, and landscaping of a 5.83 acres in the northeast portion of the park. Section 6(f)(3) LWCF Act and General Provision I.1 of the grant agreement requires the use of the property for recreation use, except as otherwise provided for by the Director. The subject project improvements within Fremont Central Park, as presented at the November 2 meeting have been reviewed in accordance with the cited provisions and the program manual.

As discussed at the meeting, the subject grants were approved before the more recent practice of requiring the submission of 6(f)(3) maps delineating the areas improved with LWCF grant funds. Based upon the information contained within the referenced grant files and Section 6(f)(3) of the Act, we conclude that the area protected by this requirement includes the area in the vicinity of Softball fields 1 and 2, identified on the October 29, 2004 discussion map and the area in the vicinity of the Lake Elizabeth bike path, including the area located east of the bike path and the adjoining UPRR tracks. NPS considers these areas as being contained within "property ... developed with assistance under this section..." as contained within Section 6(f)(3). At your request, we have requested excerpts from our headquarters on former manual provisions addressing the application of Section 6(f)(3) however with no reply. We understand this interpretation to be consistent with program policy.

Based upon the statement of Michael Barrett, with the City of Fremont's City attorney office, we understand that a future road right-of-way (ROW) largely bisected the park at the time which the grant agreements were executed and later acquired by the city and made a part of the park. We agree that this right-of-way area is not a part of the property improved with LWCF grant. Our files show that the Lake Elizabeth portion of the park, containing the bike path is the subject of a license agreement between the city and the Alameda County Flood Control and Water Conservation District, originally executed in August 1968 for a ten year renewable term and expanded to 25 year renewable term in January 1972 to conform with LWCF program requirements. The original amended 25 year license has lapsed. Provided that the license has not been renewed, Section 6(f)(3) requirements for portions of the project permanently encroaching upon the property improved with the lakeside bike path project ceased with the expiration of the license pursuant to 36 CFR 59.1. If the license amended in 1972 remains in effect, NPS claims jurisdiction over permanent improvements on this property.

The license also references a Open Space Program grant through the Department of Housing and Urban Development used for the acquisition of the Lake Elizabeth property. Through our research, we determined that the requirements associated with this program were rescinded by Section 126(b)(3) of the Housing and Urban-Rural Recovery Act of 1983.

As discussed at the meeting, NPS consider the proposed subway portion of the BART project through the subject project to be excepted from conversion requirements pursuant to Manual Section 675.9.3.A.(5)(a). We consider public transit within an urban area to be a necessary public utility and understand that BART is subject to the safety regulations of the State Public Utilities Commission.

We are concerned about the temporary disruption of the recreation use of Fremont Central Park. As discussed at the meeting and site visit, we have obtained program policy direction that the limits on temporary nonconforming uses in Section 675.9.3 A (5) do not

apply to excepted underground utility projects. We further understand that the city and BART have designed measures which will minimize the loss of use during the construction period.

The proposed project within Central Park includes two above ground emergency ventilation/access structures. We consider the portion of one of these structures located near the existing ballfields to be encroaching by approximately 2400 s.f. into the 6(f)(3) area under protected under Grant No. 06-00394. The majority of the structure is located within the former road ROW and not subject to conversion requirements. The second structure, estimated to contain approximately 20,000 s.f., including associated parking, is also subject to a conversion pursuant to Section 675.3.9 and Grant No. 06-00332 unless the license under which the city obtained authority for the use of the property has been allowed to lapse.

During the meeting we discussed the potential noise emissions from these structures which we understand will extend to approximately 10' above grade. It was stated that the expected noise emission from these structures will be similar to a car passing at 100' feet. Based upon our understanding, the noise or other impacts do not appear to significantly diminish the recreation utility of the surrounding area, however we will reserve final judgement for the review of environmental documents.

A conversion for one or both ventilation/access structures will be subject to findings required by Section 675.9.3.B.(1). The Section 4(f) analysis should be sufficient in this regard. Following the on-site visit of the project site we visited the proposed replacement property, an area across the UPRR tracks, which we understand will be relocated in association with the subject project and containing slightly over 1 acre to be available for an expanded park area. Pending state review, NPS would find this area to be acceptable replacement property. We are investigating options to provide for the acceptance of currently available appraisal reports to provide for an expedited determination of equivalent value. We will provide further instructions in this regard shortly.

For purposes of the required environmental review for the applicable conversion, NPS seeks cooperating agency status, with an opportunity to review at a minimum the discussion of 4 (f) and 6(f) analysis of the proposed EIS.

If State Parks or BART's environmental consultant has any question regarding our preliminary findings reflected above, please reply or call.

Gary Munsterman
National Park Service
1111 Jackson Street, Suite 700
Oakland, CA 94607-4807
Voice 510-817-1445
Fax 510-817-1505

Document F-10:

Letter from State Parks Department to City of Fremont (December 1, 2004)



December 1, 2004

Amy Rakley
Park Planning Manager
City of Fremont
3300 Capitol Ave., Bldg. B
Fremont, CA 94537-5008

Re: DPR Project Number: Land and Water Conservation Fund (LWCF)
06-00332 – Central Park Bike Trail Dev.
06-00394 – Central Park Sports Complex Conversion

Dear Amy Rakely:

This is a follow up to our meeting on November 2, 2004 regarding the proposed BART Warm Springs Extension at Central Park.

After consultation with the National Parks Service (NPS), it has been determined that a portion of the proposed above ground ventilation structure will encroach into the sports complex by approximately 2,400 sq. ft. Therefore, this project is considered a conversion.

Enclosed, please find a copy of the email from Gary Munsterman (NPS), clarifying points raised in our meeting regarding the potential conversion. Also, enclosed is a copy of the Prerequisites to Consideration of Conversions; the responses to which must be submitted in writing to this office.

In addition, the following items are required for both the encroached area and the proposed replacement land:

1. Compliance with NEPA;
2. Appraisal(s) prepared conforming to Uniform Appraisal Standards for Federal Land Acquisitions (UASFLA). These appraisal(s) must be reviewed by an independent appraiser and certified that the appraisal meets UASFLA requirements. These standards can be found at <http://www.usdoj.gov/enrd/land-ack>;
3. Once the replacement property has been acquired, submit the recorded deed; and,
4. A 6(f)(3) boundary map that includes the revised project area including the replacement land. Please refer to the enclosed instructions.

Finally, in response to the NPS comments, please provide the status of the license agreement between the City and the Alameda County Flood Control and Water District. If the license remains in effect, the project area should be included in the 6(f)(3) Boundary Map.

If you have any questions, please feel free to contact me at (916) 651-7600, or by e-mail at rend@parks.ca.gov.

Sincerely,

Richard Rendón
Project Officer

Enclosures

cc: Gary Munsteman, NPS

Section 6(f)(3) Boundary Map

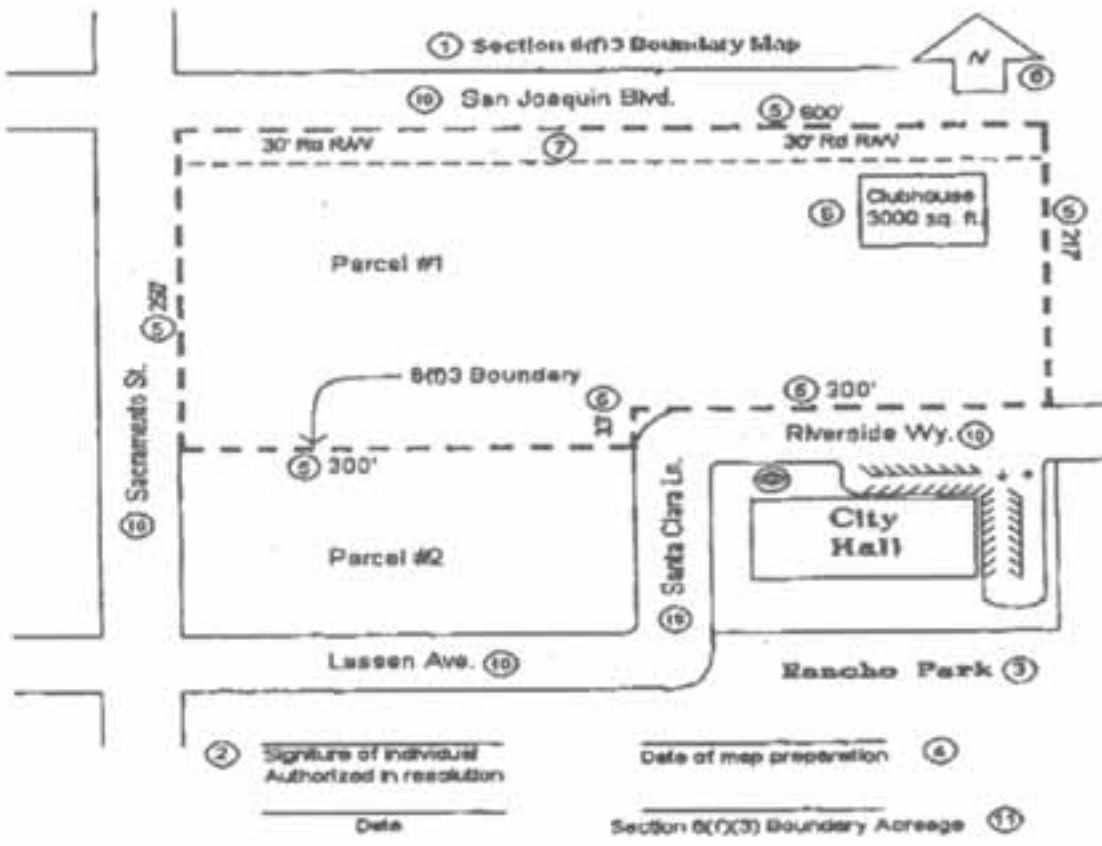
The 6(f)(3) Boundary Map should clearly delineate the area to be protected under Section 6(f)(3) of the LWCF program. The Project area must be readily accessible through a public corridor (i.e. parking lot, street, permanent public easement).

Land identified within the Section 6(f)(3) boundary must be retained in perpetuity for public outdoor recreation use.

At a minimum, this area must be a viable public outdoor recreation area which is capable of being self-sustaining without reliance upon adjoining or additional areas not identified in the scope of the project. Except in unusual cases where it can be shown that a lesser unit is clearly a self-sustaining outdoor recreation resource, this will be the area being developed or added to. Exceptions will be made only in the case of larger parks where logical management units exist. In no case will the areas covered by Section 6(f)(3) be less than that acquired with LWCF assistance.

Provide the following information on the Section 6(f)(3) boundary map:

1. Identify map as "Section 6(f)(3) Boundary Map"
2. Signature and date on map by the individual authorized in the resolution
3. Project Title
4. Date of map preparation
5. Clearly indicate the border of the Project area with measurements, to effectively illustrate the lands afforded Section 6(f)(3) protection. Border needs to incorporate access point(s).
6. If applicable, identify any pre-existing indoor structures that do not support outdoor recreation and provide the square footage of structure footprint.
7. If applicable, indicate any outstanding rights and interest in the area: easements, deed/lease restrictions, reversionary interest, right of way, etc.
8. North arrow
9. If applicable, indicate any area(s) under federal lease(s) with term of at least 25 years remaining on the lease(s)
10. Indicate adjoining street names
11. Indicate total acreage within the Section 6(f)(3) Boundary Map.



Document F-11:

Email from City of Fremont to National Park Service (December 2, 2004)

Jack Ottaway III

From: Jim Pierson [jpierson@ci.fremont.ca.us]
Sent: Thursday, December 02, 2004 9:37 AM
To: Gary_Munsterman@nps.gov
Cc: ddean@bart.gov; DHill@bart.gov; pmedved@bart.gov; SAdams@bart.gov; Afshin Abtahi; Amy Rakley; Michael Barrett; Jack Ottaway III
Subject: BART Warm Springs Extension Project in Fremont

Hi Gary,

It was a pleasure meeting you last month to discuss the issue of the BART Warm Springs Project within Fremont Central Park. I received a copy of the e-mail you sent to Jack Ottaway of Jones and Stokes following up on the meeting and your subsequent site visit. I appreciate getting your early indications of how the NPS will likely be involved in the project.

I was wondering if you could give me an indication of the next steps in the process and your estimated timing of those steps. In particular, I am interested in finding out the amount of replacement park property you feel will be required to meet NPS conversion requirements. Also, you mention that you were investigating options to provide for the acceptance of currently available appraisal reports to provide for an expedited determination of equivalent value for our proposed replacement site. I was wondering when you thought you might have that determination completed.

Although the BART project is still moving through the NEPA process, the City would like to move forward on any NPS requirements as quickly as possible so we can determine if our currently identified site meets NPS conversion requirements or whether we need to continue to work with BART to identify other possible replacement sites.

I greatly appreciate your continued help to expedite this process.

Please feel free to contact me directly if you need anything from the City.

Jim Pierson
(510) 494-4722

Document F-12:

Email from National Park Service to City of Fremont (December 3, 2004)

Jack Ottaway III

From: ddean@bart.gov
Sent: Friday, December 10, 2004 5:19 PM
To: Jack Ottaway III
Subject: Fwd: Re: BART Warm Springs Extension Project in Fremont

----- Message from Gary_Munsterman@nps.gov on Fri, 3 Dec 2004 17:28:17 -0800 -----

To: "Jim Pierson" <jpierson@ci.fremont.ca.us>

cc: rrend@parks.ca.gov,
David_Siegenthaler@nps.gov

Subject: Re: BART Warm Springs Extension Project in
Fremont

Jim - I have recently received a copy of a letter to Amy Rakley from California State Parks concerning the conversion. California State Parks has the ultimate responsibility for compliance with grant contract requirements as the grantee for the prior improvement projects at Central Park. State Parks assigned the grants to the city for execution.

There are two points in the state's letter which may need clarification; as explained at the meeting, NPS considers both proposed BART ventilation structures to encroach into the 6(f)(3) protected area, however the northern most structure (in the parking area) involves minimal encroachment due the fact that most of the structure is within the former right-of-way which was acquired by the city after the date of the grant.

The southern most structure (adjoining the current property boundary) is within a 6(f)(3) protected area only to the extent that the 1972 agreement with Alameda Flood Control District remains in effect as explain in an attachment to the state park's letter.

In consideration of the relatively minor land area involved in conversion relative to the proposed larger replacement property (1+ acre) and in recognition of prior completed appraisal work, NPS is willing to consider the prior prepared appraisal in lieu of the preparation of additional valuation reports in conformance with UASFLA standards as specified in the state letter. Upon review of prior completed reports, NPS will determined if additional appraisal analysis is needed to demonstrate that the proposed replacement property has equal or greater market value as required by Section 6(f)(3) of the Land and Water Conservation Act.

Based upon our site inspection on November 2 and your explanation of the proposed railroad

relocation project, we find that the replacement property will have equal or greater recreation utility as the area proposed to be occupied by the ventilation structures within the park. In the event that the requested appraisal report does not identify the railroad relocation project on the proposed replacement property, we request that such a sketch be provided in response to state park's letter for forwarding to NPS. Following our review this sketch may be refined into a 6(f)(3) boundary map requested by state parks. A written response to state parks indicating the city's support and request for the proposed conversion as indicated on the map provided by BART at the November 2 meeting would also be useful.

Following the completion of the NEPA review by BART on behalf of the Federal Transit Administration, which NPS has requested to be a cooperating agency to, final acceptance of appraisals, and the city's submission of revised 6(f)(3) boundary maps, as requested by State Park, NPS will execute grant amendments which will release the ventilation structure locations from park use restrictions.

Gary Munsterman
National Park Service
1111 Jackson Street, Suite 700
Oakland, CA 94607-4807
Voice 510-817-1445
Fax 510-817-1505

Jim Pierson

<jpierson@ci.fremont.ca.us> To: <Gary_Munsterman@nps.gov>
<DHill@bart.gov>, <pmedved@bart.gov>, <SAdams@bart.gov>, <ddean@bart.gov>, <AAbtahi@ci.fremont.ca.us>, *Afshin Abtahi*
"Amy Rakley" <Arakley@ci.fremont.ca.us>, 12/02/2004 09:37 *Michael Barrett*
<MBarrett@ci.fremont.ca.us>, <jottaway@jsanet.com>
AM PST Subject: BART Warm Springs
Extension Project in Fremont

Hi Gary,

It was a pleasure meeting you last month to discuss the issue of the BART Warm Springs Project within Fremont Central Park. I received a copy of the e-mail you sent to Jack Ottaway of Jones and Stokes following up on the meeting and your subsequent site visit. I appreciate getting your early indications of how the NPS will likely be involved in the project.

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I greatly appreciate your continued help to expedite this process.

Please feel free to contact me directly if you need anything from the City.

Jim Pierson
(510) 494-4722